BROWN DEER WATER PUBLIC UTILITY

2014 WATER QUALITY REPORT

ANNUAL CONSUMER CONFIDENCE REPORT **JUNE 2015**

The U.S. Environmental Protection Agency (EPA) and Wisconsin Department of Natural Resources (DNR) require drinking water utilities to provide an annual Consumer Confidence Report to inform you of the source and quality of your drinking water, compliance and detected contaminants, and results from treating and monitoring water January 1 – December 31, 2014.

IMPORTANT INFORMATION: This report contains important information about your drinking water. Translate it, or speak with someone who understands it.

INFORMACIÓN IMPORTANTE PARA NUESTROS CLIENTES QUE HABLAN EXPAÑOL: Este informe contiene información muy importante sobre su agua de beber. Tradúzcalo o hable con alguien que lo entienda bien.

ITEM 1: WATER SYSTEM INFORMATION

If you have question about this report, please call Tom Nennig at the Brown Deer Water Utility, (414) 371-3080.

Participate in decisions that affect drinking water quality at meetings of the Village of Brown Deer Water Commission, which meets at the Brown Deer Village Hall, 4800 W. Green Brook Drive, Brown Deer, WI 53223, and at meetings of the Brown Deer Village Board, 4800 W. Green Brook Drive, Brown Deer, WI 53223. The Water Commission and Village Board Meetings vary. Please contact the Brown Deer Water Utility for a schedule at (414) 371-3080 or visit us at http:// www. browndeerwi.org .

ITEM 2: SOURCE OF WATER

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

ITEM 3: DEFINITIONS

<	"less than" or not detected
AL	Action Level: The concentration of a contaminant that 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	mono-, di-, and tri-chloroacetic acid: mono- and di-bromoacetic acid: and bromochloroacetic acids
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)
µg/L	microgram per liter or parts per billion
MCL	Maximum Contaminant Level: The highest level of a contaminant allowed in drinking water. MSLs 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
NR	Not Regulated
NTU	Nephelometric Turbidity Unit: A unit to measure turbidity
pCi/L	Picocuries per Liter: A measure of radioactivity. A picocurie is 10^{-12} curies
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. For 2013, the highest value detected or Maximum Value was 0.22 NTU and < 0.3 NTU 100% of the time. For 2014, the highest value detected or Maximum Value was 0.28 NTU and < 0.3 NTU 100% of the time.

ITEM 4: DETECTED CONTAMINANTS

The table below shows the regulated contaminants detected in Brown Deer's drinking water during 2014. It also includes any detected contaminants found in the recently completed (2013) Unregulated Contaminant Monitoring Rule – Phase 3 (UCMR-3) mandatory monitoring program. **All contaminant levels are within applicable state and federal laws.** The table contains 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, 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.

SUBSTANCE	IDEAL GOALS (MCLG)	HIGHEST LEVEL ALLOWED (MCL)	MEDIAN VALUE	HIGHEST LEVEL DETECTED	SOURCE(S) OF CONTAMINANT	MEETS STANDARD
Aluminum	0.2 mg/L	NR	0.055 mg/L	0.112 mg/L	Water treatment additive; Natural deposits	NR
Barium	2 mg/L	2 mg/L	0.019 mg/L	0.019 mg/L	Natural deposits	√
Bromochloroacetic acid	NA	Regulated as a group (HAAS)	1 µg/L	1.6 µg/L	Byproduct of drinking water disinfection	√
Bromodichloroacetic acid	NA	Regulated as a group (HAAS)	1 µg/L	4 µg/L	Byproduct of drinking water disinfection	√
Bromate	10 µg/L	10 µg/L (RAA)	<5 µg/L RAA	6.9 µg/L	Byproduct of drinking water disinfection	√
Bromodichloro-methane	NA	Regulated as a group (TTHMs)	2 µg/L	3.6 µg/L	Byproduct of drinking water disinfection	√
Chloroform	NA	Regulated as a group (TTHMs)	1.4 µg/L	2.9 µg/L	Byproduct of drinking water disinfection	√
Coliform bacteria, Total	Zero	<5% of all monthly samples	Zero	Zero	Naturally present in the Environment	√
Chlorite	0.8 mg/L	1.0 mg/L	0.003 mg/L	0.006 mg/L	Byproduct of drinking water disinfection	√
Chlorate**	NA	NR	60 µg/L	160 µg/L	Byproduct of drinking water disinfection	NR

SUBSTANCE	IDEAL GOALS (MCLG)1	HIGHEST LEVEL ALLOWED (MCL)	MEDIAN VALUE	HIGHEST LEVEL DETECTED	SOURCE(S) OF CONTAMINANT	MEET STANDARDS
Chlorine, total Chloride	4 mg/L	4 mg/L	0.99 mg/L	1.97 mg/L	Residual of drinking water disinfection	√
Chloride	250 mg/L	NR	13.3 mg/L	26.3 mg/L	Natural deposits and road salt	NR
Chromium, Hexavalent**	NA	NR	0.16 µg/L	0.18 µg/L	Natural deposits	NR
Chromium, Total**	NA	100 µg/L	0.28 µg/L	0.31 µg/L	Natural deposits	√
Copper	1.3 mg/L	1.3 mg/L (AL)	>0.022 mg/L (AL)	NR	Corrosion of household plumbing systems	√
Dibromodichloro-methane	NA	Regulated as a group (TTHMs)	1.6 µg/L	2.7 µg/L	Byproduct of drinking water disinfection	√
Dichloroacetic acid	NA	Regulated as a group (HAAS)	1 µg/L	2.4 µg/L	Byproduct of drinking water disinfection	√
Fluoride	4 mg/L	4 mg/L	0.53 mg/L	0.60 mg/L	Water treatment additive; Natural deposits	√
Gross Alpha particles*	Zero	15 pCi/L	2.7 pCi/L	2.8 pCi/L	Natural deposits	√
Gross Beta particles*	Zero	50pCi/L	5.3 pCi/L	6.0 pCi/L	Natural deposits	√
Haloacetic Acids, total	NA	60 µg/L	3.95 µg/L	9.6 µg/L	Byproduct of drinking water disinfection	√
Heterotrophic Plate Count Bacteria	NA	TT	<1 cfu/ml	412 cfu/ml in one sample	Naturally present in the environment	√
Iron	0.30 mg/L	NR	0.007 mg/L	0.032 mg/L	Natural deposits	NR
Lead	Zero	15 µg/L (AL)	>1 µg/L (AL)	NR	Corrosion of household plumbing systems	√
Nitrate, as N	10.0 mg/L	10.0 mg/L	0.30 mg/L	0.30 mg/L	Natural deposits & farm runoff	√
Molybdenum**	NA	NR	1.1 µg/L	1.2 µg/L	Natural deposits	NR
pH	NA	6.5 to 8.5	7.63	7.89	Naturally present in the environment	
Perchloate (UCMR-1 Contaminant)	NA	Regulation Pending	0.10 µg/L	0.11 µg/L	Byproduct of drinking water disinfection	NR
Radium, combined* 226+ 228	Zero	5pCi/L	1.98 pCi/L	1.99 pCi/L	Natural deposits	√
Strontium**	NA	NR	120 µg/L	120 µg/L	Natural deposits	NR
Sulfate	500 mg/L	NR	29 mg/L	35 mg/L	Natural deposits	NR
Trihalomethanes, total	NA	µg/L	12 µg/L	19 µg/L	Byproduct of drinking water disinfection	√
Total Dissolved Solids	500	NR	179 mg/L	205 mg/L	Natural deposits	NR
Trichloroacetic acid	NA	Regulated as a group (HAAS)	<0.5 µg/L	1.8 µg/L	Byproduct of drinking water disinfection	√
Turbidity	NA	<0.3 NTU 95% of the time	0.04 NTU 95% of the time	0.28 NTU 1-day max	Natural deposits	√
Uranium, total*	Zero	30 µg/L	0.23 µg/L	0.25 µg/L	Natural deposits	√
Vanadium**	NA	NR	0.31 µg/L	0.33 µg/L	Natural deposits	NR

* Data from 2011 the most recent required sampling date. ** Data from 2013, the most recent UCMR sampling period

ITEM 5: INFORMATION ON MONITORING FOR CRYPTOSPORIDIUM, RADON, AND OTHER CONTAMINANTS (IF DETECTED)

Cryptosporidium was detected in one source water sample out of 22 source water samples during 2014. There were no detections of *Cryptosporidium* in the finished water in 2014.

Brown Deer's water supplier, Milwaukee Water Works, is recognized as a national leader in providing safe, high-quality drinking water that complies with all state and federal drinking water standards. In addition, MWW is known for its extensive water quality monitoring program that goes well above and beyond basic requirements. This monitoring and screening program includes organisms and substances that are not yet regulated, but considered of emerging concern and/or under study for possible effects on public health.

The table below shows the unregulated substances detected in Milwaukee's drinking water during 2014. **There is no known adverse health effect from these substances in drinking water at these levels.** The complete list of over 500 substances tested for can be found at www.milwaukee.gov/water/about/WaterQuality.htm.

Substance	Range of Values Detected
Ammonia[1], as N	0.41- 0.60 mg/L
Boron[2]	0.023 mg/L
Bromide	0.035-0.071 mg/L
Bromochloroacetonitrile	0.5-1.2 µg/L
Calcium	34-35 mg/L
Cholesterol	1.4-1.5 µg/L
Di-ethyl (meta) toluamide	0.014-0.018 µg/L
Dibromoacetonitrile	< 0.5-1.3 µg/L
Dichloroacetonitrile	< 0.5-1.0 µg/L
Dichloropropanone	< 0.5-0.9 µg/L
Erucylamide	< 0.5-0.9 µg/L
Isophorone[3]	0.12 µg/L
Lithium	2.2 µg/L
Magnesium	12-14 mg/L
Magnesium Hardness	39-55 mg/L
Nicotine	0.006 µg/L
Paraxanthine	0.007 µg/L
Phosphate, as PO4	1.86-2.31 mg/L
Potassium	1.4-1.7 mg/L
Progesterone	< 0.0001-0.0004 µg/L
Rubidium	1.4 µg/L
Silica	1.95-2.0 mg/L
Sodium	10-17.1 mg/L
Total Organic Carbon	1.44-1.64 mg/L
Trichloroacetonitrile	< 0.5-1.3 µg/L
Trichloropropanone	< 0.1-0.7 µg/L
cis-testosterone	< 0.0001-0.0003 µg/L
trans-testosterone	< 0.00005-0.0001 µg/L

[1]Ammonia has a lifetime HA of 30 mg/L

[2]Boron has a lifetime HA of 6 mg/L

[3]Isophorone has a lifetime HA of 100 µg /L

ITEM 6: COMPLIANCE WITH OTHER DRINKING WATER REGULATIONS

Brown Deer Water Public Utility had no MCL exceedances.

ITEM 7: VARIANCES AND EXEMPTIONS

(not applicable)

ITEM 8: REQUIRED EDUCATION INFORMATION

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. Read the DNR Source Water Assessment for Milwaukee at milwaukee.gov/water/WaterQuality. 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 2-3 of this report.

HEALTH 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 tap water from their health care providers. EPA/CDC (Centers for Disease Control) 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.

CRYPTOSPORIDIUM

Cryptosporidium is a microscopic protozoan that when ingested, can result in diarrhea, fever, and other gastrointestinal symptoms. In collaboration with the Milwaukee Health Department, we consider *Cryptosporidium* detection a priority, and since 1993, we have continued to test source and treated water for *Cryptosporidium*. The organism is found in many surface water sources (lakes, rivers, streams) and comes from human and animal wastes in the watershed. The risk of *Cryptosporidium* from drinking water in Milwaukee has been reduced to extremely low levels by an effective treatment combination including ozone disinfection, coagulation, sedimentation, biologically active filtration, and chloramine disinfection

The Milwaukee Water Works provides a brochure based on EPA and CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium.* Obtain a copy from our Customer Service Center, (414) 286-2830, or at milwaukee.gov/water/about/WaterQuality.htm; scroll down to Resource Links, choose "Information for Persons with High Risk Immune Systems."

LEAD AND COPPER

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 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 two 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 EPA Safe Drinking Water Hotline, 1-800-426-4791, or at epa.gov/safewater/lead.

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. Per Common Council File No. 120187 adopted on July 24, 2012, we are required to include the following advisory regarding fluoride and young infant in our annual water quality reports and on our website.

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.full> for more information.

As of August 31, 2012, Brown Deer Water Utility 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. Go to < http://www.cdc.gov/fluoridation/safety/infant_formula.htm> for more information on dental fluorosis and the use of fluoridated drinking water in infant formula. (3/18/15)

Your Brown Deer Water Commissioners: Tim Schilz (Pres.), Gerald Anderson, Zachary Beanland, Kenneth Harmon, & Erin Schmitz. *Brown Deer Water Manager*: Mike Rau