



2018 Annual Water Quality Report

Redfield
PWS ID: M03031301



Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

A Message from the Missouri American Water President

To Our Valued Customers:

Few things make me more proud to be the President of Missouri American Water than the quality of the water we produce. And while I encourage you to review details about your local water quality in the following pages, I want to first take a moment to focus on the “how” behind that information.

Missouri American Water spent nearly \$200 million in 2018 upgrading infrastructure around the state. Those funds went toward replacing more than 50 miles of our 6,800-mile network of water mains. They went toward major upgrades at our treatment plants to enhance water treatment and keep water flowing. We were able to purchase struggling water systems and provide needed upgrades to ensure more Missouri residents have access to safe, reliable water. We performed numerous smaller projects to make sure our systems remained in compliance with all state and federal regulations. In addition, as leaders in the water industry, we investigated and implemented new technologies, participated in national water quality studies, and formed partnerships with local and national organizations focused on providing the highest quality water.



We did all this while producing some of the safest, cleanest water in the industry. Our six surface water treatment plants and 29 groundwater treatment plants produced more than 75 billion gallons of water in 2018 and distributed it safely to your home or business.

I am so proud of that. Our water quality team’s mission statement reads, “Passionately ensuring exceptional water quality for our communities to protect and maintain public health while demonstrating environmental leadership.” The team did a phenomenal job on that mission in 2018, and you can continue to expect similar high-quality water in 2019.

I encourage you to take a few minutes to review the data included here and educate yourself about what is in your water. This report provides important information about your drinking water, its quality, and the testing we conduct. If you have any questions, I encourage you to reach out to us on our website or by phone at 866-430-0820.

Cheryl Norton
President

What is a Water Quality Report?

To comply with state and U.S. Environmental Protection Agency (USEPA) regulations, Missouri American Water issues a report annually describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect drinking water sources. We conduct tests for hundreds of contaminants. This report provides an overview of the most recent water quality data available. It includes details about where your water comes from and what it contains.

If you have any questions about this report or your drinking water, please call our Customer Service Center at (toll-free) (866) 430-0820.



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About Missouri American Water

Missouri American Water, a subsidiary of American Water (NYSE: AWK), is the largest investor-owned water utility in the state, providing high-quality and reliable water and/or wastewater services to approximately 1.5 million people.

With a history dating back to 1886, American Water is the largest and most geographically diverse U.S. publicly traded water and wastewater utility company. The company employs more than 7,100 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to more than 14 million people in 46 states and Ontario, Canada. American Water provides safe, clean, affordable and reliable water services to our customers to make sure we keep their lives flowing. For more information, visit amwater.com and follow American Water on Twitter, Facebook and LinkedIn.

How to Contact Us

For more information regarding this report or any of the other services provided by Missouri American Water, please call our Customer Service Center at (toll-free) (866) 430-0820, or you may visit us at www.amwater.com/moaw.

Source Water Information

All of the water for Redfield comes from a groundwater well. More information on your source water is available at <http://drinkingwater.missouri.edu/swip/swipmaps/pwssid.htm>. To access the information for your water system you will need the State-assigned identification code (PWSID), which is printed at the top of this report.


Protecting our Water Quality at the Source

It takes a community effort to protect our drinking water at its source.

We all live in a watershed – an area of land that drains to a waterway. When it rains or snows, water travels across the ground on its journey to a river or stream. Along the way, it picks up any pollutants that may be found on lawns, streets and farmland.

Working together, we can minimize these pollutants and protect our rivers with these eight simple steps.

- Recycle – don't litter
- Remember that storm inlets drain to rivers – dispose of household chemicals, oils, and paints at proper waste collection sites
- Plant native plants. They support wildlife, help preserve our natural diversity and require no fertilizer or herbicides
- Clean up after your pets and limit the use of fertilizers and pesticides
- Check for leaks from automobiles and heating fuel tanks and clean with absorbent materials like cat litter
- Plant a rain garden to capture runoff from rainwater
- Join a local stream clean-up team
- Do not flush or pour pharmaceuticals down the drain – please dispose at dedicated collection sites



There's a lot more to your water bill than just water.

When you turn on the tap, it's easy to see what your water bill buys. What's not as easy to see is what it takes to bring that water to your home. The miles of pipeline hidden below the ground. The facilities that draw water from the source. The plant where it's treated and tested. The scientists, engineers, and maintenance crews working around the clock to make sure that water is always there when you need it. Your water payments are helping to build a better tomorrow by supporting needed improvements that will keep water flowing for all of us—today and well into the future. All for about a penny a gallon.

AT ABOUT A PENNY PER GALLON WATER IS A GREAT VALUE™ **WE CARE ABOUT WATER. IT'S WHAT WE DO. FIND OUT WHY YOU SHOULD, TOO, at amwater.com.**

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Water Information Sources

Missouri American Water

www.missouriamwater.com

Missouri Department of Natural Resources

www.dnr.mo.gov

United States Environmental Protection Agency

www.epa.gov/safewater

Safe Drinking Water Hotline: (800) 426-4791

Centers for Disease Control and Prevention

www.cdc.gov

American Water Works Association

www.drinktap.org

Water Quality Association

www.wqa.org

National Library of Medicine/National Institute of Health

www.medlineplus.gov/drinkingwater.html

Substances Expected to be in Drinking Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and groundwater wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

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 water poses a health risk.

Contaminants 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, and 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 can also come from gas stations, urban stormwater runoff, and septic systems.

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

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

Special Health Information

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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the USEPA's Safe Drinking Water Hotline (800) 426-4791.

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. Missouri American Water 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. We take steps to reduce the potential for lead to leach from your pipes into the water. This is accomplished by maintaining the quality of your water leaving the treatment facilities. There are steps that you can take to reduce your household's exposure to lead in drinking water. For more information, please review our Lead and Drinking Water Fact Sheet <https://amwater.com/moaw/water-quality/lead-and-drinking-water>. 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 <http://www.epa.gov/safewater/lead>.

To ensure that tap water is of high quality, U.S. Environmental Protection Agency prescribes regulations limiting the amount of certain substances 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.



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How to Read the Tables

Missouri American Water conducts extensive monitoring to ensure that your water meets all water quality standards. The most recent results of our monitoring are reported in the following tables. Certain substances are monitored less than once per year because the levels do not change frequently. For help with interpreting these tables, see the “Definitions of Terms” section.

Starting with a **Substance**, read across. **Year Sampled** is the most recent test year. **MCL** shows the highest level of substance (contaminant) allowed. **MCLG** is the goal level for that substance (this may be lower than what is allowed). **Results** represents the measured amount (less is better). **Range** tells the highest and lowest amounts measured. A **Yes** under **Compliance Achieved** means the amount of the substance met government requirements. **Typical Source** tells where the substance usually originates.

Unregulated substances are measured, but maximum contaminant levels have not been established by the government.

Definitions of Terms

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 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 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 contamination.

NA: Not applicable

ND: Not detected

pCi/L (picocuries per liter): Measurement of the natural rate of disintegration of radioactive contaminants in water (also beta particles).

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

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

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

Water Quality Statement

We are pleased to report that during the past year, the water delivered to your home or business complied with all state and federal drinking water requirements. For your information, we have compiled tables showing the most recent water quality data available. Although all of the substances listed below are under the Maximum Contaminant Level (MCL) set by the USEPA, we feel it is important that you know exactly what was detected and how much of the substance was present in the water. For additional information concerning our results, please contact our customer service department at (toll-free) (866) 430-0820. Monitoring is also done under the USEPA Unregulated Contaminant Monitoring Rule (UCMR). Data is available on the [USEPA's web site](#).

There are many unforeseen and unpredictable factors that may introduce contaminants into our source water. The Missouri Department of Natural Resources routinely monitors all public water supplies to ensure public health is protected. Source Water Assessments have been assembled by the Missouri Department of Natural Resources to evaluate the susceptibility of contamination to our drinking water sources. For more information about these assessments call the Missouri Department of Natural Resources at (800) 361-4827.



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Water Quality Results

Regulated Substances (Water Entering the Distribution System)

| Substance (units) | Year Sampled | MCL | MCLG | Results | Range Low-High | Compliance Achieved | Typical Source |
|----------------------|--------------|-----|------|---------|----------------|---------------------|---|
| Barium (ppm) | 2018 | 2 | 2 | 0.1 | 0.1 | Yes | Erosion of natural deposits |
| Chlorine (ppm) | 2018 | TT | NA | 1.1 | 1.1 – 2.1 | Yes | Water additive used to control microbes |
| Fluoride (ppm) | 2018 | 4 | 4 | 0.1 | 0.1 | Yes | Erosion of natural deposits |
| Gross alpha (pCi/L) | 2014 | 15 | 0 | 6.5 | 6.5 | Yes | Erosion of natural deposits |
| Xylenes, Total (ppm) | 2018 | 10 | 10 | 0.0005 | 0.0005 | Yes | Discharge from petroleum factories; Discharge from chemical factories |

Bacterial Results (In the Distribution System)

| Substance (units) | Year Sampled | MCL | MCLG | Highest Monthly Number of Positives | Compliance Achieved | Typical Source |
|-------------------|--------------|-----|------|-------------------------------------|---------------------|--------------------------------------|
| E. coli | 2018 | TT | 0 | 0 | Yes | Human and animal fecal waste |
| Total Coliform | 2018 | TT | NA | 0 | Yes | Naturally present in the environment |

Regulated Substances (In the Distribution System)

| Substance (units) | Year Sampled | MCL | MCLG | Results | Range Low-High | Compliance Achieved | Typical Source |
|-------------------|--------------|----------|-----------|---------|----------------|---------------------|---|
| Chlorine (ppm) | 2018 | MRDL = 4 | MRDLG = 4 | 2.1 | 1.6 – 2.1 | Yes | Water additive used to control microbes |

Lead and Copper Results (In the Distribution System)

| Substance (units) | Year Sampled | Action Level | MCLG | Number of Samples | 90th Percentile | Number of Samples Above Action Level | Typical Source |
|-------------------|--------------|--------------|------|-------------------|-----------------|--------------------------------------|--|
| Copper (ppm) | 2016 | AL = 1.3 | 1.3 | 5 | 0.283 | 0 | Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives |
| Lead (ppb) | 2016 | AL = 15 | 0 | 5 | 6 | 0 | Corrosion of household plumbing systems; Erosion of natural deposits |

Unregulated Substances (Water Leaving the Treatment Facility)

| Substance (units) | Year Sampled | Results | Typical Source |
|------------------------------|--------------|---------|--|
| Calcium (ppm) | 2018 | 55 | Naturally occurring |
| Chloride (ppm) | 2018 | 3 | Naturally occurring; Runoff from road de-icing, fertilizers, septic tanks, industrial uses |
| Magnesium (ppm) | 2018 | 32 | Naturally occurring |
| Silica (ppm) | 2018 | 10 | Naturally occurring |
| Sodium (ppm) | 2018 | 7 | Naturally occurring |
| Sulfate (ppm) | 2018 | 22 | Naturally occurring |
| Total Dissolved Solids (ppm) | 2017 | 290 | Naturally occurring |



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Substances Tested for but Not Detected (Water Leaving the Treatment Facility)

| | | |
|-----------------------------|---------------------------|-------------------------------|
| 1,1,1-Trichloroethane | Bromodichloromethane | Methy tert-butyl ether (MTBE) |
| 1,1,2-Trichloroethane | Bromoform | Methylene chloride |
| 1,1-Dichloroethene | Cadmium – Total | Molybdenum – Total |
| 1,2,4-Trichlorobenzene | Carbaryl (Sevin) | Monobromoacetic Acid |
| 1,2-Dibromo-3-chloropropane | Carbofuran | Monochloroacetic Acid |
| 1,2-Dibromoethane (EDB) | Carbon tetrachloride | Nickel – Total |
| 1,2-Dichlorobenzene | Chlorobenzene | Nitrate – N |
| 1,2-Dichloroethane | Chromium – Total | Nitrite – N |
| 1,2-Dichloropropane | Cis-1,2-Dichloroethene | Oxamyl (Vydate) |
| 1,4-Dichlorobenzene | Cobalt – Total | Pentachlorophenol |
| 1,4-Dioxane | Copper – Total | PFBS |
| 2,4,5-T | Cyanide – Total | PFHpA |
| 2,4,5-TP (Silvex) | Dacthal | PFHxS |
| 2,4'-D | Dalapon | PFNA |
| 2,4-DB | Di(2-ethylhexyl)adipate | PFOA |
| 3,5-Dichlorobenzoic Acid | Di(2-ethylhexyl)phthalate | PFOS |
| 3-Hydroxycarbofuran | Dibromoacetic Acid | Picloram |
| Acifluorfen | Dibromochloromethane | Potassium – Total |
| Alachlor | Dicamba | Selenium – Total |
| Aldicarb | Dichloroacetic Acid | Silver – Total |
| Aldicarb Sulfone | Dichloroprop | Simazine (Princep) |
| Aldicarb Sulfoxide | Dinoseb | Strontium – Total |
| Aluminum – Total | Diquat | Styrene |
| Antimony – Total | Endothall | Technical Chlordane |
| Aroclor-1016 | Endrin | Tetrachloroethene (PCE) |
| Aroclor-1221 | Ethyl benzene | Thallium – Total |
| Aroclor-1232 | Gamma-BHC (Lindane) | Toluene |
| Aroclor-1242 | Glyphosate | Total Haloacetic Acids |
| Aroclor-1248 | Heptachlor | Total PCBs |
| Aroclor-1254 | Heptachlor epoxide | Toxaphene |
| Aroclor-1260 | Hexachlorobenzene | Trans-1,2-Dichloroethene |
| Arsenic – Total | Hexachlorocyclopentadiene | Trichloroacetic Acid |
| Atrazine (Aatrex) | Iron – Total | Trichloroethene (TCE) |
| Bentazon | Lead – Total | Vanadium – Total |
| Benzene | Manganese – Total | Vinyl chloride |
| Benzo(a)pyrene | Mercury – Total | |
| Beryllium – Total | Methiocarb | |
| Boron – Total | Methomyl | |
| Bromochloroacetic Acid | Methoxychlor | |



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