



2017 Annual Drinking Water Quality Report

City of Belding

We're pleased to present you with this year's Annual Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water. Our water source is ground water from glacial aquifers. Two of the city's four wells are located in the vicinity of Kenwood and Water Street. Each of the two wells are approximately 110 to 120 feet deep. Reed Street well is in the northeast corner of the city in the 500 block of Reed Street. This well is 179 feet deep. The city added a fourth well to the system in December, 2003. The well is located at the east end of Demorest Field. The depth of the well is 160 feet.

The City of Belding does add fluoride at .8 parts per million (ppm) to aide in the prevention of tooth decay. Because the city's aquifers do have a small amount of natural iron in the water, one (ppm) of phosphate, and less than one (ppm) of gas chlorine is added to help protect from any form of bacteria.

The City of Belding has successfully completed a Wellhead Protection Program. The protection area includes all property to the north and west of the Flat River as it travels through the city. The area extends approximately 1 mile north and east of the city limits.

This report shows our water quality and what it means. If you have any questions about this report or concerning your water utility, please contact Ernest Thomas at 616-794-1340. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings which are held on the 1st and 3rd Tuesday of the month at the Pere Marquette Depot, 100 Depot Street at 7 p.m.

The City of Belding routinely monitors for constituents in your drinking water according to Federal and State laws. This table shows the results of our monitoring for the period of January 1, 2017 to December 31, 2017. In this table you will find many terms and abbreviations you might not be familiar with. To help you understand these terms, we've provided the following definitions.

The Department of Environmental Quality (DEQ) initiated a source water assessment of Belding's sources of drinking water and found Water Street Well and Reed Street Well

to be moderately susceptible to potential contaminants. Kenwood Well is determined to be highly susceptible to potential contaminants. Six known sites of existing contamination have been confirmed as being located within the 10-year Time-of-Travel wellhead protection area (WHPA) of our municipal wells. The contaminants are from open underground storage tanks (UST) and Leaking Underground Storage Tanks (LUST's) in all the cases. Some sites where groundwater was impacted have been closed, with the soil excavated and disposed of in accordance with Part 201 of Act 451 of the Environmental Protection Act. If you have questions regarding the Source Water Assessment, please contact Ernest Thomas, Director of Public Works at 616-794-1340.

Water Quality Table Key and Definitions

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (PPB) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

pCi/L - picocuries per liter (a measure of radioactivity)

MRDLG - Maximum Residual Disinfectant Level Goal

MRDL - Maximum Residual Disinfectant Level

ND Non-Detects - Laboratory analysis indicates that the constituent is not present

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

Maximum Contaminant Level - (mandatory language) The Maximum Allowed (MCL) is 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.

Maximum Contaminant Level Goal - (mandatory language) The Goal (MCLG) is 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.

RAA - Running annual average

SEE TABLE

ALPHA EMITTERS - Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of health.

ARSENIC - Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

BARIUM - Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

COPPER - Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

FLUORIDE - Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness in the bones. Children may get mottled teeth.

LEAD - 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 Belding 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 at 800-426-4791 or at <http://www.epa.gov/safewater/lead>.

Inadequately treated water may contain disease causing organisms. These organisms include bacteria, viruses and parasites which can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

As you can see by the table, our system had no violations. We're proud that your drinking water meets or exceeds all Federal and State requirements. We have learned through our monitoring and testing that some constituents have been detected. The EPA has determined that your water IS SAFE at these levels.

Sources of drinking water

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our water comes from 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, agricultural 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 and residential uses.
- **Radioactive contaminants**, which are naturally occurring or be the result of oil and gas production and mining activities.
- **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.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.

All 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 the 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 at 1-800-426-4791.

MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink two liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effects.

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 identi-

fied and removed, replaced or reduced.

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply, we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments. Thank you for understanding.

Health Information

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 microbiological contaminants are available from the Safe Drinking Water Hotline: 1-800-426-4791. Please call our office if you have any questions.

We at the City of Belding work around the clock to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are at the heart of the community, our way of life and our children's future.

On August 2, 2017 routine water samples were taken from nine sites around the City of Belding. Two wells and one distribution site tested *E. coli* positive. The other two wells and two distribution sites tested positive for total coliform, which is an indicator there is something present, but not identified.

A city wide boil water order was issued.

Staff began flushing fire hydrants and re-sampled all sites that were positive, plus up stream and down stream connections of original sites.

Samples were taken on August 4 and August 5, 2017. Both sample days came back good on August 6, 2017 and the boil water order was lifted.

On August 7, 2017, DEQ conducted a Level 2 Assessment of the city's water system and identified two findings:

1. The four wells had their 55-gallon phosphate drum cap removed to provide a 2-inch diameter opening for insertion of a chemical suction tube inside the drum to the phosphate solution. The opening with the chemical suction tube was not covered to prevent insects or dirt from getting to the phosphate solution. Of the four wells serving the water system, Well 4 phosphate tank needed the most attention as some amount of dark substance had settled at the bottom of the phosphate solution, thus requiring it to be replaced with new phosphate solution.
2. The well pump house's doors were rusted and some of the wood was rotted, mainly at the door bottom. Some of the rotted wood created shall holes where rodents could get inside the well pump house and if a chlorine gas leak occurs, it could get outside the well pump house.

In conclusion, the DEQ could not find any specific items that caused the water samples collected on August 2, 2017 to test positive for total coliform and *E. coli*.

During the past year one Level 2 Assessment was required to be completed for our water supply. One Level 2 Assessment was completed. In addition, we were required to take two corrective actions and we completed two of these actions.

E. coli health effects:

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems.

Coliforms:

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct the problems that were found during these assessments.

Contaminant	Violation	Level Detected	Unit Measurement	MCLG	MCL	Likely Source
Arsenic	NO	0	ppb	0	10	Erosion of natural deposits; runoff
Barium	NO	0	ppm	2	2	Discharge of drilling wastes; discharge from metal refiners; erosion of natural deposits
Fluoride	NO	.57	ppm	4	4	Erosion of natural deposit; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

20 private homes in Belding were tested for lead and copper in the drinking water
LEAD AND COPPER—MONITORED AT CUSTOMER'S TAP ON 08-11-17

Substance	Violation	90th Percentile Level	Range of Level Detected	Action Level for 90th Percentile	MCLG	Units Measured
Lead	NO	0	ND-5	15	0	ppb
Copper	NO	0.3	0-0.539	1.3	1.3	ppm

None of the 20 sites tested detected lead higher than 15 ppb.

None of the 20 sites tested for copper exceeded the level of 1300 ppb.

Lead is a result of corrosion of household plumbing systems; erosion of natural deposits.

Copper is a result of corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

The next monitoring cycle is to be completed by 09-30-20.

OTHER UNREGULATED SUBSTANCES TESTED FOR

Substance	Level Detected	Unit Measurement	Likely Source
Chloride	49	mg/l	Naturally present in ground water
Hardness as CaCO3	267	mg/l	Naturally present in ground water
Iron	0.5	mg/l	Naturally present in ground water
Sodium	19	mg/l	Erosion of natural deposits
Sulfate	36	mg/l	Naturally present in ground water

Special Reporting Topics

Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) and IDSE Monitoring

Regulated Contaminant	Violation	Level Detected	Unit Measurement	Sample Date	Range	MCLG	MCL	Likely Source
TTHM - Total Trihalomethanes	NO	2	ppb	08-08-17	0	NA	80	By product of drinking water disinfection
HAA5 Haloacetic Acids	NO	0	ppb	08-08-17	0	NA	60	By product of drinking water disinfection

Regulated Contaminant	Violation	Level Detected	Unit Measurement	Range	MCLG	MCL	Likely Source
Chlorine Residual Chart	NO	.36	ppm	.14 - .58	4	4	Water additive used to control microbes

Special Reporting Topics

Radiological Grose Alpha Radium 226-228 Test Date 08-26-15

Regulated Contaminant	Violation	Level Detected	Unit Measurement	Range	MCLG	MCL	Likely Source
Alpha Emitters	NO	0	pCi/L	ND	0	15	Erosion of natural deposits
Combined Radium	NO	0	pCi/L	ND	0	5	Erosion of natural deposits

Chlorine Residual

Chlorine or Chloramines - Previous Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bacteriological Sample Site #1	.23	.20	.22	.24	.18	.32	.50	.26	.16	.17	.41	.23
Bacteriological Sample Site #2	.33	.35	.40	.37	.40	.55	.53	.48	.41	.36	.33	.30
Bacteriological Sample Site #3												
Bacteriological Sample Site #4	.43	.43	.49	.44	.38	.46	.64	.45	.38	.35	.39	.43
Bacteriological Sample Site #5	.33	.44	.49	.42	.45	.41	.58	.74	.61	.55	.47	.38
Bacteriological Sample Site #6												
Bacteriological Sample Site #7	.27	.28	.38	.37	.29	.30	.37	.37	.47	.25	.24	.28
Bacteriological Sample Site #8	.33	.42	.48	.47	.05	.44	.60	.55	.52	.49	.31	.34
Average of all measurements taken in month Jan/Feb/Mar N/A in year covered by the CCR	.33	.36	.41	.39	.32	.40	.53	.49	.45	.37	.36	.34
RAA calculated quarterly of 12 monthly averages			.39			.39			.41			.40
Chlorine or Chloramines- Year covered by CCR												
Bacteriological Sample Site #1	.34	.24	.29	.35	.29	.23	.19	.16	.26	.22	.26	.44
Bacteriological Sample Site #2	.38	.38	.33	.33	.39	.35	.30	.36	.58	.43	.44	.50
Bacteriological Sample Site #3												
Bacteriological Sample Site #4	.36	.32	.30	.26	.30	.33	.34	.41	.38	.40	.41	.42
Bacteriological Sample Site #5	.38	.36	.42	.39	.57	.50	.51	.47	.53	.35	.47	.43
Bacteriological Sample Site #6												
Bacteriological Sample Site #7	.28	.21	.38	.28	.22	.27	.26	.43	.30	.32	.25	.29
Bacteriological Sample Site #8	.27	.30	.24	.31	.39	.44	.14	.43	.27	.33	.34	.29
Average of all measurements taken in month	.33	.31	.34	.32	.32	.36	.31	.41	.39	.35	.37	.39
RAA calculated quarterly of 12 monthly averages			.39			.38			.32			.35

City of Belding
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