

# One Water

*Joint Newsletter - November 2023*

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to you by:



November 2023

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## What Do the Colors Mean?

- Green  
Content from MeWEA
- Blue  
Content from MWUA
- Blue/Green  
MWUA & MeWEA content



# Message from MWUA's President

Thanksgiving is just around the corner as I write this and realize how quickly this year has flown by. I want to thank all the MWUA hard working members, Board and Volunteers for the work that they do day-in-out to protect the waters in Maine. As I wind down my presidency, I want to encourage you all to become an active member of the MWUA committees. There is always an opportunity to be involved with the MWUA.

I want to wish Mike Cummons a wonderful presidency next year! I think the Association is in great hands, and I look forward to assisting Mike as the Past President.

Maine Water Utilities Association is excited to announce their 98th Annual Conference on January 31-February 1, 2024. The MWUA conference has long served as the venue for Professional and Technical Sessions, and demonstrations of new products.

New MWUA Board Members: Welcome Dan Burdin, Roger Crouse, and Keith Levasseur.

I want to take the time to thank the following board members for serving 3 years, Chris Curtis and Nicki Pellenz. In addition, thank you to John Leach for serving for 7 years on the board, including a year as president and a year as past president. They were instrumental in the success of our organization. They all deserve to be honored because of who they are and what they have done for MWUA. If you see one of our Board Members, please take the time to thank them for their commitment to Maine Water Utilities Association.

2023 brought us much needed in-person events throughout the year. Some of these events included our Annual Golf Tournament, The MWUA and MeWEA Joint Summer Outing, 1st Annual and in-person training classes. I want to thank everyone involved in these events for all their hard work and help in making these events successful. We thank all who attended and look forward to seeing everyone at these events in 2024.

We continued our collaboration with MeWEA not only for the Joint Summer Outing and 1st Annual Sea Dogs Game. The other events were the Legislative Breakfast, Legislative bills, and Joint Newsletter. Both groups have been and continue to be strong advocates for the water & wastewater industry through education, legislation policy and networking. We look forward to continuing and expanding on these collaborations in the years to come.

In addition, MWUA will continue to collaborate with Tom's Water Solutions to bring our members and the water and wastewater industry the premier training in Maine.

I would also like to thank all those who have sponsored our events throughout the year. Without their contributions it would have been hard to provide these events.



# Message from MeWEA President



I blinked and 2023 is almost over, and with it my privilege of serving MeWEA in a leadership position over the past several years. Taking a moment and thinking back over the chaos of the last year, overall I am pleased with the engagement and effectiveness our organization has provided, but realize there is still a lot of hard work ahead of the association and our individual members. As I have gloated on several times over the past months, I am leaving you in capable hands with Emily transitioning from Government Affairs chair, Vice President, and all around work horse.

Before I sign off, a few end of year updates I want to provide:

## **Administrative Contract**

MeWEA has signed another 12 month contract for Administrative Services with MWUA. The two boards met in earnest the last few weeks to ensure an agreement could be reached that aimed to be fair for both parties and clear in scope. The MeWEA board will continue to work on defining needs out of an Admin contract and aim to lock in a longer term contract in the future.

## **Biosolids SubGroup**

Representatives from MeWEA have been working closely with the DEP and Brown & Caldwell on a statewide biosolids management study. This study has been on-going for a number of months now and should be wrapped up by the end of this year. This initiative is designed to take a comprehensive look at physical and operational landfill capacity, state wide septage management, regional biosolid management projects, management alternatives, and recommendations on evolving technologies our facilities may want to pilot. While PFAS has certainly disrupted our ability to manage solids, the results of the study should highlight the interconnectivity of various components that should be considered to provide management recommendations for small, medium, large, and regional facilities in our state. This truly is a comprehensive study that is likely to highlight our need for volume reduction now, and if warranted, PFAS treatment in the future. The final report will be shared with MeWEA members and will likely be used by the DEP for communications with legislators as the State works toward developing a path forward for sustainable biosolids management.

## **PR**

Black Fly Media continues to work with Evan Pereira and our Public Relations committee to change the narrative around wastewater utilities post PFAS. Black Fly provided invaluable support throughout the past year navigating the biosolids crisis and the press and testimony surrounding LD 718 and all other things PFAS and biosolids related. The PR team is shifting away from PFAS stories as much as possible and trying to focus on more positive press. If you have any good stories that can be spun into a story for local media or statewide, or have a desire to help this committee by joining please reach out to Evan. [epereira@woodardcurran.com](mailto:epereira@woodardcurran.com)

## **GA**

Our Government Affairs committee has had another crazy busy session, in many ways this session never really ended. Our committee will be watching the bills recently released for the 2024 session, as well as the carryovers that committees are still discussing and taking informal straw polls on to expedite votes in January. Additionally the committee is working on logistics for the Legislative Breakfast which will be held again at the Augusta Civic Center on January 16th, 2024.

## **Utility Managers Committee**

An ad hoc committee composed of Amanda Smith and Travis Peaslee reported back on their review of the desire for a manager's forum and the structure potential members would like to see. MeWEA will be taking steps over the next year to form an official committee, Rob Pontau is spearheading efforts in that direction. Please look for a recent email from Rob with a form for potential members to fill out.

## **YP**

The soon to be renamed Young Professionals (New Professionals as of 1/1/2024) will be coordinating MeWEA's involvement in the 2024 Water Professionals day at the Portland Sea Dogs. Look for updates on this event in late winter.

## **Ski Day**

Ski Day is returning to Saddleback Maine on March 14th 2024, Pi Day. Whether you ski, snowboard, or belly up to the bar and enjoy your favorite beverage and a pie, join us for a great day with great peeps. Look for registration information in January.

## **MWUA Conference**

The water conference will again be at the Augusta Civic Center January 31-February 1. Charlene is working on a wastewater track for the conference. If you would like to contribute to the conference or to the Personnel Advancement (soon to be Professional Development as of 1/1/24) committee, please reach out to Charlene. [CPoulin@pwd.org](mailto:CPoulin@pwd.org)

## **Membership/Committee Work**

If you have any questions regarding membership, or have a burning desire to get involved and join a committee, please reach out to Jennifer on our Membership Committee or Joan our Administrator. [jnicholson@brunswicksewer.org](mailto:jnicholson@brunswicksewer.org) , [jkiszely@mewea.org](mailto:jkiszely@mewea.org)

*(cont'd on next page)*

# Message from MeWEA President

As I look to the sunset of my term, very visible in the late October sky, I am encouraged by all the work we've accomplished in the past year. I am excited by all of the great work our executive committee, active committee members and others have done to better our organization, our industry and ultimately, our state. MeWEA won't be rid of me entirely, I will support Emily, what little she'll require, as Past-President, and am going to work with Justin Barnett on the Convention Committee to relieve Stacy and Phil.

Signing off unless urgent business calls me back in the next several weeks.

Respectfully and humbly,

*Tim Wade*

MeWEA President 2023



## Events Calendar

Upcoming events scheduled over the next few months are below.

December 5, 2023	MWUA Board Meeting
December 6, 2023	<a href="#">MWUA Training and Program Committee</a>
December 13 2023	<a href="#">MWUA Technology Committee</a>
December 14, 2023	<a href="#">MWUA December 2023 Bi-Monthly Meeting</a>
December 15, 2023	<a href="#">MeWEA Exec. Board Meeting/Final Budget/Holiday Luncheon</a>
December 19, 2023	<a href="#">MWUA Board of Directors Meeting</a>
January 3, 2024	TaP Committee Meeting
January 16, 2024	Legislative Breakfast, Augusta Civic Center
January 17, 2024	Water Resource Committee Meeting
January 21-24, 2024	<b>January 21-24, 2024</b> - NEWEA Annual Conference
January 24, 2024	Technology Committee Meeting
January 31-Feb. 1, 2024	MWUA Conference, Augusta Civic Center
March 14, 2024	Ski Day, Saddleback Mountain



## Job Openings

City of Belfast	<a href="#">Wastewater Treatment I</a>
Madawaska Pollution Control Dept.	<a href="#">Full Time Mechanic/Laborer</a>
Madawaska Pollution Control	<a href="#">Mechanic/Laborer</a>
Brunswick Sewer District	<a href="#">Treatment Plant Operator</a>
City of Bath	<a href="#">Wastewater Operator</a>
Freeport Sewer District	<a href="#">Wastewater Operator</a>
Freeport Sewer District	<a href="#">Wastewater Operator Trainee</a>
Freeport Sewer District	<a href="#">Collection System Operator</a>
Freeport Sewer District	<a href="#">Equipment Maintenance Technician</a>
Tighe & Bond	<a href="#">Drinking Water Project Engineer</a>
Tighe & Bond	<a href="#">Water/Wastewater Staff Engineer 2</a>
Tighe & Bond	<a href="#">Drinking Water Senior Project Manager</a>
Tighe & Bond	<a href="#">Stream Hydrology &amp; Hydraulics Project Engineer</a>
Lewiston-Auburn Water Pollution Control Authority	<a href="#">Mechanic</a>
Portland Water District	<a href="#">Water Resource Science, Outreach &amp; Edu. Intern</a>
Lewiston ME	<a href="#">Asset Management Technician</a>
Portland Water District	<a href="#">Technical Maintenance Person (Mech/Elec)</a>
Kennebec Water District	<a href="#">Distribution Technician</a>
Portland Water District	<a href="#">Water Operations - Seasonal</a>
City of Gardiner	<a href="#">Wastewater Treatment Plant Superintendent</a>
Greater Augusta Utility District	<a href="#">Engineering Technician</a>
Town of Thomaston	<a href="#">Assistant Environmental Dept. Superintendent</a>
Greater Augusta Utility District	<a href="#">Project Engineer</a>
Boyer Resorts/Sunday River	<a href="#">Water and Wastewater Manager</a>
City of Bangor	<a href="#">Assistant Director of Water Quality Manager</a>
City of Bangor	<a href="#">Wastewater Treatment Plant Chief Operator</a>
Town of Kittery	<a href="#">Chief Plant Operator</a>
Greater Augusta Utility District	<a href="#">Distribution Operator</a>
Greater Augusta Utility District	<a href="#">Utility Worker</a>

For the latest job postings, also check out the MeWEA [Facebook](#) page and the following: [MeWEA](#), [MWUA](#), [NEWEA](#), [NE Biosolids](#) and [WEF Career Center](#)



# Upcoming Trainings

- **December 12, 2023** – [Basics of Corrosion and Protections 2023](#) – 2.0 Maine BLWSO TCHs (W), 2.0 Maine DEP TCHs (WW)
- **December 12, 2023** – Registration Deadline for Wastewater 3-5 Exam Prep 12/19/23-12/21/23.
- **December 19, 2023** – [Bridges, Casing, and Joints 2023](#) – 2.0 Maine BLWSO TCHs (W), 2.0 Maine DEP TCHs (WW)
- **December 19 through 21, 2023** – [Wastewater Grades 3-5 Examp Prep](#)
- **January 9, 10, 11** – In the Road: Work Zone Traffic Control, Flagger Training, and Excavation – 6.0 Maine BLWSO TCHs (W), 6.0 Maine DEP TCHs (WW) – In-Person at the EJ Prescott Training Center in Gardiner, Portland Water District, and Bangor Water District
- **February 8** – Disaster Recovery for Utilities – 2.0 Maine BLWSO TCHs (W), 2.0 Maine DEP TCHs (WW)

Additional training information available in the links below:

[JETCC Remote Learning Catalog](#)

[MWUA Sponsored Training](#)

[NEIWPC- JETCC Remote Learning Catalog](#)

## KEY ACRONYMS

**WW** – Technical Credit Hours (TCH) for wastewater

**W** – TCH qualify for water credit hours

## FEATURED COMMUNITY

# Kittery Water District

The Kittery Water District (KWD) was established and incorporated in 1907. During this time, KWD acquired one pond, property, franchises, and the rights and privileges of the Agamenticus Water Company for \$163,869.38, plus \$1032.00 in various fees to complete the sale. In 1908, water mains were installed along the principal streets of the "Village" as well as one line into Kittery Point. All this work was completed by the contractor for a sum of \$22,400.00. Thus, creating a water district that was able to provide domestic water and fire protection to the inhabitants of the Town of Kittery and the Portsmouth Naval Shipyard (PNSY).

As time progressed, the KWD served a modest portion of Kittery, the Foreside, the PNSY, the Town of Eliot, and a small portion of York.

During WWI, the PNSY mandated that armed guards be stationed at the ponds day and night to protect them from being poisoned or blown up by enemy warfare. In 1911, service was extended into the Town of York. Then two years later, KWD also extended service to the Town of Eliot. Consequently, they constructed a 470K gallon standpipe in addition to developing a spring that would produce 200K GPD. Then in 1958, another water storage tank was constructed in Kittery. Then jumping ahead to 1997, the 470K gallon standpipe was replaced by the Eliot 1.9 MG prestressed concrete storage tank.

KWD is a surface water system where water is drawn from 4 separate bodies of water: Middle Pond, Folly Pond, Boulder Pond, and the Bell Marsh Reservoir all of which are in the Town of York. The ponds were built in 1901, 1942, 1951, and 1987, respectively. According to Carl Palm, KWD Assistant Superintendent, "Their combined capacity gives us access to 2,194,000,000 gallons of water.

Currently, KWD's office and shop are both located at 17 State Road in Kittery where it has stood since their move from Government Street in 1975. Mike Rogers, KWD Superintendent stated, "We are in the preliminary stages of seeking out land on which to build a new office and shop." Their treatment facility is situated in York where it was constructed in 1959 and continues to be a conventional filtration plant consisting of: Coagulation, Flocculation, Sedimentation, Filtration, and Chlorination.

Today KWD maintains nearly 6,000 service connections, over 6,400 valves, 475 hydrants, and more than 100 miles of water main ranging from 2" to 20" diameter. Carl added, "In 2022, we produced an average of 2.7 MGD, for a total of 980,104,000 gallons for the year. Due to the needs of the Portsmouth Naval Shipyard, our heaviest production months are actually in the winter and not in the summer."

(cont'd on next page)



MIDDLE POND



FOLLY POND



BOULDER POND



BELL MARSH RESERVOIR

# Kittery Water District (cont'd)

## Our Mission

*To supply clean, safe, and healthy water for our residential, commercial, and governmental customers and for fire protection. We do this using best practices of water system construction and maintenance, water treatment, and watershed management.*

Together their 21 personnel (including a 5-member Board of Trustees) believe in KWD's Mission and operate the District with a fairly bare bones and hardworking crew considering the area they serve. Additionally, the employees are cross-trained, enabling them to perform all aspects of the office and field operations. Most of KWD's staff have been with them for more than 10 years, with several serving KWD for more than 20-30 years. Their combined years of service equal 270. Impressively, the longest employed staff member has been with them for 48 years and is still going strong! The team's combined years of service helps them to be proficient at their jobs. Carl further states, "Their teamwork and sense of duty on behalf of our customers makes all the difference in the world." When asked, what makes your team stand out? Carl goes on to say, "Again, it begins with combined years of service that have given the staff the opportunity to forge relationships, earn trust, and have that long-term perspective of working hard for our friends, neighbors, and customers."

Customer service is very important to all who serve KWD as their customers are also their friends and neighbors. "Perhaps more importantly, we realize that we have a duty and responsibility to supply clean, safe, and healthy water to our customers, and the best way to achieve that is through good service and engagement", declared Mike and Carl. Not only do they hold the customer in high regard, but they also hold their friendly office staff in high regard also. Unfortunately, COVID shifted everyone's social dynamic leading to a drive through teller window which has proven helpful for those not wanting close contact. Online billing and payments are available for customer convenience.

They also put effort into the upkeep of their website for ease of use and the ability to share information with their customers. Subsequently, listening seemed to be high on the list of employee and customer relations. The management expressed, "We all take the time to listen and understand. If you listen carefully, you are then able to ask the right questions for the greatest benefit".

## Our Values

*We have been entrusted with some extremely valuable responsibilities, assets, and resources which demand our utmost attention and care.*

- *The health, safety, and welfare of our customers.*
- *Our people, their livelihood, work environment, professional development, and safety.*
- *Our physical plant. Dams, treatment plant, water mains, pumping stations, standpipes, and fire hydrants.*
- *Our natural resources. Water and watershed.*

The Kittery Water District is committed to caring for all these with diligence, ingenuity, collaboration, respect, transparency, and economy.

Fortunately, the current challenge facing the District seems to be staffing. Carl went on to say, "It's a double-edged sword of having a staff with many years of experience who may be thinking about retirement, and a younger staff with little or no experience (that you also cannot live without) as they are being trained to take over in the future." Trying to mitigate this problem, they have just started to consult with an outside professional to define the responsibilities of each individual more finely within their team. This will assist them to have a better understanding of the staff's strengths and deficiencies. The result will hopefully enable them to better focus their efforts of staffing for job succession and avoiding any gaps in the system's structure. What's more, they are looking at their wage rates to assure that they're being fair and competitive.

## Our Vision

*To continue to accomplish our mission and embody our values by employing ever-evolving best practices and technology.*



Kittery Water District has 3 upcoming, major projects in their infancy stage. First, they're looking to expand their treatment plant. Second, they would like to replace 19 miles of large diameter water mains. Last, they are currently under contract to purchase land to construct a new office and shop complex. Not to mention being on the verge of completing the current project, a water main crossing of the Maine Turnpike (which has been on hold for 5 years). This will create a major interconnect between the Kittery Water District and the York Water District. Both districts have a great deal of time and effort invested in this project and they are excited for the time when it will all finally bear fruit!

# Kittery Water District (cont'd)

Congratulations to a small group of individuals who understand that there's no "I" in team, possess a good work ethic, and care about each other and the customers they serve!



## FEATURED COMMUNITY

# Kittery Wastewater District

The Kittery wastewater system serves around 4,000 customers in Kittery and portions of Eliot including the Portsmouth Naval Shipyard with a total of 27 pump stations and 33 combined miles of force main and gravity sewer. The wastewater treatment facility treats an average daily flow of 2.4 MGD with influent grit removal, sequencing batch reactors (SBR) for biological treatment, equalization basin and a chlorine contact tank for disinfection. Treated effluent discharges to the Piscataqua River.



Originally constructed in 1969 as a conventional activated sludge plant, it was converted in 1994 to an SBR plant. In addition to the main treatment process, the plant is also equipped with centrifuge dewatering and produces about 1400 tons of biosolids each year. Drone footage of Kittery's Wastewater Treatment Facility is available here: <https://www.kitteryme.gov/wastewater-treatment>

Click to watch drone footage



Currently, there are six staff members with a combined 72 years of experience who operate and maintain the wastewater treatment facility and collection system. Continued education and staff training is very important to Kittery, and the more experienced team members are constantly training newer staff members on all aspects of the wastewater collection and treatment system. According to Superintendent, Tim Babkirk, "You can't replace the knowledge that someone has after 20 years of seeing almost everything." In addition to their focus on training, staff members known for their dedication and the pride they take in their work.



Aerial View of Kittery's Wastewater Treatment Facility

The Town uses its website and social media outlets to reach customers, and disseminate information like how to apply for permits, online bill payments, and to view assets like sewer manholes. According to Tim, "Our customers know that when they call us with any issues, we take it very seriously and [deal with the problem] as fast as we can".

The Town recently completed a Capacity, Management, Operation and Maintenance (CMOM) program, and is currently working with Brown and Caldwell on studies to conceptualize nitrogen removal at the WWTF and sewer expansions in the Town of Eliot.





# TECHNOLOGY CORNER

## The Value of Going Digital & How to Do It

Utilities around the world are innovating and finding/utilizing advanced solutions to solve various "water problems." As utilities move toward digitalization of their systems, they become aware of their increased ability to see the utility's operations clearly and from a different perspective. Now operators are being empowered to utilize data for decision making which in turn delivers advantageous outcomes for their communities and themselves. Utilities are now able to address the critical challenges of today, while staying ahead of tomorrow's problems. What new digital technology will make your utility better able to solve water?



### The Drought Strategy in Israel

IDE is an Israeli company with vast experience in ocean desalination for drinking water. Because of their experience and knowledge, utilities around the US that are affected by droughts are beginning to look to them for solutions.

One state already doing so is Arizona. Currently, IDE and Arizona officials are investigating the potential for a desalination plant in Mexico that would supply freshwater to Arizona, around 200 miles away and elevated approximately 2,000 feet higher. Is desalination the next drought solution?

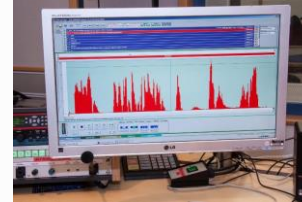


### Online Colorimetric Analyzer Advances

Controlling operating costs and managing permitted nutrient limits are common challenges faced by wastewater utilities. Specifically, as permitted phosphorous levels are lowered, maintaining those permit limits becomes even more difficult.

Many factors impact the total phosphorous load and removal efficiency. Therefore, utilities must run frequent grab sample tests to ensure compliance. Additionally, many utilities are dosing flocculants for phosphorous removal which can be very costly. Moreover, flocculant is frequently overdosed to ensure

compliance with discharge limits which leads to increased and potentially unneeded costs. To address the time and expense of frequent grab samples to optimize flocculant dosing, Endress+Hauser, Inc. developed the Liquiline System CA8oTP Total Phosphorous analyzer. For more information, check it out [here](#).



### Condition Assessment Tool for Proactive Asset Management

The ePulse® condition assessment tool uses acoustic wave propagation to identify sections of pipelines with reduced structural stiffness and estimate the remaining strength, stiffness, and life of the pipe wall.

This non-invasive technology allows for accelerated inspection of large areas of distribution networks without isolating pipelines from service, service interruptions, dewatering or cleaning pipelines, and costly excavations. You can learn more about the ePulse® technology [here](#).



# Colleague Corner



### Courtany Hanley, Maine DWP



Courtany Hanley a.k.a. Court is currently employed with the Maine DWP in Augusta. She began her career with them towards the end of November 2022 as a PFAS Rules Specialist. This requires her to work with water systems across the state. In more detail, Court said, "If a system exceeds Maine's standard, I help them navigate the next steps including public notice and providing an alternative source of water." Additionally, she also assists with the DWP's other regulated rules. Prior to her position at the DWP, she was working for the Health and Environmental Testing Lab (HETL) for 2 ½ years as an Inorganic and Organic Chemist.

Professionally, Court is most proud of what she accomplished as an Inorganic Chemist for HETL where she learned lots of difficult methods and was also part of the LRN-C Chemical Terrorism Group. In her free time, she loves to read, go thrift-shopping, and spend time with her loved ones and pets in her hometown of Dresden. She currently resides on the river there with her fiancé and cats. But most of all, Court loves to dance! She takes personal pride in being a dance teacher and has even won awards for a few of her dance routines and choreography!



# Colleague Corner



**Galen Nickerson, Maine DEP**

Galen Nickerson is a wastewater compliance inspector with Maine DEP. He has spent his entire life in Maine. He grew up in the small town of Drew Plantation before moving to Limerick after he graduated from the University of Maine at Farmington. He spends much of his time on the softball diamond. Galen is the head of the softball division for their local little league and coaches his daughter's teams. When asked what he's most proud of, Galen is quick to answer, "My wife and daughters". His three daughters range from 2 to 13 years old and keep him and his wife, Ashley, very busy.

Galen has been in his current inspection role for the past year and a half, visiting many sites across southern Maine. Prior to this new role, he spent 17 years working in several departments of a local environmental lab getting to know some of the operators and utilities that he now visits on regular inspections. Galen has enjoyed his first year with the Department and is excited to learn more about the world of wastewater. One of his goals for the next year is to earn his wastewater license.



**Mike Rogers, Kittery Water District**

Mike Rogers began his nearly 38-year career for the Kittery Water District as a laborer in 1986 which was later followed by the job of Service Man. Next, he became the Assistant Superintendent of KWD. Lastly, Mike was promoted to Superintendent where he has remained for the last 26 years. When asked what is presently on KWD's radar, Mike responded, "Transition may be the word that best sums up things at the Kittery Water District currently." He continues, "We are in the preliminary stages of seeking out land on which to

build a new office and shop. We are also looking at extensive upgrades to our treatment Facility to meet the needs of our customers in the coming decades." Their largest customer, the Portsmouth Naval Shipyard, purchases roughly 45% of their daily production, making them a strong driver in the expansion process. During the winter months when Mike isn't as busy being KWD's Superintendent, he is able to find a bit more time for his hobbies. He enjoys snowmobile trips and touring as well as working in the occasional ice fishing adventure. When time permits during warmer months, he and his family enjoy getting away to the lake. Mike added, "Both of my kids are married now, and it makes for a great time." Mike is most proud of his 2 adult children leading happy and successful lives due in part to the extensive guidance of his wife!



**Tim Babkirk, Kittery Wastewater**

Tim started his Wastewater career in 2010 working for the City of Portsmouth NH as a sludge truck driver, eventually becoming an operator, assistant chief operator, chief operator. Tim became superintendent in Kittery in 2019. Most recently, Tim is focused on upgrading aging infrastructure, nitrogen removal and dealing with PFAS in biosolids and effluent.

In his free time, Tim enjoys fishing, boating, and cheering on his children at their sports events. When asked what he's most proud of,

Tim responds, "my work ethic. I work hard, I go after what I want, and I stay true to myself. And of course, my family, my wife and 3 kids who had to put up with me putting in a lot of long hours to get where I am today."



## Water Professionals

- What is the main purpose of priming?
  - Compress air in the cylinder.
  - Wet the packing
  - Replace air with water inside the pump.
  - Conductivity
- What is the most probable cause of a pinging sound coming from a pump?
  - Cavitation
  - Overheating
  - Corrosion
  - Hardness
- It is standard practice to install hydrants on mains that are at a minimum of \_\_\_\_\_ or larger.
  - 12 inches
  - 8 inches
  - 10 inches
  - 6 inches
- What type of valve is on the newer type of curb stops?
  - Plug valve
  - Check valve
  - Foot valve
  - Ball valve
- Which type of pipe requires heat to join pipe sections?
  - PVC
  - HDPE
  - Ductile iron
  - Asbestos cement

- Answers
- c.
  - a.
  - d.
  - d.
  - b.

# QUIZ TIME

## Wastewater Professionals

- What is the most likely cause of electric motor failure?
  - Moisture
  - Dust
  - Lubrication
  - New connection
- What type of valve only allows water to flow in one direction?
  - Gate
  - Globe
  - Plug
  - Check
- What is a common hydraulic detention time range for primary clarifiers?
  - 1-2 hours
  - 4-5 hours
  - 2-3 hours
  - 8-10 hours
- What is the pressure against which a pump must operate measure in?
  - Gallons
  - Pounds per square inch
  - Cubic feet
  - Feet per second
- If you add chlorine, acid, carbon dioxide, or sulfuric acid what will happen to the pH of water?
  - It will stay the same.
  - It will neutralize
  - It will increase
  - It will decrease

Answers  
1. a.  
2. d.  
3. b.  
4. b.  
5. d.

## Water Quality & Piped Infrastructure in the Willard Beach Watershed

Fred Dillon – South Portland Stormwater Program Coordinator  
 Lacey Kremer – South Portland Civil Transportation Engineer  
 Shara Dee – South Portland Communications Officer

South Portland is largely defined by its close proximity to water, particularly the Fore River and Casco Bay. Consequently, Willard Beach is an important community resource given that it is the only publicly accessible swimming beach in the City. It is also a popular year-round destination for visitors from the greater Portland area and beyond.

To protect and preserve this vital coastal amenity, the City has been partnering with the Maine Healthy Beaches (MHB) Program since 2003 on regular [beach water quality monitoring](#) during the summer months.

MHB uses enterococci to indicate the potential for fecal contamination from sources such as wildlife, dogs, and humans (enterococci results do not distinguish between animal and human sources). When enterococci levels exceed MHB's safety threshold or there is a significant rain event, beachgoers are advised to avoid water contact to minimize the potential for illness. The City notifies the public about the water quality at Willard Beach using a flag system that aligns [with MHB's advisory postings](#):

- Green Flag** – OPEN: no advisory or closure
- Yellow Flag** – RAINFALL ADVISORY: bacterial levels may be elevated; water contact not advised
- Orange Flag** – CONTAMINATION ADVISORY: bacteria levels may be unsafe; water contact not advised
- Red Flag** – BEACH CLOSED: no swimming or water contact activities

## Water Quality, Wet Weather and the Built Environment

Nationally, according to a [study](#) by Environment America Research & Policy Center, approximately half of U.S. beaches had fecal contamination levels considered unsafe on at least one occasion in 2022, and 1 out of 9 had potentially unsafe levels on at least 25% of the days when testing took place.

Locally, enterococci concentrations at Willard Beach have historically been closely related to rainfall. Drier summers generally result in fewer exceedances of the MHB safety threshold. Over the past decade, the City and MHB have been proactive in identifying and eliminating pollution sources, but unfortunately enterococci exceedances still occur. This is partly due to the fact that the 223-acre Willard Beach watershed is one of the most densely developed areas in the City along with aging private and public infrastructure.

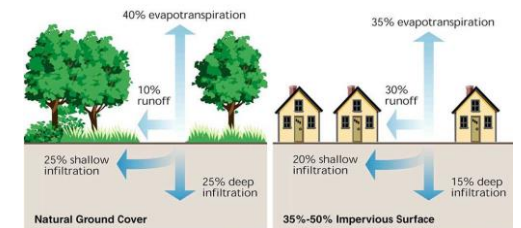


Figure 1: increasing development density increases the amount of stormwater runoff

Numerous studies have established a clear link between water quality and the extent of impervious surfaces, such as buildings and pavement (Figure 1). When impervious surfaces exceed 10% of a watershed area, water quality and aquatic health begin to decline. Approximately 41% of the Willard Beach watershed (~92 acres) consists of impervious surfaces (Figure 2). Consequently, during significant rain events pollutants such as fertilizers, petroleum products and animal waste are carried by stormwater into the storm drain system which directly discharges into the ocean (Figure 3).



Figure 2: Willard's watershed has a significant amount of impervious area (in pink)



Figure 3: petroleum products entering the stormwater system



Figure 5: fluorescent dye in drain manhole



Figure 6: dogs investigating storm drain system

Aging private and public storm drains and sewer lines may also be contributing to episodic enterococci exceedances at Willard Beach. Most of the underground pipes in the watershed are in excess of 60 years old. In areas where sewers and storm drains are located closely together and the storm drain is lower than the sewer main, sewage may be inadvertently leaking into storm drains, particularly during periods of wet weather. [This problem is common](#) in many Maine and New England cities where a number of strategies have been developed to upgrade aging infrastructure.

## Asset Management & Watershed Assessments

The City has completed several watershed assessments to inform asset management decisions. Virtually all of the sewers and many of the storm drains owned by the City [have been visually inspected](#) with specialized cameras to determine pipe conditions, including in the Willard Beach watershed.

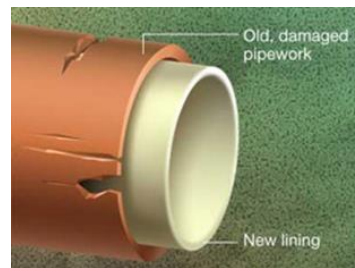


Figure 4: new plastic pipe lining inserted into existing clay pipe

Condition assessment is a critical part of the City's asset management program, which provides a rational basis for the most efficient and effective allocation of limited financial resources to meet key water resource protection goals. Based on these evaluations, the City has developed a prioritized list of sewer mains to repair by lining the inside of the existing pipe, which minimizes the need for excavation and traffic disruptions (Figure 4). In 2022, the City invested over \$300,000 to line approximately 1,400' of sewer mains at several Willard Beach locations.

Over the past 10 years, the City has partnered with MHB to conduct water quality sampling throughout the Willard stormwater system. The results of this effort are published in a [2020 MHB report](#). In addition, we have also used fluorescent dye and specially trained dogs (Figures 5 & 6) in our sewer and storm drain systems to identify and remove sewage sources from the stormwater system.



Figure 7: stormwater outfall sub-catchments in the Willard Beach watershed

## Next Steps

In the summer and fall of 2023, Water Resource Protection Department staff collected enterococci, optical brightener1 and Human bacteroides2 samples from stormwater outfall WB17 located on the beach and at several strategic locations within the stormwater collection system. (These samples were collected in addition to twice weekly MHB enterococci sampling for beach water quality conducted from Memorial Day to Labor Day). WB17 drains the largest and most densely developed portion of the 223 acre Willard Beach watershed (Figure 7).

There are areas in the Willard Beach watershed where the storm drain and sewer main are located closely together and the storm drain is lower than the sewer main. Consequently, the storm drains in these areas are potentially vulnerable to contamination from the nearby sewer system. We will use this year's water quality sampling results in tandem with prior watershed assessments and sewer main condition assessments to line key sewer segments. This work will be completed through the City's capital budget and we are also exploring grant opportunities to supplement future sewer lining projects. All of these efforts highlight the critical importance of piped infrastructure condition in relation to water quality.



## Update on Changes to your MeWEA

In recent years MeWEA has found itself needing to evolve with the changing times.

- In 2013 we changed from Maine Wastewater Control Association to Maine Water Environment Association.
- In 2021 we moved away from our long time Administrative Service Provider Maine Municipal Association to Maine Water Utilities Association for those services.
- Most recently, at the 2023 North Country Convention we voted to restructure our Executive Committee and make the corresponding by-law changes. The biggest changes were the addition of Council Directors (3) to oversee the committee chairs and help them to work more cohesively. In a time when we are all busier than ever it is harder and harder to find volunteers for our committees and still harder to find chairs.

### Outreach Council

Three of our recent past presidents were elected to take the first term for these new council director positions at our annual Fall Convention at Sunday River. Phil Tucker will take on the position of Outreach Council Director from 2024-2027. The Outreach Council consists of Government Affairs, Membership, Communications, Public Relations, and Ad hoc Committee's as seen fit by the Executive Committee.

The Treatment Systems Operation Council Director will be Paula Drouin from 2024-2026. The Treatment Systems Operation Council consists of the Laboratory, Treatment Plant Operations, Residuals Management, Collection Systems, Pretreatment, Stormwater, and Ad hoc Committees as seen fit by the Executive Committee.

The Personnel Advancement Council Director will be Stacy Thompson from 2024-2025. The Personnel Advancement Council consists of the New Professionals (formerly Young Professionals), Convention, Awards, Professional Development (formerly Personal Advancement), and Ad hoc Committees as seen fit by the Executive Committee. After these initial terms 1 new council director will be elected each year for a 3-year term to help with continuity to the incoming officers.

Another important change is that committee chairs are no longer voting members of the Executive Committee and are not required to attend those meetings, although they are always welcome to. Council Directors will meet with their respective chairs and each other on a regular basis to make sure their committees are being represented at the executive level and to make sure that committee chairs have everything they need to be successful.

### Representation

Lastly, Maine Water Utilities Association and JETCC are both represented on the Executive Committee as voting members. With that the Executive Committee makeup goes from 20 voting members of which only 4 were elected to 11 voting members of which 7 are elected. This should allow for a much more member represented Executive Committee. As MeWEA prepares itself for the future we welcome you all to get involved with a committee. The entire association is made up of passionate individuals just like you who care about our State and the environment.

Contact any of the officers or committee chairs listed above for more information.



## October 2023 Bi-Monthly Meeting

The Brewer Water Department and Bangor Water District hosted our October Bi-Monthly Meeting on October 12th at Jeff's Catering. Rodney Butler from the Brewer Water Department and Joshua Saucier from the Bangor Water District welcomed us all to the area giving us highlights of their respective operations.

President Brian McGuire called the Business Meeting to order. Past President Mike Broadbent from Auburn Water & Sewerage Districts conducted member voting for two corporate Board position and one associate Board position. MWUA members voted and elected Roger Crouse from Kennebec Water District and Keith Levasseur from Sanford Water District as our two newest corporate Board members, as well as Dan Burdin from EJ Prescott as our newest associate Board member, effective January 1st, 2024. Thank you to Mike Broadbent and Jefferson Longfellow from Kennebec Water District who counted the votes while the meeting proceeded.

The next order of business was regarding a dues increase for 2024. 1st Vice President Mike Cummons from Maine Water Company presented the proposed dues increase of 10% to corporate members, as well as an increase to associate

(cont'd on next page)

# October 2023 Bi-Monthly Meeting (cont'd)

and affiliate members to \$500 per organization. The floor was opened for comments and questions. There was a brief discussion. Members voted unanimously in favor of the dues changes by a show of hands.

## Regulatory and Legislative updates were presented by:

- Amy Lachance, Maine Drinking Water Program
- Stephani Morancie, Maine Public Utilities Commission
- Roger Crouse, Chair of MWUA Legislative Committee

Brian McGuire thanked Roger Crouse and Dave Parent for their hard work on the Legislative Committee over the past year.

The Business Meeting was followed by a technical session topic of Pump Station Deep Dive by Dave Crawford and Larry Mills from Champlin Associates. Thank you both for contributing to our Bi-Monthly Meeting.

We hope to see everyone in Freeport on December 14th for our December Bi-Monthly Meeting.



## Public Relations UPDATE

By: Evan Pereira

The Public Relations Committee, in conjunction with the MeWEA Executive Board and Black Fly Media, has been actively spreading the word about the critical service that is provided by the clean water industry and providing valuable expertise to the general public.

Recently, MeWEA President Tim Wade represented the organization on a webinar hosted by the Environmental Business Council of New England about the costs and impacts of PFAS on wastewater treatment facilities and landfills. MeWEA Convention Committee Chair Phil Tucker presented at a WEFTEC session on behalf of MeWEA's PR,

initiative, and shared experiences from our stakeholder communication plan and strategy. The Public Relations Committee has been working closely with Diana Nelson of Black Fly Media to develop MeWEA's strategy for providing education and expertise around upcoming legislation, prepare media pitches to highlight positive clean water industry stories throughout our communities in Maine, and continue to field media opportunities as they are presented to the organization.

We are always looking for new members on the Public Relations Committee, so please reach out if you are interested!



## CERCLA & the PFAS Problem

**CERCLA** – What's that? CERCLA stands for the Comprehensive Environmental Response, Compensation, and Liability Act and it is a Superfund. This law was designed to address hazardous waste sites and the remediation/cleanup of contaminated areas. How does CERCLA affect PFAS? Authorities are weighing out whether or not to place a CERCLA designation on PFAS and the decision is scheduled to be released in February 2024 (delayed from August 2023). If PFAS receives a CERCLA designation, what does that mean? Basically, it will dictate how transportation and disposal of these substances can be carried out.

What does this mean for drinking water utilities? Drinking water utilities must comply with the National Primary Drinking Water Regulation (NPDWR) to remove 6 PFAS substances (set to be finalized in January 2024). Therefore, a CERCLA designation would impose the need for greater care and costs for disposing of the PFAS byproducts from their treatment processes.

What could this mean for wastewater utilities? Wastewater utilities will be limited in their ability to reuse biosolids for land application due to their PFAS concentrations. This is nothing new in Maine as the spreading of biosolids has already been banned. Although, with a CERCLA designation, landowners (like public utilities)/passive receivers of the chemicals could inherit costs associated with removal of the substances. The hope is that the final rule will create exemptions to avoid unfair and overly burdensome statutes. Stay tuned for the final decision.



# Groundwater Remediation & Its Future

- Explained -



Groundwater can be found in underground layers known as aquifers. Aquifers could be the subsurface of water permeable rock, rock fractures, or even unconsolidated materials. Within these aquifers, water is left at a resting state, leaving it susceptible to various pollutants. Since groundwater accounts for approximately 40% of the world's drinking water supply, it is necessary that these areas are treated and the pollutants are removed. This treatment and removal is known as groundwater remediation.

Groundwater can be remediated through physical, chemical, and biological means. Additionally, groundwater can be remediated "in situ" (in place/onsite) or "ex situ" (off-site). The in situ approach is typically cheaper and less time consuming as the water is remediated right where it is versus moving it to a new location for treatment. In situ remediation does leave the groundwater susceptible to continued pollution.

The most traditional remediation method is "pump and treat." The contaminants are pumped from the ground to materials that absorb those contaminants. More recently, scientists have been researching a biological approach in which organics, microorganisms, and plants are used to remediate the water. Off-site techniques usually involve carbon, ion exchange, chemical precipitation, and oxidation.

So, what does the future of groundwater remediation look like? Consulting firms are aiming at eliminating the choice dilemma and are attempting to fuse the advantages of each remediation approach. Today these approaches include: in situ sorption and biodegradation, in situ chemical oxidation (ISCO), enhanced aerobic or anaerobic biodegradation, bioaugmentation, and more. As technology improves, even better methods will become available.



## 2023 MeWEA Fall Convention



**By: Stacy Thompson, Convention Co-Chair**

The success of this year's Fall Convention can be attributed to the many vendors and attendees that visited and made this show extraordinary! The energy that everyone brings to this show is unparalleled. The MeWEA executive board and Maine Water Utilities Association (MWUA) work hard every year to bring great sessions, vendors, and networking to the conference. This year we had over 50 vendors and 200 registrants. A huge thank you to Sunday River for being a great host and making sure the ins and outs of having a convention went smoothly. Thank you to all the vendors for their continued support of MeWEA!!

The golf tournament held on the Wednesday of the Convention was as fun as usual and the weather held out for us. The team from EJP were the winners, while the Arcadis team took second. Congratulations on both your finishes. The course was a bit wet from a soaking a few days before the tournament, but that didn't stop us from having a great day of golf followed by a nice BBQ. Again, I would like to thank everyone who joined and those who sponsored. Save the date for next year's tournament: September 18th. Same time and place.

President Tim Wade kicked off the morning with a warm greeting. Sessions and breaktime in the morning were a big hit and allowed attendees the ability to learn and network with their peers. The vendors were able to discuss their product lines to attendees and offered some great swag...and chocolates! The business meeting and awards were held just before lunch. A big congratulations to all those that received an award!

- Charles Perry Collection System Award: Kevin Eaton (York Sewer District)
- Young Professionals Award: Darren Lauletta
- Stormwater Award: Philip Ruck (Stillwater Environmental Engineering)
- Roger Gagne Award: Chris Dwinal (Wright-Pierce)
- Pretreatment Excellence Award: Luke's Seafood
- Alfred Jellison Award: Chris Higgins (Boothbay Harbor Sewer District)
- Outstanding Service Award: Brian Tarbuck (Greater Augusta Utilities District)
- Outstanding Service Award: Jim Crowley (Maine DEP)

(cont'd on next page)

## ● 2023 MeWEA Fall Convention (cont'd)

- Operator Award: Justin Barnett (York Sewer District)
- President's Award: Amanda Smith (City of Bangor)
- Past President's Award: Dave Beauchamp (Vortex)
- JETCC Lee Agger Award: Phyllis Arnold Rand
- JETCC Founder's Award: Mike Antonelli
- JETCC Hanson Excellence in Management Award: Lou Colborn



We are already preparing for our 2024 MeWEA convention, including the 2024 MeWEA awards! If there is an outstanding professional at your facility you would like to see recognized, please do not hesitate to reach out to a member of the executive committee, or to fill out our awards application online at the following link: [Awards \(mewea.org\)](https://www.mewea.org/awards)

The Young Professionals committee once again sponsored a raffle contest with gifts being donated by various vendors. This raffle has become a great way to interact with vendors and find out more about their products and services. Thank you to all who participated, Sierra for leading the charge, and the vendors that donated gifts!

The 7th annual Cornhole Tournament was a huge success! Thank you to the Collections System Committee for thinking this up and organizing it. It is safe to say that the Cornhole Tournament has become a major part of the convention and brings great energy to the show. The winners of this year's Cornhole Tournament were: Ian Lane from Hayes Pump and Derrick Bellavance from the City of Bangor Department of Water Quality Management! Congrats to Derrick for winning two years in a row! Yet again, I lost the two games I was able to play, which leads me to believe no individual should ever want to be my teammate!

Charlene, the Personal Advancement Committee Chair, did an excellent job providing technical sessions, ranging from the ever-present topic PFAS, to pump stations, to biosolids, to everything in between. It is amazing to see the willingness in which people want to share their experiences with others in the industry. Thank you to all presenters for taking the time out of their busy schedules and keeping us all eager to learn.

Thank you for all the hard work everyone put into the 2023 Fall Convention. This wouldn't happen without the continued support from members of MeWEA and MWUA. Save the Date for next year's convention September 18-20, 2024, at Sunday River.



## ◆ ● How The NSF Health Advisory Board Protects Public Health

Most of us in the industry are aware of NSF/ANSI/CAN 60 and NSF/ANSI/CAN 61 and how they are the mainstay health effects standards to provide certification of drinking water treatment chemicals and contact materials. Are you aware of NSF/ANSI/CAN 600 and the associated independent Health Advisory Board (HAB)? This NSF/ANSI/CAN 600 standard supports the aforementioned standards (60 & 61) with drinking water acceptance criteria for chemical safety.

The HAB is comprised of globally renowned experts in toxicology representing state and federal agencies, academia, industry scientists, and is chaired by the EPA Office of Water. This board (established in the 1990s) provides public health and safety guidance supporting NSF drinking water health effects standard and also chemical risk assessment peer reviews for NSF/ANSI/CAN 600 updates. The board is comprised of highly dedicated volunteers that ensure these trusted standards are adequately protecting public health now and in the future.





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# OPERATOR EXCHANGE PROGRAM

By: Paula Drouin

The Operator Exchange Program provides an opportunity for operators to travel to another state, to work in or tour different treatment plants for skill enhancement and to gain experience in the workings of a different plant(s). This year Maine swapped with Massachusetts, and I spent a few days at the end of August with Jay Waddington, Lead Operator at Whitewater in Andover, MA. White Water manages the operations of many water and wastewater systems.



While in Maine, we visited Portland Water District - East End, Brunswick Sewer District, Lewiston Auburn Water Pollution Control Authority, Bangor Wastewater, Kennebec Sanitary Treatment District, and Greater Augusta Utility District. We learned about the differences between the treatment systems, but more importantly discussed the commonalities and shared struggles they all face, including the newer and expensive challenges with biosolids disposal due to PFAS concerns.



There were a lot of "lessons learned" stories from the past that were shared as well (I think we all have some of those!). Thank you to all of the facility tour guides (Dustin Price, Rob Pontau, Mat Densmore, Amanda Smith, Lynn Woodward, Ron White, and John Cummons) and to MeWEA and NEWEA for their support of this valuable program.

If you are interested in participating in future operator exchanges, here is more information: <https://www.mewea.org/operator-training>

For more photos: <https://www.flickr.com/photos/131647466@N07/albums/7217720312008515>



# MWUA 2023 Summer Outing



Maine Water Utilities Association along with Maine Water Environment Association held their Annual Summer Outing on Thursday, August 10 at the Cumberland County Fairgrounds in Cumberland, Maine. There were twelve exhibitors and over 200 attendees. The weather couldn't have been better!

Chandler Smith from E.J. Prescott started the outing with "Excavation Compliance and Heat Stress" training. The training was well attended with more than 65 people. Next on the list of activities was the competitive "Pipe Tapping Contest". There were two teams this year, Boothbay Region Water District's, "Mud Dogs", and Maine Water Company's, "Team Old School". After an exciting contest of strength and skill, the "Mud Dogs" were successful holding onto the title with a time of 2:39! Following the "Pipe Tapping Contest", the attendees gathered for the "Cornhole Contest". The contestants enjoyed many rounds before Ian Lane and Chris Gallant were crowned the 2023 Champions thus receiving their belts!



All the events were followed by a cookout including hamburgers, hot dogs, pulled pork, steak, lobster, including all the fixings. For dessert, Wright-Pierce graciously served ice cream to everyone!



Both MWUA and MeWEA would like to extend a warm thank you to all who supported this ever-popular event! We hope to see you again at the 2024 Summer Outing. You won't want to miss it!



## MWUA's Summer 2023 Golf Tournament Recap



Maine Water Utilities Association's Golf Tournament was held on Wednesday, August 2nd at the ever-popular Val Halla Country Club in Cumberland, Maine. Nearly 100 MWUA members and sponsors continue to take part in this annual outing. This has been a favorite of the attendees for the last 37 years! The various teams enjoyed a day of competitive yet leisurely golf with friends and their peers as they played their way across the greens. The participants had a buffet meal together after completing the scramble and other various contests. The buffet was followed by an award ceremony. Yet another year of good people claiming, "A bad day of golf sure beats a good day at work!" We hope to see you next year!

Please [click here](#) for the award winners.



# What's Going On?

## *Extreme Downpours Cause Severe Flooding Around the World*

Downpours sent massive amounts of water down the streets of Libya, Greece, Spain, Hong Kong, and various parts of the United States including Maine. As a result, thousands of lives were lost, and costs associated with damages were significant. Extreme mudslides and flooding in California and



devastating floods in New York and Vermont have demonstrated the increasing frequency of severe weather events like downpours and flooding. Scientists are exploring the link between climate change and this increase in severe weather.

Through looking at the relationship between rising global temperatures and the atmosphere's ability to hold water vapor, scientists may be starting to understand. They report that as temperatures increase, the atmosphere is able to hold more water vapor. Additionally, as the atmosphere holds more water, it releases more precipitation during storms. Scientists are predicting about a 7% increase in the intensity of precipitation during extreme storms for every 1°C (1.8°F) of temperature increase. It is important to remember that other factors also affect the intensity of precipitation such as wind and storm patterns.

In addition to rising temperatures, scientists are also looking into the types of precipitation occurring. Due to the rising global temperatures, scientists report more rainfall events and less snowfall events. This is important because as rainfall events become more frequent, there is more immediate stormwater that raises the potential for flood events. Snowfall events typically cause less of a problem than rainfall because the stormwater must melt creating a slower release of water and less potential for flooding. In 2019 there was a study of flood patterns across 410 watersheds that found the largest runoff peaks from rainfall versus snowmelt were more than 2.5 times greater. As the climate changes, we must be prepared for and adapt to new and potentially more extreme and frequent weather events.



## York Sewer District Files Lawsuit for Chemical Contamination of Wastewater

A lawsuit has been filed against multiple manufacturers of polyfluorinated substances (PFAS) on behalf of the York Sewer District.

The release on the lawsuit against 3M Company, E.I. DuPont de Nemours, Inc. and others describe PFAS as "persistent toxic chemicals that build up over time when released into the environment."

"Like so many across the State of Maine, York Sewer District is concerned about the impact of these chemicals to our health, infrastructure, and finances. Therefore, we thought it critical to partner with SL Environmental on this unprecedented matter."

The lawsuit was filed after sampling was done at the wastewater treatment plant in York. According to the release, contamination found in the wastewater was mostly from household residential sources.

The release goes on to say: "Due to the widespread use of these compounds in commercial and consumer products, PFAS tend to concentrate in wastewater streams, making wastewater treatment plants potential avenues of PFAS contamination."

A risk assessment for other biosolids is expected to be released by the winter of 2024 by the Environmental Protection Agency.



## Cyber Risks and A New Set of Strategies

In March of 2023 the EPA mandated that States add cybersecurity to routine water system audits. This should be of no surprise since cyber attacks have doubled every year since 2019. Now the industry is looking to engineers to develop safeguards to mitigate the damages from cyberattacks.

In the past, engineering has often been overlooked when attempting to address cyber risks, but recently, the awareness of their unique tools for operational technology and industrial environments has increased.

The engineering field historically has managed risks to safety, the public, and the environment, but managing cyber risks is somewhat new. In June 2022, the US Department of Energy published the Cyber Informed Engineering (CIE) Strategy which is being expanded to include all critical infrastructure including the water industry. The main goal of the CIE Strategy is to develop a body of engineering knowledge for managing risks. The body will have two main components. One being to document cybersecurity practices relevant to protecting industrial control systems. The other being to identify process, automation, and network design elements that are unique to engineering and can be used to address cyber risks. Stay tuned for the advances in cybersecurity from the engineering side of things.



## 2024 Annual Tradeshow & Conference Co-Sponsored by MeWEA

Maine Water Utilities Association proudly announces their 98th Annual Tradeshow & Conference. Once again, this event will be held at the Augusta Civic Center on **January 31st and February 1st, 2024.**

Not only will there be numerous technical training sessions, but there'll also be many exhibitors displaying their products who are excited to chat with you and answer your questions. Registration is coming soon, and we hope you'll join us for valuable technical information, comradery, food, and fun. We look forward to seeing you there!

# Old Tricks to Solve a New Problem

## Co-Settling Sludge at the Augusta WWTF

The Augusta Wastewater Treatment Facility (WWTF) serves Augusta and the surrounding communities of Hallowell, Manchester, Monmouth, and Winthrop. The facility has provided primary treatment since 1962 and was upgraded to secondary treatment in 1983. The design capacity is 8.0 millions gallons per day (mgd) annual average flow. Effluent is discharged to the Kennebec River. Current average flows range between 3.0 mgd to 6.0 mgd over the past 7 years. Much of the sewer collection system is combined (sanitary and storm) so the facility receives much higher flows during precipitation events. Peak influent flows rates can reach 40 mgd. Flows above 12 mgd are bypassed after primary treatment and then disinfected and discharged. Primary effluent flows are pumped to the secondary treatment facilities which were constructed approximately 30 feet above.

The Augusta WWTF secondary treatment system is a unique process that uses high purity oxygen rather than air to sustain the biological activity. The process is called UNOX and it was developed by the Linde Division of the Union Carbide Company in the 1960's and 1970's. The biological kinetics work at a much higher rate with pure oxygen aeration than with conventional air aeration



Figure 1 - Augusta WWTF Site - note secondary facilities on left at higher elevation

with an activated sludge, which allows for higher organic loadings to be treated in smaller aeration tanks. The process includes gas tight covered aeration tanks with mechanical surface aerators. High purity oxygen is generated on-site using a Pressure Swing Adsorption (PSA) system and piped to the aeration tanks head space. Process dissolved oxygen levels are maintained between 10 to 18 mg/l; the solids retention time is generally less than 2 days; and the hydraulic residence time is approximately 2 hours or less. This process was appropriate for Augusta because of historically higher industrial organic loadings and limited buildable area at the treatment plant site. Augusta is the only UNOX facility in the state of Maine.

The Augusta WWTF solids handling facilities were substantially upgraded in 2019. Waste activated sludge is mechanically thickened with a rotary drum thickener (Ishigaki) and subsequently blended with primary sludge in two sludge holding tanks. The blended sludge is dewatered in two horizontal screw presses (Ishigaki) and trucked off site for disposal by others (Casella Waste Management).

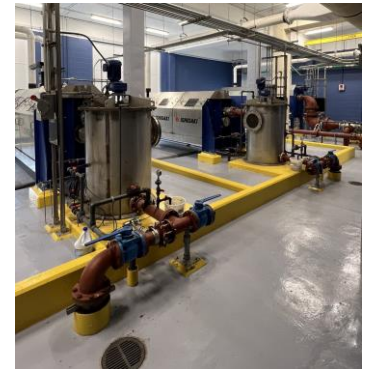


Figure 2 - Solids Handling Room. Dewatering screw presses in foreground and Thickener in background

On July 14th we experienced an equipment failure of the WAS thickening system. The thickened sludge pump shaft coupling broke, rendering the entire thickening system inoperable. The pump manufacturer (Seepex) quoted a parts delivery time of 6 weeks!

Like so many other critical water utilities in the state of Maine, we had become another victim of the new normal supply chain woes.

With our WAS thickening system unavailable our entire solids handling process was threatened. This in turn would also quickly impact our wastewater treatment process and effluent quality. Without the thickener system the other parts of the solids handling system lacked sufficient hydraulic capacity. The thickener system reduces the WAS volume tenfold. Leading up to the incident our



Figure 3 - WAS Thickener and Thickened Sludge Pump

wasting rates were approximately 60,000 gallons/day from the secondary process resulting in a thickened sludge volume of about 6,000 gallons per day.

Without the thickener system online our sludge holding tank capacity would be depleted in less than 4 days. The dewatering system performance would also be severely diminished without the thickener in operation. We were facing an extended period of complicated operations and significantly increased costs. We needed to improvise our operations to mitigate the problem in a way that would maintain good effluent quality at an affordable cost.

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We first considered trucking liquid sludge off site for processing and disposal. Like most wastewater facilities in Maine, we have recently experienced very large cost increases to sludge disposal so we have been exploring alternatives including off-site liquid sludge processing and disposal at the Anson-Madison Sanitary District, which is over 40 miles away. This alternative may be feasible under normal operations when the thickener is operational. However, without the thickener the sludge volume would be too large for this approach. Upwards of 10 tanker truckloads each day would be required.

We then decided to explore the option of co-settling waste activated sludge in the primary clarifiers. However, our pump and piping systems were not designed for this operational scheme, but were able to repurpose an existing plant water piping interconnection and the tank drain pumping system to reroute waste activated sludge from the secondary clarifiers to the influent sewer piping. The physical pump and piping obstacle was overcome but concerns remained because it had never been tried here before.

Historically, co-settling or co-thickening of secondary sludge with primary sludge was a more common process because it was simple and inexpensive. It often preceded liquid sludge processing and/or disposal and discharge permit limits were generally less stringent. However, it is much less common now because it can contribute to wastewater treatment process concerns including the following:

- **Odors caused by anaerobic decomposition**
- **Poor settling and scum accumulation caused by denitrification and the release of nitrogen gas**
- **Reduced biological phosphorus removal efficiency due to release of cellular bound phosphorus in the anaerobic environment.**

Because of these process concerns and the development of more efficient mechanical thickening technologies, very few facilities still rely on co-settling. However, we did not have any other choices, so we began the co-settling operations. We also believed that the unique characteristics of our facility design and operations would likely prevent the negative process concerns noted above. Odors are directly influenced by the time spent in the anaerobic environment. Our operations maintain sludge blanket depth in all clarifiers to less than 1 foot which minimizes the solids detention time. Our process is extremely high rate, and our sludge age is very short, typically less than 2 days. This limits the growth of nitrifying bacteria and so very little influent ammonia is converted to nitrate, which minimizes the risk of denitrification in the primary clarifier. The water quality of our receiving water (Kennebec River) is not impaired by phosphorus loadings, so our discharge permit does not include phosphorus limits.

We were still concerned about the long period of time the thickening system pump would be out of commission, because we could not be totally sure that the co-settling process would work. We approached a local machine shop/metal fabrication contractor about the broken pump part. Within 10 days our local shop was able to supply custom fabricated repair parts for us to install and we had the pump and thickening system operational again on July 25th.

For the 10 days of operation, the co-settling process was successful and we are confident that it could be employed at any time in the future if it is necessary. Going into the experiment we had a number of concerns including the following:

- **Odors**
- **Reduced primary treatment performance**
- **Reduced secondary and overall treatment efficiency**
- **Reduced sludge dewatering performance**
- **Increased sludge dewatering polymer dose requirements**

We have reviewed our operational data for the period of time leading up to the incident (July 1 to July 13) in comparison to the period of co-settling in order to more objectively evaluate the success of co-settling. A summary of this data follows.

Parameter	Normal Ops (7/1 to 7/13)	Co-Settling Ops (7/14 to 7/25)
Primary Effluent cBOD	88 mg/l	95 mg/l
Primary Effluent TSS	74 mg/l	58 mg/l
Final Effluent cBOD	11 mg/l	4 mg/l
Final Effluent TSS	15 mg/l	8 mg/l
SVI	157	194
Blended Sludge TS, %	3.07%	3.7%
Sludge Cake TS, %	32.1%	34.1%
Solids Capture, %	98.3%	98.0%
Polymer Dose, gal/dt	8.4 gal	6.2 gal

Based on the data during this short trial period, we can say that the co-settling process did not have any adverse impacts on our operations at the treatment plant. There was also no discernible increase in odors within the primary clarifiers or the WWTF site.

(cont'd on next page)

In addition to these process performance comparisons, we also noted the following more general observations during the co-settling operations.

- Our normal waste sludge pumping system includes a flow meter so we are able to precisely control the volume pumped each day. The improvised tank drain pumping system lacked flow measurement and it is a centrifugal type pump, so we lacked direct control of the daily volume. Initially, we relied more heavily on MLSS sampling and on-line solids mass meter data to control the pumping operation until we became more familiar with the pumping characteristics. Improved flow monitoring would be beneficial.
- We avoided 8 hrs/day operation of our mechanical thickener system resulting in electrical, chemical and labor savings as follows:
  - Electrical: 7.5 motor horsepower ~ \$5/day
  - Polymer: 11 gallons/day ~ \$154 /day
  - Labor: negligible due to automated controls on the equipment

We were fortunate to identify a simple fix to effectively mitigate a problem that could have compromised our treatment process and resulted in a significant unbudgeted operational expense. We learned the importance of maintaining a sufficient inventory of equipment spare parts, especially for systems that lack redundancy.

We understand that this data sample is too small to form the basis for long-term planning, but we feel the results were promising enough to justify further consideration of co-settling as a means to improve our overall plant efficiency.



## In Summary...

### *Don't have a lot of time?*

*Below is a summary of some of the main topics in this issue:*

- Check out information on water and wastewater in our [featured community Kittery!](#)
- For fun facts about your colleagues in the industry – [check out the Colleague Corner](#)
- Changes are happening to your MeWEA organization. [Learn more here.](#)
- Interested in stormwater management for your community? [Check out what the City of South Portland is doing around Willard Beach.](#)
- Our generous sponsors provide funding used to create this newsletter and a whole lot more. [Are you interested in becoming a joint sponsor?](#)

Thanks for taking the time to read our newsletter. If you have any comments or suggestions, feel free to let us know. We'd love to hear from you!





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