# 2011 Collection System Annual Consumer Report

## *Town of Manteo* Permit No. WQCS00163

We are pleased to present to you this year's Collection System Consumer Report. This report covers all monitoring, testing and system improvements made over the time period of July, 1st 2010 through June 30th of 2011.

The Town of Manteo's sanitary sewer collection system connects your residence to the Town's wastewater treatment system. Your connection discharges into the maze of pipes underground that further connect to lift stations throughout the town. Lift stations help propel the wastewater to the Wastewater Treatment Plant where gravity flow is prevented. You may notice that fencing has been installed around these lift stations to further protect your system and the safety of citizens. Utility contact and emergency response information is posted on signs located on the outside of each lift station.

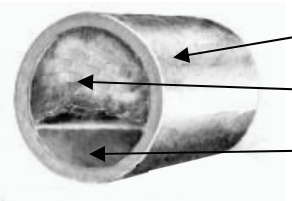
Your connection to the collection system is a responsibility that continues to expand and grow. The Town of Manteo has developed a public education program in order to help reduce the presence of Fats, Oils, and Grease (FOG) in our sanitary sewer collection system. Regulatory requirements from the State of North Carolina Department of Water Quality (DWQ) mandates that municipalities take measures to reduce Sanitary Sewer Overflows (SSOs)--a violation of the EPA Clean Water Act. FOG discharged into public sewer systems is the leading cause of SSOs.

Grease buildup occurs when Fats, Oils, and Grease produced from and aided in cooking end up in the sewer system. Whether you're a Food Service Establishment, business, or resident of the Town of Manteo who generates FOG, you play an important role in preventing Sanitary Sewer Overflows. Sanitary sewer systems are neither designed nor equipped to handle the FOG that accumulates on the interior of the municipal sewer collection system pipes. Over 30% of North Carolina's 1999 sanitary sewer overflows were the result of pipe blockages from FOG accumulation from residential, institutional and commercial sources. The best way to manage FOG is to keep the material out of the plumbing systems.

**System Performance:**

During this period the Town did not experience any SSOs in excess of 1,000 gallons or any that reached surface waters. The Town continues to improve the system's performance by systematically cleaning and using sewer line cameras to locate any possible problems that could result in SSOs or downstream equipment failure. The Town is continually studying the system performance and it's relationship with the Wastewater Treatment Plant.

EXAMPLE OF CLOGGED SEWER LINE




Since fats, oils and grease are lighter than water, they tend to accumulate at the top and sides of sewer pipes until a blockage occurs. This can lead to back-ups and overflows into your property and the streets.

**System Improvements**

- INSTALLATION OF QUICK CONNECT PIPING FOR STANDBY EMERGENCY PUMPING DURING POWER OUTAGES AT BOTH BOWSERTOWN RD. AND WATERFRONT LIFTSTATIONS.
- REPLACEMENT OF PUMPS, CONTROLS AND PIPING AT EAST HAMMOCK LIFT STATION.

**Operational Staff:**

Nathan Pharr (ORC)
Utilities Superintendent
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Dustin Murrell (B/U)
Back-up Collection Operator
murrell@townofmanteo.com

THIS REPORT IS PRINTED ON 100% RECYCLED PAPER.

## DO NOT:

- **Pour Grease, Fats or Oils down the drains!**
- **Do not dispose of food scraps by flushing them!**
- **Do not use the toilet as a waste basket!**

## DO:

- **Scrape and collect the grease into a waste container, and dispose of it in the trash/garbage.**
- **Place food scraps in waste containers or garbage bags for disposal with solid wastes.**
- **Place a wastebasket in the bathrooms to dispose of solid wastes like disposable diapers and personal hygiene products.**

**Additional copies of this report are also available at Town Hall at**

**407 Budleigh Street in Manteo and on our website as well:**

**www.townofmanteo.com**

# 2011 Wastewater Treatment Plant Annual Consumer Report

## *Town of Manteo* NPDES Permit No. NC0079057

We are pleased to present to you this year's Annual Wastewater Treatment Plant Consumer Report. This report covers all monitoring, testing and system improvements made over the time period of July, 1st 2010 through June 30th of 2011.

**Summary of the Treatment Process**

The Town of Manteo's Wastewater Treatment Plant is a grade three activated sludge tertiary treatment facility treating wastewater from the Town's sanitary sewer collection system. This plant treats wastewater utilizing preliminary screening and grit removal, secondary biological treatment and nutrient removal via an oxidation ditch and secondary clarifiers, tertiary effluent filtration and post aeration followed by chlorination disinfection and dechlorination prior to discharging effluent to Shallowbag bay.

Wastewater entering the plant is directed to a mechanically cleaned bar screen and grit removal system. The bar screen removes large and stringy objects from the wastewater flow that could damage downstream process equipment. Wastewater then flows through a grit removal system that removes the inorganic solids (grit) which will not break down in the biological system while allowing the organic solids to continue through the treatment process.

Effluent wastewater from the grit removal system and drainage from various treatment processes are pumped by the influent pumps to the oxidation ditch where the concentration of organic matter and nitrogen are reduced during the extended aeration activated sludge process by the biological action of microorganisms. The organisms convert the organic matter into biomass and release nitrogen as gas. The oxidation ditch provides the oxygen needed by microbes in the system for biological oxidation of organic materials and for the conversion of ammonia to nitrate and the anoxic conditions needed for denitrification.

Effluent wastewater from the oxidation ditch flows to the final clarifiers which provide an undisturbed environment for the separation of solids from the water. After the solids settle in the clarifiers, the active solids are recycled to the oxidation ditch to maintain the microbe population at a level which promoted optimum removal of nutrients. Excess sludge is wasted from the system to the aerobic digester to maintain healthy levels of microbes in the treatment process.

Wastewater displaced from the final clarifiers flows by gravity to the effluent filters. Wastewater percolates down through the automatically backwashed filters to remove a major portion of the suspended solids in the water.

After water flows through the filters it flows into the chlorine contact tank. Sodium Hypochlorite is added at the head of the tank. The wastewater is dechlorinated at the tail end of the tank by the addition of Sodium Bisulfate. Effluent flows from the contact chamber to the post aeration structure where the water is subjected to the action of a floating aerator to bring the dissolved oxygen concentration to appropriate levels before it is pumped via a force main to Shallowbag Bay for dispersal.

**Awards and Accommodations:**

The Town of Manteo WWTP received the Green Challenge Advanced Level Award from the North Carolina League of Municipalities which recognizes the commitment of cities and towns to preserve natural resources and the many innovative and exciting projects underway to save energy, resources and money.

**Operational Staff:**

The operational staff for the treatment plant is as follows:

Nathan Pharr (ORC)
Utilities Superintendent
pharr@townofmanteo.com

Josh O'Brien (B/U ORC)
Chief Plant Operator
obrien@townofmanteo.com

**WWTP Performance** (broken down by month)

- **100% Permit Compliance—No Violations**

| *Month* | *Violation* | *Month* | *Violation* |
|---|---|---|---|
| July 2010 | 100% COMPLIANT | January 2011 | 100% COMPLIANT |
| August 2010 | 100% COMPLIANT | February 2011 | 100% COMPLIANT |
| September 2010 | 100% COMPLIANT | March 2011 | 100% COMPLIANT |
| October 2010 | 100% COMPLIANT | April 2011 | 100% COMPLIANT |
| November 2010 | 100% COMPLIANT | May 2011 | 100% COMPLIANT |
| December 2010 | 100% COMPLIANT | June 2011 | 100% COMPLIANT |

# 2011 Annual Drinking Water Quality Report

## *Town of Manteo* PWS ID# 04-28-020

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is a snapshot of last year's water quality. Included are details about from where your water comes, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and to providing you with this information, because informed customers are our best allies.

**If you have any questions about this report or concerning your water, please contact Nathan Pharr at (252) 473-3513…. We want our valued customers to be informed about their water utility.**

**What EPA Wants You to Know**

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).
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 and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants 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, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water 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 storm water runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; and radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

**When You Turn on Your Tap, Consider the Source**

The water that is used by this system is purchased from the Dare County Water Department located at the Skyco Water Treatment Facility.

**Water Quality Data Table of Detected Contaminants**

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The table below lists all the drinking water contaminants that we detected in the last round of sampling for the particular contaminant 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 July 1, 2010 through June 30, 2011.** The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

**Important Drinking Water Definitions:**

*Non-Detects (ND)* - Laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used.

*Parts per million (ppm) or Milligrams per liter (mg/L)* - One part per million corresponds to one minute in two years or a single penny in $10,000.

*Parts per billion (ppb) or Micrograms per liter (ug/L)* - One part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

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

*Maximum Contaminant Level (MCL)* - 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.

*Maximum Contaminant Level Goal (MCLG)* - 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.

| Disinfectants and Disinfection Byproducts Contaminants | | | | | | |
|---|---|---|---|---|---|---|
| Contaminant (units) | MCL Violation Y/N | Your Water | Range Low High | MCLG | MCL | Likely source of contamination |
| TTHM (ppb) {Total Trihalomethanes} | N | 70.8 | 50-88 | N/A | 80 | By-product of drinking water chlorination |
| HAA5 (ppb) {Total Haloaoetic Acids} | N | 16.5 | 15-18 | N/A | 60 | By-product of drinking water chlorination |

| Lead and Copper Contaminants | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Contaminant (units) | Sample Date | Your Water | Amount Detected | Violation | # of sites found above the AL | Likely Source of Contamination | MCLG | MCL |
| Copper (ppm) (90th percentile) | 2010 | ND | .61 | NO | 0 | Corrosion of household plumbing systems, erosion of natural deposits | 1.3 | AL=1.3 |
| Lead (ppb) (90th percentile) | 2010 | ND | 5 | NO | 0 | Corrosion of household plumbing systems, erosion of natural deposits | 15 | AL=15 |

| Microbiological Contaminants | | | | | |
|---|---|---|---|---|---|
| Contaminant (units) | MCL Violation Y/N | Your Water | MCLG | MCL | Likely Source of Contamination |
| Total Coliform Bacteria | N | ABSENT | 0 | one positive monthly sample | Naturally present in the environment |

## Source Water Assessment Program (SWAP) Results

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 Manteo 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 are summarized in the table to the right.

The complete SWAP Assessment report for the Town of Manteo 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. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email requests to swap@ncmail.net. Please indicate your system name, 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 systems' potential to become contaminated by PCS's in the assessment area.

| *Source Name* | *Susceptibility Rating* |
|---|---|
| Skyco Well #2,4,5,6,8,10,13 | Lower |
| Skyco Well #7 | Moderate |