



SUPPLY LINES WITH THE SOURCE



Newsletter of the NHDES Drinking Water & Groundwater Bureau
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Fall 2012

Assessing Assets Assists A System

Drinking water infrastructure across the nation scored a “D minus” in a 2009 survey conducted by the American Society of Civil Engineers. The survey reported that significant investment in water infrastructure will be needed in the near future for communities to continue to provide safe and reliable drinking water to their customers.

To continue to protect public health, water utilities with limited funding and aging infrastructure must prioritize which projects to do now and which ones to defer. The solution involves asset management planning, which helps managers determine how to operate and maintain their systems at the lowest life-cycle cost while maintaining the desired level of service, e.g., goals to meet customer expectations. All water systems spend time planning to varying degrees. The asset management approach helps systems to manage the risks that come when dealing with limited resources.

The U.S. Environmental Protection Agency considers asset management to be based on a framework of five core questions. A growing number of water systems across the nation are developing and implementing plans that address each of these questions.

1. What is the current state of the asset?
2. What is the required sustainable level of service?
3. Which assets are critical to sustained performance?
4. What are the minimum life-cycle costs?
5. What is the best long-term funding strategy?

DES recently developed a public water system Asset Management Planning grant program. The program assists community water systems with

developing asset management plans. Water systems can apply for up to \$15,000 per grant, which can be used to hire a consultant to conduct asset management initiatives. A 50 percent local match is required.

The goals of the program are to assist systems in developing an asset inventory with condition assessment, to review the current water rates to determine whether the existing structure supports future investment needs, and to communicate these planning efforts to customers. The program will be funded using \$150,000 of the Drinking Water State Revolving Fund (DWSRF) loan program set-aside. Future applicants for DWSRF funding may receive priority ranking points for having implemented an asset management plan.

Nobody wants to have a report or wish list of projects collecting dust on a shelf. This program, like most asset management planning efforts, includes a funding strategy for improvements that are expected within the next 10 years. The funding strategy should address water rates, debt capacity, capital reserves, determination of when to repair versus when to replace or renew assets, and a preventative maintenance plan as a means of extending an asset’s useful life.

Asset management planning requires follow through and a clear implementation plan. For the overall effort to be a success, water systems should develop an asset management team that coordinates closely with the person(s) responsible for implementation of the plan.

Additionally, many customers are unaware of the significant, on-going reinvestment needed to deliver public health protection, fire protection, support for the economy, and the overall quality of life we enjoy. In order to build awareness,

Assets, continued on page 2



SPOTLIGHT ON THE WAUKEWAN WATERSHED

Crossing Municipal Boundaries to Protect Meredith's Water Supply

by Kim Goddu, DES Source Water Protection Intern

Most water supply watersheds extend into several—if not many—towns, so working across municipal boundaries to conserve critical riparian areas is essential to protecting surface water sources. Lake Waukewan, the town of Meredith's water supply source, is an example; its watershed extends into five towns. Fortunately, towns in the watershed and the Waukewan Shore Owners Association have worked together on a number of initiatives to protect the lake.

Most recently, the New Hampton Conservation Commission agreed to purchase an 8-acre parcel on the west side of the Snake River that flows from Lake Winona to Lake Waukewan. The parcel includes 1,480 feet of river frontage.

According to John Edgar, community development director for the town of Meredith, the "2002 Community Plan" identified maintaining the quality of drinking water as an important goal. The town's Waukewan Watershed Advisory Committee has focused on preserving the quality of the drinking water in Lake Waukewan and protecting the critical watershed resources surrounding the lake. In the Waukewan Watershed Management Plan, the town flagged the Snake River as a high priority due to its capacity to protect water quality and the large amount of adjoining wetland habitat.

The first project to protect land on the Snake River, completed in 2010, protected 8.5 acres of

designated prime wetland with 2,842 feet of river frontage. It was initiated by the town of New Hampton in partnership with the Waukewan Shore Owners Association and the town of Meredith. The property being acquired in 2012 is directly adjacent to the aforementioned parcel. According to John Edgar, the purchase of both properties will protect almost the entire western bank of the river. The eastern side of river lies in Center Harbor and has been designated a prime wetland area.

One major difference between the two projects involves funding. The 2010 property purchase was completely funded by the towns of Meredith and New Hampton, while the 2012 property is partially funded through the Aquatic Resources Mitigation (ARM) Fund administered by DES. According to Lori Sommer, the DES wetland mitigation coordinator, New Hampton applied for the grant and received \$100,000 to cover some of the acquisition costs of the property. The ARM program collects funding through wetlands impact fees, which must be used in the same river basin in which they were received. The rest of the funding for the project will be supplied by the Meredith and New Hampton Conservation Commissions. •

Assets, continued from page 1

one of the conditions of the grant is for the system owner/directors/commissioners to inform staff and customers of the asset management plan, including its purpose, significant findings, implementation strategy, and financial implications. This may be done in the annual Consumer Confidence Report or through other approaches, such as bill stuffers, websites, email, Facebook, or Twitter.

For more information, contact Adam Torrey at (603) 271-2950 or adam.torrey@des.nh.gov. •

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Clean Water Isn't Free

Many public water suppliers in New Hampshire are struggling to recover enough money for the services they provide and to maintain the integrity of their water systems. As the financial strain of aging infrastructure and stricter drinking water standards puts the squeeze on public water suppliers, water rate increases are inevitable. Asking people to dig deeper into their pockets during these tough economic times can be difficult. How do you gain the trust of consumers and convince them that water is worth the cost?

Sara Katz, the founder and president of Katz & Associates, is a communications expert who has successfully worked with public water suppliers on gaining consumer confidence and acceptance of rate increases. During the recent webinar "Clean Water Isn't Free? Communicating About Rates," sponsored by the Water Environment Federation, Katz suggested:

1. Do not let a rate increase be the first thing customers hear from you. Start communicating with the public now.
2. Rather than guessing, get out in the community and find out who your audience is.
3. Decide on the key messages you would like to send to your consumers. Tailor the messages and delivery method to your audience. One size does not fit all.
4. Connect the rate increase with what the money will be used for and explain the drivers of costs.
5. Let customers know that the rate increase is necessary to protect their health and safety and to protect the environment.
6. Get the support of senior management and elected officials.
7. "Face time" is key. Hold community open houses, virtual tours, or workshops to show the public how the water system works. Highlight how water is used in our everyday lives and what can be done by individuals and families to save water and money.
8. Make cost comparisons. For example, \$1.38 can pay for one cup of coffee or one day of water for flushing, showering, drinking, and cleaning for a single family household in New Hampshire.
9. Practice empathy. Understand the other ex-

penses your customers incur.

10. Stay in contact with consumers by providing regular updates.

New Hampshire water suppliers have taken other measures to mitigate the anxiety of rate increases. Some systems are integrating leak detection into the system's SCADA system and offering to quickly notify consumers of potential leaks in their homes. Other systems are implementing an increasing block rate structure so the biggest water users pay the most while the users who conserve pay less. Some systems are offering water saver kits. And, some systems are billing more frequently so consumers become accustomed to budgeting for their water bill. Consumers are also then able to review their water usage more frequently and make adjustments as needed.

For more information, contact Stacey Herbold at (603) 271-0659 or stacey.herbold@des.nh.gov. A recording of the webinar can be accessed at www1.gotomeeting.com/register/112393433. •

Drinking Water Compliance Report Available Online

The 1996 amendments to the Safe Drinking Water Act require each state to prepare an annual compliance report summarizing violations incurred by public water systems. The annual compliance report is submitted to the U.S. Environmental Protection Agency and made available to the public. The purpose of this report is to summarize the number and types of regulatory violations for which public water systems were cited as a result of failing to meet various requirements of the Safe Drinking Water Act.

New Hampshire's 2011 annual compliance report also contains an overview of the state's drinking water program and a summary of regulated water systems. The full version of this report can be found at http://des.nh.gov/organization/divisions/water/dwgb/annual_report.htm. •

Are Your Chemical Samples Correct? A Look at Nitrate/Nitrite, VOC, IOC, SOC and RAD

Do your water system's chemical monitoring samples accurately reflect the quality of the water being served or that could be served to your customers? It is imperative that you have an accurate assessment of your system's water quality, both of the water that is being consumed and the water that could be consumed.

The DWGB provides each water system with a Master Sampling Schedule (MSS) to help ensure that this is the case. Water system operators must make sure that the MSS is strictly followed and that it accurately reflects the conditions of your system. In addition to telling you when and what to sample for, your MSS has a brief characterization of each chemical sample in the site description, i.e., what are the system conditions (see below) at the time and place of the sample. The site descriptions are preprinted on your Chemical Analysis Request Form.

The chemical sample location should be the last tap prior to distribution into the system/building; it should not be the same as a bacteria or lead/copper sampling location. Is your site description accurate? If you have a single well source and no treatment, the description is usually just a physical location, often with the well designation included. It can be a little more complicated for systems that have multiple sources and/or treatment. The descriptors of sampling sites and system conditions may include one or more of the following terms:

- DEP (distribution entry point): tap located after all treatment and before the first customer.
- After Treatment: tap after a treatment process(es).
- Source: single source.
- Blend: blend of the listed sources, defined as a permanent set up either with all sources operating simultaneously or automatically alternating.
- FM (flow mix): multiple sources mixed proportionately to treat a source that has a contaminant exceeding a maximum contaminant level (MCL).

There are questions to ask before taking a chemical sample. For example, is this truly the distribution entry point? Are all of the sources

identified and being sampled? If the sample is for a blend or flow mix, are all of the sources listed on-line and operating as approved? If the answer is "yes," then take the sample. If not, you should ask yourself, "what is different?" Is a listed source in a blend or flow mix off-line for some reason? Are there unidentified sources on-line? Is the designated sampling point before treatment or after a service connection? If you have any problems or questions, contact us before taking your samples. It is much easier to address these issues up front rather than to try to correct problems after the fact.

Water system operators are responsible for ensuring that water quality is properly monitored. Be aware that the Analysis Request Form, or Chain of Custody form is a legal document. When you sign the form, you are certifying the validity of that sample, that it was taken, transported, and controlled properly, and that all of the information on the form is correct as it applies to that sample.

If you have questions about your Master Sampling Schedule or Analysis Request Form contact Tricia Madore at (603) 271-3907 or tricia.madore@des.nh.gov or Deb McDonnell at (603) 271-6703 or debra.mcdonnell@des.nh.gov. Thank you for your efforts to provide safe, clean water to your customers. •

N.H. Environmental Laboratory Accreditation Program

Looking for an accredited laboratory? Check out the laboratory information query function at www2.des.nh.gov/CertifiedLabs/Certified-Method.aspx. For example, by searching on "Matrix: Drinking Water," "Analyte Name: Lead," and "State: NH" you can find all of the accredited laboratories in New Hampshire that perform drinking water lead analysis. A variety of different searches can be performed to meet your needs.

For a list of accredited labs that complete all DES recommended testing for private, domestic wells, go to <http://des.nh.gov/organization/divisions/water/dwgb/nhelap/documents/labs-private-wells.pdf>. Please call (603) 271-2998 if you have any questions. •

Aquifer Vulnerability and Fire Flow Impact: A Proactive Approach to Protecting Environmental Resources

by Gabrielle C. Belfit & Michael J. Schrader, Tighe & Bond Inc., Pocasset, Mass.

Despite many improvements in procedures and tactics, modern fire fighting still requires large volumes of water to suppress fires. Although the water used to fight fires is most often drinking water, it can become contaminated through contact with fuels and other chemicals present at the scene. Recent testing of the runoff from fire scenes shows the presence of a variety of contaminants including cyanide, arsenic, VOCs, metals, and elevated pH. This runoff represents a direct threat to both surface and groundwater drinking supplies.

The International Association of Fire Chiefs Environmental Sustainability Committee is committed to improving the sustainability of fire fighting practices by developing improved strategies and protocols to avoid or mitigate this environmental risk. A recent development comes from Cape Cod, Mass., where aquifers are especially vulnerable due to shallow groundwater and porous overburden. A team lead by Yarmouth Fire Chief Michael A. Walker has developed a map-based aquifer specific risk protocol and a tiered best practice approach known as VIPER, Vulnerability Impact Protocol for Environmental Resources.

This innovative tool builds upon the existing DRASTIC model developed by the EPA for defining aquifer risk. This model is highly adaptable and can be applied to aquifers nationwide. The final product is a numerically rated grid system that categorizes the relative risk to the aquifer from a contaminant transport perspective.

The aquifer risk map allows incident commanders to develop geographically specific tiered emergency response protocols in advance. By incorporating site-specific information, such as hazardous material inspection reports and building layout information, VIPER becomes a powerful rapid response tool, linking critical site data and environmental resource information. VIPER provides an innovative, science-based strategy that communities can adapt using a protocol and asset allocation reflective of the specific attributes and vulnerabilities of their water supply.

Access to real time information and flexibility in executing fire fighting tactics were identified as key to acceptance by local departments. As a

result, the VIPER system can be tailored to a variety of delivery platforms, from paper maps to sophisticated computer aided dispatch systems, and mobile field units, such as tablets or laptop computers, depending on the needs and resources of each community.

The innovative program has generated wide interest from a combination of water providers and fire fighting agencies and it has been peer reviewed at Region 1 EPA in Boston and the Massachusetts Fire Academy. VIPER represents a significant accomplishment towards improving the protection of water resources during fire fighting activities. •

Drinking Water Advisories Online

In order to quickly alert the public to drinking water contamination issues, the DWGB posts acute drinking water health advisories at [www2.des.state.nh.us/Advisories/Drinking Water](http://www2.des.state.nh.us/Advisories/Drinking-Water). The advisories include boil water orders for *E. coli* detections and “do not drink” notices for elevated levels of nitrate/nitrite.

Advisories are posted as soon as they are issued, and are initially listed under the “Active Drinking Water Advisories” section of the webpage. The webpage also includes basic information about the affected system and provides links to various DWGB fact sheets. When the system has resolved the problem, the advisory is moved to the “Drinking Water Advisories Lifted” section and remains there for up to 30 days.

For more information or questions about the boil water order advisories, contact Jocelyn Weldon at (603) 271-0672. For the nitrate/nitrite advisories, contact Harrison “Chip” Mackey at (603) 271-0655. •

Drinking Water and Groundwater Enforcement Activity in 2011

The DWGB offers assistance to public water systems to help them maintain compliance with federal and state drinking water regulations. Despite this assistance, contamination issues, significant deficiencies found during sanitary surveys, and other regulatory violations sometimes require DWGB to initiate enforcement actions.

DWGB employs a hierarchy of enforcement actions beginning with a letter of deficiency (LOD). An LOD is a letter sent to the owner of a water system which identifies violations of specific regulations. In the LOD, DWGB requests that the owner bring the system back into compliance by taking certain actions within specified time periods. During 2011, DWGB issued 235 LODs. Bacteria related violations, violations for failure to provide public notice to consumers, sanitary survey violations, and Consumer Confidence Report violations constituted the bulk of the LODs in 2011.

DWGB issues an administrative order (AO) in response to particularly serious violations or when a system continues to accrue violations after receiving an LOD. An AO is a legally enforceable document that requires the water system owner to correct violations by completing actions by specified deadlines. Most AOs are recorded at the county registry of deeds to alert property buyers and financial institutions of compliance issues at a public water system. Failure to comply with an AO may result in an administrative fine or referral of the case to the Attorney General's Office for imposition of criminal or civil penalties. DWGB issued 10 AOs in 2011. The water systems that received an AO all accrued multiple violations, including failures to sample, to correct significant deficiencies, and/or to hire a certified operator.

An administrative fine (AF) imposes a monetary penalty for violations. In 2011, four AFs were issued, with proposed fine amounts ranging from \$2,000 to \$20,000. One violator reached a Motion to Accept Settlement Agreement with the DES Water Division and two are awaiting a Notice of Decision after administrative hearings were held. These three AFs cited repeated violations due to failure to sample for acute contaminants and failure to provide public notice of these violations. The fourth AF was issued for installing a well pump without a license. The violator reached a

2011 Drinking Water Enforcement Activity

Enforcement Type	Number
Letters of Deficiency	235
Administrative Orders	10
Administrative Fines	4
Referrals to the Attorney General's Office	2
Boil Orders	35
Do Not Drink Notice (Nitrate Exceedances)	3

Motion to Accept Settlement Agreement.

On occasion, a violation is considered by DWGB to be so serious and/or intentional that the case is referred directly to the Attorney General's Office for enforcement. DWGB referred two cases to the Attorney General's Office in 2011: one relating to multiple concerns over the operational readiness of a water system and the other pertaining to multiple sampling failures.

In May 2010, Grafton County Superior Court accepted the Attorney General's Final Decree against a water system that had numerous sampling and public notice violations. The water system was ordered to pay a \$55,000 civil penalty. After multiple contempt hearings, the water system was closed down via court order in October 2011 and the owner is making payments of the civil penalty.

DWGB also has the authority to require a public water system to issue a boil water order for a variety of health-related reasons. The most common is the discovery of *E. coli* or fecal bacteria in a water sample; however, some water systems choose to institute a boil water order due to loss of pressure or flooding in a pumphouse.

In 2011, 35 boil water orders were issued. In cases where nitrate levels in a water sample exceed the drinking water standard, DES requires public water systems to issue a "do not drink" order. In 2011, three "do not drink" orders were issued

For more information on enforcement issues, contact Leah McKenna at (603) 271-2854 or leah.mckenna@des.nh.gov. LODs, AOs, and AFs issued by DES programs can be viewed online at www2.des.state.nh.us/Legal for a minimum of five years after compliance is achieved. •

Summary of Cyber Security Workshop for Water and Wastewater Utilities

On June 19, 2012, approximately 40 drinking water, wastewater, and information technology personnel came together for a workshop on cyber security issues for drinking water and wastewater facilities. The workshop was the first of its kind for New Hampshire's water sector and provided attendees with a half-day of presentations on cyber security and the associated threats.

Speakers included Timothy Bailey, Department of Homeland Security (DHS) intelligence officer; Jennifer Harper, co-director of the N.H. Information and Analysis Center; Ronald Peimer, DHS N.H. Protective Security advisor; Michael LeKing, DHS National Cyber Security Division; and Matthew Butkovic, critical infrastructure protection, and Michael Rattigan, technical staff, from Carnegie Mellon University.

Ron Peimer described the free, non-regulatory, on-the-ground security assessments that he can provide to water and wastewater facilities. Ron has done several water sector assessments in the state and has had success with assisting one New Hampshire water utility with obtaining grant funds to close some of the gaps identified during their security assessment.

Cyber attacks are becoming more complex and easier to execute in part due to outdated control systems that some facilities use without professional IT support. Some of the protective steps facilities should take, if they don't already, include:

- Stay informed; be aware of cyber alerts.
- Maintain systems/applications, such as isolating the SCADA system from the office network.
- Define policies and require standard products, such as no USB ports on plant computers.
- Raise awareness; require cyber security training.
- Conduct risk assessments, such as CSET and CRR (see below).
- Report incidents.
- Have a plan to respond to cyber incidents.
- Make sure to change the default SCADA administrator password.
- Conduct "SCADA free" days to practice manual operations in case SCADA operations need to be shut down due to cyber attacks.

DHS provides several tools for the water sector. The Cyber Security Evaluation Program conducts a no-cost, voluntary Cyber Resilience Review (CRR) to evaluate and enhance cyber security capacities and capabilities. The CRR is a one-day, on-site facilitation and interview of key cyber security personnel. Two water/wastewater facilities in New Hampshire have gone through the CRR process so far. Facilities that may not want to or cannot commit to a CRR can use the Cyber Security Evaluation Tool (CSET), a free downloadable DHS software program. This tool guides users through a step-by-step process to self-evaluate computer systems and network security practices.

Most of the attendees felt that the workshop was worthwhile, informative and eye opening, and were interested in more details about SCADA equipment and security basics. Hopefully water system managers can use information and available tools to begin to improve their cyber resiliency. If you are interested in any of the cyber security information listed above, contact Johnna McKenna at (603) 271-7017 or johnna.mckenna@des.nh.gov.

2012 Report on Water Supply Land Protection Grant Program Available

The 2012 biennial report for the DES Water Supply Land Protection Grant Program is now available online. The program provides grants to municipalities and land trusts for up to 25 percent of the funding needed to permanently protect critical water supply land when funds are available. The report can be found at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/land_acqui/documents/biennial-report.pdf. A copy of this report can be requested by contacting Holly Green, Water Supply Land Protection Grant coordinator, at (603) 271-3114 or holly.green@des.nh.gov.

Don't Miss Out: Last Chance for a Free 2012 & 2013 N.H. Public Works Mutual Aid Program Membership

If you have been thinking about improving your emergency response capabilities with a mutual aid agreement, then now is your chance. The N.H. Public Works Mutual Aid program is a network of communities that assist each other during emergencies and has over 188 members statewide. DES, with funding from EPA, is sponsoring the cost of a 2012 and 2013 membership (a \$50 value) for any new community water system member or municipality that has a public water system. In addition, the "Refer-A-Friend" program will cover the cost of next year's membership to any existing member that assists a new community water system member with signing up.

To become a new member, contact Johnna McKenna at (603) 271-7017 or johnna.mckenna@des.nh.gov. The DES member sponsorship is for a limited time. Information about the program along with the agreement can be found on the web at www.t2.unh.edu/ma.

REMINDER

Time is running out to apply for 2013 Source Water Protection Grants. Applications are due November 1.

Applicants can receive up to \$20,000 for projects to protect drinking water sources including watershed planning, delineation of protection areas, assessment of threats to water supply sources and source security. Applications are available at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/lswp_grants.htm, or by calling (603) 271-7017.

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