

The Floridan

A Drinking Water Newsletter

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The purpose of this publication is to present issues and explore events of interest to owners and operators of public water systems, and Drinking Water Managers around the state.



David C. James, P.G.

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Ground Water Section

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Water Well Construction Program

Florida Department of Environmental Protection

by David C. James, P.G.

The excavation and digging of water wells has existed since the time of the ancient Phoenicians and Abyssinians. History points to some of these wells dating back as far as 8100-7500 BC. All water wells up until the early 19th century were dug by hand. Beginning in the 1800's, water wells began to be mechanically drilled, originating in the United States around 1808. Since that time, innovations in mechanical power sources have served as the principal method for water well construction.



View into a hand-dug well cased with concrete rings; Ouelessebougou, Mali.

Floridians rely heavily on high quality ground water for drinking and other needs. It is estimated that 90% of the state's population uses ground water resources for their drinking water. Additionally, over 50% of all other water needs, including agricultural, industry, mining, and electric power generation, are supplied by ground water resources. Water wells are drilled to different depths below the ground surface based on the intended use of the well and the quantity of water needed. When the amount of ground water needed is minimal, such as for home irrigation, a shallow well drilled into the surficial aquifer or water table is usually adequate. If greater quantities of water are needed or for greater protection of the ground water resource, a deeper well is generally drilled into a confined aquifer.



Hand-dug well at the Wald monastery in Germany.

The Florida Department of Environmental Protection (FDEP) regulates the construction of water wells as authorized by Chapter 373, Florida Statutes (F.S.), Part III, Regulation of Wells, to protect public health and the ground water resource - <http://www.leg.state.fl.us/statutes/>. The rules regulating water well contractor licensing and well permitting are Chapters 62-531, Florida Administrative Code (F.A.C.), Water Well Licensing Requirements, and Chapter 62-532, F.A.C., Water Well Permitting and Construction Requirements, respectively: <http://www.dep.state.fl.us/water/groundwater/gwreg.htm>. As authorized by statute, the FDEP has delegated implementation of water well contractor licensing and well permitting to the five regional water management districts (WMDs). Additionally, as required by statute, any person engaging in the business of water well contracting must be a Florida-licensed water well contractor

to construct, repair, or abandon a water well within the state and can obtain a permit, unless exempt by rule, from the WMDs or their delegated permitting authority.

The Water Well Contractor Work Group was formed as required by Section 373.337, F.S. The work group meets on a quarterly basis and consists of staff from FDEP, the WMDs, the FL Department of Health, the Florida Ground Water Association, and private water well contractors. The work group provides the WMDs and representatives of the water well contracting industry with an opportunity to participate in the development of rules, and to discuss statewide regulation of water wells, well construction methods and procedures consistent with industry standards, and business professionalism.

There are three main types of drilling methods used to effectively construct water wells: cable tool, combination, and rotary drilling. A basic description of how a water well is constructed consists of the following elements:

- boring the hole for the well;
- installing the casing (pipe) and placing a well screen if required;
- grouting the annular space of the well (if required) to provide sanitary protection and remove the potential for ground water contamination;
- developing or pumping the well to remove debris and sedimentation.

Water wells should be constructed to prevent possible contamination. Wells can be located on high ground to allow surface water and storm water to drain away from well areas. Wells should also be located away from possible sanitary hazards or pollution sources such as septic system drain fields, fueling or maintenance areas, chemical storage areas, storm water detention or retention basins, etc. Chapter 62-532, F.A.C., Table I Footnotes, lists water well setbacks from sanitary hazards and other pollution sources.

Choosing a qualified, licensed water well contractor to construct a well is the responsibility of the well owner. A water well contractor should be able to tell you the method of well construction he/she would use, the estimated depth and diameter of the well, the anticipated water yield or withdrawal (gallons/minute), the method of disinfection (if required), the pump size, and the estimated total well cost. To help determine the proper well depth, ask a neighbor or business about their casing depth and total well depth. You can also call the appropriate WMD to request an approximate well depth for the area based on the intended use of the well. Before hiring a contractor, ask the following questions:

- What are the contractor's credentials, is he or she properly licensed?
- What services does the contractor agree to provide? (have the contractor put this in writing)
- What kind of experience and reputation does the contractor have? Will the contractor provide referrals from previous customers?
- What are the contractor's routine and emergency repair policies?
- What kind of guarantees will the contractor provide? (contractors cannot guarantee the quality of water)

A list of Florida-licensed water well contractors and links to the WMDs is available at the FDEP's Water Well Clearinghouse website: <http://waterwebprod.dep.state.fl.us/wwcvc>.

Everyone wants clean, clear, fresh tasting water. So, does poor well water quality mean that a water well has been improperly constructed? Generally No! Most cases of poor ground water quality are not caused by faulty well drilling. Natural recharge of ground water comes from rain, rivers, lakes and wetlands, which slowly percolates into the ground. As the ground water is recharged, it moves and flows through underground layers of sediment



Cable tool water well drilling rig, images from http://en.wikipedia.org/wiki/Water_well

and rock (aquifers) in a complex three dimensional meandering path that affects ground water quality. Poor ground water quality is usually caused by natural conditions within the aquifer(s) that include poor color due to organic carbons and total dissolved solids, objectionable taste due to high sulfur or iron content, salinity due to salt water intrusion, and contamination from flooding or other contaminant sources. Contact a Florida-licensed water well contractor, the WMD, or the local County Health Department (CHD) with any questions or concerns about well water quality.

Additionally, it is also recommended that private water wells be tested for bacteria and nitrates. In most counties, the CHD will test water well samples for a minimal fee. The CHD will provide sampling bottles with instruction on how to collect and submit water samples for testing and will provide laboratory results within two weeks or less. Alternatively, water well samples can be taken to a private laboratory for testing.

Water produced from water wells provides one of the most precious of all the natural resources to mankind. It is the responsibility of every water well owner to protect this resource by maintaining a well in proper working condition and by keeping the wellhead area safe from potential contaminant sources. An old proverb saying goes... *YOU WILL NOT KNOW THE WORTH OF WATER UNTIL THE WELL RUNS DRY!!!*

Stage 1 and 2 Disinfectants/Disinfection Byproducts Rule Update

by Virginia Harmon, DBP Rule Coordinator

The Stage 1 and Stage 2 rules are part of the Microbial-Disinfectants/Disinfection Byproducts Cluster (M-DBP Cluster) of federal rules. This cluster is intended to improve control of microbial pathogens while minimizing public health risks of disinfectants and disinfection byproducts (DBPs). Disinfectant residuals regulated under the federal Stage 1 and/or Stage 2 Rules are chlorine, chloramines, and chlorine dioxide. Disinfection byproducts regulated under these rules are total trihalomethanes (TTHM), haloacetic acids (HAA5), bromate, and chlorite. This article is an update on the federal regulations and State rules regulating these disinfectant residuals and disinfection byproducts. In this article, a surface water system means a subpart H system or a public water system using surface water or ground water under the direct influence of surface water (GWUDI) as defined by 620-550.200(86) F.A.C. "CWS" stands for community water system, "NTNCWS" stands for non-transient non-community water system, and "PWS" stands for public water system.

DISINFECTANT RESIDUALS

Chlorine dioxide: The Stage 1 Rule specifies that the chlorine dioxide maximum residual disinfectant level (MRDL) applies to all PWSs using chlorine dioxide as a disinfectant. The effective date of these requirements is January 1, 2002 for surface water PWSs serving $\geq 10,000$ persons and January 1, 2004 for all other public water systems.

Chlorine and chloramines: The Stage 1 Rule specifies that the chlorine and chloramine MRDLs apply to all CWSs and NTNCWSs using chlorine or chloramines. This took effect January 1, 2002 for surface water CWSs and NTNCWSs serving $\geq 10,000$ persons and January 1, 2004 for all other CWSs and NTNCWSs. These chlorine and chloramine samples are taken at the same times and locations as the samples for Total Coliform Rule compliance. As a result of the Stage 2 Rule, consecutive systems in Florida not adding chlorine or chloramines also became subject to chlorine or chloramine monitoring effective April 1, 2009.

DISINFECTANT BYPRODUCTS - TTHM and HAA5

Stage 1 monitoring: CWSs and NTNCWSs adding a chemical disinfectant in any part of the drinking water treatment process have been monitoring for TTHM and HAA5 under Stage 1 since 2002 (surface water systems serving $\geq 10,000$ persons) or 2004 (all other systems). The number of monitoring sites and the monitoring frequency

are related to the source water type (surface or ground), number of treatment plants, and population served. This Stage 1 monitoring will continue until replaced by Stage 2 TTHM and HAA5 compliance monitoring.

IDSE phase of Stage 2 Rule: The set of Initial Distribution System Evaluation (IDSE) related activities occurred once, from as early as 2006 to as late as 2010, and there are no regulations requiring any such activities to be repeated. Under the Stage 2 Rule, which was promulgated in January 2006, NTNCWSs serving $\geq 10,000$ and CWSs may have conducted “standard monitoring”, or a “system specific study.” Alternatively, they may have filed a “40/30 certification.” CWSs serving < 500 persons were given the “very small systems (VSS)” waiver from having to do any of the above three actions. For CWSs serving ≥ 500 persons, “standard monitoring” commonly occurred. It involved taking extra TTHM and HAA5 samples in addition to the Stage 1 samples. The results were used to determine Stage 2 TTHM and HAA5 compliance monitoring locations. The USEPA was in charge of administering the Stage 2 Rule during the IDSE phase and remains in charge of administering the Stage 2 Rule until further notice.

TTHM and HAA5 compliance monitoring phase of the Stage 2 Rule: Stage 1 TTHM and HAA5 compliance monitoring will continue until replaced by Stage 2 TTHM and HAA5 compliance monitoring. This Stage 2 monitoring will begin on different dates for different systems, depending on their Stage 2 “schedules” (groups) and initial Stage 2 monitoring frequencies. The earliest possible start date, April 1, 2012, is for Schedule 1 systems. Compliance with the maximum contaminant levels will be calculated using a “locational running annual average” (LRAA) at each monitoring location. If one or more monitoring locations violate the TTHM or HAA5 MCLs, the entire system is out of compliance. This is different than the system-wide determinations currently being made under Stage 1. Determination of start dates and development of monitoring plans (due no later than the date of initial Stage 2 monitoring) will be covered in detail in the Spring 2012 *Floridan*.

DISINFECTION BYPRODUCTS - CHLORITE AND BROMATE

Chlorite: CWSs and NTNCWSs using chlorine dioxide for disinfection are subject to the Stage 1 chlorite MCL of 1.0 mg/L. Monitoring began in 2002 or 2004 as discussed above under **Stage 1 monitoring**. Chlorite monitoring will continue indefinitely under Stage 1, as the Stage 2 regulations do not address chlorite.

Bromate: CWSs and NTNCWSs using ozone for disinfection are subject to the Stage 1 bromate MCL of 0.010 mg/L. Monitoring began in 2002 or 2004 as discussed above under **Stage 1 monitoring**. Bromate monitoring will continue indefinitely under Stage 1, as the Stage 2 regulations do not address bromate.



ON THE CUTTING EDGE...

An Analysis of Paralysis

by Chris Roeder, Water Security Coordinator

Never allow a good crisis to go to waste (or even a fake crisis), to paraphrase Chicago Mayor Rahm Emanuel, “because it’s the opportunity to do big things you’ve been avoiding.” A crisis forces you to think anew, and do things you may have thought you couldn’t do, and learn from trying.

The best way to capture those lessons and put them to work is to document the effort and the results, and then duplicate the new effective actions in drills and exercises. That’s the idea behind scenario-based exercises now being conducted across Florida and the Nation. And, as usual, Florida’s water utility community is leading the way.

The University of Florida TREEO Center, in cooperation with the FDEP, is offering new water system security and preparedness training free at convenient locations across Florida. Check out their schedule for a class coming soon to a location near you (www.treeo.ufl.edu).

Many water sector tabletop exercises, such as the November Southeast Water Agency Response Network (WARN) workshop in Tallahassee, now focus on the “all-hazards” approach to preparedness, with particular emphasis on the role of mutual aid in response and recovery.

These exercises, with robust participation and facilitated discussions, always reveal a multitude of ways to improve your Emergency Response Plan (ERP), and generally spruce-up your security and preparedness.

At a recent water security training held at the TREEO Center in Gainesville, participants raised excellent questions ranging from the pitfalls of suspect profiling, to the importance of Florida’s Sunshine Law and keeping public records, well, public. And while easy answers may be hard to find, just the very act of asking tough, sometimes controversial, questions provides great stimulus for a multitude of ERP updates.

F’instance, there is not likely to be any final answers for the ubiquitous problem of communication breakdown during emergencies. But you can update your ERP to include guidance on that.

Responders can, and should, be encouraged to explore, and act on, solutions to mission-critical concerns, *by whatever means necessary*.

Which leads us to another mission-critical concern - the analysis of paralysis. When to act ... when to plan ... and when to wait. Just for arguments sake, let’s imagine your answers to these perennial questions are: “now”, “before” and “never”, respectively. That is, act early and act often, reiterate your plan and make your next move. Fight paralysis.

There are of course, exceptions to any rule and there are times when waiting may be your best plan. But in an emergency, often you must act, rather than wait for further guidance, which too often comes too late (if at all).

So a good crisis is any crisis where no one actually gets hurt, and valuable lessons are learned that help you prevent, mitigate and respond to future crises.

You can make up a good crisis using a real one as a model scenario. Then inject it chock full of failures and pitfalls to honestly challenge your status quo (i.e., your current emergency response regimen). To make sure you don’t let a good crisis go to waste always do a robust “hot wash” or after action review to capture plenty of critique and suggestions for a doable improvement plan... then act on that plan. Keep the overall mission strategy simple (even if the details are complicated).

The Heath Brothers, entrepreneur visionaries, recently cited a study showing that even doctors, when given too many choices, were prone to “decision paralysis”. They resorted to the familiar “default” option of “surgery” rather than choose from an array of new treatments. However, when their options were limited to just one new medication, they often chose that rather than the surgery.

So while a wide range of options is usually good, too many, sometimes conflicting, instructions in an ERP can produce a form of “hidden tyranny” resulting in over-hesitation to do anything.

To overcome this paralysis pitfall, utilities are encouraged to bolster their ERP’s with simple, effective “calls to action” such as:

- Act early, act often
- Reiterate your plan
- Don’t let the perfect be the enemy of the good
- Semper gummy (always flexible)

On the cutting edge, the key is “simple” mission statements (not to be confused with simpleminded) that empower emergency workers to take action and do what needs to be done.

Remember, in emergency response “wait” is a four letter word.

EPA and USDA Create a Partnership to Improve Drinking Water Systems and Develop Workforce in Rural Communities

WASHINGTON -The U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA) announced on August 8, 2011, a national partnership to protect Americans' health by improving rural drinking water and wastewater systems. Nationwide, small water and sewage treatment facilities with limited funding and resources face challenges due to rising costs and aging equipment and pipes. This agreement will send federal resources to support communities that need assistance and promote job training to help put people to work while addressing the growing workforce shortage in the water industry.

“EPA and USDA have joined forces to leverage our expertise and resources to improve drinking water and wastewater systems in small towns across the country,” said Nancy Stoner, acting assistant administrator for EPA’s Office of Water. “A critical part of this agreement is to ensure that we have a well trained, professional workforce available to replace workers when they leave or retire.”

“The agreement we are announcing today represents an exciting partnership between USDA and EPA that will greatly enhance our investments in water systems and also in developing a skilled workforce to oversee them,” said Jonathan Adelstein, administrator for USDA’s Rural Utilities Service. “By working together, our agencies will strengthen their capacity to provide rural residents with safe, clean, well-managed water and wastewater systems for years to come.”

Under the agreement, EPA and USDA will work together to promote jobs by targeting specific audiences, providing training for new water careers and coordinating outreach efforts that will bring greater public visibility to the workforce needs of the industry, and develop a new generation of trained water professionals. EPA and USDA will also facilitate the exchange of successful recruitment and training strategies among stakeholders including states and water industries.

The agencies will also help rural utilities improve current operations and encourage development of long-term water quality improvement plans. The plans will include developing sustainable management practices to cut costs and improve performance.

In June, President Obama signed an executive order establishing the first White House Rural Council, chaired by USDA Secretary, Tom Vilsack. The White House Rural Council will work throughout government to create policies that will help realize the administration’s goals for rural communities. This agreement is part of that initiative.



Image from http://www.florida-redi.com/Pages/We_Are_RED1.aspx

More about the EPA-USDA agreement: <http://water.epa.gov/type/drink/pws/smallsystems/partners.cfm#moa>

More about EPA’s programs and tools for small water systems: <http://water.epa.gov/type/drink/pws/smallsystems/index.cfm>

More about USDA’s Water and Environmental Programs for rural communities: http://www.rurdev.usda.gov/UWEP_HomePage.html

Northwest District Spotlight

The Florida Department of Environmental Protection Drinking Water Section



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The FDEP's Northwest District Drinking Water Program provides regulatory oversight of 425 public water systems in a 16-county area of the Florida panhandle. The district headquarters staff in Pensacola, along with Tallahassee and Panama City field office staff administer permitting, compliance, and enforcement activities to ensure the provision of safe drinking water through the implementation of the federal and State *Safe Drinking Water Acts*. The Northwest District's drinking water staff is comprised of 13 persons, 6 of which have over 15 years experience in the Drinking Water Program. The Drinking Water staff is committed to the LEAN initiative, a continuous improvement program aimed at reducing waste and improving efficiency. Program staff pride themselves in providing customer service to the regulated community and citizenry.

FDEP Northwest District Drinking Water Staff

Pensacola District Office



John Pope
Drinking Water Supervisor

John Pope, Environmental Manager: John is the Drinking Water Section Supervisor. His primary area of responsibility is the review of all applications for Specific and General Permits and preparation of permit documents. David Morres, P.E., Water Facilities Administrator, issues all Drinking Water permits.

Toni Touart-Rohlke, Environmental Specialist: Toni is the district chemical compliance manager. She also inspects public water systems located in the five most western counties of the panhandle.

Elizabeth Willard, Environmental Specialist: Liz oversees the Consumer Confidence Report and Capacity Development programs. She also performs inspections in the five most western counties of the panhandle and processes applications for DEP and EPA Plant of the Year awards.

Scott Grubbs, Environmental Specialist: Scott inspects the larger public water systems in the five most western counties of the panhandle and is the district inspection workload manager. He also reviews certifications of construction completion and issues clearance letters to place permitted projects into service. Scott is a district leader in the LEAN initiative and, on an annual basis, participates as instructor in the State's Sanitary Survey School.



Toni Touart-Rohlke



Elizabeth Willard



Scott Grubbs



Karianne Pezdirtz



David Hines



Kevin Holler



Melissa Fusco



Nicole Hetzel

Karianne Pezdirtz, Environmental Specialist: Karianne administers the federal Lead & Copper rule, along with the inspection of water systems in the five most western counties of the panhandle. She also assists in our Consumer Confidence Report help sessions and performs data entry.

David Hines, Environmental Specialist: David is the district enforcement coordinator and also inspects public water systems in the five most western counties of the panhandle.

Kevin Holler, Environmental Specialist: Kevin oversees the Total Coliform Rule and the federal Groundwater Rule. He also inspects water systems in the five most western counties of the panhandle.

Melissa Fusco, Environmental Specialist: Melissa processes monthly operation reports, inspects water systems in the five most western counties of the panhandle, and oversees GIS/GPS activities.

Nicole Hetzel, Environmental Specialist: Nicole oversees precautionary boil water notifications, inspects water systems in the five most western counties of the panhandle, and performs data entry.

Panama City Field Office

Josie Penton, Environmental Manager: Josie is the supervisor for the Drinking Water Section in our Panama City field office.



Haley Duncan, Environmental Specialist: Haley inspects all water systems in a 5-county area encompassing Bay, Calhoun, Gulf, Jackson, and Washington County.

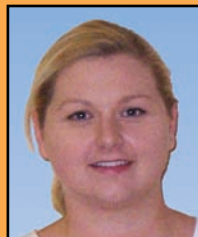
Tallahassee Field Office

Cliff McKeown, Engineer Specialist: Cliff is the supervisor for the Drinking Water Section in our Tallahassee field office. He also inspects the water systems in a 6-county area encompassing Franklin, Gadsden, Jefferson, Leon, Liberty, and Wakulla County.

Brian Bastin, Environmental Specialist: Brian inspects the water systems in the 6-county area adjacent to the Tallahassee field office.



Josie Penton



Haley Duncan



Cliff McKeown



Brian Bastin

“ Ask Edgar ”



(D. Edgar Possum)

The State Employee

Dear Edgar,

Recently there seems to be an increasing concern with cyber attacks on critical infrastructure such as drinking water and wastewater facilities. Where can we find reliable information to help us understand current threats, evaluate vulnerability and find guidance to protect our system?

Keeping it safe in Sarasota



Dear KISS,

I share your concern, which is why I frequent the US-CERT website operated by the National Cyber Security Division (NCSA) at the Department of Homeland Security.

To quote their mission statement, “US-CERT’s mission is to improve the nation’s cyber security posture, coordinate cyber information sharing and proactively manage cyber risks to the nation while protecting the constitutional rights of Americans.

US-CERT vision is to be a trusted global leader in cyber security - collaborative, agile, and responsive in a complex environment.”

Check out the website at http://www.us-cert.gov/control_systems/csstandards.html.

Edgar

Dear Edgar,

My large community water system (CWS) was placed on a 9 year radionuclide monitoring schedule and our last monitoring was in 2011. What year do we monitor next?

Rockin It

Dear Rockin It,

All systems are required to adhere to the standardized monitoring framework (SMF) shown in Ch. 62-550.500 F.A.C. Systems are to monitor in specific years based on system type and size.

The first radionuclides rule compliance cycle began in 2008, which places radionuclides monitoring offset from the other contaminants monitoring in the SMF by 6 years. The beginning of the next radionuclide compliance cycle is 2017. Refer to EPA’s quick reference guide at http://www.epa.gov/ogwdw/pws/pdfs/qrg_smonitoringframework.pdf.

Large CWS monitoring every 9 years are required to monitor during the first three-year compliance period of each 9 year compliance cycle. Your system should monitor for radionuclides next in 2017 and then every 9 years thereafter as long as the sample results remain low.

Edgar

Dear Santa Edgar,

I’m dreaming of a wet Christmas... just like the ones I used to know... Where the influent tinkles and the aerator wrinkles... and the diffusers freely flow...

But as the temperature decreases, I’m worried my process may be affected... Can you help me?

An Operator for All Seasons

Dear Dreamy,

Keeping your wastewater mesh screen clean, and your grit chamber well maintained should help with the influent concerns. And you’re right again, aeration producing wrinkles (or waves) across the lagoon surface, along with keeping your diffuser jets flowing freely should help achieve optimal mixing. Don’t forget, when Jack Frost comes to visit for the holidays, our biological reactions slow - so you may want to increase aeration rate and time accordingly.

And it sounds like you may benefit from a long Holiday break... (just sayin’), so make sure replacement operators know how to manage the seasonal changes.

*Cheerfully,
Edgar*

Dear Edgar,

Thought you might want to know. The CDC has released a couple of excellent documents in the last few months that you would find helpful in emergency situations, and to help you plan for them. Take a look when you have a few minutes and share them with your health care facilities and drinking water utilities:

<http://www.cdc.gov/healthywater/>

emergency/drinking_water_advisory/index.html

Bobby V

Bobby V

Thanks Bobby V for the heads up on this one!

Edgar



Image by John Yaya

Dear Edgar,

Had a problem at the water plant yesterday. We was tryin' to get the lime encrusted filter media out of the filter boxes but the media was so cemented up that the vac truck didn't work, so we had to break it up with hammers to get it out there. Anyways in the middle of all that mess the vac truck backed over the fire hydrant and broke it off the main, shootin' water up in the air an drainin' the ground storage tank. We ran around looking for the shutoff valve and couldn't find the thing which was probably buried under the ground somewhere. By the time we rifled through our ancient as-builts, the tank ran out and the city was out of water.

What can we do to keep this from happening again?

Dazed and Confused

Dear Dazed and Confused,

First off, if the fire hydrant is in a vulnerable location, place a couple bollards around to protect it. The most important lesson from this event is to update your distribution maps to include all important valve locations. This can be a drawn out and somewhat costly endeavor, but will pay dividends in the long run.

With the availability of GIS, a utility can input valve locations, main lengths and diameters, interconnects, meters, service connections, hydrants, etc. in separate GIS layers and overlay them on an up to date aerial map. This practice greatly saves time locating a valve in case of an emergency, and benefits the system in other ways such as calculating water storage, designing a unidirectional flushing program, solving pressure problems, reducing stagnant water issues and nitrification, and aiding in distribution system modeling. With some training in using basic GIS mapping, operators can then solve many distribution problems before they become an emergency. Regularly locate and inspect valves.

Edgar

Dear Readers,

In the Summer 2011 issue, VOC Sampler asked about the proper procedure for sampling volatile organic compounds (VOCs) and the "zero head space" sampling technique. The response given to this question included that if there were any bubbles present in the vial after it was closed, to remove the cap and add drops of sample to the bottle.

After reading the DEP SOPs again, from [http://publicfiles.dep.state](http://publicfiles.dep.state.fl.us/dear/sas/sopdoc/2008sops/fs2000.pdf)

[fl.us/dear/sas/sopdoc/2008sops/fs2000.pdf](http://publicfiles.dep.state.fl.us/dear/sas/sopdoc/2008sops/fs2000.pdf), I realized that if the total volume of the bubbles is greater than 5 mm in diameter, discard the vial and fill a new one. Please reference F.S. 2004, 4.4.3.

D. Edgar Possum

Dear Edgar,

When should I expect DEP to visit my system to do a sanitary survey?

Getting Ready

Getting Ready

FDEP is required to visit community and non-transient non-community water systems at least every 3 years and transient water systems at least every 5 years.

However, some regulatory offices perform inspections annually or more often, so be sure to fix any problems as soon as possible.

Edgar



Image by Robin's Nesting Place

**Nose'n For News,
Edgar!**

Mapping Ground Water Rule Requirements: Public Notification, Consumer Confidence Reports, and Special Notices

by John Sowerby, P.E.

This is the fifth article in a series of five articles by the U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP). The goal of this series of five articles is to help ground water systems (GWSs) navigate their way through Ground Water Rule (GWR) requirements. The first four articles discussed the four major components of the GWR: source water monitoring, compliance monitoring, sanitary surveys, and corrective action. This final article discusses new requirements the GWR introduces regarding public notification (PN), consumer confidence reports (CCRs), and special notices.

GWR and PN

Public water systems must provide PN for violations of primary drinking water standards and for certain other situations. PN requirements are divided into three tiers to take into account the seriousness of the violation or situation. The deadline and methods for delivering PN vary depending on the tier.

Florida Administrative Code (FAC) Rule 62-560.410(3) requires Tier 3 PN for failure to perform assessment ground water source monitoring required under FAC Rule 62-550.518. Additionally, the GWR amended Title 40, Part 141, Subpart Q, of the Code of Federal Regulations (40 CFR 141, Subpart Q) to require PN for GWR violations and for certain other GWR situations. Please see Table 1 for a summary of all GWR violations and situations for which PN is required and a summary of the required tier of PN for each of these violations or situations. Also, see the USEPA's *Revised Public Notification Handbook* for detailed guidance concerning PN.

Table 1. GWR Violations or Situations for Which PN Is Required

GWR Violation or Situation	PN Required
Fecal-indicator-positive (FI+) initial or additional, triggered or assessment source water sample.	Tier 1 PN under 40 CFR 141, Subpart Q: <ul style="list-style-type: none"> Provide notice via broadcast media, posting, hand delivery, or other approved method as soon as practical but no later than 24 hours after the GWS learns of the situation. Repeat or continue notice as determined by the FDEP.
Treatment technique violation resulting from failure to complete corrective action, or to be in compliance with an FDEP-approved corrective action plan, within 120 days of being notified of a significant deficiency or an FI+ additional triggered or assessment source water sample.	Tier 2 PN under 40 CFR 141, Subpart Q: <ul style="list-style-type: none"> Provide notice as specified in 40 CFR 141.203(c) as soon as practical but no later than 30 days after the PWS learns of the violation. Repeat or continue notice as specified in 40 CFR 141.203(b).
Treatment technique violation resulting from failure to maintain FDEP-approved four-log virus treatment for more than four hours after the GWS learned of the failure.	
Failure to meet assessment source water monitoring requirements under FAC Rule 62-550.518.	Tier 3 PN under FAC Rule 62-560.410(3): <ul style="list-style-type: none"> Provide notice as specified in FAC Rule 62-560.410(3)(a), (b), or (c) within three months after the GWS learns of the monitoring violation. Repeat or continue notice as specified in FAC Rule 62-560.410(3)(a), (b), or (c).
Failure to meet triggered source water monitoring requirements or compliance monitoring requirements.	Tier 3 PN under 40 CFR 141, Subpart Q: <ul style="list-style-type: none"> Provide notice as specified in 40 CFR 141.204(c) or (d) not later than one year after the PWS learns of the monitoring violation. Repeat or continue notice as specified in 40 CFR 141.204(b).

As mentioned in the second article of this series, the GWR has specific triggered source water monitoring requirements for consecutive and wholesale systems. Consecutive systems that have a total-coliform-positive (TC+) routine distribution system sample collected under FAC Rule 62-550.518 must notify their wholesale systems

within 24 hours of learning of the TC+ sample if the wholesale system does not provide FDEP-approved four-log virus treatment for each ground water source. Wholesale systems that do not provide FDEP-approved four-log virus treatment for each ground water source must collect a triggered sample from appropriate ground water sources within 24 hours of learning of a TC+ routine sample in either their own distribution system or a consecutive system's distribution system. If a triggered source water sample is fecal-indicator-positive (FI+), the wholesale system is required to inform all consecutive systems that are provided ground water from that source. In turn, both the wholesale system and the consecutive systems that delivered finished water from the FI+ ground water source must notify their customers via Tier 1 PN. Please see Figure 1 for an example of PN requirements and the wholesale and consecutive relationship under the GWR.

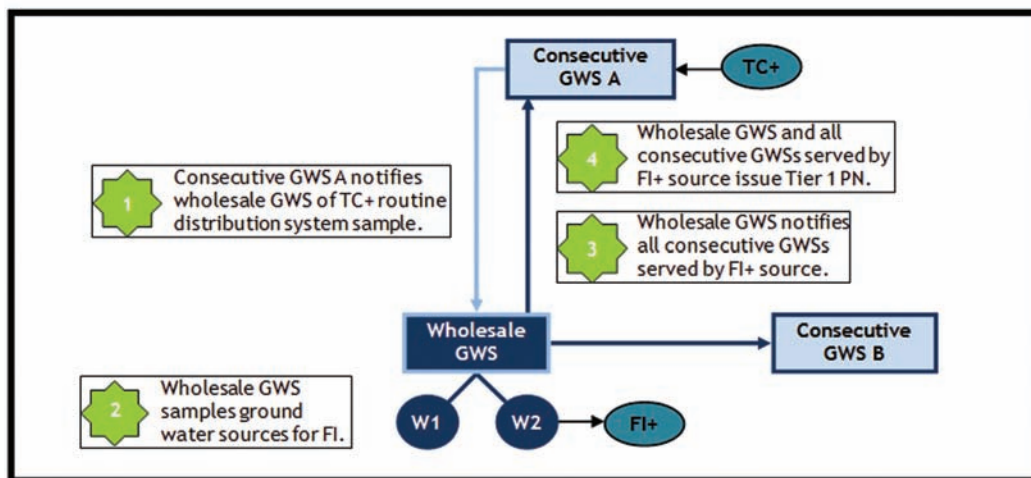


Figure 1. PN Requirements and the Wholesale/Consecutive Relationship Under the GWR

GWR and CCRs

Community water systems must deliver a CCR to their customers by July 1 of each year. Each CCR must include water quality data collected during the previous calendar year and must include information on compliance with drinking water rules and regulations during the previous calendar year.

Community GWSs are required to include in their CCR any FI+ ground water source samples, any GWR treatment technique violations, and any GWR monitoring or reporting violations. FI+ ground water source samples must be included in the water quality data table in the CCR. (For *E. coli*-positive samples, list the maximum contaminant level [MCL] and the maximum contaminant level goal [MCLG] as zero; for enterococci-positive or coliphage-positive samples, put “TT” in the column for MCL and put “N/A” in the column for MCLG; and for all FI+ samples, include the total number of positive samples for the year.) It is recommended that systems include any treatment technique violations in a table adjacent to the main water quality data table; such a table must include an explanation of each violation, the length of each violation, the potential adverse health effects for each violation, and actions taken by the system to address each violation.

Additionally, the GWR amended 40 CFR 141, Subpart O, to require that community GWSs include in their CCR a special notice for any significant deficiency that is uncorrected at the time the CCR is issued and a special notice for any FI+ ground water source sample. Since any FI+ ground water source sample must be included in the water quality data table, the special notice for an FI+ ground water source sample may be included in or below the water quality data table. Please see the following section of this article for more information about special notices. Also, see the 2nd, or April 2010, Revision of the USEPA’s *Preparing Your Drinking Water Consumer Confidence Report* for additional detailed guidance concerning CCRs.

GWR and Special Notices

Special notices are a new type of notice introduced by the GWR. Special notices are required for both community GWSs and non-community GWSs.

As mentioned above, community GWSs are required to include in their CCR a special notice for any significant deficiency that is uncorrected at the time the CCR is issued and a special notice for any FI+ ground water source

sample. Furthermore, community GWSs must continue to include such a special notice in their CCR until the FDEP determines that the significant deficiency is corrected or that the fecal contamination in the ground water source is addressed under the GWR. Each special notice by a community GWS must include the following information:

- The nature of the significant deficiency and the date it was identified by the FDEP; or the cause (if known) of the fecal contamination in the ground water source and the date of the FI+ ground water source sample.
- Whether the fecal contamination in the ground water source has been addressed under the GWR and, if so, the date it was addressed.
- The FDEP-approved plan and schedule for correction of the significant deficiency; or the FDEP-approved plan and schedule for correction of the fecal contamination in the ground water source if it has not been addressed under the GWR.
- For a FI+ ground water source sample, the potential health effects using the language in Appendix A to 40 CFR 141, Subpart O.

Non-community GWSs are required to issue a special notice for any significant deficiency that has not been corrected within 12 months after the FDEP notified the GWS of the deficiency. Since non-community GWSs are not required to publish an annual CCR, they must issue special notices in some other manner approved by the FDEP. The FDEP generally will determine that posting of special notices is sufficient for most non-community GWSs. Non-community GWSs must continue to issue a special notice annually until the significant deficiency is corrected. Each special notice by a non-community GWS must include the following information:

- The nature of the significant deficiency and the date it was identified by the FDEP.
- The FDEP-approved plan and schedule for correction of the significant deficiency.
- For systems where more than 20% of the customers are non-English speaking, information in the appropriate language(s) regarding the importance of the notice.

Frequently Asked Questions:

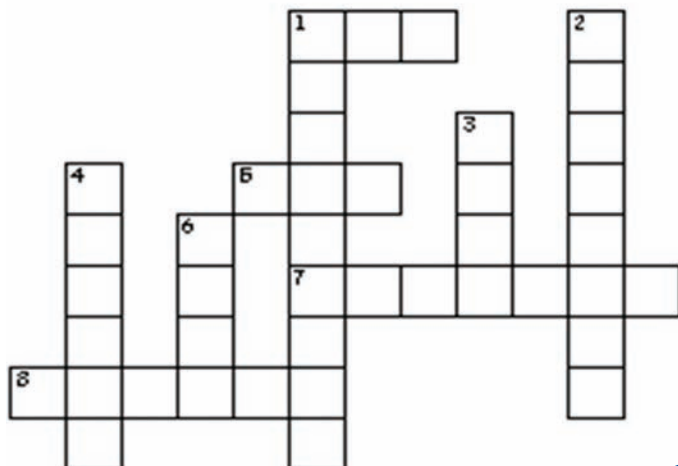
Question #1: Is Tier 1 PN required for an initial FI+ ground water source sample (i.e., before any additional, or confirmation, ground water source samples are taken)?

Answer #1: Yes. Tier 1 PN is required for every FI+ ground water source sample (including initial or additional, triggered or assessment samples).

Question #2: If a consecutive system has a TC+ routine distribution system sample collected under FAC Rule 62-550.518, is the consecutive system required to notify its wholesale systems?

Answer #2: Yes, if neither the wholesale system nor the consecutive system provides FDEP-approved four-log virus treatment for each of the wholesale system’s ground water sources. In such cases, failure to notify the wholesale system within 24 hours is a monitoring violation for which Tier 3 PN is required. The consecutive system is responsible for confirming whether its wholesale systems are providing FDEP-approved four-log virus treatment for each ground water source.

Occupy Time at the WW Plant



Across

1. Nixing mixing; or final disinfectant vat (initials)
5. Document that guides crisis action (initials)
7. Sands or membranes, for example (plural)
8. Healthy when activated

Down

1. Settles things
2. Little eaters
3. Removed in first chamber; or movie: True _ _ _ _
4. Reuse pipe hue
6. Holding Area; or movie: On Golden _ _ _ _



Lab Corner

Are You Well Qualified?

by Eric Bengtson, Compliance Manager



Overwhelmed with all the lab results pouring in? Lost in a sea of paperwork and sample bottles? I hope this article serves as a refresher for you to understand the information we need to make a decision on all the samples that get submitted to your local Drinking Water Program office. Let's start with some of the basic minimum reporting requirements. All chemical and bacteriological analysis forms should have the following:

- Facility name and PWS I.D. number
- Address and county
- Collector's name and title
- Date and time of collection
- Type of water system
- Raw or treated sample
- Sample type
- Sample location

Analysis results submitted on forms that are not complete or not clearly and correctly filled out may not be accepted for compliance. Sample results with lab qualifier codes (examples include J, Q, R, Y) must always be accompanied by a detailed written justification as to why that qualifier was associated with the sample result. An explanation of "the result was estimated" is not sufficient enough for the reviewer to make a determination on whether or not to accept the result. Most likely, these types of non-descriptive responses will lead to frustration, not only on your part but also with the reviewing office.

Note: Some qualifiers are never accepted for compliance with F.A.C. 62-550 and 62-555. See Table 1 in F.A.C. 62-160 for more details.

Remember to include the basic items on your lab reporting sheets and don't forget to sign in the appropriate areas! Here are some final Do's and Don'ts to help keep you on the path to compliance:

- **Do** sample early within your monitoring timeframe. If you are scheduled to sample quarterly, do it within the first month to allow for sufficient time to take confirmation or replacement samples should the need arise.
- **Don't** sample on the last day of the last month and then rush your paperwork to the lab. Chances are that your forms are incomplete and missing critical pieces of information. These late submittals also tend to inundate the lab with a backload of samples to process.
- **Do** set yourself up for success by planning ahead for all your sampling events necessary for the year. A simple wall or desktop calendar with reminders can be a life saver.
- **Don't** be afraid to call or email your local office and ask for help. It's what we're here for!

For more information, refer to the DOH website: <http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm>

Crossword Answer key:

ACROSS 1) CCC (for Cross-Connection Control or Chlorine Contact Chamber); 5) ERP; 7) filters; 8) sludge;
DOWN 1) clarifier; 2) bacteria; 3) grit; 4) purple; 6) pond

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