

Annual Report for Wastewater Treatment Works / Wastewater Collection System

I. General Information

Name of regulated entity:

Town of Carolina Beach

Responsible entity, person, or contact with phone number & address:

Name: William J. Raymond

Address: 404 S. Dow Road, Carolina Beach, NC

Phone: (910) 458-2976

Listing of applicable permits:

NPDES NC0023256

L.A. WQ0007728

S.I. WQ0019336

WWC WQCS00076

Description of collection or treatment process:

The Town of Carolina Beach has fourteen lift stations in the collection system, 30 miles of 10" & 8" gravity sewer lines, 5 miles of force main lines, and a wastewater treatment facility with a permitted flow of 3.0 million gallons per day (MGD) consisting of a mechanical bar screen, manual bar screen, mechanical grit removal, influent and effluent flow recorder & samplers, three extended aeration basins, dual clarifiers, aerobic digestion / dual sludge storage basins, equalization basin, three media down flow filters, gas chlorination / dechlorination system, chlorination / dechlorination contact chamber, dual generators, and a spray irrigation / reclaimed water utilization system on a 6.7 acre field adjacent to the treatment facility. The facility is permitted to spray a maximum average daily volume of 30,000 gallons of treated effluent water per day on the field, which is seeded with Bermuda sod.

II. Performance

Text Summary System Performance for the 2007 fiscal year (beginning July 1, 2006):

The Town of Carolina Beach wastewater facility had one discharge permit limit violations, zero non-discharge (spray irrigation) permit limit violations, and eight monitoring and reporting violations for the discharge permit which are addressed in the following month-to-month listing of the 2007 fiscal year violations and deficiencies.

List (by month) of the number and type of any violations of permit conditions, environmental regulations or environmental laws (i.e. date, type, permit limit violations, monitoring and reporting violations, (illegal) bypass of treatment facilities, sanitary sewer overflows and estimated total monthly volumes and locations of events in which more than 1000 gallons of waste reached surface waters):

Permit Limit Violations (Discharge)

There was 1 discharge permit limit violation during 2007 fiscal year (July 2006).

Permit Limit Violations (Non-Discharge)

No non-discharge permit limit violations during 2007 fiscal year

Monitoring and Reporting Violations or Deficiencies

The following is a monthly breakdown of the numbers of monitoring and reporting violations or deficiencies for the 2007 fiscal year: August 2006 (1), September 2006 (2), October 2006 (4), and March 2007 (1).

Sanitary Sewer Overflows

There were no reportable sanitary sewer overflows for the 2007 fiscal year.

Any known environmental impact of violations:

The violations caused no known environmental impacts.

Corrective measures taken to address violations or deficiencies:

All permit limit and monitoring and reporting violations or deficiencies for the 2007 fiscal year were corrected promptly and reported to the North Carolina Division of Water Quality. A description of each correction is available upon request.

III. Notification

Statement as to how users or customers have been provided access to the report:

A public notice is placed in the local newspapers stating that copies of the annual report for the wastewater treatment plant and collection system are available upon request at the Town of Carolina Beach administration building. The report is also available on the town's website.

IV. Certification

I certify under penalty of law that this report is complete and accurate to the best of my knowledge. I further certify that this report has been made available to the users or customers of the named system and that those users have been notified of its availability.

Tim Owens, Manager, Town of Carolina Beach
Permittee (Name of permittee, Title, Entity)

Signature of Permittee

Date

IMPORTANT DEFINITIONS

NPDES Permit – National Pollutant Discharge Elimination System Permit is the regulatory agency document issued by either a federal state agency designed to control all discharges of pollutants from point sources into U.S. waterways. NPDES permits regulate discharges into navigable waters from all point sources of pollution, including industries, municipal wastewater treatment plants, sanitary landfills; large agricultural feed lots and return irrigation flows.

L.A. Permit – Land Application permit is the document that regulates the land application of biosolids.

Biochemical Oxygen Demand (BOD) – The rate at which organisms use the oxygen in water or wastewater while stabilizing decomposable matter serves as food for the bacteria and energy results from its oxidation. BOD measurements are used as a measure of the organic strength of wastewater.

Total Suspended Solids (TSS) – TSS are solids that either float on the surface or are suspended in water, wastewater, or other liquids.

Total Chlorine Residual (Tot. Cl₂) – This is the amount of chlorine remaining after a given contact time. It is also the sum of the combined available residual chlorine and the free available residual chlorine.

pH – A liquid measurement range scaled from 0 to 14, with 0 being the most acidic, 14 being the most basic, and 7 being neutral. Natural water usually has a pH between 6.5 and 8.5.

Fecal Coliform (FECAL COLIF.) – Fecal coliforms are the coliform bacteria found in the feces of various warm-blooded animals.

Dissolved Oxygen (DO) – Molecular (atmospheric) oxygen dissolved in water and wastewater.

Acute Toxicity (ACUTE TOX.) – This is a bioassay method of determining toxic effects of industrial or other wastes by using live organisms such as fish for test organisms.

Conductivity (COND.) – Conductivity is a numerical measurement representing the ability of a solution to carry electric current.

Ammonia Nitrogen (NH₃-N) – Biological processes reduce NH₃-N concentration. Concentration of NH₃-N has permit limits because of its direct relation to fish toxicity.

Total Nitrogen, Total Phosphorus (TOTAL NITR., TOTAL PHOS.) - Nitrogen and phosphorus are important nutrients in the reproduction of microorganisms necessary for biological treatment of waste. However, the concentrations of these two nutrients are monitored because excessive amounts of these nutrients in an effluent can affect the oxygen demand in a receiving stream and cause algal blooms.

Free Cyanide (FREE CN) - The concentration of cyanide is monitored in an effluent for its toxic effect on organisms and microorganisms in excessive amounts.

Total Copper, Total Zinc (TOTAL CU, TOTAL ZN) - The concentrations of the metals, copper and zinc, are monitored because they are commonly found pollutants that have toxic effects on a receiving stream in excessive amounts.

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 ($\mu\text{g/L}$) – one part per billion corresponds to one minute in 2,000 years or a single penny in \$10,000,000.

Colony-forming units per 100 milliliters (CFU/100 mL) - Fecal coliform bacteria form colonies on plates prepared in laboratory analysis. After 24 hours of bacterial growth is allowed on the plates, the colonies are counted and reported as colony-forming units per 100 milliliters of sample.

Micromhos per centimeter ($\mu\text{MHOS/CM}$) - Since conductivity represents the ability of a solution/sample to carry electric current (also known as “conductance”) and the reciprocal of conductance is electric resistance, measured in ohms, the measurement of conductance is in reciprocal ohms, or mhos. Micromhos per centimeter is an expression of conductance in mhos converted into a more convenient unit for water analysis.