2021 Drinking Water Consumer Confidence Report (Supplemental Data)

CITY OF ROCHESTER, NEW YORK

Introduction

The Rochester Water Bureau has prepared the following report to provide information to you, the consumer, on the quality of our drinking water. Included within this report is general health information, water quality test results, and water system contacts.

This year, as in years past, your tap water met all USEPA and state drinking water health standards. Our system vigilantly safeguards its surface water supply, and we are able to report that the department had no violation of a contaminant level or of any other water quality standard in the previous year. This report summarizes the quality of water that we provided last year, including details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. We are committed to providing you with this information because informed customers are our best allies.

Source Water Information.

The City of Rochester Distribution System receives its drinking water from the Hemlock and Shoremont Water Filtration Plants located in Livingston and Monroe Counties.

What are sources of contamination to drinking water?

The sources of drinking water for Rochester are Hemlock Lake, Canadice Lake and Lake Ontario. The City also maintains three storage reservoirs. 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 substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

(A) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations

(B) 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.

(C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

(D) 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

(E) Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities

In order to ensure that tap water is safe to drink, USEPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The presence of some contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

About your drinking water and the data in this report.

The EPA requires regular sampling to ensure drinking water safety. The City of Rochester Water Bureau conducts sampling for bacteriological; inorganic; radiological; synthetic organic and volatile organic contaminants. Samples were collected in 2021 for almost 200 different contaminants most of which were not detected in the City of Rochester water supply. The EPA requires us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, is more than one year old.

2021 Lead and Copper Survey.

The lead and copper rule is one of the many federal and state regulations that exist to ensure the quality and safety of everyone’s drinking water. The City of Rochester Public Water Supply is in compliance with these regulations. The City of Rochester is required by the EPA and the State of New York to sample for lead and copper every three years. This involved analysis of 105 samples collected from the distribution system. Samples were collected from locations where the highest levels of these contaminants were likely to be found. The most recent survey was completed in 2021 with the collection of 105 tap water samples from homes throughout the CIty. The 90th percentile for lead was 9 ug/L with a range from <1 ug/L to a maximum of 33 ug/L. The 90th percentile for copper was 268 ug/L with a range from 8 ug/L to a maximum of 660 ug/L. Both 90th percentiles are below the current action levels for lead and copper (90th percentile: 90% of samples were at, or below, the value reported).

Unregulated Contaminant Monitoring Rule 4 (UCMR4).

The 1996 Safe Drinking Water Act (SDWA) amendments require that once every five years EPA issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems. UCMR4 was published on December 20,2016 and required public water systems to participate in monitoring between 2018 and 2020. The monitoring results provided the basis for future regulatory actions to protect public health. The City of Rochester partcipated in UCMR4 in 2018 and 2019.

Quality Assurance - Reliability and Accuracy of Reported Data

A quality assurance program is necessary for all drinking water laboratories to document analytical uncertainty and to promote confidence in analytical results. Our Quality Assurance Program consists of two parts: Quality Control and Quality Assessment. Our Quality Control program consists of laboratory practices that are undertaken to insure accuracy and reliability in analytical results. Our Quality Assessment program consists of activities to monitor and document the effectiveness of our Quality Control Program. Assessment activities include quarterly data integrity audits, annual quality system audits, participation in proficiency test programs twice per year and biannual audits conducted by a New York State DOH ELAP auditor.

The City of Rochester Water Quality Laboratory (New York State Department of Health Lab ID#10239) is approved as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (NELAC; 2003) for the Category ENVIRONMENTAL ANALYSIS POTABLE AND NON-POTABLE WATER. All tests results generated for this report were performed in accordance with approved methods by the City of Rochester Water Quality Laboratory or by a NELAC contract laboratories certified for the analysis of potable and non-potable water. Monroe County Water Authority data is provided courtesy of the MCWA Water Quality Laboratory.

For more information on your drinking water contact:

Hemlock Filtration Plant Water Quality Laboratory at 585-428-6680 ext 1
Laboratory Director/Water Quality Chemist at 585-428-6011
New York State Department of Health at 1-800-458-1158 (within New York State)
EPA Safe Drinking Water Hotline at 1-800-426-4791
Monroe County Water Authority at 585-442-2000

Definitions of some terms contained within this report.

Entry Point/Distribution Sytem/Source Water:	Samples analyzed for this report were collected at the Entry Point (Water leaving the filtration plant), from the source (Hemlock Lake), or within the Distribution System (Network of pipes and storage facilities downstream of the filtration plant that are used to deliver potable water to the consumer). Entry Point and Distribution System = Potable Water; Source Water = Non-potable 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. MCLGs allow for a margin of safety. MCLG's are not enforceable.
Maximum Contaminant level (MCL):	The highest level of contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology. MCLs are enforceable.
Secondary MCL:	A secondary standard is a non-enforceable guidline that may cause aesthetic effects such as changes to the taste, odor or color of drinking water.
Action Level (AL):	The concentrations of a contaminant, which, when exceeded triggers additional treatment, or other requirements, that a water system must follow.
LRAA:	The annual average contaminant concentration at a monitoring site. A.k.a. Locational Running Annual Average.
Maximum Residual Disinfectant Level (MRDL):	The highest level of disinfectant that is allowed in drinking water.
MFL:	Millions of fibers per liter. A units of measure for absestos fibers longer than 10 micrometers.
Milligrams per Liter (mg/L):	A unit of measure for concentration of a contaminant that is also refered to as parts per million.. Anology: 8.34 pounds per million gallons.
Micrograms per Liter (µg/L):	A unit of measure for concentration of a contaminant that is also refered to as parts per billion. Anology: 1 pound per 120 million gallons.
Nanograms per Liter (ng/L):	A unit of measure for concentration of a contaminant that is also refered to as parts per trillion. Anology: 1 ounce per 7.5 billion gallons.
NTU:	Nephelometric turbidity units. A measure of water clarity. Turbidity in excess of 5 NTU is just noticeable to the average person.
Treatment Technique (TT):	A required process intended to reduce the level of a contaminant in drinking water.
The "<"symbol and ND	A symbol which means less than. A result of < 5, for example, means that the result is below the reporting limit for the analytical method. Essentially means the same thing as not detected "ND".
NA or N/A	not applicable

Monitoring Results

The City of Rochester had no reporting violations in 2021

This summary contains results for both detected and non-detected contaminants. Information on health effects is provided for detected contaminants only.

Entry Point Radiological Contaminants

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL**	**Violation**	**No. Tests**	**Minimum**	**Avg**	**Maximum**
Alpha emitters (pCi/L)	2019	1		ND		0	15	N	1 (2012)		ND	
Beta emitters (pCi/L)	2019	1		ND		0		N	1 (2012)		ND	
Uranium, Total (pCi/L)	2019	1		ND		0	30	N	1 (2012)		ND	
Combined Radium 226+228 (pCi/L)	2019	1		1.11 ± 0.54		0	5	N	1 (2012)		ND	
Health Effect:	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. The reported result was at the minimum reporting level for the analysis and is well below the MCL. The mininmum reporting level is the lowest concentration that is detectable by the analytical method.											

Entry Point Microbiological Contaminants

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	**Sample Year**	**No. Tests**		**Total No. Positive**	**% Positive**	**MCLG**	**MCL**	**Violation**	**No. Tests**		**Total No. Positive**	**% Positive**
Finished Water Coliform, Total (P/A)	2021	365		0	0.0	N/A	TT	N	http://www.mcwa.com/			
E.Coli (P/A)	2021	365		0	0.0	0	0	N	http://www.mcwa.com/			
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL**	**Violation**	**No. Tests**	**Minimum**	**Avg**	**Maximum**
Raw Water Cryptosporidium (Oocysts/L)	2021	1		0.00		0	TT	N	4		ND	
Raw Water Giardia (Oocysts/L)	2021	1		0.00		0	TT	N	4		ND	
Heterotrophic Plate Count/HPC (mpn/mL)	2021	364	<2	<2	62.00	N/A	TT	N	http://www.mcwa.com/			
Finished Water Turbidity (NTU)	2021	2,182	0.02	0.05	0.10		TT (mo. avg <0.3NTU for 95% of samples)	N	2,190	0.02	0.04	0.09
Health Effect:	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.											

Distribution System Microbiological Contaminants

Contaminant (units)	**Sample Year**	**No. Tests**	**Total No. Positive**	**Highest Month % Positive**	**% Positive Annual Avg**	**MCLG**	**MCL**	**Violation**
Coliform, Total (P/A)	2021	1,880	4	1.2 (10/2021)	0.2	N/A	TT	N
Health Effect:	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 NOT found in more samples than allowed.							
E. Coli (P/A)	2021	1,880	0	0	0.0			N
Cyptosporidium and Giardia samples collected from reservoir effluent PRIOR to chlorination								
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL**	**Violation**
Highland Reservoir Cryptosporidium (Oocysts/L)	2021	26	0.00	0.00	0.02	0	TT	N
Health Effect:	Gastrointestinal Illness. Cryptosporidium and Giardia samples are collected from reservoir effluent PRIOR to chlorination twice per month (Uncovered open water reservoir exposed to the environment). Cryptospordium was deteteced at a very low concentration in one sample collected from Highland Reservoir in January 2021. Sampling was conducted weekly for the remainder of the month and no additional detections were observed.							
Highland Reservoir Giardia (Oocysts/L)	2021	26	0.00	0.00	0.00	0	TT	N
Cobbs Hill Reservoir Cryptosporidium (Oocysts/L)	2021	24	0.00	0.00	0.00	0	TT	N
Cobbs Hill Reservoir Giardia (Oocysts/L)	2021	24	0.00	0.00	0.00	0	TT	N
Turbidity (NTU)	2021	1,935	<0.1	0.10	0.85		TT (mo. avg <5NTU)	N

Entry Point Inorganic Contaminants (IOCs)

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL**	**Violation**	**No. Tests**	**Minimum**	**Avg**	**Maximum**
Alkalinity (mg/L)	2021	5	68	71	75		15	N	4	90	90	91
Health Effect:	Alkalinity has no health effect. It is a measure of a waters ability to neutralize acid.											
Calcium (mg/L)	2021	5	25	26	27		15	N	4	33	34	34
Health Effect:	Calcium is a beneficial nutrient found in potable water. Multiplying the calcium concentration by 2.5 converts the result to a value expressed as mg/L of calcium hardness (as CaCO3). Calcium hardness can contribute to scale formation on plumbing fixtures.											
Chloride (mg/L)	2021	5	34	38	41		15	N	4	26	29	37
Health Effect:	Low to moderate concentrations of chloride add palatability to water. The EPA Secondary Drinking Water Regulations recommend a maximum concentration of 250 mg/L for chloride. At this concentration water may taste salty.											
Sulfate (mg/L)	2021	5	12	13	13		15	N	4	26	27	27
Health Effect:	Low to moderate concentrations of sulfate add palatability to water. The EPA Secondary Drinking Water Regulations recommend a maximum concentration of 250 mg/L for sulfate. At this concentration water may taste salty.											
Color (True) (Color Unit)	2021	1		<5			15	N	4		ND	
Fluoride (mg/L)	2021	1,086	0.09	0.69	0.77	2.2	2.2	N	2,184	0.34	0.73	0.90
Health Effect:	Fluoride has been shown to prevent tooth decay at the levels that exist within our distribution system. Fluoride occurs naturally (0.10 mg/L in Hemlock Lake) and is added as a treatment chemical. The average fluoride concentration within our water supply is 3 times lower than the NYS MCL. Some people who drink water containing fluoride in excess of 4 mg/L over many years could get bone disease, including pain and tenderness of the bones.											

Entry Point Inorganic Contaminants (IOCs)

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL**	**Violation**	**No. Tests**	**Minimum**	**Avg**	**Maximum**
ortho-Phosphate (mg/L)	2021	1		<0.05				N			NA	
Nitrate (mg/L)	2021	10	<0.01	0.07	0.15	10	10	N	4	0.21	0.28	0.35
Health Effect:	Infants below the age of six 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.											
Nitrite (mg/L)	2021	4	<0.01	<0.01	<0.01			N	4		ND	
pH (SU)	2021	365	7.37	7.82	8.10		6.5-8.5 SU	N	365	7.1	7.5	7.8
Health Effect:	There is no health effect for pH. The EPA Secondary Drinking Water Regulations recommend a range of 6.5-8.5 SU for pH. Low pH can results in a bitter metallic taste and increased corrosivity; High pH can results in a soda taste and contribute to scale formation.											
Total Hardness (mg/L)	2021	1		89			NA	N	4	120	120	120
Health Effect:	No health effect is associated with total hardness. Total hardness is the sum of both calcium and magnesium hardness and is expressed in mg/L. Total hardness is sometimes expressed in grains per gallon (gpg). The grains of hardness in City water is 5 gpg.											
Finished Water Specific Conductivity (umhos/cm)	2021	363	227	296	350		NA	N	49	290	301	310
Health Effect:	Conductivity is a measure of the waters ability to carry and electrical current and is correlated with the amount of total dissolved solids in the water. Conductivity is dependent on source water quality and is used by the water quality laboratory to differentiate between drinking water sourced from Hemlock Lake and Lake Ontario within the distribution system.. The conductivity of potable water sourced from Lake Ontario is approximatley 20 umhos/cm higher than potable water from sourced from He											
Total Dissolved solids (mg/L)	2021	1		180			500	N	4	160	170	190
Health Effect:	Contributes to the hardness, color and taste of the water. The EPA has established a secondary maximum contaminant level concentration of 500 mg/L for TDS.											
Iron (mg/L)	2021	1		<0.020				N	4		ND	
Magnesium (mg/L)	2021	1		6.3			NA	N	1		9.0	
Health Effect:	Magnesium is a beneficial nutrient found in potable water. Multiplying the magnesium concentration by 2.5 converts the result to a value expressed as mg/L of magnesium hardness (as MgCO3). Magnesium hardness can contribute to scale formation on plumbing fixtures.											
Potassium (mg/L)	2021	1		1.6				N	1		1.3	
Health Effect:	Potassium is an essential nutrient and is present in very low levels in drinking water.											
Sodium (mg/L)	2021	1		19			50	N	4	15	16	16
Health Effect:	Sodium is an essential nutrient in small levels. People on severely restricted sodium diets should avoid drinking water containing more than 20 mg/L sodium. Water containing more than 270 mg/L of sodium should not be used for drinking by people on moderately restricted sodium diets.											
Aluminum (ug/L)	2021	1		7.6			200	N	4	30	66	140
Health Effect:	High levels of aluminum can lead to colored water. The EPA Secondary Drinking Water Regulations recommend a maximum concentration of 0.2 mg/L (=200 ug/L) for aluminum.											
Antimony (ug/L)	2021	1		<1.0		6	6	N	4		ND	
Arsenic (ug/L)	2021	1		<1.0		0	10	N	4		ND	

Entry Point Inorganic Contaminants (IOCs)

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL**	**Violation**	**No. Tests**	**Minimum**	**Avg**	**Maximum**
Barium (ug/L)	2021	1		16		2000	2000	N	4	19	20	23
Health Effect:	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.											
Beryllium (ug/L)	2021	1		<0.3		4	4	N	4		ND	
Cadmium (ug/L)	2021	1		<0.5		5	5	N	4		ND	
Chromium, Total (ug/L)	2021	1		<0.9		100	100	N	4		ND	
Copper (ug/L)	2021	1		6		1300	1300	N	4		ND	
Health Effect:	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.											
Cyanide (mg/L)	2021	1		<0.020		0.2	0.2	N	4		ND	
Lead (ug/L)	2021	1		<1		0	15	N	4		ND	
Manganese (ug/L)	2021	2		<2.0			50	N	4		ND	

Entry Point Inorganic Contaminants (IOCs)

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL**	**Violation**	**No. Tests**	**Minimum**	**Avg**	**Maximum**
Nickel (ug/L)	2021	1		<1.0			100	N	4		ND	
Selenium (ug/L)	2021	1		<2.0		50	50	N	4		ND	
Silver (ug/L)	2021	1		<0.5			100	N	4		ND	
Thallium (ug/L)	2021	1		<0.30		0.5	2	N	4		ND	
Zinc (ug/L)	2021	1		<5.0			5000	N	4		ND	
Mercury (ug/L)	2021	1		<0.1		2	2	N	4		ND	
Silica (mg/L)	2021	0		NA		NA	NA	N	4	0.36	0.5	0.67
Health Effect:	Unregulated contaminant. Exposure to silica in drinking water has not been reported to cause human health effects.											

Distribution System Inorganic Contaminants

Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL**	**Violation**
Distribution System Fluoride (mg/L)	2021	330	0.48	0.67	0.77	2.2	2.2	N
1776 Dewey Ave Asbestos (MFL)	2014	1		ND		7	7	N

Lead and Copper Survey (Distribution System)

Contaminant (units)	**Sample Year**	**No. Samples**	**Minimum**	**90th %**	**Maximum**	**MCLG**	**AL**	**Violation**
Copper (ug/L)	2021	105	8	268	660	1300	1300	N
Health Effect:	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 (ug/L)	2021	105	<1	9.0	33	0	15	N
Health Effect:	Infants and children who drink water containing lead could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.							

Entry Point Disinfectants and Disinfection By-Products

Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL (MRDL for Chlorine)**	**Violation**
Total Organic Carbon (TOC) (mg/L)	2021	6	2.27	2.55	2.70	N/A	TT	N
Health Effect:	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).							
UV254 (abs/cm)	2021	1		0.038			NA	N
Health Effect:	There is no health hazard associated with UV-254.							
Free Chlorine Residual (mg/L)	2021	2,171	0.46	0.91	1.67	4	4	N
Health Effect:	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.							
Bromodichloromethane (ug/L)	2021	1		2.7			NA	N

Entry Point Disinfectants and Disinfection By-Products

Contaminant (units)	Sample Year	No. Tests	Minimum	Avg	Maximum	MCLG	MCL (MRDL for Chlorine)	Violation
Bromoform (ug/L)	2021	1		<0.5			NA	N
Chloroform (ug/L)	2021	1		6.9			NA	N
Dibromochloromethane (ug/L)	2021	1		0.5			NA	N
Total Trihalomethanes (ug/L)	2021	1		10			80	N
Health Effect:	Increased risk of cancer associated with long-term exposure above the MCL.							
Dibromoacetic Acid (ug/L)	2021	1		<1.0			NA	N
Dichloroacetic Acid (ug/L)	2021	1		5.4			NA	N
Monobromoacetic Acid (ug/L)	2021	1		<1.0			NA	N
Monochloroacetic Acid (ug/L)	2021	1		<2.0			NA	N
Trichloroacetic Acid (ug/L)	2021	1		4.2			NA	N
Haloacetic Acids (5) (ug/L)	2021	1		10			60	N
Health Effect:	Increased risk of cancer associated with long-term exposure above the MCL							

Distribution System Disinfectants and Disinfection By-Products

Contaminant (units)	Sample Year	No. Tests	Minimum	Avg	Maximum	MCLG	MCL (MRDL for Chlorine)	Violation	Maximum LRAA
Free Chlorine Residual (mg/L)	2021	2,949	<0.10	0.81	1.88	4	4	N	
Health Effect:	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.								
Bromodichloromethane (ug/L)	2021	32	7	10	14		NA	N	
Bromoform (ug/L)	2021	32	0	0	1		NA	N	
Chloroform (ug/L)	2021	32	9	33	52		NA	N	
Dibromochloromethane (ug/L)	2021	32	2	3	5		NA	N	
Total Trihalomethanes (ug/L)	2021	32	20	46	69		80	N	50
Health Effect:	Increased risk of cancer associated with long-term exposure above the MCL.								
Dibromoacetic Acid (ug/L)	2021	32	0	0	0		NA	N	
Dichloroacetic Acid (ug/L)	2021	32	3	13	24		NA	N	
Monobromoacetic Acid (ug/L)	2021	32	0	0	0		NA	N	
Monochloroacetic Acid (ug/L)	2021	32	0	0	5		NA	N	
Trichloroacetic Acid (ug/L)	2021	32	3	14	25		NA	N	
Haloacetic Acids (5) (ug/L)	2021	32	6	27	47		60	N	34
Health Effect:	Increased risk of cancer associated with long-term exposure above the MCL								

Entry Point Semi-Volatile Organic Contaminants (SVOCs)

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	Sample Year	No. Tests	Minimum	Avg	Maximum	MCLG	MCL***	Violation	No. Tests	Minimum	Avg	Maximum
1,2-Dibromo-3-Chloropropane (DBCP) (ug/L)	2021	1		<0.01		0	0.2	N	4		ND	
1,2-Dibromoethane (EDB) (ug/L)	2021	1		<0.01		0	0.05	N	4		ND	
Aroclor 1016 (PCB's) (ug/L)	2021	1		<0.08			NA	N	0			
Aroclor 1221 (PCB's) (ug/L)	2021	1		<0.19			NA	N	0			
Aroclor 1232 (PCB's) (ug/L)	2021	1		<0.23			NA	N	0			
Aroclor 1242 (PCB's) (ug/L)	2021	1		<0.26			NA	N	0			
Aroclor 1248 (PCB's) (ug/L)	2021	1		<0.1			NA	N	0			
Aroclor 1254 (PCB's) (ug/L)	2021	1		<0.1			NA	N	0			
Aroclor 1260 (PCB's) (ug/L)	2021	1		<0.2			NA	N	0			
Total PCB's (ug/L)	2021	1		ND		0	0.5	N	4		ND	
Chlordane (ug/L)	2021	1		<0.1		0	2	N	4		ND	
Toxaphene (ug/L)	2021	1		<1.0		0	3	N	4		ND	
2,4-D (ug/L)	2021	1		<0.1			50	N	4		ND	
Dalapon (ug/L)	2021	1		<1.0		200	200	N	4		ND	
Dacthal, mono & di acid, DCPA (ug/L)	2021	1		<0.5			50	N	4		ND	
Dicamba (ug/L)	2021	1		<0.1			50	N	4		ND	
Dinoseb (ug/L)	2021	1		<1.0		7	7	N	4		ND	
Pentachlorophenol (ug/L)	2021	1		<0.04		0	1	N	4		ND	
Picloram (ug/L)	2021	1		<0.1		500	500	N	4		ND	
2,4,5-TP (Silvex) (ug/L)	2021	1		<0.1		50	50	N	4		ND	
Alachlor (ug/L)	2021	1		<0.1		0	2	N	4		ND	
Aldrin (ug/L)	2021	1		<0.1			50	N	4		ND	

Entry Point Semi-Volatile Organic Contaminants (SVOCs)

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL*****	**Violation**	**No. Tests**	**Minimum**	**Avg**	**Maximum**
Atrazine (ug/L)	2021	1		<0.1		3	3	N	4		ND	
Benzo(a)pyrene (ug/L)	2021	1		<0.02		0	0.2	N	4		ND	
gama-BHC (Lindane) (ug/L)	2021	1		<0.02		0.2	0.2	N	4		ND	
Butachlor (ug/L)	2021	1		<0.1			50	N	4		ND	
Dieldrin (ug/L)	2021	1		<0.1			50	N	4		ND	
Di(2-ethylhexyl) adipate (ug/L)	2021	1		<0.6		400	400	N	4		ND	
Di(2-ethylhexyl) phthalate (ug/L)	2021	1		<0.6		0	6	N	4		ND	
Endrin (ug/L)	2021	1		<0.01		2	2	N	4		ND	
Heptachlor (ug/L)	2021	1		<0.04		0	0.4	N	4		ND	
Heptachlor epoxide (ug/L)	2021	1		<0.02		0	0.2	N	4		ND	
Hexachlorobenzene (ug/L)	2021	1		<0.1		0	1	N	4		ND	
Hexachlorocyclopentadiene (ug/L)	2021	1		<0.1		50	50	N	4		ND	
Methoxychlor (ug/L)	2021	1		<0.1		40	40	N	4		ND	
Metolachlor (ug/L)	2021	1		<0.1			50	N	4		ND	
Metribuzin (ug/L)	2021	1		<0.1			50	N	4		ND	
Propachlor (ug/L)	2021	1		<0.1			50	N	4		ND	
Simazine (ug/L)	2021	1		<0.10		4	4	N	4		ND	
Aldicarb (ug/L)	2021	1		<0.5			50	N	4		ND	
Aldicarb sulfone (ug/L)	2021	1		<0.7			50	N	4		ND	
Aldicarb sulfoxide (ug/L)	2021	1		<0.5			50	N	4		ND	
Carbaryl (ug/L)	2021	1		<0.5			50	N	4		ND	
Carbofuran (ug/L)	2021	1		<0.9		40	40	N	4		ND	
3-Hydroxycarbofuran (ug/L)	2021	1		<0.5			50	N	4		ND	
Methomyl (ug/L)	2021	1		<0.5			50	N	4		ND	
1-Naphthol (ug/L)	2021	1		<1.0			50	N	4		ND	
Oxamyl (ug/L)	2021	1		<1.0		200	200	N	4		ND	
Glyphosate (ug/L)	2021	1		<6.0		700	700	N	4		ND	
Endothall (ug/L)	2021	1		<9.0		100	100	N	4		ND	
Diquat (ug/L)	2021	1		<0.4		20	20	N	4		ND	
2,3,7,8-TCDD (Dioxin) (pg/L)	2021	1		ND		0	30	N	4		ND	
1,4-Dioxane (ug/L)	2021	1		<0.07			1.0	N	4		ND	
Perfluorooctane sulfonate (PFOS) (ng/L)	2021	2		<1.80			10.0	N	4	2.4	2.7	2.8
Perfluorooctanoic acid (PFOA) (ng/L)	2021	2		<1.80			10.0	N	4	2.1	2.2	2.3
Health Effect for Perfluorinated Alkyl Acids:	PFOA and PFOS are linked with serious health effects including cancer, hormone disruption, liver and kidney damage, developmental and reproductive harm, changes in serum lipid levels, and immune system toxicity. These chemicals are associated with cancer and developmental harm. The levels of PFOA/PFOS detected by the Monroe County Water Authority is well below PFOA/PFOS exposures associated with these health effects.											

Entry Point Volatile Organic Contaminants (VOCs)

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCLG**	**MCL*****	**Violation**	**No. Tests**	**Minimum**	**Avg**	**Maximum**
Benzene (ug/L)	2021	1		<0.5		0	5	N	4		ND	
Bromobenzene (ug/L)	2021	1		<0.5			5	N	4		ND	
Bromochloromethane (ug/L)	2021	1		<0.5			5	N	4		ND	
Bromomethane (ug/L)	2021	1		<0.5			5	N	4		ND	
n-Butylbenzene (ug/L)	2021	1		<0.5			5	N	4		ND	
sec-Butylbenzene (ug/L)	2021	1		<0.5			5	N	4		ND	
tert-Butylbenzene (ug/L)	2021	1		<0.5			5	N	4		ND	
Carbon tetrachloride (ug/L)	2021	1		<0.5		0	5	N	4		ND	
Chlorobenzene (ug/L)	2021	1		<0.5			5	N	4		ND	
Chloroethane (ug/L)	2021	1		<0.5			5	N	4		ND	
Chloromethane (ug/L)	2021	1		<0.5			5	N	4		ND	
2-Chlorotoluene (ug/L)	2021	1		<0.5			5	N	4		ND	
4-Chlorotoluene (ug/L)	2021	1		<0.5			5	N	4		ND	
Dibromomethane (ug/L)	2021	1		<0.5			5	N	4		ND	
1,2-Dichlorobenzene (ug/L)	2021	1		<0.5			5	N	4		ND	
1,3-Dichlorobenzene (ug/L)	2021	1		<0.5			5	N	4		ND	
1,4-Dichlorobenzene (ug/L)	2021	1		<0.5			5	N	4		ND	

Entry Point Volatile Organic Contaminants (VOCs)

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	Sample Year	No. Tests	Minimum	Avg	Maximum	MCLG	MCL***	Violation	No. Tests	Minimum	Avg	Maximum
Dichlorodifluoromethane (ug/L)	2021	1		<0.5			5	N	4		ND	
1,1-Dichloroethane (ug/L)	2021	1		<0.5		0	5	N	4		ND	
1,2-Dichloroethane (ug/L)	2021	1		<0.5		0	5	N	4		ND	
1,1-Dichloroethylene (ug/L)	2021	1		<0.5		5	5	N	4		ND	
cis-1,2-Dichloroethylene (ug/L)	2021	1		<0.5		5	5	N	4		ND	
trans-1,2-Dichloroethylene (ug/L)	2021	1		<0.5		5	5	N	4		ND	
Dichloromethane (ug/L)	2021	1		<0.5		0	5	N	4		ND	
1,2-Dichloropropane (ug/L)	2021	1		<0.5		0	5	N	4		ND	
1,3-Dichloropropane (ug/L)	2021	1		<0.5			5	N	4		ND	
2,2-Dichloropropane (ug/L)	2021	1		<0.5			5	N	4		ND	
1,1-Dichloropropylene (ug/L)	2021	1		<0.5			5	N	4		ND	
cis-1,3-Dichloropropylene (ug/L)	2021	1		<0.5			5	N	4		ND	
trans-1,3-Dichloropropylene (ug/L)	2021	1		<0.5			5	N	4		ND	
1,3-Dichloropropylene, cis & trans (ug/L)	2021	1		<0.5			5	N	4		ND	
Ethyl benzene (ug/L)	2021	1		<0.5		5	5	N	4		ND	
Hexachlorobutadiene (ug/L)	2021	1		<0.5			5	N	4		ND	
Isopropylbenzene (ug/L)	2021	1		<0.5			5	N	4		ND	
4-Isopropyltoluene (ug/L)	2021	1		<0.5			5	N	4		ND	
Methyl-t-butyl ether (MTBE) (ug/L)	2021	1		<0.5			10	N	4		ND	
Naphthalene (ug/L)	2021	1		<0.5			5	N	4		ND	
n-Propylbenzene (ug/L)	2021	1		<0.5			5	N	4		ND	
Styrene (ug/L)	2021	1		<0.5			5	N	4		ND	
1,1,1,2-Tetrachloroethane (ug/L)	2021	1		<0.5			5	N	4		ND	
1,1,2,2-Tetrachloroethane (ug/L)	2021	1		<0.5			5	N	4		ND	
Tetrachloroethylene (ug/L)	2021	1		<0.5		0	5	N	4		ND	
Toluene (ug/L)	2021	1		<0.5			5	N	4		ND	
1,2,3-Trichlorobenzene (ug/L)	2021	1		<0.5			5	N	4		ND	
1,2,4-Trichlorobenzene (ug/L)	2021	1		<0.5		5	5	N	4		ND	
1,1,1-Trichloroethane (ug/L)	2021	1		<0.5		5	5	N	4		ND	
1,1,2-Trichloroethane (ug/L)	2021	1		<0.5		3	3	N	4		ND	
Trichloroethylene (ug/L)	2021	1		<0.5		0	5	N	4		ND	

Entry Point Volatile Organic Contaminants (VOCs)

		Hemlock Water Filtration Plant							Monroe County Water Authority			
Contaminant (units)	Sample Year	No. Tests	Minimum	Avg	Maximum	MCLG	MCL***	Violation	No. Tests	Minimum	Avg	Maximum
Trichlorofluoromethane (ug/L)	2021	1		<0.5			5	N	4		ND	
1,2,3-Trichloropropane (ug/L)	2021	1		<0.5			5	N	4		ND	
1,2,4-Trimethylbenzene (ug/L)	2021	1		<0.5			5	N				
1,3,5-Trimethylbenzene (ug/L)	2021	1		<0.5			5	N				
Vinyl chloride (ug/L)	2021	1		<0.2		0	2	N				
1,2-Xylene (ug/L)	2021	1		<0.5			5	N				
1,3 + 1,4-Xylene (ug/L)	2021	1		<0.5			5	N				
Xylenes, Total (ug/L)	2021	1		<0.5			15	N				

Entry Point Taste and Odor Causing Chemicals

Contaminant (units)	Sample Year	No. Tests	Minimum	Avg	Maximum	MCLG	MCL	Violation
Geosmin (ng/L)	2021	1		<2.0			NA	N
IBMP (ng/L)	2021	1		<2.0				N
IPMP (ng/L)	2021	1		<2.0				N
MIB (ng/L)	2021	1		<2.0			NA	N
2,4,6-Trichloroanisole (TCA) (ng/L)	2021	1		<2.0				N

Entry Point Surfactants

Contaminant (units)	Sample Year	No. Tests	Minimum	Avg	Maximum	MCLG	MCL	Violation
Foaming Agents (MBAS) (mg/L)	2021	1		ND				N

Emerging Unregulated Contaminants (Entry Point)						
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**MCL**
Chromium, Hexavalent (ug/L)	2021	1		0.022		NA
Health Effect:	A maximum contaminant level has not been established for this contaminant. Studies are still being conducted to determine an MCL for hexavalent chromium. Chromium exists in water in two forms (trivalent and hexavalent). Total chromium, which is reported in the IOC Table, is regulated and has an MCL of 100 ug/L. Total chromium is a measure of both forms and was not detected at the entry point.					
Perfluoroundecanoic acid (PFUnA) (ng/L)	2021	1		<1.80		NA
Perfluorohexanoic acid (PFHxA) (ng/L)	2021	1		<1.80		NA
Perfluorododecanoic acid (PFDoA) (ng/L)	2021	1		<1.80		NA
Perfluorodecanoic acid (PFDA) (ng/L)	2021	1		<1.80		NA
Perfluorohexanesulfonic acid (PFHxS) (ng/L)	2021	1		<1.80		NA
Perfluorobutanesulfonic acid (PFBS) (ng/L)	2021	1		<1.80		NA
Perfluoroheptanoic acid (PFHpA) (ng/L)	2021	1		<1.80		NA
Perfluorononanoic acid (PFNA) (ng/L)	2021	1		<1.80		NA
Perfluorotetradecanoic acid (PFTeDA) (ng/L)	2021	1		<1.80		NA
Perfluorotridecanoic acid (PFTrDA) (ng/L)	2021	1		<1.80		NA

Algal Toxins - Total Microcystins for Entry Point						
Contaminant (units)	**Sample Year**	**No. Tests**	**Minimum**	**Avg**	**Maximum**	**Health Advisory Level**
Entry Point- Plant (ug/L)	2021	15	<0.30	<0.30	<0.30	0.30
Entry Point- Big Tree (ug/L)	2021	9	<0.30	<0.30	<0.30	0.30

UCMR4 Entry Points - Alcohols, Metals, Pesticides, SVOCs and Cyanototoxins**- 2019/2020							
Contaminant	**Units**	**Hemlock Water Filtration Plant**			**MCWA - Mt. Read Blvd. Booster Pump**		
		No. Tests	**Minimum**	**Maximum**	**No. Tests**	**Minimum**	**Maximum**
Germanium	ug/L	3	<0.300	<0.300	3	<0.300	<0.300
Manganese	ug/L	3	<0.400	<0.400	3	<0.400	0.776
alpha-Hexachlorocyclohexane	ug/L	3	<0.010	<0.010	3	<0.010	<0.010
Chlorpyrfos	ug/L	3	<0.030	<0.030	3	<0.030	<0.030
Dimethipin	ug/L	3	<0.200	<0.200	3	<0.200	<0.200
Ethoprop	ug/L	3	<0.030	<0.030	3	<0.030	<0.030
Oxyfluoren	ug/L	3	<0.050	<0.050	3	<0.050	<0.050
Profenofos	ug/L	3	<0.300	<0.300	3	<0.300	<0.300
Tebuconazole	ug/L	3	<0.200	<0.200	3	<0.200	<0.200
Permethrin, cis & trans	ug/L	3	<0.040	<0.040	3	<0.040	<0.040
Tribufos	ug/L	3	<0.070	<0.070	3	<0.070	<0.070
Butylated hydroxyanisole	ug/L	3	<0.030	<0.030	3	<0.030	<0.030
o-Toluidene	ug/L	3	<0.007	<0.007	3	<0.007	<0.007
Quinoline	ug/L	3	<0.020	<0.020	3	<0.020	<0.020
1-Butanol	ug/L	3	<2.000	<2.000	3	<2.000	<2.000
2-Methoxyethanol	ug/L	3	<0.400	<0.400	3	<0.400	<0.400
2-Propen-1-ol	ug/L	3	<0.500	<0.500	3	<0.500	<0.500
Total Microcystin/Nodularin	ug/L	8	<0.300	<0.300	8	<0.300	<0.300
Anatoxin-A	ug/L	8	<0.030	<0.030	8	<0.030	<0.030
Cylindrospermopsin	ug/L	8	<0.090	<0.090	8	<0.090	<0.090

UCMR4 Indicators - Source Water (Hemlock Lake)- 2019				
Contaminant	**Units**	**Hemlock Water Filtration Plant**		
		No. Tests	**Minimum**	**Maximum**
Bromide	ug/L	3	<20	22
Total Organic Carbon	ug/L	3	2,480	2,680

UCMR4 Distribution System Haloacetic Acids - Disinfection Byproducts- 8 Sample Sites 2019				
Contaminant	**Units**	**No. Tests**	**Minimum**	**Maximum**
Total HAA (5)*	ug/L	24	14	39
Total HAA (6) Br**	ug/L	24	6	10
Total HAA (9)***	ug/L	24	22	48

UCMR4 Distribution System Haloacetic Acids - Disinfection Byproducts- 8 Sample Sites 2019				
Contaminant	**Units**	**No. Tests**	**Minimum**	**Maximum**
Bromochloroacetic acid	ug/L	24	1.490	4.340
Bromodichloroacetic acid	ug/L	24	1.940	4.240
Chlorodibromoacetic acid	ug/L	24	<0.300	0.760
Dibromoacetic acid	ug/L	24	<0.300	0.510
Dichloroacetic acid	ug/L	24	4.300	20.700
Monobromoacetic acid	ug/L	24	<0.300	0.348
Monochloroacetic acid	ug/L	24	<2.000	<2.000
Tribromoacetic acid	ug/L	24	<2.000	<2.000
Trichloroacetic acid	ug/L	24	7.500	18.800

* Sum of dibromoacetic acid+dichloroacetic

**Sum of the 6 haloacetic acids in the above table that contain bromide. No MCL established.

***Sum of all 9 haloacetic acids in the above table. No MCL established.

2021 Lead and Copper Rule Water Quality Parameter (WQP) Data - Distribution System

Water Quality Parameters (WQPs) are used to determine the corrosivity of drinking water, and were collected to comply with the lead and copper rule in 2021.

Samples were collected quarterly from 24 representative locations within the City (Approved coliform sampling sites).

Locations	Statistic	pH	Free Cl2	Conductivity	Temperature	Turbidity	Alkalinity	HPC
		(su)	(mg/L)	(uS)	(Deg C)	(NTU)	(mg/L)	mpn/ml
WQP Samples were collected at the entry point and at representative taps throughout the distribution system. The data in this table includes results from 24 sample sites located within the distribution system.	Min	7.03	0.04	292	5	0.05	57	<2
	Avg	7.81	0.74	305	16	0.09	77	<2
	Max	8.33	1.44	321	25	0.21	101	2
	Statistic	**Calcium**	**Chloride**	**Sulfate**	**TOC**	**Aluminum**	**Iron**	**Manganese**
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(ug/L)	(mg/L)	(ug/L)
	Min	25	23	8	2.16	9	<0.02	<2
	Avg	27	37	12	2.34	16	<0.02	<2
	Max	34	45	22	2.58	46	0.02	<2

Footnotes: *** In Part 5, Subpart 5-1 of the New York State Sanitary Code general organic chemicals are catagorized as Principle Organic Contaminants (POCs) or Unspecified Organic Contaminants (UOCs). A POC is defined as any organic compound belonging to the following classes, except for chloroform, dibromochloromethane, bromodichloromethane, bromoform and any other chemical contaminant with a specific MCL listed in Subpart 5-1.52:

(1) Halogenated Alkane.
(2) Halogenated Ether.
(3) Halobenzenes and Substituted Halobenzenes.
(4) Benzene and Alkyl- or Nitrogen-Substituted Benzenes.
(5) Substituted, Unsaturated Hydrocarbons.
(6) Halogenated Nonaromatic Cyclic Hydrocarbons.

A UOC is defined as any organic compound not otherwise specified in this Subpart. Per Table 3 of Subpart 5-1.52 a POC is assigned an MCL of 0.005 mg/L (5 ug/L) and a UOC has an MCL of 0.05 mg/L (50 ug/L). The Total POCs+UOCs MCL is 0.1 mg/L (100 ug/L).