

MARION 2015 WATER QUALITY REPORT



Introduction: The Marion Water Department, in compliance with the Federal Safe Drinking Water Act, is providing its customers with its annual water quality report. This report explains where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. For further information about your drinking water, you may call 743-6310.

Does Marion water meet EPA standards? Yes. Our water meets all of EPA standards. In 2015 we took over 5701 tests to insure compliance with drinking water standards.

What is the source of my water? Marion's primary source of water for its wells is the Jordan aquifer. The Jordan aquifer is a large water bearing sandstone formation underlying most of Eastern Iowa. Marion's five Jordan wells are 1600 feet deep and are drilled through the 100 foot thick sandstone layer which transports water from northeast Iowa and southeast Minnesota. Our Jordan wells yield as much as 1500 gallons per minute. Due to the fact that many Iowa cities use the Jordan aquifer as a primary water source, it receives a protected status from the State of Iowa. Marion also has four 400' Silurian aquifer wells. One serves only as an emergency source only supply. Two new Silurian wells were drilled in 2014. The two new wells will eventually be tied into our water system to reduce our overall water demand from the Jordan Aquifer. The Silurian aquifer is a regional supply receiving recharge from the Cedar River Basin and is also of good quality, though production yields are typically less than a third of the Jordan aquifer.

In 2015, the Marion Water Department obtained 88.4% of its water from the Jordan aquifer and 11.6% from the Silurian aquifer. The Jordan aquifer was determined to have low susceptibility to contamination because the characteristics of the aquifer and overlying materials prevent easy access of contaminants to the aquifer. The Jordan wells will not be susceptible to most contaminant sources except through pathways to the aquifer such as abandoned or poorly maintained wells.

The Marion Water Department serves an estimated 36,000 citizens through a distribution system of 183.8 miles of water mains and 12,950 service connections. The water system also includes 1652 fire hydrants and 2765 valves.

Governing body: The Water Department is governed by a citizen board – The Board of Trustees. This five member board is appointed by the Mayor and confirmed by the City Council to staggered six-year terms. The Board of Trustees meets monthly, the second Tuesday of the month, at 5:15 p.m. in City Hall, with public participation welcome.

Is our water system meeting rules that govern our operations? In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The State and EPA require us to test our water on a regular basis for over 80 items to ensure its safety. All tests have been submitted as required.

DO I NEED TO TAKE SPECIAL PRECAUTIONS? 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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Why are there contaminants in my water? 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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

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, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agriculture livestock operations and wildlife.
- *Inorganic contaminants*, such as salts and metals, which can be naturally-occurring or 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, 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 can also come from gas stations, urban stormwater runoff, and septic systems.
- *Radioactive contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities.

Contaminant Violations: Radium levels from Marion's newest Well #7 had an exceedance in Radium, Combined (226, 228). Some people who drink water containing Radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer. Quarterly water sampling is being done at this site to further evaluate the radium level. Results are posted on the department's website. If the radium levels stay above the MCL, then a capital improvement project will be needed to address the issue.

Other Violations: In June 2015, a monitoring violation occurred for Combined Radium. Adverse health effects, if any, are not known. Monitoring procedures have been corrected to avoid future violations.

Water Quality Data Table: The water quality data table on the next page lists all the contaminants that were detected during monitoring for the 2015 calendar year or prior. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Definitions of the terms used in the table and explanations of the abbreviations are given on the bottom of the page. Some chemicals tested for do not have MCL/MCLG standards and are shown as "NA".

To view more information about the Marion Water Department, please visit our website at www.cityofmarion.org

2015 TEST RESULTS

Radioactive Contaminants

Contaminant/Date	Violation	Level Detected	Range	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Alpha Emitters 2015	No	6.05	5 to 7.1	pCi/L	0	15	Erosion of Natural Deposits
Radium Combined 2015	No	4.06	3.1 to 5.3	pCi/L	0	5	Erosion of Natural Deposits

Total Trihalomethanes

Contaminant/Date	Violation	Level Detected	Range	Unit Measurement	MCLG	MCL	Likely Source of Contamination
(TTHM) 7/15	No	<2.00	ND	ppb	NA	AL=80	By-product of Chlorinating Drinking Water

Total Haloacetic Acids

Contaminant/Date	Violation	Level Detected	Range	Unit Measurement	MCLG	MCL	Likely Source of Contamination
(HAA5) 7/15	No	<5.00	ND	ppb	NA	60	By-product of Chlorinating Drinking Water

Inorganic Contaminants

Contaminant/Date	Violation	Level Detected	Range	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Lead (1) 7/15	No	4.6	ND to 12.0	ppb	0	AL=15	Corrosion of household plumbing system; Erosion of natural deposits
Copper 7/15	No	.106	.0106 to .156	ppm	0	AL=1.3	Corrosion of household plumbing system; Erosion of natural deposits; Leaching from wood preservatives
Fluoride 2015	No	1.11	.73 to 1.43	ppm	4	4	Erosion of natural deposits; Water additive which promotes strong teeth
Sodium 6/14	No	66.9	NA	ppm	NA	NA	Erosion of natural deposits
Nitrate 2015	No	.3	.1 to .3	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks; Erosion of natural deposits
Nitrite 2015	No	<0.10	NA	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks; Erosion of natural deposits
Barium 6/12	No	0.0817	.0195 to .0817	ppm	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Selenium 7/10	No	2.60	NA	ppb	50	50	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
IUMCR3 Strontium 11/13	No	1.56	.001 To 1.56	mg/L	NA	NA	Erosion of natural deposits in bedrock

Chlorine

Contaminant/Date	Violation	Level Detected	Range	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Chlorine Daily	No	2.1	1.4 to 2.9	ppm	MRDLG = 4.0	MRDL = 4.0	Water additive used to control microbes

Distribution System	Violation	MCL – (MCLG)	Compliance		Date	Source
			Type	Value & (Range)		
Fecal coliform and E. coli	No	A routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or E. Coli positive (0)	TCR	0	NA	Human and animal fecal waste
Total Coliform Bacteria	No	Presence of coliform bacteria in >5% of monthly samples (0)	TCR	0	NA	Naturally present in the environment

Note: Test results are from most recent tests taken.

(1) Health Effects of Lead in Drinking Water: 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 Marion Water Department 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 <http://www.epa.gov/safewater/lead>.

Definitions:

MCLG – Maximum Contaminant Level Goal, or 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.

MCL - Maximum Contaminant Level, or 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.

MRDLG – Maximum Residual Disinfectant Level Goal, or 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.

MRDL – Maximum Residual Disinfectant Level, or 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.

ND – No Detect

pCi/L – pico Curies per liter

ppb – parts per billion

ppm – parts per million

AL – Action Level, or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.

NA – Not Applicable