

EPA and Wisconsin Requirements for Racine's Drinking Water

Water delivered by the RWU must be safe from microbes and chemical toxicity, and also safe from exposure to trace levels of chemicals over a lifetime of 80 years. Source water (Lake Michigan), treated finished water, distribution system water, and residential water throughout the city and surrounding communities are monitored for over 90 regulated contaminants. In 2018, the Racine Water Utility conducted over 51,000 in-house water quality analyses along with hundreds of tests by contracted laboratories. The Water Quality Table, found on the reverse side of this brochure, lists many substances tested by the RWU during 2018. Included in the table are the results for Cryptosporidium and Giardia from 2015-2017, which ended a 2-year long monitoring program. To ensure that tap water is safe, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration guidelines establish limits for contaminants in bottled water that 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 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 at (800) 426-4791.

Lead in Drinking Water

Water that is too corrosive can dissolve lead and other contaminants from your home's plumbing fixtures. For the fourth consecutive year, the RWU lead results were significantly below the EPA established 15 part per billion (ppb) action level. For 2018, the 90th percentile lead result was 6.7 ppb, with 1 of the 53 lead samples exceeding the 15 ppb action level. In 26 years of sampling, only one sample ever exceeded the copper action level. To see more details regarding lead and copper results, please refer to the 2018 Water Quality Table on the reverse side of this pamphlet. Lead in drinking water is rarely the sole cause of lead poisoning, but it can add to a person's total lead exposure. All potential sources of lead in the household should be identified and removed, replaced, or reduced. It is possible that the lead levels in your home may be higher than at other homes in the area due to materials used in the construction of your home's plumbing system. If you are concerned about lead levels in your water (young children are more vulnerable to lead than adults), you may wish to have your water tested. Flushing your tap water for 30 seconds to 2 minutes prior to using the water is an effective method to reduce exposure to lead. Additional information is available from the Safe Drinking Water Hotline at (800)-426-4791.

Sources and Contaminants

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, in some cases, radioactive material. It can also pick up substances resulting from the presence of animals or humans. Substances that can be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from wastewater treatment plants, septic systems, agricultural livestock operations, and wildlife

Inorganic contaminants, such as salts and metals, which can occur naturally or result from 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, which occur naturally or result from oil and gas production and mining activities

Some people may be more vulnerable to contaminants found in drinking water than the general population. Immuno-compromised 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 for infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.

Unregulated Contaminants Monitoring Rule

The U.S. EPA uses the Unregulated Contaminant Monitoring Rule (UCMR) to collect data for contaminants which currently do not have any health-based standards set under the Safe Drinking Water Act (SDWA). The Rule assists the EPA in determining occurrence of unregulated contaminants and whether future regulation is warranted. Because the RWU is classified as a large system (serving > 100,000 people), it participated in all 4 UCMR sampling rounds since 2001. Each round of the UCMR monitors for no more than 30 contaminants every 5 years. For more information visit the EPA website: <https://www.epa.gov/dwucmr/learn-about-unregulated-contaminant-monitoring-rule>

UCMR3 Results: Sampled in 2014-2015

Potential Contaminant Sampled For:	Results (ppb) (Range):	Source:
Vanadium	0.21 (<0.2 - 0.28)	Erosion of natural deposits
Molybdenum	1.03 (<1 - 1.1)	Erosion of natural deposits
Cobalt	No Detects	Erosion of natural deposits
Strontium	136.2 (122.6 - 153.8)	Erosion of natural deposits
Total Chromium	0.26 (0.22 - 0.29)	Erosion of natural deposits
Hexavalent Chromium	0.20 (0.16 - 0.26)	Erosion of natural deposits, industrial pollution

In addition to the testing for the chemicals above, chlorate, 7 volatile organic compounds, 1 synthetic organic compound, 7 hormones, and 6 per-fluorinated compounds were also tested for. None of these possible contaminants were detected even once. Chlorate can be formed in the disinfection process, while the other groups can be found resulting from pollution.

UCMR4 Results: Sampled in 2018

Potential Contaminant Sampled For:	Results (ppb) (Range):	Source:
Disinfection By-Products (9 halo-acetic acids)	25.9 (18.4-33.5)	By-product of disinfection process
Bromide	37 (34-40)	Erosion of natural deposits
Total Organic Carbon	1830 (1800-1860)	Erosion of natural deposit, vegetation decay, pollution

In addition to the testing for the chemicals above, 8 cyanotoxins, 3 alcohols, 3 semi-volatile chemicals, 8 pesticides, and 2 metals (germanium and manganese) were also tested for. None of these possible contaminants were detected even once. Cyanotoxins can be produced by algae, germanium and manganese from the erosion of natural deposits, with the others originating from pollution.

All results expressed in parts per billion

For a complete list of these chemicals contact the Racine Water Utility at 262-636-9534.

Internet Information Sources

In addition to the numbers listed in other sections of this report, there are many governmental and water industry websites available on the internet providing information on water quality, regulations, water treatment and public health. Provided below are a number of these sites and web site addresses:

Organization	Web Address
United States Environmental Protection Agency	www.epa.gov
Wisconsin Department of Natural Resources	www.dnr.state.wi.us
Wisconsin Public Service Commission	www.psc.wi.gov
American Water Works Association	www.awwa.org
Wisconsin Water Association	www.wiawwa.org
Rural Water Association	www.nrwa.org
National Sanitation Foundation	www.nsf.org

Racine Water Utility Contact Numbers:

Water Quality Concerns or Complaints:
636-9441 or 636-9534

Billing Questions: 636-9181

Reporting Possible Water Main or Service Breaks: 636-9185

Scheduling Service Appointments:
636-9185 or 636-9186

Visit us online at
www.cityofracine.org/Water.aspx

Para ayuda en español llame:
636-9185 de 7:00am-3:00pm

For an electronic version of this report go to:
<http://www.cityofracine.org/water/2018CCR>



Racine Water Utility
100 Hubbard Street • Racine, WI 53402

Welcome to Racine's Drinking Water Quality Report

This brochure is a snapshot of your home's water quality provided last year. Included are details about where your water comes from, what it contains, and how it compares to the Environmental Protection Agency (EPA) and State of Wisconsin standards. The Racine Water Utility's (RWU) water quality meets or exceeds all Federal and State drinking water quality standards. The Racine Water Utility uses "state of the art" membrane ultra-filtration and employs 44 State certified waterworks operators. We are committed to providing you with information, because informed customers are our best allies.

Water Source Supply

Water delivered to Racine customers is treated and purified water drawn from Lake Michigan. The lake provides abundant, high quality water for many major cities along its shores.

The Wisconsin Department of Natural Resources (WDNR) completed source water assessments across the state of Wisconsin in the early 2000s. The RWU source water assessment completed in April, 2003 determined the relative susceptibility of Lake Michigan to contamination in the Racine area. Although, the water treatment plant protects its customers from potentially adverse health effects due to contamination, the source water assessment provides a first step guide for the community to implement preventative practices and limit contamination. To access the RWU source water assessment, go to: <https://dnr.wi.gov/topic/drinkingwater/documents/SWAP/Racine.pdf>

For more information go to: www.epa.gov/safewater/protect/sources or call the numbers listed in this report.

Public Invited

On the last Tuesday of each month, the Racine Water Utility holds its Waterworks Commission Meeting. The public is welcome to attend.

Meetings begin at 4:00 PM at the location of: The City Hall Annex, 800 Center Street, Room 227, Racine, Wisconsin 53403.



United States Conference of Mayors
"2011 Best Tasting Water in America" Award Winner



Racine Water Utility 2018 Drinking Water Quality Report



City of Racine, Wisconsin

Racine Waterworks 2018 Water Quality Table

Detected contaminants: Your water was tested for many contaminants last year. We are allowed to monitor for some contaminants less frequently than once a year. The following table lists all contaminants which were either detected or tested for but not detected. Each contaminant lists the year in which it was sampled for. All results for the last 5 years are listed in tables below.

MICROBIOLOGICAL RESULTS (SAMPLED IN 2018)

Contaminant	MCLG	MCL	Highest Monthly	Violation	Major Source
Total Coliform Bacteria	0	< 5%/month	0.00%	No	Human and animal fecal waste
Viruses, Giardia	0	TT			Human and animal fecal waste
Legionella	0	TT			Found naturally in water, multiplies in heating systems

PRIMARY REGULATED INORGANIC RESULTS (SAMPLED IN 2018)

Contaminant	MCLG	MCL	Results (Range)	Violation	Major Source
Antimony (ppb)	6	6	0.21	No	Discharge from petroleum refineries, fire retardants, ceramics, electronics, solder
Arsenic (ppb)	10	10	0.68	No	Erosion of natural deposits
Barium (ppm)	2000	2000	17	No	Erosion of natural deposits
Beryllium (ppb)		4	< 0.13	No	By-product of industrial processes
Cadmium (ppb)		5	< 0.10	No	By-product of industrial processes, erosion of natural deposits
Total Chromium (ppb) (Sampled in 2017)		100	0.32	No	Erosion of natural deposits
Cyanide (ppb) (Sampled in 2014)		200	13	No	By-product of industrial, mining, and metal finishing processes
Mercury (ppb)		2	< 0.025	No	Erosion of natural deposits
Nickel (ppb)		100	0.57	No	Erosion of natural deposits
Nitrite (ppm)	1	1	< 0.050	No	Runoff from fertilizer use, leaching from septic tanks, sewage
Selenium (ppb)		50	< 2.0	No	Erosion of natural deposits
Thallium (ppb)		2	< 0.10	No	Erosion of natural deposits
Fluoride (ppm)		4	0.71 (0.65 - 0.85)	No	Water additive which promotes strong teeth, erosion of natural deposits, discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	0.32	No	Runoff from fertilizer use, leaching from septic tanks, sewage Erosion of natural deposits
pH		6.5 - 8.5	7.82 (7.38 - 8.05)	No	Erosion of natural deposits
Chlorine Residual (ppm)	4.0	4.0	1.25 (0.95 - 1.47)	No	Water additive for disinfection

DISINFECTION BY-PRODUCTS - DISTRIBUTION (SAMPLED IN 2018)

DBP -Distribution	MCLG	MCL	Results	Violation	Major Source
TTHM (ppb) (Total trihalomethanes)	0	80	31.9 Range: 14-57	No	By-product of drinking water chlorination
HAA (ppb) (Haloacetic acids)	0	60	16.6 Range: 9.8-25	No	By-product of drinking water chlorination

ORGANIC COMPOUND RESULT (SAMPLED IN 2017)

Volatile Organic Compounds (ppb)	37 compounds were tested with no detection of any of these chemicals			No	By-product of industrial processes, petroleum production, gas stations, urban storm run-off and residential uses
Synthetic Organic Compounds (ppb)	MCLG	MCL	Results	No	Storm run-off from agriculture pesticide application
Atrazine (ppb)	3	3	0.027, 0.034	No	By-product of industrial processes, petroleum production, gas stations, urban storm run-off and residential uses
	41 other compounds were tested with no detection of any of these chemicals			No	

LEAD AND COPPER RESULTS (SAMPLED IN 2018) Results of Lead and Copper Sampling at Residential Water Taps

Contaminant	No. of sites Exceeding A.L.	MCLG	Action Level	90% Level/ Violation	Major Source
Copper (ppm)	0 out of 53	1.3	A.L.=1.3	0.26 / No	Corrosion of household plumbing systems, erosion of natural deposits
Lead (ppb)	1 out of 53	0	A.L.=15	6.7 / No	Corrosion of household plumbing systems, erosion of natural deposits

TURBIDITY AND PARTICULATE RESULTS (SAMPLED IN 2018)

Contaminant	MCLG	MCL	Results	Violation	Major Source
Turbidity (ntu)	na	TT Never > 1 95% of time < 0.3	Sand Filtration Max = 0.16 NTU 100% time < 0.3 NTU Membrane Filtration Max = 0.049 NTU 100% of time < 0.3 NTU	No	Soil runoff, suspended matter in source water

Next to disinfection of the water, the most important purification process is the removal of suspended particles. Particulate matter in the water may be disease causing micro-organisms or can provide hiding places for micro-organisms to escape disinfection chemicals. Turbidity is the measurement of water clarity. Water systems must meet clarity standards as listed in the above table. The RWU filters the treated water first through sand filters, and re-filters the water through membrane filters. The RWU's maximum turbidity for water leaving the treatment plant for 2018 was 0.049 NTU, well below the established maximum allowed levels, and the turbidity was below 0.3 NTU 100% of the time.

Cryptosporidium (Sampled 2015 -2017)	0	Treatment Technique	0 oocysts/liter	No	Human and animal feces
Giardia (Sampled 2015 - 2017)	0	Treatment Technique	0 cysts/liter	No	Human and animal feces

If turbidity maximum contaminant levels are met, the system is deemed in compliance in treating for cryptosporidium and giardia.

RADIOLOGICAL RESULTS (SAMPLED IN 2014)

Contaminant	MCLG	MCL	Results	Violation	Major Source
Beta/photo Emitters (pCi/l)	0	50	1.52	No	Decay of natural and man-made deposits
Alpha Emitters (pCi/l)	0	15	0.441	No	Erosion of natural deposits
Combined Radium (pCi/l)	0	5	0.492	No	Erosion of natural deposits

SECONDARY OR UNREGULATED CONTAMINANT RESULTS (SAMPLED IN 2018)

Contaminant	MCLG	MCL	Results (Range)	Violation	Major Source
Alkalinity (ppm)	na	na	108 (103 - 117)	No	Erosion of natural deposits
Sodium (ppm)	na	na	7.3	No	Erosion of natural deposits
Ortho-phosphate (ppm)	na	na	0.72 (0.57 - 1.01)	No	Erosion of natural deposits, addition of chemical in water treatment
Total Organic Carbon (ppm) (LakeWater)	na	na	1.7 (1.1 - 2.4)	No	Decay of natural and man-made deposits
Water Temperature °F	Annual Average: 47.5			Annual Range: 32.6 - 73.5	

WATER QUALITY CORROSION PROGRAM MONITORING RESULTS (SAMPLED IN 2018)

Contaminant	MCLG	MCL	Results (Range)	Violation	Major Source
Calcium (ppm)	na	na	34 (0.2-38)	No	Erosion of natural deposits
Hardness (ppm)	na	na	131 (1-140)	No	Erosion of natural deposits
Chloride (ppm)		250	15 (15-16)	No	Erosion of natural deposits
Manganese (ppm)		0.05	0.006 (<0.002-0.014)	No	Erosion of natural deposits, addition of chemical in water treatment
Iron (ppm)	na	0.30	0.012 (<0.005-0.019)	No	Erosion of natural deposits
Aluminum (ppm)		0.05 - 0.20	0.012 (<0.006-0.071)	No	Erosion of natural deposits, addition of chemical in water treatment
Sulfate (ppm)	na	250	21 (21-22)	No	Erosion of natural deposits
Conductivity (umhos)	na	na	307 (299-318)	No	Erosion of natural deposits

For a more comprehensive water quality parameter list, please contact the Racine Water Utility or visit us online at www.cityofracine.org/Water.aspx

How to Read the Water Quality Table: Use the definitions here to understand what the scientific data means for your drinking water. The **Compliance Level** may be a substance's highest level detected in the water, or an average concentration of all samples tested, depending on the regulation for the substance. If multiple samples were tested in 2018, the lowest and highest detected values are listed under **Range of Detections**.

Regulated substances have **Maximum Contaminant Levels (MCLs)** set by the EPA. This is the highest level of the substance legally allowed in drinking water. Some contaminants also have **Maximum Contaminant Level Goals (MCLGs)**. This is the level of a substance where there is no known or expected health risk. MCLGs allow for a margin of safety. MCLs are set as close to MCLGs as practical using the best available water treatment processes.

Monitoring for unregulated contaminants is also conducted. Although these are substances that do not have MCLs, the EPA evaluates them when assessing future drinking water regulations. The MCL for lead and copper is known as the **Action Level (AL)**. This is the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow. For compliance, 90% of all samples tested must be below the Action Level.

Turbidity is a measure of water clarity used to evaluate the effectiveness of the filtration system. One criterion for enforcement of the turbidity regulation is a **Treatment Technique (TT)**. This is a water treatment process that is required by the EPA to reduce the level of turbidity in the water.

The **Units of Measurement** reported for each substance depend on the nature of the analytical measurement and the amount of the substance detected. Listed below are the abbreviations for these units.

ppm: parts per million or milligrams per liter
ppb: parts per billion or micrograms per liter
pCi/l: pico curies per liter, a measure of radioactivity
ntu: nephelometric turbidity units