

ANNUAL

WATER QUALITY REPORT

Water testing performed in 2008



DARE COUNTY REGIONAL

PWS ID#: 04-28-030

Meeting the Challenge

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2008. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.

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.

We would like to remind our customers that there have been no detectable levels of arsenic in your drinking water since the arsenic removal process came online in October 2005.

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.

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. Further, 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.



Where Does My Water Come From?

The Regional Water System draws its source water from freshwater wells to supply the anion exchange plant at Skyco on Roanoke Island, and from deep, brackish wells that draw from the Yorktown Aquifer at the reverse osmosis plant in Kill Devil Hills. During the busy summer months, we supplemented production by purchasing water from the Town of Nags Head. The water source for their treatment plant was Fresh Pond, which is a surface water reservoir located near the Nags Head/Kill Devil Hills town line.



Information on the Internet

The U.S. EPA Office of Water (www.epa.gov/watrhome) and the Centers for Disease Control and Prevention (www.cdc.gov) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation, and public health. Also, the North Carolina Department of Environment and Natural Resources has a Web site (www.ehn.state.nc.us) that provides complete and current information on water issues in North Carolina, including valuable information about our watershed.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Ken Flatt, Utilities Director, at (252) 475-5606.

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. Dare County's Regional water system 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 or at www.epa.gov/safewater/lead.



SWAP

The North Carolina Department of Environment and Natural Resources (NCDENR), 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 (PCS). 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 Dare County's water systems was determined by combining the contaminant rating (number and location of potential contaminant sources 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 for Dare County's Regional system are summarized in the table.

| Source/Well | Susceptibility Rating |
|---------------------------|-----------------------|
| Skyco wells 2, 4, 5, 7-13 | Lower |
| NRO Wells 2, 7, 8 | Lower |
| NRO Wells 1, 3-6, 9, 10 | Moderate |
| Fresh Pond | Lower |

The complete SWAP report for all Dare County systems may be viewed on the Web at www.deh.enr.state.nc.us/pws/swap. To obtain a printed copy of this report, please mail a written request to Source Water Assessment Program, Report Request, 1634 Mail Service Center, Raleigh, North Carolina 27699-1634, or e-mail a request to swap@ncmail.net. Please indicate your system name, PWSID (NC 0428030), 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.



How much water is lost to a dripping faucet?

Dripping faucets waste a precious resource and cost you money. As an example, if you have a faucet that drips 60 times a minute, this adds up to over 3 gallons each day or 1,225 gallons each year.

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 pets' 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.



Water Conservation

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you can save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

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 table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water.

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] | Dare County Water-Regional | | Fresh Pond | | VIOLATION | TYPICAL SOURCE |
| | | | | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | | |
| Beta/Photon Emitters¹ (pCi/L) | 2008 | 50 | 0 | 5.25 | 4.5–6.0 | NA | NA | No | Decay of natural and man-made deposits |
| Chlorine (ppm) | 2008 | [4] | [4] | 0.58 | 0.20–1.55 | 1.11 | 0.76–1.39 | No | Water additive used to control microbes |
| Fluoride (ppm) | 2008 | 4 | 4 | 1.01 | 0.90–1.18 | 0.32 | NA | No | Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories |
| Haloacetic Acids [HAA] (ppb) | 2008 | 60 | NA | 10.53 | ND–37.6 | 15.12 | ND–24.9 | No | Byproduct of drinking water disinfection |
| TTHMs [Total Trihalomethanes] (ppb) | 2008 | 80 | NA | 39.47 | 4–96 | 58 | 3–152 | No | Byproduct of drinking water chlorination |
| Total Coliform Bacteria (# positive samples) | 2008 | 1 positive monthly sample | 0 | 1 | NA | NA | NA | No | Naturally present in the environment |
| Total Organic Carbon [TOC]² (ppm) | 2008 | TT | NA | NA | NA | 2.9 | 2.8–3.1 | No | Naturally present in the environment |
| Turbidity³ (NTU) | 2008 | TT = 1 NTU | NA | NA | NA | 0.3 | 0.1–0.3 | No | Soil runoff |
| Turbidity (Lowest monthly percent of samples meeting limit) | 2008 | TT = 95% < 0.3 NTU | NA | NA | NA | 100 | NA | No | Soil runoff |
| Uranium (ppb) | 2008 | 30 | 0 | 1.0 | ND–1.0 | NA | NA | 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 | VIOLATION | TYPICAL SOURCE |
|--------------------------------|-----------------|-----|------|-----------------------------------|----------------------|-----------|--|
| Copper (ppm) | 2006 | 1.3 | 1.3 | 0.127 | 0 | No | Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives |

UNREGULATED SUBSTANCES (DARE COUNTY WATER-REGIONAL)

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH | TYPICAL SOURCE |
|-----------------------------------|-----------------|--------------------|-------------------|--|
| Bromodichloromethane (ppb) | 2007 | 5 | ND–26 | Byproduct of drinking water disinfection |
| Bromoform (ppb) | 2007 | 12 | 2–58 | Byproduct of drinking water disinfection |
| Chlorodibromomethane (ppb) | 2007 | 8 | ND–32 | Byproduct of drinking water disinfection |
| Chloroform (ppb) | 2007 | 5 | ND–22 | Byproduct 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.

²Depending on the TOC in our source water, the system MUST have a certain percent removal of TOC or must achieve alternative compliance criteria. If we do not achieve that percent removal, there is an alternative percent removal. If we fail to meet the alternative percent removal, we are in violation of a Treatment Technique.

³Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The turbidity rule requires that 95 percent or more of the monthly samples must be less than or equal to 0.3 NTU.

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.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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.

