



The Town of Manteo 2012 Annual Consumer Quality Report (Drinking Water, Collections and WWTP)

We are pleased to present to you this year's Annual Consumer Quality Report. This report is a snapshot of last year's water quality, sanitary sewer collection system and the wastewater treatment plant. Included are details about the source of your water, what it contains, and how it compares to standards set by regulatory agencies. This report also covers the used water and wastewater that leaves your residence or place of business and the process that it goes through during the treatment system.

The water that is used by this system is purchased from the Dare County Water Department located at the Skyco Water Treatment Facility. The Town of Manteo controls the water distribution system that delivers the water to your house.

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 in regards to both drinking water and the quality of treated wastewater that is returned to our local environment. We believe informed customers are our best allies.

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

2012 Drinking Water Quality Report Town of Manteo Water System PWS ID# 04-28-020

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.

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 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 above and to the right: *(see arrow)*

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.

2012 Collection System Annual Report Town of Manteo Collection System Permit No. WQCS00163

The Town of Manteo's sanitary sewer collection system connects your residence or business 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.

FOG (Fats, Oils and Grease) Facts:



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!
- ⇒ 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.

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

The complete SWAP Assessment report for the Town of Manteo may be viewed on the Web at: www.newwater.org/pws/swap. 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@ncdenr.gov. 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 919-707-9098.

2012 WWTP System Annual Report Town of Manteo Wastewater Treatment Plant NPDES Permit No. NC0079057

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.

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
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The operational staff for the collection system is as follows:

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

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

Sampling Results, Performance and Improvements:

DRINKING WATER: (7/1/11—6/30/12)

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. These tables list all the drinking water contaminants that were 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. 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.

Disinfectants and Disinfection Byproducts Contaminants						
Contaminant (units)	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely source of contamination
PTHM (ppb) {Total Trihalomethanes}	N	53.2	47-65	N/A	80	By-product of drinking water chlorination
HAA5 (ppb) {Total Haloacetic Acids}	N	13.8	7-16.6	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)	2011	ND	.9	NO	0	Corrosion of household plumbing systems, erosion of natural deposits	1.3	AL=1.3
Lead (ppb) (90th percentile)	2011	ND	27	NO	1	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

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.

COLLECTION SYSTEM:

The Collection System operated during the time frame of July 2011 through June 2012 without any sanitary spill overflows (SSOs) or permit violations. The Town was issued a Notice of Deficiency after its 2012 NC DWQ annual inspection for failure to implement a capital improvement plan for the collection system. The Town was, and is currently in the process of adopting a Capital Improvement Plan, however, at the time of the inspection, the plan was still in a *DRIFT* stage and had not been adopted.

Due to the damages incurred during Hurricane Irene the East and West Hammock Lift stations were replaced in Pirates Cove. The new lift stations are better equipped to operate in adverse weather conditions. Further improvements to the Town's telemetry (SCADA) system were implemented at these stations as well to provide a greater level of control and reduce the response time during an emergency. Damages were also incurred at the Waterfront Lift station, and were fixed with the replacement of one pump. Changes were made to the electrical supply making the station able to operate completely submerged as to avoid similar problems in the future. The town received assistance from FEMA to administer the aforementioned improvements.

WASTEWATER TREATMENT PLANT:

The WWTP operated during the time frame of July 2011 through June 2012 without any violations with the exception of the week of 7/11/11—7/16/11. The weekly effluent Ammonia as Nitrogen average was 0.76 parts per million above the limit. This was due to a slug load of higher strength wastewater entering the WWTP. The operation of the plant was immediately adapted and has not had any further problems of any kind to this point. NC DWQ issued a Notice of Violation with no civil penalty attached.

Due to the severity of water entering the WWTP during Hurricane Irene, some process equipment was damaged, but the plant maintained fully treated effluent water during and after the storm incurring no permit violations.