

2015 WATER QUALITY REPORT

Rochester New Hampshire: The Lilac City

www.rochesternh.net

HOW IS MY WATER?

From source to tap, the City of Rochester is committed to providing our customers with the highest quality drinking water that meets or exceeds state and federal requirements. We will continue to work on your behalf to ensure delivery of a quality product. Throughout 2015 we conducted more than **2200 tests for over 175 drinking water compounds** and sampled continuously throughout the distribution system. Thank you to all the customers who helped with this program. We are pleased to inform you that the quality of your water far exceeds the standards set by state and federal regulation.

Our mission as a responsible public water system is to deliver the best-quality drinking water and reliable service at an economical cost. Aging infrastructure presents challenges to drinking water safety, and continual improvement is needed to maintain the quality of life we desire for today and for the future.

This year we completed rehabilitation of two finish water storage tanks; process and control upgrades to the surface water plant; improved our watershed management program; updated our aquifer protection ordinance; continued expanding our distribution system flushing and valve maintenance program; replaced approximately 3500 feet of water main; and repaired several service and distribution leaks.

When considering the high value we place on water, it is truly a bargain to have water service that protects public health, fights fires, supports businesses and the economy, and provides us with the high-quality of life we enjoy. Your water is a valuable, plentiful, and cost effective resource.

Did You Know?

- The Rochester Aqueduct and Water Company was incorporated in 1877 for the purpose of developing a village water system.

- The original distribution system consisted of 10 miles of water main, 1048 service connections, and 156 fire hydrants.

DRINKING WATER SOURCES

The City of Rochester consumed approximately **696 million gallons of drinking water in 2015**. The surface water treatment facility is our primary supply, which draws from the Rochester Reservoir. Water is diverted from the Berrys River watershed and stored in the reservoir and Round Pond. The City also produces drinking water from the Cocheco well treatment plant. The distribution system supplies potable water to every tap and hydrant and consists of approximately 120 miles of water main, three water storage tanks, five water booster stations and approximately 8,000 service connections.

The City of Rochester operates the surface water filtration facility **24 hours per day, seven days per week**. Our operators are required to maintain certifications and participate in training programs. Our two water treatment facilities are capable of treating approximately 5.5 million gallons of water per day. The treatment process at the surface water plant removes impurities from the water through oxidation, coagulation, flocculation, settling and filtration. Water then flows by gravity into the distribution system to your home or business. Treatment at the well consists of aeration to remove dissolved carbon dioxide and is pumped from the site into the distribution system. Both facilities add chlorine for disinfection, fluoride to promote strong teeth, sodium bicarbonate to increase the alkalinity, and blended phosphate for corrosion control.

Raw surface water quality fluctuates seasonally, with turbidity and color averaging 1.5NTU and 40ptcu; TOC from 4-7mg/l; and pH from 5.5 to 6.5. Raw groundwater quality, specifically dissolved carbon dioxide and manganese, fluctuates based on withdrawal rates.

QUESTIONS OR CONCERNS

If you are interested in a tour of the facilities or have questions on water quality and our treatment and supply systems, please call Ian Rohrbacher, Chief Operator at the Water Treatment Facility, at 335-4291 Monday through Friday 7:00am to 3:00pm. We will be pleased to answer all of your questions.

“An unsanitary water supply is a disgrace and a danger”

- William Child, MD, New Hampton, NH, 1886

WATER QUALITY MONITORING & SOURCEWATER ASSESSMENT

Water is one of the world's most precious resources and we take seriously the integrity and conservation of our supply. The NH Department of Environmental Services (DES) has prepared a Source Water Assessment Report for the source serving our community, assessing the source's vulnerability to contamination. The results of the assessment prepared on 10/29/02, are as follows: Berrys River received 1 high susceptibility rating, 3 medium susceptibility ratings and 8 low susceptibility ratings. Source water assessment information and comprehensive water quality data may be obtained from the Water Department, please call 603-335-4291 for more information or visit NH Department of Environmental Services Drinking Water and Groundwater Bureau web site at: <http://des.nh.gov/organization/divisions/water/dwgb/index.htm>

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. The United States Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

We continually refine and advance water treatment techniques in response to new regulations and our duty to provide safe and clean water for our customers. This requires us to perform extensive water sample collection and analysis for many different waterborne substances including:

pH, Color, Turbidity, Coliform, Cryptosporidium, Total Organic Carbon, Disinfection Byproducts (TTHM/HAA5), Lead and Copper, Iron, Manganese, Nitrates, Volatile/Synthetic Organic and Inorganic Chemicals, and Alkalinity.

HEALTH INFORMATION

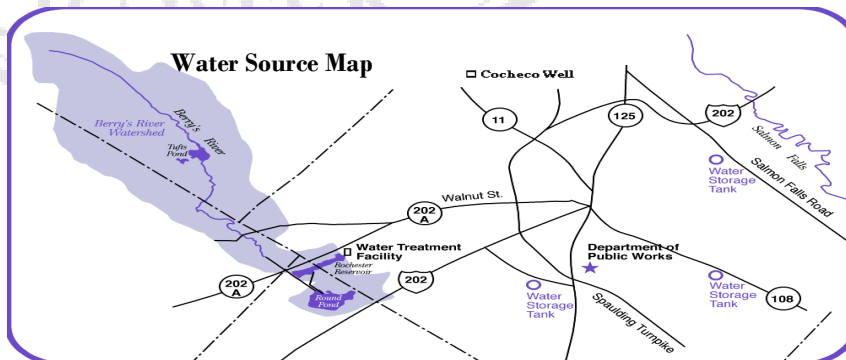
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline 800-426-4791.

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, and can pick up substances 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 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 storm water runoff, and septic systems. **Radioactive contaminants**, can be naturally occurring or be the result of the oil and gas production and mining activities. 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. The United States Food and Drug Administration (FDA) regulation establishes limits for contaminants in bottled water that must provide the same protection for public health.

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 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).

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WATER QUALITY DATA

The table on page 4 lists all drinking water contaminants we detected during the 2015 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in the table is from testing done January 1 through December 31, 2015. The state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Definitions:

Radon – EPA sets drinking water standards and has determined that radon is a health concern at certain levels of exposure. Radon is a naturally occurring radioactive contaminant that occurs in groundwater. It is a gas and is released from water into household air during water use. Radon has been found in epidemiology studies to cause lung cancer in humans at high exposure levels. At lower exposure, the risk of lung cancer is reduced. The City of Rochester is supplied by surface water and groundwater from a gravelly sand aquifer. High levels of radon are typically associated with deep bedrock wells.

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality and the effectiveness of filtration. High Turbidity can hinder the effectiveness of disinfectants.

Total Trihalomethanes – (TTHM) Some people who drink water containing TTHM in excess of the MCL over many years experience problems with their liver, kidneys or central nervous system and may have an increased risk of getting cancer.

Haloacetic Acids- (HAA5) Some people who drink water containing HAA5 in excess of the MCL over many years have an increased risk of getting cancer.

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 can not control the variety of materials 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 from 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, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://water.epa.gov/drink/info/lead/index.cfm>

Abbreviations:

MCLG – Maximum Contaminant Level Goal, or the level of a contaminant in drinking water below which there are no known or expected health risks. **MCL** – Maximum contaminant level, the highest level of a contaminant that is allowed in drinking water. **AL** - Action level, or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow. **TT** – Treatment technique, or required process intended to reduce the level of a contaminant in drinking water. **MRDLG** – Maximum residual disinfectant level goal or the level of drinking water disinfectants below which there is no known or expected health risk. **MRDL** – Maximum residual disinfectant level or the highest level of a disinfectant allowed in drinking water. **NA** – not applicable, **ND** – none detected, **NR** – not regulated, **NTU** – Nephelometric Turbidity Units, **ppm** – parts per million, **ppb** – parts per billion, **ppt**- parts per trillion, **ppq**- parts per quadrillion, **MFL** – million fibers per liter, **pCi/L** – pico curies per liter, a measurement of radioactivity.

Footnotes:

*1 Copper content in the treated water prior to entering the distribution system is **0.0285mg/L**. Corrosion of household plumbing contributes to the higher average.

*2 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 contaminant is tested for once every three years, on the corresponding dates per regulation. The next monitoring period is 2017. This water system is responsible for high quality drinking water, but can not control the variety of materials 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 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, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://water.epa.gov/drink/info/lead/index.cfm>.

*3 For TTHM and HAA5 results it is possible to get a slightly higher level at one site and still be within MCL range. This level is derived from samples taken at 4 locations, four times a year and is a running annual average of all TTHM concentrations.



CITY OF ROCHESTER, NH 2015 WATER QUALITY SUMMARY

Analyte/Contaminant	MCL	MCLG	Our Water	Violation (Y or N)	Typical Source of Contamination	Health Effects
Microbiological Contaminants						
Total Coliform Bacteria	< 40 samples >1 is positive	0	0	N	Naturally present in environment	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
Turbidity (NTU)	TT (0.3)	N/A	0% exceedence Avg: 0.065 Max: 0.093	N	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, and associated headaches.
Total Organic Carbon (TOC, mg/L)	TT	N/A	Avg: 2.1 Range: 1.7-2.8	N	Naturally present in environment	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic 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 increased risk of getting cancer.
Radioactive Contaminants						
Compliance Gross Alpha(pCi/L)-(Cocheco Well) Compliance Gross Alpha(pCi/L)-(Surface Water)	15	0	1.2 0.6	N N	Erosion of natural deposits.	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium(ug/L)-(Cocheco Well) Uranium(ug/L)-(Surface Water)	30	0	0.1 ND	N N	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.
Combined Radium 226+228 (pCi/L)-(Cocheco Well) Combined Radium 226+228 (pCi/L)-(Surface Water)	5	0	0.7 0.6	N N	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.
Inorganic Contaminants						
Chlorine (ppm) (Surface Water Plant ppm range) (Cocheco Well ppm range)	MRDL=4	MRDLG =4	0.82 1.20-2.30 0.90-1.6	N	Water additive used to control microbes	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
Copper (mg/L)* ¹	1.3mg/L (AL)	1.3	0.18	N	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives	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 Wilson's Disease should consult their personal doctor.
Lead (ppb)* ²	15ppb (AL)	0	1	N	Corrosion of household plumbing systems; Erosion of natural deposits	(15 ppb in more than 5%) Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing.
Barium (mg/L)	2	2	0.0039	N	Discharge of drillingwastes; discharge frommetal refineries;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 bloodpressure.
Fluoride (mg/L)	4	4	0.7	N	Erosion natural deposits; additive to promote strong teeth.	Your public water supply 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.
Volatile Organic Contaminants						
THMs [Total trihalomethanes] (ug/L)* ³	80ug/L	N/A	Avg: 49 Range: 1.9-120	N	By-product of drinking water chlorination	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 systems, and may have an increased risk of getting cancer.
HAAs [Haloacetic Acids] (ug/L)* ³	60ug/L	N/A	Avg: 36 Range: 1-68	N	By-product of drinking water chlorination	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
Unregulated Contaminants (UCMR3)						
Analyte	Average (Range)	Reporting Detection Limit	What is the Unregulated Contaminant Monitoring Rule? Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of unregulated contaminants monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. The 1996 amendments to the Safe Drinking Water Act (SDWA) require that once every five years, the U.S. Environmental Protection Agency (EPA) issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems (PWSs).			
Chromium (ug/L)	0.3 (0.2-0.4)	0.2				
Strontium (ug/L)	27.3 (19.3-42.3)	0.3				
Chromium VI (ug/L)	0.07 (0.04-0.10)	0.03				
Chlorate (ug/L)	120 (70-160)	20				

Finished water production typically enters the distribution system at less than 0.030NTU, 0ptcu, <1.9mg/l TOC, 7.3 pH, 1.60 mg/l free chlorine, 0.03 mg/L manganese, and a hardness of 20-30 mg/l.