"2020" Annual Drinking Water Quality Report
Bogue Banks Water Corporation

Water System Number: **04-16-028**

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 Ty Cannon at 252-354-3307. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our annual meeting on June 4, 2021 at 5 pm. We will meet in the Commissioners Room at the Emerald Isle Police Department..**

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. Bogue Banks Water Corporation 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 produced by Bogue Banks Water is ground water pumped from twelve wells in our service area that are drilled into the Castle Hayne aquifer to a depth ranging between 200 and 300 feet. This significant depth helps save the water from being vulnerable to pollution from seepage or spills. There are seven entry points into our main line from those wells. The distribution system is tested monthly for coliform bacteria. As our results show, the few contaminants that were detected through regular testing are significantly below the Federal and State Maximum Contaminant levels.

What does BBWC do to the water?
After it is pumped from the aquifer via our wells, we treat it with chlorine to disinfect it and add orthophosphate to help prevent the leaching of lead and copper from customer plumbing lines and/or fixtures into the water. Our water is safe and meets Federal and State requirements! Bottoms up!

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environmental Quality (DEQ), 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 Bogue Banks Water Corporation 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
Well # 1	Lower	September 2020
Well #2	Moderate	September 2020
Well #3	Lower	September 2020
Well # 4	Moderate	September 2020
Well #5	Moderate	September 2020
Well #6	Lower	September 2020
Well # 7	Lower	September 2020
Well #8	Moderate	September 2020
Well #9	Moderate	September 2020
Well # 10	Moderate	September 2020
Well #11	Lower	September 2020
Well #12	Moderate	September 2020

The complete SWAP Assessment report for Bogue Banks Water Corporation may be viewed on the Web at: https://www.ncwater.org/?page=600 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. Our backflow prevention policy is designed to protect your drinking water in the event of a major line break or severe pressure drop on those properties containing a moderate to severe hazard. According to the guidelines set forth by the Federal Safe Drinking Water Act, NC Drinking Water Act and Section 406B of NC Rules Governing Public Water Systems, the following are a few examples that constitute moderate to severe hazards to our water supply: 01/2020 Swimming pools Hot tubs In ground irrigation systems Connection to our water system within 50 feet of a body of water (sound, ocean, canal, pond) In the event of sudden loss of pressure from our water mains going in to your

home, backflow prevention devices (RPZ) will block water from backing up into our water supply. Fortunately, these events do not occur frequently, but they do occur. To see our Backflow Prevention policy in its entirety please visit our website at: www.boguebankswater.com.

Violations that Your Water System Received for the Report Year

During 2020, or during any compliance period that ended in 2020 we received a *MCL exceedance* violation that occurred in May of 2020 and again in November of 2020. We have taken steps to work towards remedying the cause of the exceedance. We have installed active mixers and power vents in our water towers to help reduce water age and to assist with TTHM removal as it naturally releases into the air from the mixing. Additional flushing will be completed on a regular basis on the affected eastern end of the system. We anticipate resolving the problem within the next few months. In the long term, the organics that react with the chlorine to form TTHM's will be mostly removed by a new Reverse Osmosis Treatment plant that we are planning to build.

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.***

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, (2020).** 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.

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.
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.
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

Inorganic Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Fluoride (ppm)	8/10/20	N	0.34ppm	0.16ppm – 0.34ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

Synthetic Organic Chemical (SOC) Contaminants Including Pesticides and Herbicides

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Di(2-ethylhexyl) phthalate (ppb)	10/27/20 20	N	1.66 ppb	ND – 1.66 ppb	0	6	Discharge from rubber and chemical factories

Volatile Organic Chemical (VOC) Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Carbon tetrachloride (ppb)	04/06/ 2020	N	0.5 ppb	ND – 0.5 ppb	0	5	Discharge from chemical plants and other industrial activities

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)	Various 2019	0.459 ppm	1	0	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) (90^{th} percentile)	Various 2019	6 ppb	1	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

Disinfectant Residuals

Samples (ppm)	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**	**Jun.**	**Jul.**	**Aug.**	**Sept**	**Oct.**	**Nov.**	**Dec.**
Sample 1	0.8	1.2	1.0	1.0	0.9	0.5	0.9	0.8	1.0	2.0	1.4	0.8
Sample 2	1.4	0.8	1.1	1.0	1.3	1.0	1.0	1.1	1.1	2.1	1.5	1.4
Sample 3	1.0	1.1	1.2	1.1	0.8	1.2	1.5	0.9	1.0	1.1	1.1	0.7
Sample 4	1.0	1.0	1.0	1.5	1.0	0.8	0.8	1.2	0.8	2.2	1.0	1.0
Sample 5	1.3	1.5	1.2	1.2	1.2	0.9	1.0	1.3	1.2	1.8	1.2	1.0
Sample 6	1.1	1.2	1.4	1.3	1.1	0.8	1.2	1.8	1.4	1.0	1.6	1.2
Monthly Average	1.1	1.13	1.15	1.18	1.05	0.87	1.07	1.18	1.08	1.7	1.3	1.02
Quarterly RAA*	1.07			1.05			1.11			1.34		

Disinfectant Residuals Summary

	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	2020	N	1.34	0.5ppm – 2.2ppm	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)					N/A	80	Byproduct of drinking water disinfection
B01	2020	Y	85.28 ppb	4.1 ppb – 92.1 ppb	N/A	80	
B02	2020	N	11.88 ppb	1.2 ppb – 3.9 ppb	N/A	80	
HAA5 (ppb)					N/A	60	Byproduct of drinking water disinfection
B01	2020	N	24.8 ppb	12.1 ppb – 47.9 ppb	N/A	60	
B02	2020	N	12.38 ppb	ND	N/A	60	

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