

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¹ is not intended to detract from the effort by Florida's Department of Environmental Protection (DEP) to revise their out-of-date regulations.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 fluid and cursive, with a long horizontal stroke extending to the right.

David Brown

1805 Burlington Circle

Sun City Center, FL 33573-5219

Phone: 1-813-634-6048

Websites: www.suncitydave.info & www.backflowvideos.org

Email: dbrown28@tampabay.rr.com

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