

ANNUAL
WATER
QUALITY
REPORT

Water testing performed in 2008



Presented By:

City of
Moberly!



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Meeting the Challenge

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2008. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.

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.

Community Participation

You are invited to participate in our public forum and to voice your concerns about your drinking water. We meet the first and third Monday of each month, beginning at 7 p.m. at City Hall, 101 West Reed Street, Moberly, Missouri.

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 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?

The City of Moberly Water Treatment Plant draws water from Sugar Creek Reservoir, a lake covering approximately 365 acres. The Moberly Water Treatment Plant was constructed in 1972. Our treatment facility provides roughly 450 million gallons of clean drinking water every year.



“WELL-INFORMED CUSTOMERS ARE OUR BEST ALLIES.”

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our water source and sent to an up-flow basin, where chemicals are added. The addition of these substances causes small particles to adhere to one another (called floc), making them heavy enough to settle into a basin from which sediment is removed. Chlorine is then added for disinfection, and fluoride is added to prevent tooth decay. At this point, the water is filtered through layers of silicate sand. As smaller, suspended particles are removed, turbidity disappears and clear water emerges. Chlorine is added again as precaution against any bacteria that may still be present. (We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally, the water flows to underground reservoirs where it is stored until it is pumped to water towers and into your home or business. Right before the water leaves the water plant, ammonia is added to the water to form chloramines, which is a disinfectant that is not as aggressive as free chlorine but lasts longer in the distribution system.

Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent according to government estimates).

The Food and Drug Administration is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Further, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to \$1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion on the NRDC study results, check out their Web site at www.nrdc.org/water/drinking/bw/exesum.asp.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Keith Phipps, Director of Public Utilities, at (660) 269-8705, ext. 2046.

Lead and Drinking Water

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 City of Moberly 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.



Q & A

What's growing in my pet's water bowl?

Dog and cat owners often notice the appearance of black or pink growths in their pet's water bowl. These growths come from various types of mold in the air—not the water. Similar growths can also be found on showerheads and shower curtains. Wash your pet's water bowl frequently and be sure to have plenty of fresh water available at all times.

Is it safe to drink water from a garden hose?

Substances used in vinyl garden hoses to keep them flexible can get into the water as it passes through the hose. These chemicals are not good for you nor are they good for your pets. Allow the

water to run for a short time in order to flush the hose before drinking or filling your pets' drinking containers. There are hoses made with "food-grade" plastic that will not contaminate the water. Check your local hardware store for this type of hose.

How long can I store drinking water?

The disinfectant in drinking water will eventually dissipate even in a closed container. If that container housed bacteria prior to filling up with the tap water, the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

How much water is lost to a dripping faucet?

Dripping faucets waste a precious resource and cost you money. As an example, if you have a faucet that drips 60 times a minute, this adds up to over 3 gallons each day or 1,225 gallons each year.

Should I put a brick in my toilet tank to save water?

Toilet flushing uses a lot of water: about 40% of a household's total water usage. Putting something in the toilet tank that takes up space, like a toilet dam or a water filled jug, is a good idea. But putting a brick in the tank is not a good idea. Bricks tend to crumble and might damage your toilet.

What makes water Hard?

If substantial amounts of either calcium or magnesium, both nontoxic minerals, are present in drinking water, the water is said to be hard. Hard water does not dissolve soap readily, so making lather for washing and cleaning is difficult. Conversely, water containing little calcium or magnesium is called soft water.



About Our Violations

All four quarters of the quarterly running annual average for haloacetic acids were exceeded, along with the average for the year. In an effort to reduce the formation of haloacetic acids, the city has increased the flushing of the distribution system and increased the addition of chloramines to the system. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

In the month of August, two samples for total coliform bacteria were positive. All other samples taken since August have been negative. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Coliforms were found in more samples than allowed, and this was a warning of potential problems.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which sample was taken.

REGULATED SUBSTANCES ¹

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2008	2	2	0.0521	0.0521–0.0521	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Combined Radium (pCi/L)	2007	5	0	0.1	0.1–0.1	No	Erosion of natural deposits
Fluoride (ppm)	2008	4	4	1.03	1.03–1.03	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2008	60	NA	70.36947	31.2–96.8	Yes	By-product of drinking water disinfection
Nitrate (ppm)	2008	10	10	0.57	0.57–0.57	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2008	80	NA	54.14863	14.7–104	No	By-product of drinking water chlorination
Total Coliform Bacteria (# positive samples)	2008	1 positive monthly sample	0	2	NA	Yes	Naturally present in the environment
Total Organic Carbon (ppm)	2008	TT	NA	6.08	1.98–6.08	No	Naturally present in the environment
Turbidity ² (NTU)	2008	TT	NA	0.21	0.05 -0 .21	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2008	TT	NA	100	NA	No	Soil runoff

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)	2007	1.3	1.3	0.299	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2007	15	0	6.7	1/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

¹We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

²Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

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.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water.

Turbidity in excess of 5 NTU is just noticeable to the average person.

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).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

