

The cover features a blue background with a pattern of water droplets. A large, semi-transparent light blue circle is centered in the upper half. At the bottom, a close-up photograph of a chrome faucet with a single water drop falling from it is visible. The text is centered within the circle and below it.

Annual
WATER
QUALITY
REPORT

Reporting Year 2012

Presented By _____
Ocean Sands Development

PWS ID#: 0427105

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, 2012. 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.

Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen, disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use, and avoid using hot water, to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

Where Does My Water Come From?

The Ocean Sands Development is supplied by Southern Outer Banks Water System's 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 deep-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.

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>.

How Is My Water Treated and Purified?

The Southern Outer Banks Water Treatment Plant (WTP) that serves the Ocean Sands Development 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.

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.

Contact Information

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.

Fact *or* Fiction

Water treatment began as a way to remove disease-causing agents. *(Fiction: It was only in the 1950s that scientists began to suspect that water might carry*

diseases. Although earlier treatment of water could make the water safer, it was mainly done merely to improve the taste, smell, or appearance of the water.)

About half of the world's water supply is available for drinking. *(Fiction: If all the world's water were fit into a gallon jug, the fresh water available for us to use would equal only about one tablespoon.)*

Due to its unique nature, water boils at the same temperature anywhere on the planet. *(Fiction: At sea level, water boils at 212 degrees Fahrenheit, but on top of Mt. Everest, water boils at 154 degrees.)*

Water regulates the temperature of the Earth. *(Fact: As in the human body, the water in our oceans, lakes, and streams plays a major role in regulating planetary temperatures.)*

The Mississippi River is longer than the Amazon River. *(Fiction: At 3,902 miles the Mississippi River is not as long as the Amazon River, which flows for 4,000 miles.)*

Forty trillion gallons of water a day are carried in the atmosphere across the United States. *(Fact: Forty percent of the atmosphere's moisture content falls as precipitation each day.)*

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, which in turn serves 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 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 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 wells located at 734 Ocean Trail, Corolla, NC.

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; a contaminant rating and an inherent vulnerability rating. The susceptibility rating for the 26 Ocean Sands wells is moderate.

Customers can obtain 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/.



What is the typical per-day water usage?

While usage varies from community to community and person to person, on average, Americans use 183 gallons of water a day for cooking, washing, flushing, and watering purposes. The average family turns on the tap between 70 and 100 times daily. About 74% of home water usage occurs in the bathroom, about 21% in the laundry room, and about 5% in the kitchen.

Why do water pipes tend to break in winter?

Liquids generally contract when frozen and become more dense; however, the unique qualities of water cause it to expand by up to 9% when it freezes. That is why water pipes burst when temperatures reach the freezing mark.

How much water is used to create the food we eat each year?

The average American consumes 1,500 pounds of food each year; 1,000 gallons of water are required to grow and process each pound of that food. Thus, 1.5 million gallons of water is invested in the food eaten annually by just one person! This 200,000-plus cubic feet of water per person is enough to cover a football field four feet deep.

Is it okay to use hot water from the tap for cooking and drinking?

No, ALWAYS use cold water. Hot water is more likely to contain rust, copper, and lead from household plumbing and water heaters. These harmful substances can dissolve into hot water faster than they do into cold water, especially when the faucet has not been used for an extended period of time.

What type of container is best for storing water?

Consumer Reports has consistently advised that glass or BPA-free plastics such as polyethylene are the safest choices. To be on the safe side, do not use any container with markings on the recycle symbol showing 7 PC (which is the code for BPA). You could also consider using stainless steel or aluminum containers that have BPA-free liners.

How much water is used in the shower?

A 10-minute shower can take 25 to 50 gallons of water. High-flow shower heads allow a flow of 6 to 10 gallons a minute. Low-flow shower heads can cut the rate in half without reducing pressure.

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)	2012	[4]	[4]	0.79	0.53 – 1.01	No	Water additive used to control microbes
TTHMs [Total Trihalomethanes] (ppb)	2009	80	NA	19	NA	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)	2012	6.5–8.5	NA	7.48	7.39–7.57	No	Naturally occurring

Definitions

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.

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

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).