

CITY OF MANCHESTER, IOWA

2016 Water Quality Consumer Confidence Report

Introduction

In compliance with the Safe Drinking Water Act Amendments, the City of Manchester water system is providing its customers with an 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

Does my drinking water meet EPA standards?

Yes, our water meets all of EPA's standards. In 2016, we conducted over 500 tests for over 80 contaminants that may be in drinking water. As you'll see in the table contained in this report, we found all contaminants at levels that met the EPA guidelines at all times.

What is the source of my water?

Your water comes from four municipal wells sunk about 300 feet into an underground source of water called the Silurian Aquifer. These wells are located at 412 Vine Street, 900 East Butler Street, 525 Williams Street, 201 West Honey Creek Drive, 901 South 10th. The town owns the land around these wells and restricts any activity that could pollute them. The State has performed an assessment of our source water which was completed November, 2001. The Manchester water supply obtains its water from the Silurian aquifer. The Silurian aquifer was determined to be highly susceptible to contamination because the characteristics of the aquifer and overlying materials allow contaminants to move through the aquifer fairly quickly. The City wells will be most susceptible to activities such as leaking underground storage tanks, inactive toxic release inventories, permitted pesticide applicators, wastewater treatment plants, and hazardous waste generators. A detailed evaluation of your source water was completed by the Iowa Department of Natural Resources, and is available from the City of Manchester. For additional information on the sources of your water or the assessment, please contact us at 927-3636.

How can I get involved?

Residents are encouraged to first contact City Hall (927-3636) with any questions or concerns about the City's water

system. The Manchester City Council over sees the Water Department. The council meets on the second and fourth Monday of each month at City Hall. Please feel free to participate in these meetings.

Is our water system meeting other 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. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health. The State and EPA require us to test our water on a regular basis to ensure its safety. The Manchester Water Department met all regulations in 2016.

Do I need to Take Special Precautions?

Some people may be more vulnerable to contaminants 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/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 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, 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 can be naturally occurring or be the result of oil and gas production and mining activities.

Additional Health Information Nitrate

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

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 Manchester 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 the following site:
<http://www.epa.gov/safewater/lead>.

Water Quality Data Table

The water quality data table on the next page lists all the contaminants that were detected during monitoring for the 2016 calendar year. 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 as follows:

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.

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

TT: Treatment Technique, or a required process intended to reduce the level of a contaminant in drinking water.

Abbreviations

ppb parts per billion or micrograms per liter

ppm: parts per million or milligrams per liter

n/a: not applicable

NTU: Nephelometric Turbidity Unit, used to measure cloudiness in drinking water

MFL: million fibers per liter, used to measure asbestos concentration

Nd: not detectable at testing limits

BACTERIA CONTAMINANTS

Bacteria	MCL	MCLG	Level Found	Range of Detection	Sample Date	Violation	Typical Source of Contaminant
Fecal Coliform	Routine sample is coliform positive	0	0	0 of 72	1-16 12-16	N	Human and animal fecal waste
Total Coliform Bacteria	Coliform bacteria in 5% of monthly samples	0	0	0 of 72	1-16 12-16	N	Contaminant naturally present in the environment

INORGANIC CONTAMINANTS

Inorganic Contaminant	MCL	MCLG	Level Found	Range of Detection	Sample Date	Violation	Typical Source of Contaminant
Arsenic	10	0	1	NA	4/04	N	Erosion of natural deposits
Nitrate (as N) (ppm)	10	(10)	8.8	6.3-8.8	2016	N	Run off from fertilizer use; leaching from septic tanks; erosion of natural deposits
Barium (ppm)	2	2	0.07	0.07	5/14	N	Erosion of natural deposits
Fluoride (ppm)	4	4	0.2-1.1	0.2-1.1	2014	N	Erosion of natural deposits; Water additive which promotes strong teeth
Sodium (ppm)	NA	NA	8.6	5.6-8.6	4/16	N	Erosion of natural deposits
Copper (ppm)	AL=1.3	1.3	.2	0.03-0.27	2016	N	Corrosion of within house plumbing systems
Lead (ppb)	AL=15	0	5	ND-11	2016	N	Corrosion of within house plumbing systems
Chlorine (ppm)	4.0	4.0	0.9	0.4-1.7	6/16	N	Water additive used to control microbes

* one home exceeded the lead action level

ORGANIC CHEMICAL CONTAMINANTS

Organic Chemical Contaminants	MCL	MCLG	Level Found	Range of Detection	Sample Date	Violation	Typical Source of Contaminant
Atrazine (ppb)	3	3	0.10	0.10	4/07 & 7/07	N	Run off from herbicide used on row crops
Total Trihalomethanes (ppb) (tthm)	80	NA	5	5-5	9/16	N	By product of drinking water disinfection
Di (2-ethylhexyl) phthalate (ppb)	6	0	2.40	0-2	3/13	N	Discharge from rubber and chemical factories
Di (2-ethylhexyl) adipate (ppb)	400	400	0.9	1-1	5-14	N	Discharge from chemical factories

INTERESTING FACTS

The Manchester Water Department began with a small distribution system in the mid 1800's which required pumping water from an artesian well using steam energy. In 1896 a well was drilled, using a steam powered turbine pump. A 120,000 gallon stand pipe was built in the late 1800's and was used until 1971 for water storage.

The City of Manchester currently has 5 wells in operation. These wells can pump a total of 2,700 gallons per minute or 3,888,000 gallons per day!

Manchester has 3 water towers. The first tower was built in 1948. As our population grew so did the need for water. A 500,000 gallon storage tower was built in 1971 and a 300,000 gallon storage tower was constructed in 1981. In total, the City's water towers can store 1,050,000 gallons!

Manchester's distribution system has grown to over 40 miles of water main, ranging from 16" water main lines down to 4" water main lines. One third of the distribution system is over 100 years old. The water distribution system and pumps are all controlled by radio communications. A centralized computer starts and stops pumps and signals alarms to keep the system working. The Manchester Water Department takes great pride in the maintenance of this system and keeping good water flowing to its customers.

Manchester was also one of the first cities in the state of Iowa to add fluoride to its water.

In 2016 Manchester pumped 187,352,000 gallons for an average of 513,293 gallons per day. This averages out to approximately 99 gallons of water per person, per day.

Grains of Hardness 13.5

PPM 300