2022 Arab Water Works
PWSID # AL0000934

A commitment to quality:

Arab Water Works is pleased to share this water quality report with you. It describes the quality of your drinking water. This report covers January 1, 2021 through December 31, 2021. Arab's drinking water surpassed the strict regulations of the Alabama Department of Environmental Management and the U.S. Environmental Protection Agency (EPA), which requires all water suppliers to produce reports like this every year to each customer.

In 2021 the treatment plant distributed 1,542,140,000 gallons of water to its customers. Our water sources are both surface and ground water. The source of surface water is from Brown's Creek Embayment (Lake Guntersville), which is located one mile west of Guntersville on Highway 69. The groundwater source is a well located at 66 Waterworks Road in Warrenton.

In addition to the coagulation, flocculation, sedimentation, and filtration processes, the AWW pre-treats the water with a Magnetic Ion Exchange (MIEX) process. These processes remove or reduce harmful contaminants that may come from the source water.

ADEM (Alabama Department of Environmental Management) has required that all water systems complete a SWAP (source water assessment plan). The SWAP is composed of four distinct activities: delineation of the source water assessment area, contaminant inventory, susceptibility analysis and public awareness. Arab Water Works has completed each required component of the SWAP and ADEM has approved our SWAP. It has provided ways to deal with emergencies that may arise as well as ways to protect our water source NOW and for the FUTURE. You may view the SWAP at the AWW business office.

In our continuing efforts to maintain a safe and dependable water supply it may be necessary to make improvements in the water system. The cost of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements.

If you have any questions about this report or concerning your water utility, please contact Ted Hyatt by calling 256-586-3159 or by writing to this address: 526 Cullman Road, Arab AL 35016. We want our customers to be informed about their water utility. You can attend monthly board meetings on the fourth Tuesday of each month, at 526 Cullman Road at 6:00 p.m. Please visit our web site at www.arabwaterworks.org

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The U.S. Environmental Protection Agency (EPA) wants you to know:

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 regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

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.

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. Arab Water Works 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 or at http://www.epa.gov/safewater/lead.

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 runoff, 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, urban storm water runoff, 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.

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 (1-800-426-4791).

Arab Water Works routinely monitors for constituents in your drinking water according to Federal and State laws in accordance with regulatory schedule. This report contains results from the most recent monitoring which was performed in accordance with the regulatory schedule.

Constituents Monitored	Date Monitored
Inorganic Contaminants	2021
Lead/Copper	2019
Microbiological Contaminants	Monthly
Nitrates	2021
Radioactive Contaminants	2021
Synthetic Organic Contaminants	2021
Volatile Organic Contaminants	2021
Disinfection By-products	Quarterly
Cryptosporidium and Giardia	2018
Unregulated Contaminants Monitoring Rule 4	2020

Arab Water Works

Table of Detected Contaminants

Of the many contaminants tested, only these few were at levels of detection. All test results are from the 2021 monitoring year unless otherwise noted.

CONTAMINANT	Violation Y/N	MCLG	MCL	Unit	Highest Amount Detected	Range Detected	Likely Source of Contamination
Microbiological							
Turbidity	NO	N/A	TT	NTU	0.09	0.01 - 0.09	Soil runoff.
Total Coliform Bacteria	NO	0	Present in 5% of samples	Present / Absent	0 samples		Naturally present in the environment.
Radiological							
Alpha Emitters	NO	0	15	pCi/L	1.00 +/- 0.936	NA	Naturally present in the environment.
Radium 228	NO	0	5	pCi/L	0.306 +/-0.367	NA	Naturally present in the environment.
Inorganic Contaminants							
Nitrate	NO	10	10	ppm	0.22	single sample	Runoff from fertilizer use; Leaching from septic tanks; Erosion of natural deposits.
Copper (2019)	NO	1.3	AL=1.3	ppm	ND-90th Percentile	ND - 0.023	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Lead (2019)	NO	0	AL=15	ppb	ND-90th Percentile	ND - 2.9	Corrosion of household plumbing systems, erosion of natural deposits.
Organic Contaminants							
Haloacetic Acids (HAA5)	NO	N/A	60	ppb	23.3 HARA	3.0 - 37	By-product of drinking water chlorination.
Total Trihalomethanes (TTHM)	NO	N/A	80	ppb	39.3 HARA	7.5 - 66	By-product of drinking water chlorination.
Total Organic Carbon	NO	N/A	TT	ppm	1.4	.57 - 1.40	Naturally present in the environment.
Chlorine	NO	MRDLG=4	MRDL=4	ppm	2.2	1.8 - 2.2	Water additive used to control microbes.
Unregulated Contaminants							
Bromodichloromethane	NO	N/A	N/A	ppb	6.9	1.7 - 6.9	By-product of drinking water chlorination.
Chloroform	NO	N/A	N/A	ppb	32.0	5.8 - 32	By-product of drinking water chlorination.
Dichloroacetic Acid	NO	N/A	N/A	ppb	12.0	2.5 - 12	By-product of drinking water chlorination.
Trichloroacetic Acid	NO	N/A	N/A	ppb	6.7	2.0 - 6.7	By-product of drinking water chlorination.
Chloroacetic	NO	N/A	N/A	ppb	2.0	ND - 2.0	By-product of drinking water chlorination.
Chlorodibromomethane	NO	N/A	N/A	ppb	1.9	ND - 1.9	By-product of drinking water chlorination.
Non-Compliance DSE Monitoring							
Total Trihalomethanes (TTHM) (2018)	NO	N/A	NA	ppb	52.4	7.0 - 52.4	By-product of drinking water chlorination.
Haloacetic Acids (HAA5) (2018)	NO	N/A	NA	ppb	34.9	5.3 - 34.9	By-product of drinking water chlorination.
Non-Compliance Microbiological (LT2)							
Cryptosporidium (2018)	NO	0	TT	oocysts/L	0.1	ND - .10	Wildlife and/or human activity.
E.coli (2018)	NO	0	TT	#/100mL	9.0	ND - 9.0	Wildlife and/or human activity.
Giardia (2018)	NO	0	TT	cysts/L	ND	ND	Wildlife and/or human activity.
Unregulated Contaminant Monitoring Rule 4 (UCMR4)							
HAA5 (2020)	NO	NA	60	ppb	25.7	8.1 - 25.7	Naturally present in the environment or industrial discharge.
HAA6Br (2020)	NO	NA	NA	ppb	8.3	4.0 - 8.3	Naturally present in the environment or industrial discharge.
HAA9 (2020)	NO	NA	NA	ppb	27.7	12.5 - 27.7	Naturally present in the environment or industrial discharge.
Manganese (2020)	NO	NA	NA	ppb	3.2	3.2	Naturally present in the environment or industrial discharge.
Quinoline (2020)	NO	NA	NA	ppb	0.01	ND - .010	Naturally present in the environment or industrial discharge.

Table of Primary Contaminants					
At high levels some primary contaminants are known to pose a health risk to humans. This table provides a quick glance of any primary contaminant detections. All tests are from the 2021 monitoring year unless otherwise noted.					
CONTAMINANT	**MCL**	**AMOUNT DETECTED**	**CONTAMINANT**	**MCL**	**AMOUNT DETECTED**
Bacteriological			Endrin (ppb) (2019)	2	ND
Total Coliform Bacteria	< 5%	0 samples	Epichlorohydrin (2019)	TT	ND
Turbidity[2]	TT	0.09	Glyphosate (ppb) (2019)	700	ND
Fecal coliform and E. coli	< 5%	0	Heptachlor (ppt) (2019)	400	ND
Radiological			Heptachlor epoxide (ppt) (2019)	200	ND
Beta/photon emitters (2012)	4	ND	Hexachlorobenzene (ppb) (2019)	1	ND
Alpha emitters (pci/l)	15	1.00 +/-0.936	Hexachlorocyclopentadiene (ppm)(2019)	50	ND
Combined radium (pci/l) (2012)	5	ND	Chlorine(ppm)	MRDL=4	2.2
Uranium (ppb) (2012)	30	ND	Chlorine Dioxide (ppb) (2019)	800	ND
Inorganic			Lindane (ppt) (2019)	200	ND
Antimony (ppb)	6	ND	Methoxychlor (ppb) (2019)	40	ND
Arsenic (ppb)	10	ND	Oxamyl [Vydate] (ppb) (2019)	200	ND
Barium (ppm)	2	0.021	Metolachlor (PCBs) (ppt) (2019)	500	ND
Beryllium (ppb)	4	ND	Pentachlorophenol (ppb) (2019)	1	ND
Cadmium (ppb)	5	ND	Picloram (ppb) (2019)	500	ND
Chromium (ppb)	100	ND	Simazine (ppb) (2019)	4	ND
Copper (ppm)	AL=1.3	ND	Toxaphene (ppb) (2019)	3	ND
Cyanide (ppb)	200	ND	Benzene (ppb)	5	ND
Fluoride (ppm)	4	ND	Carbon Tetrachloride (ppb)	5	ND
Lead (ppb)	AL=15	ND	Chlorobenzene (ppb)	100	ND
Mercury (ppb)	2	ND	Dibromochloropropane (ppt) (2019)	200	ND
Nickel, as Ni (ppm)	0.1	ND	0-Dichlorobenzene (ppb) (2019)	600	ND
Nitrate (ppm)	10	0.22	p-Dichlorobenzene (ppb) (2019)	75	ND
Nitrite (ppm)	1	ND	1,2-Dichloroethane (ppb)	5	ND
Selenium (ppb)	50	ND	1,2-Dibromoethane (ppb)	0.2	ND
Sulfate, SO_4 (mg/l)	500	2.9	Cis-1,2-Dichloroethylene (ppb)	70	ND
Thallium (ppb)	2	ND	trans-1,2-Dichloroethylene (ppb)	100	ND
Organic Chemicals			Dichloromethane (ppb) (2019)	5	ND
2,4-D (ppb) (2019)	70	ND	1,2-Dichloropropane (ppb)	5	ND
2,4,5-TP (Silvex)(ppb)	50	ND	Ethylbenzene (ppb)	700	ND
Atrazine (ppb) (2019)	3	ND	Ethylene dibromide (ppt) (2019)	50	ND
Alachlor (ppb) (2019)	2	ND	Styrene (ppb)	100	ND
Benzo(a)pyrene[PHAs](ppt) (2019)	200	ND	Tetrachloroethylene (ppb)	5	ND
Carbofuran (ppb) (2019)	40	ND	1,2,4-Trichlorobenzene (ppb)	70	ND
Chlordane (ppb) (2019)	2	ND	1,1,1-Trichloroethane (ppb)	200	ND
Dalapon (ppb) (2019)	200	ND	1,1,2-Trichloroethane (ppb)	5	ND
bis(2-ethylhexyl)adipate (ppb)(2019)	400	ND	Trichloroethylene (ppb)	5	ND
bis(2-ethylhexyl)phthlates (ppb)(2019)	6	ND	TTHM (ppb)	80	66
Dinoseb (ppb) (2019)	7	ND	Toluene (ppb)	1	ND
Diquat (ppb) (2019)	20	ND	Vinyl Chloride (ppb)	2	ND
Dioxin[2,3,7,8-TCDD] (ppb) (2019)	30	ND	Xylenes (ppm)	10	ND
Chloramines (ppm) (2019)	4	ND	Total Organic Cabon(ppm)	TT	1.40
Chlorite (ppm) 2019)	1	ND	Bromate (ppb)	10	ND
Endothall (ppb) (2019)	100	ND	Total Haloacetic Acid(ppb)	60	37.0

Volatile Organic Chemicals (VOC'S)

In addition to the primary drinking water contaminants, Arab Water Works also monitors for some of the following unregulated contaminants as required by ADEM and EPA.

CONTAMINATE	AMOUNT DETECTED	CONTAMINATE	AMOUNT DETECTED
1,1,1-Trichloroethane	ND	cis- 1,3-Dichloropropane	ND
1,1,2-Trichloroethane	ND	trans- 1,3-Dichloropropene	ND
1,1-Dichloroethene	ND	1,3,5-Trimethylbenzene	ND
1,2,4,-Trichlorobenzene	ND	2,2-Dichloropropane	ND
1,2-Dichloroethane	ND	Bromobenzene	ND
1,2-Dichloropropane	ND	Bromochloromethane	ND
Benzene	ND	Bromodichloromethane	0.0071
Carbon tetrachloride	ND	Bromoform	ND
cis-1,2-Dichloroethene	ND	Bromomethane	ND
Ethylbenzene	ND	Chloroethane	ND
Methylene chloride	ND	Chloroform	0.014
Chlorobenzene	ND	Chloromethane	ND
1,2-Dichlorobenzene	ND	Dibromochloromethane	0.0053
1,4-Dichlorobenzene	ND	Dibromomethane	ND
Styrene	ND	Dichlorodifluoromethane	ND
Trichloroethene	ND	Hexachloro-1,3-butadiene	ND
Tetrachloroethene	ND	Isopropylbenzene	ND
Toluene	ND	1,3-Dichlorobenzene	ND
trans-1,2-Dichloroethene	ND	Methyl tert-butyl ether	ND
Vinyl Chloride	ND	n-Butylbenzene	ND
Xylenes	ND	Naphthalene	ND
1,1-Dichloropropene	ND	n-Propylbenzene	ND
1,1,1,2-Tetrachloroethane	ND	2-Chlorotoluene	ND
1,1,2,2-Tetrachloroethane	ND	4-Chlorotoluene	ND
1,1-Dichloroethane	ND	p-Isopropyltoluene	ND
1,2,3-Trichlorobenzene	ND	sec-Butylbenzene	ND
1,2,3-Trichloropropane	ND	tert-Butylbenzene	ND
1,2,4-Trimethylbenzene	ND	Trichlorofluoromethane	ND

Secondary Contaminants

CONTAMINATE		CONTAMINATE	AMOUNT DETECTED
Alkalinity, Total (mg/l)	61.7	Magnesium (mg/l)	4.00
Aluminum(mg/l)	0.053	Manganese	ND
Calcium (mg/l)	24.5	Odor	ND
Carbon Dioxide (mg/l)	ND	pH (su)	7.5
Chloride (mg/l)	ND	Silver	ND
Color	ND	Sodium (mg/l)	12.80
Copper	ND	Specific Conductance (mg/l)	222
MBAS	ND	Total Dissolved Solids (mg/l)	113
Hardness (mg/l)	77.7	Zinc	ND
Iron, as Fe	ND		

Unregulated Contaminant Monitoring Rule 4		
In addition to the primary drinking water contaminants, Arab Water Works has monitored the following unregulated contaminants as required by ADEM and EPA.		
CONTAMINATE	MRL (ug/L)	AMOUNT DETECTED
Germanium (2020)	0.3	ND
Manganese (2020)	0.4	3.2
Alpha-hexachlorocyclohexane(2020)	0.01	ND
Chlorpyrifos (2020)	0.03	ND
Dimethipin (2020)	0.2	ND
Ethoprop (2020)	0.03	ND
Oxyfluorfen (2020)	0.05	ND
Profenofos (2020)	0.3	ND
Tebuconazole (2020)	0.2	ND
Total Permethrin (2020)	0.04	ND
Tribufos (2020)	0.07	ND
Butylated Hydroxyanisole (2020)	0.03	ND
o-Toluidine (2020)	0.007	ND
Quinoline (2020)	0.02	0.01
1-butanol (2020)	2.0	ND
2-Methoxyethanol (2020)	0.4	ND
2-propen-1-ol (2020)	0.5	ND
"total microcystin" (2019)	0.3	ND
Microcystin-LA	0.008	NA
Microcystin-LF	0.006	NA
Microcystin-LR	0.02	NA
Microcystin-LY	0.009	NA
Microcystin-RR	0.006	NA
Microcystin-YR	0.02	NA
Nodularin (2019)	0.005	ND
Anatoxin-a (2019)	0.03	ND
Cylindrospermopsin (2019)	0.09	ND
HAA5 (2020)	NA	25.7
HAA6Br (2020)	NA	8.3
HAA9 (2020)	NA	27.7

Notes:

[1]Testing Frequency: The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, are more than one year old.

[2]Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

*In addition to the more than 7,000 regular tests and testing performed by Arab Water Works and the Alabama Department of Environmental Management, Arab Water Works has contracted an independent lab to test lake water for herbicides that TVA is currently using to control aquatic weeds. These tests will run concurrently with TVA's weed spraying programs, as well as quarterly through the years to insure that Arab Water Works is safe and herbicide free.

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

Definitions

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 Goal or 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.

Maximum Residual Disinfectant Level or 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.

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

Level 1 Assessment: A level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment: A level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been in our water system on multiple occasions.

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

90th Percentile: 90% of samples are equal to or less than the number in the chart. **NTU (or Nephelometric Turbidity Units):** A measure of clarity.

HARA: Highest Annual Rolling Average; based on seven quarters of testing.

NA: Not applicable.

Su: Standard Unit.

ND: Not detectable at testing limits.

PPB (or parts per billion): micrograms per liter (ug/l).

PPM (or parts per million): milligrams per liter (mg/l).

pci/L (or picocuries per liter): a measure of radioactivity.

FDA: Food and Drug Administration.