

SUPPLY LINES WITH THE SOURCE



Newsletter of the NHDES Drinking Water & Groundwater Bureau on the web at www.des.nh.gov

Winter 2019

\$26.4M Invested in Drinking Water Projects in 2018!

The Drinking Water and Groundwater Trust Fund (Trust Fund) Advisory Commission (Commission) awarded \$24 million (M) in construction projects and \$2.4M in Water Supply Land Protection Grants in 2018. Combine that with \$10M from the Drinking Water State Revolving Loan Fund (DWSRF) and New Hampshire has invested

over \$36.4M for drinking water projects in 2018.

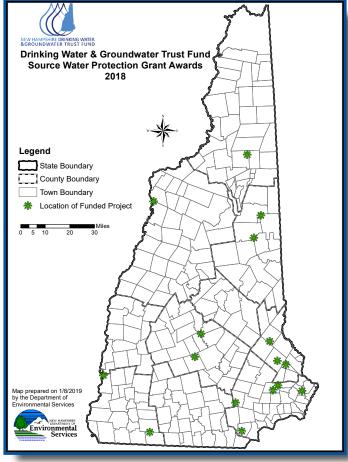
NHDES received pre-applications for 88 drinking water infrastructure construction projects and 23 water supply land protection projects from all around the state. Throughout the summer, NHDES assisted the Commission with their review of the applications. The Commission made their selections for Trust Fund projects and NHDES made their selections for DWSRF projects. This brought the total award of drinking water project funding for the Trust Fund to approximately \$91M since 2017!

Where did all that money come from? The Trust Fund was created with proceeds from a lawsuit the State of New Hampshire brought against Exxon-

Fund under RSA 485-F. As part of the establishment of the Trust Fund, the legislature formed the 19-member Commission award grants and loans in a manner consistent with the statute. The mission of the Commission is to provide for the protection, preservation, and enhancement of the drinking water and groundwater resources of

the state.

What projects have been funded so far? Infrastructure construction loans or grant projects include directly addressing contamination issues in Amherst and Rochester to extend safe and reliable drinking water to impacted properties; treatment plant upgrades in Newmarket, Merrimack and Belmont; water main replacements in Marlborough and Gorham; and developing a regional water solution to extend drinking water to address MtBE-contaminated groundwater in Windham, Salem and Plaistow. A grant to the Department of Education will address lead in schools and a grant to North Walpole will treat 1,4-dioxane in their drinking water.



Source water protection awardee locations

Mobil related to their use of methyl tertiary butyl ether (MtBE) as a gasoline additive that resulted in widespread groundwater contamination. The New Hampshire jury found ExxonMobil guilty and awarded the State \$276M in damages to drinking water resources. Most of the proceeds from this trial were used to establish the Trust

Fifteen land conservation projects will permanently protect over 4,700 acres of high-priority water supply land (see map). Projects include conservation lands that protect wellhead areas in Epping and Canterbury/Northfield, watershed protection for the Rochester Reservoir

(26.4M, continued on pg 2)

(26.4M, continued from pg 1)

and almost all of Gorham's water supply watersheds.

Visit the program website for a list of all the funded projects https://www4.des.state.nh.us/nh-dwgtrust/ and https://www.des.nh.gov/organization/ divisions/water/dwgb/capacity/dwsrf.htm. Plans are in the works for the next funding round in 2019.

For questions about the Trust Fund, contact Erin Holmes at erin.holmes@des.nh.gov or (603) 271-8321. For questions about the DWSRF program, contact Johnna McKenna at johnna. mckenna@des.nh.gov or (603) 271-7017. •



Chesley project, Hopkinton

Cybersecurity Risk in the Water Sector

Cyber risk is the top security threat facing businesses and critical infrastructure in the United States, according to the Director of National Intelligence, the Federal Bureau of Investigation and the Department of Homeland Security. As you have likely seen in the news, cyber incidents are more frequent and are an important vulnerability that critical infrastructure sectors, including the water sector, needs to plan and prepare for. A North Carolina water utility was recently impacted by a ransomware attack that affected service for weeks.

To assist water systems with cyber security efforts, EPA Region 1 has been working with Department of Homeland Security (DHS) Cyber Security Advisor (CSA) program to offer free, on-site cyber resilience assessments. These assessments typically involve a one-day onsite visit by DHS CSA to meet with key utility staff and include a report with improvement options to consider. If you would like to set up a cyber resilience assessment please contact Johnna McKenna at johnna.mckenna@des.nh.gov or (603) 271-7017.

Not ready to have an on-site assessment? There are many other water sector tools that provide information on scalable and effective measures water systems can take to improve the cybersecurity of their organizations.

- DHS Cyber Security Resources: https://www.dhs.gov/topic/cybersecurity
- EPA Water Sector Cyber Security Incident Action Checklist: https:// www.epa.gov/sites/production/files/2017-11/documents/171013incidentactionchecklist-cybersecurity form 508c.pdf
- WaterISAC Cyber Security guide/tools: https://www.waterisac.org/ cybersecuritymeasures
- American Water Works Association Cyber Security Guidance & Tools: https://www.awwa.org/resources-tools/water-and-wastewater-utilitymanagement/cybersecurity-guidance.aspx
- DHS National Cybersecurity and Communications Integration Center (NCCIC): https://ics-cert.us-cert.gov/

Take some steps today: maintain current back-ups, keep anti-virus and operating systems up-to-date and provide employee awareness training. Remember to report any incidents to WaterISAC at analyst@waterisac.org or (202) 331-0479, or call local authorities. ♦

¹ Cybersecurity Guidance and Tool. American Water Works Association. https://www.awwa.org/Resources-Tools/water-and-wastewater-utilitymanagement/cybersecurity-guidance

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Cyanobacteria in New Hampshire: 2018 Recap and **Resources for Water Systems**

yanobacteria blooms are an increasing environmental concern with the potential to impact both recreational use ullet and the safety and quality of drinking water. Often referred to as Harmful Algal Blooms (HABs or cyanoHABs), these events often produce cyanotoxins and appear to be on the rise. In 2017 the NHDES Beach Inspection Program issued 19 cyanobacteria-related lake warnings for recreation. In 2018 there were over 34 warnings, including those issued for Lake Waukewan (Meredith) and Arlington Pond (Salem), both used as sources of drinking water.

(Cyanobacteria, continued on pg 4)

DWGB Calendar of Events & Deadlines: February - July 2019

April 1	Schedule 4 systems (less than 10,000 population) that exceeded the source water monitoring E. coli levels as part of the second round of testing under the Long Term 2 Enhanced Surface Water Treatment Rule (LT2) must begin sampling for Cryptosporidium, contact Randal Suozzo at randal.suozzo@des.nh.gov or (603) 271-1746
April 10	Disinfection Byproducts and Chlorine Residual report for Quarter 1 – 2019 due, contact Jacqueline Howarth at jacqueline.howarth@des.nh.gov or (603) 271-0672
April 19	State Revolving Fund and Drinking Water and Groundwater Trust Fund Workshop, contact Emily Nichols at emily.nichols@des.nh.gov or (603) 271-8320
April/May	Drinking Water State Revolving Fund (DWSRF) pre-applications available, contact Johnna McKenna at (603) 271-7017 or johnna.mckenna@des.nh.gov or see https://www.des.nh.gov/organization/divisions/water/dwgb/capacity/dwsrf.htm
June	2020 Leak Detection Survey Grant applications available, contact Stacey Herbold at stacey.herbold@des.nh.gov or 603-271-6685 or see http://des.nh.gov/organization/divisions/water/dwgb/water conservation/leak-detection.htm
July	2020 Leak Detection Survey Grant applications due, contact Stacey Herbold at stacey.hebold@des.nh.gov or 603-271-6685 or see http://des.nh.gov/organization/divisions/water/dwgb/water conservation/leak-detection.htm
July 1	SB247 Lead Testing in Schools and Licensed Child Care Centers due, contact either Cindy Klevens at cynthia.klevens@des.nh.gov or (603) 271-3108 or Amy Rousseau at amy.rousseau@des.nh.gov or (603) 271-0893

July 10 Disinfection Byproducts and Chlorine Residual report for Quarter 2 – 2019 due, contact

Jacqueline Howarth at jacqueline.howarth@des.nh.gov or (603) 271-0672

Anytime Cyanobacteria Monitoring and Training grant applications accepted, contact Tyler Davidson at tyler.davidson@des.nh.gov or (603) 271-3906, or see https://www.des.nh.gov/organization/

divisions/water/dwgb/cyano-response-training.htm

Anytime Record Drawing grant applications accepted, contact Johnna McKenna at

johnna.mckenna@des.nh.gov or (603) 271-7017, or see https://www.des.nh.gov/organization/

divisions/water/dwgb/documents/record-drawing-grant-app.doc

Anytime Tank Inspection grant applications accepted, contact Luis Adorno at

luis.adorno@des.nh.gov or (603) 271-2472, or see https://www.des.nh.gov/organization/

divisions/water/dwgb/asset-managment/index.htm

To see event calendars for additional opportunities, please visit:

Granite State Rural Water Association at www.granitestatewater.org New Hampshire Water Works Association at www.nhwwa.org New England Water Works Association at http://newwa.org

(Cyanobacteria, continued from pg 3)

A primary goal of the Drinking Water Source Protection Program (DWSPP) is to increase awareness of cyanobacteria among water suppliers and support proactive monitoring in surface water sources throughout the state. In support of this goal, NHDES is continuously working to make resources available for monitoring, identifying and responding to cyanobacteria blooms.

In late 2017, the Drinking Water Source Protection Program began offering grant funds to water suppliers using a lake, river or reservoir as a primary source of drinking water. Subsequently, \$12,126 in grant funding was provided to two public water systems (PWS) to jump-start water quality monitoring programs by paying for sampling tools and monitoring equipment.

Additionally, the NHDES Beach Inspection Program and DWSPP jointly procured a multi-parameter water quality monitoring sonde, equipped with a total algal sensor capable of measuring pigments that can be used to estimate the relative concentration of algae and



Water quality monitoring sonde

cvanobacteria. Research suggests that the relative concentration may be an early-warning indicator of an impending bloom. This season, NHDES plans to temporarily install the

sonde at interested surface water systems experiencing or at risk for blooms, to gather valuable site-specific data.

Technical resources related to cyanobacteria are available for water systems through the NHDES Cyanobacteria and Drinking Water page at https://www.des.nh.gov/ organization/divisions/water/dwgb/cyano-response.htm. Here, PWS operators can become familiar with NHDES' response protocol for water systems experiencing a bloom, obtain more information on funding sources and read the latest guidance for water systems to manage cyanobacteria and cyanotoxins.

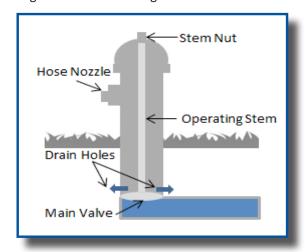
With changing climate conditions promoting bloom formation (warming air and water temperatures, more frequent heavy precipitation events), New Hampshire waterbodies will likely remain vulnerable to cyanoHABs. If you are interested in preparing your water system to identify and respond to potential cyanobacteria blooms, or are interested in having the water quality monitoring

sonde temporarily installed at your surface source of water, please contact Tyler Davidson at tyler.davidson@ des.nh.gov or (603) 271-3906.

Leaking Fire Hydrants May Be a Bigger Problem **Than You Think**

In 2018, the contractor for the DWGB Leak Detection Survey Grant Program conducted acoustic leak detection surveys at 41 community water systems and discovered a significant number of fire hydrant leaks. Of the 32 total leaks discovered, 29 were hydrant leaks with a total estimated leakage rate of approximately 86 gallons per minute.

Fire hydrant leaks normally occur when the underground valve connecting the hydrant to the water main is not seated properly. These leaks often go unseen due to the hydrant's design: when the main valve is closed, hydrant drain holes open and water that is left in the hydrant, as well as any water leaking from the main valve, will flow through the holes into the ground.



Hydrant diagram

Here are a few recommended ways to proactively manage hydrant leaks:

- 1. When opening hydrants to flush build up from water mains, make sure to open the hydrant valve fully. This allows debris to completely pass through the valve instead of getting stuck and preventing a tight seal when closing the valve.
- 2. Inspect hydrant valve parts during scheduled maintenance and replace seals showing wear and tear.
- 3. Proactively listen for leaks on hydrants using acoustic leak detection equipment. •

got radon?

Radon is a natural, radioactive gas that has no color, taste or smell. It is formed by the decay of uranium

found in the rocks and soils of New Hampshire. As New Hampshire is the "Granite State" and granite contains uranium, many of our homes are likely to have radon. The only way to know how much radon is in your home is to test the air using a radon test kit. If you have a private well, it is recommended to test the water also. Radon is a known carcinogen, which means it causes cancer, mainly lung cancer. Breathing in radon and using water containing radon increases your chance of getting lung cancer. If you find high levels of radon in your home, it is important to take action.

- In most cases, the best method for reducing radon in air involves installing a ventilation pipe, typically into the basement floor. The pipe is then routed to the exterior of the home, where a fan is installed, and then continues up above the roof line. The Action Level for radon in air is 4.0 pCi/L. Test kits for testing radon in air can be purchased at most hardware stores and online though National Radon Program Services at http://sosradon.org/test-kits.
- The main concern with radon in water is its contribution to radon in indoor air. The best way to remove radon from water is an aeration system that vents the radon outside the home. Granulated activated charcoal (GAC) systems can also be used, but are not as effective as aeration. NHDES recommends treatment of water and mitigation of indoor air when radon concentrations in water are at or above 10,000 pCi/L. When radon in well water is between 2,000 and 10,000 pCi/L, AND air concentrations exceed 4 pCi/L, then water treatment may also be advisable. For more information regarding NHDES' recommendations for radon in water, see NHDES' factsheet, "Radon in Your Home: An Overview for New Hampshire Homeowners" available at https://www.des.nh.gov/organization/

commissioner/pip/factsheets/dwgb/documents/dwgb-3-12.pdf.

• Kits for testing radon in water can be purchased at



The New Hampshire Radon Program is located within the Department of Health and Human Services, Division of Public Health Services and is here to help you with all of your radon questions.

For more information on radon, contact Owen David at owen.david@dhhs.nh.gov or at 1-800-897-5323 ext. 4052 and (603) 271-4052 or visit https://www.des.nh.gov/organization/divisions/air/pehb/ehs/radon/index.htm. ◆



How Does Radon Get Into Your Home?

- 1. Cracks in solid floors
- 2. Construction joints
- 3. Cracks in walls
- 4. Gaps in suspended floors
- 5. Gaps around service pipes
- 6. Cavities inside walls
- 7. The water supply

(Image from EPA, A Citizen's Guide to Radon, https:// www.epa.gov/sites/ production/files/2016-12/ documents/2016_a_citizens_ guide_to_radon.pdf)

State-wide private well testing – PFAS

The Trust Fund Commission authorized \$500,000 for NHDES to complete a statewide groundwater quality assessment. The objective of the assessment is to "determine the extent of emerging contaminants and background levels of key groundwater contaminants." The data obtained from this study will be integrated with groundwater quality datasets previously obtained by the NHDES MtBE Remediation Bureau, United States Geological Survey, public water systems and the Drinking Water and Groundwater Bureau. The objectives of the groundwater quality assessment include:

Evaluating the concentration and distribution of naturally occurring contaminants in drinking water supply wells.

(State-wide, continued on pg 6)

Recently Approved DWGB Rules

The Joint Legislative Committee on Administrative Rules (JLCAR) recently approved the following rules managed by DWGB. If you have questions on a specific recently approved rule, please contact the staff person listed below. If you are interested in receiving emails when proposed DWGB rules are in the rulemaking process, please email Debra Sonderegger at debra.sonderegger@des.nh.gov.



Rule

Groundwater Monitoring and Treatment (Env-Dw 717)

Date Effective

June 1, 2018

DWGB Rule Contact

Harrison "Chip" Mackey, (603) 271-0655 or harrison.mackey@des.nh.gov

- 2) Evaluating the occurrence, concentration and background levels of certain emerging contaminants.
- 3) Assessing variables that may affect groundwater and drinking water quality including:
 - a. Well type.
 - b. Well construction.
 - c. Well location relative to septic systems or other potential sources of contamination.
 - d. Geology.
 - e. Geographic location and associated density of development.
 - f. Age of home and type of plumbing system.
- 4) Providing information to homeowners about the quality of their drinking water and, when necessary, steps that can be taken to improve water quality.
- 5) Providing information to the Water Well Board relative to any findings about the impact of well construction and location on water quality.
- 6) Augmenting private well water quality outreach initiatives.
- 7) Providing water quality data that corresponds with many of the parameters that are being analyzed for in a biomonitoring study being conducted by the New Hampshire Department of Health and Human Services (DHHS).

Four hundred domestic water supply wells, selected

randomly but distributed in a uniform manner, will be sampled. An additional 100 domestic water wells, whose occupants are currently participating in a DHHS biomonitoring program, will also be sampled. In addition to standard compounds that NHDES recommends homeowners sample for, the analyses will include poly- and perfluoroalkyl substances (PFAS), 1,4-dioxane, volatile organic compounds, perchlorate, and chromium VI. A subset of the wells that are sampled will be analyzed for an extended list of pesticides and associated breakdown products using analytical methods with low reporting limits. The work is expected to start in early 2019 and be completed over the next year.

Save the Date – April 19, 2019

DWSRF will be hosting a joint workshop with the Clean Water State Revolving Fund (CWSRF) and the Trust Fund (DWGT Fund) on April 19, 2019 at NHDES, 29 Hazen Drive, Concord, NH. The event will offer a series of topics including updates regarding the SRF and the Trust Fund Loan programs as well as individual breakout sessions for drinking water, wastewater and stormwater systems. The intended audience includes current and future loan recipients, community/financial decision makers, consultants/engineers, operators and others interested in the SRF or Trust Fund Loan programs.

Registration information and an agenda will be sent out and posted to the NHDES website http://www.des.nh.gov/organization/divisions/water/dwgb/capacity/dwsrf.htm at a later date.

Operator Profiles: Nate Brown

Nate Brown is a Utilities Superintendent for the Town of Peterborough. He holds New Hampshire Distribution grade 3 and Treatment grade 3 (OIT) water works operator certifications.

Please tell us about your water system: Peterborough's water system consists of three gravel packed wells, two booster stations, four water storage tanks and three pressure zones. There is about 60 miles of pipe and 1,700 customers served. We have a pretty extensive SCADA system to control the whole water system and 95% of the wastewater system.

What was your first ever job? My first job was working at Airmar Technology Corporation. There, I made ultrasonic transducers for marine and industrial applications. While I was there, I moved around quite a few times to better myself and see where I fit best. After a couple years, I realized that I needed something more challenging and that is why I changed career paths.

How long have you been in the profession? Which water system did you start out at? I have been in this profession for 18 years and started out in Peterborough. I had no idea what I was getting into when applying for the job back in 2000. It has had its ups and downs, but has always been challenging. I feel that every day I learn something new and meet great people that care about the environment. There were a couple years that I worked for Woodard and Curran when the wastewater treatment facility was contracted out. During that time, I was still involved with the Town's water department, taking care of the state reporting. After the contract was up, I was offered a job as the superintendent of the water and sewer department.

What is your favorite part about being a water works operator? The best part of being in this industry is the diversity. Everyday there is something different to do. I understand that we have jobs to do that are the same every day, week or month, but because we have a small crew in Peterborough, everyone needs to know how to do almost every aspect of the job. I also like the fact that everyone in

the industry is willing to help each other out. There have been times when we didn't have the right tool or parts to get a job done and a neighboring town has bailed us out. The sense of community is great and I hope that never changes.

What have you learned that you wish you'd known when you first started in the industry? When I first started in

the industry, I wish I had known how to use a computer better. At first, we were using a lot of paper for our station checks, daily rounds and state reporting. Telephone calls were made to make contact and set up appointments. Now, we use email to communicate with staff, vendors and the public. We try to use as little paper as possible. Rounds and station checks are done with tablets and state reporting is done online. We use a lot of spreadsheets to make life easier, to know when to conduct maintenance on equipment and state reporting. There is so much technology used today and I don't think there is any way to avoid it.

What advice do you have for new operators? My advice to new operators is to learn all that you can from anyone who is willing to teach you. There is a lot of knowledge

from anyone who is willing to teach you. There is a lot of knowledge that the older operators have to offer and more times than not, people are willing to share what they know. Also, take as many classes as you are able to. This field is ever-changing and getting more technical. Education and the willingness to learn new things are key to a successful



Nate Brown

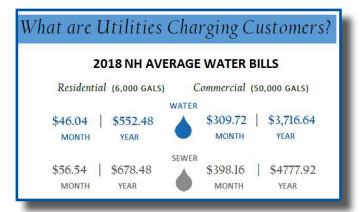
career.

What Are Utilities Charging Customers?

The 2018 New Hampshire Water and Wastewater Rate Survey has been completed! The graphic illustrates the current averages for residential and commercial customers. Since 1989, NHDES has conducted triennial surveys to produce state water bill averages and a better understanding of water rate structures.

This year, NHDES contracted with the Environmental Finance Center to perform our rate survey and to create an interactive dashboard. The New Hampshire Water and Wastewater

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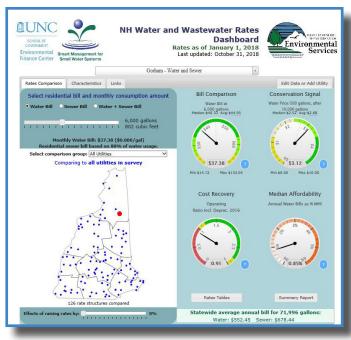
Average water bill in New Hampshire

Rates Dashboard provide utilities the ability to adjust certain criteria to create a more accurate depiction of the rates for their specific community.

Every community has a story to tell, so why not use this tool to assist you with your story? Visit the Dashboard to get firsthand experience of how this interactive tool could be used to communicate the story of your water system and the true cost of service being provided to your customers.

If you have any questions regarding the Dashboard or if

you would like to submit your information to be included in the Dashboard, please do not hesitate to contact Luis Adorno at luis.adorno@des.nh.gov or (603) 271-2472.



New Hampshire Water and Wastewater Rates Dashboard available at https://efc.sog.unc.edu/resource/new-hampshire-2018-water-and-wastewater-rates-dashboard

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