ANNUAL WATER QUALITY REPORT

Water Testing
Performed in 2015

Presented By

Board of Public Utilities

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Meeting the Challenge

Once again we are proud to present our annual drinking water report, covering all drinking water testing performed between January 1 and December 31, 2015. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to your homes and businesses. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all of our water users.

Please remember that we are always available to assist you, should you ever have any questions or concerns about your water.

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.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those 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 that 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 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, urban stormwater 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 stormwater runoff, and septic systems;

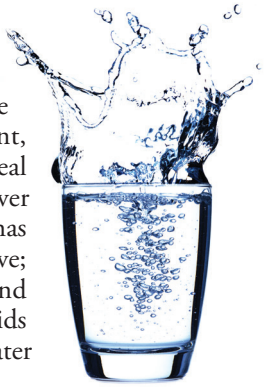
Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

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

Source Water Assessment

Water Quality Reports for previous years can be accessed at the BPU Web site www.mcphersonpower.com. The BPU, in partnership with the Kansas Department of Health & Environment (KDHE), has completed a source water assessment of our water supply. The results can be downloaded from http://www.kdheks.gov/nps/swap/SWreports.html.

Failure in Flint



The national news coverage of water conditions in Flint, Michigan, has created a great deal of confusion and consternation over the past year. The water there has been described as being corrosive; images of corroded batteries and warning labels on bottles of acids come to mind. But is corrosive water necessarily bad?

Corrosive water can be defined as a condition of water quality that will dissolve metals (iron, lead, copper, etc.) from metallic plumbing at an excessive rate. There are a few contributing factors but, generally speaking, corrosive water has a pH of less than 7; the lower the pH, the more acidic, or corrosive, the water becomes. (By this definition, many natural waterways throughout the country can be described as corrosive.) While all plumbing will be somewhat affected over time by the water it carries, corrosive water will damage plumbing much more rapidly than water with low corrosivity.

By itself, corrosive water is not a health concern; your morning glass of orange juice is considerably more corrosive than the typical lake or river. What is of concern is that exposure in drinking water to elevated levels of the dissolved metals increases adverse health risks. And there lies the problem.

Public water systems are required to maintain their water at optimal conditions to prevent it from reaching corrosive levels. Rest assured that we routinely monitor our water to make sure that what happened in Flint never happens here. For more information on how corrosivity impacts water quality, download this informative pamphlet: http://goo.gl/KpTmXv.

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 we 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.

Copper Monitoring

On March 3, 2015 BPU, received a Permit from KDHE to begin injection of an approved corrosion inhibitor/sequestrant for copper corrosion control. Accordingly, BPU injects 0.5 - 1.0 mg/L of product to mitigate the slightly corrosive effect of BPU's water on copper. BPU's water system has very little copper, so this effort is primarily to control corrosion of copper from homeowners' plumbing. This is the culmination of work done since October 2011 when KDHE advised BPU that the action level (AL) of the Lead and Copper Rule had been exceeded for that monitoring period. BPU had subsequently enlisted Burns & McDonnell engineering consultants to determine a course of action, and then worked with our vendor and KDHE for permit approval. Results will continue to be monitored with periodic testing as directed by KDHE.

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 Web site at www.mcphersonpower.com

Water Conservation

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

Is tap water cheaper than soda?

Yes! You can refill an 8 oz. glass of tap water approximately 15,000 times for the same cost as a six-pack of soda pop. And, water has no sugar or caffeine.

How long can a person go without water?

Although a person can live without food for more than a month, a person can only live without water for approximately one week.

When was drinking water first regulated?

The Safe Drinking Water Act (SDWA) of 1974 represents the first time that public drinking water supplies were protected on a federal (national) level in the U.S. Amendments were made to the SDWA in 1986 and 1996.

Seventy-one percent of Earth is covered in water: how much is drinkable?

Oceans hold about 96.5 percent of all Earth's water. Only three percent of the earth's water can be used as drinking water. Seventy-five percent of the world's fresh water is frozen in the polar ice caps.

Sampling 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 U.S. 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 the 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)	2010	15	0	4	4	No	Erosion of natural deposits
Arsenic (ppb)	2014	10	0	4.3	4.3	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2014	2	2	0.18	0.18	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium (ppb)	2015	100	100	3.41	1.89–3.41	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride (ppm)	2014	4	4	0.21	0.21	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2015	60	NA	ND	NA	No	By-product of drinking water disinfection
Nitrate (ppm)	2015	10	10	3.8	3.8	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	2014	50	50	7.9	7.9	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes] (ppb)	2015	80	NA	3.1	ND–7.2	No	By-product of drinking water disinfection
Tetrachloroethylene (ppb)	2015	5	0	1.34	ND–1.34	No	Discharge from factories and dry cleaners
Total Coliform Bacteria (# positive samples)	2015	1 positive monthly sample	0	0	NA	No	Naturally present in the environment

Tap water samples were 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)	2014	1.3	1.3	1.4	4/30	Yes[1]	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2014	15	0	3.6	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)	2014	300	NA	280	280	No	Naturally occurring
Calcium (ppm)	2014	200	NA	140	140	No	Runoff/leaching from natural deposits
Chloride (ppm)	2014	250	NA	68	68	No	Runoff/leaching from natural deposits
Conductivity (µS/cm)	2014	1,500	NA	850	850	No	Substances that form ions when in water
Corrosivity (Units)	2014	Noncorrosive	NA	0.37	0.37	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)	2014	400	NA	390	390	No	Naturally occurring
Magnesium (ppm)	2014	150	NA	13	13	No	Naturally occurring
pH (Units)	2014	6.5–8.5	NA	7.4	7.4	No	Naturally occurring
Phosphate (ppm)	2014	NA	NA	0.060	0.060	No	Added for corrosion control
Phosphorus, Total (ppm)	2011	5	NA	0.038	0.038	No	Naturally occurring; Component in cleaning products
Potassium (ppm)	2014	100	NA	2.7	2.7	No	Naturally occurring; Component of water softeners
Silica (ppm)	2014	50	NA	36	36	No	Naturally occurring as sand, quartz, sandstone, and granite
Sodium (ppm)	2014	100	NA	26	26	No	Naturally occurring; Component of water softeners
Sulfate (ppm)	2014	250	NA	35	35	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2014	500	NA	500	500	No	Runoff/leaching from natural deposits
Zinc (ppm)	2014	5	NA	0.015	0.015	No	Runoff/leaching from natural deposits; Industrial wastes

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

[1] 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 doctors.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that 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 values for TTHMs and HAAs are reported as 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

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

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 taste and odor.