



Water testing performed in 2009

Presented By:
TOWN OF NAGS HEAD

PWS ID#: 04-28-010

Maintaining High Standards

Once again we are proud to present our annual water quality report. This report covers all testing performed between January 1, 2009 and December 31, 2009. The events of the past few years have presented many of us with challenges we could not have imagined. Yet, in spite of this, we have maintained our high standards in an effort to continue delivering the best quality drinking water possible. There may be other hurdles in the future, but know that we will always stand behind you and the drinking water we work diligently to provide.

We encourage you to share your thoughts with us on the information contained in this report. We are always available to assist you.

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 U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791 or www.epa.gov/safewater/hotline/.



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 7:30 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.townofnagshead.net.

Cryptosporidium in Drinking Water

Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. Current test methods do not allow us to determine if the organisms are dead or whether they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctors regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Fresh Pond collected monthly raw water samples for *Cryptosporidium*/Giardia from January 2009 through May 2009. This collection was done in compliance with the EPA Long Term 2 Enhanced Surface Water Treatment Rule (LT2). No cysts for *Cryptosporidium* or Giardia were found in the raw water samples that were collected in 2009.

Questions?

If you have any questions about this report or concerning your water, please contact the Water Operations Superintendent, Nancy Carawan at (252) 449-4210.

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. The Fresh Pond Water Treatment Plant operated by the Town of Nags Head was decommissioned on June 3, 2009, and is no longer in service.

“WHEN THE WELL’S DRY, WE KNOW
THE WORTH OF WATER. – Benjamin Franklin”

What Are PPCPs?

When cleaning out your medicine cabinet, what do you do with your expired pills? Many people flush them down the toilet or toss them into the trash. Although this seems convenient, these actions could threaten our water supply.

Recent studies are generating a growing concern over pharmaceuticals and personal care products (PPCPs) entering water supplies. PPCPs include human and veterinary drugs (prescription or over-the-counter) and consumer products, such as cosmetics, fragrances, lotions, sunscreens, and house cleaning products. Over the past five years, the number of U.S. prescriptions increased 12 percent to a record 3.7 billion, while nonprescription drug purchases held steady around 3.3 billion. Many of these drugs and personal care products do not biodegrade and may persist in the environment for years.

The best and most cost-effective way to ensure safe water at the tap is to keep our source waters clean. Never flush unused medications down the toilet or sink. Instead, check to see if the pharmacy where you made your purchase accepts medications for disposal, or contact your local health department for information on proper disposal methods and drop-off locations. You can also go on the Web at www.Earth911.com to find more information about disposal locations in your area.

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

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 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 in the following table:

Susceptibility of 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.deh.enr.state.nc.us/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@ncmail.net. 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) 715-2633.

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 Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water are needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water are used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water are required to produce one quart of milk, and 4,200 gallons of water are required to produce two pounds of beef.

According to the U.S. EPA, the average American uses about 100 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet; twice the global per capita average. With water use increasing six-fold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish.

To check out your own water footprint, go to www.h2oconserve.org or visit www.waterfootprint.org to see how the water footprints of other nations compare.

Lead and Drinking Water

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. The Town of Nags Head is responsible for providing high-quality drinking water, but it 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.

Is it Safe to Drink Water From a Garden Hose?

Substances used in vinyl garden hoses to keep them flexible can get into the water as it passes through the hose. These chemicals are not good for you nor are they good for your pets. Allow the water to run for a short time in order to flush the hose before drinking or filling your pet's drinking containers. There are hoses made with "food-grade" plastic that will not contaminate the water. Check your local hardware store for this type of hose.

How Long Can I Store Drinking Water?

The disinfectant in drinking water will eventually dissipate even in a closed container. If that container housed bacteria prior to filling up with the tap water the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

Sampling Results

We routinely monitor for contaminants in your drinking water according to federal and state laws. The table below lists all the drinking water contaminants we detected in the last round of sampling for the particular contaminants 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, 2009.

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.

The state requires us to monitor for certain substances less 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]	Town of Nags Head		Dare County Regional		VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Beta/Photon Emitters¹ (pCi/L)	2008	50	0	NA	NA	5.25	4.5–6	No	Decay of natural and man-made deposits
Chlorine (ppm)	2009	[4]	[4]	1.21	1.05–1.36	0.64	0.29–1.73	No	Water additive used to control microbes
Fluoride (ppm)	2009	4	4	NA	NA	1.02	0.88–1.24	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2009	60	NA	13.63	1.9–19.2	8.53	1.4–27.1	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	2009	80	NA	34.5	2–75	23.84	5–83	No	By-product of drinking water chlorination
Uranium (ppb)	2008	30	0	NA	NA	1	ND–1.0	No	Erosion of natural deposits
Tap water samples were collected for lead and copper analysis from sample sites throughout the community (Lead was not detected at the 90th percentile)									
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE		
Copper (ppm)	2008	1.3	1.3	0.233	0/10	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives		
INITIAL DISTRIBUTION SYSTEM EVALUATION ²									
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE					
Haloacetic Acids [HAA] (ppb)	2009	12.48	3.10–18.5	By-product of drinking water disinfection					
TTHMs [Total Trihalomethanes] (ppb)	2009	50.25	20–75	By-product of drinking water disinfection					

¹ The MCL for beta particles is 4 mrem/year. U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

² We 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-product concentrations. Disinfection by-products (e.g., HAAs 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 which, if exceeded, triggers treatment or other requirements which 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).

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