

2015 Lead Update

Because of the exceedance of the lead action level in 2014 by the RWU, the EPA and WDNR regulations required the Utility to conduct more comprehensive lead monitoring in 2015. First, the RWU undertook a more thorough training of its volunteers to eliminate past sampling technique errors and revamped the sampling form to insure representative and accurate water samples. In 2015, 103 1st draw water samples were taken in the first half of the year and 102 1st draw samples in the second half. As stated previously, the 90% values were 4.2 and 5.3 ppb respectively, well below the 15 ppb action level. Each set of samples had only 1 sample exceed the action level. Looking at the above results, along with maximum, average, and median values for lead, the Utility achieved its best results in the history (23 years) of the lead and copper sampling program.

The RWU also tested an additional 730 homes as required by regulations for lead service line sampling. The goal of this program was to sample for worst case scenario, sample water exposed to the lead pipe bringing water from the water main to the home. Again, results were very encouraging with only 6.4% of samples exceeding the 15 ppb threshold.

Racine Water Utility Water Quality Monitoring Program

- To meet USEPA and WDNR regulations, the RWU monitors over 120 different constituents and possible contaminants in our customers' drinking water.
- The RWU conducts extensive testing of Lake, process, finished, and distribution waters.
- RWU staff performed over 40,100 manual water quality tests in 2015.
- Chemists conducted over 10,300 bacteriological analyses in 2015.
- On-line instrumentation provided over 400,000 real time analytical results for monitoring treatment effectiveness, safety for consumption, and for reporting to regulatory agencies.
- The Utility employs 45 WDNR Certified Water operators.
- The RWU uses state of the art technology (membrane filtration) to treat the already high quality source water, Lake Michigan.

Unregulated Contaminants Monitoring Program 2015

Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of the unregulated contaminant monitoring rule (UCMR) is to guide the EPA in determining the frequency and concentration of occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. The EPA required the Racine Water Utility and many other water utilities to participate in this special water quality monitoring.

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

For an electronic version of this report go to:
<http://www.cityofracine.org/water/2015CCR>



Racine Water Utility
100 Hubbard Street • Racine, WI 53402

EPA and Wisconsin Requirements for Racine's Drinking Water

Water delivered by the Racine Water Utility (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 from the lake and from homes throughout the City and surrounding communities is monitored for over 90 regulated contaminants. Racine test results during 2015 are listed in the table on the other side of this brochure. The Water Quality Table lists many substances the RWU tested for. In April 2015, the RWU began a 2-year monitoring program for cryptosporidium and giardia with the 2015 results listed in Water Quality Table. To ensure that tap water is safe, the Environmental Protection Agency (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 and fixtures. For the years of 2008-2013, the Racine Water Utility (RWU) remained in compliance with the lead action level of 15 parts per billion (ppb). In 2014, the Utility's lead and copper sampling results put the RWU out of compliance with the lead action level. This exceedance (25 ppb) of the lead action level was due mainly to sampling errors. Because of the 2014 violation, the RWU was required to collect 1 set of 100 samples in each half of the 2015 calendar year. The 2015 results showed the RWU to be back in compliance with the 15 ppb 90 percentile lead action level, with the concentrations of 4.2 ppb and 5.3 ppb for each half of the year respectively. Additionally, each set of 100+ samples had only 1 sample result for lead exceeding 15 ppb. The 2015 results were the best ever achieved by the RWU in the 23 years of sampling. 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 from 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.

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 water quality meets or exceeds all Federal and State drinking water quality standards. 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.

In 2004, the Wisconsin Department of Natural Resources completed a source water assessment for the Racine Water Utility. The purpose of this assessment was to determine 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 guide to implement preventative practices and limit contamination.

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 2015 Drinking Water Quality Report



Racine Waterworks 2015 Water Quality Table

MICROBIOLOGICAL RESULTS (SAMPLED IN 2015)

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
Cryptosporidium (Lake Water)			0 oocysts/liter		Human and animal fecal waste
Giardia (Lake Water)			0 cysts/liter		Human and animal fecal waste

PRIMARY REGULATED INORGANIC RESULTS

Contaminant	MCLG	MCL	Results (Range)	Violation	Major Source
Sampled in May 2011 Asbestos (<i>million fibers per liter</i>)		7	< 0.20	No	Erosion of natural deposits
Sampled in March 2014 Antimony (ppb)	6	6	0.20	No	Discharge from petroleum refineries, fire retardants, ceramics, electronics, solder
Arsenic (ppb)	10	10	0.92	No	Erosion of natural deposits
Barium (ppm)	2000	2000	22	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
Chromium (ppb)		100	< 0.47	No	Erosion of natural deposits
Cyanide (ppb)		200	13	No	By-product of industrial, mining, and metal finishing processes
Mercury (ppb)		2	< 0.050	No	Erosion of natural deposits
Nickel (ppb)		100	0.78	No	Erosion of natural deposits
Nitrite (ppm)	1	1	< 0.0067	No	Runoff from fertilizer use, leaching from septic tanks, sewage
Selenium (ppb)		50	< 2.0	No	Erosion of natural deposits
Silver (ppb) (<i>sampled in 2013</i>)		50	< 0.26	No	Erosion of natural deposits
Thallium (ppb)		2	< 0.10	No	Erosion of natural deposits
Sampled in 2015 Fluoride (ppm)		4	0.73 (0.54 - 0.87)	No	Water additive which promotes strong teeth, erosion of natural deposits, discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	0.54	No	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits

ORGANIC COMPOUND AND DISINFECTION BY-PRODUCTS RESULTS

DBP -Distribution (sampled in 2015)	MCLG	MCL	Results	Violation	Major Source
TTHM (ppb) (<i>Total trihalomethanes</i>)	0	80	23.9 <i>Range: 15.0-33.0</i>	No	By-product of drinking water chlorination
HAA (ppb) (<i>Haloacetic acids</i>)	0	60	11.9 <i>Range: 9.3-15.0</i>	No	By-product of drinking water chlorination
(Sampled in May & July 2014) 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, detection of any of these chemicals urban storm run-off and residential uses
Synthetic Organic Compounds (ppb)	41 compounds were tested with no detection of any of these chemicals			No	By-product of industrial processes, petroleum production, gas stations, detection of any of these chemicals urban storm run-off and residential uses

LEAD AND COPPER RESULTS (SAMPLED IN 2015) 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)	1st half 2015 > 2nd half 2015 >	0 out of 103 0 out of 102	1.3	A.L.=1.3	0.36 / No 0.27 / No	Corrosion of household plumbing systems, erosion of natural deposits
Lead (ppb)	1st half 2015 > 2nd half 2015 >	1 out of 103 1 out of 102	0	A.L.=15	4.2 / No 5.3 / No	Corrosion of household plumbing systems, erosion of natural deposits

PARTICULATE RESULTS (SAMPLED IN 2015)

Contaminant	MCLG	MCL	Results	Violation	Major Source
Turbidity (ntu)	na	TT Never > 1 95% of time < 0.3	Highest = 0.055 Minimum = 0.010 Average Daily 0.026	No	Soil runoff, suspended matter in source water

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 2015)

Contaminant	MCLG	MCL	Results (Range)	Violation	Major Source
Sodium (ppm)	na	na	10	No	Erosion of natural deposits
Sulfate (ppm)	na	250	23	No	Erosion of natural deposits
Ortho-phosphate (ppm)	na	na	0.67 (0.40 - 0.85)	No	Erosion of natural deposits
Total Organic Carbon (ppm) (<i>LakeWater</i>)	na	na	Average: 1.7	No	addition of chemical in water treatment

UNREGULATED CONTAMINANT RESULTS (SAMPLED IN 2015)

Contaminant	MCLG	MCL	Results (Range)	Violation	Major Source
Volatile Organic Compounds ¹ (ppb)	7 compounds tested with no detection of these chemicals			na: no MCL	
Synthetic Organic Compounds ² (ppb)	1 compound tested with no detection of these chemicals			na: no MCL	By-product of industrial processes, petroleum production, gas stations, urban storm run-off and residential uses
Hormones ³ (ppb)	7 compounds tested with no detection of these chemicals			na: no MCL	
Perfluorinated Compounds ⁴ (ppb)	6 compounds tested with no detection of these chemicals			na: no MCL	
Vanadium (ppb)	na	na	0.21 (<0.20 - 0.21)	No	Erosion of natural deposits
Molybdenum (ppb)	40	na	1.1 (1.0 - 1.1)	No	Erosion of natural deposits
Cobalt (ppb)	na	na	<1 (all samples)	No	Erosion of natural deposits
Strontium (ppb)	na	na	133.2 (123 - 143)	No	Erosion of natural deposits
Hexavalent Chromium (ppb)	na	na	0.22 (0.20 - 0.26)	No	Erosion of natural deposits, by-product of industrial processes
Total Chromium (ppb)	na	100	0.27 (0.25 - 0.28)	No	Erosion of natural deposits
Chlorate (ppb)	na	na	<20 (all samples)	No	Disinfection by-product

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 2015, 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 to the right are the abbreviations for these units

1 1,2,3-trichloropropane
1,3-butadiene
chloromethane (methyl chloride)
1,1-dichloroethane

bromomethane (methyl bromide)
chlorodifluoromethane (HCFC-22)
bromochloromethane (halon 1011)

2 1,4 dioxane

3 17-B-estradiol
17-a-ethynylestradiol (ethinyl estradiol)
16-a-hydroxyestradiol (estriol)

equillin
estrone
testosterone
4-androstene-3,17-dione

4 perfluorooctanesulfonic acid (PFOS)
perfluorooctanoic acid (PFOA)
perfluorononanoic acid (PFNA)

perfluorohexanesulfonic acid (PFHxS)
perfluoroheptanoic acid (PFHpA)
perfluorobutanesulfonic acid (PFBS)

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