



CONTACTS FOR OPERATIONS DEPT.

Director, Mark Meyer,
910-713-0916
Chief Water Plant
Operator ORC
Shawn Thomas
910-782-9491
PWSID#04-65-015

WATER QUALITY REPORT 2021

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 where your water comes, what it contains, and how it compares to standards set by regulatory agencies. Our 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.

Drinking water (tap & bottled) sources include rivers, reservoirs, springs & wells. As water travels over land surface or through the ground, it is dissolving naturally occurring minerals & sometimes radioactive material. It can pick up substances left by animal or human activity. Source water contaminants may include microbial (viruses & bacteria) which may come from sewage treatment plants, septic systems & wildlife; inorganics-salts & metals occurring naturally or resulting from storm water runoff, wastewater discharges; pesticides & herbicides, which may come from storm water runoff, or residential uses; organic chemical (synthetic & volatile) are by-products of petroleum production, gas stations, storm water runoff & septic systems; radioactive, naturally occurring or resulting from oil & gas production & mining activities.

To ensure safe drinking water, EPA has regulations limiting the amount of certain contaminants in water from public water systems. FDA regulates limits for contaminants in bottled water which must provide the same protection for public health.

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 Carolina Beach 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 to the right:

The complete SWAP Assessment report for Town of Carolina Beach may be viewed on the Web at: https://www.ncwater.org/SWAP_Reports/NC0465015_SWAP_Report-20200909.pdf. Please note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this website may differ from the results that were available at the time this CCR was prepared. 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, or email request to swap@ncmail.net. Please indicate your system name (Town of Carolina Beach), PWSID (04-65-015), and provide your name, mailing address and phone number. If you have any questions about the SWAP report please contact Source Water Assessment staff at 919-715-2633. It is important to understand that susceptibility rating of *higher* does not imply poor water quality, only the systems potential to become contaminated by PCS's in the assessment area.

Source Name	Susceptibility Rating	Date
Well #1	Lower	September 2020
Well #2	Moderate	September 2020
Well #3	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	Lower	September 2020
Well #11	Moderate	September 2020
Well #12	Moderate	September 2020
Well #13	Moderate	September 2020
Well #14	Moderate	September 2020

Source of Drinking Water: Our water is ground water withdrawn from the Castle Hayne and the Pee Dee Aquifers. The Town has 14 wells, two water treatment plants, two, 500,000 gallon elevated water storage tanks, and one, 1,000,000 gallon ground level reservoir.

Water Quality Data Table of Detected Contaminants

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The table below 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 through December 31, 2020.** The EPA or the State requires 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.

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

Important Definitions

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.

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.

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.

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 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.

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.

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.

(HAA5)- Haloacetic Acids - include Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Dibromoacetic Acid. **(TTHM) - Total Trihalomethanes** - include Chloroform, Bromoform, Bromodichloromethane, and Dibromochloromethane

(SOC) – Synthetic Organic Chemicals/Pesticides – include 2,4-D, 2,4,5-TP (Silvex), Alachlor, Atrazine, Benzo(a)pyrene, Carbofuran, Chlordane, Dalapon, Di(2-ethylhexyl)adipate, Di(2-ethylhexyl)phthalate, Dibromochloropropane (DBCP), Dinoseb, Endrin, Ethylene dibromide (EDB), Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane, Methoxychlor, Oxamyl(vydate), PCBs, Pentachlorophenol, Picloram, Simazine, Toxaphene.

Non-Detects (ND) - Laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used.

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 Town of Carolina Beach 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 the tap for 30 seconds up to two minutes before using the 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>.

Lead & Copper Contaminants January-December 2021 (One Compliance period)

Contaminant (units)	Sample Date	Your Water Low / High	#of sites found above the AL	MCLG	MCL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	June-September	0.000/0.965	0	1.3	AL=1.3	Corrosion of household plumbing, erosion of natural deposits, leaching from wood preservatives
Lead (ppm) (90 th percentile)	June-September	0.000/0.024	1	0	AL=0.015	Corrosion of household plumbing, erosion of natural deposits

Microbiological Contaminants 2021

Contaminant (units)	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Total Coliform Bacteria (presence or absence)	Y	2	0	one positive monthly sample	Naturally present in the environment
Fecal Coliform or E. coli (presence or absence)	N	0	0	0	Human and animal fecal waste

Nitrate/Nitrite August 2021

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low / High	MCLG	MCL	Likely Source of Contamination
Nitrate (ppm)	08/11/2020	N	>1.0 mg/L	ND	10	10	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrite (ppm)	08/11/2020	N	>0.1 mg/L	ND	1	1	Ground water containing natural deposits of soluble iron

Volatile Organic Chemical (VOC) Contaminants August 2021

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Benzene (ppb)	7-15-2020	N	<.0005		0	5	Discharge from factories; leaching from gas storage tanks and landfills
Carbon tetrachloride (ppb)	7-15-2020	N	<.0005		0	5	Discharge from chemical plants and other industrial activities
Chlorobenzene (ppb)	7-15-2020	N	<.0005		100	100	Discharge from chemical and agricultural chemical factories
o-Dichlorobenzene (ppb)	7-15-2020	N	<.0005		600	600	Discharge from industrial chemical factories
p-Dichlorobenzene (ppb)	7-15-2020	N	<.0005		75	75	Discharge from industrial chemical factories
1,2 – Dichloroethane (ppb)	7-15-2020	N	<.0005		0	5	Discharge from industrial chemical factories
1,1 – Dichloroethylene (ppb)	7-15-2020	N	<.0005		7	7	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene (ppb)	7-15-2020	N	<.0005		70	70	Discharge from industrial chemical factories
trans-1,2-Dichloroethylene (ppb)	7-15-2020	N	<.0005		100	100	Discharge from industrial chemical factories
Dichloromethane (ppb)	7-15-2020	N	<.0005		0	5	Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane (ppb)	7-15-2020	N	<.0005		0	5	Discharge from industrial chemical factories
Ethylbenzene (ppb)	7-15-2020	N	<.0005		700	700	Discharge from petroleum refineries
Styrene (ppb)	7-15-2020	N	<.0005		100	100	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene (ppb)	7-15-2020	N	<.0005		0	5	Discharge from factories and dry cleaners
1,2,4 –Trichlorobenzene (ppb)	7-15-2020	N	<.0005		70	70	Discharge from textile-finishing factories
1,1,1 – Trichloroethane (ppb)	7-15-2020	N	<.0005		200	200	Discharge from metal degreasing sites and other factories
1,1,2 –Trichloroethane (ppb)	7-15-2020	N	<.0005		3	5	Discharge from industrial chemical factories
Trichloroethylene (ppb)	7-15-2020	N	<.0005		0	5	Discharge from metal degreasing sites and other factories
Toluene (ppm)	7-15-2020	N	<.0005		1	1	Discharge from petroleum factories
Vinyl Chloride (ppb)	7-15-2020	N	<.0005		0	2	Leaching from PVC piping; discharge from plastics factories
Xylenes (Total) (ppm)	7-15-2020	N	<.0005		10	10	Discharge from petroleum factories; discharge from chemical factories

Asbestos Contaminant

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low/High	MCLG	MCL	Likely Source of Contamination
Total Asbestos (MFL)	1/02	N	<0.01		7	7	Decay of asbestos cement water mains; erosion of natural deposits

Disinfectants and Disinfection Byproducts Contaminants January-December 2021 (Four quarters)

Contaminant (units)	MCL/MRDL Violation Y/N	Your Water (AVG)	Range Low/High	MCLG	MCL	Likely Source of Contamination
TTHM (ppm) [Total Trihalomethanes]	N	.030	0.015/0.090	N/A	0.080	By-product of drinking water chlorination
HAA5 (ppm) [Total Haloacetic Acids]	N	0.008	0.002/0.051	N/A	0.060	By-product of drinking water disinfection
Chlorine (ppm)	N	0.68	0.2\1.5	MRDLG = 4	MRDL = 4	Water additive used to control microbes

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

Samples were pulled a month early, returned to compliance after second quarter samples were completed.

Radiological Contaminants 2009

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water AVG.	MCLG	MCL	Likely Source of Contamination
Alpha emitters (pCi/l)	2009	N	0.75 pCi/L	0	15	Erosion of natural deposits
Beta/photon emitters (pCi/l)	2009	N	20.8 pCi/L	0	50	Decal of natural & man-made deposits
Combined Radium (pCi/l)	2013	N	0.3 pCi/L	0	5	Erosion of natural deposits
Uranium (pCi/l)	2009	N	ND	0	20.1	Erosion of natural deposits

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.	40 CFR 141.153(h)(7)(i)(A)
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During the past year we were required to conduct a LEVEL 1 ASSESSMENT. The Level 1 assessment(s) was conducted with regards to our total coliform bacteria sampling. After completion, distribution and raw water wells were disinfected. All source water was tested for Microbiological Contaminants and tested negative.	40 CFR 141.153(h)(7)(i)(B)
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(BOTH SIDES OF THIS NOTICE MUST BE COPIED AND DISTRIBUTED TO YOUR CUSTOMERS)

NOTICE TO THE PUBLIC

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

CAROLINA BEACH WATER SYSTEM

Has Not Met Monitoring Requirements

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the compliance period(s) specified in the table below, we ['did not monitor or test' or 'did not complete all monitoring or testing'] for the contaminants listed and therefore cannot be sure of the quality of your drinking water during that time.

CONTAMINANT GROUP**	FACILITY ID NO. / SAMPLE POINT ID	COMPLIANCE PERIOD BEGIN DATE	NO. OF SAMPLES / SAMPLING FREQUENCY	WHEN SAMPLES WERE TAKEN (Returned to Compliance)
TTHM and HAA5	D01	1/1/2021	4 / QT	6/24/2021

** See back of this notice for further information on contaminants

What should I do? There is nothing you need to do at this time.

What is being done?

Samples were pulled a month early, returned to compliance after second quarter samples were completed.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

For more information, please contact:

Responsible Person CAROLINA BEACH TOWN OF	System Name CAROLINA BEACH WATER SYSTEM	System Address (Street) 1121 N LAKE PARK BLVD
Phone Number 910-458-2994	System Number NC0465015	System Address: CAROLINA BEACH, NC 28428

Violation Awareness Date: 4-5-2021

Date Notice Distributed: 4-15-2022 Method of Distribution: CCR

Public Notification Certification:

The public water system named above hereby affirms that public notification has been provided to its consumers in accordance with all delivery, content, format, and deadline requirements specified in 15A NCAC 18C .1523.

Owner/Operator: 
(Signature)

Shawn Thomas
(Print Name)

3-25-2022
(Date)

Contaminant Group List

(AS) Asbestos - includes testing for Total Asbestos.

(BA) Total Coliform Bacteria - includes testing for Total Coliform bacteria and *E.coli* bacteria. Testing for *E.coli* bacteria is required if total coliform is present in the sample.

(B) Bromate - includes testing for Bromate.

(CD) Chlorine Dioxide/Chlorite - includes testing for Chlorine Dioxide and/or Chlorite.

(DI) Disinfectant Residual must be tested with the collection of each compliance bacteriological sample, at the same time and site.

Fecal Indicators - includes *E.coli*, enterococci or coliphage.

(HAA5)- Haloacetic Acids - includes Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Dibromoacetic Acid.

(IOC) Inorganic chemicals - includes Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cyanide, Fluoride, Iron, Manganese, Mercury, Nickel, pH, Selenium, Sodium, Sulfate, and Thallium.

(LC) Lead and Copper are tested by collecting the required number of samples and testing each of the samples for both lead and copper.

(NT) Nitrate/ (NI) Nitrite - includes testing for nitrate and/or nitrite.

(RA) Radionuclides - includes Gross Alpha, Radon, Uranium, Combined Radium, Radium 226, Radium 228, Potassium 40 (Total), Gross Beta, Tritium, Strontium 89, Strontium 90, Iodine 131, and Cesium 134.

(SOC) - Synthetic Organic Chemicals/Pesticides - includes 2,4-D, 2,4,5-TP (Silvex), Alachlor (Lasso), Atrazine, Benzo(a)pyrene, Carbofuran, Chlordane, Dalapon, Di(2-ethylhexyl)adipate, Di(2-ethylhexyl)phthalate, Dibromochloropropane (DBCP), Dinoseb, Endrin, Ethylene dibromide (EDB), Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane (BHC-Gamma), Methoxychlor, Oxamyl (Vydate), PCBs, Pentachlorophenol, Picloram, Simazine and Toxaphene.

(TOC) - Total Organic Carbon - includes testing for Alkalinity, Dissolved Organic Carbon (DOC), Total Organic Carbon (TOC) and Ultraviolet Absorption 254 (UV254). Source water samples must be tested for both TOC and Alkalinity. Treated water samples must be tested for TOC. Source water samples and treated water samples must be collected on the same day.

(TTHM) - Total Trihalomethanes - includes Chloroform, Bromoform, Bromodichloromethane, and Dibromochloromethane.

(VOC) - Volatile Organic Chemicals - includes 1,2,4-Trichlorobenzene, Cis-1,2-Dichloroethylene, Xylenes (Total), Dichloromethane, 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.

(WQP) Water Quality Parameters (for Lead and Copper Rule) - includes Calcium, Orthophosphate (as PO₄), Silica, Conductivity, pH, Alkalinity and Water Temperature.

Instructions for Completing the Notice/Certification Form & for Performing Public Notice for Tier 3 Monitoring Violations

1. Complete **ALL** the missing information on the "Notice to the Public." (Note: Under the section of the notice entitled "What is being done?" describe corrective actions you took, or are taking. You may choose the appropriate language below, or develop your own:
 - We have since taken the required samples, as described in the last column of the table above. The sample results showed we are meeting drinking water standards.
 - We have since taken the required samples, as described in the last column of the table above. The sample for [contaminant] exceeded the limit. [Describe corrective action; use information from public notice prepared for violating the limit.]
 - We plan to take the required samples soon, as described in the last column of the table above.

<p>Community systems must use one of the following:</p> <ul style="list-style-type: none"> • Hand or direct delivery • Mail, as a separate notice or included with the bill <p>For community systems, this notice is appropriate for insertion in an annual notice or the Consumer Confidence Report (CCR), as long as public notification timing and delivery requirements are met [CFR 141.204(d)].</p>	<p>Non-community systems must use one of the following:</p> <ul style="list-style-type: none"> • Posting in conspicuous locations • Hand delivery • Mail <p>For non-community systems, if you post the notice, it must remain posted as long as the violation or situation persists; in no case should the notice be posted less than 7 days, even if the violation is resolved. [CFR 141.204(b)].</p>
<p>(Note: Both community and non-community systems must use <i>another</i> method reasonably calculated to reach others IF they would not be reached by one of the <u>required</u> methods listed above [CFR 141.204(c)]. Such methods could include newspapers, e-mail, or delivery to community organizations.</p>	

- **Both sides of this public notice/certification MUST be delivered to the persons served by the water system** in order for your customers to have access to the required **Contaminant Group List**.
 - If you mail, post, or hand deliver, print your notice on letterhead, if available.
 - Notify new billing customers or units prior to or at the time their service begins.
 - Provide multi-lingual notifications if 30% of the residents served are non-English speaking.
 - Should you decide not to use this enclosed notice and develop your own version instead, the mandatory language in ***bold italics*** may not be altered and you **MUST** include the ten required elements listed in CFR 141.205. A separate Public Notification Certification Form that is available on our web site or the certification located at the bottom of the sample notice provided **MUST** also be submitted.
3. After issuing the "Notice to the Public" to your customers, **sign and date the "Public Notification Certification" at the bottom of the notice. Within ten days** after issuing the notice [CFR 141.31(d)], email the completed Public Notice/Certification form to PWSS.PN@ncdenr.gov <mailto:PWSS.PN@ncdenr.gov> or mail to the Public Water Supply Section, ATTN: Public Notification Rule 1634 Mail Service Center, Raleigh, NC 27699-1634 or use our new on-line ECERT application located on our website at: <<https://pws.ncwater.org/ECERT/pages/default.aspx>>. Keep a copy for your files.