

2022 Annual Water Quality Report

(Testing Performed January through December 2021)

CALERA WATER WORKS

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We are pleased to present to you this year's Annual Water Quality Report. This report is designed to inform you about the quality water and services 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 8537 service connections	
Water Source	Four groundwater wells producing from Cameron Bill dolomite	
Water Treatment	Chlorination, membrane filtration	
Storage Capacity	7 tanks with a total capacity of 6,730,000 gallons	
Additional Connections	Emergency connection with Montevallo Water Works & Alabaster Water	
Board Members	Jon Graham, Chairman	Chris Bunn, Member
	Calvin Morgan, Vice Chairman	Fred Hoskins, Member
	Bill Davis, Member	

Water Quality Protection

In compliance with the Alabama Department of Environmental Management (ADEM), Calera Water Works has developed a Source Water Assessment plan that will assist in protecting our water sources. The assessment has been performed, public notification has been completed, and the plan has been approved by ADEM. All of the potential contaminants sited in our study area were considered low or medium. A copy of the report is available in our office for review during regular business hours, or you may purchase a copy upon request for a nominal reproduction fee.

Calera Water Works routinely completes a water storage facility inspection plan and utilizes a Bacteriological Monitoring Plan. Chlorine residual is routinely tested by our technicians at several locations throughout our distribution system to ensure that there is an adequate disinfection residual to protect your drinking water. Results show that the required minimum free chlorine residual level of 0.2 mg/L is maintained. We have also established a Cross-Connection Policy to insure safe drinking water for our customers.

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.

Information about Lead

Calera Water Works regularly monitors our distribution system for lead on a schedule set by the Alabama Department of Environmental Management, using an outside laboratory. 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.

Questions?

If you have any questions about this report or concerning your water utility, please contact Scott Jennings at 205-668-3511. 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 third Monday of each month at the Calera City Hall at 5:00 p.m. 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 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. People who are immuno-compromised such as cancer patients undergoing chemotherapy, organ transplant recipients, HIV/AIDS positive 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).

Your source water is tested for pathogens, such as Cryptosporidium and Giardia. These pathogens can enter the water from animal or human waste. 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. *These pathogens have not been detected in our finished drinking 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.

Monitoring Schedule and Results

Calera Water Works routinely monitors for contaminants in your drinking water according to Federal and State laws, 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.

Constituents Monitored	Date Monitored
Inorganic Contaminants	2020
Lead/Copper	2019
Microbiological Contaminants	current
Nitrates	2021
Radioactive Contaminants	2021
Synthetic Organic Contaminants (including herbicides and pesticides)	2021
Volatile Organic Contaminants	2020
Disinfection By-products	2021
Cryptosporidium	2017
Unregulated Contaminant Monitoring Rule 4 (UCMR4) contaminants	2019

We are pleased to report that our system incurred no violations last year. We have learned through our monitoring and testing that some constituents have been detected. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk.

TABLE OF DETECTED DRINKING WATER CONTAMINANTS						
Contaminants	Violation Y/N	Level Detected	Unit Msmt	MCLG	MCL	Likely Source of Contamination
Total coliform bacteria	NO	5 positive samples *	Present or Absent	0	presence in 5% of monthly samples	Naturally present in the environment; used as an indicator that other bacteria may be present
Chlorine	NO	1.2-3.8	ppm	MRDLG=4	MRDL=4	Water additive used to control microbes
Turbidity	NO	.09	NTU	n/a	TT	Soil runoff
Total organic carbon (TOC)	NO	ND-0.59	ppm	n/a	TT	Soil runoff
Alpha emitters	NO	1.49	PCI/l	0	15	Erosion of natural deposits
Barium	NO	0.01	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Copper	NO	0.150 ** 0 > AL	ppm	1.3	AL=1.3	Corrosion of plumbing; erosion; leaching from wood preservatives
Lead	NO	0.001 **	ppm	0	AL=0.015	Corrosion of plumbing systems, erosion
Nitrate (as Nitrogen)	NO	0.47	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion
TTHM [Total trihalomethanes]	NO	LRAA Range 8.33-12.5	ppb	0	80	By-product of drinking water chlorination
HAA5 [Total haloacetic acids]	NO	LRAA Range 6.40-9.23	ppb	0	60	By-product of drinking water chlorination
Unregulated Contaminants						
Chloroform	NO	1.60	ppb	n/a	n/a	Naturally occurring in the environment or from discharge or runoff
Secondary Contaminants						
Chloride	NO	5.00	ppm	n/a	250	Naturally occurring in the environment or from discharge or runoff
Hardness	NO	207	ppm	n/a	n/a	Naturally occurring in the environment or as a result of treatment with water additives
Manganese	NO	0.04	ppm	n/a	0.05	Erosion of natural deposits; leaching from pipes
pH	NO	7.2	S.U.	n/a	n/a	Naturally occurring in the environment or as a result of treatment with water additives
Sulfate	NO	3.5	ppm	n/a	250	Naturally occurring in the environment or from discharge or runoff
Total Dissolved Solids	NO	176	ppm	n/a	500	Naturally occurring in the environment or from discharge or runoff

* Five positive coliform samples occurred in 2021: 2 in May, 1 in July, & 2 in August. These were not compliance violations but triggered Level I and Level II Assessments. See explanation below in the section "Level I and II Assessments".

** Figure shown is 90th percentile and # of sites above the Action Level (AL) = 0

The Fourth Unregulated Contaminant Monitoring Rule (UCMR4) requires some systems to monitor for 30 unregulated contaminants during January 2018 through December 2020 on an assigned schedule. Our assigned schedule was certain weeks during 2018 and 2019. The table below shows the contaminants we were required to monitor and the results of our monitoring.

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-7.2	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
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	3.5-20.0	Total organic carbon (TOC)	ppb	ND			
HAA6Br	ppb	ND-5.7	Bromide	ppb	ND			
HAA9	ppb	2.7-14.7						

Level I and II Assessments

Five (5) positive monthly total coliform samples occurred in 2021 (2 in May, 1 in July, and 2 in August) indicating the need for our water system to conduct a Level I and then a Level II Assessment to identify and correct any problems that are found. We conducted the assessments and submitted them to ADEM as required. It appears that some of our standard protocols for sampling were likely the cause of the contaminated sample. Utilizing the findings of our Assessments, we have performed new sampling training and implemented new procedures as of Monday August 23, 2021.

The method of collecting water samples is very sensitive. Several factors could cause a positive sample, especially at an outdoor open-air faucet: failure to sterilize the sample site adequately, mishandling of bottle, bottle cap, and/or sample, or an outdated sample bottle. A dirty faucet, rainwater, or even airborne particles can contaminate an otherwise clean water sample with coliform bacteria. Coliform bacteria are naturally present in the environment but not naturally present in groundwater; however, coliform bacteria can be an indication that other, potentially harmful, bacteria may be present. A positive coliform bacteria sample is not an immediate health concern, but further investigation is required. We will continue to monitor for coliform bacteria as required. If you have any questions concerning this assessment or our water quality, please contact Scott Jennings at 205-668-3511.

Definitions

Action Level: the concentration of a contaminant that, if exceeded, triggers treatment or other requirements.

Coliform Absent (ca): laboratory analysis indicates that the contaminant is not present.

Detected contaminant: any regulated or unregulated contaminant detected at or above its method detection limit (or reportable limit)

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

Distribution System Evaluation (DSE): a four-quarter study conducted by water systems to identify distribution system locations with high concentrations of THMs and HAAs.

Locational Running Annual Average (LRAA) – yearly average of all the DPB results at each specific sampling site

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: 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): 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.

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

Microsiemens per centimeter (µs/cm): unit of measurement for Specific Conductance.

Milligrams per liter (mg/L): equivalent to parts per million

Millirems per year (mrem/yr): a 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.

90th Percentile: The values reported for lead and copper represent the 90th percentile. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the lead and copper values detected at your water system.

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

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

Parts per billion (ppb) or Micrograms per liter (µg/l): 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): corresponds to one minute in two years or a single penny in \$10,000.

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

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

Regulated Contaminants: contaminants for which the EPA has established drinking water standards.

Running Annual Average (RAA): yearly average of all the DPB results at each specific sampling site in the distribution system. The RAA, along with a range, is reported in the Table of Detected Contaminants.

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: contaminants for which the EPA has not established drinking water standards.

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