

Share Your Thoughts

City of Keene WWTF's Recent Upgrade Projects

By Aaron Costa, Assistant Public Works Director/Operations Manager, Drinking Water & Wastewater Treatment Facility

The City of Keene is excited to be hosting the Association's Fall Meeting on Friday, September 23, 2022. Tours will take place at the City's WWTF as well as at the Martel Court Pump Station. If you missed the last meeting in Keene, you're in luck because there's even more to see in 2022!

Recent upgrade projects to be highlighted include a new pump station screening system, laboratory renovation, new generator and 1.3 megawatt solar array. The meeting and luncheon will be at Mama McDonough's Irish Pub, which is located at the City's Airport and is located on the access road only 1.5 miles from the plant. It's a great place to hang out, watch the planes and helicopters and do some networking.



The new screening system is located at the City's main pump station. This \$1.3 million dollar upgrade included a new headworks screen, washer compactor, Vogelsang grinder, building addition and electrical and HVAC upgrades to the wet-side of the station. In 2014, the dry-side of the station was upgraded, replacing original pumps and drives. Overall, the City has invested millions of dollars into the pump station over the past 10 years and is excited to show the improvements.

On June 30, 2022, the City flipped the switch to the new 1.3 megawatt solar array

Continued on Page 3

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Successful Clean Water
Week for the Books

It's a dirty job, but
someone's got to do it.

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Editor's Words



Stephanie Somersworth WWTF

I'm writing for the FALL newsletter while still trying to recover from July 4th. And no, I'm not talking about recovering from drinking too much; I've recovered from that already. I'm talking about recovering from living through "dangerous things that can happen with home fireworks." I was enjoying an adults-only July 4th at Nonna's place on Crystal Lake in Gilmanton Iron Works, NH. We had a full house with all seven bedrooms at Nonna's taken, plus five dogs.

John had bought fireworks and was planning to have a show for us. Nonna goes to bed really early, but she was excited to see John's fireworks show and so got out of bed and joined us on the porch. John had the bulk of the fireworks on an outside table and was taking a couple at a time down to the dock to shoot off towards the lake. It really was a beautiful show, with others around the lake doing the same thing. Then John ran past us and yelled "we have a fire." Uncle Ed yelled back, "Do you need help?" And John said "yes." John is NOT the kind of guy to accept or ask for help. There was the briefest moment of stunned silence before the gang jumped into action. I had a frightened dog thrown at me, making my official role that of "dog wrangler" and keeping Nonna company on the porch. It wasn't a minute later that Uncle Ed yelled to call the fire department. Luckily, he also yelled out the address! The fire was quickly spreading towards Auntie Bet's house and Uncle Ed realized that we needed to give the fire department her address. By the time the fire department arrived, the gang had the fire "knocked down," but far from out. We were floored the next day while digging through the path of the fire looking for John's lost glasses to realize how deep down the fire had traveled along the tree roots. And how did the gang "knock down" the fire? By Nonna's 75-year old daughter crawling under the house to pull out the garden hoses, which were then run over to Aunty Bet's spigot, in combination with a bucket brigade from Nonna's spigot, and buckets of water being thrown up while standing in the lake. Yup, a lot of lessons were learned. After the fire department finished putting the fire out and left was when we pulled out the alcohol. At least we had done that right...



Me with my two dogs, Jazz and Morty. Izzy, Peanut and Bramble were also at Nonna's that night.

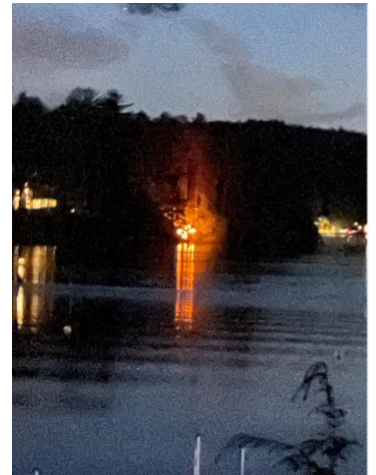


Photo taken by somebody on the other side of the lake - there were multiple 911 calls about this fire.



Upcoming Events

Sept. 23 - Fall Meeting - Tour at Keene WWTF

Dec. 9 - Winter Meeting with Business Meeting Tour at Somersworth WWTF

Go to www.nhwPCA.org for live links to online registration

NEWSLETTER COMMITTEE

Stephanie Rochefort, Mary Jane Meier, Steve Clifton, Ryan Peebles, **YOUR NAME HERE**. We welcome additional members. We are looking for meaningful articles for the Wastewater Operator in a timely fashion. Send submission articles for *THE COLLECTOR* to: Stephanie Rochefort via email at srochefort@somersworth.com.

Editor: Stephanie Rochefort

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For more information about the NHWPCA visit our website at www.nhwPCA.org

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located at the WWTF and the recent weather has been perfect for making solar power. In addition, with the assistance of Underwood Engineers, the Laboratory, which is located at the WWTF, just went through a desperately needed renovation. The facility's original 370kW backup generator which came online in 1985, is in the process of being replaced and the new generator should be installed in time for the tour. The new 500kW generator will be large enough to handle the entire load at the plant.

Hope to see everyone in Keene on September 23, 2022. Please stay tuned for more details and registration information.



Blurbs, Blurbs, & More Blurbs

SAVE THE DATE – NHDES Asset Management Workshop

By Eliza J. Styczynski, NHDES WWEB

We are pleased to announce the date for the 2022 NHDES Water Infrastructure Asset Management Workshop – Demystifying Asset Management! This year, the workshop will again be held at the Edward Cross Training Complex in Pembroke, N.H., on November 3rd, 2022. With this year's theme of "Demystifying Asset Management", a deeper dive on the core elements of asset management will take place through sharing peer-to-peer experiences via presentations on both a beginner and an intermediate track.

In previous years, the workshop has been well attended by over 100 people, representing an assortment of towns and cities, as well as other states, offering a diverse mix of operators, consultants, administrators, facility managers and software vendors. Contact hours for all water disciplines will be offered and a hot lunch will be provided.

Keep an eye out, the agenda and registration will be available soon. We hope to see you there!

2022 NHDES Asset Management Award Nomination

By Eliza J. Styczynski, NHDES WWEB

The 2022 Asset Management Award Nomination Form is now live! Annually, NHDES Water Division recognizes individuals or entities that have developed and implemented an outstanding asset management program for their water infrastructure. This award is established jointly by the NHDES Wastewater Engineering Bureau (WWEB), Drinking Water and Groundwater Bureau (DWGB) and Watershed Management Bureau (WMB) to recognize exemplary programs and encourage those who develop and use asset management programs.

We welcome individuals or entities to describe the outstanding asset management program development and implementation efforts of a community or individual to be recognized by NHDES. We will be accepting nominations and will determine the award recipient based on the answers provided in the nomination form. The award will be presented at the NHDES Annual Asset Management Workshop on November 3, 2022.

The nomination form can be found by logging in to your NH nForm account by visiting <https://onlineforms.nh.gov> and search "Asset Management Program Annual Award Nomination Form" under the "Form Finder" search bar.

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Grade 1 -OIT

- SCOTT R CORRIVEAU, Hampton
- SAMUEL HEWITT, Durham
- TRAVIS KULAK, Merrimack
- ANDREW MYERS, N. Conway
- PETER NEARY, Derry
- SHANNON PERKINS
- RICH TYLER, Berlin
- MARCEE SOUTHER, Seabrook

Grade 1

- STANLEY BROWN, Franklin
- SETH BUTSON, Glenclyff Home
- LAWRENCE ELLIOT, Glenclyff Home
- SLOAN ROGERS, N. Conway
- TRACY WATERHOUSE, Ossipee
- PETER CHANDLER

Grade 2-OIT

- DANIEL DEMERS, Franklin
- MATTHRE HENRY, Lebanon
- TAYLOR INGERSON, Merrimack
- ALEXANDER MELLEN, Hillsborough
- MEADOW WOTTON, Whitefield

Grade 2

- DENNIS CELATA, Franklin
- GARY HANCOCK, Plymouth
- CHARLES MARSDEN, Nashua
- ELIZABETH PEDRO, Keene
- NATHAN SCHAPPLER, Manchester
- CORY SMITH, Franklin
- BLAKE PETERSON

Grade 3-OIT

- DAVID ANDERSON, Somersworth
- TRAVIS STREETER, Lebanon

Grade 4-OIT

- MATTHEW COLLINS, Nashua
- RUSSELL McMAHON, Allenstown

Grade 4

- TIMOTHY PELLETIER, Franklin



Announcements



NH Water & Wastewater Managers School

Class of 2023 Program Announcement

The NH Department of Environmental Services (NHDES), the NH Water Pollution Control Association (NHWPCA) and the NH Waterworks Association (NHWWA) are pleased to announce the next session of the NH Water & Wastewater Managers School, for 2023. Application to the program is open to drinking water & wastewater professionals preparing for future management or supervisory positions, as well as current managers and supervisors who wish to improve their management skills. Course topics include municipal and utilities legal concepts, budgeting, personnel management/human resources, public speaking skills, education and outreach, public information and messaging, and instruction by current NH water and wastewater utility managers. For more information please contact Wade Pelham, NHDES, at wade.pelham@des.nh.gov, or visit the NHWPCA (www.nhwPCA.org) or NHWWA websites (www.nhwwa.org). There is no cost to apply. Tuition for individuals accepted into the 2023 NH W&WWMS program is \$675. Scholarships may be available through the NHWPCA and NHWWA, please contact Jeremy Bouvier, NHWPCA at jbouvier@manchesternh.com.

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gov or NHWWA at info@nhwwa.org to learn more about potential scholarship opportunities.



Jason Randall

While working as a Laboratory Supervisor at the Winnepesaukee River Basin Program I was accepted to Water & Wastewater Managers School and was part of the second graduating class in 2013. A major focus for the class was public speaking, and the importance of human factors, values, and behaviors, communications, and networking. Early on in my career as a Lab Operator, I did not generally need to speak to the public. I would communicate clearly with my peers and co-workers, and mostly kept to myself when it came to matters with the public and decision makers. After being involved in various leadership roles at an early age, outside of work and in previous jobs, I felt comfortable speaking with various audiences. When called upon, I continually responded and spoke up while others tended to shy away. By observing other W&WWMS candidates, some who were in management roles, I quickly learned that speaking with the public and decision makers takes a different level of skill set that many in the water and wastewater field were not quite as comfortable with or had not mastered during their careers in Operations. Leadership and management of a water and/or wastewater system requires someone with strong communications skills and ability to handle the “human factors”. W&WWMS provided me with an excellent networking opportunity to help build the confidence I needed to take the leap forward to the next chapter in my career as a Superintendent. W&WWMS taught me the importance of continually improving the

professional skills required to advance in the water and wastewater field. I would recommend the NH Managers School program to any aspiring water or wastewater professional who may be looking to step up within their organization and fulfill the need for the next generation of managers!

Name: Jason Randall

Affiliation: Plymouth Village Water & Sewer District

Current Position: Superintendent

W&WWMS graduation year: 2013

NHWPCA Selects NEWEA to be New Administrative Manager

The NHWPCA is excited to announce a new partnership with the New England Water Environment Association (NEWEA). This partnership will allow NHWPCA to continue to support New Hampshire’s water quality professionals while NEWEA provides support to NHWPCA’s board, ensuring the smooth operation of all NHWPCA’s events, programs and membership.

What’s new:

Our mailing address

10 Tower Office Park Suite 601 Woburn MA 01801

Our office telephone

781-939-0908

Our office fax

781-939-0907

NHWPCA and NEWEA are both excited to begin this partnership. Visit NHWPCA’s website at <http://www.nhwPCA.org> for more information on upcoming events, to renew membership and more. Any questions can be directed to: info.nhwPCA@gmail.com



Safety Corner

“MOMMY, WHY IS THE LAKE GREEN?”

Republished Courtesy of the NEWEA Safety Committee

A mother and daughter are at the beach when the little girl asks her mother why the ocean is

green. Seeing the fluorescent green water, the mother quickly yanks her daughter from the water wondering what terrible health affects this pollutant might have on her precious little girl. She rushes to the lifeguard, who is equally alarmed, and immediately calls the Health Department and NHDES. They respond only to find that the green discoloration is from a local dyed water test.

A man is driving along with his family when suddenly he spots a building with smoke pouring out the vent pipes. He quickly calls the Fire Department to report the fire. The fire department rushed to the scene only to find that the smoke is not from a fire, but from sewer smoke testing.

A college student is kayaking along her favorite river. She notes a red discharge coming out of a pipe. Being a steward of her environment, she reaches out to report the discharge to the local watershed association of which she is a member. The watershed association mobilizes a team of volunteers to investigate the source of the pollution. They go to the outfall, take samples and photographs. They systematically work upstream inspecting manholes and catch basins. They expend hours investigating the source of the pollutant, only to eventually find that the red color was from illicit discharge dye testing completed a few days prior.

These types of reactions are expected, especially during summer months when folks are out and about but can become much larger incidents when well-intentioned individuals report emergencies to uninformed local authorities. Significant alarm and wasted time and effort can result in the process. The next time you are planning to do smoke or dye testing, be sure to take appropriate advanced notification steps:

- Work with local water, sewer, and public works staff to identify sensitive areas that may be impacted, such as local water bodies and beaches
- Meet with police, fire, and emergency management staff to prepare them for receipt of smoke and dye testing reports
- Notify local watershed associations, NHDES, and other water protection agencies
- Provide public notices through leaflets, news articles, social media posts, etc.

You'll help put concerned citizens at ease and save time, money, and possibly lives by avoiding emergency response to false alarms.

This article is brought to you by the NHWPCA Safety Committee, courtesy of the NEWEA Safety Committee. We are still seeking Near Miss ideas. If you or someone you know has had a Near Miss, please let us know by sending the incident to Patty Chesebrough at pchesebrough@newpcc.org. All submissions are confidential. We just want to keep a Near Miss from becoming an accident. Thank you in advance for your submissions.



Pretreatment Tales

By Stephanie Rochefort, City of Somersworth WWTF

Instead of a traditional Pretreatment Tale, here is the announcement for the 24th Annual Pretreatment Conference. I'm part of the planning committee for this conference and we've been hard at work for many months to develop a meaningful and engaging agenda. At the end of each conference, we encourage participants to complete a survey asking what everybody would like to see more of and less of. It's very challenging when the same topics show up equally on both lists! We hope that we've met this challenge by talking about some of the same topics in a totally different way.

Hello All,

I am proud to announce that on October 25-27, 2022, the New England Regional Pretreatment Coordinators Association (NERPCA) and EPA New England will be hosting the 24th Annual New England Industrial Pretreatment Coordinators Workshop in Lowell, MA. Yes, we are back in Lowell and this will be an in-person event only. Please note there is an OPTIONAL Pretreatment 201 Training session on October 25th that will include hands on exercises. The full two-day workshop will be held on October 26-27th. The workshop will be held at the UMASS Lowell Inn and Conference Center.

All Workshop information (agenda, registration, hotel rooms, etc.) can be found by visiting <https://nerpca.org/>

Please use the Annual Conference link to register for the workshop. Registration forms can be sent to the

NERPCA email or mailed to the PO Box. Payments can be made by credit card via pay pal or municipal check only mailed to the PO Box. There is only a limited block of hotel rooms available so I would encourage anyone staying overnight to book the rooms before they sell out.

Attendance at this conference is strongly encouraged for all municipal (and their consultants, if applicable) and state industrial pretreatment personnel. This workshop is not open to industrial users so please do not share with your permitted users.

Hope to see as many of you as possible in October. If you have any questions, please feel free to contact me or Kerry Britt.

Cheers,
Jay

Justin Pimpare, Regional Pretreatment Coordinator
5 Post Office Square
Suite 100 OEP 06-03
Boston, MA 02109
617 918 1531



Thoughts from the Bench

By Stephanie Rochefort, City of Somersworth WWTF

This pandemic has been stressful and disruptive to all aspects of our lives. Maintaining Girl Scout programming has been particularly difficult. Scouts and their families who had spent the day struggling through virtual school really didn't want to participate in virtual Girl Scout meetings or events. Now that troops can meet in-person, there's a lot of catching up that needs to happen. At this year's "Plan for Success" meeting, we chose a theme of "Back to Basics". What does "Back to Basics" mean in a wastewater treatment facility's laboratory? I've been a Girl Scout longer than I've been working here in Somersworth, but I still have plenty of tips to share.

First and foremost, WEAR PROPER PPE! Before I was old enough to legally drink alcohol, I had already witnessed, experienced and caused (in that order) major safety incidences in laboratory settings. The valves that are supposed to

guarantee a tepid water temperature in safety showers and eye-washes commonly fail. Think about that. Think about being held down in freezing water while waiting for the 911-responders to arrive. The best way to avoid this scenario is by wearing proper PPE.

Properly and legibly label all containers. A lot of the reagents that we use are clear liquids and so it can be easy to grab the wrong clear liquid if the container isn't properly labeled. Don't try to smell what's in the container if you're unsure. That's another story... It's always best to start over if you're unsure.

Carefully measure everything. A lot of what we do is quantitative chemistry. We're trying to find out HOW MUCH of a pollutant is in a sample. Our results will not be accurate if we don't start with clean and dry graduated cylinders and pipettes and take the time to measure by looking at the bottom of the meniscus.

Collect samples in clean containers. Again, we're trying to determine how much of a pollutant is in a sample, so we shouldn't set ourselves up for failure by using a dirty container and contaminating our sample. The proper sample container varies depending on which parameter is being analyzed. For e-coli (or whatever flavor of coliform is in your permit) it's always best to start with a sterilized, disposable container. For the basic, traditional parameters, it's acceptable to clean and re-use containers. I have a dishwasher in my lab that is perfect for cleaning sample containers. If you don't have a dishwasher, then clean with a scrub-brush and triple-rinse. Don't use bleach or a detergent that contains any of the ingredients you're analyzing for. Samples that are leaving my laboratory to be analyzed by a contract lab will, of course, be going into the proper, new bottles supplied by my contract lab. These labs have tons of stories about people submitting samples in old mayonnaise jars, don't try to one-up by sending in a sample in a crazy container!

Avoid distractions. The lab is no place for a cell phone. Or a land-line phone, for that matter. And as much as some people insist that it helps them concentrate, loud music doesn't belong in the lab.

Minimize interruptions. I can calibrate a pH meter while talking about last night's Red Sox game, but I've been calibrating pH meters for a very long time. I haven't been analyzing for total nitrogen that long, so I plan that task for when I'm not likely to be interrupted and politely say that I'm not available if somebody asks me a question.

Properly maintain laboratory analytical and support equipment. An important step is daily temperature checks on refrigerators and incubators. Tracking the age of equipment and probes helps predict replacement times. And keeping the dust and dirt off the equipment goes a long way in extending life-span.

Make sure that all staff responsible for laboratory work have been properly trained. Way back in the dinosaur-days when I first started working in Somersworth, there was a culture of quickly demonstrating an analytical test and then expecting the person to properly perform the test independently. We've learned a lot since then!

Slow down and don't dump your sample down the drain until you're done! There's plenty of time during an eight-hour shift to get all the lab work done and rushing leads to mistakes. If you do make a mistake, don't worry. I've made every mistake possible and they can all be fixed, even if it means starting over.

That's nine helpful tips so I'm going to stop as I did not intend for this to be a top-ten list and it would be easy to keep writing tips until I've written two dozen of them...you think? My final tip (OK, I guess this is a top-ten list) is don't hesitate to reach out and ask for help. You can ask a co-worker, a supervisor, or somebody from a next-door neighbor facility...and we're all next door neighbors in New Hampshire!

President's Corner

Robert J. Robinson, P.E.

The New Hampshire Water Pollution Control Association (NHWPCA) often collaborates and teams with other organizations within the environmental field. These



efforts help bring forth change, support the environment, and the environmental field.

The NHWPCA collaborates with the New Hampshire Department of Environmental Services (NHDES) for the Discover Wild NH Day and the Poster Contest. Both of these events help promote environmental education. The NHDES will also include the NHWPCA as a stakeholder on environmental regulation review that impacts our field. The NHWPCA appreciates being part of the process.

The NHDES senior staff and their former Water Division Director Tom O'Donovan organizes and conducts the Four Associations Meeting. The four associations in addition to the NHDES include the NHWPCA, the NH Water Works Association, the Granite State Rural Water Association, and the NH Municipal Association. The focus of these meetings is to discuss key legislation and how it impacts the different organizations. The four associations have even collaborated on support letters on key legislation. The focus for this next legislative session will be PFAS and biosolids.

The NHWPCA collaborates with other state wastewater organizations in New England. The New England Water Environment Association (NEWEA) has Affiliated State Association (ASA) meetings. The ASA meetings bring together leaders and State Directors for all the New England wastewater organizations. In addition to NEWEA and the NHWPCA, associations from Connecticut, Maine, Massachusetts, Rhode Island, and Vermont attend. We discuss events and key legislation that we are following in our respective states and on a national level. The New England states also on an annual basis exchange an Operator. This year NH and ME will exchange Operators. The Operators travel to each other's state for three days to tour different wastewater treatment plants and to take part in an event. The Operator from Maine will visit NH September 21st through the 23rd. The NHWPCA will also take part in a PFAS Task Force being organized by NEWEA.

The NHWPCA is part of a collaborative effort that includes water and wastewater organizations from the New England states, which also includes on a regional level NEWEA, the New

England Chapter of the American Public Works Association, and the New England Water Works Association, and with support on a national level from the American Public Works Association, the American Water Works Association, and the Water Environment Federation on workforce development. This effort is referred to as the Regional Water Workforce Collaboration. The difficulty of finding qualified professionals for our industry is something that we all are facing. This collaborative effort will help us with strategies to employ to bring qualified professionals into this industry.

The NHWPCA is also working with NEWEA on association management. NEWEA started in June as our association management firm. They will be supporting our efforts and our events. This will further strengthen our collaboration and our association.



Operator Profile



Bob Bishop is a grade 2 certified NH Wastewater Treatment Plant Operator and grade 2 certified NH Water Treatment Plant Operator. He is an Operator at the Keene Wastewater Treatment plant.

Please tell us about your plant:

The Keene Wastewater Treatment Plant is an activated sludge plant. It serves Keene, parts of Swanzey, and parts of Marlborough including Keene State College and Cheshire Medical

Hospital. The plant is operated by two operators, an operations manager, four maintenance technicians, and three laboratory personnel. There are five pump stations that bring the sewage to the treatment plant. Daily flow at the plant averages approx. 3.5 MGD. The plant has gone through two phases of upgrades over 5 years which included a new UV system, two new 150hp neuros aeration blowers, three new buildings, new RAS and WAS pumps, and two FKC horizontal screw presses. There are two aerated grit chambers and two primary clarifiers. There is a two sided aeration basin, and two secondary clarifiers. The disinfection takes place with a Wedeco UV system.

What was your first job?

My first job was for the Army Corps of Engineers as a laborer at the North Hartland Lake flood control dam in Hartland Vermont. The dam holds back water in the Ottauquechee river to prevent flooding in the Connecticut River. The job taught me skills useful in my career today.

How long have you been in the clean water/ wastewater profession?

I started as a water/ sewer service aide in Keene 10 years ago and was promoted to wastewater operator 6 years ago.

What is your favorite part about being a wastewater operator?

I enjoy the variety of tasks that we work on daily. From cleaning a sludge tank, working on a piece of equipment at the plant, or calling vendors to order products, the job is different each day. The best part is showing up every day knowing that I am a part of helping keep the environment clean and safe for all to enjoy.

What have you learned that you wished you knew when you first started in the industry?

Problem solving is a major part of the job and a solution that works one time may not work the next time. There are many variables in this field and things are always changing.

What advice do you have for new operators?

The best advice that I could give someone new to the field would be to write things down and take notes. I have spent years with a pen and paper

in my shirt pocket. Also take the opportunities to take training and get higher licenses. The field is always changing and our skills need to be up to the challenge.



Residuals Report

2023 Rule Readoption: Env-Wq 1600 Septage Management

Over the years, and in the last few decades particularly, many rules have been developed to help protect New Hampshire's environment. The NH Department of Environmental Services oversees the efforts supporting many of those rules. In order to keep those rules in effect, they must be readopted periodically. The readoption process includes stakeholder meetings with involved organizations and industries throughout the state, and a public comment opportunity, to make sure that everyone can help shape the final version of each rule being readopted. In 2023, NHDES rule Env-Wq 1600 Septage Management is up for readoption. This rule is central to transport and management of septage in the state of NH, and its significance grows as septage volumes in NH continue to climb. The first stakeholder meeting in the readoption process in July 2022 included invitees from many prominent organizations, including the NH Water Pollution Control Association (NHWPCA), NH Association of Septage Haulers, the Granite State Onsite Wastewater Association and USDA. It is important to be involved with and remain active with groups like these to help make sure your voice is heard and your opinions are part of rule revisions processes. The lead-up to each rule readoption also includes a public comment period. Notice for public comment periods can be found on the NHDES website here:

<https://www.des.nh.gov/public-comment-opportunities?category=Rulemaking>

NHDES believes that strong participation in the rulemaking process will result in further refining of the Env-Wq 1600 regulations, benefitting the people of NH, the WWTFs which provide valuable treatment services and revenue potential, and

further protecting the NH environment and public health.

Wade Pelham

Water Division - Wastewater Engineering Bureau, NHDES

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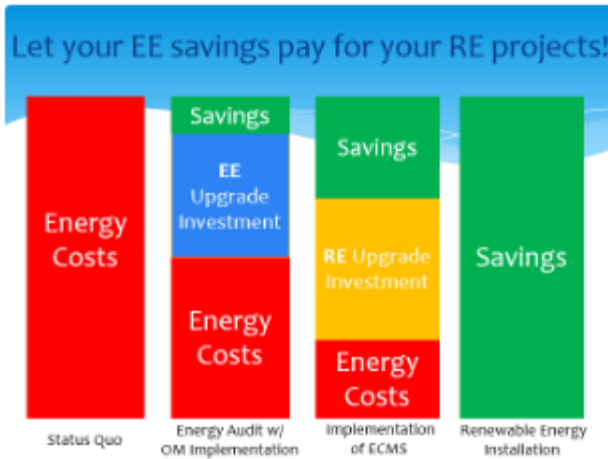
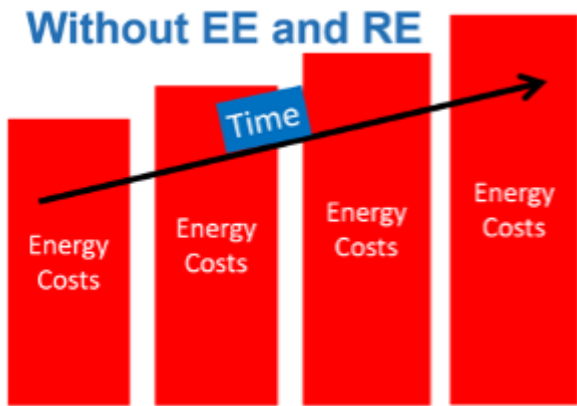
Energy Matters

Net Zero is Coming to NH's Wastewater Treatment Plants...or is it?

Sharon Nall, P.E., NHDES WWEB

New Hampshire wastewater treatment plants (WWTPs) are going green! In June alone, we had two WWTPs hold ribbon cutting ceremonies for new solar arrays! Both facilities, Winchester and Keene, implemented energy efficiency measures prior to installing solar arrays, which helped optimize solar array sizing to cover the remaining electric energy use of the WWTP. There are also several more WWTPs lining up this year to take the plunge to clean energy. We are excited to see WWTP owners making the decision to take control of their energy costs and reducing carbon emissions!

The following graphic shows the energy costs if a WWTP continues operating under the status quo and owners/operators do nothing to reduce energy use. Energy costs will NOT go down over time and can spike rapidly as we have seen since August in NH! The graphic below on the right shows the process that Keene, Winchester and numerous other WWTPs have gone through or are going through. They are reducing or eliminating their electric energy costs with energy efficiency (EE) investments followed by renewable energy (RE) investments. Progress!!!



However, can we truly call this net-zero? If we get technical about it, according to the University of Oxford (What is Net Zero? - Net Zero Climate) going net-zero means “to reduce the greenhouse gas emissions (GHGs) and/or to ensure that any ongoing emissions are balanced by [emission] removals”.

Once a WWTP, through EE and then RE, is generating all the electric energy it needs, the WWTP owners/operators are well on their way in the “Race to Zero.” The facility owners who are striving to be the “best in class” will continue to evaluate how they operate their plant and explore how to work towards achieving net zero for every resource used within their plant.


So, let’s dive into that discussion a little more. Your electric bill may be getting close to \$0, but are your greenhouse gas emissions also zero?

- What chemicals are you using for treating wastewater? Have you investigated greener alternatives with lower GHG emissions and less trucking to further reduce your WWTP’s carbon footprint?

- Are you heating with oil, natural gas, propane, or other fossil fuel? Have you considered heat pumps, building envelope improvements, heat recovery systems or other alternatives?
- Are you tracking potable water use and investigating ways to reduce consumption?
- Have you electrified your fleet (with the potential to use your solar array for charging)?
- Are you using biodiesel for heavy equipment?

This article is not about diminishing the importance of EEB4RE (energy efficiency before renewable energy) or EE+RE (energy efficiency in conjunction with renewable energy). Instead, this article is a reminder that we need to continuously explore ways to mitigate climate change by reducing net GHGs in all aspects of WWTP operations.

In addition to encouraging you to keep striving toward net zero, I will also remind you that our energy efficiency program for wastewater and drinking water systems is still going strong. As we start with a new contract with Process Energy Services and we continue incentivizing energy audit measure implementation (EAMI) through Clean Water State Revolving Fund (CWSRF), Drinking Water SRF (DWSRF) and NHsaves (NH’s electric and natural gas utility efficiency incentive program), this graphic shows our plans moving forward. If your system has not had a comprehensive process level energy audit yet, let me know and we will get you on the schedule.



WW + DW
Energy
Program
LookAhead

- Implementation push!
- Continued energy audits
- Expanded technical assistance and training
- EEB4RE or EE + RE
- Energy Data into AMPs



Retiree Rave

We continue our salute to the wastewater and drinking water operators and administrators that are now enjoying retirement. Our newsletter committee would appreciate hearing from our readers to expand this list so we can recognize our loyal, hardworking associates and friends. Please reach out to any of the newsletter committee members with contact information for retirees and we'll take it from there!

Paul Sussman retired in July 2022 from the Maher Corporation after 42 years of service to the Water and Wastewater industry across our New England states. Paul completed his Farewell tour through each of the states with the added luxury of introducing his clients to Michael Patrick, who will assume his role. For all of us who know Paul, there's no surprise there. He is always prepared and anticipates his every move with careful thought to make sound decisions, including finding a well-qualified replacement.



Paul built his reputation with a firm belief this industry is a business of relationships. Meeting face to face, shaking hands and direct one to one communication. He recognized the benefits of building rapport and trust with engineers, operators, and manufacturers he met along the way.

His beliefs were aligned with the Maher Corporation and that trust made for a perfect partnership. He has travelled to rep companies located all over North America and Canada over his career. As he says, loyalty is key to all relationships in life, both at work and play.

Regarding loyalty, Paul is a forty plus year member of the NHWCPA and the NEWEA. His active participation in many state's events across the nation made it clear that New Englanders are

a closer-knit group than in any other territories. And especially in New Hampshire. He marveled at the benefit gained when clients and operators openly shared their experiences. As a sales engineer, he stood behind what he sold, but the real story comes from the end users as they share their own accounts. Successful jobs are hardly talked about, but one bad experience and the news travels fast! There couldn't be too much bad news, since Paul has sold equipment in nearly every plant in NH!! The operator training program relied on Paul to bring hands on education and training for our operators. And he delivered every time on topics from A to Z of wastewater treatment.

Paul steadily built good rapport amongst his clients by defending what is right. He has always appreciated honesty amongst clients and manufacturers, along with the idea that to Work Hard One Must Play Hard. The latter will be the focus of his new life chapter. Paul and his wife, Robin, will relocate to sunny Florida over the next few months. A new home and plenty of projects await them. To keep things in balance, there will be lots of opportunities to reconnect with longtime friends, to enjoy the ocean, and hang poolside sippin' on margaritas.

Congratulations and many thanks for your dedicated service to the Water and Wastewater industry!

I just wanted to express my gratitude to Paul for his long and illustrious career. I have had many interactions with Paul over my 30 plus year career and all were informative, unique and interesting. He had helped me out when I was at Nashua and Concord too! Like most of the good sales engineers I have had the pleasure of working with, he cared about the customer relationships he developed and was proud of the organization he worked for. He was also very proud of the equipment he represented. The vendor sector of our wastewater family has always been an important part of protecting public health and environment. Vendors provide a vehicle for purchasing the equipment we need to do our jobs well. They also push us forward with new technology to help meet the always changing treatment processes and permit limits. Paul's contribution has been great in this respect.

Jumping off the soap box on the professional look, personally it has been a pleasure to know and work with Paul. We have always had great conversations about family and life in general, always of a beer or two....maybe more...LOL! Meeting at NHWPCA or at NEWEA for social times has always been a great experience. I know I jokingly give Paul a hard time as a Rep. but his longevity in the field and career speaks for itself. I will miss Paul, although he has assured me that I can reach out to him anytime and he will do his very best to help, as he always done. My best wishes to Paul and his family on all endeavors, he certainly deserves all the BEST!

John C. Adie, Operations
Wastewater Engineering Bureau, Water Division,
NHDES

I have had the pleasure of working with Paul Sussman since I entered the NH engineering market in 1998. In typical Paul fashion, he came into my office within weeks of my arrival loudly introducing himself and naturally his current "line card." Paul always had his ear to the ground and would share the latest and greatest New Hampshire wastewater news which I greatly valued. When I switched from the private sector to the public sector Paul continued his selling style as only he could. Paul has been a great asset to our industry and will be sorely missed. Even with his departure, I will still think of Paul every year on July 18th since we share the same birthday!

Frederick J. McNeill, P.E., Chief Engineer
Environmental Protection Division
Department of Public Works
City of Manchester

NEIWPCC Environmental Analyst Joins Young Professionals at National Water Policy Fly-In

By Evan Karsberg, reprinted with permission of NEIWPCC

Each year in Washington, D.C. there is a week-long conference dedicated to what is possibly our single most important resource: water. This year's National



Water Policy Fly-In,, held in April, had a particularly powerful impact because we returned to an in-person gathering for the first time since 2019. Every speaker remarked on how wonderful it was to have a national group of water professionals coming together in person to discuss policy and issues, and to advocate for the industry.

The conference provided us with the opportunity to thank our legislators face to face for their hard work on the Bipartisan Infrastructure Law (Infrastructure and Investment and Jobs Act), passed back in November 2021. As a result of their efforts, the water industry has not only managed to secure once-in-a-lifetime funding for sorely needed upgrades to our aging water resource recovery facilities, but is now also listed alongside the other headliners of infrastructure. For the first time in history, instead of hearing about the big three of infrastructure, there has been a fourth component added to our national infrastructure lexicon. The ring of "roadways, bridges, railways and water" is progress for the industry and everyone who relies on it!

Senators Tom Carper of Delaware and Shelley Capito of West Virginia, sitting chairs of the Senate

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Environment and Public Works Committee, emphasized how the hard work of outreach and lobbying over the past 20 years was crucial in helping the legislature understand the critical importance of funding the “water bucket” items in the infrastructure bill. Both senators highlighted the political diversity of their committee, spanning from the staunchly conservative Sen. Jim Inhofe of Oklahoma to the outspokenly liberal Sen. Bernie Sanders of Vermont. Despite the notoriously disparate viewpoints of the legislative committee, the floor vote was 89-2 in support of \$50 billion for water infrastructure.

There was more good news besides just the Bipartisan Infrastructure Law. Each representative who spoke was hopeful about the WIPPEs legislation moving forward, which would require clear ‘Do Not Flush’ labeling in multiple locations on all non-flushable wipe products. Senator Jeanne Shaheen is one of the sponsors on the bill, showing leadership from New Hampshire. The legislature has taken an aggressive stance against the pushback from the woven industry & other global manufactures.

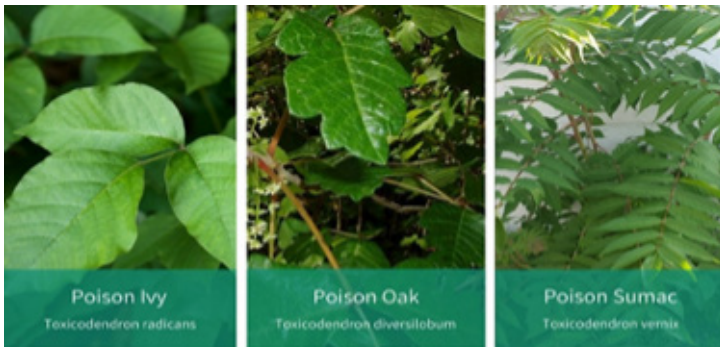
Sadly, it cannot all be good news. Per- and polyfluoroalkyl substances (PFAS) is a looming issue only growing in severity. Both Congress and the EPA have pledged action to address the problem and continue to move their plans forward; though so far answers have been difficult to come by and even harder to verify. This is undoubtedly where the next generation of water workers take up the mantle and redouble their efforts to reach out and educate lawmakers, in the hopes of steering them toward a science-based solution instead of reactionary legislation.

A final point about the future of the water industry. It is full of the most amazing and passionate people I have ever had the pleasure of meeting. This April, young professionals from all over the country flew in for the conference to learn how to advocate for our nation’s clean water in all its forms. After the policy events, Chesapeake Water Environment Association’s (CWEA) Young Professionals committee held

a networking session, where those of us new to the industry joined together to continue the work of planning how to tackle the vast array of challenges the future brings.

More about Sumac

The newsletter committee loves feedback on each edition of The Collector! Thanks to Greg Kidd for sending these additional photos of sumac. Greg noted that the poison sumac in the photo in the summer edition looks a lot like Staghorn sumac. Your newsletter editor grew up with a yard-full of Staghorn sumac, which is not poisonous. The fruits of Staghorn sumac can be used for tea and as a spice. We learned about Staghorn sumac in Girl Scouts and even tried the tea on a camping trip...I wasn't a fan.



coryellhealth.org

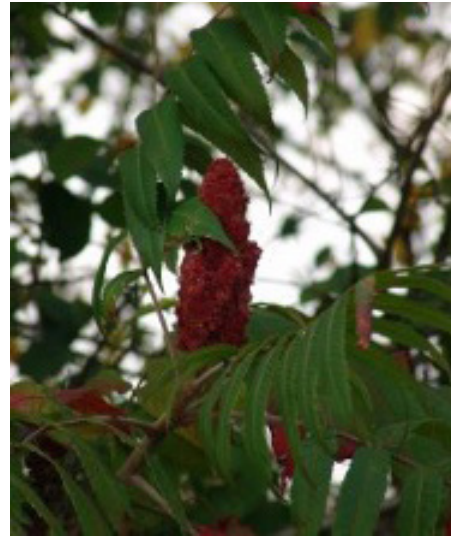
Photo from Summer Edition Safety Corner



Poison sumac



Staghorn sumac leaf



Staghorn sumac fruit

June 2022 –Another Successful Clean Water Week for the Books

Governor Sununu helped us lead off this year's National Clean Water Week (June 5 to June 11) by spending quality time with the winners of our Clean Water Poster Contest and signing the proclamation with them. Members of the NHWPCA created the Poster Contest to help spread the word about the need to keep our waters clean and unpolluted. This year's theme was "The Journey of a Raindrop" and we were so impressed with all of the participants. Children in grades 1-6 went above and beyond to express their understanding of the topic in a thoughtful and creative way! The Governor reminded everyone of the importance of protecting our water resources and of the impacts children can make by maintaining an active role in preserving

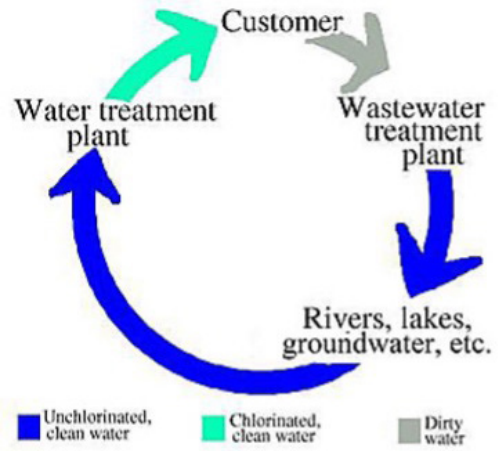
the environment. We look forward to continuing this tradition and keeping the young minds and future of clean water active in our community.



It's a dirty job, but someone's got to do it.

*Mike Carle, Chief Operator Hampton WWTP
NH Water Pollution Control Association, Past President
Reprinted with permission from New Hampshire
Municipal Association*

When you stop to think about it, the importance of water is undeniable. From the water we use to make our coffee in the morning to the water we brush our teeth with at bedtime- water touches every aspect of our lives. Luckily for us, we don't need to think about it much. In New Hampshire, water plentifully surrounds us in our lakes, rivers, and oceans. Our taps run and our toilets flush. There are professionals out there whose job is to make sure you don't have to think about these things. So far, this series has touched on the people who provide the water. In the first installments of our *Win With Water!* series we talked about the importance of having a reliable source for drinking water; but what happens to that water after it leaves the tap? In this installment, let me introduce you to the people who clean the water after you use it: Wastewater Operators.



¹Water is a limited resource that we are entrusted to take care of. You all remember the water cycle from grade school, it is a closed loop. The average American uses 82 gallons of water each day². In New Hampshire that adds up to 110 million gallons each day. But what happens to all that water once it goes down the drain? In most towns and cities, it goes to a wastewater treatment plant. Even if you have a septic tank, these facilities treat what the septic haulers pump out. There is a whole industry devoted to this process. The engineers who design the plants, suppliers who provide the specialized equipment, and trained operators across the state all work together to treat the wastewater to water quality standards that are safe to return to the environment.

This has been a fitting year to focus on the water infrastructure as 2022 marks the 50th anniversary of the Clean Water Act, that established water quality standards and requirements to make our rivers and lakes swimmable, fishable, and safe. Wastewater Operators welcome this renewed opportunity to focus on and raise awareness of infrastructure and technology. The treatment plants that were built in the 70's have worked well to help us remove waste and return safe water back to the environment for years, but like any piece of major equipment, they eventually need replacing. Wastewater infrastructure is a lot like your car: even with regular maintenance and cleaning, that 1972 Ford can't possibly be retrofitted to compete with the safety and fuel-efficiency of the latest 2022 models!

As stewards of the environment, wastewater operators do their best with the available

technology to remove as many contaminants as possible. Over this last half century, wastewater treatment technology has progressed from solely removing the heaviest of contaminants to being able to not only discharge clean water but also produce useful resources such as fertilizer and even electricity.

Some of our biggest challenges are still emerging. We are always discovering new compounds that can cause harm. 50 years ago, no one thought that putting that waterproof coat in the laundry would cause any harm. Because the PFAS chemicals that make up the waterproofing don't break down in the environment, over the years they come back to us through our food and water. Wastewater plants are not designed to remove "forever" chemicals such as PFAS, but we are doing our best to be part of the solution. Our challenge is to develop the technology to keep these compounds that don't go away from reentering the watershed. Sometimes the answer is to prevent these chemicals from entering the water to begin with.

Wastewater Operators bridge the loop between the clean water we drink and the healthy source water we all use. We often work out of sight and out of mind, but every once in a while, we ask that you think about what you would do without us next time you flush the toilet.

¹<https://water.mecc.edu/>

²Statistics and Facts | US EPA

2022 Summer Meeting

By Michael Theriault, PE, Wright-Pierce

What a treat it was to have the return of the Summer Meeting after being cancelled in 2020 and 2021. Clear and beautiful sunny skies prevailed along the shore of Lake Winnepesaukee for the NHWPCA Summer Meeting on June 24, 2022 at Ellacoya State Park in Gilford, NH. The Association's Activities committee was in full force to greet park attendants as they opened the park for the day and began setup immediately for the summer meeting. Tables were moved, barbecues and burners were fired up, and the feast was readied for preparation.



As the hot dogs rolled onto the grill and started sizzling, the cornhole tournament was set up. Teams began playing just as the golden hotdogs came off the grill and the delicious chili donated by Poor Boy's Diner in Londonderry, NH was hot enough to serve. The cornhole competition was a real hit, with 14 teams competing double elimination style for bragging rights. Past tournament winners Mike Dube (2018) from the Hampton WWTF and Mario Leclerc (2016, 2019) from the Seabrook WWTF teamed up and edged out the competition!

Attendees employed a fantastic and fun-filled attitude for the social networking event and enjoyed the perfectly-grilled marinated steaks and chicken, homemade salads, corn-on-the-cob, and refreshing cold treats at the ice cream bar donated by Wright-Pierce, which provided a number of smiling scoopers for the warm afternoon.

The NHWPCA extends much gratitude to the many volunteers of the Activities committee who worked hard to plan, setup, cook, and clean up, making the event so successful. The Association would like to recognize the following sponsors and donors whose generosity helped make the Summer Meeting affordable for all to enjoy.

New England Environmental Equipment, Inc.
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 Wright-Pierce (Ice Cream Bar)
 Poor Boy's Diner (Chili)



Photo Gallery

2022 Summer Meeting





3 STEPS for NH Wastewater Plants to Offset the Upcoming Electric Utility Energy Cost Increase!



Step #1: No-cost adjustments you can make NOW!

- Turn all unit heater thermostats down to 50 degrees or lower in unoccupied pump stations and process areas. Every degree reduced is approximately a 2% reduction on your heating costs.
- Replace all unit heater high/low knobs with wall thermostats to ensure the station temperature is consistently 50 degrees or lower.
- Every VFD in your plant and pump stations has the potential to be optimized to reduce energy (kWh) costs and demand (kW) charges. This applies to every pump/fan/blower. Assistance is available (see last page) to evaluate how to optimize all plant/pump station VFDs.
- Efficient activated sludge wastewater plants typically maintain an aeration system dissolved oxygen (DO) level between 1.5 and 2.0 mg/l (with some plants operating at a lower level). For every 0.5 mg/l that you can reduce your DO setpoint, your blower energy savings will be about 5% due to the reduced airflow.
- Cycling process equipment with simple timers can provide up to 50% savings. This includes lagoon aerators, sludge blowers/mixers, and potentially odor control & ventilation fans.

Month	Billed Energy Use (kWh)	Demand (kW)	Pump #1 Hours	Pump #2 Hours	Pump Energy Use (kWh)	Misc. Energy Use (kWh)	Total Flow (MG)	kWh/MG
Jan	11,247	35.9	39	244	5,504	5,750	4.78	2,353
Feb	11,396	38.8	52	229	5,489	5,923	4.73	2,409
Mar	10,671	36.4	50	246	5,773	4,884	5.01	2,130
Apr	8,882	32.6	38	233	5,272	3,596	4.59	1,935
May	6,620	30.5	55	200	5,070	4,000	4.00	1,600
Jun	7,623	30	48	200	5,070	4,000	4.00	1,600
Jul	7,599	28.6	42	200	5,070	4,000	4.00	1,600
Aug	7,184	28.5	44	200	5,070	4,000	4.00	1,600
Sep	7,299	28.7	43	200	5,070	4,000	4.00	1,600
Oct	7,740	30.1	41	200	5,070	4,000	4.00	1,600
Nov	8,199	33.5	49	200	5,070	4,000	4.00	1,600
Dec	10,008	34.9	38	200	5,070	4,000	4.00	1,600
Totals/Avg	104,468	389	539					



Month	Billed Energy Use (kWh)	Demand (kW)	Demand Cost	kWh Delivery Cost	Monthly Fee	kWh Supply Cost	Total Delivery Cost	Total Electric Cost
Jan	11,247	35.9	\$629	\$596	\$32	\$993	\$1,257	\$2,250
Feb	11,396	38.8	\$688	\$604	\$32	\$1,006	\$1,324	\$2,330
Mar	10,671	36.4	\$639	\$566	\$32	\$942	\$1,237	\$2,179
Apr	8,882	32.6	\$562	\$471	\$32	\$784	\$1,065	\$1,849
May	6,620	30.5	\$519	\$351	\$32	\$584	\$902	\$1,486
Jun	7,623	30	\$509	\$404	\$32	\$673	\$945	\$1,618
Jul	7,599	28.6	\$480	\$403	\$32	\$671	\$915	\$1,586
Aug	7,184	28.5	\$478	\$381	\$32	\$634	\$891	\$1,525
Sep	7,299	28.7	\$483	\$386	\$32	\$644	\$901	\$1,545
Oct	7,740	30.1	\$511	\$410	\$32	\$683	\$953	\$1,636
Nov	8,199	33.5	\$580	\$435	\$32	\$724	\$1,047	\$1,771
Dec	10,008	34.9	\$609	\$530	\$32	\$883	\$1,171	\$2,054
Totals	104,468	389	\$6,688	\$5,536	\$384	\$9,221	\$12,608	\$21,829



Step #2: Minimal cost actions to realize MORE SAVINGS!

- BECOME MORE AWARE OF YOUR ENERGY BILLS. Dissect your electric bill to identify charges for delivery/supply energy use (kWh) and demand (kW) charges. The supply energy cost part of your bill is the value that will be impacted by the latest cost increases.
- WHAT CAN BE DONE TO REDUCE DEMAND CHARGES? After you compile monthly demand use/costs, review pump station/facility operation to evaluate if reducing VFD speeds or alternating equipment operation is an option.
- Comparing monthly pump station run time with energy use can help determine how much miscellaneous loads are costing you to prioritize improvements.
- Inspect all building doors and windows and replace damaged seals. Consider cutting pieces of rigid foam insulation that can be inserted into ventilation openings that are not used during the winter months.
- Track fuel oil and propane use/costs at every station.

With new energy cost increases potentially raising electric bills by over 45%, the simple payback for energy saving projects is now 45% faster!

Fundamental Rule for Cost Effective Energy Savings:

Match existing equipment capacity to what the SYSTEM REQUIRES (using VFDs, timers, controls) before pursuing new “efficient” equipment.

Step #3: Actions to provide long-term energy cost savings.

- Review the energy savings/costs for replacing inefficient equipment or optimizing existing equipment operation. This includes pumps, motors, and application of VFDs, hydraulic system improvement and replacing electric heater with heat pumps. Be sure to contact your electric utility early in the process for potential incentives as you start developing efficiency projects.
- Contact solar contractors to review your plant/pump station sites for potential solar photovoltaic (PV) array applications.

Many of the ideas presented can be done without assistance, but when needed free technical support is available to explain electric bill charges, provide sample energy tracking templates and assist with cost saving calculations. This support can help you start reducing costs until a full energy evaluation can be performed.

To schedule technical assistance or a full energy evaluation contact Sharon Nall, NHDES at (603) 271-2508 or sharon.l.nall@des.nh.gov.



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