



Annual
WATER
QUALITY
REPORT

Reporting Year 2012



Presented By _____
Town of Nags Head

PWS ID#: 04-28-010

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.

Where Does My Water Come From?

Our drinking water is purchased from the Dare County Regional Water System. The two water treatment plants, operated by Dare County, process ground water from wells located in the Upper and Middle Yorktown Aquifers. The ground water from the Upper Yorktown Aquifer is processed from wells located in the Skyco area of Roanoke Island. The ground water from the Mid Yorktown Aquifer is processed from wells located in Kill Devil Hills and Nags Head.

Community Participation

We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. The Town of Nags Head Board of Commissioners generally meet at 9 a.m. on the first Wednesday and at 7:00 p.m. on the third Wednesday of each month. Meetings are held in the Board of Commissioners' Meeting Room located at 5401 South Croatan Hwy, Nags Head, NC. For more information on meeting times, please contact Carolyn Morris, Town Clerk, at (252) 449-2009, or you may view meeting schedules and minutes of past meetings at the Board of Commissioners' Web site: www.nagsheadnc.gov.

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.

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.

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>.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Nancy Roop Carawan, Water Superintendent, at (252) 449-4210.

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 and 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.

Source Water Assessment

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 water source for the Town of Nags Head 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 2010 are summarized here:

Susceptibility of Water Sources to Potential Contaminant Sources (PCSs)	
The Source Well	Susceptibility Rating
NRO wells 2,7,8,17 Orville	Lower
Skyco wells 2,4,5,6,8,10,13	Lower
NRO wells 1,3,4,5,6,9,10,15	Moderate
Skyco well 7	Moderate

The complete SWAP Assessment report for The Town of Nags Head may be viewed on the Web at <http://www.ncwater.org/pws/swap/>.

Please 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. To obtain a printed copy of the SWAP Assessment report, please mail a written request to Source Water Assessment Program Report Request, 1634 Mail Service Center, Raleigh NC 27699-1634, or email your request to swap@ncdenr.gov. Please indicate your system name and PWSID 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 system's potential to become contaminated by PCSs in the assessment area.

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 are currently surveying 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.

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.



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

We routinely monitor for contaminants in your drinking water according to federal and state laws. The tables below list all the drinking water contaminants that we detected in the last round of sampling for the particular contaminate group. The presence of contaminants does not necessarily indicate that water poses a health risk. Unless otherwise noted, the data presented in these tables are from testing done January 1, 2012 through December 31, 2012.

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									
			Town of Nags Head			Dare County Regional			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Beta/Photon Emitters ¹ (pCi/L)	2008	50	0	NA	NA	5.25	4.5–6	No	Decay of natural and man-made deposits
Chlorine (ppm)	2012	[4]	[4]	1.03	0.79–1.30	0.54	0.29–1.29	No	Water additive used to control microbes
Fluoride (ppm)	2012	4	4	NA	NA	1.03	0.85–1.36	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs]–Stage 1 (ppb)	2012	60	NA	11	1.3–18.1	8.93	1.3–21.3	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–Stage 1 (ppb)	2012	80	NA	46	5–85	38.28	5–94	No	By-product of drinking water disinfection
Uranium (pCi/L)	2008	30	0	NA	NA	0.5	ND–1	No	Erosion of natural deposits

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2011	1.3	1.3	0.382	0/10	No	Corrosion of household plumbing systems; Erosion of natural deposits

INITIAL DISTRIBUTION SYSTEM EVALUATION (IDSE)²

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Haloacetic Acids [HAAs]–IDSE Results (ppb)	2009	12.48	3.10–18.5	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–IDSE Results (ppb)	2009	50.25	20–75	By-product of drinking water disinfection

¹The MCL for beta particles is 4 mrem/year. The U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.
²We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-products concentrations. Disinfection by-products (e.g., HAA5 and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

Definitions

AL (Action Level): The concentration of a contaminant that, 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.

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.

pCi/L (picocuries per liter): A measure of radioactivity.

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).