NewsLeaks

Vermont Rural Water Association

Spring 2023

Vermont Rural Water Goes to Washington

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The Vermont Rural Water Association provides training and support to drinking water and wastewater systems to promote healthy communities, rivers, and lakes across Vermont.

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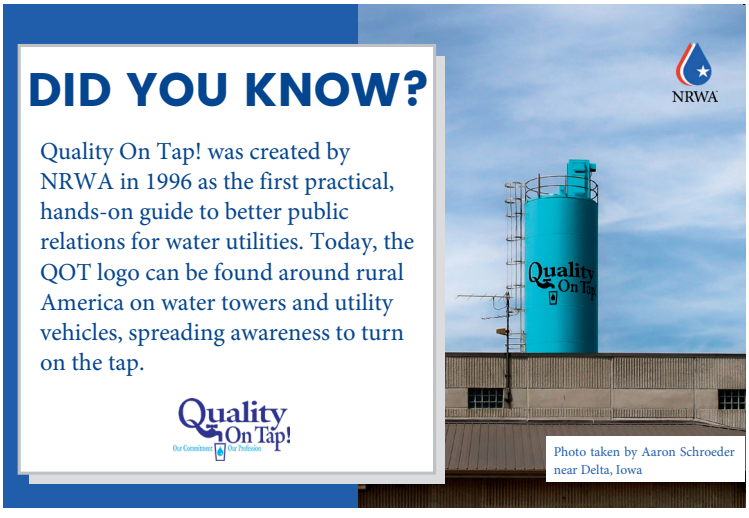
On the cover: April Busfield, Jon Thornton, and Rod Lamothe at the US Capitol Building in Washington, D.C.



A Day at the Rural Water Rally

by Liz Royer
Executive Director

On February 7, 2023, the Rural Water Rally felt like it was back to business-as-usual after several years of modified events due to the pandemic. Vermont Rural Water board members Rod Lamothe and Jon Thornton joined executive director Liz Royer in travelling to Washington, D.C. for the event.

This year, we were also excited to have April Busfield, the chief operator for Canaan Fire Districts 1 and 2, join us in DC! Canaan FD1 was representing Vermont in the Great American Water Taste Test, and annual event at the Rural Water Rally.

The day kicked off with coffee at National Rural Water's opening session, which included many VIP speakers. We were honored to hear from Senator Shelley Moore Capito (R-WV); Andrew Berke, USDA RUS administrator; and Radhika Fox, assistant administrator from the US EPA Office of Water. We also received updates from National Rural Water, including president John O'Connell, CEO Matt Holmes, and DC staff members Bill Simpson and Michael Preston.

The Vermont team gathered for a quick breakfast and strategy session before heading up to Capitol Hill. Security was getting tight all around the Capitol due to the President's State of the Union address, which was taking place that evening.

From left: Liz Royer, Rod Lamothe, Senator Peter Welch, April Busfield, and Jon Thornton

Our first meeting was with Representative Becca Balint's office. We discussed the structure of our organization, federal appropriations requests, and all of the great work Vermont Rural Water accomplished in 2022. We were honored to meet the Congresswoman and get to chat about our apprenticeship program. We look forward to having her visit the Town of Brattleboro Public Works Department and meet the apprentices working there.

After some delicious sweets at a nearby bakery, we headed to the other side of the Hill to the Senate office buildings. Senator Welch's office was up next. While waiting for a conference room to open up, we debated the best cider donuts and maple creemees

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Service Line Inventories required by the new the Lead & Copper Rule Revisions

Guest Author
Ben Montross
Vermont Drinking Water and Groundwater Protection Division

Guest Author
Bruce King, PE
Vermont Drinking Water and Groundwater Protection Division

The recent Lead and Copper Rule Revisions (LCRR) from the Environmental Protection Agency are the most significant new federal requirement impacting drinking water. While the LCRR has a confusing past and an unknown future, two new rules are certain:

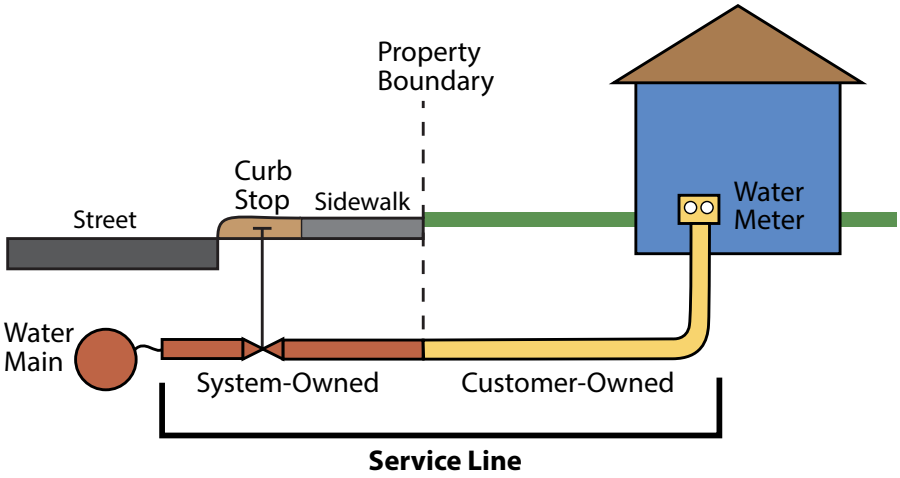
- All water systems subject to the LCRR must create a Service Line Inventory and submit the inventory to the Vermont Drinking Water and Groundwater Protection Division (DWGPD) by October 16, 2024.

- If a water system lists at least one service line made of lead, "galvanized requiring replacement," or unknown materials, then a replacement plan is also required by the due date.

INVENTORIES

Which systems need to do an inventory? Inventories must be completed by every active Community and Non-Transient Non-Community (NTNC) water system, regardless of the number of connections, whether it is a consecutive system, or service line ownership.

So, what will be in these inventories? The inventories identify the location, material composition, and other useful information about each service line in a water system.



Example of a service line with split ownership.

On its face, this is a straightforward requirement: write down what every service line in the system is made of. However, there are considerations that may make this task challenging for water systems.

Consideration #1: Both the system- owned portion and the customer- owned portions of service lines must be inventoried. Most water systems have "split" ownership of their service lines where the ownership of a service line changes at the property boundary. The LCRR requires the inventory to include details about both portions.

If your system is one of the few that either owns 100% or 0% of the service line, that scenario can also be accommodated in the inventory.

Consideration #2: Most of a service line is buried. The expectation is that water systems, contractors, volunteers, and others first review records to identify service line materials. Next, if needed, a visual inspection can be performed where a line enters building.

If the system doesn't have records and a property owner doesn't allow entry to the building, then do we dig to look at the pipe? **DEC strongly advises systems not dig up service lines to complete the inventory.** This action may create significant health risks. Disturbing lead service lines may release lead into drinking water. It is better to list a service line's material as "Unknown" and address it later in a replacement plan.

Consideration #3: Lead service lines were banned on July 1, 1989. Even if a water system was built after the ban, the system still must submit an inventory identifying that there is no lead. The LCRR does not allow a waiver from completing an inventory.

Consideration #4: Service line inventories must be submitted electronically in a specific format. Vermont DWGPD has created three Microsoft Excel spreadsheets that interact well with other regulatory databases. Water systems must use these spreadsheets to submit their inventories. DWGPD will not accept other system-made forms and documents.

REPLACEMENT PLANS

Replacement plans are required for any water system that lists at least one service line made of lead, "galvanized requiring replacement," or unknown materials in their inventory. The replacement plan will largely be a "fill-in-the-blank" document provided by DWGPD. Certain aspects of the plan will be uniformly addressed across all of Vermont's water systems, so DWGPD will be providing a template for all systems to use in the near future.

FUNDING

There is a considerable amount of federal funding to assist with this new requirement, so don't feel like you must do this alone. DWGPD will provide staff support to NTNC schools and contractor support to systems serving a population less than 1,000.

KEY POINTS

• The best way to reduce lead exposure is to remove the source of lead.

• Inventories are the first critical step to reduce lead exposure because you don't know where to dig until there is an accurate inventory identifying the lead service lines.

• Inventories and replacement plans (if required) are due to DWGPD by October 16, 2024.

This article is just an introduction to the LCRR's new service line inventory requirements. More training and resources are at the Vermont Drinking Water Program's website: https://dec.vermont.gov/water. On the website you can learn more about how to fill out the inventory spreadsheets. Also, please consider attending a training if someone from your water system has not done so yet. These trainings are offered monthly by Vermont Rural Water and DWGPD.

YANKEE INGENUITY

by Wayne Graham
Wastewater Systems Specialist

This column details clever solutions that operators come up with every day. Below are several cases of them solving problems, saving money, and making life at their second home—the treatment plant—a little easier.

Slip-No-Slide

Wet floors are slip hazards, so it's important that you address chronic wet areas to avoid injuries. The St. Johnsbury WWTF (**VRWA Member**) crew made a simple gutter from a 6-inch PVC pipe cut in half to direct water from a grit dewatering trailer to a floor drain. This keeps the slimy mess from collecting on the floor.

You're Gonna Need a Bigger Boat

Lagoon plants require a boat for operators to work on aeration equipment, take samples, and measure sludge. The operators at the Edward Farrar Utility District (**VRWA Member**) in Waterbury spend a lot of time on their lagoons, so building a dock was worth the time and effort. It's a good way to safely load and unload equipment and people.

Sharing is Caring

Fellow Vermont Rural Water wastewater specialist Elijah Lemieux and I have become a clearinghouse for unwanted equipment at wastewater facilities. This is on purpose; we pay close attention during and after facility upgrades to find new homes for unwanted equipment and sometimes entire processes. An example of this is when a lagoon facility was being upgraded and needed a 150-foot baffle and temporary aeration equipment. We were able to find baffle material and spare aeration equipment at other facilities.

It came to our attention that we should have a more formal way of letting folks share equipment on their own. The Classifieds page on Vermont Rural Water's website has a "For Sale/For Free" section where you can post equipment you no longer need or request equipment from other systems. This could even morph into a question-and-answer forum for operators to share ideas with each other. Visit vtruralwater.org/resources/classifieds and send your posts to info@vtruralwater.org.

Separate but Not Equal

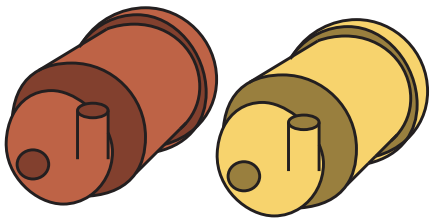
This is an idea that I stole from operators at my first wastewater job in West Lebanon, N.H., and have used it for the last 35 years. If you have multiple pieces of the same equipment, especially duplex units, don't run them for equal amounts of time.

Contrary to what most equipment suppliers will tell you, alternating equipment with the goal of maintaining equal run hours is not a good idea. The simple reason for this is that if you have two units of the same blower, pump, motor, etc. and they are used equally, then chances are they will both wear out at the same time. This leaves you with the dilemma of having one unit broken or under repair and your back up unit in similar poor shape.

Instead, run your lead unit 6 days a week and your backup unit one day per week, or any similar ratio. When the lead unit is ready for rebuild, your backup unit will be still be in good shape.

Granted, there will be exceptions to this such as warranty issues, when you want to max out equipment run time, or equipment that needs to be exercised daily.

Another good practice that can be used facility-wide is to exercise your backup units while exercising your generator. This will keep your electrical demand charges down.



Everything but the Kitchen Sink

When the pump room at Fair Haven WWTF (**VRWA Member**) was being upgraded, chief operator Carrie Lafond requested a sampling sink be installed. Sample sinks are great, especially for gauging the thickness of sludges to avoid over-pumping or not pumping enough. The sludges can be visually inspected for thickness in the sink or be checked by running laboratory solids tests. The sample sinks can be configured to have flush water to clean the sludge sample lines out when done. The flush water is also used to clean the sink out.

As with any points of potable water cross connections in your facility, install backflow prevention devices and have them professionally inspected regularly.

Send your interesting ideas to me for future columns. I also encourage you to tour other facilities; you will find that networking with fellow operators can be very beneficial. Several organizations can also provide help: VT WARN, GMWEA, VT DEC, and of course, Vermont Rural Water.

Stay safe out there, we need you!

Training Calendar

Spring 2023

Date	Course	TCHs	Location	Cost (Member/Non)
Tue, April 11 9 am – 12:30 pm	What to Expect at a VOSHA Inspection **New Class!**	3 **W WW**	Zoom	$21 / $42
April 12 – June 7 8 am – 3 pm	Basic Wastewater Course	48 **WW**	Rutland[1]	$591.50 includes textbook
April 13 – 25 9 am – 2 pm	Small Systems Class 2 Water Operator Certification Course	18 **W**	Hybrid (Zoom/Essex[2])	$125 / $250 $60 for textbook
Fri, April 14 9 am – 11:30 am	Service Line Inventory Course	2 **W**	Zoom	$14 / $21
Tue, April 25 8:30 am – 1 pm	Breweries and Your WWTF	4 **WW**	Montpelier[3]	$28 / $56
Thur, April 27 10 am – 11 am	Excel for Service Line Inventory **New Class!**	1 **W**	Hybrid (Zoom/Essex[2])	$7 / $14
Tue, May 2 9 am – 1:30 pm	Distribution Exam Preparation Course	4 **W**	Hybrid (Zoom/Essex[2])	$28 / $56
Wed, May 3 9 am – 1:30 pm	Class 3 & 4 Exam Preparation Course	4 **W**	Hybrid (Zoom/Essex[2])	$28 / $56
Thur, May 4 10 am – 11 am	Excel for Service Line Inventory **New Class!**	1 **W**	Hybrid (Zoom/Essex[2])	$7 / $14
Thur, May 11 8 am – 3 pm	Vermont Rural Water's Annual Conference	3.5 **W WW**	Fairlee[4]	$55 / $110
Tues, May 16 9 am – 11:30 am	Service Line Inventory Course	2 **W**	Zoom	$14 / $21
Tues, May 16 8 am – 12:30 pm	HazCom and Respiratory Protection **New Class!**	4 **W WW**	Zoom	$28 / $56
Tue, May 23 8 am – 12:30 pm	Confined Space and Lockout/Tagout	4 **W WW**	Zoom	$28 / $56
June 6 & 13 9 am – 12:30 pm	Groundwater Treatment Course (2-day class) **New Class!**	6 **W**	Zoom	$42 / $84
June 8 & 15 9 am – 3 pm	Wastewater Lagoons (2-day class) **New Class!**	10 **WW**	Hardwick[5]	$100 / $200
Fri, June 9 9 am – 11:30 am	Service Line Inventory Course	2 **W**	Zoom	$14 / $21
Tue, June 13 8 am – 12:30 pm	Wastewater Sampling and Laboratory Procedures	4 **WW**	Montpelier[3]	$28 / $56

TCH = Training Contact Hours **W** = Approved for Water Credit **WW** = Approved for Wastewater Credit

Register Online: vtruralwater.org/training

Date	Course	TCHs	Location	Cost (Member/Non)
Wed, June 14 9 am – 1:30 pm	Basic Math for Water and Wastewater Operators	4 **W WW**	Zoom	$28 / $56
Fri, June 16 9 am – 1:30 pm	Advanced Math for Water and Wastewater Operators	4 **W WW**	Zoom	$28 / $56
Tue, June 20 9 am – 12:30 pm	Introduction to Surface Water Treatment	3 **W**	Zoom	$21 / $42
Wed, June 21 10 am – 11 am	Excel for Service Line Inventory **New Class!**	1 **W**	Zoom	$7 / $14
June 27 & 28 9 am – 12:30 pm	Wastewater Microbiology	6 **WW**	Zoom	$60 / $120

TCH = Training Contact Hours **W** = Approved for Water Credit **WW** = Approved for Wastewater Credit

Locations

[1]**Rutland**: WWTF – 110 Greens Hill Lane, Rutland, VT 05701

[2]**Essex**: Vermont Rural Water Association – 20 Susie Wilson Rd, Suite B, Essex Junction, VT 05452

[3]**Montpelier**: Public Works Garage – 783 Dog River Rd, Montpelier, VT 05602

[4]**Fairlee**: Lake Morey Resort – 82 Clubhouse Rd, Fairlee, VT 05045

[5]**Hardwick**: Memorial Building – 20 Church St, 3rd floor, Hardwick VT 05843

Register Online: VTruralwater.org/training

Registration and Payments

Register online at vtruralwater.org/training to pay by credit card or check, or mail in the form below. Registrations received less than 24 hours prior to class are subject to a late fee.

Members of the Vermont Rural Water Association receive a 50% discount on most registration costs.

Renewal Reminder

Water Operators: Class 2 and 4 certifications must be renewed by June 30, 2023. Class 2 operators need 10 hours of continuing education and Class 4 operators need 20 hours.

Wastewater Operators: licenses must be renewed by July 31, 2023. You need 4–16 hours of continuing education (depending on your license level) in order to renew.

Cancellations/Refunds

Cancellations received at least 24 hours in advance can receive a refund or transfer to another class. No-shows will be charged the full course fee.

Sick Policy

As we offer more in-person classes, we ask that if you have symptoms of a contagious illness (Covid, flu, or other), please do not attend classes in-person. If you are ill on the day of class, we will work with you to find a remote attendance option or switch to another class on a different day. We want water and wastewater systems to be able to stay fully staffed and this should help all of us stay as healthy as possible.

Accommodations

Call 802-660-4988 or email info@vtruralwater.org prior to the day of class to request accommodations.

Using Drones in Water and Wastewater

by Paul Sestito
Water Systems Specialist

One of my first times using an aerial drone was to inspect a well at a remote location in Coventry, Vt. It was the middle of winter and the well was inaccessible due to the snow. We snowshoed in as far as we could, then flew the drone the remainder of the way. Using the drone's camera, we were able to see that the well was in good shape and there was nothing of concern in the source protection area.

The popularity of drone use has grown since their inception. Various sectors of industry, including water and wastewater, now utilize drones to perform certain tasks. Currently, the primary use of drones in our industry is probably for remote inspection of infrastructure, as I saw in Coventry.

WHAT IS A DRONE?

A drone can be defined as an unmanned vehicle or a remote-controlled or autonomous device designed to be used in the air, on land, or underwater. Drones can be operated remotely by a person, or pilot, utilizing a remote-control device, or can be programmed to perform certain tasks on their own. Aerial drones are commonly referred to as UAVs, short for unmanned aerial vehicles. Underwater drones are referred to as ROVs, or remotely operated vehicles.

Paul Sestito preparing a drone for a well inspection in Coventry.

HISTORY OF DRONES

If you are old enough, you can probably remember when the wreckage of the Titanic was discovered in the North Atlantic Ocean in 1985. It was found at a depth of more than 12,000 feet with the help of underwater drone technology. The discovery made news throughout the world but is only one amazing moment in the history of drones.

Leonardo Da Vinci designed an aerial device that is considered a precursor to today's helicopter in the 1400s. Unmanned aerial vehicles in the form of explosive-laden balloons were used during wartime as far back as the 1800s. The first radio-controlled drone was developed about 15 years after the Wright brothers' famous flight, but it was not a success. Drone technology for military purposes continued to develop, with aerial drones eventually being used for warfare in the 1980s.

Commercial, non-military use of drones became more common in the early 2000s. Many government agencies and large corporations began to use aerial drones for various applications. In the 2010s,

An underwater drone (right) is used to inspect the surface water intake in Websterville.

small toy drones became widely available for recreational use.

Underwater drones have a shorter history. The first use of underwater drones dates back to the 1950s. Early purposes of underwater drones included warfare, exploration, and recovery.

One example of underwater recovery occurred in 1966, when the U.S. Navy used a special underwater vehicle to recover a missing atomic bomb.

In the 1970s and 1980s, underwater drones became more common in various industries, including ocean exploration and marine salvage.

Today, military investment is still a large driver of drone technolog development. However, non-military uses of underwater drones are expanding as well. I would imagine that underwater drones will play a role in future offshore energy development.

DRONES IN THE WATER/WASTEWATER INDUSTRY

As mentioned, drones are currently used across many sectors of industry. In water and wastewater, examples of their use include: inspection of remotely located assets, internal and external inspection of storage tanks or other structures, source water intake inspection, inspection of roof drains while smoke testing sewer systems, inspection of assets after a natural disaster, and photo documentation of assets. Aerial drones can also be fitted with equipment to apply paint or coatings to tanks, or to clean difficult-to-reach elevated areas. Underwater drones can be equipped with arms or other equipment to retrieve or move objects.

Drone footage of the Montpelier wastewater treatment facility.

REGULATIONS

There are regulatory considerations to consider when operating drones. Generally speaking, underwater drones do not have too many regulations regarding their use, and those regulations seem to focus more on offshore use regarding fishing and marine mammals. There could be state or local regulations for use in natural bodies of water, so inspection of source water intakes, for example, could possibly be subject to regulation depending on your location.

For obvious reasons, the federal government takes the flying of aerial drones very seriously. Because of the potential safety hazards and interference with airplanes, their use is subject to a good deal of regulation by the Federal Aviation Administration (FAA). The rules regarding aerial drone use can be found in Title 14, Part 107 of the Code of Federal Regulations. It is very detailed and lays out the specific requirements for almost all non-recreational aerial drone use.

Recreational flying of aerial drones is also subject to regulation. The FAA provides The Recreational UAS Safety Test (TRUST) free for recreational drone pilots.

LEARNING TO USE A DRONE

Along with following the regulations, there are operational considerations when using a drone.

I am currently studying Part 107, in the hopes of eventually becoming FAA-certified as a drone pilot. I have piloted both aerial (recreationally) and underwater drones, and I have made mistakes piloting both. One

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with his office staff. (I guess good food was the theme for the day!)

We barely sat down and started our conversation when Senator Welch had a chance to pop into the conference room and talk with us for a few minutes. We even got to take a photo with him. We are very appreciative of all of the support Senator Welch has given us previously in the House and will continue in the Senate. He really understands the needs and challenges faced by many of the small water and wastewater systems in Vermont.

The Vermont team wrapped up a long day with—you guessed it—a delicious dinner together. The walk back to the hotel took us past Secret Service officers and TV cameras, as the President was due to drive by shortly after. We all said our good nights and headed back to our rooms to watch the State of the Union address and get some sleep before starting day 2 of the Rally, which will include visits with Senator Sanders and the finals of the Great American Water Taste Test.

Rod Lamothe signs the visitor log outside Rep. Becca Balint's office.

Vermont Rural Water's Annual Conference

Vermont Rural Water's Annual Conference & Trade Show returns to Lake Morey Resort on May 10–11, 2023.

Join us on Wednesday, May 10 for the golf tournament. It is a four-person scramble with a shotgun start at 12:30 pm. Proceeds benefit Vermont Rural Water.

The conference itself is on Thursday, May 11 from 8 am to 3 pm. There will be a trade show, luncheon, drinking water taste test, and our annual membership meeting where we present the 2023 Tony Torchia Award.

Throughout the day there will be a variety of training classes. You can earn 3.5 TCHs for water and/or wastewater if you attend a class during each session.

Sponsorship opportunities and trade show booths are still available!

May 10–11, 2023
Lake Morey Resort • Fairlee, VT

Training classes include:

- Emergency Response in an Ever-Changing World
- DWGPD's Technical, Managerial and Financial Capacity-Building Initiatives
- Wastewater Regulatory Updates
- Hydrant Flushing and Maintenance
- Roundtable on Workforce Development

Register Online: vtruralwater.org/conference

Water Fluoridation Quality Awards

Guest Author
Dustin Jurgenson
Vermont Department of Health

Community water fluoridation is a State Health Improvement Plan strategy to promote health for Vermonters. There are 29 fluoridated water systems serving 42 towns throughout Vermont.

Each year, the Centers for Disease Control and Prevention (CDC) presents Water Fluoridation Quality Award certificates to water systems that achieve a monthly average fluoride level that is in the optimal range for 12 consecutive months. The Vermont Department of Health's Office of Oral Health (OOH) would like to commend the 12 Vermont recipients of the CDC's Water Fluoridation Quality Awards:

- Barre City Water System
- Bradford Village Water System
- Champlain Water District
- Enosburg Falls Water System
- Hinesburg Water Dept.
- Jericho Underhill Water
- Montpelier Water System
- Norwich Fire District #1
- Rutland City Water Dept.
- St. Albans Water Dept.
- St. Johnsbury Water System
- Swanton Village Water System

Congratulations to these systems on your excellent work and commitment to your community and our state fluoridation program.

Through community water fluoridation, we are affirming that oral health is essential to overall health and well-being, and taking action to make our families, our communities, and ourselves healthier.

For more information visit the CDC's fluoridation website for water operators and engineers at www.cdc.gov/fluoridation/engineering/

Water operators in Vermont can earn four TCHs for taking the CDC's free Fluoridation Learning Online (FLO) course. See www.cdc.gov/fluoridation/engineering/training.htm

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example is when I managed to get an underwater drone stuck while inspecting a source water intake. Thanks to the Town of Barre (**VRWA Member**) Public Works Department, the drone was rescued and returned.

Another factor to consider is weather. Excessive cold, for example, can severely affect the battery life of a drone while also affecting the pilot's ability to concentrate on operating their drone. Physical barriers in the path of your drone must be recognized and accounted for. When taking photos or videos, privacy concerns are another thing that needs to be considered.

In my limited time operating both types of drones—aerial and underwater—there is one thing that I have learned. You can never practice or prepare too much with your drone.

Drones can be useful tools in our industry. Their ability to perform work in remote areas can help keep workers safe and save time and money through reduced setup and equipment costs. As mentioned, drone technology and its use is evolving and I imagine we will see their use increase in the years to come.

Right: Diana Butler with an aerial drone

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