



2022 Annual Drinking Water Quality Report

“City of Eden”

Water System Number: “02-79-010”

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is a snapshot of last year's water quality. Included are details about your source(s) of water, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. 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 and to providing you with this information because informed customers are our best allies. **If you have any questions about this report or concerning your water, please contact Dena Spencer-Reid at 336-627-1009 ext. 131. 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. Meetings of the City Council are held on the third Tuesday of every month at 6:00 p.m.**

What EPA Wants You to Know.

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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

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 (800-426-4791).

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. City of Eden Water Filtration Plant 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>.

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, 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 stormwater 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 stormwater 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 stormwater runoff, and septic systems; and 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. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

When You Turn on Your Tap, Consider the Source

The water that we provide to our customers comes from the Dan River. It is our sole source of water. The Dan River originates in Virginia and flows through Eden and on to Kerr Reservoir on the Roanoke River. Our water treatment plant, the Robert A. Harris Water Filtration Plant, is located on the banks of the Dan River in Eden. Demand for good, clean water is high and our filtration plant produces roughly 5 million gallons of clean drinking water every day. Our water supply is part of the Upper Dan River Watershed that covers an area of roughly 2,075 square miles around Eden. Most of our watershed is covered by forested lands (98%) or is used for growing crops.

Source Water Assessment Program (SWAP) Results

The complete SWAP Assessment report for The City of Eden may be viewed on the Web at:

https://www.ncwater.org/SWAP_Reports/NC0279010_SWAP_Report-20200909.pdf Note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this web site may differ from the results that were available at the time this CCR was prepared. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email requests to swap@ncdenr.gov. Please indicate your system name (City of Eden), number (02-79-010), and provide your name, mailing address and phone number. If you have any questions about the SWAP report please contact the Source Water Assessment staff by phone at 919-707-9098. It is important to understand that a susceptibility rating of “higher” does not imply poor water quality, only the system's potential to become contaminated by PCSs in the assessment area.

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate or Lower.

The relative susceptibility rating of each source for The City of Eden was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area). The assessment findings are summarized in the table below:

Susceptibility of Sources to Potential Contaminant Sources (PCSs)

Source Name	Susceptibility Rating	SWAP Report Date
Dan River	Higher	September 10, 2020

Help Protect Your Source Water

Protection of drinking water is everyone’s responsibility. The City of Eden has implemented Zoning, Water Supply and Watershed Ordinances to control the development density to help protect our water source. You can help protect your community’s drinking water source in several ways: (examples: dispose of chemicals properly; take used motor oil to a recycling center, volunteer in your community to participate in group efforts to protect your source, etc.).

Important Drinking Water Definitions:

- **Not-Applicable (N/A)** – Information not applicable/not required for that particular water system or for that particular rule.
- **Non-Detects (ND)** - Laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used.
- **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 billion (ppb) or Micrograms per liter (ug/L)** - One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.
- **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.
- **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 one penny in \$10,000,000,000,000.
- **Picocuries per liter (pCi/L)** - Picocuries per liter is a measure of the radioactivity in water.
- **Million Fibers per Liter (MFL)** - Million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers.
- **Nephelometric Turbidity Unit (NTU)** - Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- **Variations and Exceptions** – State or EPA permission not to meet an MCL or Treatment Technique under certain conditions.
- **Action Level (AL)** - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **Maximum Residual Disinfection Level (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.
- **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.
- **Locational Running Annual Average (LRAA)** – The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters under the Stage 2 Disinfectants and Disinfection Byproducts Rule.
- **Running Annual Average (RAA)** – The average of sample analytical results for samples taken during the previous four calendar quarters.
- **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 found in our water system on multiple occasions.
- **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.

Water Quality Data Tables of Detected Contaminants

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The tables below list all the drinking water contaminants that we detected in the last round of sampling for each particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. **Unless otherwise noted, the data presented in this table is from testing done January 1 through December 31, 2022.** The EPA and the State allow us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Turbidity*

Contaminant (units)	Treatment Technique (TT) Violation Y/N	Your Water	MCLG	Treatment Technique (TT) Violation if:	Likely Source of Contamination
Turbidity (NTU) - Highest single turbidity measurement	N	0.14 NTU	N/A	Turbidity > 1 NTU	Soil runoff
Turbidity (%) - Lowest monthly percentage (%) of samples meeting turbidity limits	N	100 %	N/A	Less than 95% of monthly turbidity measurements are ≤ 0.3 NTU	

* 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. The turbidity rule requires that 95% or more of the monthly samples must be less than or equal to 0.3 NTU.

Inorganic Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Barium (ppm)	03/01/2022	N	0.017 mg/L	NA		2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride (ppm)	03/01/2022	N	ND	.05	.60	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

Included in the list of inorganics is Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cyanide, Iron, Manganese, Mercury, Nickel, Selenium, Sulfate and Thallium. All of these chemicals were not detected or were less than the Required Reporting Limit (RRL) in our testing.

Nitrate/Nitrite Contaminants

In 2022 these chemicals were not detected or were less than the Required Reporting Limit (RRL) in our testing.

Synthetic Organic Chemical (SOC) Contaminants Including Pesticides and Herbicides

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Dalapon (ppb)	4-5-21	NO	ND	ND	ND	200	200	Runoff from herbicide used on rights of way

In 2020, we tested for SOC's (Pesticides and other Synthetic Organic Chemicals) as required monitoring perimeters for the operation of our Water Plant. The analysis was for Endrin, Lindane, Methoxychor, Toxaphene, Di(2-ethylhexyl)adipate, Oxamyl(vydate), Simazine, Picloram, Dinoseb, Hexachlorocyclopentadiene, Carbofuran, Atrazine, Alachlor, Heptachlor, Heptachlor Epoxide, (2,4-D), (2,4,5-TP Silvex), Hexachlorobenzene, Di(2-ethylhexyl)phthalate, Benzen(a)pyrene, Pentachlorophenol, PCB's, DBCP, Ethylene Dibromide (EDB) and Chlordane. All of these chemicals were not detected or were less the Required Reporting Limit (RRL) in our testing. Dalapon is also tested for and in June 2017 it was detected in our water. This occurrence triggered quarterly testing. We had four quarters of non-detect for Dalapon and now continue to monitor for it once a year. SOC testing is not due again until 2023.

Volatile Organic Chemical (VOC) Contaminants

In 2022, we tested the following VOC's (Volatile Organic Chemicals Analysis) as required for the operation of our Water Plant: 1,2,4-Trichlorobenzene, Cis-1,2-Dichloroethylene, Dichloromomethane, Xylenes(Total), o-Dichlorobenzene, p- Dichlorobenzene, Vinyl-Chloride, 1,1-Dichloroethylene, Trans-1,2-Dichloroethylene, 1,2-Dichloroethane, 1,1,1-Trichloroethane, Carbon Tetrachloride, 1,2-Dichloropropane, Trichloroethylene, 1,1,2-Trichloroethane, Tetrachloroethylene, Chlorobenzene, Benzene, Toluene, Ethylbenzene and Styrene. All of these chemicals were not detected or were less than the Required Reporting Limit (RRL) of 0.0005 mg/L in our testing.

Lead and Copper Contaminants

Contaminant (units)	Sample Date	Your Water (90 th Percentile)	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	6-2021	0.16	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90 th percentile)	6-2021	< 3.0	0	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Total Organic Carbon (TOC)

Contaminant (units)	TT Violation Y/N	Your Water (lowest RAA)	Range Monthly Removal Ratio Low - High	MCLG	Treatment Technique (TT) violation if:	Likely Source of Contamination
Total Organic Carbon (TOC) Removal Ratio (no units)	N	2.26	1.00 – 2.86	N/A	Removal Ration RAA <1.00 and alternative compliance criteria was not met	Naturally present in the environment

Disinfectant Residuals Summary

	MRDL Violation	Your Water (highest RAA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chloramines (ppm)	No	2.55	1.21 3.38	4	4.0	Water additive used to control microbes

Stage 2 Disinfection Byproduct Compliance - Based upon Locational Running Annual Average (LRAA)

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)		Range Low High		MCLG	MCL	Likely Source of Contamination
TTHM (ppb)	2022	NO					N/A	80	Byproduct of drinking water disinfection
B01			35		23	47			
B02			36		20	49			
B03			36		22	50			
B04			34		19	47			
HAA5 (ppb)	2022	NO					N/A	60	Byproduct of drinking water disinfection
B01			21		12	26			
B02			20		11	34			
B03			21		11	34			
B04			20		10	34			

The PWS Section requires monitoring for other misc. contaminants, some for which the EPA has set national secondary drinking water standards (SMCLs) because they may cause cosmetic effects or aesthetic effects (such as taste, odor, and/or color) in drinking water. The contaminants with SMCLs normally do not have any health effects and normally do not affect the safety of your water.

Other Miscellaneous Water Characteristics Contaminants

Contaminant (units)	Sample Date	Your Water	Range Low High	SMCL
Sodium (ppm)	3/1/2022	8.6	NA	N/A
Sulfate (ppm)	3/1/2022	10.2	NA	250 mg/L
pH	3/1/2022	7.4	NA	6.5 to 8.5

Cryptosporidium

Our system monitored our source water for *Cryptosporidium* from October 2016 until September 2018 and found 1 oocysts/ 10 liter in February 2017, 1 oocysts/ 10 liter in November 2017, 1 oocysts/ 10 liter in January 2018, 1 oocysts/ 10 liter in February 2018, and 1 oocysts/ 10 liter in April 2018. Zero oocysts/liter were found during all other monitored months.

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water and/or finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

Unregulated Contaminants (UCMR)

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

Contaminant (units)	Range	
	Low	High
Bromide (ppb)	32.2	58.8
Bromochloroacetic Acid (ppb)	3.7	10.2
Bromodichloroacetic Acid (ppb)	1.4	5.0
Chlorodibromoacetic Acid (ppb)	.50	1.90

The following contaminants were also tested for during the 2018 and 2019 years as part of UCMR4: alpha-BHC, Butylated hydroxyanisole (BHA), Chlorpyrifos, Dimethipin, Ethoprop, Germanium, o-Toluidine, Oxyfluorfen, Permethrin, Profenofos, Quinoline, n-Butanol, 2-Methoxyethanol, 2-Propen-1-ol, Tebuconazole, Tribufos, Tribromoacetic Acid, Anatoxin, cylindrospermopsin, and Total Microcystins. All of these chemicals were not detected or were less than the Required Reporting Limit (RRL) in our testing.

Security and Conservation

The Governor has a water conservation website to update and inform citizens as to what they can do to help in drought situations: www.savewaternc.org/

Water Conversation measures are an important first step in protecting our precious water supply and save you money by reducing your water bill. Here are some conservation tips:

- Fix leaking indoor faucets, pipes, toilets, etc.
- Replace old fixtures
- Wash only full loads of laundry
- Take short showers
- Soak dishes before washing
- Use mulch around plants and shrubs
- Repair leaks in outdoor faucets and hoses
- Run the dishwasher only when full
- Use water saving nozzles. Do not use the toilet for trash disposal
- Water the lawn and garden in the early morning or evening
- Use water in a bucket to wash your car and save the hose for rinsing