



Monroe County Water Authority

2018 Water Quality Monitoring Program Summary

Parameter				Shoremont WTP			Webster WTP			Corfu WTP			Hemlock WTP			ECWA		
	EPA / NYS MCL	EPA / NYS MCLG	UNITS	Source - Lake Ontario			Source - Lake Ontario			Source - Groundwater Well(s)			Source - Hemlock Lake			Source - Lake Erie		
				Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018
Inorganics, Metals, Physical Parameters																		
Asbestos (Distribution System)	7	7	MF/L	ND		1 (2016)	ND		1 (2016)	ND		1 (2016)	ND		1 (2014)	ND		30 (2015)
Aluminum	NS	NS	µg/L	73	35 - 160	4	60	30 - 130	4	17	ND - 68	4	ND		4	151	35 - 300	4
Antimony	6	6	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Arsenic	10	0	µg/L	0.65	ND - 2.6	4	ND		4	ND		4	ND		4	ND		4
Barium	2	2	mg/L	0.022	0.019 - 0.024	4	0.020	0.018 - 0.021	4	0.115	0.07 - 0.14	4	0.015	0.014 - 0.018	4	0.022	0.022 - 0.023	4
Beryllium	4	4	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Bromide	NS	NS	µg/L	0.02	0.18 - 0.022	4	0.025	0.019 - 0.027	4									
Cadmium	5	5	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Calcium	NS	NS	mg/L	33.8	33 - 34	4	34.5	33 - 36	4	56.8	41 - 63	4	27	25 - 29	4	33	33 - 34	4
Chromium	100	100	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Copper (Distribution System Samples)	NS	NS	µg/L	ND		4	ND		4	9.9	8.6 - 99	4	5.3	3.4 - 13.0	4	ND		3
Copper (Customer Tap Samples)	AL* = 1300	1300	µg/L	68.8	5.3 - 200	52	68.8	5.3 - 200	52	60.1	4.9 - 240	20	1.4	ND - 630	63	60.8	4.9 - 240	20
Cyanide	200	200	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Fluoride	2.2	NA	mg/L	0.70	0.41 - 0.92	2176	0.65	0.13 - 1.03	2009	0.17	0.11 - 0.33	4	0.69	0.10 - 1.05	1088	0.43	0.1 - 0.79	51
Iron	300	NA	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Lead (Distribution System)	NS	NS	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Lead (Customer Tap Samples)	AL* = 15	0	µg/L	2.9	ND - 29	52	2.9	ND - 29	52	4.3	ND - 76	20	2.9	ND - 29	52	4.3	ND - 76	20
Magnesium	NS	NS	mg/L	8.7	8.4 - 8.8	4	8.8	8.5 - 9.1	4	21.5	14 - 24	4	6	5.6 - 6.2	4	8.4	8.4 - 8.5	4
Manganese	300	NA	µg/L	ND		4	ND		4	11.5	10 - 14	4	ND		4	ND		4
Mercury	2	2	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Nickel	100	NA	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Nitrate	10	10	mg/L	0.27	0.24 - 0.34	4	0.29	0.18 - 0.34	4	ND		4	0.09	ND - 0.22	4	0.13	ND - 0.23	4
Nitrite	1	1	mg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Potassium	NS	NS	mg/L	1.33	1.2 - 1.5	4	1.3	1.2 - 1.5	4	1	ND - 1	4	1.23	1.1 - 1.4	4	1.20	1.0 - 1.4	4
Selenium	50	50	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4

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				Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018
Silica	NS	NS	mg/L	0.46	0.37 - 0.60	4	0.52	0.27 - 0.75	4	7.5	7.9 - 8.2	4	0.98	0.93 - 1.2	4	0.54	0.30 - 0.82	4
Silver	100	NA	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Sodium	NS	NS	mg/L	14.3	13 - 15	4	16.0	15 - 17	4	66	56 - 94	4	20.3	20 - 21	4	12.3	10 - 14	4
Sulfate	250	NA	mg/L	25.8	25 - 27	4	26.3	25 - 27	4	46.8	41 - 50	4	12.3	12 - 13	4	20.3	20 - 21	4
Thallium	2	0.5	µg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Zinc	5	NA	mg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Alkalinity	NS	NA	mg/L	87.3	87 - 89	4	88.8	87 - 92	4	233	200 - 250	4	68	65 - 71	4	90	89 - 91	4
Chloride	250	NA	mg/L	24.5	25 - 30	4	26.3	26 - 27	4	56.8	35 - 78	4	37	36 - 37	4	22	21 - 24	4
Color	15	NA	Color Units	ND		4	ND		4	ND		4	ND		4	ND		4
Conductivity	NS	NS	µmhos/cm	295	280 - 300	40	300	290 - 320	35	713	550 - 820	42	285	270 - 310	58	297	290 - 310	49
pH	NS	NS	pH units	7.47	7.07 - 7.73	364	7.57	7.12 - 7.84	338	7.45	7.35 - 7.93	163	7.77	7.22 - 7.98	363	7.92	7.25 - 8.17	1092
Total Dissolved Solids	NS	NS	mg/L	175	160 - 190	4	182.5	170 - 190	4	420	410 - 420	4	170	160 - 180	4	163	160 - 170	4
Total Hardness	NS	NS	mg/L	120	120	4	122.5	120 - 130	4	230	160 - 250	4	90.8	88 - 95	4	120	120	4
Total Organic Carbon	TT	NS	mg/L	1.9	1.7 - 2.0	4	1.9	1.8 - 2.0	4	0.91	0.78 - 1.20	4	2.5	2.3 - 2.7	4	2.0	1.8 - 2.2	4
Surfactants	NS	NS	mg/L	ND		4	ND		4	ND		4	ND		4	ND		4
Turbidity - Entry Point	TT **	NA	NTUs	0.05	0.02 - 0.14	2180	0.04	0.02 - 0.1	2027	NR		NR	0.05	0.03 - 0.26	2182	0.1	0.05 - 0.23	1091
Turbidity - Distribution System	TT ***	NA	NTUs	0.11	0.02 - 3.51	4277	0.11	0.02 - 3.51	4277	0.13	0.01 - 2.99	400	0.11	0.02 - 3.51	4277	0.13	0.01 - 2.99	400
Chlorine Residual - Entry Point	4	NA	mg/L	1.17	0.9 - 1.42	2180	0.76	0.53 - 1.39	2027	0.8	0.45 - 1.49	162	0.89	0.7 - 1.75	2178	1.4	0.53 - 1.98	2181
Chlorine Residual - Retail Distribution System	4 ****	NA	mg/L	0.55	ND - 2.09	4277	0.55	ND - 2.09	4277	0.45	ND - 1.4	402	0.55	ND - 2.09	4277	0.45	ND - 1.4	402
Microbiological Parameters																		
Coliform - Retail Distribution System	TT *****	0	% Positive	0.16%		4281	0.16%		4281	0.0%	3	402	0.16%		4281	0.0%		402
Cryptosporidium (Source water prior to treatment)	TT	0	OoCysts/L	ND		4	ND		4	NR		NR	ND		4	NR		NR
Giardia (Source water prior to treatment)	TT	0	Cysts/L	ND		4	ND		4	NR		NR	ND		4	NR		NR
Radionuclides																		
Gross Alpha	15	0	pCi/L	ND		1 (2012)	ND		3 (2015)	ND		1 (2012)	ND		1	ND		1 (2013)
Gross Beta	50	0	pCi/L	ND		1 (2012)	ND		3 (2015)	ND		1 (2012)	ND		1	ND		1 (2013)
Combined Radium 226/228	5	0	pCi/L	ND		1 (2012)	ND		3 (2015)	ND		1 (2012)	1.06		1	ND		1 (2013)
Uranium	30	0	pCi/L	ND		1 (2012)	ND		3 (2015)	ND		1 (2012)	ND		1	NR		

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				Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018
Volatile Organics																		
Benzene	5	0	µg/L	Not Detected		4	Not Detected		4	Not Detected		4	Not Detected		4	Not Detected		4
Bromobenzene	5	NA	µg/L			4			4			4			4			
Bromochloromethane	5	NA	µg/L			4			4			4			4			
Bromomethane	5	NA	µg/L			4			4			4			4			
n-Butylbenzene	5	NA	µg/L			4			4			4			4			
sec-Butylbenzene	5	NA	µg/L			4			4			4			4			
tert-Butylbenzene	5	NA	µg/L			4			4			4			4			
Carbon Tetrachloride	5	0	µg/L			4			4			4			4			
Chlorobenzene	5	NA	µg/L			4			4			4			4			
Chloroethane	5	NA	µg/L			4			4			4			4			
Chloromethane	5	NA	µg/L			4			4			4			4			
2-Chlorotoluene	5	NA	µg/L			4			4			4			4			
4-Chlorotoluene	5	NA	µg/L			4			4			4			4			
Dibromomethane	5	NA	µg/L			4			4			4			4			
1,2-Dichlorobenzene	5	NA	µg/L			4			4			4			4			
1,3-Dichlorobenzene	5	NA	µg/L			4			4			4			4			
1,4-Dichlorobenzene	5	NA	µg/L			4			4			4			4			
Dichlorodifluoromethane	5	NA	µg/L			4			4			4			4			
1,1 Dichloroethane	5	NA	µg/L			4			4			4			4			
1,2-Dichloroethane	5	0	µg/L			4			4			4			4			
1,1-Dichloroethene	5	NA	µg/L			4			4			4			4			
cis-1,2-Dichloroethene	5	NA	µg/L			4			4			4			4			
trans-1,2-Dichloroethene	5	NA	µg/L			4			4			4			4			
1,2-Dichloropropane	5	0	µg/L			4			4			4			4			
1,3-Dichloropropane	5	NA	µg/L			4			4			4			4			
2,2-Dichloropropane	5	NA	µg/L			4			4			4			4			
1,1-Dichloropropene	5	NA	µg/L			4			4			4			4			
1,3-Dichloropropene(Cis)	5	NA	µg/L			4			4			4			4			
1,3-Dichloropropene(Trans)	5	NA	µg/L	4	4	4	4											
Ethylbenzene	5	NA	µg/L	4	4	4	4											

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				Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	
Hexachlorobutadiene	5	NA	µg/L	Not		4	Not		4	Not		4	Not		4	Not		4	
Isopropylbenzene	5	NA	µg/L			4			4			4			4				
p-Isopropyltoluene	5	NA	µg/L			4			4			4			4				
Methyl Tert-butyl ether (MTBE)	10	NA	µg/L			4			4			4			4				
Methylene Chloride (Dichloromethane)	5	0	µg/L			4			4			4			4			3	4
n-Propylbenzene	5	NA	µg/L			4			4			4			4			4	4
Styrene	5	NA	µg/L			4			4			4			4			4	4
1,1,1,2-Tetrachloroethane	5	NA	µg/L			4			4			4			4			4	4
1,1,2,2-Tetrachloroethane	5	NA	µg/L			4			4			4			4			4	4
Tetrachloroethene	5	0	µg/L			4			4			4			4			4	4
Toluene	5	NA	µg/L			4			4			4			4			4	4
1,2,3-Trichlorobenzene	5	NA	µg/L			4			4			4			4			4	4
1,2,4-Trichlorobenzene	5	NA	µg/L			4			4			4			4			4	4
1,1,1-Trichloroethane	5	NA	µg/L			4			4			4			4			4	4
1,1,2-Trichloroethane	5	3	µg/L			4			4			4			4			4	4
Trichloroethene	5	0	µg/L			4			4			4			4			4	4
Trichlorofluoromethane	5	NA	µg/L			4			4			4			4			4	4
1,2,3-Trichloropropane	5	NA	µg/L			4			4			4			4			4	4
1,2,4-Trimethylbenzene	5	NA	µg/L			4			4			4			4			4	4
1,3,5-Trimethylbenzene	5	NA	µg/L			4			4			4			4			4	4
Vinyl Chloride	2	0	µg/L	4	4	4	4	4	4										
Xylenes	5	NA	µg/L	4	4	4	4	4	4										

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	EPA / NYS MCL	EPA / NYS MCLG	UNITS	Source - Lake Ontario			Source - Lake Ontario			Source - Groundwater Well(s)			Source - Hemlock Lake			Source - Lake Erie		
				Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018
Organics, Pesticides, Herbicides																		
Alachlor	2	0	µg/L	Not Detected		4	Not Detected		4	Not Detected		4	Not Detected		4	Not Detected		4
Aldrin	5	NA	µg/L			4			4			4						
Atrazine	3	3	µg/L			4			4			4						
Benzo(a)pyrene	200	0	µg/L			4			4			4						
Bis(2-Ethylhexyl)Phthalate	6	0	µg/L			4			4			4						
Butachlor	50	NA	µg/L			4			4			4						
Chlordane	2	0	µg/L			4			4			4						
Di(2-Ethylhexyl) Adipate	50	NA	µg/L			4			4			4						
Dieldrin	5	NA	µg/L			4			4			4						
Endrin	2	2	µg/L			4			4			4						
Heptachlor	400	0	ng/L			4			4			4						
Heptachlor Epoxide	200	0	ng/L			4			4			4						
Hexachlorobenzene	1	0	µg/L			4			4			4						
Hexachlorocyclopentadiene	5	NA	µg/L			4			4			4						
Isophorone	50	NA	µg/L			4			4			4						
Lindane (gamma-BHC)	200	200	ng/L			4			4			4						
Methoxychlor	40	40	µg/L			4			4			4						
Metolachlor	50	NA	µg/L			4			4			4						
Metribuzin	50	NA	µg/L			4			4			4						
p,p' DDD	5	NA	µg/L			4			4			4						
p,p' DDE	NS	NS	µg/L	4	4	4												
p,p' DDT	5	NA	µg/L	4	4	4												
PCB's Total	500	0	ng/L	4	4	4												
Pentachlorophenol	1	0	µg/L	4	4	4												
Propachlor	50	NA	µg/L	4	4	4												
Simazine	4	4	µg/L	4	4	4												
Total Chlordane	2	0	µg/L	4	4	4												
Toxaphene	3	0	µg/L	4	4	4												
																		4

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				Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018
Disinfectant Byproducts																		
Total Trihalomethanes (TTHMs)	80	NA	µg/L	38.6	16 - 73	52	38.6	16 - 73	52	42.6	19 - 62	8	38.6	16 - 73	52	42.6	19 - 62	8
				Maximum LRAA = 50.8			Maximum LRAA = 50.8			Maximum LRAA = 47.8			Maximum LRAA = 50.8			Maximum LRAA = 47.8		
Haloacetic Acids (HAA5)	60	NA	µg/L	12.8	ND - 30	52	12.8	ND - 30	52	9.1	ND - 200	8	12.8	ND - 30	52	9.1	ND - 20	8
				Maximum LRAA = 21.3			Maximum LRAA = 21.3			Maximum LRAA = 13.3			Maximum LRAA = 21.3			Maximum LRAA = 13.3		
UCMR4 - Alcohols, Metals, Pesticides, SVOCs																		
Manganese	NS	NS	µg/L	Not Detected			Not Detected			10	10	1	Not Detected			2	2	1
Germanium	NS	NS	µg/L							1	1	1				1	1	1
alpha-Hexachlorocyclohexane	NS	NS	µg/L							1	1	1				1	1	1
Chlorpyrifos	NS	NS	µg/L							1	1	1				1	1	1
Dimethipin	NS	NS	µg/L							1	1	1				1	1	1
Ethoprop	NS	NS	µg/L							1	1	1				1	1	1
Oxyfluoren	NS	NS	µg/L							1	1	1				1	1	1
Profenofos	NS	NS	µg/L							1	1	1				1	1	1
Tebuconazole	NS	NS	µg/L							1	1	1				1	1	1
Permethrin, cis & trans	NS	NS	µg/L							1	1	1				1	1	1
Tribufos	NS	NS	µg/L							1	1	1				1	1	1
Butylated hydroxyanisole	NS	NS	µg/L							1	1	1				1	1	1
o-Toluidene	NS	NS	µg/L							1	1	1				1	1	1
Quinoline	NS	NS	µg/L							1	1	1				1	1	1
1-Butanol	NS	NS	µg/L	1	1	1	1	1	1									
2-Methoxyethanol	NS	NS	µg/L	1	1	1	1	1	1									
2-Propen-1-ol	NS	NS	µg/L	1	1	1	1	1	1									
UCMR4 - HAA Groups Indicators																		
Bromide	NS	NS	µg/L	37	37	1	37	37	1		NR	1	22	22	1	ND	ND	1
Total Organic Carbon	TT	NS	µg/L	2.4	2.4	1	2.2	2.2	1		NR	1	2.6	2.6	1	2	2	1

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				Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018	Average	Range	Samples in 2018
UCMR4 - HAA Groups				Combined Distribution System Data														
Total HAA (5)	60	NS	µg/L	9.5	3.2 - 15	15												
Total HAA (6) Br	NS	NS	µg/L	4.9	0.54 - 7.4	15												
Total HAA (9)	NS	NS	µg/L	14.04	3.8 - 19	15												
Bromochloroacetic acid	NS	NS	µg/L	1.43	0.54 - 2.3	15												
Bromodichloroacetic acid	NS	NS	µg/L	2.25	ND - 3.2	15												
Chlorodibromoacetic acid	NS	NS	µg/L	0.8	ND - 1.4	15												
Dibromoacetic acid	NS	NS	µg/L	0.42	ND - 1.3	15												
Dichloroacetic acid	NS	NS	µg/L	3.6	2.1 - 5.1	15												
Monobromoacetic acid	NS	NS	µg/L	ND	ND	15												
Monochloroacetic acid	NS	NS	µg/L	ND	ND	15												
Tribromoacetic acid	NS	NS	µg/L	ND	ND	15												
Trichloroacetic acid	NS	NS	µg/L	5.52	0.95 - 10	15												

Key

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 possible.

MCLG = Maximum Contaminant Level Goal - The level of a contaminant below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

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. If >10% of results are greater than 15 µg/l for lead or 1300 µg/L for copper, remediative steps are required. In MCWA's combined retail area, 90% of the samples were less than 12 µg/L for lead and 94 µg/L for copper.

LRAA = Locational Running Annual Average - The annual average contaminant concentration at a monitoring site.

mg/l = milligram (1/1,000 of a gram) per liter = ppm = parts per million

NTU = Nephelometric turbidity Unit, a measure of the clarity of water.

µg/l = microgram (1/1,000,000 of a gram) per liter = ppb = parts per billion

ng/L = nanogram (1/1,000,000,000 of a gram) per liter = ppt = parts per trillion

pg/L = picogram (1/1,000,000,000,000 of a gram) per liter = ppq = parts per quadrillion

pCi/L = picoCuries per liter

NA = Not applicable **NR** = Not required **NS** = No standard **NT** = Not Tested

MF/L = million fibers per liter, a measure of the presence of asbestos fibers longer than 10 micrometers.

(year) = Most recent testing. Monitoring frequency requirements vary depending on compound.

Not Detected = ND = absent or present at less than testing method detection level. All testing methods are EPA approved with detection limits much less than the MCL.

UCMR4 = Unregulated Contaminant Monitoring Rule 4 - Periodic EPA required monitoring of up to 30 unregulated water quality parameters to establish baseline occurrence data. EPA combines this data with research to establish future regulations.

µmhos/cm = micro ohms per centimeter

Cont = Continuously monitored via online measurements.

****** = 95% of measurements within a given month must be less than 0.3 NTUs.

******* = Average of monthly distribution system turbidity samples must be less than 5.0 NTUs.

******** = 95% of monthly distribution system samples must have a measurable chlorine residual.

********* = No more than 5% of monthly samples can be positive.

Note: Total Hardness is also expressed in grains per gallon. The Total Hardness of the Ontario and Hemlock supplies are 7.6 and 5.6 grains per gallon respectively.