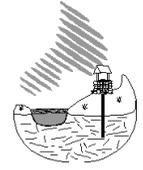




SUPPLY LINES WITH THE SOURCE



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

Fall 2021

Cybersecurity in the Water Sector: Are You at Risk?

Cyberattacks are a growing threat to critical infrastructure, including water and wastewater systems. The COVID-19 pandemic has given an unprecedented opportunity to cyber attackers to hack and break down organizations' IT infrastructure. This unauthorized access to water systems has many possible impacts:

- Steal or exploit customer billing information and other sensitive data, including passwords, addresses, critical asset inventory.
- Obtain vulnerability assessment information.
- Make unauthorized adjustments to water system operations.

As we continue to see more and more cyberattacks, water systems should be proactive in assessing their operations for gaps in cybersecurity (vulnerabilities) and make adjustments where possible to reduce the risks of an attack.

Protecting your system starts with conducting an assessment of your utility's infrastructure so you know how to better protect your assets. Computer system networks are interconnected and can easily transfer or install malicious programs onto your computer. All it can take is a simple click on a bad URL to infect your computer, allowing the hacker to gain access to sensitive information and the larger system. If you haven't already, consider taking advantage of [EPA's free cyber assessments](#) to help identify where your system could improve cybersecurity.

For quick, easy and effective steps to improve cybersecurity practices, remember to:

- **Update your system** including firewalls, backup systems, software system, patching.
- **Train your employees** not to click on suspicious email links.
- **Have a plan in place** to include a protocol to follow should your system be impacted by a cyberattack. This can be added to your existing community water system emergency plan.

A community water system's emergency plan is required to address cybersecurity as part of [EPA's America's Water Infrastructure Act \(AWIA\) section 2013](#). This federal require-

ment pertains to community water systems serving more than 3,300 people; however, it's good practice for systems of ALL sizes to have a plan for responding to and recovering from a cyberattack that disrupts water system operations. The [Small System Risk and Resilience Checklist](#) and the [Vulnerability Self-Assessment Tool](#) can assist with identifying malevolent acts like cyberattacks that pose a risk to your system. As you update your emergency plan,

be sure to provide NHDES with an updated copy.

When it comes to cyberattacks, it's not a matter of *if*, but *when*. The systems that get hacked are the ones that have weak security practices. NHDES encourages you to update the system software, complete with firewalls, backup systems, software and patches; educate and train staff on not clicking on any links or attachments that could introduce malware; and have a plan in place to be able to work through this emergency if and when it does happen. If you have any questions or would like to learn more, please visit the [NHDES emergency planning webpage](#) or contact stephanie.nistico@des.nh.gov at (603) 271-0867. 💧



It Just Rained Cats and Dogs. Why Is My Well Still Low?

After a year of droughty conditions across the state, record high rainfall amounts in July finally brought some relief, particularly to southern and central New Hampshire. But many water suppliers were not so quick to roll back the message to conserve water for three reasons: most water systems rely on wells, groundwater levels generally lag behind in drought recovery, and drought conditions could return.

There are several reasons for a lag between significant precipitation and the replenishment of groundwater supplies.

- When it downpours, soils cannot absorb the rain as quickly as it falls. The result is more runoff into surface waters.
- During the summer growing season, most of the rain that does infiltrate is taken up by plants and transpires back into the air through photosynthesis. In winter the ground is frozen, reducing recharge. Significant groundwater recharge normally occurs in the early spring and in the fall.
- Local land use and development also play a large role. The more developed an area, the less groundwater recharge is possible. Roads, parking lots, driveways, roofs and compacted soil are all impervious surfaces. Water cannot seep through. Instead, water that falls on impervious surfaces contributes to stormwater runoff (the #1 water pollutant in New Hampshire), that quickly runs into surface water.
- It takes time for water to infiltrate into the unconsolidated materials that feed dug wells and even longer to fill the bedrock fractures beneath the unconsolidated materials that feed bedrock wells.

With all that in mind, it was difficult to predict how groundwater levels would respond to an unusually large amount of rain falling on droughty soils in the middle of the growing season.

Well recovery is dependent on localized conditions such as topography, geology, climate and local development. Over the summer, we saw this reflected in the state's groundwater level monitoring network. Sampling of these wells scattered across the state in mid-July and again at the end of July revealed that while wells were generally recovering, some had not.

Groundwater is dynamic and hard to gauge. The best thing a water system can do to manage supplies during a drought is to monitor the system's well and surface water levels and system demands. The data will help your water system to make decisions about timing of conservation messaging and drought restrictions. For more details on how to do this, see "Forecasting Well Problems Through Data Collection" in this issue.

There are many other ways to become more resilient to drought such as completing a water audit and an asset management plan and then using the two to identify opportunities to best manage water losses. To learn more, see "[Defending Against Drought: Water Conservation and Water Loss Control](#)" from the 2021 winter issue. 💧



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DWGB Calendar of Events & Deadlines: November 2021 – April 2022

- November 1 Local Source Water Protection grant applications are due; contact Bess Morrison at bess.morrison@des.nh.gov or (603) 271-2950
- November 16 Environmental Finance Center (EFC) Water Loss and Audits workshop; contact Kelsey Vaughn at waterconservation@des.nh.gov or (603) 271-0659
- December 30 Community Water System Updated Emergency Response Plan AWIA certification due to EPA; contact Stephanie Nistico at stephanie.nistico@des.nh.gov or (603) 271-0867
- December 31 Drinking Water operator certification renewal applications are due; contact Jason Smith at dwgbcertop@des.nh.gov or (603) 271-2410
- Anytime Computer based Drinking Water Operator certification exams Grades I-IV are now available at various locations throughout the state; contact Jason Smith at dwgbcertop@des.nh.gov or (603) 271-2410
- Anytime Small Water System Consolidation Study Assistance Program grant applications accepted; contact Erin Holmes at erin.holmes@des.nh.gov or (603) 271-8321
- Anytime PFAS Treatment Design Services Reimbursement applications accepted; contact Amy Rousseau at amy.rousseau@des.nh.gov or (603) 271-1372
- Anytime PFAS Remediation Loan Fund applications accepted; contact Amy Rousseau at amy.rousseau@des.nh.gov or (603) 271-1372
- Anytime Cyanobacteria Monitoring and Training grant applications accepted; contact Liz Pelonzi at ann.pelonzi@des.nh.gov or (603) 271- 3906

To see event calendars for additional opportunities, please visit:

[Granite State Rural Water Association](#)
[New Hampshire Water Works Association](#)
[New England Water Works Association](#)

\$50 million in federal ARPA funding coming to NHDES

NHDES has been allocated \$50 million from the American Rescue Plan Act (ARPA), signed into law by President Biden on March 11, 2021, to invest in drinking water and wastewater infrastructure. This initial appropriation will allow NHDES to have the necessary staff in place and begin to award grant funding for eligible projects.

Eligible project types under ARPA are generally aligned with those that would be eligible to receive financial assistance through the Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) programs, covering a wide range of drinking water and wastewater-related work including water treatment, nonpoint source pollution management, and projects that support efforts to address climate change and cybersecurity.

NHDES is developing a detailed use plan for the ARPA funds and a website, which will have resources and updates related to ARPA funding and outreach regarding application solicitations, as this information becomes available. Please contact Erin Holmes, the NHDES ARPA Coordinator at erin.holmes@des.nh.gov with questions. 💧

Forecasting Well Problems Through Data Collection

A water supply well requires regular checks and maintenance to function at optimum efficiency and prolong its life. NHDES recommends that a water supply operator regularly measure and keep the following records:

1. The static (stabilized non-pumping) water level.
2. Relatively stabilized pumping water level and pumping rate in each water supply well.
3. Static water levels in any nearby monitoring wells.
4. Daily production volumes and pump run times. (Run time meters cost as little as \$25 and an hour of an electrician's time to install.)

Neglecting to collect this information is similar to driving your vehicle without conducting regular safety inspections or without operational warning lights. Without this information, the production capacity of the well may be exceeded or the pump may be on the brink of failure unbeknownst to the water system operator.

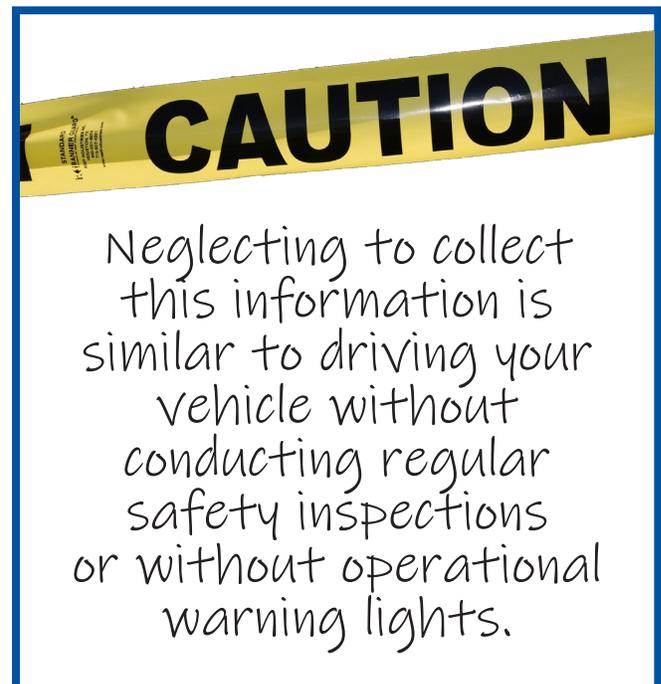
If a water system operator collects this information and finds that the yield or water level in a well is declining, it is important to determine whether this is a result of any of the following:

1. Lower yield and/or increasing drawdown, meaning the specific capacity of the well is declining due to:
 - a. Low recharge.
 - b. Clogging of the well screens, aquifer pores, or borehole fractures.
 - c. Increased water withdrawals from the well itself or from nearby water users.
2. Lower yield and a corresponding decrease in drawdown, could mean the performance of the pump and associated piping may be decreasing.
3. A lower static water level could be caused by:
 - a. Reduced rainfall and aquifer recharge.
 - b. An increase in water use in the aquifer.
 - c. Well interference from other water wells.

In order to avoid entanglement of water level monitoring probes with wires and materials in a well, it is recommended that a stilling tube be installed in the well. State regulations require that a stilling tube be installed in all new community water supply wells and in any existing

(older) community water supply well at the time its pump is serviced.

In some instances, small community water systems have experienced relatively minor leaks of less than two gallons a minute. While a leak of this magnitude is often considered small by industry standards, it can increase the daily extraction volume of a well for a small water system by over 20%. Depending on the sustainable yield of the well, even a small water leak could cause daily extraction volumes to increase over time and cause the well to de-water due to increased use. When a water supply shows



a decrease in specific capacity, but the static water levels in the aquifer do not decrease, it is likely that the well screen, aquifer pore spaces, or fractures are clogged with fine sediments, chemical precipitates, or a bacterial mat.

Well drillers licensed in New Hampshire can be contracted to rehabilitate the well using a variety of treatment methods. Various drillers use different approaches to rehabilitating a well. Some drillers attempt to specifically diagnose the clogging problem and design the optimal rehabilitation treatment remedy. Other drillers will attempt to rehabilitate the well using a treatment course that they have found to be generally successful in other similar settings without comprehensively diagnosing the problem. A water system operator must assess the cost-benefit analysis of how to proceed with well rehabilitation. It is recommended that an operator obtain multiple written propos-

(Forecasting, continued on pg 5)

(Forecasting, continued from pg 4)

als, quotes, and references from prospective contractors that may rehabilitate their well. NHDES maintains a file of historic well development documents. If a water system is missing its original well development records, NHDES can review a water system's records to determine what information is available. For more information, contact Shelley Frost at shelley.frost@des.nh.gov or (603) 271-2949. ♦

New Resources and Training Available for Water Loss Control and Audits

NHDES has developed two short guides and scheduled training opportunities to help you understand and manage your water losses.

Guides

- **Water Audit Resources:** Understand where you are losing it! Tips, resources, and information are included in this guide to help your system complete a water audit using the American Water Works Association's Free Water Audit Software (version 6).
- **Water Loss Reduction Resources:** Small actions make a big difference in reducing water losses. This guide provides a wealth of ideas to address real and apparent water losses.

Training

- **October 20:** Kelsey Vaughn, with the NHDES Water Conservation Program, will present at NHWWA's Drinking Water Expo and Trade Show. You can [register on the NHWWA website](#).
- **November 16:** Offered by the Environmental Finance Center (EFC), the current plan is for an in-person workshop, but it may change to a virtual event, depending on recommendations from health officials. Either way, TCHs will be provided. You can [register on the EFC website](#). ♦



2021 New Hampshire Legislative Session

Important legislation regarding drinking water and groundwater was passed in the 2021 New Hampshire Legislative session. The legislation was introduced as House Bills 235 and 271. Both bills were merged with other legislation and ultimately were passed by the Legislature and signed by the Governor as part of an omnibus bill, Senate Bill (SB) 146.

SB 146 requires that NHDES adopt rules to ensure that the approval process by NHDES for any new groundwater withdrawal for small community water systems (withdrawals less than 57,600 gallons over any 24-hour period) assess and address any adverse impacts the new withdrawal would have on private wells. Prior to the passage of SB 146, NHDES only had authority to address impacts associated with large groundwater withdrawals (withdrawals of 57,600 gallons or more in any 24-hour period) approved after July 1998.



SB 146 expanded NHDES' authority to administer financial assistance associated with Per- and Polyfluoroalkyl Substances (PFAS) contamination in drinking water and wastewater. Prior to the 2021 legislative session, NHDES had only the authority to provide low-interest loans to community water systems and non-profit, non-transient public water systems, which exceeded the state maximum contaminant level for PFAS, and to wastewater systems to address PFAS contamination that may cause an exceedance of the state standard. SB 146 expanded NHDES' authority to provide assistance by:

1. Establishing a PFAS grant program that complements the existing low-interest loan program.
2. Ensuring municipalities are eligible for financial assistance. This means that local efforts to address PFAS contamination in drinking water obtained from private wells have access to grants and low-interest loans.

(Legislative Session, continued on pg 6)

Final Proposals To Be Filed This Fall

Environmental Laboratory Accreditation Program

Env-Dw 1300 implements RSA 485:44 and RSA 485:46 by establishing the procedures and standards for the New Hampshire Environmental Laboratory Accreditation Program. These rules will be readopted with amendments to reflect 2016 updates to the national standards. Proposed amendments to the rules also clarify laboratory accreditation requirements and update laboratory quality control requirements and third-party assessor organization requirements.

Protecting the Purity of Surface Water Sources of Drinking Water

Env-Dw 902 establishes restrictions on certain activities in, upon, and within the watersheds of certain surface waters that are sources of public drinking water. These rules are proposed to be readopted with amendments in order to make clarifications. No existing requirements will be changed.

For questions related to Laboratory Accreditation, please contact Bill Hall at (603) 271-2998 or by email at george.hall@des.nh.gov. Questions related to the surface water purity rules should be directed to Paul Susca at (603) 271-7061 or paul.susca@des.nh.gov. If you are interested in receiving emails when proposed DWGB rules are in the rulemaking process, please submit a request to dwgbrules@des.nh.gov.

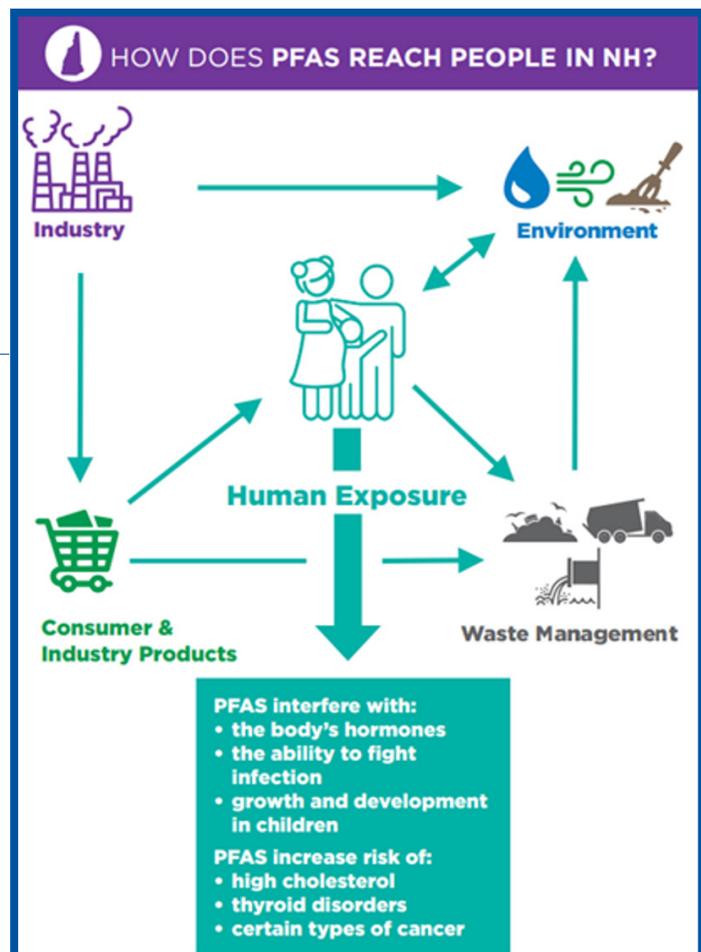


(Legislative Session, continued from pg 5)

It is anticipated that Env-Dw 1400 PFAS Remediation Loan Fund Program for Certain Public Water Systems will be amended this fall to reflect the provision of providing grants to water systems impacted by contamination and to expand eligibility to include municipalities. Additionally, appropriations for the PFAS remediation grant program will be established in the upcoming months. 💧

PFAS in New Hampshire: What You Need to Know

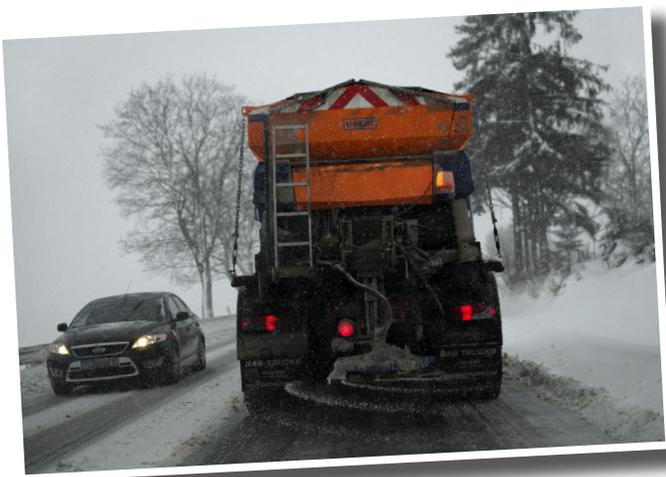
A New Hampshire-specific PFAS factsheet has been produced by a team at Geisel School of Medicine and Dartmouth College in collaboration with community partners and state agencies, including NHDES and New Hampshire Department of Health and Human Services (NHDHHS). The goal was to develop a New Hampshire-focused, comprehensive overview to engage everyone in understanding that we are all affected by PFAS. This resource is a good tool to help educate water users about how to reduce exposure. 💧



Excerpt from PFAS factsheet showing how people are exposed to PFAS

Road Salt and Drinking Water

New Hampshire has a problem with salt. We use too much of it. Far too much. Salt, on a molecular level, is composed of sodium and chloride in equal parts. So while your doctor may urge you to cut back on sodium because it can increase blood pressure and the risk of heart disease and stroke, our lakes, rivers, streams and groundwater are being polluted by sodium's counterpart – chloride. Chloride has adversely affected freshwater by making it uninhabitable for many species. In 2020, New Hampshire listed 50 chloride-impaired water bodies.



Now we are seeing the affects within our drinking water. "Many wells are impacted," said Cindy Klevens, a water treatment engineer with DWGB. The increase in sodium and chloride in groundwater in New Hampshire between 1960 to 2011, particularly in Rockingham and Belknap counties, has been significant, as reported by U.S.G.S. ([Open File Rpt., 2012-1236](#)). Although chlorides are not necessarily harmful to humans, they are highly corrosive. High concentrations of chloride can lead to degradation of pipes, and the leaching of lead, something many people will remember from the Flint, Michigan water disaster. Although the state regulates public drinking water closely, officials recognize an immediate need to address this problem at its largest source – road salt.

Enter the Green SnowPro (GSP) Program. The GSP Program began in 2013, built in partnership with NHDES, NHDOT, UNH, and state legislators. Its sole aim is to train snow and ice contractors how to adopt best management practices that reduce road salt usage while keeping the public safe. In return, contractors are given a certi-



fication that affords them Limited Liability Relief (LLR). LLR can protect them from slip-and-fall claims, an unfortunate reality for the industry. Contractors learn how to calibrate their equipment, use proper application rates, use brine, and a litany of other useful techniques. Although the LLR has proven to be a driver for many participants, dozens of contractors have noticed significant reductions in annual costs. It is estimated that 50 to 75% more salt is used for deicing than is necessary. Calibration of equipment alone can reduce salt usage up to 50%.

If you are or anyone you know is interested in becoming a Green SnowPro contractor, email salt@des.nh.gov or call (603) 271-5329. Visit the [NHDES road salt webpage](#) for the current list of approved GSP contractors. ♦

Source Water Protection Conference Content is Now Online

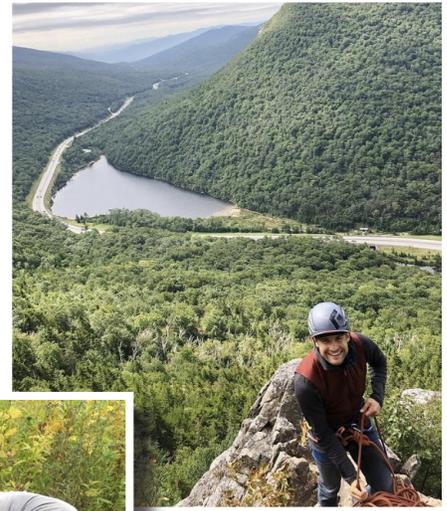
NHDES' 2021 Annual Source Water Protection Conference, held on May 19 and 20, 2021, is available to stream online by visiting [NHDES' YouTube Channel](#).

Whether you attended the event and wish to view a conference session that you really liked, or you were unable to attend, visit to see the conference sessions. NHDES posted all presentations shared by conference speakers.

Staff News

Christopher (Chris) Avery recently joined the Monitoring Section as the Bacteria, Disinfection By-Products, and Lead and Copper Programs Supervisor. He comes to the Drinking Water and Groundwater Bureau from the Watershed Management Bureau, where he was the Salt Reduction Program Coordinator. Chris graduated from Keene University with a B.S. in Environmental Studies and a minor in Geography.

Gregory (Greg) Barker recently joined the Hydrology and Conservation Section as the Water Well Program Manager. He comes to the Drinking Water and Groundwater Bureau from the New Hampshire Geological Survey, where he was a hydrogeologist who worked on geologic data systems, collected data for and authored numerous geologic maps, and performed special projects. Greg has worked for NHDES since 2002, and before that time, he worked in the private sector and NHDOT. Greg graduated from University of Rhode Island with a B.A. in Geology, and completed computer science certification training at NHTI. 💧



Chris Avery

Greg Barker



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