



# TOWN OF OAK ISLAND

## WATER QUALITY REPORT – 2014

### Oak Island Water System (04-10-020)

### Sample Period from 1-1-2014 thru 12-31-2014

#### DID YOU 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. Immunocompromised 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).

#### Sources of Drinking Water

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. 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.

#### Distribution System

The Public Utilities Maintenance Department would like to let you know that we are here to serve you with any of your utility needs 24 hours a day. If you plan to dig and are not sure who to call, we can help. We have all the numbers you will need to contact other utilities for locates. If you have any water quality issues or feel that your meter is not working, please contact our office at (910) 201-8007; we will be glad to work with you to solve any water issues. If you have questions about your backflow device or need it inspected, we can help -- please call (910) 201-8007.

#### Contact Us At:

**Office (910) 201-8007**

**Fax (910) 278-7438**

**After Hours (910) 278-5011**

The Town of Oak Island is pleased to present to you this year's Annual Water Quality Report. This report is designed to inform you about the water quality and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we take to continually improve the water distribution 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 utility, please contact David Kelly @ (910) 201-8007. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regular scheduled meetings. They are held at the Oak Island Town Hall, 4601 E. Oak Island Dr. the second Tuesday of each month at 6:00pm. To review this report online visit <http://www.oakislandnc.com/Portals/97/documents/WaterQualityReport.pdf>

#### Water Treatment

Our water source is a purchase water system from Brunswick County, which is treated ground water from Castle Hayne Aquifer, 14 wells approximately 175 ft. deep. The treatment facility is located on NC Highway 211 beside BEMC. Our back up source is surface water from N.E. Cape Fear River above lock and dam #1 at Kings Bluff Pumping Station. In addition, we have two wells for emergency back-up that pump from the Pee Dee Aquifer. Treatment at these facilities consist of chloramines to kill harmful bacteria, protozoan and viruses. Lime is added for softening the water; Polyphosphate is used for corrosion control; Fluoride is added as an aid to prevent tooth decay.

#### The NC Source Water Assessment Program (SWAP)

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 Brunswick County 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 as of March 2009 are summarized in the table below:

**Susceptibility of Sources to Potential Contaminant Sources (PCSs)**

Source Name	Susceptibility Rating
Cape Fear River	Moderate
Well # 1,2,3,5,6a,8,11,12,12a,15,16,17,18, & 19	Moderate

The complete SWAP Assessment Report for the Brunswick County Water System may be viewed on the Web by typing the address below into your browser.

[http://swap.ncwater.org/swap\\_app/pdfreports/0410045\\_2\\_19\\_2010\\_17\\_22.PDF](http://swap.ncwater.org/swap_app/pdfreports/0410045_2_19_2010_17_22.PDF) To obtain a printed copy of this 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 PCSs in the assessment area.

#### Customer Tips

Town of Oak Island asks that you use water wisely. By following the recommendations below, you may be able to reduce the amount of water you use.

#### Ways You Can Conserve Water!

Collect rainwater for outdoor use during the peak summer months, and you can save up to 1,300 gallons of water.

Watering your lawn in the morning saves water from being evaporated by the midday heat and reduces your water bill, too!

When needed, water your lawn one inch, once a week. Place a 6-ounce tuna can on your lawn and stop watering when it's full.

Peak Demand for water is between 5:00 am to 10:00 am and 4:00 pm to 7:00 pm. If irrigation is necessary, irrigate during off-peak times. This will help ensure proper water pressure for more efficient irrigation.

Installing a water-efficient showerhead can reduce water consumption by 25% to 60% and save energy.

Check your toilet by using a leak-detection dye tablet; otherwise, you could be wasting about 200 gallons of water a day.

Turn off the water faucet while you brush your teeth and save up to 4 gallons of water per minute.

Replacing older toilets with water-efficient toilets can save 9,000 gallons of water a year.

Washing only full loads of laundry can save an average household more than 3,400 gallons of water each year.

An Energy Star dishwasher is about 25% more efficient than a conventional one, and will save about 800 gallons of water per year.

We routinely monitor for more than 80 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, 2014.** 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.

**Terms & abbreviations used in the table below:**

- **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.
- **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.
- **Action Level (AL):** the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.
- **N/A:** not applicable • **nd:** not detectable at testing limit • **ppb:** parts per billion or micrograms per liter • **ppm:** parts per million or milligrams per liter • **pCi/l:** Pico-curies per liter (a measure of radiation) • **MFP:** million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers • **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

**Town of Oak Island Public Utilities Consumer Confidence Report Data  
Water Quality Results For 2014**

Listed below are the results of water quality sampling performed from January 1, 2014 to December 31, 2014.

Questions and Comments: Contact David Kelly II, Public Utilities Director, (910) 201-8007 or [dkelly@ci.oak-island.nc.us](mailto:dkelly@ci.oak-island.nc.us)

**Microbiological Contaminants**

Contaminant (units)	MCL Violation Y/N	Your Water	MCLG	EPA's 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	0	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 <i>E. coli</i> positive)	Human and animal fecal waste

**Asbestos Contaminant**

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCL G	MCL	Likely Source of Contamination
				Low	High			
Total Asbestos (MFL)	6-20-2011	N	<0.17	N/A		7	7	Decay of asbestos cement water mains; erosion of natural deposits

**Quality Report 2014 Lead and Copper Contaminants**

Contaminant (units)	Sample Date	Your Water	# of sites found above the AL	MCLG	MCL	Likely Source of Contamination
Copper (ppm) (90 <sup>th</sup> percentile)	8-8 thru 9-12 2011	0.24	0	1.3	AL=1.3	Corrosion of household plumbing systems
Lead (ppb) (90 <sup>th</sup> percentile)	8-8 thru 9-12 2011	<0.003	0	0	AL=.015	Corrosion of household plumbing systems

**Organic Chemicals**

Contaminant (units)	MCL/MRDL Violation Y/N	Your Water (AVG)	Range		MCLG	MCL	Likely Source of Contamination
			Low	High			
Total Trihalomethanes Stage 2	N	0.020	0.010	0.072	N/A	Avg of all sites <80ppb Avg of individual sites <80	By-product of drinking water chlorination
Total Haloacetic Acids Stage 2	N	0.016	0.010	0.019	N/A	Avg. of all sites <60ppb Avg. of individual sites <60	By-product of drinking water disinfection

**Regulated Inorganic Chemicals**

Contaminant (units)	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
			Low	High			
Total Chlorine	N	.90	0.04	2.44	4ppm	4ppm	Water Additive used for microbes
Monochloroime	N	.88	0.02	2.60	4ppm	4ppm	Water Additive used for microbes

**The EPA and Town of Oak Island Wants You to Know About Potential Household Lead Contamination**

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. Town of Oak Island 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 (800-426-4791) or at <http://www.epa.gov/safewater/lead>.

# Brunswick County Water Quality Results For 2014

Listed below are the results of water quality sampling performed from January 1, 2014, to December 31, 2014.

Questions and Comments: Contact Glenn Walker, Water Treatment Plant Superintendent, 910-371-3490 or glenn.walker@brunswickcountync.gov

## Northwest Water Treatment Plant Analysis

REGULATED ORGANIC CHEMICALS	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low      High	Violation Y/N	Source of Contaminant
Turbidity	Treatment Technique, Limit of 1.0 ntu	N/A	Average 0.045 ntu	Percent of samples ≤ 0.3 ntu	N	Soil Runoff
			Maximum 0.390 ntu	99.99%		
Raw Water TOC	Treatment Technique, 45% Removal Efficiency	N/A	8.08 ppm	5.6    13.7	N	Naturally Present in the Environment
Finish Water TOC		N/A	3.79 ppm	2.9    6.3		
Total Organic Carbon (TOC)		N/A	Removal Efficiency 51.2 %	37% - 65%		
<b>REGULATED INORGANIC CHEMICALS</b>						
Chlorite	1.0 ppm	0.8 ppm	0.56 ppm	0.44    0.98	N	By-product of Disinfection
Chlorine Dioxide	0.8 ppm	0.8 ppm	< 0.1 ppm	0.0    0.18	N	Water Additive Used to Control Microbes
Fluoride	4 ppm	4 ppm	0.61 ppm	0.04    0.89	N	Water Additive which Promotes Strong Teeth
Orthophosphate	17 ppm	N/A	1.57 ppm	1.3    2.5	N	Water Additive Used to Control Corrosion
Total Chlorine	4 ppm	4 ppm	2.95 ppm	2.71    3.30	N	Water Additive Used to Control Microbes
Monochloramine Disinfectant Residual	4 ppm	4 ppm	2.68 ppm	0.0    3.27	N	Water Additive Used to Control Microbes
<b>UNREGULATED SUBSTANCES</b>						
Hardness	Non Regulated	N/A	25.07 ppm	23    31	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Non Regulated	N/A	0.01 ppm	0    0.07	N	Part of the Treatment Process, Erosion of Natural Deposits
Manganese	Non Regulated	N/A	0.009 ppm	0    0.07	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.11 ppm	0.0    0.24		Water Additive Used to Control Microbes
Sodium	Non Regulated	N/A	22.3 ppm	N/A	N/A	Part of the Treatment Process, Erosion of Natural Deposits
<b>CRYPTOSPORIDIUM</b>						
Cape Fear River 2008	N/A		0.210 oocyst	0.0    0.210	N	Naturally Present in the Environment Sampling Study Ended 12/2008
<b>UNREGULATED CONTAMINANT MONITORING Dec. 2014</b>						
Perfluoroheptanoic acid	Non Regulated	N/A	0.013 ug/L	N/A	N	Manmade Chemical, Used in Products to Make Them Stain, Grease, Heat, and Water Resistant
Perfluorooctanoic acid	Non Regulated	N/A	0.0088 ug/L	N/A	N	Emulsifier, Fire Fighting Foam Agent, Used in Cleaners, Cosmetics, Grease, Paint, Adhesives and Film
Chromium, Hexavalent	Non Regulated	N/A	0.062 ug/L	N/A	N	Naturally Occurring Element, Used for Chrome Plating, Dyes, Tanning, Wood Preservation
Chromium	Non Regulated	N/A	0.121 ug/L	N/A	N	Discharge from Steel and Pulp Mills, Erosion of Natural Deposits
Molybdenum	Non Regulated	N/A	0.361 ug/L	N/A	N	Naturally Occurring Element, Chemical Reagent
Strontium	Non Regulated	N/A	38.2 ug/L	N/A	N	Naturally Occurring Element, Used to Faceplate Glass of Cathode Ray Tube TVs
Vanadium	Non Regulated	N/A	0.23 ug/L	N/A	N	Naturally Occurring Elemental Metal, Chemical Intermediate and a Catalyst
Chlorate	Non Regulated	N/A	128 ug/L	N/A	N	Ag Defoliant, Desiccant, By-product of Disinfection

# HWY 211 Groundwater Treatment Plant Analysis

Questions and Comments: Contact Jeremy Sexton, Water Treatment Plant Superintendent, 910-454-0512 or jeremy.sexton@brunswickcountync.gov

REGULATED INORGANIC CHEMICALS			Brunswick County Amount Detected	Range Low High	Violation Y/N	Source of Contaminant
Fluoride	4 ppm	4 ppm	0.76 ppm	.13 0.92	N	Water Additive Used to Promote Strong Teeth
Orthophosphate	17 ppm	N/A	0.93 ppm	0.76 1.3	N	Water Additive Used to Control Corrosion
Total Chlorine	4 ppm	4 ppm	2.35 ppm	2.0 2.95	N	Water Additive Used to Control Microbes
Monochloramine	4 ppm	4 ppm	2.24 ppm	1.1 2.99	N	Water Additive Used to Control Microbes
UNREGULATED SUBSTANCES						
Turbidity	Non Regulated	N/A	Average 0.23 ntu	0.1 2.2	N	Part of the Treatment Process, Erosion of Natural Deposits
pH	Non Regulated	N/A	-----	6.9 8.2	N	Part of the Treatment Process
CO2	Non Regulated	N/A	8.9 ppm	1 45	N	Part of the Treatment Process
Alkalinity	Non Regulated	N/A	34.2 ppm	29 67	N	Part of the Treatment Process, Erosion of Natural Deposits
Hardness	Non Regulated	N/A	78.5 ppm	70 96.5	N	Part of the Treatment Process, Erosion of Natural Deposits
Iron	Non Regulated	N/A	0 ppm	0 0.2	N	Part of the Treatment Process, Erosion of Natural Deposits
Chloride	Non Regulated	N/A	21.4 ppm	15 28	N	Part of the Treatment Process, Erosion of Natural Deposits
Free Ammonia	Non Regulated	N/A	0.05 ppm	0 0.50	N	Water Additive Used to Control Microbes
UNREGULATED CONTAMINANT MONITORING Dec. 2014						
Chromium, Hexavalent	Non Regulated	N/A	0.21 ug/L	N/A	N	Naturally Occurring Element, Used for Chrome Plating, Dyes, Tanning, Wood Preservation
Chromium	Non Regulated	N/A	0.30 ug/L	N/A	N	Discharge from Steel and Pulp Mills, Erosion of Natural Deposits
Strontium	Non Regulated	N/A	249 ug/L	N/A	N	Naturally Occurring Element, Used to Faceplate Glass of Cathode Ray Tube TVs
Vanadium	Non Regulated	N/A	0.36 ug/L	N/A	N	Naturally Occurring Elemental Metal, Chemical Intermediate and a Catalyst

## Distribution System Analysis

LEAD AND COPPER	Action Level (AL)	MCLG	Brunswick County Amount Detected	# of Samples above the AL	Exceedance of the Action Level? Y/N	
Copper 90th percentile 6/1/11 - 9/30/11	1.3ppm	1.3 ppm	100% of samples are <0.139 ppm	0	N	Corrosion of Household Plumbing
Lead 90th percentile 6/1/11 - 9/30/11	0.015ppm	0 ppm	100% of samples are <0.003 ppm	0	N	Corrosion of Household Plumbing
ORGANIC CHEMICALS	EPA's MCL	EPA's MCLG	Brunswick County Amount Detected	Range Low High	Violation Y/N	
Total Trihalomethanes Stage 2	Avg of individual sites 80ppb	N/A	Max 33.8 ppb	20.5 33.8	N	By-product of Disinfection
Total Haloacetic Acids Stage 2	Avg of individual sites 60ppb	N/A	Max 27.3 ppb	24.0 27.3	N	By-product of Disinfection
REGULATED INORGANIC CHEMICALS						
Chlorite	1.0ppm	0.8 ppm	0.597 ppm	0.05 1.17	Y*	By-product of Disinfection
Nitrate	10ppm	10 ppm	1.77 ppm	N/A	N	By-product of Disinfection
PESTICIDES, VOLATILE, & SYNTHETIC ORGANIC CHEMICALS	There Were No Regulated Pesticides, Volatile or Synthetic Organic Chemicals Detected in the Distribution System (beyond those listed above) for the 2014 Sample Period					
UNREGULATED CONTAMINANT MONITORING Dec. - 2014						
Chromium, Hexavalent	Non Regulated	N/A	0.20 ug/L	0.080 0.20	N	Naturally Occurring Element, Used for Chrome Plating, Dyes, Tanning, Wood Preservation
Chromium	Non Regulated	N/A	0.33 ug/L	0.171 0.33	N	Discharge from Steel and Pulp Mills, Erosion of Natural Deposits
Strontium	Non Regulated	N/A	220 ug/L	40.8 220	N	Naturally Occurring Element, Used to Faceplate Glass of Cathode Ray Tube TVs
Vanadium	Non Regulated	N/A	0.40 ug/L	0.22 0.40	N	Naturally Occurring Elemental Metal, Chemical Intermediate and a Catalyst
Chlorate	Non Regulated	N/A	121 ug/L	0 121	N	By-product of Disinfection