



2013 Annual Drinking Water Quality Report Bogue Banks Water Corporation, A Nonprofit Water Utility

PWS ID# 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. Our water continues to be very safe to drink. Included are details about from where your water comes, 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 Cathy Craft, Seola Hill or Ty Cannon at (252) 354-3307.**

If you want to learn more about Bogue Banks Water Corporation, please visit our website at www.boguebankswater.com or attend the Annual Meeting. It will be held on Friday, June 13, 2014, at 5:00pm in the Emerald Isle Parks and Recreation Building.

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

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 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 systems;

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.

Lead and 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. Bogue Banks Water Corp. 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>.

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 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	Contaminant Rating	Susceptibility Rating	Inherent Vulnerability Rating
Well # 1	Lower	Lower	Lower
Well #2A	Moderate	Moderate	Lower
Well #3	Lower	Lower	Lower
Well #4	Higher	Moderate	Lower
Well #5	Lower	Lower	Lower
Well #6	Lower	Lower	Lower
Well #7	Moderate	Moderate	Lower
Well #8	Higher	Moderate	Lower
Well #9	Moderate	Moderate	Lower
Well #10	Lower	Lower	Lower
Well #11	Moderate	Moderate	Lower

The complete SWAP Assessment report for Bogue Banks Water Corporation may be viewed on the Web at: www.ncwater.org/pws/swap. 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 systems’ potential to become contaminated by PCS’s in the assessment area.

*** SWAP Report Date: March 2010

When You Turn on Your Tap, Consider the Source

The water that is used by Bogue Banks Water is ground water pumped from twelve wells in our service area that were drilled into the Castle Hayne aquifer to a depth ranging between 200 feet – 300 feet. This significant depth saves the water from being vulnerable to pollution from seepage or spills.

There are seven entry points into the 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 wells, we treat it with chlorine to disinfect it. We also add orthophosphosphate to prevent possible lead in customer pipes from leaching into the water.



Our water is safe and meets federal and state requirements! Bottoms up!

Important Drinking Water Definitions and Abbreviations

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.

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

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.

Extra Note: MCLs are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

2013 Water Quality Data Tables of Detected & Non-detected Contaminants

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The following tables list 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, 2013.** 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.

Bogue Banks Water Corporation tests for many contaminants both regulated and unregulated. The results of both are listed below. A "ND" refers to non-detects. The Maximum Contaminant Levels (MCL) are set at very stringent levels.

Based on the results from these thorough tests, BBWC water is very safe to drink!

Microbiological Contaminants – (6 samples per month)

Contaminant (units)	MCL Violation Y/N	BBWC Water	MCLG	MCL	Likely Source of Contamination
Total Coliform Bacteria (presence or absence)	N	0	0	one positive monthly sample	Naturally present in the environment
Fecal Coliform or E. coli (presence or absence)	N	Absence	0	0 (Note: The MCL is exceeded if a routine sample and repeat sample are total coliform positive, and one is also fecal coliform or E. coli positive)	Human and animal fecal waste

Nitrate/Nitrite Contaminants – Each entry point (yearly, unless >MCL): **Non-detect.**

Inorganics Contaminants – Each entry point (every 3 years, unless >MCL): **Non-detect.**

Testing includes: arsenic, barium, cadmium, chromium, cyanide, fluoride, iron, manganese, mercury, nickel, selenium, sodium, sulfate, antimony, beryllium, thallium and pH

Synthetic Organic Chemical (SOC) Contaminants Including Pesticides and Herbicides –

Each entry point (2 samples every 3 years)

Contaminant (units)	Sample Date	MCL Violation Y/N	BBWC Water	Range Low / High	MCLG	MCL	Likely Source of Contamination
Hexachlorocyclopentadiene	10/16/2013	N	0.00011	ND – 0.00011	50	50	Discharge from chemical factories

ADDITIONAL TESTING (**Non-Detect**): Alachlor, Atrazine, Benzo(a)pyrene (PAH), Carbofuran, Chlordane, Dalapon, Di-2(ethylhexyl)adipate, Di-2(ethylhexyl)phthalate, Dibromochloropropane, Dinoseb, Endrin, Ethylene Dibromide (EDB), Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Methoxychlor, Oxamyl [Vydate], PCBs [Polychlorinated biphenyls], Picloram, 2,4,5-TP (Silvex), Simazine, Toxaphene, 2,4-D (ppb), Pentachlorophenol (ppb), Gamma (BHC)

Volatile Organic Chemical (VOC) Contaminants - Every 3 years, unless >MCL - **Non-detect.**

Testing includes: 1,2,4 –Trichlorobenzene, c-1,2-Dichloroethylene, Xylenes, Dichloromethane, o-Dichlorobenzene, p-Dichlorobenzene, Vinyl Chloride, 1,1-Dichloroethylene, t-1,2-Dichloroethylene, 1,2-Dichloroethane, 1,1,1-Trichloroethane, Carbon Tetrachloride, 1,2-Dichloropropane, Trichloroethylene, 1,1,2-Trichloroethane, Trichloroethylene, Chlorobenzene, Benzene, Toluene, Ethylbenzene, Styrene, Tetrachloroethylene

Lead and Copper Contaminants - 40 samples, every 6 months

Contaminant (units)	Sample Date	BBWC Water	# of sites found above the AL	MCLG	MCL	Likely Source of Contamination
Copper (ppm) (90 th percentile)	5/2013 & 12/2013	0.497	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (90 th percentile)	5/2013 & 12/2013	12.0	0	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits

Radiological Contaminants – 1 sample every 6 or 9 years depending on contaminant - **Non-detect.**

Testing includes: gross alpha, uranium, radium 226, radium 228.

Disinfectants and Disinfection Byproducts Contaminants – Stage 1 - 4 samples per year

Contaminant (units)	MCL/MRDL Violation Y/N	BBWC Water (AVG)	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb) [Total Trihalomethanes]	N	48.0	2.0 125.0	N/A	80	By-product of drinking water chlorination
HAA5 (ppb) [Total Haloacetic Acids]	N	36.0	2.2 65.1	N/A	60	By-product of drinking water disinfection
Chlorine (ppm)	N	1.5	0.3 2.6	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.*

Water Characteristics Contaminants

The PWS Section requires monitoring for other misc. contaminants, some for which the EPA has set national secondary drinking water standards (SMCLs) because they may cause cosmetic effects or aesthetic effects (such as taste, odor, and/or color) in drinking water. The contaminants with SMCLs normally do not have any health effects and normally do not affect the safety of your water.

Contaminant (units)	Sample Date	BBWC Water - Average	Range Low/High	Secondary MCL
Sodium (ppm)	3/5/2013 & 10/16/2013	23.75	9.4 – 53.37	N/A
pH	3/5/2013 & 10/16/2013	7.6	6.3 – 8.1	6.5 - 8.5
Iron (mg/l)	10/16/2013	0.242 mg/l	ND – 0.242	0.3 mg/l

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Note: All documents, policies, and financial statements are kept in the main office for public review. Upon request, they may be faxed, emailed or mailed to the individual.

Contaminant Group List

(BA) Total Coliform Bacteria includes Fecal/*E.coli* bacteria. Testing for Fecal/*E.coli* bacteria is required if repeat samples confirm total coliform. **(AS) Asbestos** - includes testing for Chrysotile, Amphibole and Total Asbestos. **(TTHM) - Total Trihalomethanes** - include Chloroform, Bromoform, Bromodichloromethane, and Chlorodibromomethane. **(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. **(HAA5)- Haloacetic Acids** - include Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Dibromoacetic Acid. **(BB) Bromate/Bromide** - includes testing for Bromate and/or Bromide. **(CD) Chlorine Dioxide/Chlorite** - includes testing for Chlorine Dioxide and/or Chlorite. **(IC) 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 one sample and testing that sample 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, Gross Beta, Tritium, Strontium 89, Strontium 90, Iodine 131, and Cesium 134. **(SOC) – Synthetic Organic Chemicals/Pesticides** - SOC's are commonly used in industrial and manufacturing processes. SOC's include 2,4-D, 2,4,5-TP (Silvex), 3-Hydroxycarbofuran, Alachlor, Aldicarb, Aldicarb Sulfone, Aldicarb Sulfoxide, Aldrin, Atrazine, Benzo(a)pyrene, Butachlor, Carbaryl, Carbofuran, Chlordane, Dalapon, Dieldrin, Di(2-ethylhexyl)adipate, Di(2-ethylhexyl)phthalate, Dibromochloropropane (DBCP), Dicamba, Dinoseb, Endrin, Ethylene dibromide (EDB), Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane, Methomyl, Metolachlor, Methoxychlor, Metribuzin, Oxamyl(vydate), PCBs, Propachlor, Pentachlorophenol, Picloram, Simazine, Toxaphene. **(VOC) - Volatile Organic Chemicals** - VOCs are commonly used in industrial and manufacturing processes. VOCs include p-Isopropyltoluene, Chloromethane, Dichlorodifluoromethane, Bromomethane, Chloroethane, Fluorotrichloromethane, Hexachlorobutadiene, Naphthalene, 1,2,4-Trichlorobenzene, Cis-1,2-Dichloroethylene, Dibromomethane, 1,1-Dichloropropene, 1,3-Dichloropropane, 1,3-Dichloropropene, 1,2,3-Trichloropropane, 2,2-Dichloropropane, 1,2,4-Trimethylbenzene, 1,2,3-Trichlorobenzene, n-Butylbenzene, 1,3,5-Trimethylbenzene, Tert-Butylbenzene, Sec-Butylbenzene, Bromochloromethane, Chloroform, Bromoform, Bromodichloromethane, Chlorodibromomethane, Xylenes (Total), Dichloromethane, o-Chlorotoluene, p-Chlorotoluene, m-Dichlorobenzene, o-Dichlorobenzene, p-Dichlorobenzene, Vinyl Chloride, 1,1-Dichloroethylene, 1,1-Dichloroethane, Trans-1,2-Dichloroethylene, 1,2-Dichloroethane, 1,1,1 Trichloroethane, Carbon Tetrachloride, 1,2-Dichloropropane, Trichloroethylene, 1,1,2-Trichloroethane, 1,1,1,2-Tetrachloroethane, Tetrachloroethylene, 1, 1,2,2-Tetrachloroethane, Chlorobenzene, Benzene, Toluene, Ethylbenzene, Bromobenzene, Isopropylbenzene, Styrene, and n-