# City of New Bern

PUBLIC UTILITIES

# 2020 Water Quality Report

PWSID# 04-25-010

## ANNUAL WATER REPORT

The City of New Bern is pleased to present this year's Annual Drinking Water Quality Report, also known as the Consumer Confidence Report. Our goal is to provide you with a safe and dependable supply of drinking water. This report contains information about the sources of our water supply, treatment methods, and results of testing performed throughout 2020.

## TERMS AND ABBREVIATIONS

This report contains terms and abbreviations that you may not be familiar with. To help you better understand these terms we have provided the following definitions:

***Action Level (AL)*** – The concentration of a contaminant which, if exceeded, triggers additional treatment and/or public notification requirements.

***Million Fibers per Liter (MFL)*** – A measure of the presence of asbestos fibers (longer than 10 micrometers) in drinking water.

***Maximum Contaminant Level Goal (MCLG)*** – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

***Maximum Contaminant Level (MCL)*** – The highest level of a contaminant allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technique. A person would have to drink 2 liters of water every day at the MCL level for a lifetime in order to have a one-in-a-million chance of having the described health effect.

***90th Percentile*** – The sample result that exceeds 90% of all sample results and is exceeded by 10%.

***Parts per million (ppm)*** - A common unit of measurement for substances found in drinking water. One part per million corresponds to one minute in two years, or a single penny in $10,000.

***Parts per billion (ppb)*** - One part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

***Picocuries per liter (pCi/L)*** – *A measure of radioactivity in water.*

***EPA*** – Environmental Protection Agency

***FDA*** – Food and Drug Administration

***N/A*** – Not Applicable

***ND*** – None Detected

Bacteriological Testing

Fire Hydrant Flow Testing

## OUR WATER SUPPLY

The City of New Bern provides drinking water for over 35,000 customers in the New Bern and surrounding areas including Carolina Colours, Clarks, Cove City, the Craven County Industrial Park, Taberna, and Trent Woods. Total water usage for 2020 was 1.36 billion gallons, a daily average of 3.71 million gallons. The City's Water Treatment Division employs 20 wells, a filter/softener water treatment facility, 3 ground storage tanks, 5 booster pump stations and 6 elevated storage tanks to provide up to 8.65 million gallons of daily water production and 9.7 million gallons of finished water storage.

## WATER TREATMENT PROCESS

***Aeration/Oxidation/Filtration*** – The treatment process begins with aeration, which causes metallic contaminants such as iron and manganese to begin oxidizing (rusting) naturally. Aeration also removes most of the hydrogen sulfide in the water. After some detention time, potassium permanganate is added to ensure that oxidation is complete prior to entering the greensand filters, as any metals not fully oxidized will simply pass through. The filters also remove any remaining hydrogen sulfide.

***Softening*** – Filtered water passes through the ion-exchange softeners to remove calcium and magnesium. The softeners remove all hardness, so it is necessary to bypass a fraction of the water in order to reach the desired hardness level.

Softening is by far the most expensive aspect of this treatment system. Salt used to regenerate the softeners accounts for a third of the Water Treatment Plant's operational costs, including electricity. Extremely soft water also has corrosive qualities in the distribution system, resulting in increased wear and maintenance of pumps, valves, and metallic pipe and fittings. Our finished water hardness level is the result of research, testing and consultation with surrounding systems utilizing similar source water and treatment techniques.

***Chemical Addition*** – Chlorine and ammonia are then added for disinfection and prevention of microbial growth in the distribution system. Ortho-phosphate, a corrosion inhibitor, is also added to further prevent the finished water from reacting with metallic parts (i.e. iron, lead, copper) of the City's distribution and home plumbing systems. The water is now ready for distribution and consumption.

**Water Treatment Filters and Softeners**

## WHAT YOU SHOULD KNOW ABOUT CHLORAMINES

In June 2010, the City of New Bern began using chloramines as a secondary disinfectant. This is achieved by adding a small amount of ammonia shortly after the water is chlorinated. Compared to free chlorine, chloramines form fewer chemical by-products in the distribution system, improve taste and odor characteristics, and last longer in the distribution system to prevent bacterial growth.

Chloraminated water is safe for drinking, cooking, bathing and all uses we have for water every day. However, there are two groups of people who need to take special care with chloraminated water: kidney dialysis patients and fish owners. Chloramines, like free chlorine, must be removed from water used in kidney dialysis machines. If you are a dialysis patient or have questions, please call your physician or dialysis center.

Chloramines, like free chlorine, are also toxic to fish and must be removed before adding City water to aquariums, tanks or ponds. Please consult your pet store to ensure that you are using a water conditioner that is effective for chlorinated and chloraminated water.

## ANNUAL REVERSION TO FREE CHLORINE

It is customary for water systems using chloramines to revert back to free chlorine for 4-6 weeks annually. Free chlorine serves to remove any microbial growth that may have formed while using chloramines, which is a less potent but more stable disinfectant. This is a standard water treatment practice to keep our distribution system clean and free of potentially harmful bacteria throughout the year. During this period, customers may notice more chlorine taste and odor. This will go away immediately once the water system is returned to chloramines.

Water systems typically perform high velocity flushing of water mains during and shortly after the reversion period. You may notice some discoloration of your water after flushing is performed in your area. If this happens, please run water for five minutes to clear your service line. If the discoloration persists, please contact the Water Treatment Division at 639-7568.

## – FREE CHLORINE REVERSION NOTICE –

**Beginning April 18, 2022 and continuing until May 30, 2022, The City of New Bern will temporarily change the disinfectant used in the water treatment process from chloramines to free chlorine. The reversion period will be followed by continued flushing throughout the distribution system. Most of the flushing will take place between 9pm and 3am to minimize customer inconvenience. The City of New Bern will directly contact dialysis centers and other water quality sensitive facilities to ensure that they are prepared. For more information, please go to www.newbernnc.gov or contact the City of New Bern Water Treatment Division at 639-7568.**

## WATER CONTAMINANTS

All sources of drinking water are subject to potential contamination by substances that are naturally occurring or manmade. These substances can be microbes (viruses and bacteria), in-organics (metals and salts), synthetic organics (pesticides), volatile organics (petroleum based) and/or radioactive contaminants.

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 the water poses a health risk.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amounts 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. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

## SPECIAL HEALTH CONCERNS

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 microbiological contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

## PREVENTING LEAD/COPPER CONTAMINATION AT HOME

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. The City of New Bern 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.

***Additional tips for minimizing lead/copper exposure:***

– Use only cold water for cooking and making beverages
– Remove and clean faucet screens regularly

# SOURCE WATER ASSESSMENT PROGRAM (SWAP) RESULTS

The North Carolina Department of Environmental Quality (NCDEQ), 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 Contamination 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 New Bern 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 following table.

The complete SWAP report for the City of New Bern may be viewed on the Web at: http://www.ncwater.org/pws/swap. Click on the "Source Water Assessment Reports" tab and enter/search "New Bern" to find our report. To obtain a printed copy of this report, please mail a written request to: Source Water Assessment Program Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634. You may also email your request to swap@ncdenr.gov. Please indicate your system name, PWSID (#04-25-010), 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.

| Source Name | Inherent Vulnerability Rating | Contaminant Rating | Susceptability Rating |
|---|---|---|---|
| CC Wells #1, #5 | Lower | Lower | Lower |
| CC Wells #2, #3, #4 | Lower | Moderate | Moderate |
| WTP Wells #1, #12, #13 | Lower | Moderate | Moderate |
| WTP Wells #2-#10 | Lower | Higher | Moderate |
| WTP Wells #11, #14, #15 | Lower | Higher | Moderate |

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.

Water Production Well

# 2020 DRINKING WATER ANALYSIS

The City of New Bern routinely monitors for over 150 contaminants in your drinking water according to Federal and State laws. Listed below are 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 allows monitoring 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.

**Inorganic Contaminants**

| Contaminant (units) | Sample Date | MCL Violation Y/N | Your Water | Range Low High | MCLG | MCL | Likely Source of Contamination |
|---|---|---|---|---|---|---|---|
| Chromium (ppb) | 2017 | N | 25 | ND to 25.0 | 100 | 100 | Discharge from steel and pulp mills; erosion of natural deposits |
| Fluoride (ppm) | 2020 | N | 1.16 | 0.15 to 1.16 | 4 | 4 | Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories |

**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) (90th percentile) | 2020 | 0.326 | 0 | 1.3 | AL=1.3 | Corrosion of household plumbing systems; erosion of natural deposits |
| Lead (ppb) (90th percentile) | 2020 | ND | 0 | 0 | AL=15 | Corrosion of household plumbing systems; erosion of natural deposits |

**Radiological Contaminants**

| Contaminant (units) | Sample Date | MCL Violation Y/N | Your Water | Range Low High | MCLG | MCL | Likely Source of Contamination |
|---|---|---|---|---|---|---|---|
| Alpha emitters (pCi/L) | 2020 | N | 5.8 | ND to 5.8 | 0 | 15 | Erosion of natural deposits |

**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 | 1.60 | 1.0 to 2.7 | 4 | 4.0 | Water additive used to control microbes |
| Chloramines (ppm) | 2020 | N | 2.99 | 1.7 to 4.0 | 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) | 2020 | N | 20 | 17 to 20 | N/A | 80 | Byproduct of drinking water disinfection |
| B01 | 2020 | N | 20 | n/a | N/A | 80 | |
| B02 | 2020 | N | 17 | n/a | N/A | 80 | |
| HAA5 (ppb) | 2020 | N | 15 | 8 to 15 | N/A | 60 | Byproduct of drinking water disinfection |
| B01 | 2020 | N | 8 | n/a | N/A | 60 | |
| B02 | 2020 | N | 15 | n/a | N/A | 60 | |

## WATER CONSERVATION AND PROTECTION

Our water resources are a vital part of the quality of life within our community. Please help us to conserve and protect these valuable resources for future generations to enjoy. Here are some ways you can help:

- Repair all leaks and drips. A slow drip can waste 15-20 gallons per day. Periodically turn off all taps and water using appliances, check your meter's leak detector, and again after 15 minutes. If it has moved, you have a leak.
- Inspect toilets for leaks by putting a few drops of food coloring in the tank, then check after a few minutes to see if there is color in the bowl. A seemingly invisible toilet leak can lose up to 100 gallons per day.
- Water lawns only when needed, preferably before 10am or after 6pm. One inch of water per week is sufficient to keep plants and lawns healthy.
- Please dispose of motor oil, batteries, paint, pesticides/herbicides, and other potentially hazardous substances at the proper locations. Dispose of cooking oils and grease as solid waste in your home garbage collection.

**Filter Pumps, Aerators and Finished Water Storage**

***For More Information:*** If you have any questions concerning this report or your water quality, please contact the City of New Bern Water Treatment Division at 252-639-7568. If you wish to learn more, you may attend any of the regularly scheduled Board of Aldermen meetings, which are held on the second and fourth Tuesdays of each month at 6:00 p.m. in the City Hall Courtroom, 300 Pollock Street.