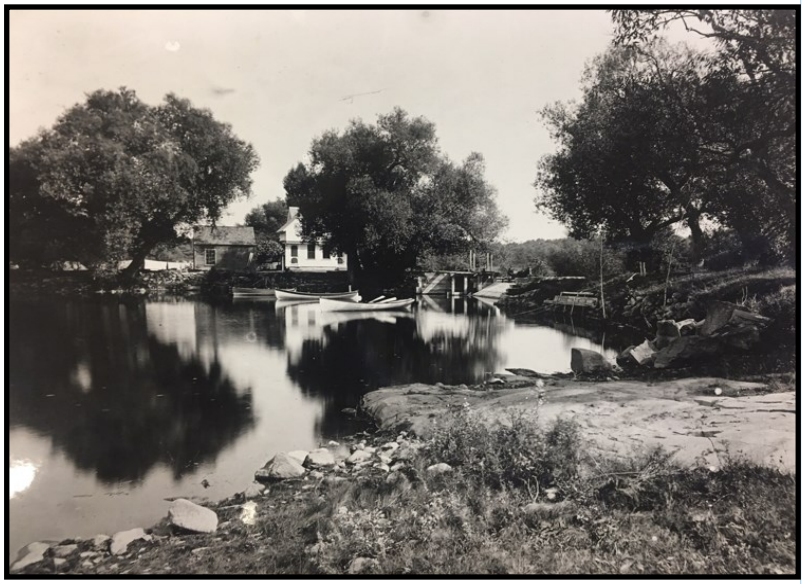
ANNUAL WATER QUALITY REPORT

YORK WATER DISTRICT

JANUARY 1, 2021 - DECEMBER 31, 2021

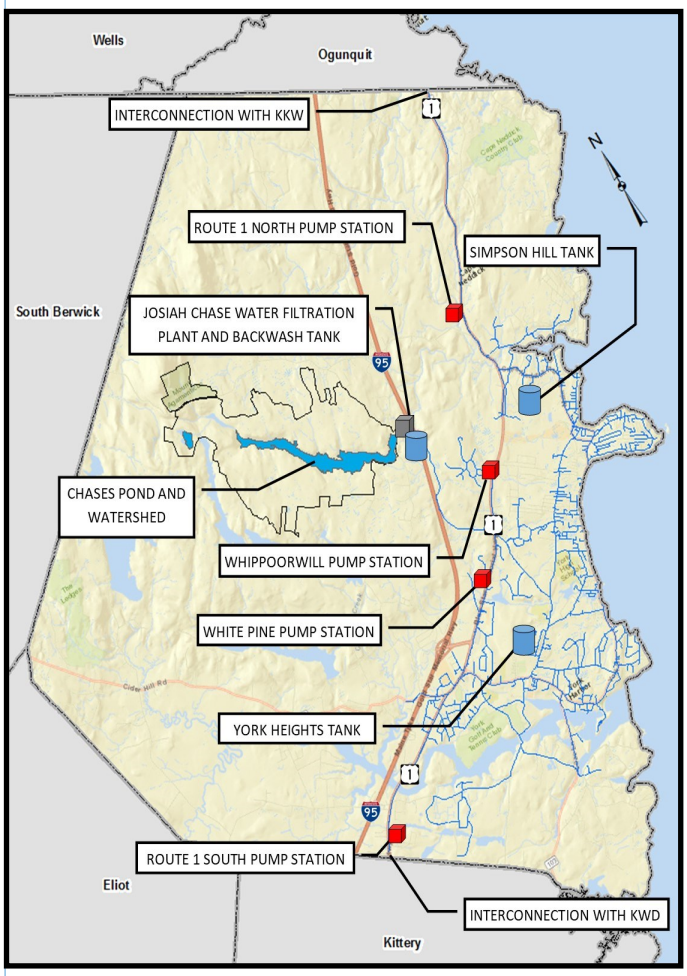
Welcome to the 24th Annual Water Quality Report of the York Water District (YWD). This report provides important information concerning your drinking water, it's quality and safety. At the York Water District, our priority is to provide you with safe, reliable drinking water every day. We take pride in supplying our customers with the highest quality of service, and this report is part of that important goal.



Chases Pond Dam. Early 1900's

We are pleased to report that during the 2021 testing period your water from the YWD met all State and Federal requirements. We follow National Primary Drinking Water Regulations established by the EPA as authorized by the Safe Drinking Water Act which are health-based standards and treatment techniques for public water systems. The EPA establishes and the State of Maine Drinking Water Program enforces these minimum quality and safety standards for drinking water.

We ensure that your water is safe by regular monitoring and testing. All of our water samples are tested by The State of Maine Health and Environmental Testing Laboratory, other State certified testing laboratories, or our state certified water treatment operators. This report shows a summary of the laboratory results for substances that were detected in your water. Many other contaminants that were tested are not listed because they were not detected. Responsibility for maintaining water quality resides with our staff of certified Drinking Water Operators licensed by the Maine Department of Health and Human Services. The Safe Drinking Water Act directs the State, along with the EPA, to establish and enforce minimum drinking water standards. These standards set limits on certain biological, radioactive, organic and inorganic substances sometimes found in drinking water. Two types of standards have been established: primary and secondary drinking water standards. Primary drinking water standards set achievable levels of drinking water quality to protect your health. Secondary drinking water standards provide guidelines regarding the taste, odor, color and other aesthetic aspects of your drinking water which do not present a health risk. All drinking water may reasonably be expected to contain at least trace amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

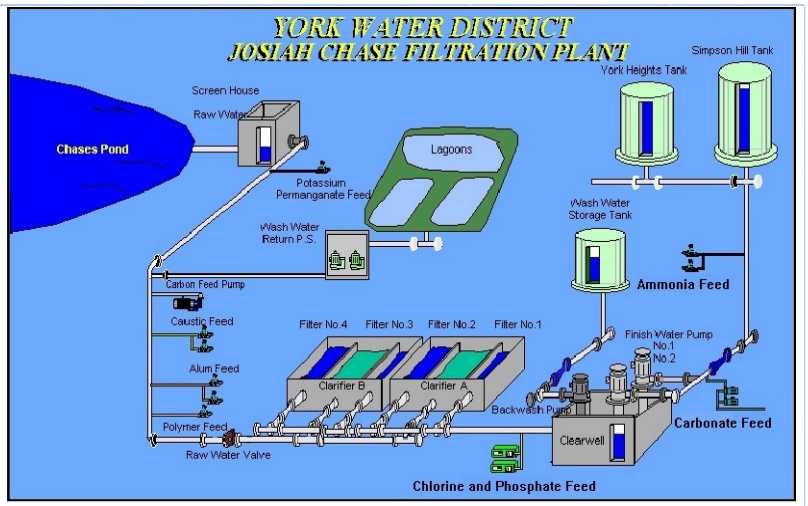


WHAT ARE THE FACTS ABOUT YOUR SYSTEM?

The York Water District first began supplying the Town of York with water in 1896 as the York Shore Water Company. The sole source of this water has always been Chase's Pond, a surface water supply located west of I-95 on Chase's Pond Road in York. When the pond is full it has a capacity of nearly 1 billion gallons, with a safe daily yield of 2.05 million gallons. The District also maintains a cross country siphon line from Kittery Water District's Folly Pond. In case of drought or emergency, water can be siphoned from Folly Pond into Chase's Pond. The Chase's Pond Watershed covers an area of 1,877 acres of which the District currently owns 1,691 acres, or 90% of the total watershed area.

The York Water District operates and maintains a distribution system that includes over 100 miles of both year round and seasonal water mains. The system includes 377 public and 70 private fire hydrants. In 2021, the system water demand was **410** million gallons (MG) of water. The Josiah Chase Water Filtration Plant produced 415 million gallons. The District purchased 5 million gallons through our interconnection with Kennebunk, Kennebunkport, and Wells Water District and sold to them 10 million gallons. That's an average demand of **1.12** million gallons per day (MGD). To be sure there is enough water to satisfy peak demands as well as fire protection usage, the District maintains a 2 million gallon storage tank on York Heights and a 3 million gallon storage tank on Simpson Hill in Cape Neddick. The York Water District maintains 2 distribution system interconnections on Route 1, the first with Kennebunk, Kennebunkport, and Wells Water District to the north and the second with Kittery Water District to the south. Both interconnections required pumping stations to be installed. The Route 1 North Pumping Station was completed in 2006, and put into service in 2007. Construction of the Route 1 South Pumping Station began in 2007, and was completed in 2010. These distribution system interconnections provide a back up water supply in either direction in case of a water emergency in any of the 3 water districts service areas from Kennebunk to Kittery. The Josiah

Chase Filtration Plant was put into service in 1990 and was designed and operated to produce water that meets or exceeds all primary and secondary drinking water standards. The Treatment Plant is designed for a maximum daily flow of 4 million gallons (4MGD). The Treatment Plant is located at 273 Chase's Pond Road in York across the street from the Chase's Pond Dam. Raw water enters the Screen House next to the dam and flows by gravity through a 30" ductile iron main to the Treatment Plant. Aluminum Sulfate (the primary coagulant) and Sodium Hydroxide (for pH adjustment) are added to the raw water to ensure proper coagulation and flocculation of the water before being sent to the clarifiers and filters where the particles suspended in the water will be removed. Polymers are added to the treatment process to aid in the coagulation process. Under challenging conditions (such as algae blooms) additional chemicals, such as potassium permanganate and powdered activated carbon may be used. Filtration of the water is achieved using 2 up-flow adsorption clarifiers and 4 conventional mixed media rapid sand filters. After the filtration process is complete the water enters a 300,000 gallon chambered clearwell. Here, Blended Phosphate is added for corrosion control and Sodium Hypochlorite (chlorine) is added to promote proper disinfection by killing pathogenic organisms. All surface and ground waters contain natural organic compounds that can react with chlorine added to the water to form disinfection byproducts (DBP's). DBP's are suspected carcinogens. To reduce formations of DBP's, the York Water District adds a small amount of Ammonium Sulfate to the water as it is withdrawn from the clearwell and before in enters the distribution system. The Ammonium Sulfate reacts with the Sodium Hypochlorite to form Monochloramines, a weaker yet long lasting form of chlorine. Monochloramines reduce the risk of forming DBP's. Sodium Carbonate (Soda Ash) is added to the finished water to raise the pH in the distribution system. This pH is maintained for optimal corrosion control. From here, the water is pumped to one of two water storage tanks in the distribution system.



The Josiah Chase Filtration Plant is designed to produce water that meets all primary and secondary drinking water standards.

HEALTH INFORMATION

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and can also come from gas stations, urban runoff, and septic systems.
Radioactive Contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791) or at the following link: http://www.epa.gov/ccr/forms/contact-us-about-consumer-confidence-reports
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The York Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, test methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at the following link: http://www.epa.gov/safewater/lead

WATER QUALITY REPORT WAIVER

In 2020, our system was granted a 'Synthetic Organics Waiver.' This is a three year exemption from the monitoring/reporting requirements for the following industrial chemical(s): TOXAPHENE/CHLORDANE/PCB, HERBICIDES, CARBAMATE PESTICIDES, SEMIVOLATILE ORGANICS. This waiver was granted due to the absence of these potential sources of contamination within a half mile radius of the water source(s).

WHERE YOU CAN GET MORE INFORMATION

This report is just a summary of our activities during the past year. If you have any questions about your water or its quality and safety you can call the York Water District Office at 86 Woodbridge Road, Monday through Thursday 7:00 AM - 5:30 PM, at 207-363-2265 or visit us on line at www.yorkwaterdistrict.org where you will find our customer contact form and more up to date information. In case of emergency after normal business hours please call 207-363-2265 and follow the pre-recorded prompts to leave a voicemail message. One of our on call personnel will return your call as soon as possible. The York Water District Board of Trustee's meet the 3rd Wednesday of each month at the District Office or via Zoom at 2:00PM. Meetings are open to the public.

HIGHLIGHTS FROM 2021

Nubble Road Phase II

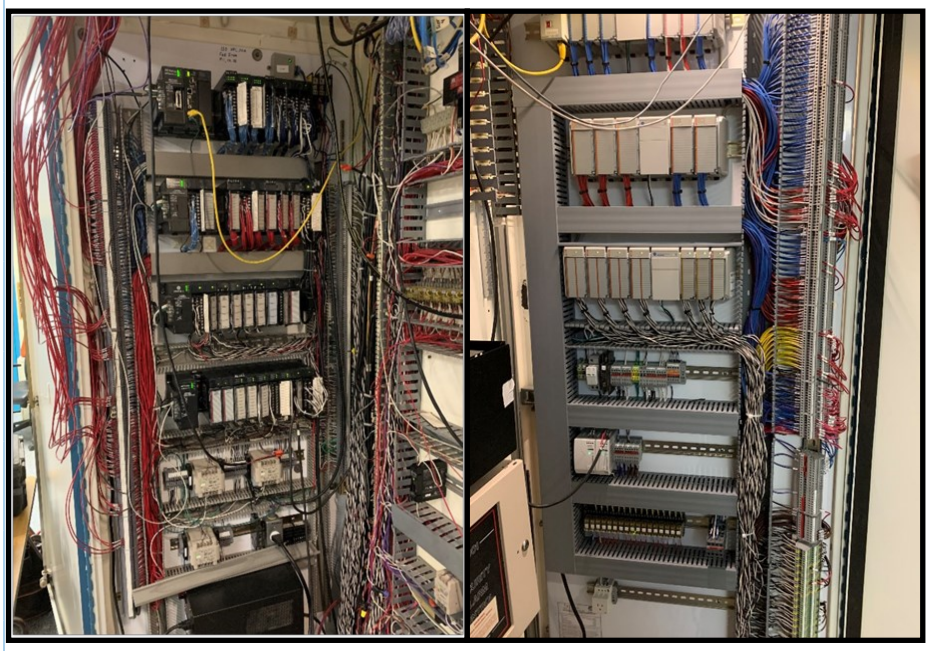
In the fall of 2021, YWD collaborated with the York Sewer District to complete Phase II of the Nubble Road improvement project. Originally slated for 2020, the project was postponed due to the Covid-19 Pandemic. This phase of the project consisted of replacing 850 feet of 1930's era 6 inch cast iron water main with new 10 inch ductile iron water main as well as the replacement of 19 house services and one fire hydrant. The new 10 inch water main will greatly improve fire flows and overall water quality in the area. Upon completion, the project was turned over to the York DPW. In the featured picture, you can see crews installing new 10 inch water main.

Camp Eaton Project

In the fall of 2021, the District completed an in-house project to insert (slip line) 600 feet of 3 inch HDPE poly pipe inside the existing 1920's era 6 inch water main that ran from York Street, cross country through the property of Camp Eaton to Lobster Cove Road. This project was in preparation for a planned water main replacement project on Lobster Cove Road in Spring of 2022. Our crews began by cutting and capping the 6 inch water main on Lobster Cove Road to allow for work to begin on the section of water main through the Camp Eaton Property. A meter pit and backflow prevention device were installed at the York Street end of the property and the new 3 inch poly water line was tied into the former service location in the middle of the property. Once work was completed, the District's utility easement through the Camp Eaton property was formally released and the ownership of the new 3 inch water line was handed over to Camp Eaton as their new private seasonal service. The featured picture shows the new 3 inch poly water line inserted into the old 6 inch water main.

Josiah Chase Water Filtration Plant PLC Upgrade

The Josiah Chase Water Filtration Plant has been in operation since 1990. In 2000 its control center was upgraded to a GE Programmable Logic Controller (PLC) and Supervisory Control and Data Acquisition (SCADA) system. The PLC is basically an industrial computer, programmed by engineers that works with relays, inputs, and outputs to automate the control of the treatment plant. The SCADA system is where operators communicate with the PLC. Operators can change hundreds of variables such as alarm setpoints, pump dosages, flows, etc but they cannot change the logic inside the PLC. This system worked well for many years but like all electronics it does have a life span, typically 10-15 years, and was replaced in 2021. When planning this project, we had the option to replace it with the newer GE model or go with a different brand. Although staying with GE would require less work for the installing contractor, as they wouldn't have to adjust/match scaling and setpoints between brands, we opted for switching to Allen Bradley PLCs. The reason for this was twofold: First, they were highly recommended in the industry, and second, there are many more contractors who can service Allen Bradley than GE and we felt that provided the district an option for more competitive service contract pricing in the future. We coordinated this project for the winter season as that is our lowest seasonal output. This enabled us to run half the plant while the other half was being transferred to the new PLC. All pieces of equipment were tested as they were shifted until the entire plant was switched over. While there were some minor bugs found in the programming in the following months that were corrected, it was an overall seamless transition.



BEFORE **AFTER**

RECEIVE AND PAY YOUR WATER BILL ELECTRONICALLY

York Water District continues to offer our customers the option to receive their water bill electronically via email and the option to pay their water bill online. These are separate services. You may enroll in one or both paperless options. To receive your water bill electronically: Simply visit our website and fill out the e-bill request form. You will now receive your complete water bill at the email address you provide. You will no longer receive a paper bill. It is your responsibility to notify the District of an email address change. To pay your water bill electronically: Visit our website and click the Online Bill Pay button. Follow the instructions online to complete your payment. Please note there is an additional fee for online payment processing. Your payment will be instant, you will not need to have the concern of it being lost in the mail. To use these paperless features visit us at www.yorkwaterdistrict.org. If you have questions please email us at customerservice@yorkwaterdistrict.org or call us at 207-363-2265.

2021 Water Test Results For
York Water District PWSID ME0091680

PRIMARY CONTAMINANTS	DATE	RESULT	MCL	MCLG	SOURCE
MICROBIOLOGICAL COLIFORM(TCR)(1)	2021	**0 pos**	1 pos/mo or 5%	0 pos	Naturally present in the environment.
INORGANICS BARIUM	5/25/2021	**0.0034 ppm**	2 ppm	2 ppm	Discharge of drilling wastes. Discharge from metal refineries. Erosion of natural deposits.
RADIONUCLIDES COMBINED RADIUM (-226 & -228)	12/16/2020	**0.8 pCi/l**	5 pCi/l	0 pCi/l	Erosion of natural deposits.
RADIUM –226	12/16/2020	**0.2 pCi/l**	5 pCi/l	0 pCi/l	Erosion of natural deposits.
RADIUM –228	12/16/2020	**0.6 pCi/l**	5 pCi/l	0 pCi/l	Erosion of natural deposits.
COPPER COPPER 90TH% VALUE(4)	1/1/2021 – 12/31/2021	**0.035 ppm**	AL= 1.3 ppm	1.3 ppm	Corrosion of household plumbing systems.
LEAD LEAD 90TH% VALUE(4)	1/1/2021 – 12/31/2021	**3 ppb**	AL =15 ppb	0 ppb	Corrosion of household plumbing systems.
SITE 1-RT1 N. PUMP STATION TOTAL HALOACETICACIDS(HAA5)(9)	LRAA(2021)	**25.3 ppb Range(21 - 32 ppb)**	60 ppb	0 ppb	By-product of drinking water chlorination.
TOTAL TRIHALOMETHANE(TTHM)(9)	LRAA(2021)	**33.9 ppb Range(15.8 - 49 ppb)**	80 ppb	0 ppb	By-product of drinking water chlorination.
SITE 2-RIVER BEND RD TOTAL HALOACETICACIDS (HAA5)(9)	LRAA(2021)	**25.6 ppb Range(17 - 30.2 ppb)**	60 ppb	0 ppb	By-product of drinking water chlorination.
TOTAL TRIHALOMETHANE(TTHM)(9)	LRAA(2021)	**36.2 ppb Range(24 - 51 ppb)**	80 ppb	0 ppb	By-product of drinking water chlorination.
SITE 3-NUBBLE RD TOTAL HALOACETICACIDS (HAA5)(9)	LRAA(2021)	**27.0 ppb Range(19 - 38 ppb)**	60 ppb	0 ppb	By-product of drinking water chlorination.
TOTAL TRIHALOMETHANE (TTHM)(9)	LRAA(2021)	**36.7 ppb Range(26.2 - 48 ppb)**	80 ppb	0 ppb	By-product of drinking water chlorination.
SITE 4-SOUTHSIDE RD TOTAL HALOACETICACIDS (HAA5)(9)	LRAA(2021)	**23.5 ppb Range(18 - 28 ppb)**	60 ppb	0 ppb	By-product of drinking water chlorination.
TOTAL TRIHALOMETHANE (TTHM)(9)	LRAA(2021)	**36.0 ppb Range(27.3 - 47.6 ppb)**	80 ppb	0 ppb	By-product of drinking water chlorination.
CHLORINE RESIDUAL	RAA 2021	**1.90 ppm Range(1.78 - 2.17 ppm)**	MRDL=4 ppm	MRDLG=4 ppm	By-product of drinking water chlorination.

TURBIDITY: is caused by suspended and colloidal matter in water. Turbidity at 5 Nephelometric Turbidity Units (NTU's) is barely noticeable by the naked eye and gives a cloudy or opaque appearance to the water. Turbidity has no health effects. However, excessive turbidity can interfere with disinfection and provide a medium for microbial growth. The Josiah Chase Filtration Plant is required to continuously monitor turbidity as it leaves the Treatment Plant. We are required to not exceed a turbidity greater than 1 NTU in our finish water and to filter our raw water down to 0.3 NTU's in at least 95% of the samples analyzed each month to be compliant with the federal treatment technique to assess filtration effectiveness. The highest recorded turbidity was 0.15 NTU's on **10/23/2021**, which means 100% of the samples analyzed in 2021 were below the **0.349 NTU limit**.

VIOLATIONS

~ NO VIOLATION IN 2021 ~

YORK WATER DISTRICT — WE CARE ABOUT EVERY DROP

ALL OTHER REGULATED WATER CONTAMINANTS WERE BELOW DETECTION LEVELS.

SECONDARY CONTAMINANTS

The District is not required to list secondary contaminants, but this information particularly sodium levels might be useful to our customers and consumers.

Manganese	0.027 ppm	5/25/2021
Magnesium	0.65 ppm	5/25/2021
Sulfate	13 ppm	5/25/2021
Zinc	0.0019 ppm	5/25/2021
Sodium	17 ppm	5/25/2021
Chloride	15 ppm	5/25/2021

DEFINITIONS

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water.
Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health.
Running Annual Average (RAA): A 12 month rolling average of all monthly or quarterly samples at all locations. Calculation of the RAA may contain data from the previous year.
Locational Running Annual Average(LRAA): A 12 month rolling average of all monthly or quarterly samples at specific sampling locations. Calculation of the RAA may contain data from the previous year.
Action Level (AL): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

***Units*:**
ppm = parts per million or milligrams per liter (mg/L). pCi/L = picocuries per liter (a measure of radioactivity).
ppb = parts per billion or micrograms per liter (µg/L). pos = positve samples. MFL= million fibers per liter

NOTES

1) **Total Coliform Bacteria**: Reported as the highest monthly number of positive samples, for water systems that take < 40 samples per month.
2) **E. Coli**: E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal waste. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches or other symptoms. They may pose a greater risk for infants, young children, the elderly, and people with severely-compromised immune systems.
3) **Fluoride**: For those systems that fluoridate, fluoride levels must be maintained between 0.5 to 1.2 ppm. The optimum level is 0.7ppm.
4) **Lead/Copper**: Action levels (AL) are measured at the consumer's tap. 90% of the tests must be equal to or below the action level.
5) **Nitrate**: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health provider.
6) **Arsenic**: While your drinking water may meet EPA's standard for Arsenic, if it contains between 5 to 10 ppb you should know that the standard balances the current understanding of arsenic's possible health effects against the costs of removing it from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. Quarterly compliance is based on running annual average.
7) **Gross Alpha**: Action level over 5 pCi/L requires testing for Radium 226 and 228. Action level over 15 pCi/L requires testing for Uranium. Compliance is based on Gross Alpha results minus Uranium results = Net Gross Alpha.
8) **Radon**: The State of Maine adopted a Maximum Exposure Guideline (MEG) for Radon in drinking water at 4000 pCi/L, effective 1/1/07. If Radon exceeds the MEG in water, treatment is recommended. It is also advisable to test indoor air for Radon.
9) **TTHM/HAA5**: Total Trihalomethanes and Haloacetic Acids (TTHM and HAA5) are formed as a by-product of drinking water chlorination. This chemical reaction occurs when chlorine combines with naturally occurring organic matter in water. Compliance is based on running annual average.

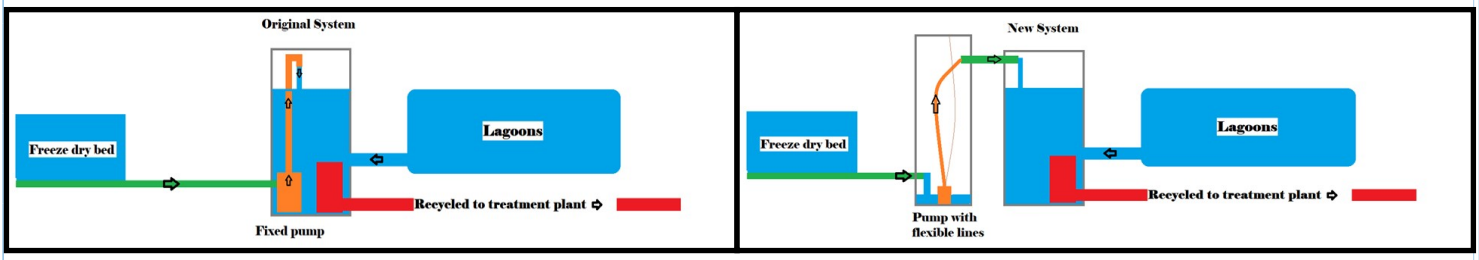
SOURCE WATER ASSESSMENT

The sources of drinking water include rivers, lakes, ponds, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material and can pick up substances resulting from human or animal activity. The Maine Drinking Water Program (DWP) has evaluated all public water supplies as part of the Source Water Assessment Program (SWAP). The assessments included geology, hydrology, land uses, water testing information, and the extent of land ownership or protection by local ordinance to see how likely our drinking water source is to being contaminated by human activities in the future. Assessment results are available at town offices and public water systems.

HIGHLIGHTS FROM 2021

Filtration Plant Process Wastewater Lagoon De-Watering Return System

Part of the process of making safe, clean drinking water is to routinely clean the treatment plant's filters and clarifiers. The process of cleaning a filter is called backwashing, and it creates wastewater that is full of the materials removed from the raw pond water. Some treatment plants are on municipal sewer systems and send their backwash wastewater to them for removal. Others, like us, who are not on a municipal sewer system, send their backwash water to holding lagoons on their property. The water in those lagoons is then returned to the beginning of the filtration plant treatment process at a mixture of approximately 5-10% of the raw water from Chase's Pond. Over the course of a year, a large amount of residual sludge accumulates in those lagoons. To remove the sludge, the lagoons are removed from service one at a time, and the sludge is pumped to a third lagoon called a 'freeze dry bed' (FDB). As the name insinuates, the purpose of this FDB is to promote a freeze/thaw cycle over the course of a winter to break the sludge down to a fraction of its original water content thereby reducing its volume and weight significantly, from a pudding like substance to dry coffee grounds. For this process to work correctly all water must be drained from the sludge. The original dewatering design for our plant was flawed by design and never worked correctly, so early on the operators designed a fix to it that worked for many years but wasn't as efficient as they'd like. It consisted of a small pump inside a sealed container at the bottom of a 12 foot deep pit that was full of water. This pump had to be replaced every year or so and required significant labor and down time of the lagoons. In 2021, operators designed and installed a new system that used the same concept but consisted of a second pit to house the pump. This allows for easy pump access and replacement without having to enter the pit as well as no down time for the lagoons. So far, the new dewatering system has been working flawlessly.



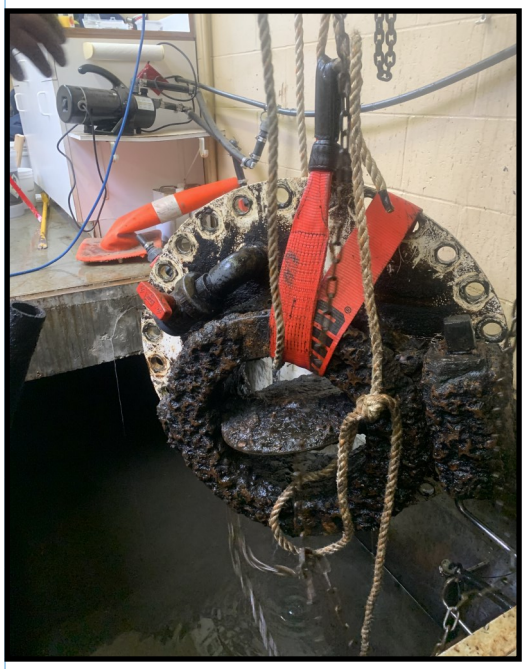
System Water Quality, Interconnections, and Treatment Optimization

In mid-2019, YWD completed State approved gradual transition from one treatment chemical approved for use in drinking water, that provided the benefits of raising treated water pH and reducing distribution system pipe corrosion, to two separate chemicals. This was performed to implement an agreement to make water quality more uniform between YWD and our interconnected neighboring districts. The district also reduced the treated water target pH that had been maintained for over thirty-five years while our interconnected systems made changes of their own. For the first year, increased water quality monitoring proved this transition to be seamless as YWD maintained a lower pH and the recommended level of the new phosphate based chemical. In 2020, about a year later, a small portion of the drinking water distribution system experienced a single, short, unattributable poor water quality event, in which small black particles needed to be flushed from the water distribution system. This event was again experienced almost exactly a year later in 2021 along with unusual deterioration of water quality in one of our large system storage tanks. Staff believed these issues to be related to adding more phosphate chemical than was needed creating a pipe build-up of the phosphate coating in a portion of pipe over time, which was released under the right conditions, as well as the drop in treated water target pH slightly reducing long-term water stability. Employees consulted with our treatment chemical experts, engineers, State Drinking Water Program staff, and hired an expert from the University of New Hampshire. The 2021 consensus of this group was that a lower phosphate dosage and moving back to a higher target treated water pH is likely more optimal for our system. In late 2021 into early 2022, with State Drinking Water Program approval, we gradually dropped the phosphate level by twenty-five percent and increased the pH back to our previous higher target. Increased monitoring was performed with no indication of problems and no issues have been experienced. Since that time our interconnected system to the north, has also increased their pH to nearly match ours, thinking this could also prove more advantageous to their system. The featured photo shows the Sodium Carbonate feed system, used to adjust finished water pH.

Forest Management

York Water District owns 1,691 acres of forested land around the Town of York's drinking water supply, Chase's Pond. To help forests stay healthy and vigorous, foresters apply principles, practices, and economical techniques known as forest management. Our current licensed forester, Brian Reader of Reader Forest Management, plans our timber harvests when appropriate to protect water quality. To ensure proper management he marks all trees to be harvested and marks setbacks from water resources and other sensitive areas. After harvest planning is done, we contract with an independent 3rd party forester to review the harvest to ensure we are protecting all our natural resources. YWD's primary objective is to protect, maintain, and improve our water quality through proper management practices. To help improve water quality we strive to maintain softwood dominated stands to help limit the amount of organic matter that enters water resources from the duff layer in the forest. To manage for a softwood dominated stand we try to harvest during white pine seed years as harvesting equipment will help scarify the ground to allow the seeds to settle into the soil and during years with limited seed, we plant white pine seedlings. During harvests loggers use precise tree felling skills to protect established regeneration from getting damaged. We make every effort to schedule our harvests during summer when it is dry to minimize the amount of soil disturbance. Best Management Practices (BMP's), regulatory and voluntary measures, are followed during harvests to protect our water quality. In 2021, 500 white pine seedlings were planted.

HIGHLIGHTS FROM 2021



Screenhouse Intake Valve Replacement

In 2020, the District hired Calligan Dive Service of Searsmont, ME to replace the sluice flood gate valve and two bypass valves on the Chases Pond Dam. These critical valves allow us to release flood water during significant rain events. Without them, water flowing over the Chase's Pond spillway could damage the roadway. With those valves replaced, only one original valve remained at our dam and intake structures. The remaining valve was a 16 inch butterfly valve and custom adapter plate mounted to the 36 inch intake pipe coming from the pond into the screen house building. This is the small brick building you can see next to the dam. The screen house building is the first stage in the water treatment process. Large screens remove sticks, leaves, and fish before the water travels to the filtration plant. The intake valve allows water to enter a deep pit on the pond side of the screens. The water then travels through the screens and down another water main to the filtration plant. The valve was installed around 1983 and was in poor condition. This valve is normally left open all but once a year when the pit is drained for leaf buildup removal. In 2021, we hired Calligan Dive Service again to perform the changeout of this valve. To reduce the impact on water quality and minimize plant downtime, the decision was made to replace the valve under water. It took two days to perform the complete changeout due to heavy corrosion and low visibility underwater. The featured photo shows the old, corroded valve being removed. This project required treatment plant staff to adjust their normal schedule and run the plant at night so the divers could work during the day. The new valve and adapter plates are epoxy coated with all stainless-steel hardware. This important replacement project was completed with minimal downtime and no water quality problems.

Simpson Hill Tank Cleaning

In September we observed a rhythmic wave of chlorine residual coming from the Simpson Hill water storage tank. The chlorine level would maintain normal residuals for hours and then a reduced residual for hours and repeat. Upon investigating, we found that the start of a nitrification event (microbial process of ammonia converting into nitrate and nitrite) was occurring in the water storage tank located at Simpson Hill. This was a very prevalent issue for many water systems in 2021 throughout the State. Luckily, we caught it early and were able to isolate the tank from the system. Once isolated, we drained the tank and chlorinated it using American Water Works Association (AWWA) Method 3. This in depth process alleviated the nitrification event and allowed us to return the tank to service.

However, the unexpected benefit this provided us was the chance to perform a comprehensive inspection and provide a thorough cleaning of the tank. We had hired Underwater Solutions in 2019 to perform an extensive cleaning and inspection on all three water storage tanks but due to OSHA regulations they were not allowed to dive deeper than 100 feet. Therefore, they were not able to get a thorough cleaning or inspection of this tank's bottom 10 feet. This time around we were able to get our personnel inside to pressure wash and clean this area. After the cleaning we performed the inspections and were able to send pictures of any spots in question to the contractor who performed the tank rehab for analysis. Due to the diligence and close monitoring by our staff, we were able to isolate and resolve this problem with no interruption to service and no water quality problems for customers.

Red Management Road Upgrades

Beginning in late 2019 with the purchase of the Dickens Parcel on Mountain Road, the District has been making improvements to the Red Management Road which now stretches over two miles through the watershed forest land. This management road has been in use for decades, beginning as a trail accessible by ATV's or four-wheel drive vehicles and gradually improved to withstand forestry operations and large commercial trucks. This road is critical to the District operations by providing emergency and maintenance access to this otherwise inaccessible area. During the 2020 timber harvest on the Dickens Parcel the road was extended by one half mile to connect with Mountain Road. This extension allows us to drive the full length of the north side of Chases Pond. We are now able to bring in maintenance trucks and equipment as well as rescue operations and firefighting apparatus if needed. In 2021, we improved over one mile of this road by adding gravel, replacing culverts, improving shoulders and cleaning ditches. The District plans to improve the remaining one mile of management road in 2022.

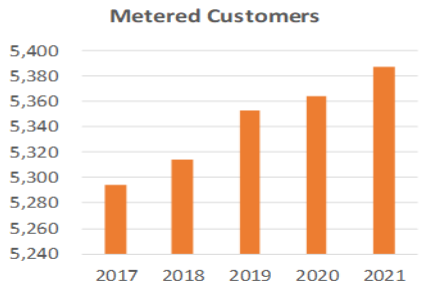
2021 BILLING AND HISTORICAL STATISTICS

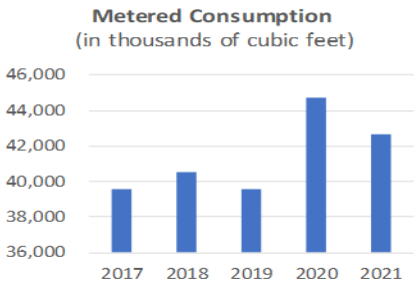
In 2021, consumption and revenue were both down from the prior year. In 2020, results were higher than normal due to increased water usage by customers at home during the pandemic and 2021 was more of a return to normal. It is anticipated that consumption will continue to decline slightly in 2022.

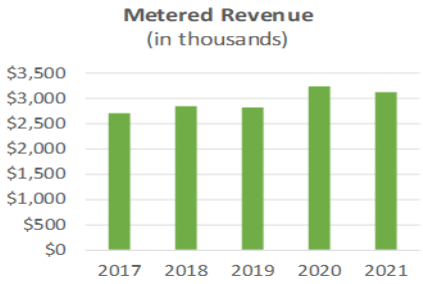
2021 Billing Statistics

	Metered Customer Count	Metered Consumption (cubic feet)	Metered Revenue
Residential	4,960	28,318,300	$2,556,884
Commercial	373	12,479,900	$483,315
Governmental	55	1,866,500	$85,280
Total	5,388	42,664,700	$3,125,479

Historical Billing Statistics







PLANNED PROJECTS FOR 2022

Lead and Copper Inventory: The Federal Environmental Protection Agency has updated the Lead and Copper Rule for public drinking water systems. We will be working to update our records to the new standards in 2022.

Water Main Replacements: Lobster Cove Road was completed in spring of 2022. YWD will replace High Street beginning the day after Labor Day in Fall 2022. Nubble Road Phase III has been rescheduled to 2023.

YORK WATER DISTRICT
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