

Annual
WATER
QUALITY
REPORT

Reporting Year 2013



Presented By
City of Rockford

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There When You Need Us

We are once again proud to present the City of Rockford annual water quality report covering all testing performed between January 1 and December 31, 2013. Over the years, we have dedicated ourselves in producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available to assist you should you ever have any questions or concerns about your water.

Community Participation

The public is invited to attend City Council Meetings and voice your concerns about your drinking water. City Council Meetings are on the second Monday of each month, beginning at 7:00 pm, at Rockford City Hall, 7 South Monroe Street, Rockford.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which 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 these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Rockford is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent according to government estimates).

The Food and Drug Administration is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Further, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to \$1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion on the NRDC study results, check out their Web site at www.nrdc.org/water/drinking/bw/exesum.asp.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our water source and sent to an aerator, which allows for oxidation of the high iron levels that are present in the water. The water then goes to a detention tank where the oxidation process is completed and the iron is now ready to be filtered out. Chlorine is then added for disinfection; this step is called "prechlorination." At this point, the water is filtered, suspended iron particles are removed, and clear water emerges.

An orthophosphate is added to protect contaminants like lead and copper from leaching into the water as it moves throughout household plumbing and fixtures. Finally, chlorine is added again as a precaution against any bacteria that may still be present as the water travels to the water towers and into your home or business. We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Jamie Davies, Director of Public Services, at (616) 866-1537.

Source Water Assessment

In 2003 the DEQ performed a source water assessment for the City of Rockford. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area and a determination of the water supply's susceptibility to contamination by the identified potential sources.

According to the Source Water Assessment Plan, the City of Rockford's production wells have a "moderate" susceptibility to contamination based on our source of water and possible sources of contamination within the wellhead protection area. For more information or a copy of this report, please contact City Office at (616) 866-1537.

What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, residential, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. Annual inspections and testing of each backflow preventer make sure that it is providing maximum protection for continually safe water provided by the city.

For more information, review the Cross-Connection Control Manual from the U.S. EPA's Web site at <http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm>. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

Where Does My Water Come From?

The City of Rockford customers are fortunate because we enjoy an abundant water supply from three wells located on the southeast side of the city. The Rockford Water Treatment Plant draws water from an aquifer more than 100 feet below the surface of the earth and pumps it directly into the treatment facility.

The Rockford Water Treatment Plant was officially placed online in the year 2000 as an iron removal water treatment plant. Our treatment facility, in 2013, supplied 258 million gallons of water to roughly 6,000 customers. Our maximum filtered water produced in a single day was 1.58 million gallons, whereas the minimum amount of water produced in a single day was 140,000 gallons. The average water produced per day was calculated to be 707,000 gallons.

From the treatment facility, the water then travels into the distribution system. The distribution system comprises approximately 30 miles of water mains, more than 2,000 water meters, and roughly 400 fire hydrants. The City has four elevated water storage tanks with capacities ranging from 200,000 gallons to 500,000 gallons. These tanks provide the City with water pressure and ample water for fire suppression. In addition to the storage tanks, we also have a booster pumping station to provide water for the High Tower water tank, water pressure, and fire suppression to the Rockford Highlands. In addition to providing water to the City of Rockford, we also provide water to parts of Cannon Township.

About Our Violations

On September 3, 2013, the City of Rockford took distribution samples for bacteria sampling using a 24-hour test to verify the presence or absence of total coliform bacteria. On September 4, 2013, three tests came back positive for total coliform bacteria, resulting in an MCL violation. The positive total coliform samples were then further tested for *E. coli*. 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 found in more samples than allowed and this was a warning of potential problems.

On September 4, 2013, two of the three total coliform positive tests tested positive for *E. coli*. Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems. Upon further testing and sampling with another certified microbiology laboratory, and a new water sample, a bacterium was found in the sample that did test positive for total coliform but negative for *E. coli*. The bacterium found was speciated by the certified lab and was identified as *Enterobacter aerogenes*, *E. aerogenes* is within the group of coliform indicator species but is not *E. coli*. The later findings of the species *E. aerogenes* will neither invalidate nor nullify the positive *E. coli* samples originally discovered on September 4, 2013.

The bacteria that facilitated the positive total coliform and *E. coli* test results (September 4, 2013) was traced back to a filter within the water treatment plant. The filter was taken out of service immediately, drained, and the filter media disassembled. The filter was then thoroughly cleaned and disinfected. The filter was rebuilt using new filter media and disinfected once again. It was tested, vigorously, every day and passed the State of Michigan's DEQ approval to place the filter back on-line (March 24, 2014); with all samples testing negative for total coliform, *E. coli*, and/or *Enterobacter aerogenes*. To prevent such disasters in the future, the City of Rockford has decided to "prechlorinate" the filter to ensure the absence of potentially harmful bacteria, the overall quality of our water, and, of course, the safety of our customers.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES									
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE		
Chlorine (ppm)	2013	[4]	[4]	0.96	0.78–1.12	No	Water additive used to control microbes		
Fecal coliform and <i>E. coli</i> (# positive samples)	2013	0	0	2	NA	Yes	Human and animal fecal waste		
Fluoride ¹ (ppm)	2013	4	4	0.48	0.25–0.72	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories		
Haloacetic Acids [HAA]–Stage 1 (ppb)	2013	60	NA	10	10–10	No	By-product of drinking water disinfection		
Nitrate (ppm)	2013	10	10	0.17	0.17–0.17	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits		
THMs [Total Trihalomethanes]–Stage 1 (ppb)	2013	80	NA	18.8	18.8–18.8	No	By-product of drinking water disinfection		
Total Coliform Bacteria (# positive samples)	2013	1 positive monthly sample	0	3	NA	Yes	Naturally present in the environment		

Tap water samples were collected for lead and copper analyses from sample sites throughout the community³

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH% TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppb)	2013	1,300	1,300	500	0/20	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2013	15	0	0	0/20	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2013	250	NA	16.9	16.9–16.9	No	Runoff/leaching from natural deposits
Iron (ppb)	2013	300	NA	57	0–160	No	Leaching from natural deposits; Industrial wastes
Sulfate (ppm)	2013	250	NA	124	NA	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Sodium (ppm)	2013	13.7	NA	Erosion of natural deposits

¹These values are based on the running annual average (RAA) of the bacteriological sample sites.

²The EPA has lowered the standard for fluoride residuals in drinking water to 0.7 ppm. In 2012, the City of Rockford stopped adding fluoride to the water, because the City's ground water source naturally contains around 0.5 ppm.

³Tap water samples were collected for lead and copper analyses from 20 representative homes in the service area that had lead solder sweated copper fittings or lead service lines. We will be testing these homes again in 2016.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

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 feasible using the best available treatment technology. Secondary MCLs (SMCLs) are established to regulate the aesthetics of drinking water (i.e., taste and odor).

MCLG (Maximum Contaminant Level

Goal): 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.

MRDL (Maximum Residual Disinfectant

Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant

Level Goal): 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 contaminants.

NA: Not applicable

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).