

Backflow Value Updates

This is a compendium of all the *Backflow Valve Updates* that have been published to date.

If you have any comments or questions about them or if you or your colleagues would like to receive future *Updates*, which are published monthly, please contact me.

I appreciate your interest.

Thank you,

A handwritten signature in black ink that reads "David Brown". The signature is written in a cursive style with a long, sweeping tail on the letter "n".

David Brown
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Backflow Valve Update # 1

January 24, 2010

It has now been over six months since the Florida Dept. of Environmental Protection (DEP) held its last rule development workshop to revise 62-550 & 62-555 for backflow valves. At that time, DEP said they planned to have the “Notices of Proposed Rule” in place by October of 2009, the Secretarial Hearing by November of 2009 and the Adoption by December of 2009.

Of course, none of that has come to pass. So I suggested to the DEP that maybe they should issue user-friendly status reports to keep everyone updated and informed. Unfortunately, they seem to have rejected that idea.

Having attended the last four workshops ¹, here is an update as best I know. ²

First of all, the attendees were in unanimous praise of the DEP’s revising the rules.

And several attendees congratulated the DEP for dropping the word “potential” from the revised rules’ definition of a cross-connection.

The specific written and verbal comments by water utility officials at the workshops centered on concerns over their budgets and their legal jeopardy.

Utility Budgets

There was a general consensus among workshop participants that since the DEP's rules are an unfunded mandate, they are just too costly to implement, particularly in view of their current budget woes. One utility summed it up by stating: “We now have negative financial issues which are crippling our ability to pay for such a program.”

¹ Sanford (2/18/2009), Temple Terrace (7/8/2009), West Palm Beach (7/9/2009) and Tallahassee (7/21/2009).

² The DEP was made aware of the contents of this *Update* and offered no corrections. However, they have asked me to make it perfectly clear to you that I am *just* a concerned citizen and am “not authorized to communicate on their behalf.” Of course, if they won’t keep you updated, I guess I’m the only voice in town. ;-). In the absence of periodic updates from the DEP, my goal is to publish these *Updates* monthly.

The rules related to taking a census of all customers received a number of negative comments. Many questioned the cost, need and accuracy of such a census. The question of trespassing was also raised.

The rules related to the change-out of Dual Check valves every five years, instead of at meter change-out time, received a number of negative comments. Many questioned the need to change them that often in view of the costs to hire a number of extra employees just to do that one task. They also questioned the need, based on the empirical testing done in Palm Beach County (whose representatives did show-and-tell at several of the workshops) that showed that Dual Checks function properly even after ten years.

Also receiving a great number of negative comments was the cost to do all of the paperwork that the revised rules require.³ One utility described the program activities reports as “potentially overwhelming in scope” and proposed that the reporting be “limited to commercial establishments, which we believe pose the greatest risk.”

There was almost universal agreement among the workshop attendees that the timelines established by the DEPs regulations were costly and unrealistic.

Legal Jeopardy

At the Tallahassee workshop, one utility official questioned the legality of DEP’s mandating an unfunded mandate on local governments that have been granted Home Rule under Article 8 of the Florida Statutes, because they are special districts and have legal responsibilities for water quality.

This same utility officer also asked if the DEP would be funding their regulations as part of the grant program under Florida Statute 403.885.⁴

³ Ironically, the DEP’s John Sowerby, who wrote the rules, actually has doubts about the honesty of utility employees to do the paperwork that he’s mandating. At the Sanford workshop in February of 2009, he said: “I know that we have a lot of water system personnel in the audience. Don’t be offended but it’s obvious that there is a dis-incentive for water systems to make public these incidents even when they’re aware of them because of liability and consumer confidence issues.” To hear the actual audio of his making that statement, go to www.backflowvideos.org - click on “Dishonest Water Utility Employees”.

⁴ Cynthia Christen with the DEP’s Office of General Counsel promised to get back to him, and to me, with the answers to both questions. Even though that was over six months ago, she has yet to provide any information, despite repeated requests.

One utility suggested that the DEP should do a comprehensive cost analysis of the whole CCC program's impact on both Florida businesses and Florida homeowners.

A utility stated their intention to move to AMRs (Automatic Meter Reading water meters) via "a phased program for the installation of AMR ready meters, which can be made fully operational later, when the economy rebounds." Since that particular utility has a reputation for legal foresight, they sought a clause in the revised rules that would protect them from having to purchase or reimburse homeowners for RPs that had previously been required to be installed.

One utility noted the conflict between the Building Code and the Cross-connection Control requirements. The Florida Statutes are a codified document. But all that customers see are conflicting regulations coming from their utility. The speaker felt that the Building Code requirements should be codified to respect the "broader context" of the DEP's regulations.

The legal point of selective enforcement was raised. Since utilities are typically responsible for delivering a potable product to the customer's property, a neighbor without an auxiliary water system, and therefore without an RP, could jeopardize the integrity of the utility's product during a negative pressure event causing a tainted product to be delivered back into the mains. The question was asked; shouldn't all homeowners be treated the same for legal and public relations purposes? ⁵

RP terrorism and pranks

At all four workshops, I spoke to my favorite point that RPs and Double Check valves are an expensive solution to a problem that simply doesn't exist, since there has never been a single death in Florida caused by a backflow incident. ⁶ I know of sixteen reasons why RPs ⁷ should be banned from residential areas. Of course, two reasons are their initial cost (\$400-\$700) and their annual testing (\$45 to \$800+).

Even more worrisome is that the RPs test ports provide direct access to the public water supply which makes them the perfect vehicle for backflow pranks and terrorism. ⁸

⁵ Go to www.backflowvideos.org - click on "Double Standard".

⁶ Go to www.backflowvideos.org - click on "Ethics".

⁷ Double-check valves must also be banned from residential areas for the same sixteen reasons. All sixteen reasons will be discussed in "Backflow Valve Update # 2" coming in late February.

⁸ Go to www.backflowvideos.org - click on "Demonstration" and "Public Buildings at Risk".

Many county and state officials (including the DEP and the Dept. of Health) are very much aware of the dangers of RPs in residential areas and have stated that in internal emails and showed it by their actions. To see what these public officials said and did, please go to www.backflowvideos.org – click on “Internal Emails”.

Since the DEP is well aware of the many dangers of RPs in residential areas, does their promulgation of regulations **that include RPs**, and then the enforcement of those same regulations by individual utilities amount to legal negligence and expose both DEP and those utilities to legal jeopardy?

In September of 2008, DEP’s Van Hoofnagle issued a notice that ‘given their present deliberations, they were advising all of their program offices to suspend any ongoing or new enforcement actions on the CCC program until January 1, 2009.’ That suspension expired over a year ago. However, in a recent phone conversation with DEP’s John Sowerby, I got the impression that the suspension is still in effect because the policy of the DEP’s program offices is to suspend enforcement when rules are under revision. Since I don’t speak for the DEP, you may want to officially confirm that by contacting John (850-245-8637) or Van (850-245-8631) directly incase your utility is considering putting your current CCC program on hold for budgetary or legal reasons in order to move to a different backflow valve protocol once the revised regulations are in place.

I plan to produce these *Updates* on a monthly basis. So if you have anything that you would like to share (with credit or anonymously) with your 150 peers who are also interested in backflow valves, please send it along.

Thank you,



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Backflow Valve Update # 2

February 24, 2010

Thank you for your enthusiastic response to *Update #1* published last month! ¹

You'll recall that these *Updates* started out in lieu of the Florida Department of Environmental Protection (DEP) providing periodic status reports on their revision of 62-550 & 62-555 (backflow valves and cross-connections) regulations.² These *Updates* are also now a clearinghouse for information that you would like to share with your 150 colleagues around Florida interested in backflow valve regulations.

Based on an email from the DEP, they have had to shift their backflow valve rulemaking effort to this fall in order to work on federally mandated rules governing “disinfection byproducts, surface water treatment, groundwater monitoring, and revisions to the lead and copper rules.”

This particular issue of *Updates* is devoted entirely to the relationship between the DEP's regulations and Section 120.52(8) of the Florida Statutes.

Be assured that the following discussion is not intended to detract from the excellent effort by DEP to revise the regulations. However, the continued inclusion of RP (RPZ) and Double-check backflow valves ³ on the menu of devices in the current and revised regulations does raise a number of legal and critical safety concerns that endanger human life.

Section 120.52(8) of the Florida Statutes is a check on the promulgation of regulations by agencies. It prohibits regulations that are arbitrary, capricious, not supported by logic or fact, are without thought or reason or that are more costly than alternatives.

¹ Update # 1 is available at www.backflowvideos.org

² The DEP is aware of the contents of this *Update* and any corrections that they may have supplied have been incorporated. They have asked me to make it perfectly clear to you that I am just a concerned citizen and am “not authorized to communicate on their behalf.”

³ To conserve space in this Update, the acronym “RP” will be used to represent Reduced Pressure Zone backflow valves (known as RPs & RPZs) and Double-check valves.

Here is the exact language (with emphasis) of that Section:

Florida Statutes - Section 120.52(8)

“Invalid exercise of delegated legislative authority” means action which goes beyond the powers, functions, and duties delegated by the Legislature. **A proposed or existing rule is an invalid exercise of delegated legislative authority if any one of the following applies:**

- (a) The agency has materially failed to follow the applicable rulemaking procedures or requirements set forth in this chapter;
- (b) The agency has exceeded its grant of rulemaking authority, citation to which is required by s. 120.54(3)(a)1.;
- (c) The rule enlarges, modifies, or contravenes the specific provisions of law implemented, citation to which is required by s. 120.54(3)(a)1.;
- (d) The rule is vague, fails to establish adequate standards for agency decisions, or vests unbridled discretion in the agency;
- (e) **The rule is arbitrary or capricious. A rule is arbitrary if it is not supported by logic or the necessary facts; a rule is capricious if it is adopted without thought or reason or is irrational; or**
- (f) **The rule imposes regulatory costs on the regulated person, county, or city which could be reduced by the adoption of less costly alternatives that substantially accomplish the statutory objectives.**

Internal emails and the violation of Section 120.52(8) :

I have a dog-and-pony show about the vulnerabilities of backflow valves that is presented to various groups. It includes an actual demonstration of just how easily bio-toxins and lethal chemicals can be backfed into a neighborhood’s drinking water supply. You can view the demonstration by going to www.backflowvideos.org and clicking on “Demonstration”.

A number of government officials from my County, the Florida Department of Health and the Florida Department of Environmental Protection were very upset by my presentations that questioned the wisdom of putting RPs at the front of lawns in

residential areas. These officials exchanged a number of internal emails among themselves about my activities. The pattern that emerged was that county and state officials publicly preached the virtues of RPs while using every conceivable tactic to squelch any comment to the contrary. A number of the “smoking gun” emails is included at the end of this *Update*, starting on page 7.

When the emails are reviewed, they paint a very clear picture that a number of agencies’ officials recognize the dangers of RPs. Their private expressions of their concerns certainly indicate that RPs don’t belong on lawns in residential areas - nor in the DEP’s rules and regulations.

And you'll note that a number of the emails deal with contacting law enforcement in order to silence speech about the dangers of RP valves in residential front yards. The fact that so many government officials at various agencies resorted to using such tactics is a powerful indication that RPs don’t belong on residential lawns or in the DEP’s rules and regulations.

Writing to her colleagues, Stacy Williams, Hillsborough County Community Relations Coordinator, summed up the controversy as:

'Brown's reasoning is if above-the-ground backflow valves are that dangerous that we don't want him showing it, then they shouldn't be in people's yards.'

The emails’ contents support the contention that the regulations are arbitrary, capricious, not supported by logic or fact and are without thought or reason. The inclusion of RPs in the menu of devices in the regulations is a violation of Section 120.52(8) of the Florida Statutes and indicates that DEP has wandered outside of its regulatory authority.

With AMRs as a less costly alternative, inclusion of RPs violates 120.52(8) :

The wholesale cost of a water meter plus an RP is about the same as an AMR plus a dual-check.

However, the RP installation will then have an additional testing and maintenance cost of between \$60 and \$840⁴, year - after - year - after – year!

⁴ These figures are courtesy of the University of Florida’s TREEO Center. Next month’s *Update* #3 will probably be devoted to the high cost to test and maintain RP backflow valves.

On the other hand, an AMR installation will probably only require a \$10 Dual-check valve every 10 years, i.e. one dollar per year! An AMR installation will also save the utility the cost of meter readers and will detect customers who may be watering outside of their allotted times during droughts.

An AMR installation with a Dual-check valve is a less costly alternative that substantially accomplishes the same thing - actually it accomplishes much more - than an RP when considering the statutory objectives. Because of the superiority of the AMR/Dual-check and its lower cost compared to the RP, the inclusion of the more costly RP in the menu of devices in the regulations fails to satisfy the requirement that the less costly alternative be put forth. Such inclusion of RPs is a violation of Section 120.52(8)(f) of the Florida Statutes and indicates that DEP has wandered outside of its regulatory authority.

Inclusion of the inherently bad RP is a violation of Section 120.52(8) :

There are no federal rules requiring how a Cross-Connection Control program must be administered.⁵ No Floridian has ever died from a backflow incident. No Hillsborough County resident has ever gotten sick from a backflow incident.

RPs have a number of inherent disadvantages including:

- Dreadful cost/benefit ratio,
- High installation cost - \$500 to \$700,
- Annual testing costs of \$60 to over \$840⁶,
- Very complicated with many parts that can fail⁷,
- May go 364 days before failure is detected,
- High pressure drop across the valve,
- Easy to steal - to be sold as scrape metal,
- Vulnerable to backflow pranks and terrorism,
- Easily damaged by lawn care crews, cars, hurricanes and freezing,

⁵ Email from Les O'brien, now retired from the University of Florida's TREEO Center, to Bob DiCecco, Hillsborough County's Cross-connection Control Manager - 9/5/07.

⁶ These figures are courtesy of the University of Florida's TREEO Center. Next month's *Update* #3 will probably be devoted to the high cost to test and maintain RP backflow valves.

⁷ Because of their complexity and the effects of Florida's water and heat, RPs are so unreliable that they must be tested every twelve months. By contrast, AMRs are typically warranted for ten years.

- Cause injury to walkers and joggers,
- Increase the utility's liability after backflow pranks and terrorism,
- Afford an attractive opportunity for a kickback scheme,
- Aesthetically ugly,
- Manufacturing consumes millions of pounds of copper,
- Florida heating causes chloramines to lose their effectiveness.

Given their many disadvantages, particularly when compared with an AMR/Dual-check valve, one sees that RPs are an inferior device and their inclusion in the menu of devices in the regulations is arbitrary, capricious, not supported by logic or fact and is without thought or reason. Such inclusion is a violation of Section 120.52(8) of the Florida Statutes and indicates that DEP has wandered outside of its regulatory authority.

RPs failure to detect backflow is a violation of Section 120.52(8) :

One of the requirements for a routine cross-connection program is that it detects backflow caused by cross-connections. The current and proposed regulations provide stand alone device options that do not detect backflow, i.e. RPs and Double-check valves. The failure of an RP or Double-check to control backflow isn't even known until the next annual testing with a worst case detection period of as long as 364 days.

Compare that grime fact with the instant detection or within 29 days (depending on the utility's RFID system) to detect the failure of a Dual-check backflow valve⁸ attached to an AMR (Automatic Meter Reading) water meter. Because of their pathetic detection cycle, the inclusion of the inferior RP in the menu of devices in the regulations is arbitrary, capricious, not supported by logic or fact and is without thought or reason. Such inclusion is a violation of Section 120.52(8) of the Florida Statutes and indicates that DEP has wandered outside of its regulatory authority.

⁸ At several of the DEP's workshops, the Palm Beach County water utility presented the findings of their empirical testing of Dual-check valves which found that Dual-check valves were routinely preventing backflow ever after ten years.

Failure to protect is a violation of Section 120.52(8) :

I presume that all Florida water utilities accept the responsibility to deliver a safe product to its customers, as has Hillsborough County:

“... as system operators we have the safety and well being of our customers at the top of our list. Thus, we fully accept the responsibility to police our operating systems and stand accountable for the system's operation. ... I would not expect our customers or other external agencies to be responsible for the operational issues, to include water quality, safety, etc., associated with the operation of the County's potable water system.”⁹

The DEP's regulations do not require utilities to provide an infrastructure device to protect me from deadly chemicals or biotoxins emanating from my neighbor's property, either inadvertently or intentionally, which would then be propagated through the utility's infrastructure and delivered to my property. But, an AMR with a Dual-check just outside of my neighbor's property, i.e. on the utility's easement, would be an infrastructure device that would indeed protect me. An RP on my neighbor's property that has been failing for the better part of a year doesn't even come close!

If the ultimate goal is to provide the delivery of safe drinking water to my premises, who should be held responsible for the integrity of that goal – the utility or my neighbor?

The failure of the regulations to require utilities to provide infrastructure to detect or protect me from others is arbitrary, capricious, not supported by logic or fact and is without thought or reason. As such, the inclusion of RPs in the menu of devices in the regulations is a violation of Section 120.52(8) of the Florida Statutes and indicates that DEP has wandered outside of its regulatory authority.

And here are some of those "smoking gun" emails...

⁹ Email from Paul Vanderploog, Director, Hillsborough County Water Resource Services to David Brown, 10/10/2007.

Internal emails

Here are four pages of county and state internal emails about my speaking out. They show the recognition by the various government agencies' officials that wrote them of the dangers of RPs in residential areas.

Where possible, the agency and title of the sender and recipients have been included to demonstrate just how widespread the knowledge is that RPs are dangerous.

Stacy Williams¹⁰ to Lori Hudson¹¹, Michelle VanDyke¹² - 7/2/07.

"Bob DeCecco¹³ of Building Services is contacting FDLE [Florida Department of Law Enforcement] and Homeland Security and reporting [Brown] to them, because he continues to publish these demonstrations."

Cindy Morris¹⁴ to Bob Vincent¹⁵, Ed Bettinger¹⁶ - 6/5/07.

"... we will be speaking with this individual [Brown] at the next cross connection control meeting to ensure our concerns are voiced regarding his e-mail & possible FDLE [Florida Department of Law Enforcement] involvement if he should continue this effort."

¹⁰ Stacy Williams, Community Relations Coordinator,
Hillsborough County.

¹¹ Lori Hudson, Communications Director,
Hillsborough County.

¹² Michelle VanDyke, Community Relations Coordinator, Water Resource Services,
Hillsborough County.

¹³ Bob DiCecco, Cross-Connection Control Coordinator,
Hillsborough County.

¹⁴ Cindy Morris, Environmental Administrator,
Hillsborough County Health Department.

¹⁵ Bob Vincent, Environmental Administrator, Environmental Health Division,
Florida Department of Health.

¹⁶ Ed Bettinger, Environmental Health Program Consultant,
Florida Department of Health.

Van Hoofnagle¹⁷ to Ed Bettinger¹⁶, Kenyon Carter¹⁸ - 6/5/07.

"I would also refer the email to Law Enforcement as I have done by copy of this email to our DEP contact at Emergency Response. Van P.S. Phil [Wieczynski²³] would [you] take a look at this and forward to the appropriate contacts you have in law enforcement?"

Cindy Morris¹⁴ to Van Hoofnagle¹⁷, Bob Vincent¹⁵, Ed Bettinger¹⁶ - 6/8/07.

"Van, I informed them [HCHD: Alfsen¹⁹, Shiflett²⁰, Becken²¹, LaDouceur²²] your office was going to contact FDLE. Could you please keep me informed if this occurs & outcome."

Van Hoofnagle¹⁷ to Cindy Morris¹⁴ - 6/8/07.

"I did so by copying Phil Wieczynski²³ in our DEP Division of Law Enforcement and not FDLE. I have attached that email."

¹⁷ Van Hoofnagle, Administrator, Drinking Water Program,
Florida Department of Environmental Protection.

¹⁸ Kenyon Carter, Professional Engineer,
Florida Department of Environmental Protection.

¹⁹ Gregory Alfsen, Professional Engineer,
Hillsborough County Health Department.

²⁰ Tom Shiflett,
Hillsborough County Health Department.

²¹ Arnold Becken, Water Resource Services,
Hillsborough County.

²² Therese Ladouceur,
Hillsborough County Health Department.

²³ Phil Wieczynski, Chief, Bureau of Emergency Response,
Florida Department of Environmental Protection.

Wally Hill ²⁴ to Ken Griffin ²⁵ , Lori Hudson ¹¹ , Edith Stewart ²⁶ - 7/3/07.

"I asked the Sheriff's Office this weekend to contact Homeland Security regarding Mr. Brown's activities."

Bob Vincent ¹⁵ to Cindy Morris ¹⁴ , Ed Bettinger ¹⁶ - 6/4/07.

"The problem with this demonstration of his is not for coaching terrorists, as they have no doubt already conceived this procedure, but rather of vandals and disgruntled staff or neighbors that hadn't yet figured out how to harm a few people with water."

Ed Bettinger ¹⁶ to Van Hoofnagle ¹⁷ , Kenyon Carter ¹⁸ - 6/5/07.

"David Brown is delving into a territory that he shouldn't."

Ed Bettinger ¹⁶ to Cindy Morris ¹⁴ - 6/4/07.

"However, what really bothers me are Mr. Brown's questions to Andy Reich ²⁷ concerning the capacity of aquatic toxins to induce damage within the Hillsborough County's water system. It appears he is asking and willing to spread information to others concerning the vulnerability of the Hillsborough County water system."

Cindy Morris ¹⁴ to Bob Vincent ¹⁵ , Ed Bettinger ¹⁶ - 6/4/07.

"His web site is pretty accurate."

Lori Hudson ¹¹ to Wally Hill ²⁴ , Edith Stewart ²⁶ - 6/29/07.

"FYI...while he didn't succeed in telling the Commission how to tamper with it, he's gotten it in the press."

²⁴ Wally Hill, Assistant County Administrator,
Hillsborough County.

²⁵ Ken Griffin, Manager of Plans, Programs and Properties,
Hillsborough County.

²⁶ Edith Stewart, Public Affairs Administrator,
Hillsborough County.

²⁷ Andy Reich, Coordinator, Aquatic Toxins Program,
Florida Department of Health.

Stacy Williams to Lori Hudson¹¹, Carl Conte²⁸, Bob DiCecco¹³, Jerry Sparks²⁹, Michelle VanDyke¹² - 6/29/07.

"FYI on this article that came out in Observer News on backflow preventers. As expected, it's not very pretty, in fact it even gives some detail how they can be opened which is what we were attempting to prevent."

Stacy Williams¹⁰ to Lori Hudson¹¹, Michelle VanDyke¹² - 7/2/07.

"What concerns us the most is that his demonstrations of how to open the preventers continue, and he proudly gave me a copy of the Sun City Center Courier with the same story in it from the Observer News. It even disturbingly has a picture of him introducing a foreign substance into the device to show how easy it is."

Stacy Williams¹⁰ to Lori Hudson¹¹, Michelle VanDyke¹² - 7/2/07.

"[Brown's] reasoning is if [above-the-ground backflow valves] are that dangerous that we don't want him showing it, then they shouldn't be in people's yards."

²⁸ Carl Conte, General Manager, Inspectional Services, Building Services Division, Hillsborough County.

²⁹ Jerry Sparks, Director, Building Services Division, Hillsborough County.

Again, thank you for your positive response to *Update #1*. I hope you found this *Update* just as informative.

Three of the topics that will be covered in future *Updates* will be the paperwork burden of the proposed regulations, the cost of testing and maintaining RPs, and the question of who is ultimately responsible for insuring that safe drinking water is delivered to a customer's premises.

If you have anything that you (with credit or anonymously) would like to share with your 150 colleagues around Florida who are also interested in backflow valves, please send it along.

A handwritten signature in black ink that reads "David Brown". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

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Backflow Valve Update # 3

March 25, 2010

This *Update* is devoted to the annual cost of testing RPs ¹.

This series of *Backflow Valve Updates* ² is in lieu of the Florida Department of Environmental Protection (DEP) providing periodic status reports on their revision of 62-550 & 62-555 (backflow valves and cross-connections) regulations.³

The following discussion is not intended to detract from the seriously brilliant effort by DEP to revise the regulations.

However, the continued inclusion of RP valves in DEP's current and revised regulations raises a number of legal questions.

Section 120.52(8)(f) of the Florida Statutes states that:

“A proposed or existing rule is an invalid exercise of delegated legislative authority if the rule imposes regulatory costs on the regulated person, county, or city which could be reduced **by the adoption of less costly alternatives that substantially accomplish the statutory objectives.**”

This same mandate is expressed again in 120.54(1)(d):

“In adopting rules, all agencies must, among the alternative approaches to any regulatory objective and to the extent allowed by law, choose the alternative that does not impose regulatory costs on the regulated person, county, or city which could be reduced **by the adoption of less costly alternatives that substantially accomplish the statutory objectives.**”

¹ To conserve space in this *Update*, the acronym “PR” is used to represent Reduced Pressure Zone backflow valves (known as RPs & RPZs).

² Previous *Updates* are available at www.backflowvideos.org

³ The DEP is aware of the contents of this *Update* and any corrections that they may have supplied have been incorporated. As a citizen, I do not speak for the DEP.

Given the less costly alternatives of an RP compared to an AMR/Dual-check combo ⁴, the AMR/Dual-check is the winner hands-down.

Consider that AMRs are typically warranted for 20 years and empirical testing by Palm Beach County has shown that Dual-check valves still protect against backflow even after ten or more years. In other words: “Set it and forget it!”

And, AMRs report any backflow incidents either instantaneously or within 30 days, depending on the utility’s protocol.

Contrast that with an RP which is so delicate and so prone to failure that it must be tested annually. And its failure may not even be detected for up to 364 days.

However, it is the cost of the annual testing that is the subject of this *Update #3*.

Starting on page 4 of this document are three emails ⁵ from Les O’Brien when he was the Senior Training Specialist at TREEO (Center for Training, Research, and Education for Environmental Occupations) at the University of Florida.

His three letters are to three different individuals and contain the candid statements of a state official as he reflects on the high cost of the annual testing of RPs.

In Letter 1, Mr. O’Brien documents the bill presented to a homeowner by a tester who charged **\$840.85** for the annual field test and repair of an RP.

In Letter 2, Mr. O’Brien states that some testers are “**criminals**” trying to “**milk the system.**”

And perhaps most telling is Mr. O’Brien’s statement in Letter 3 that:

“Too many testers are ripping off the customers and charging criminal prices.”

⁴ AMR’s (Automatic Meter Reading water meters) record the amount of forward **and backflow** every 15 minutes, or oftener, and transmit the data to a passing vehicle or central antenna.

⁵ These emails were obtained via Florida’s Public Records Law.

Sections 120.52(8)(f) and 120.54(1)(d)⁶ of the Florida Statutes mandate that the least costly alternative be set forth. Mr. O'Brien's statements in his capacity as a state official enumerate clear and legally persuasive proof that an RP has real cost problems in the area of the mandatory testing.

RPs have no legal place in the DEP's regulations given that the alternative of an AMR/Dual-check combo can detect and prevent backflow more reliably and at a much lower cost!

Again, thank you for your positive response to these *Backflow Valve Updates*.

In the three letters that follow, please note Les O'Brien's emphasized statements related to the cost of RP testing.

Thank you,

A handwritten signature in black ink that reads "David Brown". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

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⁶ By the way, Section 120.54 of the Florida Statutes contains a lot of ways to challenge the proposed regulations of state agencies - if you ever feel put upon. And in these tough economic times, who doesn't?

Letter 1

From: O'brien,Leslie F,II
Sent: Monday, June 15, 2009 9:59 AM
To: Steve Peraza
Subject: Administering a CCC program

We still have a few tester/contractors who are charging the customers outrageous prices for annual field tests and repairs.

Here is an example sent to me by a customer for a ¾ inch RP.

\$ 120.00 test
\$ 90.00 2 service calls
\$ 77.00 parts
\$ 512.50 labor
\$ 41.25 tax

\$ 840.85 total

The average annual field test in Florida is around \$60.00. Smaller companies may charge less while large companies may charge more because of overhead. The rubber kit for a ¾" assembly is between \$25.00 and \$40.00.

Here are some signs to watch for:

1. Customer complaints about high prices charged for annual field test.
2. Tester repairs the same assembly every year.
3. Tester replaces the assemblies rather than repair them.

Remember when you place a tester or company on your Approved Tester List you are in effect entering into an unwritten contract with that tester or company. You are responsible for the quality of the work performed by the tester. You are telling your customers that the water utility fully trusts the tester and will stand behind their work.

How do you know the tester is qualified to test the assemblies? The certificate they receive may not be an indication of competency. The certificate may only signify that the student passed the minimum requirements for that training facility. Some training facilities do not actually require the students to know how to perform the hands-on field tests.

If the tester continues to perform poorly and you do not remove them from the Approved Tester List the perception by the customer might be that someone at the utility company is benefitting from this tester being on the list.

Some suggestions:

1. Evaluate the tester before you place them on the list.
2. Have the tester sign a Code of Conduct document. Examples:
<http://www.nobackflow.com/Code-Conduct.htm>
3. Rotate your list so that every good tester gets a turn at the top of the list.

I hope this information will help you administering your Cross-Connection Control Program. If you have any questions, please contact me.

Thank you

Les

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Letter 2

From: O'brien,Leslie F,II
Sent: Thursday, June 11, 2009 3:04 PM
To: Macmillan,Mari L
Subject: RE: Update and proposed changes

Mari,

True, but subtly I am hoping that better training will discourage **the criminals**.

The testers who have taken the repair class and/or the advanced class may very well welcome this proposal.

The testers who are just maintaining their certificate and don't really do any field testing could care less. They are not competing with other testers or contractors. This is about 60 % of our recent testers.

The rip-off artist will not spend more money on training. **They are trying to milk the system** at the lowest possible cost to themselves.

By raising the bar, the unethical will be slowly weeded out of the system. That is if the water purveyors actually will do their jobs.

If the DEP rule passes, every community water system will be required to provide extensive data about their CCC program. If the DEP rule fails to pass then we may be just spinning our wheels.

Hopefully we will know more next month.

Les

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Letter 3

From: O'brien,Leslie F,II
Sent: Thursday, June 11, 2009 11:39 AM
To: Gale, Harold T.
Cc: Macmillan,Mari L; Hinton,Carol
Subject: RE: Update and proposed changes

Harry,

You have made some good points. We will ponder these. Thank you.

One of my major concerns is the reputation of the UF and TREEO.

Too many testers are ripping off the customers and charging criminal prices.

We are trying to find a way to give a tool to the water purveyors so they can control the crimes.

I did not plan to ask the testers for their approval. I am asking the water purveyors if they want TREEO to initiate a better system. If the water purveyors are not interested then we will not spend the extra time and money on this project.

BTW - Only 1 or 2% of our testers could pass the ABPA or USC examinations. What does that say about the quality of our students? The western states seem to have better qualified testers that the east coast.

I understand that the poor quality testers will go someplace cheaper and easier. We really don't want those individuals representing UF-TREEO. I don't need a customer to declare that "a TREEO trained tester ripped me off."

Also the testers who make an effort to be better trained should be rewarded for their efforts. We are still a society where the people who work harder and are better trained should get ahead.

Testers in Charleston, SC who had also passed our repair class filed a lawsuit against Charleston because the utility did not recognize their achievements and advanced training. I guess it can go either way.

Please give me some ideas how we can instill honesty and proper ethics into our students. I will forward your e-mail to my boss and wait to discuss with her.

Thank you again.

Have a great summer.

Les

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Backflow Valve Update # 4

April 26, 2010

This *Update* is devoted to a discussion of who is ultimately responsible for insuring that safe drinking water is delivered to a customer's premises and is the Florida Department of Environmental Protection (DEP) compromising that responsibility in their regulations.

This series of *Backflow Valve Updates*¹ is in lieu of the DEP's providing periodic status reports on their revision of 62-550 & 62-555 (backflow valves and cross-connections) regulations.²

The following discussion is not intended to detract from the seriously brilliant effort by DEP to revise their out-of-date regulations.

However, the continued inclusion of the old-fashioned and dangerous RP valves³ in DEP's current and revised regulations raises a number of questions.

When a utility is given a "franchise" to supply water to a community, it accepts the responsibility to deliver a safe product to its customers. Here is how the Director of the Hillsborough County Water Resource Services expressed that responsibility:

"... as system operators we have the safety and well being of our customers at the top of our list. Thus, we fully accept the responsibility to police our operating systems and stand accountable for the system's operation. ... I would not expect our customers or other external agencies to be responsible for the operational issues, to include water quality, safety, etc., associated with the operation of the County's potable water system."⁴

¹ Previous *Updates* are available at www.backflowvideos.org

² The DEP is aware of the contents of this *Update* and any corrections that they supplied have been incorporated. As a citizen, I do not speak for the DEP.

³ To conserve space in this *Update*, the acronym "PR" is used to represent Reduced Pressure Zone backflow valves (known as RPs & RPZs) and Double-check valves, both of which provide direct access to the public water supply for use by terrorists, pranksters and disgruntled people.

⁴ Email from Paul Vanderploog, Director, Hillsborough County Water Resource Services to David Brown, 10/10/2007.

First, there appears to be a lot of legal liability surrounding backflow incidents. The DEP held a public workshop in Sanford, FL on February 18, 2009. The DEP's John Sowerby gave a presentation in which he stated, in connection with the reporting of backflow incidents, that:

“I know that we have a lot of water system personnel in the audience. Don't be offended but it's obvious that there is a dis-incentive for water systems to make public these incidents even when they're aware of them because of **liability** and consumer confidence issues.”⁵

Second, officials at all levels⁶ are very much aware that RPs are dangerous devices to have in residential areas. A number of government officials were very upset by my questioning the wisdom of putting RPs on lawns in residential areas. These officials exchanged a number of internal emails⁷ and resorted to other actions directed at me because of my concerns about the dangers of RPs. The pattern that emerged was that county and state officials publicly preached the safety of RPs while using every conceivable tactic to squelch any comments about their vulnerabilities and dangers.

Third, at the moment, the DEP's proposed regulations provide utilities with a menu of devices and measures to prevent backflow. By continuing to include residential RPs in that menu, which are owned and maintained by homeowners on the homeowner's side of the property line, DEP is putting utilities at risk by permitting devices which the DEP (and other agencies) know to be unsafe and that put citizens' lives in peril.

And fourth, the DEP's regulations do not require utilities to provide and maintain any infrastructure devices in the utility's easement to protect all citizens from deadly chemicals or biotoxins emanating from a neighbor's property, either inadvertently or intentionally. Such emanations then propagate through the utility's infrastructure and are delivered to all residents in the neighborhood.

⁵ To hear the actual audio of Sowerby's making that statement, go to www.backflowvideos.org - click on "Dishonest Water Utility Employees".

⁶ These officials include employees of the Hillsborough County Water Resource Services, Hillsborough County Administrator's Office, the Florida Department of Health and the Florida Department of Environmental Protection.

⁷ A number of their internal emails are included in *Update #2*, starting on page 7.

An example of an infrastructure device that does protect all citizens in a neighborhood is an AMR (Automatic Meter Reading water meter) with a Dual-check valve located just outside of each property. An AMR records the amount of forward **and backflow** every 15 minutes, or oftener, and transmits the data to a passing vehicle or instantly to a central antenna. AMRs are typically warranted for 20 years and empirical testing by Palm Beach County has shown that Dual-check valves still protect against backflow even after ten or more years. Contrast that with an RP which is so delicate, so unreliable and so prone to failure that it must be tested annually. A neighbor's RP that has been failing for the better part of a year doesn't exactly conjure up images of a safe drinking water supply for the rest of the neighborhood.

Three Concerns:

Given the official internal emails and actions at all levels of government that acknowledged that residential RPs are dangerous, is the DEP putting itself in legal jeopardy by listing RPs as an option?

Is the DEP putting utilities and counties in legal jeopardy by allowing RPs?

In fact, does DEP even have the legal authority to downgrade the responsibility vested in utilities to provide safe drinking water, by giving the utilities the option of specifying RPs located on private property that are owned and maintained by the homeowner, instead of requiring the more reliable AMRs with a Dual-check valve located in the utility's easement and therefore under the legal and actual control of the utility?

Again, I appreciate your positive responses to these *Backflow Valve Updates*.

Thank you,

A handwritten signature in black ink that reads "David Brown". The signature is written in a cursive, flowing style with a long horizontal stroke at the end.

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Backflow Valve Update # 5

June 3, 2010

The full series of *Backflow Valve Updates* is available at www.backflowvideos.org

This *Update*¹ is devoted to a discussion of who should decide on the final version of the backflow valve regulations (62-550 & 62-555). Should it be a Secretarial Hearing run by the Department of Environmental Protection (DEP), who just happened to write the regulations? Or should it be the Environmental Regulation Commission (ERC) which “sets standards and rules that protect Floridians and the environment based on sound scientific and technical validity, economic impacts, and risks and benefits to the public and Florida’s natural resources”?

The DEP has held four Rule Development Workshops² concerning the revision of the backflow valve and cross-connection regulations. At each workshop, John Sowerby gave a PowerPoint presentation that ended with a schedule of future events. Included in that schedule was a “Secretarial Hearing” to take place once the regulations have been finalized. My understanding is that a Secretarial Hearing is conducted by someone from DEP who rubberstamps the DEP’s regulations as being OK. And that such a hearing is only appropriate for internal regulations, like the reorganization of departments or how paperwork is to be shuffled about. It is not appropriate for regulations which have an effect outside of the DEP’s building.

In fact, the Florida Environmental Regulation Commission (ERC)

“sets standards and rules that protect Floridians and the environment based on sound scientific and technical validity, economic impacts, and risks and benefits to the public and Florida’s natural resources. Most issues that go before the ERC relate to air pollution, water quality and waste management. It is a non-salaried, seven-member board selected by the Governor, who represents agriculture, the

¹ The DEP is aware of the contents of this *Update* and any corrections that they supplied have been incorporated. My discussion is not intended to detract from the seriously brilliant effort by DEP to at least attempt to revise their out-of-date regulations. As a citizen, I do not speak for the DEP.

² Sanford (2/18/2009), Temple Terrace (7/8/2009), West Palm Beach (7/9/2009) and Tallahassee (7/21/2009).

development industry, local government, the environmental community, citizens, and members of the scientific and technical community.”³

The ERC was created as a check on the DEP. My under-the-table understanding is that when the DEP uses a Secretarial Hearing for matters that affect the public, they’re trying to do an end run around the ERC in order to force through their own agenda!

The three major complaints that surfaced at the workshops about the most recent version of the regulations were

- the far-reaching reporting burdens that are being put on utilities,
- the hurry-up timelines for utilities to implement the regulations,
- the continued inclusion of the old-fashioned and dangerous RP valves⁴ in the regulations.

If you have an interest in any of the above three matters, I believe your concerns would be more fairly address by a commission made up of working folks who recognize the importance of time, money and safety, instead of DEP bureaucrats.

Again, I appreciate your positive responses to these *Backflow Valve Updates*.

Thank you,



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³ <http://www.floridadep.org/legal/ERC/>

⁴ Reduced Pressure Zone backflow valves (known as RPs & RPZs) provide direct access to the public water supply for use by terrorists, pranksters and disgruntled people. A number of officials have sent internal emails (see Update 2) noting the dangers of RPs. RPs don’t belong on lawns in residential areas - nor in the DEP’s rules and regulations.

Backflow Valve Update # 6
June 27, 2010

The full series of *Backflow Valve Updates* is available at www.backflowvideos.org

This *Update*¹ is devoted to two items. First is a discussion of whether the Department of Environmental Protection (DEP) and water purveyors have the authority under Florida Statute 120.52(8)(f) to impose more expensive backflow devices on citizens rather than the less costly alternative that substantially accomplishes the statutory objectives to detect and prevent backflow. The second item in this Update # 6 praises Broward County for installing backflow valves on all 7,800 of its fire hydrants.

The less costly alternative is mandated by the Florida Statutes.

February's Update # 2 pointed out that the DEP's July 1, 2009 draft revision² violated Florida Statutes, Section 120.52(8)(f) in that:

“A proposed or existing rule is an invalid exercise of delegated legislative authority if the rule imposes regulatory costs on the regulated **person**, county, or city which could be reduced by the adoption of less costly alternatives that substantially accomplish the statutory objectives.”

You'll recall that Update # 2 noted that the wholesale cost of a water meter plus an RP³ is about the same as an AMR⁴ plus a Dual-check backflow valve.

¹ The DEP is aware of the contents of this *Update* and any corrections that they supplied have been incorporated. My discussion is not intended to detract from the effort by DEP to revise their out-of-date regulations. As “just a citizen”, I do not speak for the DEP.

² The most recent revision of 62-550 & 62-555 is from July 1, 2009, almost a year ago, and can be found at www.suncitydave.info/DEP-Draft-3.pdf

³ To conserve space in this *Update*, the acronym “PR” is used to represent Reduced Pressure Zone backflow valves (known as RPs & RPZs) and Double-check valves, both of which provide direct access to the public water supply by terrorists, pranksters and disgruntled people.

⁴ AMR's (Automatic Meter Reading water meters) record the amount of forward **and backflow** every 15 minutes, or oftener, and transmit the data to a passing vehicle or central antenna, i.e. they report any backflow incidents either instantaneously or within 30 days, depending on the utility's protocol. AMRs are typically warranted for at least ten years. Empirical testing by Palm Beach County has shown that Dual-check valves still protect against backflow even after ten or more years. In other words: “Set it and forget it!”

However, the RP installation will then have an additional annual testing and maintenance cost of between \$60 to \$840 ⁵, year-after-year-after-year! On the other hand, in an AMR/Dual-check installation, the AMR is guaranteed for at least 10 years and may only require a \$10 Dual-check valve every few years! An AMR/Dual-check installation will also save the utility the direct and overhead cost of meter readers ⁶ and will detect customers who may be watering outside of their allotted times during droughts.

And most importantly, an AMR/Dual-check valve combo is the only device that actually conforms with the requirements of being able to “detect” and “prevent” backflow. An RP can’t even detect if it’s broken and allowing backflow. It just sits there in a failed condition much of the time. ⁷

After the above discussion in Update # 2, it was brought to my attention that the DEP’s July 1, 2009 draft revision uses the phrase “as stringent as” or “more stringent than” three times to let utilities range beyond the regulations. In particular, on page 12 of the draft:

“(b) CWSs [Community Water Systems] may establish and implement written cross-connection control programs **with more elements, or more stringent requirements**, than those described in paragraph 62-555.360(5)(a), F.A.C. Paragraph 62-24 555.360(5)(a), F.A.C., establishes minimum requirements for written cross-connection control programs and does not prohibit CWSs from establishing and implementing programs **with more elements or more stringent requirements.**”

Because of Florida Statute 120.52(8)(f), **the Department of Environmental Protection does not have the authority to allow a utility to authorize an alternate backflow device or requirements that are more costly.**

Likewise, and because of that same statute, **a utility does not have the authority to specify to a “regulated person” an alternate backflow device or requirements that are more costly.**

⁵ These figures are from the University of Florida’s TREEO Center.

⁶ The cost to manually read a meter drops from about 54¢ per meter to about 4¢ per meter with an AMR.

⁷ The DEP’s John Sowerby, in a 3/29/2005 email, wrote:

“Mechanical backflow preventers have internal seals, springs, and check valves that are subject to fouling, corrosion, wear, or fatigue. Depositing water and tuberculation build-up, as well as foreign material such as sand grains, can foul check valves or can clog sensing lines in **reduced-pressure principle [RP] backflow preventers.**”

Sadly, trade associations and individuals whose sole interest is the money to be made from installing and annually testing RPs may suggest that RPs are the only way to go.

But the fact is that in an age when technology (AMRs) has outpaced the law, it's time for the law to catch up. And Florida Statute 120.52(8)(f) mandates that to happen!

If the true goal is no more backflow, then an AMR/Dual-check combo is the only way to go - not the very fragile, very vulnerable and very expensive RP valve.

Praises to Broward County!

The following item from the June 9, 2010 *Broward County Sun Sentinel* caught my eye:

Broward County protects water supply from terrorists

By Brittany Wallman

Terrorists will not be able to pump poison into the county water supply.

Broward County water officials feared the thousands of fire hydrants across the county presented a terrorist opportunity. The county spent \$3.5 million having anti-terrorist valves installed on about 7,800 hydrants in the 18 cities, the airport and the port, served by the county water utility, said Director Alan Garcia.

Garcia called the job "a good insurance policy" against terrorist attack. Prior to installation of the valves, a terrorist had only to overcome water pressure and could back-pump toxins into the water supply.

The work was done using revenue from water-sewer users. Commissioners on Tuesday closed the job, which came in under budget.⁸

Since water purveyors are liable for the water quality in their drinking water system⁹ and are also responsible for "water sector security"¹⁰, Broward County has acted responsibly to provide safe drinking water by recognizing that a terrorist, disgruntled person or

⁸ http://articles.sun-sentinel.com/2010-06-09/news/fl-terror-hydrants-didbox-20100608_1_airport-noise-zone-water-supply-terrorist

⁹ www.epa.gov/safewater/pws/index.html

¹⁰ cfpub.epa.gov/safewater/watersecurity/bioterrorism.cfm

prankster can bypass any ordinance, regulation or law and easily backflow deadly chemicals or bio-toxins directly into the public water supply via fire hydrants. ¹¹

Similarly, a terrorist, disgruntled person or prankster can easily backflow deadly chemicals or bio-toxins directly into the public water supply via an RP backflow valve. The DEP or a utility cannot waive their legal responsibility for water quality and system security. For example, the DEP and a utility are acting negligently when they slough off their responsibility for water quality and system security to homeowners by forcing the homeowners to install a backflow valve on the homeowners' own property followed by expensive mandatory yearly inspections, paid for by each of those homeowners.

RPs provide direct access to the public water supply and are an open invitation to terrorists, disgruntled people and pranksters to backflow deadly chemicals and bio-toxins directly into the public water supply. ¹²

The false sense of security of hydrant cap locks and RP port locks is easily overcome with a strategic squirt of Super-Glue. ¹³ The best security for a fire hydrant is the installation of an underground dual-check valve. The best security for a residential backflow valve is to specify or replace RPs with an AMR/Dual-check combo, installed (and maintained) in the water purveyor's easement for each customer thus affording the very same proper system protection (physically, legally and conceptually) to the public water supply as does a dual-check valve for each water hydrant.

Again, I appreciate your positive responses to these *Backflow Valve Updates*.

Thank you,



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¹¹ To see how easily a fire hydrant can be compromised, go to www.backflowvideos.org/video70H.wmv

¹² Go to www.backflowvideos.org and click on "Demonstration".

¹³ Go to www.backflowvideos.org and click on "Port Locks".

Backflow Valve Update # 7
July 24, 2010

This is Update # 7. The full series of Updates is available at www.backflowvideos.org

This Update ¹ is not intended to detract from the effort by Florida's Department of Environmental Protection (DEP) to revise their out-of-date regulations. However, the continued inclusion of the old-fashioned and dangerous reduced pressure zone backflow valves (RPs) ² in the DEP's current and revised regulations (Chapter 62-555 of the Florida Administrative Code ³) raises a number of security and legal questions.

Please share this Update with your Legal Department and with your Risk Management Department and insurance company. It is a bit long because it includes a lengthy opinion by two lawyers about a utility's liability when negligence, that leads to terrorism, is involved.

***Do Reduced Pressure Zone (RP) backflow valves
violate state and federal laws?***

The three steps to answer this question are:

- Do RPs provide direct access to the public drinking water supply and are utility and government officials aware of this?
- Are there any state and federal laws that discourage devices that provide direct access to the public drinking water supply?
- If utility or government officials specify a device that they know provides direct access to the public drinking water supply, are they guilty of negligence?

STEP 1

**Do RPs provide direct access to the public drinking water supply
and are utility and government officials aware of this fact?**

The website watertechonline.com, reporting on a Water Security Summit that took place in Hartford, CT in December of 2001, noted that:

“The distribution system, many officials said during the conference, is the point that is probably most vulnerable to terrorists. ... **"Guards, guns and gates" are not sufficient when it comes to terrorism.**”⁴

Writing in the Journal of the AWWA, Gay Porter Denileon, a member of the National Critical Infrastructure Protection Advisory Group, stated that:

“One [individual] who understands hydraulics and has access to a drum of toxic chemicals could inflict serious damage to a water supply in a neighborhood or pressure zone without detection pretty quickly in most communities.”⁵

Lawyers Tim DeYoung and Adam Gravley, writing in the American Bar Association’s “Natural Resources and Environment Journal” stated that:

“While it may be relatively easy to protect water sources and treatment plants from contamination, extensive distribution systems provide multiple access points. ... Some water utility officials believe that the leading threat to the nation's water supply may be the use of backflow pressure to introduce poisons into local water distribution systems.”⁶

As part in my own efforts to publicize the dangers of RPs in residential areas, I give talks to community groups that include a demonstration of a simple \$30 pressure rig that demonstrates how quickly and easily deadly chemicals and bio-toxins can be pressurized and backflowed into a public drinking water supply via an RP valve.

You can view the actual backflow demonstration by going to www.backflowvideos.org and clicking on “Demonstration”.

A number of government officials, in emails and public statements, expressed knowledge of and confirmed the hydraulic principles of the demonstration. The following three emails are just some of many such emails that can be viewed at www.backflowvideos.org/smoking-guns.pdf⁷

For example, the Director of the Hillsborough County Water Resource Services (WRS) wrote: "From a water system perspective, your demonstration is informative, but not new to the professionals who operate our systems."⁸

The Director of the Hillsborough County Planning and Growth Management (PGM) Department wrote: "I'm sure everyone at this meeting [of the Cross-connection Control Board] already knows the principle [Brown] is going to demonstrate."⁹

And this next quote is an absolute gem. Not only does this Department of Health official acknowledge that RPs give access to the public water supply, he then goes on to acknowledge that they can “disable a public water supply”. The Environmental Manager, Bureau of Water Programs for the Florida Department of Health (DOH) stated: "Backflow devices are just one of many entry points to disable a public water supply."¹⁰

Even the Administrator of the Drinking Water Section for the Florida Department of Environment Protection, who oversees the Safe Drinking Water Act for Florida, acknowledges the dangers of RP valves! ¹¹

The overwhelming evidence is that RPs do provide direct access to public drinking water systems and that utility and government officials are well aware of this.

STEP 2

Are there any state and federal laws that discourage devices that provide direct access to the public drinking water supply?

There are a number of laws and government entities that address the security of water systems. For example:

Patriot Act.

Section 1016 of the U.S. Patriot Act recognizes the water sector as being part of our country's critical infrastructure. The Act requires actions necessary so that "any physical or virtual disruption of the operation of the critical infrastructures of the United States be rare, brief, geographically limited in effect, manageable, and minimally detrimental to the economy, human and government services, and national security of the United States." ¹²

And it really doesn't take all that much to cause a disruption. ¹³

To see a video of just how "at risk" government buildings are that have RPs, go to www.backflowvideos.org and click on "Public Buildings At Risk".

The Patriot Act also forbids giving "material support or resources ... including weapons" to terrorists. ¹⁴ Bob Vincent, the Bureau of Water Programs' Environmental Manager for the Florida Department of Health wrote that terrorists "have no doubt already conceived this procedure [of using RPs to backflow deadly chemicals and biotoxins into the public drinking water supply]." ¹⁵

Consequently, it makes no sense then for Florida's DEP to include RPs in their regulations. By doing so, DEP is providing "material support and resources", i.e. the weapons (RPs) and an open invitation for terrorists to contaminate the public drinking water supply. RPs are the same as if the Florida Department of Environmental Protection handed out radioactive material, blocks of C4 explosive and detonators so that terrorists could make dirty bombs.

Bioterrorism Act.

The Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Bioterrorism Act) ¹⁶ requires community drinking water systems to “defend against adversarial actions that might substantially disrupt the ability of a system to provide a safe and reliable supply of drinking water.”

RPs do not “defend against adversarial actions”, they promote them.

The Act’s Administrators are also supposed to provide “guidance and review” related to the introduction of chemical, biological or radiological contaminants into community water systems. ¹⁷

Florida Statute 120.52(8)(f).

Section 120.52(8)(f) of the Florida Statutes limits what can be forced on the state’s citizens. This topic was already covered in great detail in the previous Update # 6.

But briefly, Section 120.52(8)(f) precisely states:

“A proposed or existing rule is an invalid exercise of delegated legislative authority if the rule imposes regulatory costs on the regulated person, county, or city which could be reduced by the adoption of less costly alternatives that substantially accomplish the statutory objectives.”

The DEP has already laid out a number of “alternatives” that they have found to “substantially accomplish the statutory objectives”. These are in Tables 1 & 2 of their 07/01/2009 draft revision ³. For your convenience, I have included those two tables at the very end of this Update. Having laid out a number of possibilities, DEP’s task, in order to conform with F.S. 120.52(8)(f), is to determine for each of the six cells of Table 1, the alternatives that are the “less costly”. Likewise, utilities, who are required to obey the Florida Statutes and the Florida Administrative Code, must also abide by the “less costly alternatives” mandate.

For example, for the top right cell of Table 1 (an Auxiliary water system that is used for irrigation on a Residential premises), a “less costly alternative” would be a Dual-check valve (not to be confused with a Double-check valve, which, like an RP, is expensive and also provides direct access to the water system) with an Automatic Meter Reading (AMR) water meter or a Customer Agreement. Such combos are more reliable, **less expensive** and obviously don't provide direct access to the public drinking water supply, unlike an RP. ¹⁸ Therefore, Section 120.52(8)(f) mandates that utilities adopt something like a Dual-check/AMR or Dual-check/Agreement combo – certainly not RPs!

Other organizations

These next “government associated” organizations aren’t exactly laws. But they do have mission statements that are concerned with the security of the infrastructure to prevent the contamination of the public drinking water supply.

Florida Bureau of Water Programs.

This group is a joint venture between the Florida Department of Environmental Protection and the Florida Department of Health. In their document titled “Protecting Florida’s Drinking Water Systems”¹⁹, under “Terrorism and Security Concerns – Contamination”, they note that “Systems are vulnerable at four general locations in the treatment process: at the source, during the treatment, at the storage locations, and in the distribution systems.” But as clarified by the experts on pages one and two of this Update, it is the distribution system (not the water works) that will be the target of the terrorists.

And at the federal level, a recent series of articles in the Washington Post reported that there are 1,271 government organizations that work on programs related to counter-terrorism, homeland security and intelligence. Here are two of them:

The 2009 National Infrastructure Protection Plan (NIPP).

According to Homeland Security’s website,²⁰ the overarching goal of the NIPP is to build a safer, more secure, and more resilient America by preventing, deterring, neutralizing, or mitigating the effects of deliberate efforts by terrorists to destroy, incapacitate, or exploit elements of our nation’s critical infrastructure and key resources. This includes actions to deter the threat, mitigate vulnerabilities, or minimize the consequences associated with a terrorist attack or other manmade or natural disaster.

Critical Infrastructure Partnership Advisory Council (CIPAC).

According to CIPAC’s 2009 Annual Report,²¹ their Water Sector’s vision is a secure drinking water infrastructure that provides clean and safe water as an integral part of daily life. Their goals include: Sustaining protection of public health and the environment and Recognizing and reducing risks in the Water Sector. Their Key Initiatives encompass the EPA’s security program pillars of critical infrastructure protection: prevention, detection, response, and recovery.”

The overwhelming evidence is that there are a number of state and federal laws and organizations that set forth the proactive need to prevent terrorists from gaining access to the public drinking water supply.

STEP 3

If utility or government officials specify a device that they know provides direct access to the public drinking water supply, are they guilty of negligence?

Legal negligence is based on:

“Knowledge, Experience, and Perception: The law takes into account a person's knowledge, experience, and perceptions in determining whether the individual has acted as a reasonable person would have acted in the same circumstances. Conduct must be judged in light of a person's actual knowledge and observations, because the reasonable person always takes this into account.”
22

As previously noted, a number of officials with utilities, county government, the Florida Department of Health and the Florida Department of Environmental Protection, including its Administrator of the Drinking Water, who oversees the Safe Drinking Water Act for Florida, have already indicated that they have the **Knowledge, Experience and Perception** that RPs are dangerous. See www.backflowvideos.org/smoking-guns.pdf

Rather than my stumbling through the various aspects of what is negligence, here is an extended quote from an article that was co-authored by Tim De Young and Adam Gravley, partners in the Seattle office of Preston Gates and Ellis, LLP. Their article was published in the American Bar Association's "Natural Resources and Environment Journal", Volume 16, Number 3, Winter 2002.

“A second issue concerns the **liability of water utilities**. Our review of the initial institutional responses to terrorist threats suggests that there has been little consideration of this issue. Because of limited experience, the extent to which utilities could be held liable for terrorist attacks is largely unknown. Following the 1993 bombing of the World Trade Center, hundreds of lawsuits were filed against the New York Port Authority claiming personal injury, wrongful death, property damage, and damages for business interruption. While many of the liabilities were based on claims of negligence, claims were also made based on premises liability and contract. Lawsuits inevitably will arise in the aftermath of September 11 to the extent that victim compensation relief is insufficient. Similar lawsuits can be expected when water supplies or infrastructure are sabotaged. For many water utilities, a large award could undermine their financial ability to continue providing needed services. **Even a claim could affect a utility's bond rating.** While it is beyond the scope of this article to present a thorough legal analysis of potential liability, the key features of the problem are highlighted below.

“Generally, utilities would be sued under negligence theories. From a policy perspective, it could be argued that making water utilities liable for damages caused by terrorist attacks may encourage utilities to take necessary steps to prevent such attacks. On the other hand, many water utilities simply do not have the resources to act as insurers for its customers or to address all conceivable threats. Ironically, legal actions may arise from attempts to make public water supplies more secure. For example, EPA's recently issued guidelines detail the security measures water utilities are advised to implement immediately. If a particular utility fails to implement some or all of these measures or does so in a negligent manner, then the utility arguably should be liable for consequential damages. In the numerous jurisdictions where comparative negligence applies, a utility theoretically could be held liable for some portion of the damages upon a showing of minimal negligence. There appears to be little case law directly on point but a number of courts have held that a water distributor is not an insurer with respect to the condition of its infrastructure and is therefore not liable for damages **except on a showing of negligence.**

“Many, but clearly not all, water providers may be protected from some liability claims under the doctrine of sovereign immunity. For those private utilities with no such protection, increased insurance protection may be advisable. Post-September 11, the availability of insurance against acts of terrorism may in turn be more problematic. **Even where the doctrine of sovereign immunity applies, there is generally no protection for negligent operations or maintenance of facilities.** Moreover, ordinances or service contract disclaimers of liability have not barred recovery in many cases.”

Based on the expert opinions of these two lawyers and because utilities' regulations flow from the DEP, it is apparent that the DEP, DOH and the utilities cannot waive their legal responsibility to citizens to provide the system security to insure safe drinking water. For example, the DEP, DOH or a utility cannot slough off their responsibility for water quality and system security by forcing private homeowners to install an RP valve on the homeowners' own property followed by mandatory yearly inspections, arranged and paid for by each of those homeowners.

And trusting the safety of the drinking water being purveyed to my property to my neighbors and their possibly faulty plumbing is ridiculous!

The utility, on its own controlled easements, is mandated to be responsible for what enters its distribution system for delivery to me as a safe product.

Consider that very explicit statement back on page two by the Health Department official that "Backflow devices are just one of many entry points **to disable a public water supply.**" If a public drinking water supply were ever disabled (contaminated) via an RP valve, would the DEP, DOH or any utility that condones RPs be guilty of intentional misconduct and gross negligence (Florida Statute 768.72(2))? Very likely...

Sovereign immunity caps are not absolute. In Florida, the Legislative Claims process allows a citizen to bring a negligence lawsuit against an agency and then take the court's decision to the Legislature for approval. For example, in 1996, a Miami resident was struck by a City of Miami police car and received a \$5,000,000 settlement. I'm not sure if privately owned utilities are even protected by sovereign immunity. Either way, utilities should be very concerned about their liability if there are any RPs connected to their distribution system.²³

Summary

A number of utility and government officials have acknowledged that utilities are responsible for assuring a safe drinking water supply. And they have acknowledged that RPs provide direct access to a utility's distribution system and can disable a public water supply.

A number of state and federal laws seek to proactively secure and protect the public drinking water infrastructure from contamination.

It is negligent for utility and government officials to allow residential RPs in any of their regulations because RPs are an open invitation and the means for terrorists, disgruntled people and pranksters to backflow deadly chemicals and bio-toxins directly into the public drinking water supply.

And please share this particular Update with your Legal Department and with your Risk Management Department and insurance company for their thoughts.

By the way, if any official of the Florida Department of Environmental Protection or the Florida Department of Health should ever tell you that there is no liability associated with RP valves, ask them if they would be willing to put in writing that they will renounce any sovereign immunity claims and assume total responsibility for all damages related to RP valves. My humble guess is that they will say "No way!" and leave you to twist in the wind on your own.

Again, I appreciate your positive responses to these Backflow Valve Updates.

Thank you,

A handwritten signature in black ink that reads "David Brown". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

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The endnotes start on the next page...

¹ The DEP and DOH are aware of the contents of this *Update* and any corrections that they supplied have been incorporated. My discussion is not intended to detract from the effort by DEP to revise their out-of-date regulations. As “just a citizen”, I do not speak for the DEP.

² To conserve space in this *Update*, the acronym “RP” is used to represent Reduced Pressure Zone backflow valves (known as RPs & RPZs) and Double-check valves, both of which are expensive and provide direct access ports to the public water supply. Double-check valves should not be confused with the simple and reliable Dual-check valves.

³ www.suncitydave.info/DEP-Draft-3.pdf

⁴ watertechonline.com/news.asp?N_ID=27709

⁵ The article “The Who, What, Why, and How of Counterterrorism Issues” was written by Gay Porter Denileon, a member of the National Critical Infrastructure Protection Advisory Group, and appeared in the Journal of the AWWA, Vol. 93, May 2001.

⁶ The article “Coordinating Efforts to Secure American Public Water Supplies” was co-authored by Tim De Young and Adam Gravley, who are partners in the Seattle office of Preston Gates and Ellis, LLP. The article appeared in the American Bar Association’s “Natural Resources and Environment Journal”, Volume 16, Number 3, Winter 2002.

⁷ To see a general list of officials and their titles that includes those that wrote the emails, go to www.backflowvideos.org/people.htm

⁸ Paul Vanderploog (Hillsborough County, FL) to David Brown - 6/8/07.

⁹ Peter Aluotto to Bob DiCecco – Hillsborough County, FL, 8/8/07.

¹⁰ Bob Vincent to Cindy Morris, Ed Bettinger – Florida Department of Health, 6/4/07. Bob Vincent is the Environmental Manager, Bureau of Water Programs for the Florida Department of Health. If there is ever a trial about the dangers of RPs in residential areas, Mr. Vincent would make a great lead-off witness, based on his statement.

¹¹ Van Hoffnagle, the Administrator of the Drinking Water Section for the Florida Department of Environment Protection who oversees the Safe Drinking Water Act for Florida, turned me in to law enforcement for asking questions and speaking out about the dangers of RPs. Nothing ever happened as a result of his action. But, it saddened me (actually, it pissed me off) that Hoffnagle, as a high-ranking DEP official and public

servant entrusted with the responsibility of ensuring safe drinking water in Florida, would negligently advocate RPs in residential areas and then attempt to silence any dissent. Hoffnagle knew that I was right. If my concerns had been incorrect, he would not have taken such an extreme action against a citizen for questioning his Department's regulations.

¹² frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=107_cong_bills&docid=f:h3162enr.txt.pdf

¹³ For example, consider the lasting effects of that 2001 "shoe bomber". Since then, billions of air travelers have had to remove their shoes as they passed through airport security. Translate that into a backflow event using pesticide and carried out via an RP valve that kills one or two people. After that, what person, nationwide, would want to shower, bathe their child or even prepare food using water from a water utility that sanctions RPs?

¹⁴ www.law.cornell.edu/uscode/html/uscode18/usc_sec_18_00002339---A000-.html

¹⁵ Bob Vincent to Cindy Morris, Ed Bettinger – Florida Department of Health, 6/4/07.

¹⁶ cfpub.epa.gov/safewater/watersecurity/bioterrorism.cfm

¹⁷ This guidance and review includes (1) "Provide guidance to community water systems ... on how to conduct vulnerability assessments, prepare emergency response plans, and address threats from terrorist attacks or other intentional actions designed to disrupt the provision of safe drinking water or significantly affect the public health or significantly affect the safety or supply of drinking water provided to communities and individuals.", (2) review methods to prevent the intentional introduction of chemical, biological or radiological contaminants into community water including ... procedures and equipment necessary to prevent the flow of contaminated drinking water to individuals served by public water systems, (3) review methods to negate or mitigate deleterious effects on public health and the safety and supply caused by the introduction of contaminants into water intended to be used for drinking water, (4) review methods and means by which terrorists or other individuals or groups could disrupt the supply of safe drinking water and (5) review methods and means by which distribution systems that are utilized in connection with public water systems could be reasonably protected from terrorist attacks or other acts intended to disrupt the supply or affect the safety of drinking water.

¹⁸ AMR's (Automatic Meter Reading water meters) record the amount of forward **and backflow** every 15 minutes, or oftener, and transmit the data to a passing vehicle or central antenna, i.e. they report any backflow incidents either instantaneously or within 30 days, depending on the utility's protocol. (RP's can be in failure mode for up to 364 days before their failure is detected.) AMRs reduce the cost of reading a meter from

about 54-cents to 4-cents per meter! AMRs are typically warranted for at least ten years. Empirical testing by Palm Beach County has shown that Dual-check valves (not to be confused with Double-check valves) still protect against backflow even after ten or more years.”

¹⁹ www.doh.state.fl.us/environment/water/pdfs/WaterTerrorismBrochure.pdf

²⁰ www.dhs.gov/files/programs/editorial_0827.shtm

²¹ www.dhs.gov/xlibrary/assets/cipac/cipac_annual_2009.pdf

²² thefreedictionary.com/negligence

²³ If one Googles “Florida legislative claims bill process”, there are a number of excellent links, including one to the Legislature’s Manual and several to the Miami lawsuit.

<u>TABLE 1</u>		
<u>TYPE OF AUXILIARY OR RECLAIMED WATER SYSTEM AT PREMISES</u>	<u>TYPE OF BACKFLOW PREVENTER¹ REQUIRED AT SERVICE CONNECTION TO PREMISES</u>	
	<u>COMMERCIAL OR INDUSTRIAL PREMISES</u>	<u>RESIDENTIAL PREMISES</u>
<u>Auxiliary water system that is used for irrigation</u>	<ul style="list-style-type: none"> • <u>AG</u>; or • <u>RP</u> 	<ul style="list-style-type: none"> • <u>AG</u>; or • <u>RP</u>; or • <u>DC</u>, or <u>DuC</u>, plus any one of the additional backflow protection measures described in <u>Table 2 below²</u>
<u>Auxiliary water system that is used for purposes other than irrigation</u>	<ul style="list-style-type: none"> • <u>If the CWS determines that the auxiliary water system constitutes a high hazard:</u> <ul style="list-style-type: none"> ○ <u>AG</u>; or ○ <u>RP</u> • <u>If the CWS determines that the auxiliary water system constitutes a low hazard:</u> <ul style="list-style-type: none"> ○ <u>AG</u>; or ○ <u>RP</u>; or ○ <u>DC</u> 	<ul style="list-style-type: none"> • <u>If the CWS determines that the auxiliary water system constitutes a high hazard:</u> <ul style="list-style-type: none"> ○ <u>AG</u>; or ○ <u>RP</u>; or ○ <u>DC</u>, or <u>DuC</u>, plus any one of the additional backflow protection measures described in <u>Table 2 below²</u> • <u>If the CWS determines that the auxiliary water system constitutes a low hazard:</u> <ul style="list-style-type: none"> ○ <u>AG</u>; or ○ <u>RP</u>; or ○ <u>DC</u> or <u>DuC</u>
<u>Reclaimed water system</u>	<ul style="list-style-type: none"> • <u>AG</u>; or • <u>RP</u> 	<ul style="list-style-type: none"> • <u>AG</u>; or • <u>RP</u>; or • <u>DC</u>, or <u>DuC</u>, plus any one of the additional backflow protection measures described in <u>Table 2 below²</u>

¹ AG = air gap; RP = reduced-pressure principle assembly; DC = double check valve assembly; and DuC = dual check device.

² Upon discovery of any cross-connection between the customer's potable water system and the customer's auxiliary or reclaimed water system, the CWS either shall ensure that the cross-connection is eliminated; shall ensure that the backflow preventer at the service connection is upgraded to the type required for a commercial or industrial premises; or shall discontinue service until the cross-connection is eliminated or the backflow preventer at the service connection is upgraded.

TABLE 2

ADDITIONAL BACKFLOW PROTECTION MEASURES FOR USE AT
CERTAIN RESIDENTIAL PREMISES AS SPECIFIED IN TABLE 1 ABOVE

Premises Inspections

Under this additional backflow protection measure, the CWS shall ensure that the customer premises is inspected for cross-connections between the customer's potable water system and the customer's auxiliary or reclaimed water system. Such an inspection shall be conducted at the time a backflow preventer is initially installed and at least every five years thereafter by appropriately trained CWS staff or contractors or by a licensed plumbing contractor. The CWS shall develop an inspection protocol and an inspection form to be completed and signed by the inspector, and the CWS shall keep in its records a copy of the latest completed and signed inspection form for the customer premises. Upon discovery of any cross-connection, the CWS shall do one of the following: (1) ensure that the cross-connection is eliminated; (2) ensure that the backflow preventer at the service connection is upgraded to the type required for a commercial or industrial premises; or (3) discontinue service until the cross-connection is eliminated or the backflow preventer at the service connection is upgraded.

Automatic Meter Reading (AMR)

Under this additional backflow protection measure, the CWS shall utilize AMR at the service connection. Such AMR shall have the ability to detect reversal of flow through the service connection and either provide immediate notification of the flow reversal event or record the flow reversal data for transmittal or retrieval on at least a monthly basis. If flow reversal is detected, the CWS shall ensure that the customer premises is inspected in accordance with "Premises Inspections" above, except the inspection shall be on a onetime basis. Upon discovery of any cross-connection, the CWS shall do one of the following: (1) ensure that the cross-connection is eliminated; (2) ensure that the backflow preventer at the service connection is upgraded to the type required for a commercial or industrial premises; or (3) discontinue service until the cross-connection is eliminated or the backflow preventer at the service connection is upgraded. Also, if flow reversal is detected and if the backflow preventer at the service connection is not upgraded, the CWS shall ensure that the backflow preventer at the service connection is in-line field tested or is overhauled or replaced.

Customer Agreement

Under this additional backflow protection measure, the CWS shall ensure that the customer signs an agreement and shall keep in its records a copy of the signed agreement. Such an agreement shall prohibit the customer from creating any cross-connection between the customer's potable water system and the customer's auxiliary or reclaimed water system; shall discuss the potential health implications associated with such a cross-connection; and shall stipulate penalties if any such cross-connection is discovered at the customer premises. Upon discovery of any cross-connection, the CWS shall do one of the following: (1) ensure that the cross-connection is eliminated; (2) ensure that the backflow preventer at the service connection is upgraded to the type required for a commercial or industrial premises; or (3) discontinue service until the cross-connection is eliminated or the backflow preventer at the service connection is upgraded. Also, upon discovery of any cross-connection, the CWS may choose to levy fines.

Managed Premises

Under this additional backflow protection measure, the CWS shall ensure that the customer premises is under the jurisdictional control of a third party, such as a homeowners association, with established restrictions regarding the use and modification of the premises. Such restrictions shall prohibit the customer from altering or tampering with the customer's potable water system and the customer's auxiliary or reclaimed water system. The CWS shall keep in its records a copy of the third-party's legal instrument establishing such restrictions. Upon discovery of any cross-connection at such a premises, the CWS shall do one of the following: (1) ensure that the cross-connection is eliminated; (2) ensure that the backflow preventer at the service connection is upgraded to the type required for a commercial or industrial premises; or (3) discontinue service until the cross-connection is eliminated or the backflow preventer at the service connection is upgraded.

1 (II) CWSs need not, but may, ensure that a backflow preventer is installed at service connections to premises

2 where there is an undeveloped auxiliary water supply (i.e., an auxiliary water supply but no auxiliary water system).

3 b. Fire Protection Systems.

4 (I) At commercial, industrial, or residential premises where there is a fire protection system that is connected

Backflow Valve Update # 8

August 30, 2010

This is Update # 8. The full series of Updates is available at www.backflowvideos.org

This Update ¹ is not intended to detract from the effort by Florida's Department of Environmental Protection (DEP) to revise their out-of-date regulations. However, even the possible consideration of the old-fashioned and dangerous Reduced Pressure Zone (RP) ² backflow valves in the DEP's revised regulations of Chapter 62-555 of the Florida Administrative Code ³ is very troubling.

This Update is about a document that recently surfaced that is DEP's official statement concerning the unreliability of Reduced Pressure Zone backflow valves (RPs). The document was prepared by the DEP's John Sowerby in response to a question from a member of the Florida Senate as to why the time between testing RPs shouldn't be five years, instead of one. Here is DEP's statement that was sent back to the Senator: ⁴

"Mechanical backflow preventers have internal seals, springs, and check valves that are subject to fouling, corrosion, wear, or fatigue. Depositing water and tuberculation build-up, as well as foreign material such as sand grains, can foul check valves or can clog sensing lines in reduced-pressure principle backflow preventers. Corrosive waters can disintegrate metal parts. Even the simple movement of water through backflow preventers can cause wear on parts. Therefore, testable mechanical backflow preventers must be tested periodically to ensure that the internal parts of the backflow preventers are functioning properly. All manufacturers of backflow preventers, the U.S. Environmental Protection Agency, the American Water Works Association, the American Backflow Prevention Association, the American Society of Sanitary Engineering, and the National Fire Protection Association, as well as the International Plumbing Code and Florida Building Code, recommend or require that testable mechanical backflow preventers be tested at least annually (or more frequently). Less frequent testing of testable mechanical backflow preventers will result in both an increased number of these backflow preventers failing to function properly between tests and an increased period of time during which these backflow preventers are not functioning properly. According to Les O'Brien, an instructor at the University of Florida's Center for Training, Research, and Environmental

Occupations and a nationally recognized expert on backflow prevention and cross-connection control, **the percentage of testable mechanical backflow preventers failing to function properly during any year typically ranges between 10% to 40%** and increases about 10% each year a backflow preventer is not tested. Therefore, after five years, the percentage of testable mechanical backflow preventers failing to function properly may be between 50% and 80%. When a mechanical backflow preventer fails to function properly, it may or may not still prevent backflow depending on the type and degree of failure."

The "10% to 40%" failure rate averages out to **a 25% yearly failure rate**. An RP failure rate of 1 out of 4 (25%) to protect a public water system from contamination is very troubling, from both a safety and liability standpoint. From a statistical point of view, this means that at any given moment, 1 out of 8 RP valves are in failure mode. I can't think of any discipline concerned with the safety of individuals, including aviation, railroads, highways, automobiles, etc., that would abide such a horrific failure rate.

The good news is that the use of Automatic Meter Reading (AMR) water meters, instead of RP valves, provide less expensive, more reliable and a compelling protection of a public water supply. AMR's record the amount of forward **and backflow** every 15 minutes, or oftener, and transmit the data to a passing vehicle or central antenna, i.e. they report any backflow incidents either instantaneously or within 30 days, depending on the utility's protocol. AMRs are typically warranted for at least ten years. This sure beats the heck out of RPs for which the DEP officially recognizes an exorbitantly high failure rate.

By the way, the city of Dunedin, FL, has a very informative and user-friendly page for their customers about their recent changeover to AMRs. It is located at:

<http://www.dunedingov.com/home.aspx?page=departments/PublicWorks/WaterAMR&title=Automatic%20Meter%20Reading>

They also address the problem of thermal expansion when backflow valves are installed:

<http://www.dunedingov.com/home.aspx?page=departments/PublicWorks/water>

Hopefully, DEP's revised backflow valve regulations will fully embrace AMRs and totally ban RPs from residential areas.

Again, I appreciate your positive responses to these Backflow Valve Updates.

Thank you,



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³ <http://www.suncitydave.info/DEP-Draft-3.pdf>

⁴ Sent by John Sowerby on 4/1/2005 to Geoffrey Mansfield and Brian Welch (DEP’s lobbyist to the Florida Senate) for presentation to the Senator.