Consumer Confidence Report

2019 Consumer Confidence Report

2019 Reporto de confianza del consumidor

WATER UTILITY

The U.S. Environmental Protection Agency (EPA) requires drinking water utilities to provide an annual Consumer Confidence Report to help consumers understand where their drinking water comes from, so they can make informed decisions about their health and protection of the environment.

The Brown Deer Water Utility purchases all its water from the Milwaukee Water Works. Milwaukee water complies with all state and federal drinking water standards. The Milwaukee Water Works is known for its extensive water quality monitoring program that reaches beyond basic requirements. The program includes organisms and contaminants, or substances, that are not yet regulated but considered of emerging concern and/or are under study for possible effects on public health.

In this report, you will find:

- Information about the source of your drinking water
- Results of water quality testing and compliance with water quality laws and standards
- Additional educational information

Visit http://www.browndeerwi.org/departments/water-utility/ and http://city.milwaukee.gov/water for more information.

Highlights

- Primary Drinking Water Standards
- Secondary Water Standards
- Unregulated Contaminants
- *Cryptosporidium*
- Lead and Copper Rule

Important Information
This report contains important information about your drinking water. Translate it or speak with someone who understands it.

Información Importante
Este informe contiene información muy importante sobre su agua de beber. Tradúzcalo o hable con alguien que lo entienda bien.

Lug tseem ceeb rua cov siv dlej kws has lug Moob
Ntawm nuav yog cov lug tseem ceeb qha txug kev haus dlej nyob nroog Milwaukee. Yog mej nyeem tsi tau cov lug nuav, thov lwm tug txhais rua mej.

4800 West Green Brook Drive - Brown Deer, Wisconsin 53223 - Office: 414.371.3080 - FAX: 414.371.3045
water@browndeerwi.org

Water System Information

The Village of Brown Deer-owned public utility provides clean, safe water to all residents of the Village of Brown Deer. The population of Brown Deer is approximately 12,000, with a total land area of 4.5 square miles. To serve this customer base, the Utility manages and operates 67.6 miles of water main, 680 hydrants, and 916 distribution system valves. The Utility also owns a 2 million-gallon standpipe, which supplies water storage and pressure to the system. The average daily consumption in 2019 was approximately 1.21 million gallons per day (MGD).

For more system information, or questions about this report, please call Tom Nennig, Utility Superintendent, at the Brown Deer Water Utility, (414-371-3080).

Participate in decisions regarding your water

Participate in decisions that affect drinking water quality at meetings of the Village of Brown Deer Water Commission or the Brown Deer Village Board. These committees meet at the Brown Deer DPW Facility, 8950 N. Arbon Drive, Brown Deer, WI 53223. The dates for Water Commission and Village Board meetings vary. Please contact the Brown Deer Water Utility for a schedule at (414 371 3080) or visit the Village website at http://www.browndeerwi.org/.

Source of Water

The Brown Deer Water Public Utility is a consecutive system of the Milwaukee Water Works. All water sold by the Brown Deer Water Utility is purchased from the Milwaukee Water Works. The Milwaukee Water Works water source is surface water from Lake Michigan.

For more information on the Milwaukee Water Works source water and treatment process, visit the Milwaukee Water Works website at http://city.milwaukee.gov/water.

As water flows through rivers and lakes and over land surfaces, naturally occurring substances may be dissolved in the water that reaches Lake Michigan. These substances are referred to as contaminants. Surface water sources may be highly susceptible to contaminants. Surface water is also affected by animal and human activities. Contaminants that may be present in source water include microbial contaminants such as viruses, protozoa and bacteria; inorganic contaminants such as salts and metals, pesticides and herbicides, organic chemical contaminants, and radioactive contaminants.

To ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. 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, (800) 426-4791. The table of contaminants detected by the Milwaukee Water Works is on pages 4-8 of this report.

Detected Contaminants or Substances

The tables on the following pages show the regulated contaminants, or substances, detected in Milwaukee's drinking water and Brown Deer's distribution system during 2018. It also includes all contaminants tested for in the most recent (2013) Unregulated Contaminant Monitoring Rule – Phase 3 (UCMR-3) mandatory monitoring program. **All contaminant levels are within applicable state and federal laws.** The tables contain the name of each contaminant, the highest level regulated (Maximum Contaminant Level, or MCL), the ideal goals for public health (Maximum Contaminant Level Goal, or MCLG), the median value detected, the usual sources of such contamination, possible health effects, and footnotes explaining the findings and units of measurement. The presence of a substance in drinking water does not necessarily indicate the water poses a health risk. Certain quantities of some substances are essential to good health, but excessive quantities can be hazardous.

Definitions	
<	"less than" or not detected
AL	Action level: the concentration of a contaminant which, if exceeded, triggers treatment or other requirement that a water system must follow. Action levels are reported at the 90th percentile for homes at greatest risk.
Haloacetic Acids	HAA5: Monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, dibromoacetic acid, tribromoacetic acid, bromochloroacetic acid, dibromochloroacetic acid, and bromodichloroacetic acid.
HA	Health Advisory: An estimate of acceptable drinking water levels for a chemical substance based on health effects information; a Health Advisory is not a legally enforceable federal standard, but serves as technical guidance to assist federal, state and local officials.
Median	The middle value of the entire data set for the parameter (range from high to low)
ug/L	Microgram per liter or parts per billion
MCL	Maximum Contaminant Level: The highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
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
mg/L	Milligram per liter or parts per million
NA	Not Applicable
ND	Not Detected
NR	Not Regulated
NTU	Nephelometric Turbidity Unit: A unit to measure turbidity.
pCi/L	Picocuries per Liter: A measure of radioactivity.
RAA	Running Annual Average: The average of four quarterly samples collected in one 12-month period.
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water
Trihalomethanes	TTHMs: Chloroform, bromodichloromethane, dibromochloromethane, and bromoform
Turbidity	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Information for those with compromised immune systems and/or vulnerable populations

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 tap water from their health care providers. EPA/ Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426 4791, and the CDC at cdc.gov/parasites/crypto.

Primary Drinking Water Standards

The EPA has set National Primary Drinking Water Regulations that set water quality standards for contaminants, or substances, in public drinking water. These standards are referred to as maximum contaminant levels (MCLs), which are established to protect public health, and are legally enforceable above the allowed MCL. For information on EPA ground and drinking water primary standards, visit: http://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations.

Note: any substance marked with an asterisk (*) contains data from the Brown Deer Water Utility testing programs.

Substance	Ideal Goals (MCLG)	Highest Level Allowed (MCL)	Median Value	Range	Source(s) of Contaminant	Health Effects
Barium (ppm)	2	2	0.020	0.020	Drilling waste discharge; metal refineries discharge; erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure
Chlorine, Total (ppm)*	MRDLG = 4	MRDL = 4	1.5	1.07 - 1.86	Water additive used to control microbes	Some people who use water containing chloramines well in excess of the MCL over many years could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines in excess of the MRDL could experience stomach discomfort or anemia
Copper (ppm)	AL = 1.3	AL =1.3	0.0014	< 0.0010 - 0.0014	Corrosion of household plumbing systems; erosion of natural deposits	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 physician.
Disinfection By-Products						
Bromate (ppb)	0	10 RAA	3.1	1.1 - 6.0	Byproduct of drinking water disinfection	Some people who drink water containing bromate in excess of the MCL over many years have an increased risk of cancer
Chlorite (ppm)	0.8	1	< 0.002	< 0.002 - 0.068	Byproduct of drinking water disinfection	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Haloacetic Acids [HAA5] (ppb)*	NA	60	3.0	2.5 - 5.0	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of cancer
Total Trihalomethanes [TTHM] (ppb)*	NA	80	9.7	5.0 - 12.0	Byproduct of drinking water disinfection	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of cancer

Primary Drinking Water Standards (continued)

Substance	Ideal Goals (MCLG)	Highest Level Allowed (MCL)	Median Value	Range	Source(s) of Contaminant	Health Effects
Fluoride (ppm)	4.0	4.0	0.55	0.03 - 0.66	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of bones. Fluoride in drinking water at half of the MCL or more may cause mottling of children's teeth, usually in children less than 9 years old.
Heterotrophic Plate Count (HPC)	NA	TT	Met Standard	Met Standard	Naturally present in the environment; runoff from fertilizer use; leeching from septic tanks sewage; erosion of natural deposits	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water.
Nitrate, as Nitrogen (ppm)	10.0	10.0	0.33	0.29 - 0.41	Runoff from fertilizer use; leeching from septic tanks sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome. Females who are or may become pregnant should not consume water with nitrate concentrations that exceed the MCL. There is some evidence of an association between exposure to high nitrate levels in drinking water during the first weeks of pregnancy and certain birth defects
Nitrite, as Nitrogen (ppm)	NA	1	0.002	0.001 - 0.007	Runoff from fertilizer use; leeching from septic tanks sewage; erosion of natural deposits	
Radionuclides (pCi/L) (2015)						
Gross alpha (pCi/L) [excluding Ra & U]	NA	15.0	1.86	0.30 - 3.42	Erosion of natural deposits	Increased risk of cancer
Gross alpha (pCi/L) [including Ra & U]	NA	15.0	2.03	0.46 - 3.60	Erosion of natural deposits	Increased risk of cancer
Gross beta (pCi/L)	NA	50.0	3.90	3.70 - 4.00	Decay of natural and manmade deposits	Increased risk of cancer
Radium (pCi/L)	NA	5.0	1.20	0.89 - 1.51	Erosion of natural deposits	Increased risk of cancer
Turbidity (NTU)	NA	<0.300 (95% of the time)	0.020	0 - 0.940 (1-day max)	Soil runoff	

Secondary Drinking Water Standards

The EPA has also established National Secondary Drinking Water Regulations that set non-mandatory standards for potential water-quality substances. These secondary substances are not currently considered a risk to human health, but instead, act as guidelines for drinking water aesthetics such as taste, odor, and color. For more information on EPA secondary standards, visit: https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals.

Substance	Highest Level Allowed (MCL)	Median Value	Highest Level Detected	Source(s) of Contaminant	Health Effects
Aluminum (ppm)	0.05-0.20	0.082	0.073 - 0.091	Water treatment additive, natural deposits	None in drinking water, aesthetic quality of water.
Chloride (ppm)	250	14.9	13.6 - 25.6	Natural deposits and road salts	None in drinking water, aesthetic quality of water.
Odor (threshold odor number)	3	1	1	Naturally present in the environment	None in drinking water, aesthetic quality of water.
pH (-log[H^+])	6.5 - 8.5	7.64	7.27 - 8.01	Naturally present in the environment	NA
Sulfate (ppm)	250	26	26	Natural deposits	None in drinking water, aesthetic quality of water.
Total Dissolved Solids (ppm)	500	181	170 - 213	Aggregate of dissolved minerals	None in drinking water, aesthetic quality of water.

Notice to Parents of Infants Six Months of Age or Younger

According to the CDC, the proper amount of fluoride, from infancy and at all ages throughout life, helps prevent and control tooth decay (cavities). Therefore, the Milwaukee Water Works, following public health recommendations, maintains a level of fluoride in our drinking water that is both safe and effective. The following is an advisory regarding fluoride and young infants:

The American Academy of Pediatrics recommends exclusive breastfeeding for the first six months of a child's life, followed by continued breastfeeding as complementary foods are introduced, for optimal short– and long-term health advantages. Go to http://pediatrics.aappublications.org/content/129/3/e827 for more information.

As of August 31, 2012, Brown Deer water is fluoridated at a level not to exceed 0.7 mg/L. According to the CDC, for infants up to six months of age, if tap water is fluoridated or has substantial natural fluoride (0.7 mg/L or higher) and is being used to dilute infant formula, a parent may consider using a low-fluoride alternative water source. Bottled water known to be low in fluoride is labeled as purified, deionized, demineralized, distilled, or prepared by reverse osmosis. Ready-to-feed (no-mix) infant formula typically has little fluoride and may be preferable at least some of the time. If breastfeeding is not possible, parents should consult a pediatrician about an appropriate infant formula option. Parents should be aware that there may be an increased chance of mild dental fluorosis if the child is exclusively consuming infant formula reconstituted with fluoridated water. Dental fluorosis is a term that covers a range of visible changes to the enamel surface of the tooth. For more information on dental fluorosis and the use of fluoridated drinking water in infant formula, go to http://www.cdc.gov/fluoridation.

Unregulated Contaminants Monitoring Rule – Phase 3

The Unregulated Contaminant Monitoring Rule (UCMR) was established by the EPA as part of the Safe Drinking Water Act of 1996. Every five years, in compliance with the EPA, Brown Deer Water Utility collects data on potential contaminants that are not yet regulated but are known, or anticipated, to occur in public water systems. These data help the EPA determine if future regulations are needed for contaminants of concern. The next round of UCMR (Phase 4) will take place between 2018-2020. Learn more at http://www.epa.gov/dwucmr.

Note: any substance marked with an asterisk (*) contains data from the Brown Deer Water Utility testing programs.

UCMR 3 Assessment Monitoring (2013)	Median Value	Highest Level Detected	Source of Contaminants	Health Effects
Chromium (µg/L)*	0.3	0.3	Natural deposits, manufacturing	Chromium (III) is an essential element in humans, with a daily intake of 50 to 200 µg/d recommended for adults.
Cobalt (µg/L)	<1.0	<1.0	Natural deposits.	Possible fetal development, possible human carcinogen
Molybdenum (µg/L)*	<1.0	1.2	Natural deposits.	Toxic to animals at very high concentrations.
Strontium (mg/L)*	0.12	0.12	Natural deposits.	Effects on bone growth in children
Vanadium (µg/L)*	0.3	0.3	Natural deposits, manufacturing	Gastrointestinal symptoms
Chromium, Hexavalent (µg/L)*	0.16	0.18	Natural deposits, manufacturing	Effects on the liver, kidney, gastrointestinal and immune systems.
Chlorate (µg/L)*	52.50	160.00	Byproduct of drinking water dis- infection	Affects red blood cells oxygen carrying capacity, affects on thyroid function.
1,4-Dioxane (µg/L)	<0.07	<0.07	Manufacturing of paints and solvents	Likely to be carcinogenic
Bromochloromethane (µg/L)	<0.06	<0.06	Byproduct of drinking water dis- infection, Fire extinguishing agent	Maybe toxic to kidneys, lungs, liver, respiratory tract, skin, eyes and central nervous system.
Bromomethane (µg/L)	<0.2	<0.2	Fumigant	Increased cancer risk
1,3-Butadiene (µg/L)	<0.1	<0.1	Plastic manufacturing	Increased cancer risk
Chlorodifluoromethane (µg/L)	<0.08	<0.08	Refrigerant	Cardiac effects
Chloromethane (µg/L)	<0.2	<0.2	Byproduct of drinking water dis- infection, manufacturing	Central nervous system effects
1,1-Dichloroethane (µg/L)	<0.03	<0.03	Plastic manufacturing	Increased cancer risk
1,2,3-Trichloropropane (µg/L)	<0.03	<0.03	Solvents, pesticide manufacturing	Increased cancer risk
Perfluorobutanesulfone acid (PFBS) (µg/L)	<0.09	<0.09	Waterproofing, textile manufacturing	Effects on blood, liver and kidneys
Perfluoroheptanoic acid (PFHpA) (µg/L)	<0.01	<0.01	Waterproofing, textile manufacturing	Effects on blood, liver and kidneys
Perfluorohexanesulfonic acid (PFHxS) (µg/L)	<0.03	<0.03	Waterproofing, textile manufacturing	Effects on blood, liver and kidneys
Perfluorononanoic acid (PFNA) (µg/L)	<0.02	<0.02	Waterproofing, textile manufacturing	Effects on blood, liver and kidneys
Perfluorooctane sulfonate (PFOS) (µg/L)	<0.04	<0.04	Waterproofing, textile manufacturing	Effects on blood, liver and kidneys
Perfluorocatanoic acid (PFOA) (µg/ L)	<0.02	<0.02	Waterproofing, textile manufacturing	Effects on blood, liver and kidneys

Unregulated Contaminants Monitoring Rule – Phase 3 (continued)

UCMR 3 Assessment Monitoring (2013)	Median Value	Highest Level Detected	Source of Contaminants	Health Effects
4-Androstene-3, 17-dione (ng/L)	<0.3	<0.3	Hormone	Endocrine disruptor
Equilin (ng/L)	<4.0	<4.0	Hormone	Endocrine disruptor
17 beta Estradiol (ng/L)	<0.4	<0.4	Hormone	Endocrine disruptor
Estriol (ng/L)	<0.8	<0.8	Hormone	Endocrine disruptor
Estrone (ng/L)	<2.0	<2.0	Hormone	Endocrine disruptor
17 alpha-ethynyl estradiol (ng/L)	<0.9	<0.9	Hormone	Endocrine disruptor
Testosterone (ng/L)	<0.1	<0.1	Hormone	Endocrine disruptor

Unregulated Contaminants Monitoring Rule – Phase 4

The Unregulated Contaminant Monitoring Rule (UCMR) was established by the EPA as part of the Safe Drinking Water Act of 1996. Every five years, in compliance with the EPA, Brown Deer Water Utility collects data on potential contaminants that are not yet regulated but are known, or anticipated, to occur in public water systems. These data help the EPA determine if future regulations are needed for contaminants of concern. Learn more at http://www.epa.gov/dwucmr.

Note: Median values marked as NA due to only 1 sample taken. Single sample is reported as Highest Level Detected. Any substance marked with an asterisk (*) contains data from the Brown Deer Water Utility testing programs.

UCMR 4 Assessment Monitoring (2018)	Median Value	Highest Level Detected	Source of Contaminants
alpha-Hexachlorocyclohexane (ug/L)*	< 0.010	< 0.010	Pesticide
1-Butanol (ug/L)*	< 2.00	< 2.00	Solvent, food additive
Butylated hydroxyanisole (ug/L)*	< 0.030	< 0.030	Food additive (antioxidant)
Chlorpyrifos (ug/L)*	< 0.030	< 0.030	Organophosphate, insecticide, acaricide, miticide
Dimethipin (ug/L)*	< 0.200	< 0.200	Herbicide and plant growth regulator
Ethoprop (ug/L)*	< 0.030	< 0.030	Insecticide
Germanium (ug/L)*	< 0.300	< 0.300	Naturally occurring element
Manganese (ug/L)*	0.92	1.22	Naturally occurring element
2-Methoxyethanol (ug/L)*	< 0.400	< 0.400	Synthetic cosmetics, perfumes, fragrances hair preparations, skin lotions
o-Toluidine (ug/L)*	< 0.0070	< 0.0070	Dyes, rubber, pharmaceuticals, pesticide
Oxyfluorfen (ug/L)*	< 0.050	< 0.050	Herbicide
Permethrin cis & trans (ug/L)*	< 0.040	< 0.040	Insecticide
Profenofos (ug/L)*	< 0.300	< 0.300	Insecticide and acaricide
2-Propen-1-ol (ug/L)*	< 0.500	< 0.500	Flavorings, perfumes
Quinoline (ug/L)*	< 0.020	< 0.020	Anti-malarial pharmaceutical, flavoring agent
Tebuconazole (ug/L)*	< 0.200	< 0.200	Fungicide
Tribufos (ug/L)	< 0.070	< 0.070	Insecticide, cotton defoliant

Unregulated Contaminants Monitoring Rule – Phase 4 (continued)

UCMR 4 Assessment Monitoring of Cyanotoxins (2018)	Median Value	Highest Level Detected	Source of Contaminants
Anatoxin-a (ppt)	< 30	< 30	Source water
Cylindrospermopsin (ppt)	< 90	< 90	Source water
Total Microcystins & Nodularins (ppb)	< 0.300	< 0.300	Source water

UCMR 4 Assessment Monitoring of Surface Water Indicators (2018)	Median Value	Highest Level Detected	Source of Contaminants
Bromide (ppb)	33.1	35.3	Source water
Total Organic Carbon [TOC] (ppm)	1.825	2.010	Source water

UCMR 4 Assessment Monitoring of Distribution Water (2018)	Median Value	Highest Level Detected	Source of Contaminants
Bromochloroacetic acid [BCAA] (ug/L)*	1.20	3.20	Byproduct of drinking water disinfection
Bromodichloroacetic acid [BDCAA] (ug/L)*	0.80	1.10	Byproduct of drinking water disinfection
Chlorodibromoacetic acid [CDBAA] (ug/L)*	0.41	0.55	Byproduct of drinking water disinfection
Dibromoacetic acid [DBAA] (ug/L)*	0.42	0.53	Byproduct of drinking water disinfection
Dichloroacetic acid [DCAA] (ug/L)*	1.65	2.70	Byproduct of drinking water disinfection
Monobromoacetic acid [MBAA] (ug/L)*	< 0.30	0.53	Byproduct of drinking water disinfection
Monochloroacetic acid [MCAA] (ug/L)*	< 2.00	< 2.00	Byproduct of drinking water disinfection
Tribromoacetic acid [TBAA] (ug/L)*	< 2.00	<2.00	Byproduct of drinking water disinfection
Trichloroacetic acid [TCAA] (ug/L)*	1.00	1.30	Byproduct of drinking water disinfection
HAA5 Total (ug/L)*	3.19	4.99	Byproduct of drinking water disinfection
HAA6 Br Total (ug/L)*	3.11	5.60	Byproduct of drinking water disinfection
HAA9 Total (ug/L)*	5.68	8.50	Byproduct of drinking water disinfection

Other Monitored Substances

Milwaukee Water Works measures hundreds of substances that are not regulated by local, state, or federal regulations. When any substance is detected, it is reported. These substances have no regulatory or contaminant level guidelines. Therefore, these data are presented as a "range" of values detected. A complete list of all undetected contaminants, or substances, tested for can be found at http://www.milwaukee.gov/ImageLibrary/Groups/WaterWorks/files/UndetectedChemicalContaminantsTreatedWater.pdf

Substance Detected	Range of Results	Typical Source of Substance
Acesulfame-K (ppb)	0.05 - 0.06	Artificial sweetener
Acetaldehyde (ppb)	< 5 - 15	Byproduct of drinking water disinfection
Acetone (ppb)	< 2.0 - 2.3	Manufacturing; solvent
Aldehydes, Total (ppb)	< 5 -15	Byproduct of drinking water disinfection
Ammonia, as N (ppm)	0.12 - 0.23	Disinfection with chloramines; wastes; fertilizers and natural processes
Boron (ppb)	22	Naturally occurring; borax mining and refining; boric acid manufacturing
Bromide (ppb)	44193	Naturally occurring
Bromochloroacetonitrile (ppb)	< 0.4 - 0.8	Byproduct of drinking water dis- infection
Calcium (ppm)	33	Naturally occurring
Chlorate (ppb)	31 - 272	Byproduct of drinking water disinfection
Chromium, hexavalent (ppb)	0.17 - 0.21	Natural deposits and manufacturing
Cotinine (ppt)	< 1 - 1	Metabolic byproduct of tobacco smoking
Dibromoacetonitrile (ppb)	< 0.4 - 0.8	Byproduct of drinking water disinfection
Dichloroacetonitrile (ppb)	< 0.5 - 0.5	Byproduct of drinking water disinfection
1,1-Dichloropropanone (ppb)	< 0.5 - 1.2	Byproduct of drinking water disinfection
Lithium (ppb)	2.2	Naturally occurring
Magnesium (ppm)	11-Jan	Naturally occurring
N-Nitrosodimethylamine (NDMA) (ppb)	< 2.0 - 2.3	Disinfection with chloramines; rocket fuel; pesticides
Perchlorate (ppb)	0.12 - 0.14	Naturally occurring; manufacturing of rocket fuels, firewooks, munitions

Other Monitored Substances (continued)

Substance Detected	Range of Results	Typical Source of Substance
Perflorohexanoic acid [PFHxA] (ppt)	< 2.0 - 2.2	Waterproofing; textile manufacturing
Perfluorooctane sulfonate [PFOS] (ppt)	< 2.0 - 2.6	Waterproofing; textile manufacturing; used in fire-fighting foams
Perfluorocatanoic acid (PFOA) (ng/L)	< 2.0 - 2.3	Waterproofing; textile manufacturing; used in fire-fighting foams
o-Phosphate as PO4 (ppm)	0.31 - 4.65	Byproduct of drinking water treatment
Phosphorus as P (ppm)	0.59 - 0.74	Naturally occurring
Potassium (ppm)	1.4	Naturally occurring
Rubidium (ppb)	1.1	Naturally occurring
Silica (ppm)	1.7 - 1.9	Naturally occurring
Sodium (ppm)	9.1 - 10.0	Natural deposits and road salt
Strontium (ppb)	120	Natural deposits
Sucralose (ppt)	34 - 36	Artificial sweetener
Total Organic Carbon (ppm)	1.27 - 1.75	Naturally present in the environment
Total Solids (ppm)	160	Measure of solid materials in water
Trichloroacetonitrile (ppb)	< 0.5 - 0.5	Byproduct of drinking water disinfection
1,1,1-Trichloropropanone (ppb)	0.5 - 1.6	Byproduct of drinking water disinfection
Tris(chloropropyl) phosphate (ppb)	0.01	Flame retardant

Cryptosporidium

Cryptosporidium is a microscopic protozoan that when ingested, can result in diarrhea, fever, and other gastrointestinal symptoms. The organism is found in many surface water sources (lakes, rivers, streams) and comes from human and animal wastes in the watershed.

No *Cryptosporidium* was detected in Lake Michigan source water or finished drinking water in 2019.

Compliance with Other Drinking Water Regulations

In compliance with state and local authorities, the Brown Deer Water Utility is required to report any deficiencies that may have occurred during 2019, any adverse health effects associated with the deficiency, and the steps taken to correct the deficiency. Because the Brown Deer Water Utility is a consecutive system to the Milwaukee Water Works, the Utility is also required to report any violations by Milwaukee Water Works.

The Brown Deer Water Utility one reporting violation in 2019.
Description – Section NR 810.07 and NR 108.06(4) Wis. Adm. Code requires all suppliers of water for municipal water systems to submit monthly reports to the appropriate regional office and required reports regarding operation of waterworks during the preceding month to be submitted to the Department no later than the 10th day of each month. The Utility did not complete the July EMOR data entry until after August 10th, 2019.
Action Taken – The report was submitted once notified. A calendar notification has been established in the staff calendar to remind the Utility to enter the data by the 10th of each month.

Milwaukee Water Works had one deficiency in 2019:
Description - Milwaukee Water Works was notified of the following deficiency on August 6, 2019, "System is not implementing a comprehensive Cross-Connection Control Program," with a scheduled correction date of March 31, 2020.
Action Taken - The Milwaukee Water Works developed a Cross-Connection Control Plan to meet the March 31, 2020 deadline. This plan is the result of a two-year redesign of the utility's Cross-Connection Control Program. The program will bring MWW into compliance with NR 810.15 by December 31, 2021 per WDNR order.

Lead & Copper Rule Compliance Results for 2017

In 2017, in compliance with the US EPA and Wisconsin DNR, the Brown Deer Water Utility tested 30 tier 2 or 3 sites for lead and copper. In order to remain in compliance with EPA regulations, 90th percentile levels must be below 15 µg/L (ppb) for lead and 1300 µg/L (ppb) for copper. For more information on the EPA Lead Copper Rule, visit http://www.epa.gov/dwreginfo/lead-and-copper-rule.

Lead and Copper (2017)	Action Level	90th Percentile	Number of Sites at/above Action Level	Violation	Source(s) of Contaminant
Copper (µg/L)	1300	120	0	NO	Corrosion of household plumbing systems; Erosion of natural deposits, Leaching from wood preservatives
Lead (µg/L)	15.0	0.60	0	NO	Corrosion of household plumbing systems; Erosion of natural deposits

Lead is not found in Brown Deer's source water, Lake Michigan, and it is not found in our treated drinking water. Lead may enter drinking water at a house or building if it dissolves from materials and components associated with service lines and home plumbing, especially when water stands unused for several hours. To prevent lead from dissolving into the water, Milwaukee Water Works add phosphate that forms a protective coating inside pipes. This corrosion control protection has been provided by Milwaukee Water since 1996 to meet EPA standards.

Brown Deer has **NO** lead water mains and **NO** lead service lines. Lead may be found in home plumbing – in some solder used with older copper plumbing (before 1987) and in faucets and fittings of brass which contain some lead (prior to 2014). If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. The Brown Deer Water Utility 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.