DINWIDDIE COUNTY WATER AUTHORITY

DCWA CENTRAL SYSTEM

2024 WATER QUALITY REPORT PWSID# 3053280

Prepared by:

Dinwiddie County Water Authority
23008 Airpark Drive
North Dinwiddie, Virginia 23803-6926
(804)861-0998 office (804)861-4270 fax

If you have any questions concerning this Water Quality Report (WQR) for **2023**, the board meeting schedule or how you may participate in decisions regarding your water supply, please don't hesitate to contact Jeffrey Stiff, Deputy Director by e-mail **jstiff@dcwa.org** or by phone at (804)861-0998 ext. 121. You can also obtain more information about the Dinwiddie County Water Authority by visiting our web site at **www.dcwa.org** and surfing the different links.

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INTRODUCTION

Este informe contiene informacion muy importante sobre su agua de beber. Traduzcalo o hable con alguien que lo entienda bien. **(This report contains important information about your drinking water. Translate it or speak with someone who understands it.)**

This Annual Drinking Water Quality Report for calendar year **2024** is designed to inform you about your drinking water quality. Our goal is to provide you with a safe and dependable supply of drinking water, and we want you to understand the efforts we make to protect your water supply. The quality of your drinking water must meet State and Federal requirements administered by the Virginia Department of Health, (VDH).

GENERAL INFORMATION

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals 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 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 system;
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities

Water from surface sources is treated to make it drinkable while groundwater may or may not have any treatment. All drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk. More information can be obtained by calling the **Environmental Protection Agency's Safe Drinking Water Hotline at (800)426-4791**. Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health 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 at (800)426-4791

SOURCE AND TREATMENT OF YOUR DRINKING WATER

The source of your drinking water is Lake Chesdin located on the Appomattox River between Chesterfield County and Dinwiddie County. Lake Chesdin is a 3,100-acre reservoir providing drinking water for Chesterfield County, City of Colonial Heights, Dinwiddie County, City of Petersburg, and Prince George County. Water treatment is the responsibility of the Appomattox River Water Authority (ARWA) whose treatment facilities are located adjacent to Lake Chesdin on the Chesterfield County side. The treatment process consists of a series of steps, in the first process, coagulation, the addition of a chemical called alum causes small particles in the water to adhere to one another and grow in size. In the next process, flocculation, the water is slowly stirred, causing particles to grow even larger. The water then passes into a settling basin where the large, heavy particles settle to the bottom for

removal. The water then passes through sand and anthracite filters to remove particles not removed by settling. The water is then disinfected using chlorine. Lime is then added at this point to neutralize the water and make it less corrosive. Just prior to distribution, the water is again disinfected using chloramines, a combination of chlorine and ammonia. As an added value, fluoride is added to the finished drinking water for dental protection.

We constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The Table in this report lists only those contaminants that had some level of detection. Other contaminants have been analyzed but were not present or below the detection limits of lab equipment. Those sample results are available by contacting Jeffrey Stiff, Deputy Director at (804)861-0998 ext. 121 or jstiff@dcwa.org . Most of the sample results in the Table are from testing done in **2024**, but the state does allow us to monitor for some contaminants less than once per year because the concentrations of said contaminants do not frequently change. Some of the data, though accurate, is older than one year.

MCL's are set at very stringent levels by the Environmental Protection Agency (EPA). In developing the standards EPA assumes that the average adult drinks two liters of water each day throughout a life span of 70 years. EPA generally sets MCL's at levels that will result in no adverse health effects for some contaminants or a one-in-10,000 to one-in-a-million chance of having the described health effect for other contaminants.

Required additional health information for lead
The following language is mandatory for every waterworks regardless of the lead compliance sample results:
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. Dinwiddie County Water Authority is responsible for providing high quality drinking water and removing lead pipes but cannot control the variety of materials used in plumbing components in your home. You share the responsibility for protecting yourself and your family from the lead in your home plumbing. You can take responsibility by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Before drinking tap water, flush your pipes for several minutes by running your tap, taking a shower, doing laundry or a load of dishes. You can also use a filter certified by an American National Standards Institute accredited certifier to reduce lead in drinking water. If you are concerned about lead in your water, and wish to have your water tested, contact Dinwiddie County Water Authority's Deputy Director Jeffrey Stiff at (804)861-0998 ext. 121. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at **http://www.epa.gov/safewater/lead**.

Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of women who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney or nervous system problems.

CRYPTOSPORIDIUM is a microbial pathogen found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly used filtration method cannot guarantee 100% removal. Our monitoring indicates the presence of these organisms in our source water and possibly in our finished water. Current test methods do not allow us to determine if these organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, and abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease in a few weeks. However, immune-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immune-compromised individuals to consult their doctor

regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may spread through means other than "drinking water".

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

SOURCE WATER ASSESSMENT

The Virginia Department of Health conducted a source water assessment of ARWA's watershed during 2019. Lake Chesdin (Appomattox River) was determined to be of high susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report consists of maps showing the source water area, an inventory of known land use activities of concern, and documents of any known contamination within the last five years from the date of the assessment. To access the report, please contact the Executive Director for ARWA, Robert B. Wilson, P.E., at (804)590-1145, Mon-Fri 8am – 4pm.

Contaminants in your drinking water are constantly monitored according to Federal and State regulations. The EPA requires that the Water Quality Results table reflect monitoring results for the period of January 1st, 2018, through December 31st, 2024. 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, may be more than one year old. Only the most resent sample results from the prescribed period are reported. The table list only those contaminants that had some level of detection. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment.

In addition, The DCWA takes routine bacteriological monitoring samples that are collected throughout the water system from businesses and homes. In the Table and elsewhere in this report you will find terms and abbreviations you might not be familiar with. The definitions shown are provided to help you better understand these terms and abbreviations.

DEFINITIONS

Parts per billion – (ppb) or **micrograms per liter** (ug/L) – Parts of an analyte per billion parts of a water sample.
Maximum Contaminant Level – (MCL) – The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology. MCL's are set at very stringent levels by the U.S. Environmental Protection Agency (EPA). In developing the standards EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. EPA generally sets MCL's at levels that will result in no adverse health effects for some contaminants or a one-in-10,000 to one-in-a-1,000,000 chance of having the described health effect for other contaminants.
Maximum Contaminant Level Goal – (MCLG) – The level of contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.
Non-Detects – (ND) – Lab analysis indicates that the contaminant is not present.
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 $10,000.00.
Picocuries per liter – (pCi/L) – Picocuries per liter is a measure of the radioactivity in water.
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.

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

Treatment Technique – (TT) – A required process intended to reduce the contaminant level in drinking water.

Variances and Exemptions – When the State or EPA gives permission not to meet an MCL or a TT under certain conditions.

Watershed – The area of land that catches rain, snow, and seeps into marshes, streams, rivers, and lakes.

Maximum Residual Disinfectant Level – (MRDL) – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for the control of microbial contaminants.

Maximum Residual Disinfectant Level Goal – (MRDLG) – The level of a drinking water disinfectant below which there is on known or expected risk to health. The MRDLG does not reflect the benefits of the use of disinfectants to control microbial contaminants.

Total Trihalomethanes – (THM) – A by-product of disinfection formed during chlorination of drinking water.

Haloacetic Acids -5 – (HAA) – A by-product of disinfection formed during chlorination of drinking water.

Chlorite - A by-product of drinking water disinfection.

ARWA – Appomattox River Water Authority **DCWA** – Dinwiddie County Water Authority

CCR – Consumer Confidence Report **WQR** – Water Quality Report

Level 1 Assessment – A Level 1 assessment is a study of the waterworks to identify potential problems and determine, if possible, why total coliform bacteria have been found in our waterworks.

Level 2 Assessment – A Level 2 assessment is a very detailed study of the waterworks to identify potential problems and determine, if possible, why an *E. coli* PMCL violation has occurred and why total coliform bacteria have been found in our waterworks on multiple occasions.

WATER QUALITY RESULTS (Detected Contaminants Only)

Primary Contaminant	*MCLG*	*MCL*	*Level Found*	*Range*	*Violation*	*Sample Date*	*Typical Source of contamination*
Fluoride (ppm) ARWA	4	4	0.70 average	<.1 thru 0.98	**no**	3 Daily 2024	Additive which promotes strong teeth
Chlorine Dioxide (ppm) ARWA	MRDL 0.8	MRDLG 0.8	<0.10	<0.10 thru 0.17	no	Daily 2024 Disinfectant	Water additive used to control microbes
Turbidity		TT=1 NTU	0.113	n/a	no	Every	Soil erosion &
(NTU) ARWA	0	TT = Percentage 0f samples <0.3 NTU	0.041 NTU Average 95% of the readings	n/a	no	15 Minutes 2024	Sediment & Runoff
Total Organic Carbon (TOC) ARWA	n/a	TT, Min. annual average removal ratio >1	Annual removal ratio 1.37 **	1.21 thru 1.55	no	Daily 2024	Naturally present in the environment
Nitrate (ppm) ARWA	10	10	0.12	n/a	no	10/16/2024	Runoffs from fertilizer; septic tanks & erosion
Barium (ppm) ARWA	2	2	0.032	n/a	no	10/16/2024	Erosion of natural deposits

Cryptosporidium oocysts/L ARWA	<0.075	n/a	12 mo. Avg. 0.039	Range 0.02 thru 0.19	no	Monthly MAR 2015- FEB 2017.	Microbial pathogen found in surface water
Radiological	Units	MCLG	MCL	Highest	Average	Sample Date	Completed By
Beta/photon Emitters	pCi/l	0	50 (*)	1.9	1.9	10/26/2020	ARWA
Alpha Emitters	pCi/l	0	15	<0.39	<0.39	10/26/2020	ARWA
Radium	pCi/l	0	5	0.2	0.2	10/26/2020	ARWA

*** 35028 out of 35028 readings were <0.3 NTU

** Daily calculations of TOC removal percentages Minimum allowable RAA ratio = 1.0

* The MCL for beta particles is 4 millirem/year.

Chlorine (ppm) **DCWA**	MRDL 4	MRDLG 4	Level Found 2.4 Average	1.5 thru 3.0 max	no	2023	Water additive used to control microbes
Copper (ppm) **DCWA**	1.3	AL = 1.3	0.169	ND thru 0.225	no	2024	Corrosion of house plumbing
Lead (ppb) **DCWA**	0	AL = 15	<0.001	ND	no	2024	Corrosion of house plumbing
THMs (ppb) **DCWA**	n/a	80	43 Max 27 Average	14 thru 43	no	Quarterly 2024	By-product of disinfection
HAA5s (ppb) **DCWA**	n/a	60	42 Max 14 Average	ND thru 42	no	Quarterly 2024	By-product of disinfection
Chlorite (ppm) **DCWA**	0.8	1.0	0.382 Max 0.159 Average	ND thru 0.382	no	Quarterly 2024	By-product of disinfection

ARWA Non-Regulated ***Water Samples***	***MCLG***	***MCL***	***Level found***	***Range***	***Violation***	***Sample Date***	***Typical source of contamination***
Sulfate (mg/l)	n/a	n/a	22.4	n/a	no	10/16/2024	Naturally occurring
Chloroform (ppb)	n/a	n/a	27.0	n/a	no	10/16/2024	By-product of disinfection
Bromodichloro- methane (ppb)	n/a	n/a	2.7	n/a	no	10/16/2024	By-product of disinfection
MTBE Finished Water (ppb)	n/a	n/a	<5.0	n/a	no	10/16/2024	Fuel additive for burning fuel cleaner
Dibromochloro- methane (ppb)	n/a	n/a	<0.50	n/a	no	10/16/2024	By-product of disinfection

Additional Unregulated Contaminants

Analyte (units)	*Average Level Detected*	*Range*	*Date of Sample*	*Typical Source of Contamination*
Sodium (ppm)	18.6	n/a	10/16/2024	****

**** Sodium occurs naturally in groundwater. However, sources such as road salt, water softeners, natural underground salt deposits, pollution from septic systems as well as saltwater intrusion due to proximity to the ocean are often causes of elevated levels in drinking water supplies.

Drinking water does not play a significant role in sodium exposure for most individuals. Those that are under treatment for sodium-sensitive hypertension should consult with their health care provider regarding sodium levels in their drinking water supply and the advisability of using an alternative water source or point-of-use treatment to reduce the sodium. For individuals on a very low sodium diet (500 mg/day), EPA recommends that drinking-water sodium not exceed 20 mg/L. The World Health Organization has established a drinking water guideline of 200 mg of sodium/L on the basis of esthetic considerations (i.e., taste).

INITIAL SERVICE LINE INVENTORY

The Dinwiddie County Water Authority was required to develop and make publicly available an initial inventory of service lines connected to our distribution system by October 16, 2024. We have developed and submitted this inventory of service lines to the Virginia Department of Health Office of Drinking Water. There were no lead service lines found or inventoried in the Dinwiddie County Water Authority system. The Dinwiddie County Water Authority inventory list of service lines can be found on our website located at **www.dcwa.org** .