

WATER QUALITY DATA

A summary of test results is provided in the table below. The majority of data in this table is from 2012. If after reading this report you need additional information or service, please feel free to call the City's water quality experts at 428-3647, or you may contact the Monroe County Health Department at 753-5057 during normal business hours. A complete list of test results for the Monroe County Water Authority can be found at their website: http://www.mcwa.com/Portals/0/PDF/DATA_SUMMARY.pdf

Terms and abbreviations used below:

- Maximum Contaminant Level (MCL):** The highest level of a contaminant set that is allowed in drinking water. The MCL is set to be as close to the public health goal as the EPA finds may be achieved with the use of the best available technology, taking cost into consideration. The public health goal, called a **Maximum Contaminant Level Goal (MCLG)**, is not enforceable and is based solely on possible health risks and exposure over a lifetime. MCLGs allow for a margin of safety.
- Secondary Maximum Contaminant Level (SMCL):** A secondary standard is a non-enforceable guideline to regulate contaminants that may cause cosmetic effects (such as tooth discoloration) or aesthetic effects (such as taste, odor, or color of drinking water). The EPA recommends secondary standards to water systems but does not require systems to comply.
- Action Level (AL):** The concentration of a contaminant prescribed by the EPA, which when exceeded, triggers treatment or other requirements that a water system must follow.
- Maximum Residual Disinfectant Level (MRDL):** The maximum allowable level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants. The MRDLG (**Maximum Residual Disinfectant Level Goal**) is 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 contamination. A MRDL for a disinfectant has not been established if the value reported is identified as an MDRLG.
- NTU:** Nephelometric Turbidity Units- A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- ppm:** parts per million or milligrams per liter
- ppb:** parts per billion or micrograms per liter
- ppt:** parts per trillion or nanograms per liter
- ppq:** parts per quadrillion or picograms per liter
- pCi/L:** picocuries per liter (a measure of radiation)
- NA:** not applicable/analyzed; Regulatory limit not established for this contaminant
- ND:** Laboratory analysis indicates that the constituent is below the analytical detection limit
- TT:** Treatment Technique- A required process intended to reduce the level of a contaminant in drinking water
- MFL:** Millions of fibers per liter- A measure of the presence of asbestos fibers longer than 10 micrometers
- TON:** Threshold Odor Number
- µS/cm:** Microsiemens per centimeter
- Abs/cm:** Absorbance units per centimeter

Contaminant ¹	Units	MCL	MCLG	Hemlock Lake			Lake Ontario ²		
				# Tests	avg	range	# Tests	avg	range
Inorganic Chemicals (IOC's)									
Aluminum	ppb	50 SMCL	NA	1	5.2		4	52	22-96
Antimony	ppb	6	6	1	ND		4	NA	
Arsenic	ppb	50	0	1	ND		4	NA	
Barium	ppb	2	2	1	0.015		4	0.021	0.020-0.023
Beryllium	ppb	4	4	1	ND		4	ND	
Cadmium	ppb	5	5	1	ND		4	ND	
Calcium	ppm	NA	NA	12	26	24-27	4	35	32-36
Chromium, Total	ppb	100	100	1	ND		4	ND	
Chromium, Hexavalent Entry Point	ppb	NA	NA	2	0.03		0		
Copper	ppb	1300 AL	1300 AL	54	93 (=90%tile)	14-200	52	73 (=90%tile)	12-320
Cyanide	ppb	200	200	1	ND		4	ND	
Fluoride	ppm	2.2	NA	1033	0.72	0.19-1.31	2157	0.7	0.2-1.0
Iron	ppb	300 SMCL	NA	1	ND		4	ND	
Lead	ppb	15 AL	0	54	9 (=90%tile)	ND-28 (3 samples >15)	52	1.7 (=90%tile)	ND-15
Magnesium	ppm	NA	NA	1	6.5		4	9.5	9.2-9.9
Manganese	ppb	300 SMCL	NA	1	ND		4	ND	
Mercury	ppb	2	2	1	ND		4	ND	
Nickel	ppb	NA	NA	1	ND		4	ND	
Nitrate	ppm	10	10	12	0.14	0.01-0.22	4	0.31	0.20-0.36
Nitrite	ppm	1	1	1	ND		4	ND	
Potassium	ppm	NA	NA	1	1.4		1	1.7	
Selenium	ppb	50	50	1	ND		4	ND	
Silver	ppb	100 SMCL	NA	1	ND		4	ND	
Sodium	ppm	NA	NA	1	19		3	16	15-16
Sulfate	ppm	250 SMCL	NA	9	15	13-19	3	28	27-30
Thallium	ppb	2	0.5	1	ND		4	ND	
Zinc	ppb	5000 SMCL	NA	1	ND		4	ND	
Alkalinity	ppm	NA	NA	23	67	63-79	4	85	82-89
Chlorides	ppm	250	NA	11	33	32-35	4	26	
Color	Color Units	15 SMCL	NA	9	ND		4	ND	
Specific Conductance	µs/Cm	NA	NA	19	275	271-285	3783	290	220-340

Contaminant ¹	Units	MCL	MCLG	Hemlock Lake			Lake Ontario ²		
				# Tests	avg	range	# Tests	avg	range
Total Dissolved solids	ppm	500 SMCL	NA	1	180		4	178	170-190
pH	pH Unit	6.5-8.5 SMCL	NA	360	7.6	6.6-8.5	365	7.4	7.1-7.7
Total Hardness ³	ppm	NA	NA	1	91		4	125	120-130
Surfactants([*] =2011 Data)	ppm	NA	NA	1 [*]	ND		4	ND	
Foaming Agents (MBAS)	ppm	0.5 SMCL	NA	1	ND				
Turbidity – entry point	NTU	TT ⁴	NA	2184	0.08	0.05-0.18	2190	0.05	0.03-0.09
Turbidity distribution system	NTU	TT ⁵	NA	2051	0.16	0.02-0.90	4440	0.09	0.04-6.1
Asbestos	MFL	7	7	1	ND		1 (2007)	ND	
Disinfectants and Disinfection Byproducts¹⁰									
Chlorine Residual – entry point	ppm	4.0 ⁶ MRDL	4 MRDLG	2194	1.08	0.5-1.5	2196	1.1	0.8-2.1
Chlorine Residual – distribution system	ppm	4.0 ⁷ MRDL	4 MRDLG	2054	0.59	0.1-2.0	4441	0.6	ND-1.4
Total Organic Carbon (TOC)	ppm	TT	NA	1	2.15		4	1.9	1.8-2.0
UV254	Abs/cm	NA	NA	9	0.028	0.023-0.032			
Total THMs - Distribution System(2012 Average)	ppb	80	NA	16	36	25-65	48	42	18-84
Total THMs - Distribution System(Stage 1) ¹⁰	ppb	80	NA	4	25	23-27			
Total THMs - Distribution System(Stage 2) ¹⁰	ppb	80	NA	12	40	26-65			
Total THMs – Entry point	ppb	80	NA	1	9				
Total HAA5 Distribution System(2012 Average)	ppb	60	NA	16	24	10-40	48	12	5-30
Total HAA5 Distribution System(Stage 1) ¹⁰	ppb	60	NA	4	22	19-27			
Total HAA5 Distribution System(Stage 2) ¹⁰	ppb	60	NA	12	26	10-40			
Total Organic Halide (TOX) (2007 Data)	ppb	NA	NA	1	280				
Bromodichloromethane – Distribution System	ppb	NA	7	12	9	6-14			
Bromodichloromethane – Entry Point	ppb	NA	7	1	3.2				
Bromoform- Distribution System	ppb	NA	0	12	ND	ND-0.7			
Bromoform-Entry point	ppb	NA	0	1	ND				
Chloroform - Distribution System	ppb	NA	7	12	28	13-48			
Chloroform –Entry point	ppb	NA	7	1	5				
Dibromochloromethane-Distribution System	ppb	NA	6	12	3	1-7			
Dibromochloromethane-Entry Point	ppb	NA	6	1	0.9				
Dibromoacetic acid-Distribution System	ppb	NA	NA	12	ND				
Dichloroacetic acid-Distribution System	ppb	NA	0	12	13	6-22			
Monobromoacetic acid – Distribution System	ppb	NA	NA	12	ND				

Contaminant ¹	Units	MCL	MCLG	Hemlock Lake			Lake Ontario ²		
				# Tests	avg	range	# Tests	avg	range
Monochloroacetic acid-Distribution System	ppb	NA	7	12	ND	ND-3			
Trichloroacetic acid-Distribution System	ppb	NA	2	12	12	4-18			
Microbiological Contaminants									
Coliform – Entry Point	% positive	<5%	NA	365	0%				
Coliform – Distribution System ⁸	% positive	<5%	0	2080	0.6%	0-1.7%	4440	ND	
Giardia ¹¹	(cysts/L)	TT	0	4	ND		4	ND	
Cryptosporidium ¹¹	(oocysts/L)	TT	0	4	ND		4	ND	
Volatile Organic Chemicals (VOC's)									
Benzene	ppb	5	0	1	ND		1	ND	
Bromobenzene	ppb	5	NA	1	ND		1	ND	
Bromochloromethane	ppb	5	NA	1	ND		1	ND	
Bromomethane	ppb	5	NA	1	ND		1	ND	
n-Butylbenzene	ppb	5	NA	1	ND		1	ND	
sec-Butylbenzene	ppb	5	NA	1	ND		1	ND	
tert-Butylbenzene	ppb	5	NA	1	ND		1	ND	
Carbon tetrachloride	ppb	5	0	1	ND		1	ND	
Chlorobenzene	ppb	5	NA	1	ND		1	ND	
Chloroethane	ppb	5	NA	1	ND		1	ND	
Chloromethane	ppb	5	NA	1	ND		1	ND	
2-Chlorotoluene	ppb	5	NA	1	ND		1	ND	
4-Chlorotoluene	ppb	5	NA	1	ND		1	ND	
1,2-Dibromo-3-chloropropane (DBCP)	ppb	5	NA	1	ND		1	ND	
1,2-Dibromoethane (EDB)	ppb	5	NA	1	ND		1	ND	
1,2-Dichlorobenzene	ppb	5	NA	1	ND		1	ND	
1,3-Dichlorobenzene	ppb	5	NA	1	ND		1	ND	
1,4-Dichlorobenzene	ppb	5	NA	1	ND		1	ND	
Dichlorodifluoromethane	ppb	5	NA	1	ND		1	ND	
1,1-Dichloroethane	ppb	5	0	1	ND		1	ND	
1,2-Dichloroethane	ppb	5	NA	1	ND		1	ND	
1,1-Dichloroethylene	ppb	5	NA	1	ND		1	ND	
cis-1,2-Dichloroethylene	ppb	5	NA	1	ND		1	ND	
trans-1,2-Dichloroethylene	ppb	5	NA	1	ND		1	ND	
Dichloromethane	ppb	5	0	1	ND		1	ND	
1,2-Dichloropropane	ppb	5	0	1	ND		1	ND	

Contaminant ¹	Units	MCL	MCLG	Hemlock Lake			Lake Ontario ²		
				# Tests	avg	range	# Tests	avg	range
1,3-Dichloropropane	ppb	5	NA	1	ND		1	ND	
2,2-Dichloropropane	ppb	5	NA	1	ND		1	ND	
1,1-Dichloropropylene	ppb	5	NA	1	ND		1	ND	
cis-1,3-Dichloropropylene	ppb	5	NA	1	ND		1	ND	
trans-1,3-Dichloropropylene	ppb	5	NA	1	ND		1	ND	
Ethyl benzene	ppb	5	NA	1	ND		1	ND	
Hexachlorobutadiene	ppb	5	NA	1	ND		1	ND	
Isopropylbenzene	ppb	5	NA	1	ND		1	ND	
4-Isopropyltoluene	ppb	5	NA	1	ND		1	ND	
Methyl-t-butyl ether (MTBE)	ppb	10	NA	1	ND		1	ND	
Naphthalene	ppb	5	NA	1	ND		1	ND	
n-Propylbenzene	ppb	5	NA	1	ND		1	ND	
Styrene	ppb	5	NA	1	ND		1	ND	
1,1,1,2-Tetrachloroethane	ppb	5	NA	1	ND		1	ND	
1,1,2,2-Tetrachloroethane	ppb	5	NA	1	ND		1	ND	
Tetrachloroethylene	ppb	5	0	1	ND		1	ND	
Toluene	ppb	5	NA	1	ND		1	ND	
1,2,3-Trichlorobenzene	ppb	5	NA	1	ND		1	ND	
1,2,4-Trichlorobenzene	ppb	5	NA	1	ND		1	ND	
1,1,1-Trichloroethane	ppb	5	NA	1	ND		1	ND	
1,1,2-Trichloroethane	ppb	5	3	1	ND		1	ND	
Trichloroethylene	ppb	5	0	1	ND		1	ND	
Trichlorofluoromethane	ppb	5	NA	1	ND		1	ND	
1,2,3-Trichloropropane	ppb	5	NA	1	ND		1	ND	
1,2,4-Trimethylbenzene	ppb	5	NA	1	ND		1	ND	
1,3,5-Trimethylbenzene	ppb	5	NA	1	ND		1	ND	
Vinyl chloride	ppb	2	0	1	ND		1	ND	
1,2-Xylene	ppb	5	NA	1	ND		1	ND	
1,3 + 1,4-Xylene	ppb	5	NA	1	ND		1	ND	
Xylenes, Total	ppb	5	NA	1	ND		1	ND	
Synthetic Organic Chemicals (SOC's)									
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	ppq	30	0	1	ND		1	ND	
1,2-Dibromo-3-Chloropropane (DBCP)	ppb	0.2	0	1	ND		1	ND	

Contaminant ¹	Units	MCL	MCLG	Hemlock Lake			Lake Ontario ²		
				# Tests	avg	range	# Tests	avg	range
1,2-Dibromoethane (EDB)	ppb	0.05	0	1	ND		1	ND	
Aroclor 1016 ⁹ (PCB's)	ppb	NA	NA	1	ND		0		
Aroclor 1221 ⁹ (PCB's)	ppb	NA	NA	1	ND		0		
Aroclor 1232 ⁹ (PCB's)	ppb	NA	NA	1	ND		0		
Aroclor 1242 ⁹ (PCB's)	ppb	NA	NA	1	ND		0		
Aroclor 1248 ⁹ (PCB's)	ppb	NA	NA	1	ND		0		
Aroclor 1254 ⁹ (PCB's)	ppb	NA	NA	1	ND		0		
Total PCB's ⁹	ppb	0.5	0	0			1	ND	
Chlordane	ppb	2	NA	1	ND		1	ND	
Toxaphene	ppb	3	0	1	ND		1	ND	
2,4-D	ppb	50	NA	1	ND		1	ND	
Dalapon	ppb	50	NA	1	ND		1	ND	
Dicamba	ppb	50	NA	1	ND		1	ND	
Dinoseb	ppb	7	7	1	ND		1	ND	
Pentachlorophenol	ppb	1	0	1	ND		1	ND	
Picloram	ppb	50	NA	1	ND		1	ND	
2,4,5-TP (Silvex)	ppb	10	NA	1	ND		1	ND	
Alachlor	ppb	2	0	1	ND		1	ND	
Aldrin	ppb	5	NA	1	ND		1	ND	
Atrazine	ppb	3	3	1	ND		1	ND	
Benzo(a)pyrene	ppb	0.2	0	1	ND		1	ND	
Gama-BHC (Lindane)	ppb	0.2	0.2	1	ND		1	ND	
Butachlor	ppb	50	NA	1	ND		1	ND	
Dieldrin	ppb	5	NA	1	ND		1	ND	
Di(2-ethylhexyl) adipate	ppb	50	NA	1	ND		1	ND	
Di(2-ethylhexyl) phthalate	ppb	6	NA	1	ND		1	ND	
Aldicarb	ppb	3	1	1	ND		1	ND	
Aldicarb Sulfoxide	ppb	4	1	1	ND		1	ND	
Bis(2-Ethylhexyl)phthalate	ppb	6	0	1	ND		1	ND	
Endrin	ppb	2	2	1	ND		1	ND	
Heptachlor	ppb	0.4	0	1	ND		1	ND	
Heptachlor epoxide	ppb	0.2	0	1	ND		1	ND	
Hexachlorobenzene	ppb	1	0	1	ND		1	ND	

Contaminant ¹	Units	MCL	MCLG	Hemlock Lake			Lake Ontario ²		
				# Tests	avg	range	# Tests	avg	range
Hexachlorocyclopentadiene	ppb	50	NA	1	ND		1	ND	
Methoxychlor	ppb	40	40	1	ND		1	ND	
Metolachlor	ppb	50	NA	1	ND		1	ND	
Metribuzin	ppb	50	NA	1	ND		1	ND	
Propachlor	ppb	50	NA	1	ND		1	ND	
Simazine	ppb	4	4	1	ND		1	ND	
Aldicarb	ppb	3	1	1	ND		1	ND	
Aldicarb sulfone	ppb	2	1	1	ND		1	ND	
Aldicarb sulfoxide	ppb	4	1	1	ND		1	ND	
Carbaryl	ppb	50	NA	1	ND		1	ND	
Carbofuran	ppb	40	40	1	ND		1	ND	
3-Hydroxycarbofuran	ppb	50	NA	1	ND		1	ND	
Methomyl	ppb	50	NA	1	ND		1	ND	
Oxamyl	ppb	50	NA	1	ND		1	ND	
Glyphosate	ppb	50	NA	1	ND		1	ND	
Endothall	ppb	50	NA	1	ND		1	ND	
Diquat	ppb	20	20	1	ND		1	ND	
Radionuclide's									
Gross alpha	pCi/L	15	0	2 (2009)	ND		1 (2004)	ND	
Total Uranium	pCi/L	30	0	2 (2009)	ND		1 (2004)	ND	
Radium 226 & 228	pCi/L	50	0	2 (2009)	ND		1 (2004)	ND	
Taste and Odor Chemicals									
Odor	TON	3 SMCL	NA	1	2				
Geosmin	ppt	NA	NA	1	3.0				
MIB	ppt	NA	NA	1	1.5				

Table Footnotes:

1= Unless otherwise specified all samples collected at entry point (Entry Point=treated water leaving filtration plant; Distribution System=treated water collected at various locations within the City of Rochester)

2 = Lake Ontario data provided courtesy of the Monroe County Water Authority- Shoremont WTP

3 = Total Hardness is also expressed in grains per gallon. The grains of hardness in the Ontario and Hemlock supplies are 7.6 & 5.6 respectively.

4 = 95% of measurements within a given month must be less than 0.5 NTU.

5 = Average of monthly distribution system samples must be less than 5.0 NTU.

6 = Water entering the distribution must have a chlorine residual greater than 0.2 and less than 4 ppm.

7 = 95% of monthly distribution system samples must have measureable chlorine residual

8 = In 1993, the New York State Department of health granted the city what is known as a biofilm variance to the total coliform bacteria MCL. Biofilm refers to a layer of bacteria that can be found on water pipe surfaces. A biofilm variance is only allowed where the coliform bacteria recovered from a water system are identified as non-disease causing environmental strains originating from the pipeline biofilm and not from an external source of contamination. The City of Rochester is one of several large suppliers nationwide holding a biofilm variance.

9 = Any positive Aroclor would require analysis for total PCB as decachlorobiphenyl (MCL=0.5 ppb)

10= The Stage 1 Disinfectants and Disinfection Byproduct Rule updated and superseded the 1979 regulations for total trihalomethanes. In addition, it reduced exposure to three disinfectants and many disinfection byproducts. The rule established maximum residual disinfectant level goals (MRDLGs) and maximum residual disinfectant levels (MRDLs) for three chemical disinfectants—chlorine, chloramine and chlorine dioxide. It also established maximum contaminant level goals (MCLGs) and maximum contaminant levels (MCLs) for total trihalomethanes, haloacetic acids, chlorite and bromate. The Stage 2 DBP rule builds upon earlier rules that addressed disinfection byproducts to improve your drinking water quality and provide additional public health protection from disinfection byproducts. This final rule strengthens public health protection for customers by tightening compliance monitoring requirements for two groups of DBPs, trihalomethanes (TTHM) and haloacetic acids (HAA5). TTHM and HAA5 results reported for the Stage 1 DBPR were collected in the first quarter of 2012. Samples results reported for Stage 2 were collected in the second, third and fourth quarters of 2012 after implementation of the Stage 2 DBPR.

11= For Giardia a minimum 3-log removal/inactivation required (99.9%). For Cryptosporidium a minimum 2-log removal is required and is based on the collection of grab samples every 4 hours to monitor turbidity. A disinfectant residual ≥ 0.2 mg/L must be maintained at the entry point. Refer to footnotes 4 and 6 above for entry point turbidity and disinfectant residual requirements.