

“2023” Annual Drinking Water Quality Report

“Perquimans County Water”

Water System Number: “04-72-025”

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 Nick Lories at 252-426-8230 or nlories@perquimanscountync.gov. We want our valued customers to be informed about their water utility.**

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. Perquimans County 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 number 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 source water for our system comes from multiple wells withdrawing from the Yorktown Aquifer.

Source Water Assessment Program (SWAP) Results

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 Perquimans County Water 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
Bethel Long Well	Lower	September 2020
Bethel Plant Well	Moderate	September 2020
Winslow Well	Moderate	September 2020
Hurdle Well	Moderate	September 2020
Bethel Well # 2	Lower	September 2020
Winfall Plant Well	Moderate	September 2020
Lake Road Well	Moderate	September 2020
Chappell Deep Well	Moderate	September 2020
Chappell Shallow Well	Moderate	September 2020
Hunnicut Well	Moderate	September 2020

The complete SWAP Assessment report for Perquimans County Water may be viewed on the Web at: [SWAP Report for PERQUIMANS COUNTY WATER SYSTEM \(ncwater.org\)](#). 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, number, 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.

Help Protect Your Source Water

Protection of drinking water is everyone’s responsibility. We have implemented the following source water protection actions: All of our wellheads are above the 100-year flood plan and are built to current EPA standards. You can help protect your community’s drinking water source(s) 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.).

Violations that Your Water System Received for the Report Year

Important Drinking Water Definitions:

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

Tables of Detected Contaminants

Asbestos Contaminant

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Total Asbestos (MFL)	4-28-22	N	ND			7	7	Decay of asbestos cement water mains; erosion of natural deposits

Unregulated Inorganic Contaminants

Contaminant (units)	Sample Date	Your Water (average)	Range	
			Low	High
17-alpha-ethynylestradiol	7-8-14	<0.0009		
17-beta-estradiol	7-8-14	<0.0004		
4-androstene-3,17-dione	7-8-14	<0.0003		
Equilin	7-8-14	<0.004		
Estriol	7-8-14	<0.0008		
Estrone	7-8-14	<0.002		
Testosterone	7-8-14	<.00001		

Lead and Copper Contaminants

Contaminant (units)	Sample Date	Your Water	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	September 2023	.131	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90 th percentile)	September 2023	ND	0	0.015	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

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		MCLG	MCL	Likely Source of Contamination
				Low	High			
TTHM (ppb)						N/A	80	Byproduct of drinking water disinfection
Location B01	2023	N	24	22	26			
B02	2023	N	46	28	70			
B03	2023	N	55	23	94			
B04	2023	N	1	ND	3			
HAA5 (ppb)						N/A	60	Byproduct of drinking water disinfection
Location B01	2023	N	11	7	13			
B02	2023	N	7	5	8			
B03	2023	N	8	4	12			
B04	2023	N	ND	ND	ND			

For TTHM: *Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.*

For HAA5: *Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.*

Disinfectant Residuals Summary

	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range		MRDLG	MRDL	Likely Source of Contamination
				Low	High			
Chlorine (ppm)	2023	N	.86	.019	1.51	4	4.0	Water additive used to control microbes

2023 Annual Drinking Water Quality Report

Pasquotank County Reverse Osmosis Water Treatment Plant

Water System Number: 60-70-000

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 David Smithson at (252)-340-9633. 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. The Pasquotank County Board of Commissioners meets on the first and third Monday of most months at 6:00 PM in Courtroom C on the second floor of the Pasquotank County Courthouse. Please check the county website for board meeting schedules.**

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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.

Who is Responsible?

The Safe Drinking Water Act gives the Environmental Protection Agency (EPA) the responsibility for setting national drinking water standards that protect the health of the 250 million people who get their water from public water systems. Other people get their water from private wells which are not subject to Federal Regulations. Since 1974, EPA has set national safety standards for over 80 contaminants that may occur in drinking water.

While EPA and state governments set and enforce standards, local governments and private water suppliers have direct responsibility for the quality of the water that flows to your tap. Water systems test and treat their water, maintain the distribution systems that deliver water to consumers, and report on their water quality to the state. States and EPA provide technical assistance to water suppliers and can take legal action against systems that fail to provide water that meets state and EPA standards.

When You Turn on Your Tap, Consider the Source

The water that is used by this system is Ground Water ... and is located throughout the northwestern portion of Pasquotank County.

Foreman Bundy Well _ 557 Foremen Bundy Rd.
Larabee Well _____ 573 Ownley Rd.
Pike Well _____ 976 Cherry Glade Rd.
Wesley 1 Well _____ 929 Cherry Glade Rd.

Source Water Assessment Program (SWAP) Results

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 Pasquotank County RO WTP 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
Foreman Bundy Well	Lower	September 10, 2020
Larabee Well	Lower	September 10, 2020
Pike Well	Lower	September 10, 2020
Wesley 1 Well	Lower	September 10, 2020

The complete SWAP Assessment report for Pasquotank County RO WTP may be viewed on the Web at: https://www.ncwater.org/SWAP_Reports/NC6070000_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, number, 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.

2023 Water Characteristics

The Pasquotank County Reverse Osmosis WTP routinely monitors for over 150 contaminants in your drinking water according to Federal and State laws. The following table lists all the drinking water contaminants that we detected in the last round of sampling for the 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, 2023 through December 31, 2023. 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.

Microbiological Quality

Bacterial and other harmful organisms are removed by physical processes and disinfection chemicals. The federal MCL for total coliform is the presence in 5% of the monthly samples. In 2023 Pasquotank County Reverse Osmosis WTP did not detect the presence of total coliform bacteria in any monthly compliance samples.

Disinfectant Residuals Summary

	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range		MRDL.G	MRDL	Likely Source of Contamination
				Low	High			
Chlorine (ppm)	2023	N	1.07	.70	1.33	4	4.0	Water additive used to control microbes

Radiological Quality

Radiological quality was tested the first quarter in 2019. Radiological testing will be due again between the dates of January 1, 2026 through December 31, 2034. Test results were below detection limits.

Lead & Copper

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. Pasquotank County Reverse Osmosis WTP 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 Federal Lead & Copper Rule mandates a household testing program in accordance with the 1994 Lead & Copper Rule. According to the rule, 90% of the samples from high risk homes in Pasquotank County cannot exceed 15ppb lead and 1300ppb copper. In 2023 samples taken from high risk homes, the 90th percentile results were ND for lead and 60ppb for copper. One site was over the action level for lead. The next round of lead & copper sampling is due in 2026.

Organic Compounds

There are a number of organic compounds that are of concern in drinking water. This group includes volatile organic compounds that vaporize easily called VOC's, synthetic organic compounds including pesticides and herbicides called SOC's and compounds that occur as a by-product when water is disinfected

SOC's were tested in February/March 2023 and in May/June 2023. Testing included 26 regulated compounds. Test results showed all compounds tested were below the detection limit. SOC's are due to be tested again in 2026.

VOC's were tested in April 2023. There were a total of 21 regulated compounds tested. All compounds tested yielded results below detection limits. VOC's are due to be tested again in 2026.

Nitrate/Nitrite

Nitrate/ Nitrite analysis was performed in September 2023, and the results were not detected above the Required Reporting Limit.

Inorganic Compounds

17 compounds were tested in September 2021. All tested below the detection limit with exception of the following. Inorganic Chemical Analysis is due again sometime between Jan 1, 2023 and Dec 31, 2025.

Contaminant	Result	MCL
Sodium	63.233 ppm	Not Regulated
pH	7.5su	6.50su- 8.50su

Result for a Fluoride sample ran by NC State Lab in September 2021 is listed below.

Contaminant	Result	MCL
Fluoride	.759 ppm	4.00 ppm

THM's (Trihalomethanes) & HAA5 (Haloacetic Acids)

Under the new stage II DBP (Disinfect By-Product) Rule, which became effective in October 2013, we are required to collect and analyze 8 target distribution samples once a quarter when on regular monitoring. When on reduced monitoring we are required to collect and analyze 4 target distribution samples once a year. Results for samples collected in 2023 were as follows.

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		MCLG	MCL	Likely Source of Contamination
				Low	High			
TTHM (ppb)	2023	N	37			N/A	80	Byproduct of drinking water disinfection
B02	2023	N	15	15	15	N/A	80	
B04	2023	N	37	37	37	N/A	80	
HAA5 (ppb)	2023	N	3			N/A	60	Byproduct of drinking water disinfection
B02	2023	N	1	1	1	N/A	60	
B04	2023	N	3	3	3	N/A	60	

Terms and Definitions

In this report you may find terms and abbreviations that may not be familiar to you. To help you better understand these terms we have provided the following 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.

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

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.

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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.