

Annual Drinking Water Quality Report

Monitoring Performed January – December 2022

Greenville Water Works & Sewer Board

PO Box 483

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We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report). The purpose of this report is to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. We want you to understand the efforts made to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water.

Customers:	Approximately 3150	Water Treatment:	Chlorine for disinfection
Additional Connections:	Sell water to Butler County Water Authority	Storage Capacity:	4 tanks with a capacity of 2,225,000 gallons
Water Sources:	6 groundwater wells producing from Ripley Formation. Purchased groundwater from Butler County Water Authority		

Source Water Assessment

In compliance with the Alabama Department of Environmental Management (ADEM), the Greenville Water Works & Sewer Board has developed a Source Water Assessment plan that will assist in protecting our water sources. This plan provides additional information such as potential sources of contamination. It includes a susceptibility analysis, which classifies potential contaminants as high, moderate, or non-susceptible (low) to contaminating the water source. All of the potential contaminants sited in our study area were ranked as low. The assessment has been performed, public notification has been completed, and the plan has been approved by ADEM. A copy of the report is available in our office for review, or you may purchase a copy upon request for a nominal reproduction fee.

Questions?

Thank you for allowing us to continue providing your family with clean, quality water this year. If you have any questions about this report or concerning your water utility, please contact Kristopher Findley at (334) 382-6661.

We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held on the fourth Tuesday of every month at 11:00 a.m. at City Hall, 119 East Commerce Street.

Board Members:	Velma Briggs, Member
Joby Norman, Chairman	Jimmy Lawson, Member
James Reeves, Member	Kenny Perdue, Member

Superintendent:
Kristopher Findley

General Information Regarding Drinking Water Contaminants

All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. MCLs, defined in a List of Definitions in this report, are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect. 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 and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, can be naturally occurring or result from urban stormwater run-off, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides may come from a variety of sources such as agriculture, stormwater run-off, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health. 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 healthcare providers.

Water systems also test your source water for pathogens, such as Cryptosporidium and Giardia. These pathogens can enter the water from animal or human waste. All test results were well within state and federal standards. For people who may be immuno-compromised, a guidance document developed jointly by the Environmental Protection Agency and the Center for Disease Control is available online at www.epa.gov/safewater or from the Safe Drinking Water Hotline at 800-426-4791. This language does not indicate the presence of cryptosporidium in our drinking water. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791).

Abbreviations & Definitions

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

Lowest Running Annual Average (LRAA): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

Maximum Contaminant Level (MCL): The highest level of 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 Detected (MD)

Maximum Residual Disinfectant Level (MRDL): The highest level of disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for the control of microbial contaminants in drinking water.

Maximum Residual Disinfection 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.

Not Applicable (NA)

Nephelometric Turbidity Unit (NTU): A measure of the clarity of the water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Not Detected (ND): Laboratory analysis indicates that the constituent is not present above the detection limits of lab equipment.

pCi/L (picocuries per liter): a measure of Radioactivity

ppb (parts per billion): micrograms per liter ($\mu\text{g/L}$)

ppm (parts per million): milligrams per liter (mg/L)

Threshold Odor Number (T.O.N.): The greatest dilution of a sample with odor-free water that still yields a just detectable odor.

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

Monitoring Schedule

Our water sources are routinely monitored for contaminants, according to a schedule determined by Federal and State regulations. Every water system has individually assigned monitoring requirements. ADEM allows monitoring for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. The following table shows the most recent year and the next monitoring requirement for the contaminant groups.

Constituent Monitored	Date Monitored / Next Monitoring
Inorganic Contaminants	2021 / 2025
Lead/Copper	2020 / 2023
Microbiological Contaminants	Monthly
Nitrates	Annually
Radioactive Contaminants	2019 / 2025 - 2034
Synthetic Organic Contaminants (including pesticides and herbicides)	2021 / 2025
Volatile Organic Contaminants	2021 / 2025
Disinfection By-products	Quarterly

Variances and Exemptions

ADEM or the EPA can give permission not to meet an MCL or a treatment technique under certain conditions.

Based on a study conducted by ADEM with the approval of the EPA, a statewide waiver for the monitoring of asbestos and dioxin was issued. Thus, monitoring for these contaminants was not required.

Lead & Copper Monitoring

We completed monitoring requirements for lead and copper in 2020. Twenty sites were sampled and one location exceeded the Action Limit for Lead. This site was resampled and the result met in compliance.

The system will continue to monitor for lead and copper every three years. The next monitoring period for the system will be the period of June - September 2023. Our monitoring results in 2020 were as follows:

2020 Results	MCL	90th Percentile Sample	Range of Levels
Lead	AL = 15	1.1 ppb	ND - 18.3
Copper	AL = 1.3	0.0534 ppm	0.0036 - 01.46

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Greenville Water Works & Sewer Board is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. These recommended actions are very important to the health of your family:

- Use only water from the cold-water tap for drinking, cooking, and especially for making baby formula. Hot water is likely to contain higher levels of lead.
- 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.

Lead levels in your drinking water are likely to be higher if:

- Your home or water system has lead pipes, or
- Your home has faucets or fittings made of brass which contains some lead, or
- Your home has copper pipes with lead solder and you have naturally soft water, and
- Water often sits in the pipes for several hours

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

The tables below contain detected results from the most recent monitoring of primary, secondary, and unregulated contaminants. Unless otherwise noted, the data presented in this table is from the calendar year of this report. We are pleased to report that our drinking water meets or exceeds Federal and State requirements.

Table of Detected Contaminants					
Primary Standards - Mandatory standards set by the Safe Drinking Water Act used to protect public health. These apply to all public water systems.					
Contaminant & Unit of MSMT	MCL, TT, or MRDL (What's Allowed?)	MCLG (What's the Goal?)	Greenville Water Works & Sewer Board Range Low - High (MD)	Violation	Major Sources
BACTERIOLOGICAL CONTAMINANTS					
Total Coliform Bacteria	< 5% present/absent	0	3 present samples [‡]	No	Naturally present in the environment
RADIOLOGICAL CONTAMINANTS					
Alpha emitters (pCi/L)	15	0	0.14 - 1.46 (2019)	No	Erosion of natural deposits
Radium (combined 226/228) (pCi/L)	5	0	1.05 - 4.27 (2019)	No	Erosion of natural deposits
INORGANIC CONTAMINANTS					
Arsenic (ppb)	10	0	ND - 1.1 [‡] (2021)	No	Erosion of natural deposits; runoff from orchards, runoff from glass and electronics production wastes
Barium (ppm)	2	2	0.0028 - 0.0064 (2021)	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium (ppb)	100	100	1.3 - 2.1 (2021)	No	Discharge from steel and pulp mills; Erosion of natural deposits
Copper - action level at consumer taps (ppm)	AL=1.3	1.3	0.0036 - 0.146 (2020)	No	Corrosion of household plumbing systems; Erosion of natural deposits
Fluoride (ppm)	4	4	0.409 - 0.690 (2021)	No	Water additive which promotes strong teeth; erosion of natural deposits; Discharge from fertilizer and aluminum factories
Lead - action level at consumer taps (ppb)	AL=15	0	ND - 18.3 [†] (2020)	No	Corrosion of household plumbing systems; Erosion of natural deposits
Nitrate [measured as Nitrogen] NO ₃ (ppm)	10	10	ND - 0.274	No	Runoff from fertilizer use; Leaking from septic tanks, sewage; Erosion of natural deposits
Selenium (ppm)	0.05	0.5	2 - 3.3 (2021)	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Thallium (ppb)	2	0.0005	ND - .014 (2021)	No	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
DISINFECTANTS & DISINFECTION BYPRODUCTS [»]					
Total Haloacetic Acids HAA (ppb)	60	NA	LRAA Range 3.70 - 4.36	No	By-product of drinking water disinfection
Total Trihalomethanes TTHM (ppb)	80	NA	LRAA Range 21.2 - 23.4	No	By-product of drinking water disinfection

[‡] Three **Total Coliform** samples from August, September, and December 2022 were "Present". All follow up testing was negative. The presence of coliform bacteria in the sample was not a compliance violation. These are naturally present in the environment and are used as an indicator that other, potentially harmful bacteria may be present.

[‡] While your drinking water meets EPA's standard for **Arsenic**, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

[†] One sample site in 2020 exceeded the Action Level (AL) for **Lead**. This site was resampled and the result was in compliance - below AL.

[»] There is convincing evidence that additional of a **Disinfectant** is necessary for control of microbial contaminants

Secondary Standards - Non Mandatory standards established as a guideline to assure good aesthetic qualities such as taste, color, and odor.

Contaminant & Unit of MSMT	MCL	Maximum Detected
Aluminum (ppm)	0.05 to 0.2	0.0254
Chloride (ppm)	250	82.5
Manganese (ppm)	0.05	0.00037
Odor (threshold odor number)	3	1.3
Sulfate (ppm)	250	43.6
Total Dissolved Solids (ppm)	500	460
Zinc (ppm)	5	0.0084

Contaminant & Unit of MSMT	MCL	Maximum Detected
Alkalinity, Total (as CA, Co3) (ppm)	NA	238
Calcium, as Ca (ppm)	NA	3.51
Carbon Dioxide (ppm)	NA	206
Hardness (ppm)	NA	8.16
Magnesium (ppm)	NA	1.19
Nickel (ppm)	NA	0.2
pH (std units)	6.5 - 8.5	8.6
Sodium (ppm)	NA	175

Unregulated Contaminants	Range Low - High (MD)
Bromodichloromethane (ppb)	ND - 2.1
Bromoform (ppb)	9.9 - 27.7
Dibromochloromethane (ppb)	2.4 - 7.4

Major Sources	Naturally occurring in the environment or as a result of industrial discharge or agricultural runoff; by product of chlorination
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Monitoring Schedule

Butler County Water Authority also has a monitoring schedule as provided below:

Constituent Monitored	Date Monitored
Inorganic Contaminants	2022
Lead/Copper	2022
Microbiological Contaminants	Monthly
Nitrates	2022
Radioactive Contaminants	2022
Synthetic Organic Contaminants (including pesticides and herbicides)	2022
Volatile Organic Contaminants	2022
Disinfection By-products	2022
Unregulated Contaminant Monitoring Rule 4	2018

Reporting Violation

Butler County Water Authority incurred a reporting non-compliance in 2022. This non-compliance resulted from a failure to submit the January-June 2022 PFAS results to ADEM by January 10, 2023.

The ADEM Administrative Code states, "the supplier of water shall report to the Department the results of any test, measurement or analysis within the first 10 days following the month in which the result is received or the first 10 days following the end of the required monitoring period as stipulated by the Department, whichever is shortest." We did monitor for PFAS during the correct time frame; however, the results were not reported to ADEM by the deadline of the 10th day of the month following the sample period.

If you have any questions about this non-compliance or your water quality, please contact please call Wesley Bass at 334-382-4281.

As presented in the table below, Butler County Water Authority reports their drinking water meets or exceeds federal and state drinking water requirements. Unless otherwise noted, the data presented in the table below is from testing done in the calendar year of this report and although many more contaminants were tested, only those substances listed below were found in your water.

Table of Detected Contaminants					
Primary Standards - Mandatory standards set by the Safe Drinking Water Act used to protect public health. These apply to all public water systems.					
Contaminant & Unit of MSMT	MCL, TT, or MRDL (What's Allowed?)	MCLG (What's the Goal?)	Butler County Range Low - High (MD)	Violation	Major Sources
INORGANIC CONTAMINANTS					
Copper - action level at consumer taps (ppm)	AL=1.3	1.3	0.130 90th Percentile Result	No	Corrosion of household plumbing systems; Erosion of natural deposits
Fluoride (ppm)	4	4	0.39	No	Water additive which promotes strong teeth; erosion of natural deposits; Discharge from fertilizer and aluminum factories
Lead - action level at consumer taps (ppb)	AL=15	0	0.0013 90th Percentile Result	No	Corrosion of household plumbing systems; Erosion of natural deposits
Nitrate [measured as Nitrogen] NO3 (ppm)	10	10	ND - 0.20	No	Runoff from fertilizer use; Leaking from septic tanks, sewage; Erosion of natural deposits
DISINFECTANTS & DISINFECTION BYPRODUCTS »					
Total Haloacetic Acids HAA (ppb)	60	NA	LRAA Range 3.88 - 5.88	No	By-product of drinking water disinfection
Total Trihalomethanes TTHM (ppb)	80	NA	LRAA Range 28.5 - 36.0	No	By-product of drinking water disinfection

Secondary Standards - Non Mandatory standards established as a guideline to assure good aesthetic qualities such as taste, color, and odor.

Contaminant & Unit of MSMT	MCL	Maximum Detected
Chloride (ppm)	250	84.6
Iron (ppm)	0.3	0.7 †
Sulfate (ppm)	250	33.1
Total Dissolved Solids (ppm)	500	467
Hardness (ppm)	NA	3.4
pH (std units)	6.5 - 8.5	8.7

† Butler County Water Authority incurred a secondary maximum contaminant level exceedance at the Well 1 treatment plant. The October 2022 sample result contained 0.7 mg/L of **Iron**. The MCL is 0.3 mg/L. We re-sampled and Iron was not detected. This was a secondary exceedance; it was not a primary MCL violation.

Detected Unregulated Contaminant Monitoring Rule 4 (UCMR4) Contaminants - 2018

Contaminant & Unit of MSMT	Range Low - High (MD)	Contaminant & Unit of MSMT	Range Low - High (MD)
Germanium (ppb)	ND - 0.66	Bromodichloroacetic Acid (ppb)	ND - 0.89
Manganese (ppb)	ND - 5.90	Chlorodibromoacetic Acid (ppb)	0.39 - 1.28
Quinoline (ppb)	ND - 0.14	Dibromoacetic Acid (ppb)	2.33 - 7.27
Total Organic Carbon (ppb)	ND - 1640	Dichloroacetic Acid (ppb)	ND - 1.22
Bromide (ppb)	ND - 564	Monobromoacetic Acid (ppb)	ND - 0.81
Bromochloroacetic Acid (ppb)	1.00 - 2.48	Tribromoacetic Acid (ppb)	ND - 3.93

The Greenville Water Works & Sewer Board has chosen to provide our customers with a table of all contaminants (Primary, Secondary, and Unregulated) for which the EPA and ADEM require testing. These contaminants were not detected in your drinking water unless they are listed in the *Table of Detected Drinking Water Contaminants* on pages 3 and 4 of this report.

Table of Primary Contaminants

BACTERIOLOGICAL CONTAMINANTS	
MCL & Unit of MSMT	
Total Coliform Bacteria	< 5% present/absent
Fecal Coliform & E. coli	0 present/absent
Turbidity	TT NTU
Cryptosporidium	TT Calculated organisms/liter
Total Organic Carbon (TOC)	TT

RADIOLOGICAL CONTAMINANTS	
MCL & Unit of MSMT	
Beta/ photon emitters	4 mrem/yr
Alpha emitters	15 pCi/l
Combined radium	5 pCi/l
Uranium	30 pCi/l

DISINFECTANTS & DISINFECTION BYPRODUCTS			
MCL & Unit of MSMT			
Bromate	10 ppb	Chlorine Dioxide	800 ppb
Chloramines	4 ppm	Chlorite	1 ppm
Chlorine	4 ppm	HAA5 [Total haloacetic acids]	60 ppb
		TTHM [Total trihalomethanes]	80 ppb

INORGANIC CONTAMINANTS							
MCL & Unit of MSMT							
Antimony	6 ppb	Beryllium	4 ppb	Cyanide	200 ppb	Nitrate	10 ppm
Arsenic	10 ppb	Cadmium	5 ppb	Fluoride	4 ppm	Nitrite	1 ppm
Asbestos	7 MFL	Chromium	100 ppb	Lead	AL=15 ppb	Selenium	0.05 ppm
Barium	2 ppm	Copper	AL=1.3 ppm	Mercury	2 ppb	Thallium	2 ppb

ORGANIC CONTAMINANTS							
MCL & Unit of MSMT							
1,1,1-Trichloroethane	200 ppb	Carbon tetrachloride	5 ppb	Endrin	2 ppb	p-Dichlorobenzene	75 ppb
1,1,2-Trichloroethane	5 ppb	Chlordane	2 ppb	Epichlorohydrin	TT TT	Pentachlorophenol	1 ppb
1,1-Dichloroethylene	7 ppb	Chlorobenzene	100 ppb	Ethylbenzene	700 ppb	Picloram	500 ppb
1,2,4-Trichlorobenzene	0.07 ppm	cis-1,2-Dichloroethylene	70 ppb	Ethylene dibromide	50 ppt	Polychlorinated biphenyls	0.5 ppb
1,2-Dichloroethane	5 ppb	Dalapon	200 ppb	Glyphosate	700 ppb	Simazine	4 ppb
1,2-Dichloropropane	5 ppb	Di (2-ethylhexyl)adipate	400 ppb	Heptachlor	400 ppt	Styrene	100 ppb
2,4,5-TP(Silvex)	50 ppb	Di (2-ethylhexyl)phthalate	6 ppb	Heptachlor epoxide	200 ppt	Tetrachloroethylene	5 ppb
2,4-D	70 ppb	Dibromochloropropane	200 ppt	Hexachlorobenzene	1 ppb	Toluene	1 ppm
Acrylamide	TT TT	Dichloromethane	5 ppb	Hexachlorocyclopentadiene	50 ppb	Toxaphene	3 ppb
Alachlor	2 ppb	Dinoseb	7 ppb	Lindane	200 ppt	trans-1,2-Dichloroethylene	100 ppb
Benzene	5 ppb	Dioxin [2,3,7,8-TCDD]	30 ppq	Methoxychlor	40 ppb	Trichloroethylene	5 ppb
Benzo(a)pyrene [PAHs]	200 ppt	Diquat	20 ppb	o-Dichlorobenzene	600 ppb	Vinyl Chloride	2 ppb
Carbofuran	40 ppb	Endothall	100 ppb	Oxamyl [Vydate]	200 ppb	Xylenes	10 ppm

Table of Secondary and Unregulated Contaminants

SECONDARY & ADDITIONAL CONTAMINANTS	
Aluminum	Alkalinity, Total (as CA, Co3)
Chloride	Calcium, as Ca
Color	Carbon Dioxide
Copper	Corrosivity
Foaming agents (MBAS)	Hardness
Iron	Manganese
Magnesium	Nickel
Odor	pH
Silver	Sodium
Sulfate	Conductivity (umhos)
Total Dissolved Solids	Temperature (°C)
Zinc	

UNREGULATED CONTAMINANTS		
1,1 - Dichloropropene	Bromobenzene	Isoprpylbenzene
1,1,1,2-Tetrachloroethane	Bromochloromethane	M-Dichlorobenzene
1,1,2,2-Tetrachloroethane	Bromodichloromethane	Methomyl
1,1-Dichloroethane	Bromoform	Metolachlor
1,2,3 - Trichlorobenzene	Bromomethane	Metribuzin
1,2,3 - Trichloropropane	Butachlor	MTBE
1,2,4 - Trimethylbenzene	Carbaryl	N - Butylbenzene
1,3 - Dichloropropane	Chloroethane	Naphthalene
1,3 - Dichloropropene	Chloroform	N-Propylbenzene
1,3,5 - Trimethylbenzene	Chloromethane	O-Chlorotoluene
2,2 - Dichloropropane	Dibromochloromethane	P-Chlorotoluene
3-Hydroxycarbofuran	Dibromomethane	P-Isopropyltoluene
Aldicarb	Dicamba	Propachlor
Aldicarb Sulfone	Dichlorodifluoromethane	Sec - Butylbenzene
Aldicarb Sulfoxide	Dieldrin	Tert - Butylbenzene
Aldrin	Hexachlorobutadiene	Trichlorfluoromethane