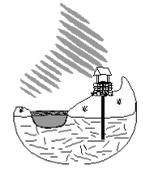




# SUPPLY LINES WITH THE SOURCE



Newsletter of the NHDES Drinking Water & Groundwater Bureau  
on the web at [www.des.nh.gov](http://www.des.nh.gov)

Spring 2018  
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## got runoff?

What happens to a drop of rain when it falls to the ground? It may land on a tree and evaporate; it may land on a farm field or meadow and soak into the ground; or it may land on a rooftop, driveway or road and run into a storm drain, river, lake or estuary. Precipitation that runs across hard surfaces, instead of soaking in, and dumps into the nearest waterway is called stormwater runoff.

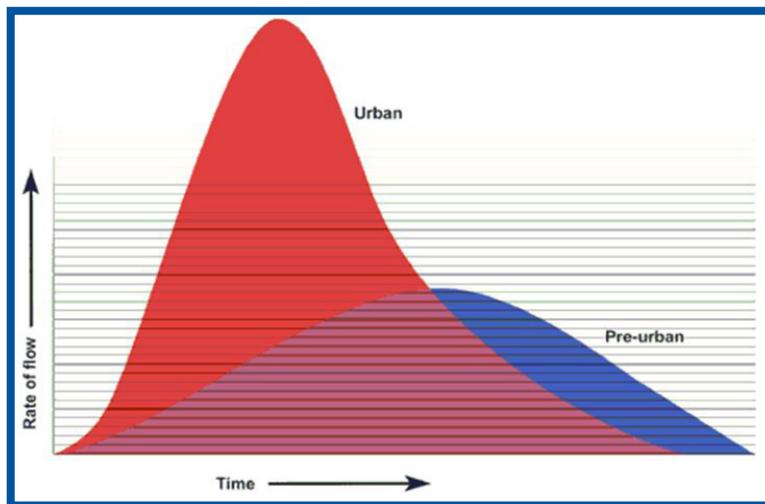
Excess stormwater runoff becomes a problem when groundwater recharge is reduced and when streams receive more flow than they are adapted to handle, resulting in flooding and erosion. Runoff carries pollutants into waterways, making them unsafe for swimming and unhealthy for fish and other animals. Runoff degrades water supply sources with increased turbidity and nutrient levels – in turn fueling algal and cyanobacterial growth, which results in the production of organic compounds that react with chlorine disinfectant to form harmful disinfection byproducts (DBPs). Increased development across the New Hampshire landscape continues to make stormwater runoff the fast-

est growing source of pollution to surface waters. In fact, stormwater runoff now contributes to over 90% of the

water pollution problems in New Hampshire's waterways.

The challenge of stormwater runoff is that everyone is a part of the problem. However, this means everyone can be part of the solution. Some New Hampshire cities and towns are required to meet federal runoff regulations to manage a portion of their runoff. They

### Urbanization Increases Peak Flows and Runoff Volumes



use traditional practices such as storm drains and detention ponds and green infrastructure such as constructed wetlands. The way you manage your property and the runoff it creates can also work toward reducing impacts on New Hampshire surface waters and groundwater.

To learn more about what towns and individuals are doing to be part of the solution, check out the articles on municipal separate storm sewer systems (MS4s) and Soak Up the Rain New Hampshire in this newsletter, and:



*Seemed like a good idea at the time...*

(got runoff?, continued on pg 2)

(got runoff?, continued from pg 1)

- Visit <https://www4.des.state.nh.us/nh-ms4/> for more on what municipalities are doing about stormwater.
- Visit [www.soaknh.org](http://www.soaknh.org) to see what New Hampshire residents are doing to literally soak up the rain.
- Visit [https://www.des.nh.gov/organization/divisions/water/dwgb/dwspp/lswp\\_grants.htm](https://www.des.nh.gov/organization/divisions/water/dwgb/dwspp/lswp_grants.htm) if you have a stormwater runoff issue near your source and need financial assistance. 💧

## New Hampshire Municipalities Collaborate to Implement New Stormwater Permit

Under the Clean Water Act, the U.S. Environmental Protection Agency (EPA) is required to regulate stormwater in urban areas by issuing National Pollutant Discharge Elimination System (NPDES) permits. In New Hampshire, EPA regulates MS4 stormwater discharges through the MS4 permit. The MS4 permit covers discharges in small urbanized areas (small cities and large towns) associated with development activity and everyday operations. The permit also covers other public entities, such as NHDOT and UNH.

The original MS4 permit for New Hampshire, issued in 2003, is currently in effect. EPA issued a renewal permit on January 18, 2017 with an effective date of July 1, 2018. See <https://www.epa.gov/npdes-permits/new-hampshire-small-ms4-general-permit> for the final permit and the 44 regulated New Hampshire municipalities.

**Municipal  
Separate  
Storm Sewer  
System = MS4**

finding water monitoring efficiencies, and identifying additional partners. NHDES provides technical assistance to facilitate these efforts. See <https://www4.des.state.nh.us/nh-ms4/> for more information on the stormwater coalitions' efforts. And, if you live in one of the 44 regulated municipalities listed on the website, contact your local Department of Public Works Director for more information on how you can partner or provide resources to help. 💧

The permit requires the affected municipalities to plan for and implement tools and practices to reduce stormwater pollution entering surface waters, including local drinking water supplies. These practices range from town ordinances to street sweeping to the construction of stormwater treatment devices. Municipal representatives responsible for stormwater meet monthly through two regional stormwater coalitions to network and collaborate on ways to comply with the permit requirements. Current strategies being implemented include: partnering on grant applications, designing outreach plans, completing system mapping efforts, creating templates for EPA permit-related submittals,

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# Looking Ahead: Stormwater Research and Technical Assistance

James Houle, Program Manager

The art and science of stormwater management can be like climbing a mountain. You work hard to reach what you think is the top, only to find the real summit is still ahead. The view from where you are is great, but you know you have farther to go.

At the University of New Hampshire Stormwater Center (UNHSC), our work has helped us see that managing the rain falling on our cities, towns, neighborhoods and roads is a complex undertaking, with many players and moving parts. It is clear that managing stormwater to improve water quality and ease the impacts of droughts and flooding is one thing we all can do now to make the future brighter despite the other problems associated with changing precipitation patterns. At the same time, we can see other summits in the distance. There are many questions to answer about how stormwater management interacts with the larger systems of the natural world and society. Here are a few of the

(Looking, continued on pg 4)

## DWGB Calendar of Events & Deadlines: June 2018 – October 2018

- |         |  |
|---------|--|
| June 8  | 2019 Leak Detection Survey grant application period opens, contact Stacey Herbold at <a href="mailto:stacey.herbold@des.nh.gov">stacey.herbold@des.nh.gov</a> or (603) 271-6685 or visit <a href="https://www.des.nh.gov/organization/divisions/water/dwgb/water_conservation/leak-detection.htm">https://www.des.nh.gov/organization/divisions/water/dwgb/water_conservation/leak-detection.htm</a> |
| June 15 | DWSRF and Drinking Water and Groundwater Trust Fund pre-applications are due   |
| June 30 | Permit to Operate application and fee due, contact Jane Murray at <a href="mailto:jane.murray@des.nh.gov">jane.murray@des.nh.gov</a> or (603) 271-3544 or visit <a href="https://www.des.nh.gov/organization/divisions/water/dwgb/permit_pws_pto.htm">https://www.des.nh.gov/organization/divisions/water/dwgb/permit_pws_pto.htm</a>  |
| July 13 | 2019 Leak Detection Survey grant applications due, contact Stacey Herbold at <a href="mailto:stacey.herbold@des.nh.gov">stacey.herbold@des.nh.gov</a> or (603) 271-6685 or visit <a href="https://www.des.nh.gov/organization/divisions/water/dwgb/water_conservation/leak-detection.htm">https://www.des.nh.gov/organization/divisions/water/dwgb/water_conservation/leak-detection.htm</a>         |
| July 1  | Consumer Confidence Reports due, contact Debra McDonnell at <a href="mailto:debra.mcdonnell@des.nh.gov">debra.mcdonnell@des.nh.gov</a> or (603) 271-6703 or visit <a href="https://www.des.nh.gov/organization/divisions/water/dwgb/capacity/consumer.htm">https://www.des.nh.gov/organization/divisions/water/dwgb/capacity/consumer.htm</a>  |
| July 10 | Consumer Confidence Report certification forms due, contact Debra McDonnell at <a href="mailto:debra.mcdonnell@des.nh.gov">debra.mcdonnell@des.nh.gov</a> or (603) 271-6703 or visit <a href="https://www.des.nh.gov/organization/divisions/water/dwgb/capacity/consumer.htm">https://www.des.nh.gov/organization/divisions/water/dwgb/capacity/consumer.htm</a>                                     |
| July 19 | Water Works Operator certification exam. Completed applications due at least 1 month prior, contact Wade Pelham at <a href="mailto:wade.pelham@des.nh.gov">wade.pelham@des.nh.gov</a> or (603) 271-2410  |
| Anytime | Cyanobacteria Monitoring and Training grant applications accepted, contact Tyler Davidson at <a href="mailto:tyler.davidson@des.nh.gov">tyler.davidson@des.nh.gov</a> or (603) 271-3906  |
| Anytime | Record Drawing grant applications accepted, contact Johnna McKenna at <a href="mailto:johnna.mckenna@des.nh.gov">johnna.mckenna@des.nh.gov</a> or (603) 271-7017 or visit <a href="https://www.des.nh.gov/organization/divisions/water/dwgb/documents/record-drawing-grant-app.doc">https://www.des.nh.gov/organization/divisions/water/dwgb/documents/record-drawing-grant-app.doc</a>              |
| Anytime | Tank Inspection grant applications accepted, contact Luis Adorno at <a href="mailto:luis.adorno@des.nh.gov">luis.adorno@des.nh.gov</a> or (603) 271-2472 or visit <a href="https://www.des.nh.gov/organization/divisions/water/dwgb/asset-managment/index.htm">https://www.des.nh.gov/organization/divisions/water/dwgb/asset-managment/index.htm</a>  |

**To see event calendars for additional opportunities, please visit:**

Granite State Rural Water Association at [www.granitestatewater.org](http://www.granitestatewater.org)

New Hampshire Water Works Association at [www.nhwwa.org](http://www.nhwwa.org)

New England Water Works Association at <http://newwa.org>

(Looking, continued from pg 3)

the areas where UNHSC is focusing its research and technical assistance:



*Berry Brook watershed drainage improvements, Dover*

- Technical assistance for MS4 communities.
- Tracking stormwater program performance.
- Green infrastructure certification for design professionals.
- Real time water chemistry analysis using UV optical sensors.
- Environmental fingerprinting – genetic sequencing of a range of aquatic species and microorganisms to differentiate healthy from impaired waters.

The University of New Hampshire Stormwater Center is a dynamic research, testing and educational facility that serves as a technical resource for water managers, planners and design engineers in New England and throughout the United States. Learn more at [www.unh.edu/unhsc](http://www.unh.edu/unhsc). 💧



*Happy homeowner*

## Soak Up the Rain New Hampshire

Rain gardens are a hot topic these days. Why? Because they are a beautiful way to do good for your home while doing good for the environment. Rain gardens, rain barrels, vegetated buffers and other Soak Up the Rain New Hampshire (SOAK NH) Stormwater Solutions gather stormwater runoff – water from rain or melting snow that doesn't soak into the ground – and allow it to soak in. Soaking up the rain mimics the natural environment and helps prevent water pollution. (See “got runoff” on page 1 of this publication about how that happens and the serious consequences.)

Do you have a sloped area where water runs off to a lake or river? Learn how to build infiltration steps or water bars. Does water run off your driveway to a storm drain down the road? Learn how to build a driveway infiltration trench. Through the SOAK NH website and the SOAK NH Facebook page, property owners can find lots of stories about what their neighbors are doing and a multitude of resources to learn how to make a difference. SOAK NH also offers presentations about how and why to soak up the rain to interested groups. Contact us for more information at <https://www4.des.state.nh.us/SoakNH/contact-us/>.

To see photos and read stories about projects, learn more about stormwater runoff, and find step-by-step directions for 10 Do-It-Yourself Stormwater Solutions, visit [www.soaknh.org](http://www.soaknh.org). 💧



*New residential rain garden in Greenland*

# Focus on Stormwater: Pennichuck

*Nicholas Cristofori, Comprehensive Environmental Inc.,  
Principal, Project Engineer*

**P**ennichuck Water Works is a public water supplier established in 1852 that serves Nashua and 10 surrounding municipalities with an estimated population of 110,000. Pennichuck has a long history of innovative and diverse stormwater projects implemented as far back as the mid-1990s. In a 17,300-acre watershed that includes highly-developed areas that contribute runoff to Pennichuck's supply ponds, stormwater has a large and direct impact on drinking water quality.

Partial funding provided through NHDES' Local Source Water Protection Grant Program has allowed for a number of projects focusing on stormwater. This approach began with preparation of a Watershed Management Plan that identified stormwater runoff as the primary pollution source and outlined a 20-year implementation program to improve water quality. In response, Pennichuck and its partner consultant, Comprehensive Environmental Inc., have adopted a multifaceted approach to stormwater pollution prevention and mitigation.

Pennichuck has a school education program that reaches approximately 50 fifth grade elementary school classes to teach students about stormwater impacts. Pennichuck also developed an educational brochure for kids to take home and sponsors a poster contest. In 2017 alone, this program reached nearly 1,000 students.

Pennichuck constructed a stormwater best management practice (BMP) at Tinker Pond to protect its supply ponds from stormwater pollution from the Everett Turnpike. Pennichuck also constructed a public demonstration and outreach green infrastructure BMP over 10 years ago. This project, constructed using volunteer work at a privately-owned business, still functions properly to this day.

Pennichuck also has a sampling program that collects water samples from over a dozen locations throughout the watershed, including tributary, groundwater and in-pond

stations to track impacts from stormwater runoff. This program samples for a number of water quality parameters, including bacteria, phosphorous and nitrogen. Other projects have included:

- Fertilizer outreach program targeting retail distributors and homeowners.
- Watershed-wide stormwater BMP assessments for retrofit opportunities.
- Stormwater BMP workshops, including "how-to" lessons for building a raingarden.

## Interested in Water Education?

The New Hampshire Fourth Grade Water Science Fair and Drinking Water Festival is held each May. Planning starts soon for the 2019 event. This is a great opportunity to work with students to help them develop as knowledgeable water stewards.

For more information on how you can work seriously and play hard at the same time, contact Lara Hooper at (603) 271-4071 or [lara.hooper@des.nh.gov](mailto:lara.hooper@des.nh.gov).

- Educational videos concerning stormwater management options for residents.

These projects have helped Pennichuck work throughout the watershed on innovative stormwater management projects, exploring new ways to address stormwater impacts and improve water quality within its supply ponds. To check out what Pennichuck has been doing to manage stormwater and protect

its source water, visit <https://www.pennichuck.com>, click on "Source Protection" in the left-hand column. 💧

## Start-up Procedures for Seasonal Systems

**S**easonal public water systems that are not exempt must perform start-up procedures before opening and 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) 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.

(Start-up, 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](mailto:debra.sonderegger@des.nh.gov).

<u>Rule</u>	<u>Date Approved</u>	<u>DWGB Rule Contact</u>
Emergency Bulk Water Supply for Public Water Systems (Env-Dw 304)	January 1, 2018	Shelley Frost at (603) 271-2949 or <a href="mailto:shelley.frost@des.nh.gov">shelley.frost@des.nh.gov</a>
Water Supply Land Protection Grant Program (Env-Dw 1002)	January 1, 2018	Holly Green at (603) 271-3114 or <a href="mailto:holly.green@des.nh.gov">holly.green@des.nh.gov</a>

(Start-up, continued from pg 5)

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](mailto:amy.rousseau@des.nh.gov). ♦

## New! Asset Management Database

The purpose of the New Hampshire asset management database (NHAmD) is to provide a clearinghouse for communities that are interested in asset management but may be faced with some challenges or do not have the resources to even get started. NHDES' goal for the

database is to provide contact information and guidance for communities along with networking opportunities to share knowledge and experiences about implementation of asset management programs.

Please visit our asset management website at

(New!, continued on pg 7)



Are you reading a paper copy of *Supply Lines with the Source*?  
Save a tree – go electronic!  
Visit <https://des.nh.gov/> and click on the Subscribe e-news icon to sign up!

(New!, continued from pg 6)

<https://www.des.nh.gov/organization/divisions/water/dwgb/asset-management/index.htm> to view the database. If you have any questions or would like to add your community to the database, please do not hesitate to contact Luis Adorno at (603) 271-2472 or [luis.adorno@des.nh.gov](mailto:luis.adorno@des.nh.gov). 💧

## Operator Profiles: Mike Heidorn

**M**ike Heidorn is the Superintendent for the Hooksett Village Water Precinct. He holds New Hampshire Water Works Operator Treatment grade 1 and Distribution grade 2 certifications.

*Please tell us about your water system:* Hooksett Village Water Precinct is a small community Public Water System (PWS) serving over 1,100 accounts centered in the historic Village area of Hooksett, a quickly growing suburban area located between Concord and Manchester.

*What was your first-ever job?* My first full-time job was at BCI Geonetics in Laconia, as a consultant helping communities to find, test and permit new sources. I had just graduated from UConn with a geology degree, and had no idea what an operator or PWS was.

*How long have you been in the profession; which water system did you start out at?* I've been at it for about 28 years now. Along the way, I realized that I wanted to focus my professional energy on the most rewarding aspects of my jobs – including water, science, public service and managing people and projects. In a lucky twist of fate, I landed a job with Northeast (now Granite State) Rural Water traveling all over Vermont, New Hampshire and Massachusetts helping PWSs with sanitary surveys, enforcement orders, source protection and training. That job and the fantastic people at Rural Water helped prepare me for my first Superintendent's position in Orange,

Massachusetts in 2009. In 2015, I switched to a similar role in Hooksett to reduce my commute time and spend more time in New Hampshire.

*What is your favorite part about being a water works operator?* Well, for one I really enjoy working with other operators – they're generally fun, hard-working, down-to-earth and selfless in their efforts to keep the water running. Also, it's an honor to serve the public in such a valuable way. In an old PWS like ours, with countless improvements that seem to be needed all at once, every day is a challenge – but it's very fulfilling to provide fire protection and produce safe drinking water that people truly appreciate. There's never a dull moment and always something that needs to be done or could be done better. I also enjoy translating technical info and regulations for our customers – it's satisfying to correct misinformation and alleviate worries.

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

known there was a place for me in the industry. It turns out that the profession is a melting pot for people from all walks of life. For example, our small team at the Precinct includes backgrounds in banking, remodeling, military, podiatry and geology. I've seen that kind of diversity in many water departments.

*What advice do you have for new operators?* Forget the traditional government worker stereotype! Public service is an honorable and desirable occupation. You can have an immensely rewarding and long-lasting career,

despite a general deterioration of municipal benefits and the increasing complexities of technologies and regulations. The jobs tend to be stable with decent pay, and offer you the chance to continually learn and grow and use your particular expertise (whether it be contracting, IT, engineering, science, business or whatever). Humility, thoughtfulness and hard work are the keys to success, and are often more important than your current background or specialization. Reading, writing and computer skills are a must. 💧



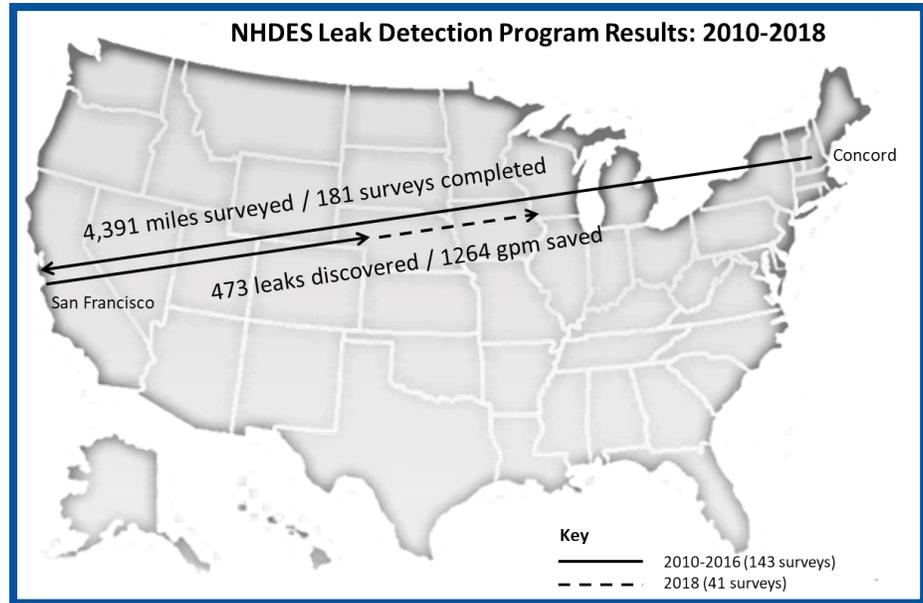
Mike Heidorn

# News Leak

The NHDES Leak Detection Grant Program has completed 181 leak detection surveys at community water systems since 2010. In 2017, Arthur Pyburn & Sons Inc., the leak detection contractor, completed 41 surveys covering 504 miles of water main. Forty-five leaks were discovered totaling 317 gallons per minute in water loss.

This season, 34 communities will be receiving a leak detection survey by Consulting Engineering Inc.

The 2019 survey application opening is around the corner. In June, an email will be sent to all community water system owners and operators announcing the opening of the application period for the 2019 leak detection period for the 2019 leak detection surveys. The announcement and application will also be posted on the Leak Detection Grant Program webpage at [https://www.des.nh.gov/organization/divisions/water/dwgb/water\\_conservation/leak-detection.htm](https://www.des.nh.gov/organization/divisions/water/dwgb/water_conservation/leak-detection.htm).



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