

2019 Annual Water Quality Report
(Monitoring Performed January through December 2018)

GREENVILLE WATER WORKS & SEWER BOARD
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We are pleased to present to you this year's Annual Water Quality Report, which is designed to inform you about the quality water we deliver to you every day. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water.

Number of Customers	Approximately 3150	
Water Sources	6 groundwater wells producing from Ripley Formation	
	Purchased groundwater from Butler County Water Authority	
Water Treatment	Chlorine for disinfection	
Storage Capacity	3 tanks with a capacity of 1.75 million gallons	
Additional Connections	Sell water to Butler County Water Authority	
Board Members	Joby Norman, Chairman	Jimmy Lawson, Member
	Lionel Ed Rainey, Member	Kenny Perdue, Member
	James Reeves, Member	
Superintendent	Kristopher Findley	

Source Water Assessment

In compliance with the Alabama Department of Environmental Management (ADEM), **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. Please help us make this effort worthwhile by protecting our source water. Carefully follow instructions on pesticides and herbicides you use for your lawn and garden, and properly dispose of household chemicals, paints and waste oil.

Monitoring Schedule

Greenville Water Works & Sewer Board routinely monitors for contaminants in your drinking water according to Federal and State regulations, using EPA- approved methods and a State certified laboratory. The Alabama Department of Environmental Management (ADEM) allows us to monitor 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 of monitoring for these contaminant groups.

Constituents Monitored	Greenville	Butler Co
Inorganic Contaminants	2016	2016
Lead/Copper	2017	2016
Microbiological Contaminants	current	current
Nitrates	2018	2018
Radioactive Contaminants	2016	2010
Synthetic Organic Contaminants (including herbicides and pesticides)	2017	2016
Volatile Organic Contaminants	2017	2016
Disinfection By-products	2018	2018
DSE Disinfection By-products	2018	2018
Unregulated Contaminant Monitoring Rule 4 (UCMR4) contaminants	--	2018

Questions?

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.**

More information about contaminants to drinking water and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (1-800-426-4791).

General Information

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. MCL's, 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 radioactive material, and it 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, 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 result from urban storm water run-off, 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, storm water run-off, 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 storm water runoff, and septic systems.
- *Radioactive contaminants*, which 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 which 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.

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.

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. People at risk 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 microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Information about Lead

Lead in drinking water is rarely found in source water but is primarily from materials and components associated with service lines and home plumbing. Your water system 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. Use *only* water from the cold-water tap for drinking, cooking, and *especially for making baby formula*. Hot water is more likely to cause leaching of lead from plumbing materials. 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. These recommended actions are very important to the health of your family.

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.

Detected Drinking Water Contaminants

This report contains results from the most recent monitoring which was performed in accordance with the regulatory schedule. We have learned through our monitoring and testing that some constituents have been detected. We are pleased to report that our drinking water meets or exceeds federal and state requirements. The table below shows only those contaminants that showed some level of detection.

TABLE OF DETECTED DRINKING WATER CONTAMINANTS Greenville Water Works & Sewer Board						
Contaminants	Violation Y/N	Level Detected	Unit Msmt	MCLG	MCL	Likely Source of Contamination
Total coliform bacteria	NO	2 positive samples *	Present or Absent	0	presence in 5% of monthly samples	Naturally present in the environment
Copper	NO	0.066 ** 0 > AL	ppm	1.3	AL=1.3	Corrosion of plumbing; erosion of natural deposits; leaching from wood preservatives
Fluoride	NO	0.32-0.62	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from factories
Nitrate (as Nitrogen)	NO	ND-0.29	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
TTHM [Total trihalomethanes]	NO	LRAA Range 20.2-25.5	ppb	0	80	By-product of drinking water chlorination
HAA5 [Total haloacetic acids]	NO	LRAA Range 2.57-3.07	ppb	0	60	By-product of drinking water chlorination
Unregulated Contaminants						
Chlorodibromomethane	NO	0.88-3.10	ppb	n/a	n/a	Naturally occurring or from runoff
Bromoform	NO	3.54-11.0	ppb	n/a	n/a	Naturally occurring or from runoff
Secondary Contaminants						
Chloride	NO	61.4-75.5	ppm	n/a	250	Naturally occurring or from runoff
Hardness	NO	7.45-10.4	ppm	n/a	n/a	Naturally occurring or from treatment
pH	NO	8.39-8.50	S.U.	n/a	n/a	Naturally occurring or from treatment
Sulfate	NO	29.9-63.4	ppm	n/a	250	Naturally occurring in the environment; erosion
Total Dissolved Solids	NO	420-468	ppm	n/a	500	Naturally occurring or from runoff
<p>* One positive coliform sample occurred on August 15, 2018 and one occurred on October 3, 2018. All follow up samples were negative. The presence of coliform bacteria in the samples was <i>not</i> a compliance violation. Coliform bacteria are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present.</p> <p>** Figure shown is 90th percentile and # of sites above action level (1.3 ppm) = 0</p>						

DSE Disinfection Byproducts Greenville Water Works & Sewer Board			
Contaminants	Level Detected	Unit Msmt	Likely Source of Contamination
TTHM [Total trihalomethanes]	ND-22.0	ppb	By-product of drinking water chlorination
HAA5 [Total haloacetic acids]	ND-3.00	ppb	By-product of drinking water chlorination

TABLE OF DETECTED DRINKING WATER CONTAMINANTS Butler County Water Authority						
	Violation	Butler	Unit			Likely Source
Contaminants	Y/N	County	Msmt	MCLG	MCL	of Contamination
Alpha emitters	NO	1.7 ± 1.6	PCI/l	0	15	Erosion of natural deposits
Combined radium	NO	ND	PCI/l	0	5	Erosion of natural deposits
Antimony	NO	ND	ppb	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Carbon Tetrachloride	NO	ND	ppb	0	5	Discharge from chemical plants and other industrial activities
Chromium	ND	ND	ppb	100	100	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Copper	NO	0.116 * 0 > AL	ppm	1.3	AL=1.3	Plumbing corrosion; erosion of natural deposits; leaching from wood preservatives
Fluoride	NO	0.33-0.60	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; factory discharge
Nitrate (as Nitrogen)	NO	0.18-0.19	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
TTHM [Total trihalomethanes]	YES	LRAA Range 41.4-106	ppb	0	80	By-product of drinking water chlorination
HAA5 [Total haloacetic acids]	NO	LRAA Range 3.71-7.26	ppb	0	60	By-product of drinking water chlorination
Unregulated Contaminants						
Chloroform	NO	ND	ppb	n/a	n/a	Naturally occurring or from runoff
Bromodichloromethane	NO	ND-0.80	ppb	n/a	n/a	Naturally occurring or from runoff
Chlorodibromomethane	NO	ND-1.89	ppb	n/a	n/a	Naturally occurring or from runoff
Bromoform	NO	ND-2.24	ppb	n/a	n/a	Naturally occurring or from runoff
Secondary Contaminants						
Chloride	NO	60.7-96.7	ppm	n/a	250	Naturally occurring or from runoff
Hardness	NO	3.07-8.33	ppm	n/a	n/a	Naturally occurring or from treatment
pH	NO	8.26-8.54	S.U.	n/a	n/a	Naturally occurring or from treatment
Sulfate	NO	27.4-41.4	ppm	n/a	250	Naturally occurring in the environment; erosion
Total Dissolved Solids	NO	420-512	ppm	n/a	500	Naturally occurring or from runoff

* Figure shown is 90th percentile and # of sites above action level (1.3 ppm) = 0

Unregulated Contaminant Monitoring Rule 3 (UCMR3) Contaminants Butler County 2014-2015			
Contaminants	Level Detected	Unit Msmt	Likely Source of Contamination
Strontium	170-270	ppb	Naturally occurring in the environment or as a result of discharge
Chromium, Hexavalent	ND-0.03	ppb	Naturally occurring in the environment or as a result of discharge

DSE Disinfection Byproducts Butler County 2018			
Contaminants	Level Detected	Unit Msmt	Likely Source of Contamination
TTHM [Total trihalomethanes]	3.64-85.3	ppb	By-product of drinking water chlorination
HAA5 [Total haloacetic acids]	ND-12.5	ppb	By-product of drinking water chlorination

DEFINITIONS

Action Level- the concentration of a contaminant that, if exceeded, triggers treatment or other requirements which a water system must follow.

Coliform Absent (ca)- Laboratory analysis indicates that the contaminant is not present.

Disinfection byproducts (DBPs)- formed when disinfectants used in water treatment plants react with bromide and/or natural organic matter (i.e., decaying vegetation) present in the source water.

Initial Distribution System Evaluation (IDSE)-a one-time study conducted by water systems to identify distribution system locations with high concentrations of trihalomethanes (THMs) and haloacetic acids (HAAs).

Locational Running Annual Average (LRAA)-yearly average of all the DPB results at each specific sampling site in the distribution system. The highest distribution site LRAA is reported in the Table of Detected Contaminants.

Maximum Contaminant Level (MCL)- 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

Micrograms per liter (ug/L) – Equivalent to parts per billion (ppb) since one liter of water is equal in weight to one billion micrograms.

Milligrams per liter (mg/L) – Equivalent to parts per million

Millirems per year (mrem/yr)-measure of radiation absorbed by the body.

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

Non-Detect (ND)- laboratory analysis indicates that the constituent is not present above detection limits of lab equipment.

Not Reported (NR)-laboratory analysis, usually Secondary Contaminants, not reported by water system. EPA recommends secondary standards to water systems but does not require systems to comply.

Parts per billion (ppb) or Micrograms per liter ($\mu\text{g/l}$)-one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Parts per million (ppm) or Milligrams per liter (mg/l)-one part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per quadrillion (ppq) or Picograms per liter (picograms/l)-one part per quadrillion corresponds to one minute in 2,000,000,000 years, or a single penny in \$10,000,000,000,000.

Parts per trillion (ppt) or Nanograms per liter (nanograms/l)-one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

Picocuries per liter (pCi/L)-picocuries per liter is a measure of the radioactivity in water.

RAA-Running annual average

Standard Units (S.U.)-pH of water measures the water's balances of acids and bases and is affected by temperature and carbon dioxide gas. Water with less than 6.5 could be acidic, soft, and corrosive. A pH greater than 8.5 could indicate that the water is hard.

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

Unregulated Contaminants Monitoring Rule (UCMR) contaminants-once every five years EPA issues a new list of no more than 30 unregulated contaminants to be monitored by public water systems

Variations & Exemptions (V&E)-State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

The following table is a list of *Primary Drinking Water Contaminants*, *Unregulated Contaminants*, and *Secondary Contaminants* for which our water system routinely monitors. These contaminants were *not* detected in your drinking water unless they are listed in the *Table of Detected Drinking Water Contaminants*.

STANDARD LIST OF PRIMARY DRINKING WATER CONTAMINANTS					
Contaminant	MCL	Unit of Msmt	Contaminant	MCL	Unit of Msmt
Bacteriological Contaminants			trans-1,2-Dichloroethylene	100	ppb
Total Coliform Bacteria	<5%	present/absent	Dichloromethane	5	ppb
Fecal Coliform and E. coli	0	present/absent	1,2-Dichloropropane	5	ppb
Turbidity	TT	NTU	Di (2-ethylhexyl)adipate	400	ppb
Cryptosporidium	TT	Calc.organisms/l	Di (2-ethylhexyl)phthalate	6	ppb
Radiological Contaminants			Dinoseb	7	ppb
Beta/photon emitters	4	mrem/yr	Dioxin [2,3,7,8-TCDD]	30	ppq
Alpha emitters	15	pCi/l	Diquat	20	ppb
Combined radium	5	pCi/l	Endothall	100	ppb
Uranium	30	pCi/l	Endrin	2	ppb
Inorganic Chemicals			Epichlorohydrin	TT	TT
Antimony	6	ppb	Ethylbenzene	700	ppb
Arsenic	10	ppb	Ethylene dibromide	50	ppt
Asbestos	7	MFL	Glyphosate	700	ppb
Barium	2	ppm	Heptachlor	400	ppt
Beryllium	4	ppb	Heptachlor epoxide	200	ppt
Cadmium	5	ppb	Hexachlorobenzene	1	ppb
Chromium	100	ppb	Hexachlorocyclopentadiene	50	ppb
Copper	AL=1.3	ppm	Lindane	200	ppt
Cyanide	200	ppb	Methoxychlor	40	ppb
Fluoride	4	ppm	Oxamyl [Vydate]	200	ppb
Lead	AL=15	ppb	Polychlorinated biphenyls	0.5	ppb
Mercury	2	ppb	Pentachlorophenol	1	ppb
Nitrate	10	ppm	Picloram	500	ppb
Nitrite	1	ppm	Simazine	4	ppb
Selenium	.05	ppm	Styrene	100	ppb
Thallium	.002	ppm	Tetrachloroethylene	5	ppb
Organic Contaminants			Toluene	1	ppm
2,4-D	70	ppb	Toxaphene	3	ppb
Acrylamide	TT	TT	2,4,5-TP(Silvex)	50	ppb
Alachlor	2	ppb	1,2,4-Trichlorobenzene	.07	ppm
Benzene	5	ppb	1,1,1-Trichloroethane	200	ppb
Benzo(a)pyrene [PAHs]	200	ppt	1,1,2-Trichloroethane	5	ppb
Carbofuran	40	ppb	Trichloroethylene	5	ppb
Carbon tetrachloride	5	ppb	Vinyl Chloride	2	ppb
Chlordane	2	ppb	Xylenes	10	ppm
Chlorobenzene	100	ppb	Disinfectants & Disinfection Byproducts		
Dalapon	200	ppb	Chlorine	4	ppm
Dibromochloropropane	200	ppt	Chlorine Dioxide	800	ppb
o-Dichlorobenzene	600	ppb	Chloramines	4	ppm
p-Dichlorobenzene	75	ppb	Bromate	10	ppb
1,2-Dichloroethane	5	ppb	Chlorite	1	ppm
1,1-Dichloroethylene	7	ppb	HAA5 [Total haloacetic acids]	60	ppb
cis-1,2-Dichloroethylene	70	ppb	TTHM [Total trihalomethanes]	80	ppb
UNREGULATED CONTAMINANTS					
1,1 – Dichloropropene	Aldicarb	Chloroform	Metolachlor		
1,1,1,2-Tetrachloroethane	Aldicarb Sulfone	Chloromethane	Metribuzin		
1,1,2,2-Tetrachloroethane	Aldicarb Sulfoxide	Dibromochloromethane	N - Butylbenzene		
1,1-Dichloroethane	Aldrin	Dibromomethane	Naphthalene		
1,2,3 - Trichlorobenzene	Bromobenzene	Dicamba	N-Propylbenzene		
1,2,3 - Trichloropropane	Bromochloromethane	Dichlorodifluoromethane	O-Chlorotoluene		
1,2,4 - Trimethylbenzene	Bromodichloromethane	Dieldrin	P-Chlorotoluene		
1,3 – Dichloropropane	Bromoform	Hexachlorobutadiene	P-Isopropyltoluene		
1,3 – Dichloropropene	Bromomethane	Isopropylbenzene	Propachlor		
1,3,5 - Trimethylbenzene	Butachlor	M-Dichlorobenzene	Sec - Butylbenzene		
2,2 – Dichloropropane	Carbaryl	Methomyl	Tert - Butylbenzene		
3-Hydroxycarbofuran	Chloroethane	MTBE	Trichlorofluoromethane		
SECONDARY CONTAMINANTS					
Alkalinity, Total (as CA, Co ₃)	Copper	Magnesium	Silver		
Aluminum	Corrosivity	Manganese	Sodium		
Calcium, as Ca	Foaming agents (MBAS)	Odor	Sulfate		
Chloride	Hardness	Nickel	Total Dissolved Solids		
Color	Iron	pH	Zinc		