

Annual
WATER
QUALITY
REPORT

Reporting Year 2013



Presented By
Board of Public Utilities

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Meeting Your Water Needs

We are pleased to present our annual Water Quality Report. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. 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 our water users. This water quality report, which is provided to you as part of the Safe Drinking Water Act Amendments of 1996, describes the quality of your drinking water.

The Board of Public Utilities (BPU) continues to maintain a safe drinking water supply for our customers while planning for the future needs of our community.

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 www.h2oconserve.org or visit www.waterfootprint.org to see how the water footprints of other nations compare.

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>.

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/safewater/lead.

What Are PPCPs?

When cleaning out your medicine cabinet, what do you do with your expired pills? Many people flush them down the toilet or toss them into the trash. Although this seems convenient, these actions could threaten our water supply.

Recent studies are generating a growing concern over pharmaceuticals and personal care products (PPCPs) entering water supplies. PPCPs include human and veterinary drugs (prescription or over-the-counter) and consumer products, such as cosmetics, fragrances, lotions, sunscreens, and house cleaning products. From 2006 to 2010, the number of U.S. prescriptions increased 12 percent to a record 3.7 billion, while nonprescription drug purchases held steady around 3.3 billion. Many of these drugs and personal care products do not biodegrade and may persist in the environment for years.

The best and most cost-effective way to ensure safe water at the tap is to keep our source waters clean. Never flush unused medications down the toilet or sink. Instead, check to see if the pharmacy where you made your purchase accepts medications for disposal, or contact your local health department for information on proper disposal methods and drop-off locations. You can also go on the Web at <http://earth911.com/recycling/unwanted-or-expired-medications> to find more information about disposal locations in your area.

Community Participation

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

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. You may also contact us by phone at (620) 245-2525 or on our website at www.mcbbpu.com.

Source Water Assessment

Water Quality Reports for previous years can be accessed at the BPU website: www.mcpbpu.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>.

Substances That Could Be in Water

To ensure that tap water is safe to drink, 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 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.

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.

Naturally Occurring Bacteria

The simple fact is, bacteria and other microorganisms inhabit our world. They can be found all around us: in our food; on our skin; in our bodies; and, in the air, soil, and water. Some are harmful to us and some are not. 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 because it indicates that the water may be contaminated with other organisms that can cause disease. Our water system is required to test a minimum of 15 samples per month in accordance with the Total Coliform Rule for microbiological contaminants. None of the samples came back positive for the bacteria.

Federal regulations require that public water that tests positive for coliform bacteria must be further analyzed for fecal coliform bacteria. Fecal coliform are present only in human and animal waste. Because these bacteria can cause illness, it is unacceptable for fecal coliform to be present in water at any concentration. Our tests indicate no fecal coliform is present in our water.

Copper Monitoring

The Kansas Department of Health & Environment advised the BPU in October 2011 that the copper action level (AL) of the Lead and Copper Rule had been exceeded for the monitoring period 2011-2013. What this means is that the water is active enough to slightly corrode copper piping. BPU's water system has very little copper, so the copper typically comes from the homeowners' plumbing. BPU has enlisted Burns & McDonnell engineering consultants to assist in determining the optimal corrosion control treatment process to address the elevated copper levels and plans to test a treatment process in 2014. The utility will continue to follow a course of action as designed by KDHE for monitoring copper levels.

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.

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 require 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.

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)	2011	10	0	3.8	3.8	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2011	2	2	0.21	0.21	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium (ppb)	2011	100	100	1.5	1.5	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride (ppm)	2011	4	4	0.19	0.19	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	2013	10	10	3.7	3.7	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	2011	50	50	9.8	9.8	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes]–Stage 2 (ppb)	2013	80	NA	5.8	3.8–5.8	No	By-product of drinking water disinfection
Total Coliform Bacteria (# positive samples)	2013	1 positive monthly sample	0	No detected results were found in the 2013 calendar year.	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	EXCEEDANCE	TYPICAL SOURCE
Copper (ppm)	2011	1.3	1.3	1.6	8/30	Yes	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2011	15	0	5.3	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	AMOUNT DETECTED	RANGE LOW-HIGH
Alkalinity, Total (ppm)	1/17/2012	300	295	295
Calcium (ppm)	01/17/2012	200	130	130
Chloride (ppm)	3/16/2011	250	52	52
Conductivity (UMHO/CM)	01/17/2012	1500	850	850
Corrosivity (Units)	3/16/2011	0	0.16	0.16
Hardness, Total [as CaCO ₃] (ppm)	3/16/2011	400	330	330
Magnesium (ppm)	3/16/2011	150	11.0	11.0
pH (pH Units)	01/17/2012	8.5	7.7	7.6–7.7
Phosphorus, Total (ppm)	3/16/2011	5	0.038	0.038
Potassium (ppm)	3/16/2011	100	2.8	2.8
Silica (ppm)	3/16/2011	50	34	34
Sodium (ppm)	3/16/2011	100	23	23
Sulfate (ppm)	3/16/2011	250	34	34
Total Dissolved Solids [TDS] (ppm)	3/16/2011	500	440	440
Zinc (ppm)	3/16/2011	5	0.011	0.011

Definitions

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

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).

Secondary Maximum Contaminant Level (SCML): Recommended level for a contaminant that is not regulated and has no MCL.