Presented By
Board of Public Utilities

BOARD OF PUBLIC UTILITIES
McPHERSON, KS

ANNUAL
WATER
QUALITY
REPORT
WATER TESTING PERFORMED IN 2017

Quality First

Once again we are pleased to present our annual water quality report. As in years past, we are committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all of our water users.

Please feel free to contact our office if you have questions about any of the information provided in this report.

Corrosion Control

In 2015, after receiving a Permit from the Kansas Department of Health and Environment (KDHE), the BPU began injecting an approved corrosion inhibitor/sequestrant for copper corrosion control to the water system. The product is injected at 0.5–1.0 ppm to mitigate the slightly corrosive effect of BPU's water on copper. Because BPU's water system has very little copper, this effort is done primarily to control corrosion of copper from homeowners' plumbing. Results from the injection of the corrosion inhibitor continue to be monitored with periodic tests as directed by the KDHE.

Important Health Information

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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or http://water.epa.gov/drink/hotline.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may 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, urban 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 may also come from gas stations, urban storm-water runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Information on the Internet

The U.S. EPA (https://goo.gl/TFAMKc) and the Centers for Disease Control and Prevention (www.cdc.gov) websites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the Kansas Water Office has a website (www.kwo.org) that provides complete and current information on water issues in Kansas, including valuable information about our watershed.

Protecting Your Water

Bacteria are a natural and important part of our world. There are around 40 trillion bacteria living in each of us; without them, we would not be able to live healthy lives. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern, however, because it indicates that the water may be contaminated with other organisms that can cause disease.

In 2016, the U.S. EPA passed a new regulation called the Revised Total Coliform Rule, which requires additional steps that water systems must take in order to ensure the integrity of the drinking water distribution system by monitoring for the presence of bacteria such as total coliform and *E. coli*. The rule requires more stringent standards than the previous regulation, and it requires water systems that may be vulnerable to contamination to have in place procedures that will minimize the incidence of contamination. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment of their system and correct any problems quickly. The U.S. EPA anticipates greater public health protection under the new regulation due to its more preventive approach to identifying and fixing problems that may affect public health.

Though we have been fortunate to have the highest-quality drinking water, our goal is to eliminate all potential pathways of contamination into our distribution system, and this new rule helps us to accomplish that goal.

34 BILLION The number of gallons of water produced daily by public water systems in the U.S.

Lead in Home Plumbing

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. We are 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/lead.

Information

Water Quality Reports for previous years can be accessed at the Board of Public Utilities (BPU) website: www.mcphersonpower.com.

Board meetings occur bimonthly at the BPU Administrative Office and are open for public attendance.

What's Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water are needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water are used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water are required to produce one quart of milk, and 4,200 gallons of water are required to produce two pounds of beef. According to the U.S. EPA, the average American uses over 180 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet; twice the global per capita average. With water use increasing six-fold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish. To check out your own water footprint, go to http://goo.gl/QMoIXT.

BY THE NUMBERS

The number of miles of drinking water distribution mains in the U.S.

1 MILLION

135 BILLION The amount of money spent annually on maintaining the public water infrastructure in the U.S.

The number of Americans who receive water from a public water system.

300 MILLION

2 BILLION The age in years of the world's oldest water found in a mine at a depth of nearly two miles.

The number of active public water systems in the U.S.

151 THOUSAND

199 THOUSAND The number of highly trained and licensed water professionals serving in the U.S.

The number of federally regulated contaminants tested for in drinking water. **93**

Where Does My Water Come From?

An underground aquifer called the Equus Beds is the only source of McPherson's water supply. The aquifer underlies portions of a four-county area, which is about 900,000 acres in size. Water is drawn from 12 underground wells located in and around the City of McPherson.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please contact the General Manager's Office at 401 West Kansas Avenue in McPherson. Contact may also be made by phone at (620) 245-2525 or on our website at www.mcphersonpower.com.

Test Results

The tables below list all of the drinking water contaminants that were detected during the reporting period. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. The U.S. EPA or the State of Kansas requires the utility to monitor for certain contaminants less often than once per year because the concentrations of these contaminants do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

We participated in the 3rd stage of the EPA's Unregulated Contaminant Monitoring Rule (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if EPA needs to introduce new regulatory standards to improve drinking water quality. Contact us for more information on this program.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2016	15	0	1.7	1.7	No	Erosion of natural deposits
Arsenic (ppb)	2017	10	0	4.1	4.1	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Atrazine (ppb)	2017	3	3	0.063	0.063	No	Runoff from herbicide used on row crops
Barium (ppm)	2017	2	2	0.20	0.20	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium (ppb)	2017	100	100	1.6	1.6	No	Discharge from steel and pulp mills; Erosion of natural deposits
Nitrate (ppm)	2017	10	10	2.8	2.8	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	2017	50	50	6.4	6.4	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Tetrachloroethylene (ppb)	2017	5	0	1.15	1.1–1.15	No	Discharge from factories and dry cleaners
TTHMs [Total Trihalomethanes] (ppb)	2017	80	NA	4.35	2.7–6.0	No	By-product of drinking water disinfection

Tap Water Samples Collected for Lead and Copper Analyses from Sample Sites throughout the Community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2017	1.3	1.3	0.83	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2017	15	0	2.0	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alkalinity, Total (ppm)	2017	300	NA	260	260	No	Naturally occurring
Calcium (ppm)	2017	200	NA	120	120	No	Naturally occurring
Chloride (ppm)	2017	250	NA	59	59	No	Runoff/leaching from natural deposits
Conductivity (µS/cm)	2017	1,500	NA	780	780	No	Substances that form ions when in water
Corrosivity (Units)	2017	Noncorrosive	NA	0.71	0.71	No	Natural or industrially influenced balance of hydrogen, carbon, and oxygen in the water; Affected by temperature and other factors
Hardness, Total [as CaCO3] (ppm)	2017	400	NA	350	350	No	Naturally occurring
Magnesium (ppm)	2017	150	NA	11	11	No	Naturally occurring
pH (Units)	2017	6.5–8.5	NA	7.8	7.8	No	Naturally occurring
Phosphate (ppm)	2014	NA	NA	0.060	0.060	No	Added for corrosion control
Phosphorous, Total (ppm)	2017	5	NA	0.80	0.80	No	Naturally occurring; Component in cleaning products
Potassium (ppm)	2017	100	NA	2.6	2.6	No	Naturally occurring; Found in water softeners
Silica (ppm)	2017	50	NA	34	34	No	Naturally occurring as sand, quartz, sandstone, and granite
Sodium (ppm)	2017	100	NA	24	24	No	Naturally occurring; Component of water softeners
Sulfate (ppm)	2017	250	NA	32	32	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2017	500	NA	460	460	No	Runoff/leaching from natural deposits

UNREGULATED CONTAMINANT MONITORING RULE - PART 3 (UCMR3)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Chlorate (ppb)	2015	36.5	28.1–36.5	Disinfectant by-product
Molybdenum (ppb)	2015	1.26	1.06–1.26	Naturally occurring
Strontium (ppb)	2015	611	606–611	Naturally occurring
Vanadium (ppb)	2015	12.3	11.2–12.3	Naturally occurring

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

µS/cm (microsiemens per centimeter): A unit expressing the amount of electrical conductivity of a solution.

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected value for TTHMs is reported as the highest LRAAs.

MCL (Maximum Contaminant Level): 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.

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.

NA: Not applicable.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

SMCL (Secondary Maximum Contaminant Level): SMCLs are established to regulate the aesthetics of drinking water like appearance, taste and odor.