

Annual
WATER
QUALITY
REPORT

Reporting Year 2013



Presented By
Currituck County

PWS ID#: 6027001

There When You Need Us

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2013. Over the years we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available to assist you should you ever have any questions or concerns about your water.

Important Health Information

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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

Where Does My Water Come From?

The Southern Outer Banks Water System is supplied by 47 wells. There are 42 shallow groundwater wells; 16 of these wells are 45 feet deep and located at 734 Ocean Trail, Corolla, NC. The remaining 26 shallow wells are located in the Ocean Sands Development. There are 5 brackish water wells that serve the desalination section of the treatment plant. These wells are 250 feet deep and located in the Village of Ocean Hill, Whalehead Section, and the Whalehead Club. During peak demand season (mid-June through September 1), additional water demands are met using the Monterey Shores Water Plant, which gets its water from 17 wells located on the west side of Highway 12; The Currituck Club Water Plant, which gets its water from 12 wells located at the south end of the driving range; and the Pine Island Water Plant, which get its water from 14 wells located on the west side of Highway 12 between the treatment plant and the airport.

How Is My Water Treated and Purified?

The Southern Outer Banks Water Treatment Plant (WTP) is a 2-million-gallon-a-day groundwater facility located in Corolla, NC. The treatment plant includes two separate process trains: a conventional process train and a reverse osmosis (RO) train. Shallow well fields in the surficial aquifer provide raw water to the conventional side of the Southern Outer Banks WTP. The conventional process train includes raw water aeration (hydrogen sulfide removal and iron oxidation), greensand filtration (iron and manganese removal), and ion exchange filtration (total organic carbon and color removal). Five wells in the brackish Yorktown aquifer provide raw water to the RO process train. Filtered water from the conventional train and permeate from the RO train are blended prior to post-treatment and finished water storage.

Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent, according to government estimates).

The Food and Drug Administration is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Furthermore, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to \$1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion on the NRDC study results, check out their Web site at www.nrdc.org/water/drinking/bw/exesum.asp.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Benjie Carawan, Utilities Superintendent, at (252) 453-2620.

Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 www.epa.gov/safewater/lead.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may 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 may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Source Water Assessment

Source Water Assessments have been completed for the 42 shallow wells that serve the Southern Outer Banks Water System.

The inherent vulnerability rating refers to the geologic characteristics or existing conditions of the well and its delineated assessment area. These characteristics include aquifer rating, unsaturated zone rating, and well integrity/well construction rating. The aquifer rating is an assessment of the water-transmitting characteristics of the aquifer. The unsaturated zone rating is an assessment of the likelihood that contaminants from surface and shallow sources will follow the path of aquifer recharge and reach the water table. The well integrity/construction rating is an assessment of the quality of the construction of the well. An inherent vulnerability of higher was assigned to the 16 Southern Outer Banks Water wells located at 734 Ocean Trail, Corolla, NC.

The contaminant rating for the wells is determined by the number and location of potential contaminant sources within the delineated area. A contaminant rating of lower was assigned for the 16 Southern Outer Banks Water wells located at 734 Ocean Trail, Corolla, NC.

The susceptibility rating is based on two components: a contaminant rating and an inherent vulnerability rating. The susceptibility rating is moderate for the 16 Southern Outer Banks Water wells located at 734 Ocean Trail, Corolla, NC, the 17 Monterey Shores wells located west of Highway 12, the 12 Currituck Club wells located at the south end of the driving range, and the Pine Island wells located on the west side of Highway 12 between the treatment plant and the airport.

A Source Water Assessment has been completed for the 26 wells that serve the Southern Outer Banks Water System that are located in the Ocean Sands Development.

The inherent vulnerability rating refers to the geologic characteristics or existing conditions of the well and its delineated assessment area. These characteristics include aquifer rating, unsaturated zone rating, and well integrity/well construction rating. The aquifer rating is an assessment of the water-transmitting characteristics of the aquifer. The unsaturated zone rating is an assessment of the likelihood that contaminants from surface and shallow sources will follow the path of aquifer recharge and reach the water table. The well integrity/construction rating is an assessment of the quality of the construction of the well. An inherent vulnerability of higher was assigned to the 26 Ocean Sands Development wells.

The contaminant rating for the Ocean Sands Development wells is determined by the number and location of potential contaminant sources within the delineated area. The contaminant rating for the 26 Ocean Sands Development wells is lower.

The susceptibility rating is based on two components: the contaminant rating and the inherent vulnerability rating. The susceptibility rating for the 26 Ocean Sands wells is moderate.

Customers can get a copy of the Source Water Assessment from the North Carolina Department of Environment and Natural Resources, Water Supply Section, by visiting the Web site at www.ncwater.org/pws/swap/. Enter Southern Outer Banks and click on Get Report. Then click on the PDF icon next to the system name.

What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems) or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand) causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection.

For more information, review the Cross-Connection Control Manual from the U.S. EPA's Web site at <http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm>. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water.

The state requires us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine (ppm)	2013	[4]	[4]	0.89	0.24–1.32	No	Water additive used to control microbes
Haloacetic Acids [HAAs]–Stage 1 (ppb)	2013	60	NA	13.75	12–16	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–Stage 1 (ppb)	2013	80	NA	52	34–64	No	By-product of drinking water disinfection

SECONDARY SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
pH (Units)	2013	6.5–8.5	NA	7.6	7.4–7.7	No	Naturally occurring

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

MCL (Maximum Contaminant Level): 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. Secondary MCLs (SMCLs) are set to regulate the aesthetics of water like taste and odor.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): 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.

MRDLG (Maximum Residual Disinfectant Level Goal): 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.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).