

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¹ is not intended to detract from the effort by Florida's Department of Environmental Protection (DEP) to revise their out-of-date regulations.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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¹ The DEP is aware of the contents of this *Update* and any corrections that they supplied have been incorporated. 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 <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.