

# Salem

## Water Quality Report for the year ending 2021

### Source Water Assessment Summary

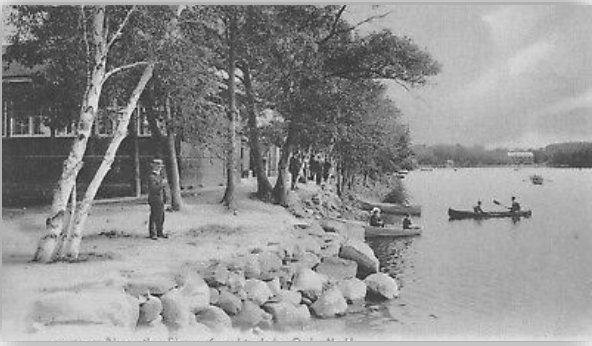
DES prepared drinking water source assessment report for all public water systems between 2000 and 2003 in an effort to assess the vulnerability of each of the state's public water supply sources. Included in the report is a map of each source water protection area, a list of potential and known contamination sources, and a summary of the available protection options. The results of the assessment, prepared on November 1, 2002 are noted below.

- ◆First Source - Canobie Lake  
EPAID 2051010-001  
3 susceptibility factors were rated high, 3 were rated medium, and 7 were rated low
- ◆Second Source - Arlington Pond Reservoir  
EPAID 2051010-010  
2 susceptibility factors were rated high, 6 were rated medium, and 5 were rated low
- ◆Third Source - Lake Massabesic  
EPAID 1471010-001  
4 susceptibility factors were rated high, 4 were rated medium, and 5 were rated low

**Note:** This information is over 10 years old and includes information that was current at the time the report was completed. Therefore, some of the ratings might be different if updated to reflect current information. At the present time, DES has no plans to update this data.

The completed Assessment Report is available for review at Canobie Lake Water Treatment Facility, <https://www.townofsaalemnh.org/utilities/pages/source-water-assessment-summary>, [www.nhdes.gov](http://www.nhdes.gov). For more information please call the Utilities Division (603) 890-2171.

This report was generated and formatted by Roy E Sorenson, Fred Wallace, and Maria Poor.



### Drinking Water Contaminants:

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams pond, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and in some cases, radioactive material, and can pick up substance resulting from the presence of animals or from human activity. 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 water 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 storm water runoffs, and residential uses.

**Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are the by-products of industrial processes and petroleum production, and can, also, come from gas stations, urban storm water runoffs and septic systems.

**Radioactive Contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

**Lead:** 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. This water system is responsible for high quality drinking water, but cannot control the variety of material used in your plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing cold water; run your tap for at least 30 seconds before using water for drinking or cooking. Do not use hot water for drinking and 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 <http://www.epa.gov/safewater/lead>.

**Here are some tips on different ways to save water at home. While these tips may seem pretty obvious, they really can conserve a lot of water.**

- ◆Repair all leaky faucets: One leaky faucet can waste up to 15 to 20 gallons a day.
- ◆Run full-load dishwashers to save 15 gallons per load and hot water costs, too. Use the "light-wash" setting if available.
- ◆Water lawn and garden early in the morning when evaporation is the lowest.
- ◆1 inch of water per week during the summer months is adequate for outdoor landscapes
- ◆ With an irrigation system, use sensors so that watering occurs only when it's needed.

Dear Customer,

The Municipal Services Department — Utilities Division is pleased to provide you with this year's annual water quality report. The source of water used in this report includes Canobie Lake, Arlington Pond and Southern New Hampshire Regional Water. The report covers the results of Laboratory testing required by State and Federal regulations through the most recent monitoring compliance period.

The Utilities Division supplied 826 million gallons of drinking water to its valued customers in 2021. The Canobie Lake Water Treatment Plant produced 661 million gallons of safe drinking water. Salem received 165 million gallons of water from Manchester Water Works through the new Southern NH Regional Water Line. Salem supplied 84 million gallons of safe drinking water to the Hampstead Area Water Company (HAWC) in Atkinson. The additional water received through the SNHRW will give Salem and communities from Atkinson to Plaistow a reliable source of water for future growth and sustainability.

On behalf of our dedicated staff I wish to thank you for your much appreciated support as we continue to deliver safe drinking water and maintain a reliable collection system at a reasonable cost

Safe Drinking water at the tap is imperative and a mission of the Utilities Division.

Sincerely,

*F. Wallace*

Fred Wallace  
Utilities Director



### SALEM WATER SOURCES

Canobie Lake and Arlington Pond are the Town's two public drinking water reservoirs. The Canobie Lake Water Treatment Facility treats the water supply of Canobie Lake and Arlington Pond to produce high quality drinking water. The facility has a capacity to provide up to 6.0 million gallons per day. The treatment facility was designed and built to comply with EPA's Safe Drinking Water Act and Surface Water Treatment Rule.

Canobie Lake is the primary source from the months of May through October and then the Town switches to Arlington Pond as the primary source during the colder winter months allowing Canobie Lake to regenerate. In June 2020, the Town began receiving an additional source of water from the Southern New Hampshire Regional Water Project which comes from Lake Massabesic. The water we receive is already treated by Manchester Water Works (MWW) and flows into our system blending with our water. For more information on this project please see the insert on the right. The water from MWW is also fluoridated however the water from Salem is not therefore the level of concentration is significantly lower than its entry point. Information regarding the MWW source is available at: <https://www.townofsaalemnh.org/utilities/pages/manchester-water-works-water-quality-report>.



Salem Municipal Services  
Utilities Division  
161 North Policy Street  
Salem, NH 03079



2021 Salem Water Quality Test Results						
Radiochemistry						
Contaminant/ Units of Measure	Level Detected	MCL	MCLG	Typical Source of Substance	Health Effect of Contaminant	Meets Standards
Uranium (pCi/L)	0.05	30	0	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.	YES
Gross Alpha (pCi/L)	0.50 +/- 1.30	15	0	Erosion of natural deposits	Certain minerals are radioactive and may emit a form of radiation know as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increase risk of getting cancer.	YES
Radium 226 (pCi/L)	<1.0	5	0	Erosion of natural deposits	Some people who drink water containing radium 226 in excess of the MCL over many years may have an increased risk of getting cancer.	YES
Radium 228 (pCi/L)	.5	5	0	Erosion of natural deposits	Some people who drink water containing radium 228 in excess of the MCL over many years may have an increased risk of getting cancer.	YES
Combined Radium (pCi/L)	.5	5	0	Erosion of natural deposits	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.	YES
Inorganic						
Hardness (mg/L)	36	N/A	N/A	Naturally present in the environment	There does not appear to be any convincing evidence that water hardness causes adverse health effects in humans. The hardness of water is measured in milligrams per liter (mg/L) typically, the water produced by Salem Water is considered “slightly hard.”	YES
Sodium (mg/L)	46.65	N/A	N/A	Runoff from road salt	At present there are no health based standards for Sodium in EPA’s Safe Drinking Water Act.	YES
Barium (mg/L)	.0194	2.0	2.0	Corrosion of household plumbing systems; erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure	YES
Lead (ppb)	90th Percentile	15 ppb	0	Corrosion of household plumbing systems; erosion of natural deposits	Lead in drinking water can also cause a variety of adverse health effects. In babies and children, exposure to lead in drinking water above the action level can result in delays in physical and mental development, along with slight deficits in attention span and learning abilities. In adults, it can cause increases in blood pressure. Adults who drink this water over many years could develop kidney problems or high blood pressure.	YES
1/1	3ppb					
7/1	3ppb					
Copper (mg/L)		1.3 mg/l	1.3mg/l	Corrosion of household plumbing systems; erosion of natural deposits	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilsons’ Disease should consult their personal doctor.	YES
1/1	.157mg/l					
7/1	.184mg/l					
Nitrate (mg/L)	0	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	(5 ppm – 10 ppm) Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than 6 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 for advice from your health care provider. (Above 10 ppm) Infants below the age of 6 months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.	YES
Nitrite (mg/L)	0	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	Infants below the age of 6 months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.	YES
Chlorine (mg/L)	1.3	4 (MRDL)	4.0 (MRDLG)	Water additive used to control microbes	Drinking of chlorinated water for 15 years or longer, has been officially linked to an increase in incidence of colon cancer	YES
pH	7.805	N/A	N/A	Acidity or low pH of drinking water is usually a result of natural geological conditions at the site, possibly compounded by acid rain.	The pH of drinking water is not a health concern	YES
Manganese	.0329 mg/l	.05 mg/l	N/A	Naturally occurring in minerals, found in rock, soil and surface water	Many years of exposure to high levels can cause harm to the nervous system	YES
Sulfate	19.5 mg/l	250 mg/l	N/A	Sulfate can come from naturally dissolved minerals of fertilizer	May have a laxative effect that could cause dehydration and is a special concern in infants	YES
Chloride	73.5 mg/l	250 mg/l	N/A	Naturally occurring in rocks and soil	Not harmful to health	YES
Organic						
Total Trihalomethane [TTHM] (ppb)	31.5 annual avg	80	Range 13-40	By-product of drinking water disinfection	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increase of getting cancer	YES
Halo Acetic Acids [HAAS] (ppb)	22.25 annual avg	60	Range 8.5-28	By-product of drinking water disinfection	Some people who drink water containing halo acetic acids in excess of the MCL over many years may have an increase of getting cancer.	YES
Semi - Volatiles						
Bis – (2-ethylhexyl) phthalate (ppb)	0	400	400	Discharge from rubber and chemical factories	Low systemic toxicity, but ingestions of large doses cause gastrointestinal irritation, central nervous system depression, coma and hypotension.	YES
Microbiological						
Turbidity (NTU)	.130	TT	N/A	Soil runoff	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, associated headaches	YES
Total Organic Carbon [TOC](mg/L)	2.6	TT	N/A	Naturally present in water	Total organic carbons (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and halo acetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increase risk of getting cancer.	YES
Total Coliform Bacteria	0	<40 sample >1 is positive	0	Naturally present in water	Coliforms are bacteria that are naturally present and are used as an indicator that other; potentially-harmful, bacteria may be present.	YES
Additional Testing						
Additional Tests	Results	Date	Treatment technique (if any)	MCL	Specific contaminant criteria and reason for monitoring	Meets Standards
Perfluorooctanoic acid (PFOA) (ppt)	7.43 Canobie Lake	5/6/21	N/A	12	Some people who drink water containing perfluorooctanoic acid (PFOA) in excess of the AGQS over many years could experience problems with their liver, endocrine system, or immune system, may experience increased cholesterol levels, and may have an increased risk of getting certain types of cancer. It may also lower a women’s chance of getting pregnant.	YES
Perfluorooctane sulfonic acid (PFOS) (ppt)	2.16 Canobie Lake	5/6/21	N/A	15	Some people who drink water containing perfluorooctane sulfonic acid (PFOS) in excess of the AGQS over many years could experience problems with their liver, endocrine system, or immune system, may experience increased cholesterol levels, and may have an increased risk of getting certain types of cancer. It may also lower a women’s chance of getting pregnant.	YES
Perfluorohexane sulfonic acid (PFHxS) (ppt)	0 Canobie	5/6/21	N/A	11	Discharge from industrial processes, wastewater treatment, residuals from firefighting foam, runoff/leachate from landfills and septic systems.	YES
Perfluorononanoic acid (PFNA) (ppt)	0 Canobie	5/6/21	N/A	18	Discharge from industrial processes, wastewater treatment, residuals from firefighting foam, runoff/leachate from landfills and septic systems.	YES

EPA requires monitoring of over 80 drinking water contaminants. Those contaminants listed in the table above are the only contaminants detected in your drinking water.

Glossary of Technical Terms

PPm - Parts per million or milligrams per liter (mg/L)

PPb - Parts per billion or micrograms per liter (ug/L)

Action Level (AL) - The concentration of a contaminant which, if exceeded, triggers treatment and/or other requirements which a water system must follow.

Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCL's are enforceable standards.

Maximum Contaminant Level Goal (MCLG) - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable health goals.

Maximum Residual Disinfection 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 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.

N/A, N/R - N/A indicates Not Applicable, N/R indicates there is no current regulation covering the contaminant.

Nephelometric Turbidity Units (NTU) - Turbidity is measured with an instrument called a nephelometer. It measures turbidity in nephelometric turbidity units.

Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.

Turbidity - Water clarity. As turbidity increases, water becomes cloudy or milky as light is reflected off increasing numbers of suspended and colloidal particles.



# Southern New Hampshire Regional Water Project

The SNHRW project was originally conceived as a response to MtBE contamination that was discovered in both public and private wells within the southern tier of New Hampshire, as well as intensive drought conditions which were experienced during Summer 2016. To alleviate these growing concerns, a water main routing study on behalf of DES was commissioned to examine six potential water main routes to connect the existing public water systems in the southern tier. These options were presented at a meeting with regional stakeholders to discuss the feasibility, concerns, and next steps associated with this regional approach. The final project included extension of the existing Manchester Water Works (MWW) supply with connections through the towns of Derry, Windham, Salem, Atkinson, Hampstead, and Plaistow. Two project phases have been identified, with Phase I of the SNHRW constructing infrastructure capable of providing 1.0 million gallons per day (MGD) of flow from Manchester to the other regional partners. Phase II of the project would use the same infrastructure constructed during the initial phase and increase the total daily flow to 3.13 MGD. A regional project approach was chosen as it offered more benefits than a community-based approach. Through regionalization the project was able to gain assistance from utilizing existing public water system infrastructure to maximize the project beneficiaries. DES has estimated that Phase I will provide water supply directly to approximately 10,000 additional users, while Phase II will increase the supply for upwards of 31,000 new water users. These additional users will have the ability to connect to a clean, reliable, water system which will eliminate further contamination and supply concerns in the southern tier of New Hampshire. The SNHRW project will also indirectly be beneficial to the upwards of 200,000 existing water customers/residents within the partner communities. The additional SNHRW infrastructure also provides an effective starting point for each of the towns to expand upon in the future.



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## Drinking Water Contaminants and Vulnerable Customers

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. All drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. However, some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have recently undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly people, pregnant women and infants are examples of people who are at higher risk from drinking water contaminants. People in these groups 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. More information about contaminants and potential health effects including means to reduce the risk from microbial contaminants can be obtained by calling the USEPA safe drinking water hotline at 1-800-426-4791 or by visiting the web site of the USEPA's Office of Groundwater & Drinking Water at <http://www.epa.gov/safewater>.

## Contact Information and Opportunities for Public Input

The Town of Salem welcomes public input on the programs and activities of all Town Departments. We encourage residents to call or write the members of the Board of Selectmen, Town Manager, or the Municipal Services Department to express their concerns or interest in the operation of the Town's water utility. Please feel free to contact us with any concerns or questions.

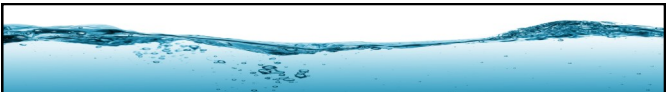
- ◆ Municipal Services Department  
(603) 890-2150
- ◆ Utilities Division  
(603) 890-2171
- ◆ Residential accounts & billing questions:  
(603) 890-2047
- ◆ Commercial accounts & billing questions:  
(603) 890-2042
- ◆ Water quality questions:  
(603) 890-2171



*Canobie Lake Train Station: The first railroad station constructed near this location was named Policy Pond after the adjacent pond, now known as Canobie Lake. In 1885 the station was reconstructed to meet the growing popularity of the area by offering passenger service along with freight. The new station was named Canobie Lake by the Railroad Commissioners in honor of Canonbie, a small village in Scotland, in recognition of local heritage at the time. The distinguished name was chosen to promote the area as a destination for vacationers and tourists, subsequently Policy Pond itself was renamed Canobie Lake.*

*Regional Water Line PRV Station at the Rail Trail Parking by Windham town line. It was designed to replicate the Canobie Lake Railroad Station that once stood near this location.*

**Fluoride:** Your water system is fluoridated. According to the Centers for Disease Control and Prevention, if your child under the age of 6 months is exclusively consuming infant formula reconstituted with fluoridated water, there may be an increased chance of dental fluorosis. Consult your child's health care provider for more information.



*Pictures courtesy of Grace Sorenson, Historical Society, Canobie Lake Protective Association, Arlington Pond Protective Association, and MWW*