2022 Annual Drinking Water Quality Report

(For period January through December 2021)

HARVEST-MONROVIA
WATER & SEWER AUTHORITY

PWSID AL0000878
P.O. Box 329
9131 Wall Triana Hwy
Harvest, AL 35749
Phone 256-837-1132
www.hmwater.org

We are pleased to present to you this year's Annual Water Quality Report. This report is delivered to you each year to provide information about the quality of water the Authority provides to our customers. Last year, as in years past, your tap water met all U.S. Environmental Protection Agency (EPA) and Alabama Department of Environmental Management (ADEM) drinking water health standards. We diligently safeguard your water supplies, and once again we are proud to report that our system has not violated any water quality standard.

Water Sources	8 groundwater wells producing from the Tuscumbia-Fort Payne Aquifer
Water Treatment	10 MGD Burwell Treatment Plant: flocculation, filtration, chlorination, fluoridation, coagulation, corrosion control 4.1 MGD Mt Zion Treatment Plant: microfiltration, chlorination, fluoridation, corrosion control
Storage Capacity	7 water storage facilities with a capacity of 11.5 million gallons
Population Served	Approximately 51,912
Interconnections	Madison County Water Department, Huntsville Utilities, Madison Water Works Board, and Limestone County Water Authority
Board Members	Frank Turner, Chairman Tracy Brewer, Vice Chairman Brant Neely, Secretary

Questions?

If you have any questions about this report or concerning your water utility, please contact Mike Oliver at 256-837-1132. 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 second Tuesday of each month at 1:30 p.m. at the water office.

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

Water Quality Protection

Harvest-Monrovia Water and Sewer Authority developed a Source Water Assessment Plan (SWAP) that assists in protecting our water sources. All components of the SWAP were completed, and the plan was approved by ADEM. As part of the assessment process, information on potential contaminant sources was defined, and the major sources were ascertained to be existing wells, agricultural run-off and septic tanks. The SWAP is available for review at the water office during regular business hours.

Harvest-Monrovia Water and Sewer Authority routinely completes a water storage facility inspection and utilizes a Bacteriological Monitoring Plan. The required chlorine residual is maintained throughout our distribution system to protect your drinking water from possible outside contaminants. Please help us make these efforts 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. We ask that all our customers help us protect our valuable water sources, which are the heart of our community, our way of life, and our children's futures.

Excellence Awards

Our goal at Harvest-Monrovia Water and Sewer Authority is to provide clean, safe drinking water to our customers throughout the year, and our staff strives each day to accomplish this goal. Our water system has won many excellence awards in our population-served division. Our recent awards are:

- 2020 AWPCA Best Operated Plant Award Ground Water 50,001-100,000 Population
- 2010-2011 and 2016-2018 AWPCA Best Operated Distribution System
- 2007-2020 EPA and ADEM Optimization Award for Optimized Water Treatment

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.

General Information

All 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. Maximum Contaminant Levels (MCLs - defined in the 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, stormwater run-off, or 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 levels of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water.

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.

Microbiological Contaminants

Water sources that are surface water or groundwater under the influence of surface water are tested for pathogens such as Cryptosporidium at certain intervals determined by the EPA and ADEM. These pathogens can enter the water from animal or human waste. All test results were well within Federal and State standards. For people who may be immuno-compromised, the document "Guidance for People with Severely Weakened Immune Systems" was developed by the CDC and EPA is available online on the EPA's website at https:nepis.epa.gov/Ee/ZyPURL.cgi?Dockey=200024LD.txt or from the Safe Drinking Water Hotline at 1-800-426-4791.

Testing for the microbiological contaminants listed in the adjacent table was performed on raw water, before any treatment. *Cryptosporidium has not been detected in our finished drinking water.*

Microbiological Contaminants	Levels Detected	Unit Msmt	Likely Source
Cryptosporidium	ND	Oocysts/L	Wildlife and/or human waste
Giardia	ND	Cysts/L	Wildlife and/or human waste
E. Coli	ND	#/100mL	Wildlife and/or human waste
Turbidity	0.08-6.8	NTU	Soil runoff

Monitoring Schedule and Results

We routinely monitor your drinking water for contaminants according to Federal and State laws. The Alabama Department of Environmental Management allows us to monitor for some contaminants less than once per year because the levels of these contaminants do not change frequently. This report contains results from the most recent monitoring which was performed in accordance with the regulatory schedule. We are pleased to report that our drinking water meets or exceeds federal and state requirements. 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.

Constituents Monitored	Monitored
Inorganic Contaminants	2019
Lead/Copper	2019
Microbiological Contaminants	current
Nitrates	2021
Radioactive Contaminants	2020
Synthetic Organic Contaminant	2019
Volatile Organic Contaminants	2020
Disinfection By-products	2021
Cryptosporidium (on raw water)	2017
UCMR4 Contaminants	2019
PFAS Contaminants	2020

DETECTED DRINKING WATER CONTAMINANTS

Primary Contaminants	Violation Y/N	Levels Detected	Unit Msmt	MCLG	MCL	Likely Source
Chlorine, finished water	NO	1.4-2.3	ppm	MRDLG=4	MRDL=4	Water additive used to control microbes
Total organic carbon	NO	ND-1.0	ppm	RAA<2.0	TT	Naturally present in the environment
Turbidity, filtered water	NO	0.01-0.17	NTU	n/a	0.3	Soil runoff: Indicator of the effectiveness of filtration
Alpha emitters	NO	2.04	PCi/l	0	15	Erosion of natural deposits
Barium	NO	0.02	ppm	2	2	Drilling waste and refinery discharge; erosion
Carbofuran	NO	ND-0.53	ppb	40	40	Leaching of soil fumigant used on rice and alfalfa
Chromium	NO	ND-0.80	ppb	100	100	Steel and pulp mill discharge; erosion of natural deposits
Copper	NO	0.836 [1]	ppm	1.3	AL=1.3	Household plumbing corrosion; erosion; preservative leaching
Fluoride	NO	ND - 1.09	ppm	4	4	Erosion; water additive; fertilizer & aluminum factory discharge
Lead	NO	ND [2]	ppm	0	AL=0.015	Corrosion of household plumbing systems, erosion
Mercury (inorganic)	NO	0.10-0.15	ppb	2	2	Erosion; discharge from industry; runoff
Nitrate (as Nitrogen)	NO	ND-2.98	ppm	10	10	Fertilizer runoff; septic tank leaching, sewage; erosion
Simazine	NO	ND-0.06	ppb	4	4	Herbicide runoff
TTHM [Total trihalomethanes]	NO	1.09-10.1	ppb	0	80	By-product of drinking water chlorination
HAA5 [Total haloacetic acids]	NO	ND-4.4	ppb	0	60	By-product of drinking water chlorination
Unregulated Contaminants						
Chloroform	NO	13.0	ppb	70	n/a	Naturally occurring or from discharge or runoff
Bromodichloromethane	NO	4.41	ppb	0	n/a	Naturally occurring or from discharge or runoff
Chlorodibromomethane	NO	1.85	ppb	60	n/a	Naturally occurring or from discharge or runoff
Naphthalene	NO	1.20	ppb	100	n/a	Factory discharge; landfill runoff; insecticide and pesticide runoff
Secondary Contaminants						
Alkalinity, Total (as CA, Co_3)	NO	88-138	ppm	n/a	n/a	Caused by carbonates, bicarbonates and hydroxides
Aluminum	NO	0.03-0.05	ppm	n/a	0.2	Erosion of natural deposits or from water treatment
Calcium	NO	5.92-38.7	ppm	n/a	n/a	Naturally occurring; dissolved minerals
Carbon Dioxide	NO	30-110	ppm	n/a	n/a	Naturally occurring or used to adjust pH
Chloride	NO	6.05-7.46	ppm	n/a	250	Naturally occurring in the environment or from runoff
Hardness	NO	21.2-117	ppm	n/a	n/a	Naturally occurring in the environment or from treatment
Iron	NO	ND-0.07	ppm	n/a	0.30	Naturally occurring; erosion; leaching from pipes
Magnesium	NO	1.76-6.60	ppm	n/a	n/a	Naturally occurring; dissolved minerals
Manganese	NO	ND-0.04	ppm	n/a	0.05	Erosion of natural deposits; leaching from pipes
Nickel	NO	ND-0.003	ppm	n/a	n/a	Erosion of natural deposits; leaching from pipes
pH	NO	6.4-7.1	S.U.	n/a	n/a	Naturally occurring in the environment or from treatment
Sodium	NO	3.85-5.46	ppm	n/a	n/a	Naturally occurring in the environment
Specific Conductance	NO	74.1-238	µs/cm	n/a	n/a	Indicates presence of natural ions that conduct electricity.
Sulfate	NO	0.28-2.11	ppm	n/a	250	Naturally present in the environment or from runoff
Total Dissolved Solids	NO	8.00-33.0	ppm	n/a	500	Naturally present in the environment or from runoff
Zinc	NO	ND-0.06	ppm	n/a	5	Erosion; discharge from industry; runoff from landfills

[1] Figure shown is 90th percentile and # of sample sites exceeding the Action Level of 1.3 ppm = 0.
[2] Figure shown is 90th percentile and # of sample sites exceeding the Action Level of 0.015 ppm = 1.

Fourth Unregulated Contaminant Monitoring Rule (UCMR4) Contaminants								
Contaminants	**Unit Msmt**	**Level Detected**	**Contaminants**	**Unit Msmt**	**Level Detected**	**Contaminants**	**Unit Msmt**	**Level Detected**
Germanium	ppb	ND	Oxyfluorfen	ppb	ND	2-methoxyethanol	ppb	ND
Manganese	ppb	ND-8.75	Profenofos	ppb	ND	2-propen-1-ol	ppb	ND
Alpha-hexachlorocyclohexane	ppb	ND	Tebuconazole	ppb	ND	Butylated hydroxyanisole	ppb	ND
Chlorpyrifos	ppb	ND	Total permethrin (cis- & trans-)	ppb	ND	O-toluidine	ppb	ND
Dimethipin	ppb	ND	Tribufos	ppb	ND	Quinoline	ppb	ND-0.05
Ethoprop	ppb	ND	1-butanol	ppb	ND			
Cyanotoxins								
Anatoxin-A	ppb	ND	Microcystin-LR	ppb	ND	Nodularin	ppb	ND
Cylindrospermopsin	ppb	ND	Microcystin-LY	ppb	ND	Total Microcystins	ppb	ND
Microcystin-LA	ppb	ND	Microcystin-RR	ppb	ND			
Microcystin-LF	ppb	ND	Microcystin-YR	ppb	ND			
Distribution Samples								
HAA5	ppb	ND-2.19	HAA9	ppb	ND-2.19	Total organic carbon (TOC)	ppb	ND-1020
HAA6Br	ppb	ND-2.16				Bromide	ppb	ND-25.7

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals for which the EPA has not established primary drinking water regulations. The lifetime health advisory level for PFOA and PFOS is a combined 70 parts per trillion (ppt), or 0.07 parts per billion (ppb). Below is a list of PFAS contaminants for which our water sources were monitored in 2020 as required.

PFAS Contaminants						
Contaminant	**Unit Msmt**	**Level Detected**		**Contaminant**	**Unit Msmt**	**Level Detected**
11Cl-PF3OUdS (11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid)	ppb	ND		Perfluoroheptanoic acid	ppb	ND
9Cl-PF3ONS (9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid)	ppb	ND		Perfluorohexanesulfonic acid	ppb	ND
ADONA (4,8-dioxa-3H-perfluorononanoic acid)	ppb	ND		Perfluorononanoic acid	ppb	ND
HFPO-DA (Hexafluoropropylene oxide dimer acidA)	ppb	ND		Perfluorooctanesulfonic acid	ppb	ND-.0044
NEtFOSAA (N-ethylperfluorooctanesulfonamidoacetic acid)	ppb	ND		Perfluorooctanoic acid	ppb	ND
NMeFOSAA (N-methylperfluorooctanesulfonamidoacetic acid0	ppb	ND		Perfluorotetradecanoic acid	ppb	ND
Perfluorobutanesulfonic acid	ppb	ND-.0043		Perfluorotridecanoic acid	ppb	ND
Perfluorodecanoic acid	ppb	ND		Perfluoroundecanoic acid	ppb	ND
Perfluorohexanoic acid	ppb	ND		Total PFAS	ppb	ND-0087
Perfluorododecanoic acid	ppb	ND				

For more information on PFAS contaminants, please consult www.epa.gov/pfas/pfas-fact-sheets-and-infographics

Monitoring Violation 2021

Due to an equipment malfunction at the State laboratory, a Total Trihalomethanes (TTHM) non-compliance was incurred for the April – June 2021 monitoring period. Any TTHM results above detection levels are listed in this CCR. A replacement sample was collected, and our water quality was not affected. Unfortunately, this replacement sample cannot be used to meet the compliance requirements, but the results can be used for informational purposes. This violation was not caused by our water system staff.

List of 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.
Cryptosporidium- a microscopic parasite that can cause disease, mainly diarrhea, if swallowed.
Disinfection byproducts (DBPs)- are 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.
Distribution System Evaluation (DSE)-a 4-quarter study to identify distribution system locations with high concentrations of DBPs.
Maximum Contaminant Level (MCL) is the highest level of a contaminant that is allowed in drinking water.
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
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.
Millirems per year (mrem/yr)-measure of radiation absorbed by the body.
Nephelometric Turbidity Unit (NTU)-a measure of the clarity of water.
Non-Detect (ND)- laboratory analysis indicates that the constituent is not present above detection limits of lab equipment.
Parts per billion (ppb) or Micrograms per liter (µg/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.
Running Annual Average (LRAA)-yearly average of all the DPB results at each specific sampling site in the distribution system.
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.
Treatment Technique (TT)- a required process intended to reduce the level of a contaminant in drinking water.
Variances & Exemptions (V&E)-State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

Below is a table of contaminants for which the Environmental Protection Agency and the Alabama Department of Environmental Management require testing where applicable. These contaminants were not detected in your drinking water unless they are also listed in the Detected Drinking Water Contaminants table elsewhere in this report.

STANDARD LIST OF PRIMARY DRINKING WATER CONTAMINANTS

Contaminant	MCL	Unit of Msmt	Contaminant	MCL	Unit of Msmt
Bacteriological Contaminants			cis-1,2-Dichloroethylene	70	ppb
Total Coliform Bacteria	<5%	present/absent	trans-1,2-Dichloroethylene	100	ppb
Fecal Coliform and E. coli	0	present/absent	Dichloromethane	5	ppb
Turbidity	TT	NTU	1,2-Dichloropropane	5	ppb
Cryptosporidium	TT	Calc.organisms/l	Di (2-ethylhexyl)adipate	400	ppb
Radiological Contaminants			Di (2-ethylhexyl)phthalate	6	ppb
Beta/photon emitters	4	mrem/yr	Dinoseb	7	ppb
Alpha emitters	15	pCi/l	Dioxin [2,3,7,8-TCDD]	30	ppq
Combined radium	5	pCi/l	Diquat	20	ppb
Uranium	30	pCi/l	Endothall	100	ppb
Inorganic Chemicals			Endrin	2	ppb
Antimony	6	ppb	Epichlorohydrin	TT	TT
Arsenic	10	ppb	Ethylbenzene	700	ppb
Asbestos	7	MFL	Ethylene dibromide	50	ppt
Barium	2	ppm	Glyphosate	700	ppb
Beryllium	4	ppb	Heptachlor	400	ppt
Cadmium	5	ppb	Heptachlor epoxide	200	ppt
Chromium	100	ppb	Hexachlorobenzene	1	ppb
Copper	AL=1.3	ppm	Hexachlorocyclopentadiene	50	ppb
Cyanide	200	ppb	Lindane	200	ppt
Fluoride	4	ppm	Methoxychlor	40	ppb
Lead	AL=15	ppb	Oxamyl [Vydate]	200	ppb
Mercury	2	ppb	Polychlorinated biphenyls	0.5	ppb
Nitrate	10	ppm	Pentachlorophenol	1	ppb
Nitrite	1	ppm	Picloram	500	ppb
Selenium	.05	ppm	Simazine	4	ppb
Thallium	.002	ppm	Styrene	100	ppb
Organic Contaminants			Tetrachloroethylene	5	ppb
2,4-D	70	ppb	Toluene	1	ppm
Acrylamide	TT	TT	Toxaphene	3	ppb
Alachlor	2	ppb	2,4,5-TP(Silvex)	50	ppb
Atrazine	3	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
1,2-Dichlorobenzene	1000	ppb	Chloramines	4	ppm
1,4-Dichlorobenzene (para)	75	ppb	Bromate	10	ppb
o-Dichlorobenzene	600	ppb	Chlorite	1	ppm
1,2-Dichloroethane	5	ppb	HAA5 [Total haloacetic acids]	60	ppb
1,1-Dichloroethylene	7	ppb	TTHM [Total trihalomethanes]	80	ppb

LIST OF SECONDARY CONTAMINANTS

Alkalinity, Total (as CA, Co_3)	Copper	Manganese	Specific Conductance
Aluminum	Corrosivity	Odor	Sulfate
Calcium, as Ca	Foaming agents (MBAS)	Nickel	Total Dissolved Solids
Carbon Dioxide	Hardness	pH	Zinc
Chloride	Iron	Silver	
Color	Magnesium	Sodium	

LIST OF UNREGULATED CONTAMINANTS

Aldicarb	Chloroethane	Dieldrin	Propachlor
Aldicarb Sulfone	Chloroform	Hexachlorobutadiene	N-Propylbenzene
Aldicarb Sulfoxide	Chloromethane	3-Hydroxycarbofuran	Propachlor
Aldrin	O-Chlorotoluene	Isoprpylbenzene	1,1,1,2-Tetrachloroethane
Bromoacetic Acid	P-Chlorotoluene	p-Isopropyltoluene	1,1,2,2-Tetrachloroethane
Bromobenzene	Dibromochloromethane	M-Dichlorobenzene	Tetrachloroethene
Bromochloromethane	1,2-Dibromoethane	Methomyl	Trichloroacetic Acid
Bromodichloromethane	Dibromomethane	Methylene chloride	1,2,3-Trichlorobenzene
Bromoform	1,1-Dichloroethane	Methyl tert-butyl ether	Trichloroethene
Bromomethane	1,3-Dichloropropane	Metolachlor	Trichlorofluoromethane
Butachlor	2,2-Dichloropropane	Metribuzin	1,2,3-Trichloropropane
N-Butylbenzene	1,1-Dichloropropene	MTBE	1,2,4-Trimethylbenzene
Sec-Butylbenzene	1,3-Dichloropropene	Naphthalene	1,3,5-Trimethylbenzene
Tert - Butylbenzene	Dicamba	1-Naphthol	
Carbaryl	Dichlorodifluoromethane	Paraquat	