

This annual report is designed to inform you about your water system.

This report is intended to provide you with important information about your drinking water and the efforts made to provide safe drinking water.

Atencion!

Este informe contiene información muy importante. Tradúscalo o prequentele a alguien que lo entienda bien.

What is the source of my 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. The City uses deep groundwater wells to draw water from the Ozark Aquifer. The Ozark Aquifer is the thickest and most extensive aquifer within the Ozark Plateau aquifer system.

Source Water Assessment: The Department of Natural Resources conducted a source water assessment to determine the susceptibility of our water source to potential contaminants. This process involved the establishment of source water area delineations for each well or surface water intake and then a contaminant inventory was performed within those delineated areas to assess potential threats to each source. Assessment maps and summary information sheets are available on the internet at <http://drinkingwater.missouri.edu/swip/swipmaps/pwssid.htm>. To access the maps for your water system you will need the State-assigned identification code for Republic, which is MO5010681. The Source Water Inventory Project maps and information sheets provide a foundation upon which a more comprehensive source water protection plan can be developed.

Why are there contaminants in my water? All sources of drinking water are subject to potential contamination by substances that are naturally occurring or are manmade. Those contaminants can be microbes, organic or inorganic chemicals, or radioactive materials. 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. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Contaminants that may be present in source water include:

- A. **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- B. **Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.
- C. **Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- D. **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 storm water runoff, and septic systems.
- E. **Radioactive contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Is our water system meeting other rules that govern our operations? The Missouri Department of Natural Resources regulates our water system and requires us to test our water on a regular basis to ensure its safety. Our system has been assigned the identification number MO5010681 for the purposes of tracking our test results. Last year, we tested for a variety of contaminants in accordance with Federal and State laws. The tables below show the results of our monitoring for the period of January 1 to December 31, 2018. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. It is important to remember that the presence of these contaminants does not necessarily pose a health risk. The detectable results of these tests are on the following pages of this report and there were no violations of state requirements or standards will be further explained later in this report.

Do I need to take special precautions? 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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Special Lead and Copper Notice: If present, elevated levels of lead and copper can cause serious health problems, especially for pregnant women and young children. Lead and copper in drinking water is primarily from materials and components associated with services lines and home plumbing. The City of Republic is responsible for providing high quality drinking water, but cannot control the variety of materials used on private piping and plumbing fixtures. When your water has been sitting for several hours, you can minimize the potential for lead and copper exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead and copper in your water, you may wish to have your water tested. Information on lead and copper in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at <http://water.epa.gov/drink/info/lead/index.cfm>.

Definitions:

Population: 17,820. This is the equivalent residential population served including non-bill paying customers.

MCLG: Maximum Contaminant Level Goal, or 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.

MCL: Maximum Contaminant Level, or 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.

SMCL: Secondary Maximum Contaminant Level, or the secondary standards that are non-enforceable guidelines for contaminants and may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor or color) in drinking water. EPA recommends these standards but does not require water systems to comply

AL: Action Level, or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow..

TT: Treatment Technique, or a required process intended to reduce the level of a contaminant in drinking water.

90th percentile: For lead and Copper testing. 10% of test results are above this level and 90% are below this level.

Level Found: is the average of all test results for a particular contaminant.

Range of Detections: Shows the lowest and highest levels found during a testing period, if only one sample was taken, then this number equals the Level Found.

MRLDG: Maximum Residual Disinfectant Level Goal, or the level of a drinking water disinfectant below which there is no known or expected risk to health.

MRDL: Maximum Residual Disinfectant Level, or the highest level of a disinfectant allowed in drinking water.

RAA: Running Annual Average, or the average of sample analytical results for samples taken during the previous four calendar quarters.

LRAA: Locational Running Annual Average, or the locational average of sample analytical results for samples taken during the previous four calendar quarters.

Abbreviations:

TTHM: Total Trihalomethanes (chloroform, bromodichloromethane, dibromochloromethane, and bromoform) as a group.

HAA5: Haloacetic Acids (mono-, di- and tri-chloroacetic acid, and mono- and di-bromoacetic acid) as a group.

ppb: parts per billion or micrograms per liter.

ppm: parts per million or milligrams per liter.

n/a: not applicable.

NTU: Nephelometric Turbidity Unit, used to measure cloudiness in drinking water.

MFL: million fibers per liter, used to measure asbestos concentration.

nd: not detectable at testing limits.

The state has reduced monitoring requirements for certain contaminants to less often than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Records with a sample year more than one year old are still considered representative.

During the 2018 calendar year, the City of Republic had no violation of drinking water regulations.

Compliance Period	Category	Analyte	Type
No Violations Occurred in the Calendar Year 2018			

Regulated Contaminants

Regulated Contaminants	Collection Date	Highest Value	Range of Detections	Units	MCL	MCLG	Typical Source
Barium	4/4/2016	0.081	0.0136 – 0.081	ppm	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride	4/4/2016	0.58	0.27 – 0.58	ppm	4	4	Erosion of natural deposits; Additive which promotes strong teeth
Chromium	4/4/2016	2.24	1.67 – 2.24	ppb	100	100	Discharge from steel and pulp mills
Nitrate-Nitrite	4/10/2017	0.054	0 – 0.054	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Disinfection Byproducts	Sample Point	Monitoring Period	Highest LRAA	Range of Sampled Results	Units	MCL	MCLG	Typical Source
(HAA5)	DBPDUAL-01	2017	0	0 - 0	ppb	60	0	Byproducts of drinking water disinfection
(HAA5)	DBPDUAL-04	2017	0	0 - 0	ppb	60	0	Byproducts of drinking water disinfection
TTHM	DBPDUAL-01	2017	4	0 - 0	ppb	80	0	Byproducts of drinking water disinfection
TTHM	DBPDUAL-04	2017	0	0 - 0	ppb	80	0	Byproducts of drinking water disinfection

Lead and Copper	Date	90th percentile: 90% of your water utility levels were less than	Range of Sampled Results (low to high)	Units	AL	Sites Over AL	Typical Source
COPPER	2015 - 2017	0.0534	0.00419 – 0.706	ppm	1.3	0	Corrosion of household plumbing systems
LEAD	2015 - 2017	2.93	1.01 – 7.39	ppb	15	0	Corrosion of household plumbing systems

Regulated Contaminants (continued)

Radionuclides	Collection Date	Highest Value	Range of Sampled Result(s)	Units	MCL	MCLG	Typical Source
GROSS ALPHA PARTICLES ACTIVITY	1/31/2017	3.2	0 – 3.2	pCi/l			Erosion of natural deposits
GROSS ALPHA, EXCL. RADON & URANIUM	7/7/2011	3.8	0 – 3.8	pCi/l	15	0	Erosion of natural deposits

Microbiological	Result	MCL	MCLG	Typical Source
COLIFORM (TCR)	No Detected results were found in the Calendar year of 2016	MCL: Systems that collect less than 40 samples per month – No more than 1 positive monthly sample	0	Naturally present in the environment

Unregulated Contaminants Monitoring Rule (UCMR)	Collection Date of HV	Highest Value (HV)	Range of Sampled Result(s)	Units
CHROMIUM, HEX	10/15/2013	0.081	0 – 0.081	UG/L
MOLYBDENUM, TOTAL	2/12/2014	3.37	2.37 – 3.37	UG/L
STRONTIUM	2/12/2014	164	51.4 – 164	UG/L
VANADIUM, TOTAL	2/12/2014	0.22	0 – 0.022	UG/L

Optional Monitoring (not required by EPA)

Secondary standards are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor or color) in drinking water. EPA recommends these standards but does not require water systems to comply.

Monitoring is not required for optional contaminants.				
Inorganic	Units	Highest Level Found	Range of Detections	Sample Year
Alkalinity, CaCO ₃ Stability	ppm	195	179 - 195	2016
Calcium	ppm	35.5	33.3 – 35.5	2016
Chloride	ppm	2.83	2.51 – 2.83	2013
Hardness, Carbonate	ppm	164	150 - 164	2016
Iron	ppm	.073	.00683 - .073	2016
Magnesium	ppm	18.8	16.2 – 18.8	2016
PH	ph	7.91	7.78 – 7.91	2016
Potassium	ppm	1.85	0 – 1.85	2016
Sodium	ppm	2.77	1.63 – 2.77	2016
Sulfate	ppm	19.7	15.1 – 19.7	2016
Zinc	ppm	0.0187	.00225 - .0187	2016
Manganese	ppm	0.0104	0 – 0.0104	2016
TDS	ppm	162	148 - 162	2016

You can also find sample results for all contaminants from both past and present compliance monitoring online at the Missouri DNR Drinking Water Watch website <https://www.dnr.mo.gov/DWW/indexSearchDNR.jsp>. To find Lead and Copper results for your system, type your water system name in the box titled Water System Name and select *Find Water Systems* at the bottom of the page. The new screen will show you the water system name and number, select and click the Water System Number. At the top of the next page, under the *Help* column find, *Other Chemical Results by Analyte*, select and click on it. Scroll down alphabetically to Lead and click the blue Analyte Code (1030). The Lead and Copper locations will be displayed under the heading *Sample Comments*. Scroll to find your location and click on the *Sample No.* for the results. If your house was selected by the water system and you assisted in taking a Lead and Copper sample from your home but cannot find your location in the list, please contact The City of Republic for your results.

If you have questions about this report, concerns regarding your water system, or would like a paper copy of this report, please contact Jason Davis at 732-3440, or write to: 2018 Water Report, City of Republic, 204 N. Main, Republic, MO 65738. Additional copies of this report are available at City Hall. This report may also be viewed at the Republic Library, 925 N Lindsey Ave, or on the web at www.republicmo.com. If you would like to become actively involved in the municipal water system, contact the Public Works Department or attend a regularly scheduled City Council meeting on the second and fourth Tuesday of each month at 213 N. Main, beginning at 7:00 p.m.