

## Our Mission Continues

Once again the City of Keene is proud to present its annual water quality report, covering all testing performed between January 1 and December 31, 2022. The Public Works Operations, Laboratory, Maintenance, and Water/Sewer divisions dedicated themselves to producing and delivering high-quality drinking water that meets all state and federal standards. As new challenges to drinking water safety emerge, the City remains vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all users 24 hours a day, 7 days a week.

## Where Does My Water Come From?

The City of Keene delivers both surface and groundwater to its customers. The majority of the water comes from two surface water reservoirs located in the town of Roxbury and from four gravel packed wells located within the City on Court and West Streets. Water from the reservoir flows to the Water Treatment Facility (WTF) where it is filtered, disinfected, and made less acidic before it enters the distribution system. Well water is pumped from the Court Street and West Street aquifers. It is not filtered, but it is disinfected and made less acidic before it is distributed to your home. Although your water comes from more than one source, it all goes into the same distribution system, so you may receive different blends of water on different days.

## Community Participation

The City Council's Municipal Services, Facilities, and Infrastructure Committee is designated to address water-related issues. This committee has regular meetings at 6:00 PM on the 2nd and 4th Wednesday of each month in the City Council Chambers at City Hall, 3 Washington St. If you wish to speak with them about an issue concerning your drinking water, contact the City of Keene Clerk's office at (603) 352-0133 to attend at their next scheduled meeting.



# Annual Water Quality Report

REPORTING YEAR 2022

PRESENTED BY CITY OF KEENE



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PWS ID#: 1241010



## Source Water Assessment

In October 2002 the New Hampshire Department of Environmental Services prepared Source Water Assessment Reports for our source water, assessing the sources' vulnerability to contamination. The results of the assessments are as follows:

- Babbidge Reservoir received zero high, one medium, and 11 low susceptibility ratings.
- The Court Street Wellfield received two high, five medium, and five low susceptibility ratings.
- The West Street well site received six high, three medium, and three low susceptibility ratings.

The complete assessment report is available for review at the Keene Public Works Department. For more information, contact Benjamin Crowder, Water Treatment Facility Manager, at (603) 352-6550 or is also available online at the New Hampshire Department of Environmental Services Drinking Water Source Water Assessment Program website at <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/keene.pdf>

## Important Health Information

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 undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

## Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 for 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, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at (800) 426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

## Questions?

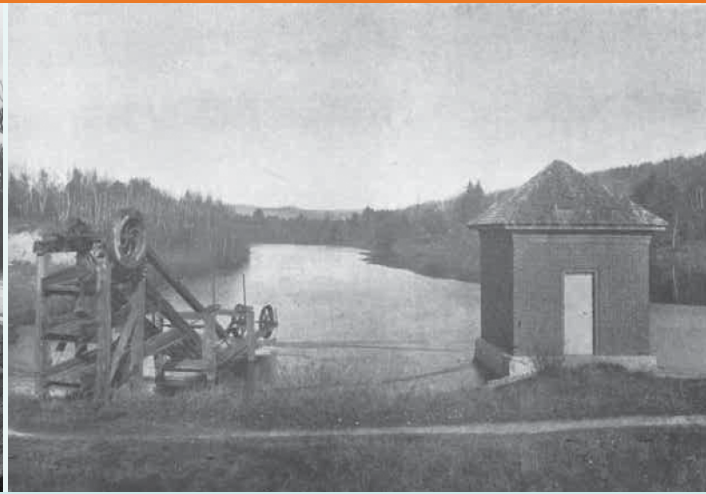
The City encourages and welcomes participation and feedback from the public. Come see how the Water Treatment Facility works - City staff invites individuals, groups, schools, and college classes to schedule a tour.

For more information about this report, to schedule a tour, or for any questions relating to your drinking water, please contact Aaron Costa, Assistant Public Works Director/Operations Manager, at (603) 357-8483, ext. 1, [acosta@keenenh.gov](mailto:acosta@keenenh.gov) or Benjamin Crowder, Water Treatment Facility Manager, at (603) 357-8483, ext. 2, [bcrowder@keenenh.gov](mailto:bcrowder@keenenh.gov).

# Infrastructure of the Past



The Octagon Reservoir was constructed in City Park on Beech Hill in 1886



Beech Hill Reservoir (Robin Hood Lake) 1872



Intercepting Dam No. 1 Roaring Brook (Quarry Dam) 1886



Intercepting Dam No. 2 Roaring Brook (Stone Dam) 1902

## Sampling Results

During the past year, staff collected hundreds of water samples in order to assess the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. The state requires the city to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine (ppm)	2022	[4]	[4]	0.88	0.11-1.66	No	Water additive used to control microbes
Haloacetic Acids [HAAs] (ppb)	2022	60	NA	22.50	3.20-38.20	No	By-product of drinking water disinfection
Perfluorooctane Sulfonic Acid [PFOS] (ppt)	2019	15	0	2.12	NA	No	Industrial manufacturing
Nitrate (ppm)	2022	10	10	0.92	0.46 - 1.3	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	2020	4	4	0.10	NA	No	Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2022	80	NA	33.23	4.30-44.40	No	By-product of drinking water disinfection
Total Organic Carbon <sup>1</sup> (ppm)	2022	TT	NA	1.23	0.91 - 1.60	No	Naturally present in the environment
Turbidity <sup>2</sup> (NTU)	2022	TT	NA	0.46	0.04 - 0.46	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2022	TT = 95% of samples meet the limit	NA	99.71	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2022	1.3	1.3	0.58	0/63	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2022	15	0	2	0/63	No	Lead service lines, corrosion of household plumbing systems, including fittings and fixtures; Erosion of natural deposits

SECONDARY SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
pH (Units)	2022	6.5 - 8.5	NA	7.4(mode)	6.9 - 9.4	No	Naturally occurring, chemically adjusted for corrosion control
Sulfate (ppm)	2022	250	NA	3.6	NA	No	Runoff/leaching from natural deposits; Industrial wastes
Sodium (ppm)	2022	250	NA	13.0	NA	No	Naturally occurring
Chloride (ppm)	2022	250	NA	3.5	NA	No	Runoff/leaching from natural deposits

UNREGULATED SUBSTANCES				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2022	2.9	NA	By-product of drinking water disinfection
Chloroform (ppb)	2022	35.9	NA	By-product of drinking water disinfection

1 The value reported under Amount Detected for Total Organ Carbon (TOC) is the lowest ratio of percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than 1 indicates that the water system is in compliance with TOC removal requirements. A value of less than 1 indicates a violation of the TOC removal requirements.

2 Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

## TERMS AND DEFINITIONS

- ug/L:** Number of micrograms of substance in one liter of water
- ppm:** parts per million, or milligrams per liter (mg/L)
- ppb:** parts per billion, or micrograms per liter (µg/L)
- ppt:** parts per trillion, or nanogram per liter (ng/L)
- mg/L:** Number of milligrams of substance in one liter of water
- pCi/L:** picocuries per liter (a measure of radioactivity)
- NTU:** Nephelometric Turbidity Units. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
- NA:** Not applicable
- ND:** Not detected
- NR:** Monitoring not required, but recommended.
- MCLG:** Maximum Contaminant Level Goal: 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.
- MCL:** Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- TT:** Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water
- AL:** Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Variations and Exemptions:** State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
- MRDLG:** Maximum residual disinfection level goal. 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.
- MRDL:** Maximum residual disinfectant level. 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.
- NR:** Monitored Not Regulated
- MPL:** State Assigned Maximum Permissible Level
- 90th %ile:** The levels reported for the lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections

## SUBSTANCES THAT COULD BE IN WATER

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 may also come from gas stations, urban stormwater runoff, and septic systems;

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

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

