RRWA

RATHBUN REGIONAL WATER ASSOCIATION, INC.

Serving quality drinking water to residents, farms, and businesses in the rural areas of 18 counties and 57 communities in southeast Iowa and northeast Missouri

2019 WATER QUALITY REPORT

Rathbun Regional Water Association

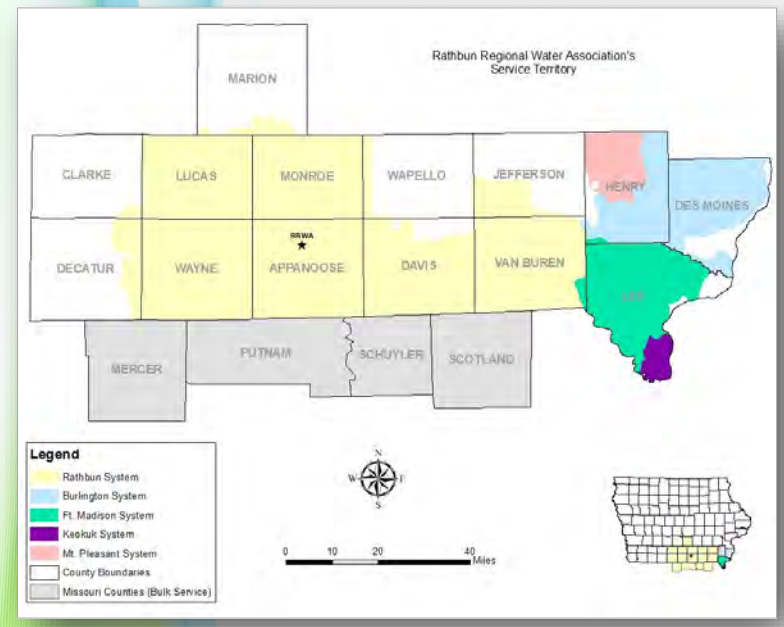
RRWA - **Addressing Southeast Iowa's Water Needs**

In 1968, farm and community leaders from Appanoose, Lucas, Monroe, and Wayne Counties came together to address the need for a reliable supply of quality drinking water in southeast Iowa. Four years later, these efforts together with support from state and federal agencies led to the organization of Rathbun Regional Water Association (RRWA). Soon after RRWA was organized, plans were underway for a water treatment plant and distribution system. Construction on RRWA's first water treatment plant began in 1975. While RRWA's treatment plant was under construction, the Association began to serve its customers through a newly installed distribution system with water purchased from the Cities of Albia, Centerville, Chariton, Corydon, and Humeston. RRWA's first water treatment plant was completed in 1977. This first plant had a capacity to produce 4 million gallons per day (MGD) of drinking water. Rathbun Lake was the source of raw water for RRWA's plant.

Over the next two decades, demand for reliable, quality drinking water increased across southeast Iowa. In response, RRWA expanded its service territory and the number of Association customers grew. In addition to serving water to a growing number of rural residents and farms, RRWA also began to supply water to many small communities.

In 2000, RRWA completed an expansion of the original treatment plant to satisfy the increased demand for water. RRWA's expanded plant had the capacity to treat 8 MGD of water from Rathbun Lake. The Association also constructed elevated water storage tanks, booster pump stations, and pipelines across its expanding service territory.

In addition, RRWA entered into agreements to purchase water from the cities of Burlington, Fairfield, Fort Madison, Keokuk, and Mount Pleasant for distribution to customers. RRWA has also been called upon to help address community wastewater treatment needs in the Association's service territory. RRWA also currently owns and operates wastewater treatment systems in 10 small communities in its service territory.



RRWA - Preparing for the Future

Today, RRWA is the largest rural water system in Iowa and one of the largest in the United States. RRWA supplies water to the rural areas in 18 counties and to 57 communities in Iowa and Missouri. RRWA delivers this water through an extensive distribution system which includes close to 7,000 miles of pipeline, 36 elevated water storage tanks, and 39 booster pump stations. More than 90,000 people receive quality drinking water each day served by RRWA. Farm and livestock operations as well as numerous other businesses, industries, and facilities depend on RRWA to deliver a supply of water that meets their daily needs. In recent years, RRWA has continued to experience steady growth in the number of customers. This growth requires that RRWA continually plan and implement actions to meet the increase in demand for water.

In 2007, RRWA made the decision to once again expand the Association's water treatment capacity and make additional improvements to its distribution system. This decision was based on long-term planning which determined that the future drinking water needs of RRWA's customers could exceed 14 MGD. RRWA also believed that it was essential for the Association to be able to supply the water needed to support economic development in its service territory. In preparing to meet this future demand for water, RRWA invested more than $50 million in improvements to the Association's water treatment and distribution facilities since 2007. These improvements included a new water treatment plant with a production capacity of 6 MGD which can be expanded to 9 MGD, an intake structure in Rathbun Lake with a capacity to supply 17.5 MGD of raw water, raw water transmission mains, potable water distribution mains, and elevated water storage tanks. In addition, RRWA completed a major renovation of the Association's original water treatment plant which will ensure the facility's continued operation for many years to come.

RRWA – Building Partnerships

RRWA's success as one of the leading rural water systems in Iowa and in the nation is the result of strong partnerships built during the Association's 50-year history. RRWA's Board of Directors and staff value the important relationships developed with local counties, communities, and organizations; state and federal agencies; business and financial partners; and other utilities and utility associations. These many partnerships have enabled RRWA to excel at fulfilling its core mission of ensuring that an adequate supply of quality drinking water is available for the Association's member-customers.

OUR MISSION

Rathbun Regional Water Association strives to improve the quality of life in our region by providing our customers with safe, high quality drinking water and related services.

Protect Rathbun Lake

Rathbun Lake and Watershed

Rathbun Lake is the only source of raw water for RRWA's two water treatment plants. The lake also provides recreation for one million visitors annually. Iowa's Honey Creek Resort State Park is located at Rathbun Lake. In addition, the lake provides fish and wildlife habitat, flood damage reduction, storage for navigational flows, and water for the Iowa Department of Natural Resources' (DNR) Rathbun Fish Hatchery. Rathbun Lake is located on the Chariton River in south central Iowa. The US Army Corps of Engineers (ACOE) developed the lake in the late 1960s. The ACOE manages Rathbun Lake, lake facilities, and 22,900 acres of adjacent public land. Rathbun Lake's watershed covers 354,000 acres. The six counties in the watershed are Appanoose, Clarke, Decatur, Lucas, Monroe, and Wayne. Approximately 15,000 people live in the Rathbun Lake watershed. There are ten communities and an estimated 820 farms in the watershed. The majority of farms are family owned and operated. Corn and soybean production along with grassland for grazing are the major land uses in the watershed. Almost all of the residents in the watershed rely on Rathbun Lake and RRWA for their drinking water.

Rathbun Land and Water Alliance

The Rathbun Land and Water Alliance coordinates efforts to protect and enhance land and water resources in the Rathbun Lake watershed. Alliance members include local soil and water conservation districts, county governments, and RRWA. As a founding member of the Alliance, RRWA provides leadership and support for efforts to protect Rathbun Lake. The Alliance's partners include landowners in the Rathbun Lake watershed, Farm Bureau, CoBank, Iowa DNR, Iowa Department of Agriculture and Land Stewardship's Division of Soil Conservation and Water Quality, Iowa State University, Iowa Watershed Improvement Review Board, USDA Natural Resources Conservation Service, US ACOE, and US Environmental Protection Agency. The Alliance, created in 1996, is organized as a nonprofit corporation under Iowa Code Chapter 504 and section 501(c)(3) of the US Internal Revenue Code. The Alliance is governed by a board of directors appointed by member organizations.

Protecting Rathbun Lake

Since 2004, RRWA and other Alliance members and partners have worked with hundreds of landowners to install conservation practices on thousands of acres of land in the watershed in an effort to reduce the amounts of sediment and phosphorus that enter Rathbun Lake. To date, these practices have reduced the annual delivery of sediment and phosphorus to Rathbun Lake by an estimated 61,000 tons and 267,000 pounds respectively. The Alliance takes pride in recognizing outstanding stewardship efforts by landowners in the watershed through its Rathbun Lake Protectors program. More than 2 million feet of terraces and 727 grade stabilization structures and sediment basins have been installed by these landowners. The Alliance and its partners also monitor water quality in the lake and watershed to help evaluate progress in protecting Rathbun Lake. RRWA with other Alliance members and partners including landowners in the watershed have invested and committed more than $36 million for Rathbun Lake protection activities.

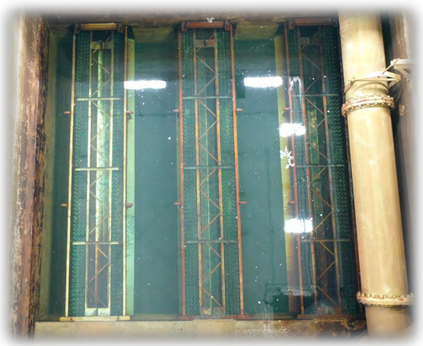
RRWA's Water Treatment and Distribution Systems

1. Raw Water Source

Rathbun Lake is the source of raw water for RRWA's treatment plants. A caisson-style intake located at Rathbun Lake pumps water from the lake to the Association's two treatment plants. Chemicals can be added at the caisson to begin the water treatment process and to help protect the intake from possible zebra mussel infestation.

2. Sedimentation

As raw water from Rathbun Lake arrives at RRWA's treatment plants it enters basins called pulsators. Chemicals added to the raw water just prior to the pulsators cause particles in the water to attach to one another (coagulate) and form clumps (floc) that settle to the bottom of the basins. This floc is then discharged to large lagoons located near the water treatment plants.



3. Filtration

Water from the pulsators flows into filter basins. In the filters, the water passes through 18 inches of granular activated carbon and then 18 inches of sand. The filters remove any remaining particles as well as taste and odor-causing compounds from the water.

4. Addition of Fluoride and Phosphate

RRWA adds fluoride to the water to promote dental health in children. RRWA also adds phosphate to the water to help reduce the possibility that lead will leach out of pipes and into the drinking water.

5. Disinfection

A combination of chlorine and ammonia is used to form chloramines as a disinfectant in the drinking water. Disinfection with chloramines helps ensure that the drinking water is free of any harmful microorganisms.

6. Distribution

Once the water treatment process is complete, RRWA pumps the drinking water into the Association's distribution system. RRWA's distribution system includes close to 7,000 miles of pipelines.

7. Storage and Pump Stations

Close to 40 water towers and pump stations are located throughout RRWA's service territory. The towers and pump stations help provide the storage and pressure required to deliver drinking water to the Association's customers.

8. Customer Use

RRWA serves drinking water to thousands of homes, farms, and businesses across the Association's service territory. RRWA monitors the water during the treatment process and in the distribution system to make sure that customers always receive safe, quality drinking water.

2019 Water Quality Report for Rathbun Regional Water Association (Rathbun)

This report contains important information regarding the water quality in our water system. The source of our water is surface water.
Our water quality testing shows the following results:

Contaminant	MCL - (MCLG)	Compliance		Date	Violation	Source
		Type	Value & (Range)		Yes/No	
Total Trihalomethanes (ppb) [TTHM] DB01	80 (N/A)	LRAA	44 (36 - 58)	3rd Quarter 2019	No	By-products of drinking water chlorination
Total Trihalomethanes (ppb) [TTHM] DB02	80 (N/A)	LRAA	46 (35 – 69)	3rd Quarter 2019	No	By-products of drinking water chlorination
Total Trihalomethanes (ppb) [TTHM] DB03	80 (N/A)	LRAA	42 (31 – 65)	3rd Quarter 2019	No	By-products of drinking water chlorination
Total Trihalomethanes (ppb) [TTHM] DB04	80 (N/A)	LRAA	46 (36 – 64)	3rd Quarter 2019	No	By-products of drinking water chlorination
Total Haloacetic Acids (ppb) [HAA5] DB01	60 (N/A)	LRAA	26 (21 - 29)	3rd Quarter 2019	No	By-products of drinking water disinfection
Total Haloacetic Acids (ppb) [HAA5] DB02	60 (N/A)	LRAA	27 (21 – 33)	3rd Quarter 2019	No	By-products of drinking water chlorination
Total Haloacetic Acids (ppb) [HAA5] DB03	60 (N/A)	LRAA	24 (15 – 31)	3rd Quarter 2019	No	By-products of drinking water chlorination
Total Haloacetic Acids (ppb) [HAA5] DB04	60 (N/A)	LRAA	28 (22 – 33)	3rd Quarter 2019	No	By-products of drinking water chlorination
Lead (ppb)	AL=15 (0)	90th	1.00 (ND - 3)	2017	No	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppm)	AL=1.3 (1.3)	90th	0.16 (0.01 - 0.37)	2017	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
950 - DISTRIBUTION SYSTEM						
Chlorine (ppm)	MRDL=4.0 (MRDLG=4.0)	RAA	2.8 (2.4 - 3.14)	12/31/2019	No	Water additive used to control microbes
Fluoride (ppm)	4 (4)	SGL	0.70 (0.52 – 0.70)	11/2019	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and alumi-num factories
01 - EAST PLANT @ AFTER TREATMENT						
Sodium (ppm)	N/A (N/A)	SGL	28	01/15/2019	No	Erosion of natural deposits; Added to water during treatment process
Nitrate [as N] (ppm)	10 (10)	SGL	2.5	2019	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Atrazine (ppb)	3 (3)	SGL	0.10	04/05/2019	No	Runoff from herbicide used on row crops
Metolachlor (ppm)	N/A (N/A)	SGL	0.0001	04/05/2019	No	Runoff from herbicide used on row crops
Turbidity (NTU)	N/A (N/A)	TT	0.097 (100%)	08/2019	No	Soil runoff
Total Organic Carbon	30%	TT	(44.4 – 66.2)	09/2019	No	Naturally Present in the Environment
03 - WEST PLANT @ AFTER TREATMENT						
Sodium (ppm)	N/A (N/A)	SGL	30	01/15/2019	No	Erosion of natural deposits; Added to water during treatment process
Nitrate [as N] (ppm)	10 (10)	SGL	2.5	2019	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Atrazine (ppb)	3 (3)	SGL	0.50	03/15/2017	No	Runoff from herbicide used on row crops
Turbidity (NTU)	N/A (N/A)	TT	0.083 (100%)	08/2019	No	Soil runoff
Total Organic Carbon	30%	TT	(46.1 – 58.5)	11/2019	No	Naturally Present in the Environment
UCMR4						
Dichloracetic Acid	N/A (N/A)	ppb	14 (9 – 14)	2018	No	Unregulated Contaminants Monitoring Rule, 4th Edition
Trichloroacetic Acid	N/A (N/A)	ppb	9.6 (3.3 – 9.6)	2018	No	Unregulated Contaminants Monitoring Rule, 4th Edition
Bromochloroacetic Acid	N/A (N/A)	ppb	3.6 (2.0 – 3.6)	2018	No	Unregulated Contaminants Monitoring Rule, 4th Edition
Dibromoacetic Acid	N/A (N/A)	ppb	0.77 (<0.30 - 0.77)	2018	No	Unregulated Contaminants Monitoring Rule, 4th Edition
Bromodichloroacetic Acid	N/A (N/A)	ppb	2.6 (1.7 – 2.6)	2018	No	Unregulated Contaminants Monitoring Rule, 4th Edition
Chlorodibromoacetic Acid	N/A (N/A)	ppb	0.72 (0.44 – 0.72)	2018	No	Unregulated Contaminants Monitoring Rule, 4th Edition
Manganese	N/A (N/A)	ppb	20 (3 – 20)	2018	No	Unregulated Contaminants Monitoring Rule, 4th Edition

Note: Contaminants with dates indicate results from the most recent testing done in accordance with regulations.

2019 Water Quality Report for Rathbun Regional Water Association (Rathbun)

Acronyms: AL - Action Level; LRAA – Locational Running Annual Average; MCL – Maximum Contaminant Level; MCLG – Maximum Contaminant Level Goal; MRDL – Maximum Residual Disinfectant Level; MRDLG – Maximum Residual Disinfectant Level Goal; N/A – Not Applicable; ND – Not Detected; NTU – Nephelometric Turbidity Unity; ppb – Parts per Billion; ppm – Parts per Million; pCi/L – Picocuries per Liter; RAA – Running Annual Average; RTCR – Revised Total Coliform Rule; SGL – Single Sample Result; TT – Treatment Technique; Ug/L – Micrograms per Liter

Definitions of Key Terms in this Report

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

Compliance: The act of meeting all state and federal drinking water regulations.

Contaminant: Anything found in water (including microorganisms, minerals, chemicals, radionuclides, etc.) which may be harmful to human health.

Disinfection: The use of a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet light) that kills microorganisms such as bacteria, viruses, and protozoa.

Maximum Contaminant Level (MCL): 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.

Maximum Contaminant Level Goal (MCLG): 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.

Maximum Residual Disinfectant Level (MRDL): 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.

Maximum Residual Disinfectant Level Goal (MRDLG): 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.

Nephelometric Turbidity Unit (NTU): A unit of measure used to determine the clarity (turbidity) of drinking water.

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

Turbidity: The cloudy appearance of water caused by the presence of tiny particles. High levels of turbidity may interfere with proper water treatment and monitoring. Turbidity is an indicator of treatment filter performance and is regulated as a treatment technique.

Violation: A failure to meet any state or federal drinking water regulation.

Source Water Assessment Information

This water supply obtains water from one or more surface waters. Surface water sources are susceptible to sources of contamination within the drainage basin.

Surface Water Name	Susceptibility
Chariton River	*high*
Rathbun Lake	*high*

Other Information

Turbidity is an indicator of treatment filter performance and is regulated as a treatment technique.

Contact Information

For questions regarding this information or how you can get involved in decisions regarding the water system, please contact Rathbun Regional Water Association (Rathbun) at 641-647-2416.

Like to Learn More?

Rathbun Regional Water Association hosts educational tours for interested customers and others. Please contact RRWA to ask about a tour for your

General Information

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 posed a health risk. More information about contaminants or potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

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).

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. Rathbun Regional Water Association (Rathbun) 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 (800-426-4791) or at http://www.epa.gov/safewater/lead.

Frequently Asked Questions About Your Drinking Water

Why does my water have a strong chlorine taste and smell?

RRWA changes from chloramines to free chlorine as our disinfectant one time each year. This change to free chlorine helps maintain the sanitary condition of our distribution system. RRWA usually makes this change to free chlorine in the spring of each year and it lasts for approximately two weeks. Your water may have a stronger chlorine taste and smell during this time, but it is safe to drink. RRWA notifies our customers about this annual change so that those who may be affected by free chlorine in their drinking water can take any necessary steps.

My water has an earthy and musty taste and odor, is it safe to drink?

Earthy and musty tastes and odors in RRWA's water are most likely caused by naturally occurring chemical compounds that can be found in Rathbun Lake. The common source of these compounds is cyanobactera (blue-green algae). These tastes and odors usually occur in late summer and early fall. Even though RRWA's water treatment removes most of these compounds, some individuals are sensitive to the tastes and odors caused by very small amounts. Yes, RRWA's water is safe to drink. The tastes and odors caused by these compounds in your drinking water will not have any direct health impacts.

Why do you put fluoride in my water?

RRWA adds fluoride to your drinking water to help prevent tooth decay. This is especially beneficial for young children. Children who drink fluoridated water will have stronger, more decay resistant teeth over their lifetime. The use of fluoride in drinking water for the prevention and control of tooth decay is both safe and effective. RRWA maintains the concentration of fluoride in your drinking water at 0.7 parts per million as recommended by the U.S. Department of Health and Human Services.

How do you test my drinking water to make sure it is safe?

RRWA monitors the quality of your drinking water at all steps in the treatment process. A number of the water quality parameters such as turbidity are monitored continuously. RRWA also performs numerous laboratory tests daily to monitor the quality of water produced in our treatment plants. In addition, RRWA routinely conducts tests throughout the distribution system in order to be certain that the drinking water delivered to our customers is always safe and of the highest quality.

RRWA Board Members

The RRWA Board of Directors consists of seven directors elected by the Association's membership. The Board of Directors primary responsibility is to set policy. The Board employs a Chief Executive Officer/Chief Operating Officer who manages the day to day operations of the RRWA organization.

Chairman—District 1	Randy Eddy
Vice Chairman—District 2	Dennis Amoss
Secretary/Treasurer—District 3	Doug Goben
Board Member—District 4	Ken Wuthrich
Board Member—District 5	Charla Warner
Board Member—District 6	Garry Schiller
Board Member—District 7	Curt Frank

RRWA Staff

Chief Executive Officer/ Chief Operating Officer	John Glenn
Chief Financial Officer	Rod Glosser
Support Services Officer	Marty Braster
Administrative Manager	Mindy Payne
IT Systems Administrator	Bill Ellis
Plant Superintendent	Jer Buckingham
System Engineer	Matt Haden
East Distribution Superintendent	Jim Hopp
West Distribution Superintendent	Kelly Carel
Special Projects Coordinator	Dave Aeschliman
Project Supervisor	Steve Sherrard
GIS Specialist	Jon Foster

RRWA has 60+ employees with a wide range of duties. RRWA employs State of Iowa certified operators in the treatment and distribution of our water. RRWA is fortunate to have a team of dedicated and skilled employees

Contact Us

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For a digital copy of this report, visit rrwa.net.

Office hours: Monday—Friday 8am to 4:30pm

Rathbun Lake Water Quality Monitoring Partnership

RRWA, Iowa DNR, Iowa's State Hygienic Lab, and US ACOE partner with the Rathbun Land and Water Alliance to monitoring water quality in Rathbun Lake and the lake's tributaries. This annual water quality monitoring program has been carried out since 1997. Currently, monitoring takes place on four main tributaries to Rathbun Lake, at four locations in the lake, and at the lake's outlet. Results from water quality monitoring are used to assess the overall condition of Rathbun Lake and help evaluate the effectiveness of best management practices installed by landowners in the lake's watershed. This past year, RRWA's water treatment staff assumed responsibility for collecting water quality samples at tributary sites in the Rathbun Lake watershed.