Supply Lines with The Source

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

Spring 2019

Gorham Moves to Protect its Water Supply

By this fall, 3,500 acres of Town-owned watershed land in Gorham and Randolph will be protected by deed restrictions that will prevent development other than forestry, agriculture and water supply. The deed restrictions will permanently protect 98% of the Ice Gulch Watershed and 85% of the Perkins Brook Watershed. The two watersheds empty to constructed impoundments just before entering the Gorham Drinking Water Treatment Plant, which serves 90% of the town's 2,600 residents. Beside the Town, major funding sources for the source water protection project include the New Hampshire Drinking Water and Groundwater Trust Fund, U.S. Forest Service, The Conservation Fund, and New Hampshire's Land and Community Heritage Investment Program (LCHIP).

In addition to the 3,500 acres of Town-owned land, approximately 300 acres of privately-owned land in the watersheds will be purchased and protected, and 1,705 acres of non-water supply land will be added to the Gorham Town Forest. Most of Gorham Town Forest was acquired in 1936 for the purpose of protecting the Town's water supply, and the Town continues to manage the forest to improve forest health and balance water quality issues with appropriate recreational uses. Along with developing a forest management plan, the Gorham Forest Committee manages a variety of public recreational activities, such as hiking, mountain biking and hunting. The area being added to the Gorham Town Forest contains nearly four miles of recreational trails that allow off-highway recreational vehicles and snowmobiles. Public use of motorized trails will continue but only in areas outside the water supply watersheds.

Gorham has a long commitment to protecting Perkins Brook and Ice Gulch to provide safe drinking water to residents. This project will ensure that Gorham residents continue to have access to high quality source water for generations to come, as intended nearly one hundred years ago.

Tinker Brook Beaver Pond; aerial view of Gorham Town Forest; dusky salamander

NHDES Proposes to Lower Arsenic Standard to 5 ppb

NHDES has recommended a new limit of five parts per billion (ppb) for arsenic in groundwater and drinking water, down from the current 10 ppb limit that was established by the U.S. Environmental Protection Agency (EPA) in 2001. Before 2001, the limit was 50 ppb.

When EPA adopted the maximum contaminant level (MCL) of 10 ppb, the increased cancer risk from drinking water with arsenic at 10 ppb was known to be many times higher than the risk from drinking water with other cancer-causing contaminants at their respective MCLs. In setting the MCL at 10 ppb, EPA sought to balance the value of the reduced risk of bladder and lung cancers with the cost and technical limitations of detecting and treating water for arsenic. Since then, a great deal of research has shed light on the health risks of drinking water at levels below 10 ppb.

NHDES' proposal to lower the standard follows a review that was prompted by legislation enacted in 2018.

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HB 1592 directed NHDES to review the arsenic standard, taking into account the extent to which arsenic occurs in New Hampshire, the ability to test for it, treatment technology, impact on public health, and costs and benefits to affected entities. NHDES' findings are presented in the report, "Review of the Drinking Water Maximum Contaminant Level (MCL) and Ambient Groundwater Quality Standard (AGQS) for Arsenic," which is available at https://www.des.nh.gov/organization/divisions/water/dwgb/categories/hot.htm.

NHDES consulted experts on recent health effects research, much of it conducted in New Hampshire, through its participation in the New Hampshire Arsenic Consortium and through contacts at EPA. In proposing to lower the MCL to five ppb, NHDES cited data on the increased risk of death from cardiovascular disease, the risk of adverse birth outcomes, and possible effects on IQ (intelligence quotient) in children.

If New Hampshire adopts the lower MCL, which would be accompanied by a reduction in the state's ambient groundwater quality standard (AGQS) to five ppb, it will be only the second state to adopt an arsenic MCL lower than the federal standard. New Jersey has been successfully implementing an MCL of five ppb since 2006.

The total added cost for all affected public water systems to treat for arsenic is estimated to be approximately $1 million in capital costs and $4 million in annual operating costs. The change in the AGQS would affect some landfills, sewage lagoons and other facilities with groundwater discharge permits. NHDES concluded that the added costs would not be excessive in light of the avoided adverse health effects.

Arsenic Health Effects Considered

- Bladder, lung, and skin cancers
- Cardiovascular disease
- Reduced IQ in school-age children
- Adverse birth outcomes
- Increased infections during the first year of life
- Gestational diabetes

Private wells will not be required to comply with the lowered standard. NHDES estimates that 65,000 private wells in New Hampshire exceed five ppb arsenic. Outreach to private well owners will continue with new messaging regarding the importance of treating drinking water for arsenic.

Pending anticipated legislative action, NHDES has recommended that rulemaking proceed to lower the arsenic standard in 2019. NHDES also recommended compliance with the new standards (MCL and AGQS) take effect in 2021, allowing time for public water systems and other facilities to budget for and install necessary treatment.

New Hampshire Department of Education Lead Remediation Grant

On February 8, 2018, New Hampshire adopted Senate Bill 247 Preventing Childhood Lead Poisoning from Paint and Water. This law requires, among other actions, that all K-12 schools and state licensed childcare facilities test for lead in drinking water at all locations where water is available for consumption by children.

To support lead remediation efforts in New Hampshire schools, the New Hampshire Department of Education secured a grant totaling $1,600,000 from the New Hampshire Drinking Water and Groundwater Trust Fund. This grant program is available to reimburse public and nonpublic schools for 50% of the total lead remediation costs. Schools are eligible for this funding for projects approved by NHDES and completed any time after February 8, 2018. Eligible projects include lead removal and reduction solutions including, but not limited to, the removal or replacement of faucets, fixtures, fountains, solder, piping, plumbing components and/or water treatment at any drinking water location available for consumption by children with lead results at

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DWGB Calendar of Events & Deadlines: May – October 2019

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
May 8	New Hampshire Fourth Grade Drinking Water Festival and Water Science Fair, contact Lara Hooper at lara.hooper@des.nh.gov or (603) 271-4071
May 16	Annual Drinking Water Source Protection Conference, register at the American Ground Water Trust website https://agwt.org/events
June 14	Drinking Water State Revolving Fund (DWSRF) pre-applications due, contact Johnna McKenna at johnna.mckenna@des.nh.gov or (603) 271-7017
June 15	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
June 30	Permit to Operate applications and fees are due, contact Jane Murray at jane.murray@des.nh.gov or (603) 271-3544 or see https://www.des.nh.gov/organization/divisions/water/dwgb/permit_pws_pto.htm
June 28	Source Water Protection (land conservation) grant eligibility applications due, contact Holly Green at holly.green@des.nh.gov or (603) 271-3114
July 31	2020 Leak Detection Survey grant applications due, 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 1	Consumer Confidence Reports due, contact either Chip Mackey at harrison.mackey@des.nh.gov or (603) 271-0655 or Debra McDonnell at debra.mcdonnell@des.nh.gov or (603) 271-6703 or see https://www.des.nh.gov/organization/divisions/water/dwgb/capacity/consumer.htm
July 1	SB247 Lead Testing in Schools and Licensed Child Care Centers sampling 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	Consumer Confidence Report certification due, contact either Chip Mackey at harrison.mackey@des.nh.gov or (603) 271-0655 or Debra McDonnell at debra.mcdonnell@des.nh.gov or (603) 271-6703
July 10	Disinfection Byproducts and Chlorine Residual report for Quarter 2 – 2019 due, contact Kimmi Durgin at kimberly.durgin@des.nh.gov or (603) 271-2516
September 13	Source Water Protection (land conservation) grant funding applications due, contact Holly Green at holly.green@des.nh.gov or (603) 271-3114
September 13	Annual Drinking Water Infrastructure Assistance Program funding applications due, contact Erin Holmes at erin.holmes@des.nh.gov or (603) 271-8321
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

(Calendar, continued on pg 4)

(Lead Remediation, continued from pg 2)

5 ppb or higher.

For additional information about SB247 and to access the grant application form, please visit the Lead in Drinking Water webpage at https://www.des.nh.gov/organization/divisions/water/dwgb/lead-drinking-water.htm.

(Calendar, continued from pg 3)

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

NHDES Files New PFAS Drinking Water Standards

On December 31, 2018, NHDES initiated rulemaking to create drinking water standards or maximum contaminant levels (MCLs) for four per- and polyfluoroalkyl substances (PFAS): perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorononanoic acid (PFNA) and perfluorohexanesulfonic acid (PFHxS). The first step in the rulemaking process was NHDES filing a request for a fiscal impact statement for the new MCLs with the New Hampshire Legislative Budget Assistant, meeting the January 1 deadline established in legislation enacted in 2018.

To set each of the MCLs, the 2018 legislation required NHDES to first consider the extent to which the contaminant is found in New Hampshire, the ability to detect the contaminant in public water systems, the ability to remove the contaminant from drinking water, and the costs and benefits to affected parties that will result from establishing the standard, and then develop an MCL for each compound that is acceptable in water for human consumption.

Contaminant	Proposed MCL (parts per trillion)
PFOA	38 ppt
PFOS	70 ppt
PFOA & PFOS combined	70 ppt
PFHxS	85 ppt
PFNA	23 ppt

Using the most recent and best science available, NHDES is proposing MCLs that are calculated to be protective of the most sensitive populations over a lifetime.

NHDES also released a summary report on the development of the MCLs. The report is posted on the NHDES website at https://www.des.nh.gov/organization/commissioner/pip/publications/documents/r-wd-19-01.pdf.

State law requires NHDES to adopt rules to establish Ambient Groundwater Quality Standards (AGQSs) that are the same as MCLs established by NHDES; therefore the proposed MCLs will establish revised AGQSs for PFOA and PFOS (previously established in 2016 at 70 ppt) and new AGQSs for PFHxS and PFNA. An AGQS is the standard used to require remedial action and the provision of alternative drinking water at a contaminated site. It also dictates the conditions under which treated and untreated wastewater may be discharged to groundwater.

The vast majority of the work NHDES has performed to date has been focused on deriving the individual standards for PFOA, PFOS, PFNA and PFHxS. During the rulemaking process, NHDES expects to continue researching health studies on these chemicals as well as scientifically valid risk management approaches that that could address any compounding effects between chemicals. Further exploration quantifying the costs and benefits to affected parties will also occur. This continued effort will be done in tandem with considering public comments received on the initial rule proposal.

NHDES has held public hearings on the proposed MCLs in Merrimack, at Portsmouth's Pease Tradeport and in Concord. Written comments were due on April 12. NHDES staff members are now consolidating comments and the final proposal will be filed sometime this summer. You can find more information about all NHDES proposed and recently adopted rules, including the PSAS rules, at https://www.des.nh.gov/organization/commissioner/legal/rulemaking/index.htm. Updates specific to the NHDES PFAS investigation can be found at https://www4.des.state.nh.us/nh-pfas-investigation/.

Start-up Procedures for Seasonal Systems

Seasonal public water systems that are not exempt must perform start-up procedures before opening and must certify to NHDES that procedures have been completed per Env-Dw 506, Seasonal Public Water Systems. Start-up procedures include inspecting the sanitary protective area (SPA)

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(Start-up, continued from pg 4)

and all components of the distribution system, correcting any open sanitary defects and disinfecting and flushing all distribution lines.

Inspection:

1. Wellhead cap/cover – Must be secure, seals intact and have a screened vent.

2. SPA – Ensure at least 75 to 200 feet around the well is maintained clear of fuels, septic system components, animal manure, fertilizers, etc.

3. Pump house – Maintain proper sanitary and safety conditions, keep locked, no water leaks or exposed electrical wires.

4. Treatment facilities – Verify whether fully operational, with proper chemical storage and air gap on backwash discharge.

5. Storage tank – Check tank integrity, ensure hatch is sealed, and vent and overflow are screened.

6. Distribution piping, valves and service lines – Reconnect all the plumbing and pressurize the system. Exercise valves and blow-offs. Repair leaks.

7. Dump station cross connection control – Testable Reduced Pressure Zone (RPZ) or sustained air gap must be in place.

8. Sample locations – Should be clean, labeled, accessible, 12 inches above floor.

Disinfection: Follow the instructions in fact sheet DWGB-4-3 Disinfecting Public Water Systems.

Monitoring: Collection of general system evaluation bacteria samples after disinfection and prior to monthly bacteria testing is recommended.

The start-up certification form must be submitted to NHDES within 30 days after starting up for the season. Failure to complete start-up procedures or submit certification will result in a Notice of Violation and a requirement for public notice. A start-up checklist is available, along with the certification form, on the NHDES OneStop site or at http://des.nh.gov/organization/divisions/water/dwgb/coliform-rule.htm. For more information or to determine whether your seasonal public water system is exempt, please contact Amy Rousseau at (603) 271-0893 or amy.rousseau@des.nh.gov.

New Hampshire Water Works Meritorious Achievement Award Goes to Cindy Klevens

At its January 2019 meeting, New Hampshire Water Works Association presented NHDES' Cindy Klevens with its Meritorious Achievement Award for having "worked diligently for the betterment of drinking water in the state of New Hampshire and in New England for many years," and for having "guided and directed a number of dedicated and talented people." In nominating Cindy for the award, a water works member wrote "her leadership has provided excellent engineering guidance, advice, and approvals in a most professional manner," and "she is one of the key persons within the NH DWGB that have allowed the State to be able to support and help guarantee safe drinking water to people within the state." Congratulations from DWGB, Cindy!

L-R: Charles Roberts, NHWWA President, Cynthia M. Klevens, PE, Water Treatment and Small Systems Section Manager, Barbara Cook, PE, NEWWA President-Elect

Leak Detection Surveys Help Water Systems Prepare for Drought

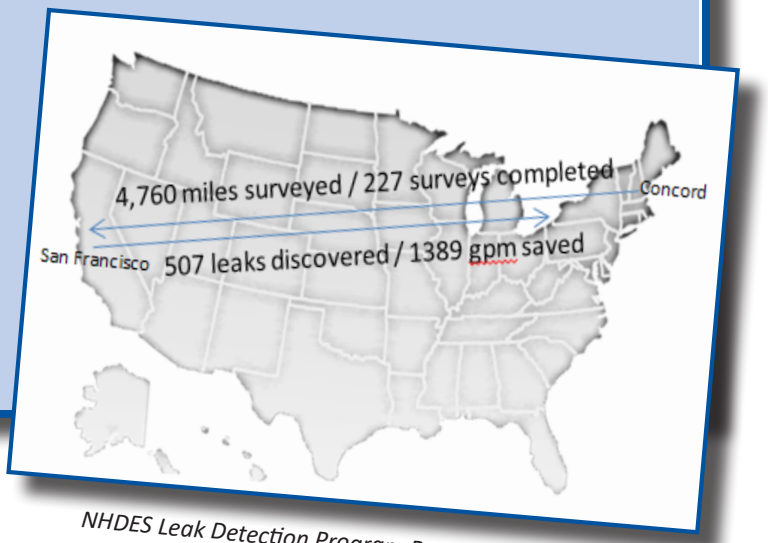
During a drought, a leak that may not have been an emergency a few months prior may now be the difference between having enough water to keep up with demand or having to bulk haul water into the system or drill a new well. Since leaks often start off small and then grow in size, a proactive leak detection approach can help avoid an emergency.

(Leak Detection, 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	Date Effective	DWGB Rule Contact
• Public Water Systems (PWS):Purpose and Applicability; Units of Measure; Definitions (Env-Dw 701) • PWS: Drinking Water Quality Standards for Public Water Systems (Env-Dw 702-706) • PWS: General Monitoring; Laboratory Analytical Methods (Env-Dw 707) • PWS: Sampling Schedules (Env-Dw 708) • PWS: Monitoring and Compliance Requirements (Env-Dw 710-713) • PWS: Recordkeeping and Reporting (Env-Dw 718-719) • PWS: Public Notification (Env-Dw 800)	January 1, 2019	Harrison "Chip" Mackey, (603) 271-0655 or harrison.mackey@des.nh.gov



NHDES Leak Detection Program Results: 2010-2018

(Leak Detection, continued from pg 5)

According to experts, climate change in New Hampshire means warmer winters, longer growing seasons and extreme precipitation events followed by dry periods. Although flooding, due to the quick and impressive destruction it can cause, has received substantial public attention over the past decade, drought has also shown some persistence.

Due to a combination of less-than-average snowpack, dry periods in the spring and fall (typically the normal groundwater recharge seasons), less groundwater recharge due to heavy rains running off, and above-average summer temperatures, the state has alternated among normal, abnormally dry, and drought conditions since 2015. During the height of the drought in 2016, hundreds of private residential wells went dry and several community water systems faced shortages. These wells often had pre-existing issues, such as decreased production volumes and significant amounts of water lost to leaks in the distribution system.

NHDES urges all community water systems to take a proactive approach to avoiding water supply shortages by applying for a free leak detection survey. Since 2010, the NHDES Leak Detection Survey Grant Program has funded leak detection surveys at 120 community water systems representing 4,760 miles of distribution pipe. Over 500 leaks have been discovered, saving water systems hundreds to millions of gallons of water per day.

The 2020 Leak Detection Survey Grant application period will open on June 15, 2019. The application will be available on the Leak Detection Survey Grant Program webpage at https://www.des.nh.gov/organization/divisions/water/dwgb/water_conservation/leak-detection.htm. All community water systems with as-built plans or record drawings are eligible to apply.

Operator Profiles: John Chase

John Chase is the Superintendent of the Tilton Northfield Water District. John holds New Hampshire distribution grade 2 and treatment grade 1 water works certifications.

John Chase

Please describe your water system: The Tilton & Northfield Aqueduct Co. Inc. was established in 1887 to serve domestic drinking water and fire protection for the towns of Tilton and Northfield, NH. These two towns are separated by the Winnipesaukee River and are also in two different counties: Merrimack and Belknap.

The Aqueduct Company was privately owned from 1887 until 2006. In 2004, the Tilton-Northfield Water District was formed to purchase the Aqueduct Company. This is an unusual situation because a municipality, the "Water District", owns a corporation, the "Aqueduct Company, Inc."

What was your first ever job? I started working at a very young age, around 10, on the local dairy farm, which was next to where I grew up. My chores included milking cows and haying the fields. I then went to work with my father's business installing residential and commercial flooring during my teenage years. Right out of high school I worked as a welder for a number of years along with other jobs; tree and landscaping company, bridge painting, etc.

How long have you been in the profession? Which water system did you start out at? I was given the opportunity to start working at the Tilton & Northfield Aqueduct Company in the spring of 1997 at 28 years old, doing all the daily maintenance, running the backhoe for water main repairs, and installations of new mains and services.

I had to learn a lot in a short period of time. In my first year on the job, we went from an 1887 open water source known as Knowles Pond in Northfield, with very old rudimentary ways of controlling the levels and treatment, to brand-new gravel packed wells in 1998, run by telephone telemetry. That was high tech back then. Forward to 2010 and the Water District was able to purchase a new SCADA system that brought the controls and alarms into the computer world. Wow, what a difference! I became the Superintendent for the Water District in 2007 and am now headed into my 22nd year with Tilton & Northfield Aqueduct Co., Inc./Tilton-Northfield Water District.

What is your favorite part about being a water works operator? One of the best things about being a water operator is you are learning something new almost every day. You are never doing the same thing all day, which makes your days go by fast. As I look back over the years, I have learned to be more patient. I make sure our customers are as happy as I can make them by providing them the best product and service.

What advice do you have for new operators? For the younger or new water operators of the future, I say, learn as much as you can. Don't look at the water industry as just another job. It is one of the most vital and important jobs of the future as clean, viable drinking water diminishes. It is up to us as operators to do our best and make sure it stays clean and plentiful for the future.

2019 Drinking Water Source Protection Conference

Thursday, May 16th at the Grappone Conference Center, Concord, NH

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The largest drinking water source protection event in New England!

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Register at the American Ground Water Trust website https://agwt.org/ and click on Events

5.0 Technical Credit Hours for NH Water Works Operators

Questions?

Andrew Stone at AGWT: astone@agwt.org or (603) 228-5444

Andrew Madison at NHDES: andrew.madison @des.nh.gov or (603) 271-2950.

DWGB Welcomed Two New Staff to the Information Management Section

Carina Pearson and Derek Serach

Carina Pearson formerly worked in NHDES' MtBE Remediation Bureau as an Environmental Technician where she managed water quality sample data, the Environmental Monitoring Database (EMD), Access databases and Geographic Information System (GIS), and scheduled appointments. In DWGB Information Managment section, she will be assisting with data requests, legal ownership of water systems and keeping the database up-to-date. Carina graduated from Saint Anselm College with a bachelor's degree in Environmental Science. She enjoys spending time by Newfound Lake in the summer, skiing in the winter and traveling.

DWGB has also gained a full-time GIS Coordinator. Derek Serach came from New Hampshire Department of Information Technology to accept the position. He is a highly skilled database and software programmer with an extensive GIS background, which includes work as a Program Planner for the New Hampshire Division of Forests and Lands where his work in developing specialized tools for analysis began. In addition, he spent several years working for the Southern New Hampshire Planning Commission where his primary focus was creating professional cartographic products. In his free time, he enjoys time with his family and the outdoors, experiencing it through hiking, camping and kayaking.

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