

ANNUAL WASTEWATER SYSTEM PERFORMANCE REPORT 2014 - 2015



235 Government Center Drive
Wilmington, NC 28403
(910) 332-6550
www.cfpua.org



SYSTEM OVERVIEW

The Cape Fear Public Utility Authority's sewage collection and wastewater treatment facilities provide service to homes, commercial establishments, and industries. There are 142 pump stations, approximately 840 miles of gravity sewer line and 134 miles of pressurized sewer force main. CFPUA collects wastewater from much of the City of Wilmington and New Hanover County, treats it, then discharges directly into the Cape Fear and Northeast Cape Fear Rivers. CFPUA also treats wastewater from the Town of Wrightsville Beach and portions of Pender County.

Wastewater is treated at one of our three facilities:

1. [James A. Loughlin \(Northside Plant\)](#) - 2311 N. 23rd Street
Permitted to treat up to 16 million gallons of wastewater daily
2. [M'Kean Maffitt \(Southside Plant\)](#) - 3436 River Road
Permitted to treat up to 12 millions gallons of wastewater daily
3. [Walnut Hills](#) - 17 Little Creek Road
Permitted to treat up to 100,000 gallons of wastewater daily



Northside Wastewater Treatment Plant



MISSION STATEMENT

It is our mission to provide high-quality service in an environmentally responsible manner while maintaining the lowest practicable cost.

Each year, Cape Fear Public Utility Authority evaluates the wastewater systems and prioritizes needs and resources based on protecting public health, preserving the environment, and managing expenses. With our guiding principles of *Stewardship, Sustainability and Service* as a back drop, we remain committed to providing reliable wastewater services to our community.

Frank Styers, PE
Chief Operations Officer



ACCOMPLISHMENTS

CFPUA is responsible for the daily operation of treatment and collection facilities and with ensuring compliance with strict environmental standards. This fiscal year, approximately \$37.4 million were expended to operate, maintain, and manage CFPUA's sewer, collection, and treatment system. Major accomplishments during this report period include:

- CFPUA completed the Northeast Interceptor Northside Force main project which was a multi-phase, multi-year, \$17 million project allowing flexibility in directing wastewater flows between Northside and Southside wastewater treatment plants.
- Improvements to the Northside Plant include replacement of the digester gas storage tank cover and controls and resurfacing the coating on anaerobic digestion facilities.
- Installation of 2 new pump stations, repair/rehabilitation of 19 pump stations, 16 of which were upgraded with new telemetry units.
- Of the 30 wastewater treatment positions, 27 hold NC Wastewater Operator Certification.



Northside Digester



Pump Station 7

TREATMENT PLANT PERFORMANCE

CFPUA's treatment plants operate under National Pollutant Discharge Elimination System permits, more commonly known as NPDES permits. These are complex permits that include monitoring requirements and effluent discharge limits, some of which vary from season to season. Limits are set by the NC Department of Environment and Natural Resources in an effort to protect the streams receiving our discharges. Permits are available at our treatment plants and can be reviewed upon request. In compliance with these permits and to assist with operational needs, our laboratory conducted 28,281 lab analyses.

During this report period, CFPUA treated about 6.38 billion gallons of wastewater and returned it to the Cape Fear River and the NE Cape Fear River. In addition, 23,884 cubic yards of treatment plant residuals were Class-B processed and successfully land applied. We are proud of the facilities' outstanding performance, made possible by the dedicated efforts of the professionals who operate, maintain, and conduct tests daily. Comparing all numerical limits within the NPDES permits with all corresponding measurements, CFPUA achieved 99.89% compliance overall.



"In mean. Out clean."

ANNUAL PERFORMANCE SUMMARY REPORT JULY 1, 2014 THROUGH JUNE 30, 2015

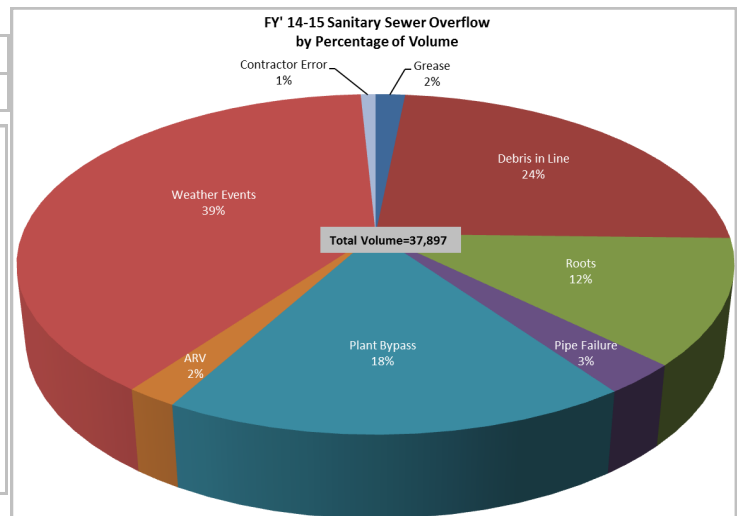
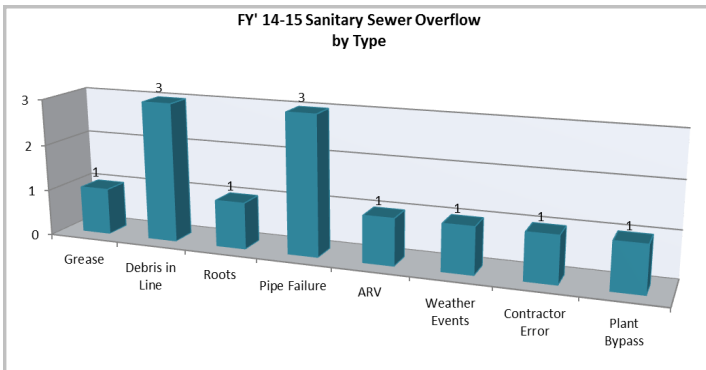
LOCATION/NPDES PERMIT	TYPE OF VIOLATION OR DEFICIENCY	DATE	PARAMETER	CORRECTIVE ACTION
James A. Loughlin (Northside) WWTP / NC0023965	None			
M'Kean Maffitt (Southside) WWTP / NC0023973	Toxicity	12/2/2014	Effluent Toxicity	Implemented process changes; requested more appropriate alternate test method
Walnut Hills WWTP / NC0039527	Weekly Limit	06/03/2015	Effluent BOD	Repaired the malfunctioning flow meter
Collection System / WQCS00012	None			

SYSTEM OVERFLOWS JULY 1, 2014 THROUGH JUNE 30, 2015

MONTH OF OVERFLOW	INCIDENT START DATE	VOLUME (GALLONS)	WATERSHED	LOCATION	PROBABLE CAUSE
July 2014	7/25/14	100	Cape Fear River	13 th & Rankin Streets	Cracked bell joint inside storm drain
	7/25/14	500	Cape Fear River	Storm Drain at 3 rd & Dock Streets	Broken pipe inside storm drain interference manhole
August 2014	8/3/14	14,800	Intracoastal Waterway	Windy Hills Subdivision	Excessive rainfall & inflow
November 2014	11/21/14	8,600	Cape Fear River	Manhole at Burnett Boulevard & South Front Street	Debris in line (dental floss, mop type string, disposable wipes)
	11/21/14	597	Hewletts Creek	Manhole at Brookview & Sutton Drive	Grease
December 2014	12/24/14	6,750	Unnamed Tributary to the NE Cape Fear River	Walnut Hills WWTP	Excessive rainfall & hydraulic overloading
January 2015	1/17/15	300	Burnt Mill Creek	225 South Kerr Avenue at Service Clean Out	Directional boring activities broke a 12" vitrified clay pipe
February 2015	2/12/15	200	Burnt Mill Creek	4100 Block of Market Street	Debris in line (dirt/sand)
	2/20/15	500	NE Cape Fear River	Holly Shelter Road & Orange Street	Pipe failure
	2/27/15	300	Smith Creek	Intersection of Manly Avenue & Maids Park	Debris in line (dirt/sand)
March 2015	3/22/15	4,500	Pages Creek	Bayshore Subdivision Windsong Road near Aquarius Drive	Roots
June 2015	6/29/15	750	Cape Fear River	2605 Blue Clay Road	Faulty ARV

No known adverse environmental impacts were associated with these overflows.

Collection System Overflows	Total Gallons Lost	31,147
Wastewater Plant Bypasses	Total Gallons Lost	6,750





COLLECTION SYSTEM

COLLECTION SYSTEM PERFORMANCE

- CFPUA collections system staff completed over 11,840 work orders for preventative and/or corrective maintenance which are captured within the CMMS/Maximo work order system.
- Our permit requires 10% of the collection system be cleaned annually. During fiscal year 2014-2015, CFPUA crews cleaned approximately 113 miles of sewer lines which is equal to 13.5% of the system.
- Approximately 45.71 miles of the gravity system were videoed by closed circuit television to evaluate its condition and to identify the need for further maintenance.
- CFPUA completed 13 of the 14 emergency repairs initiated in FY14-15 and replaced/rehabilitated 16 manholes, 34 services, and 2,878 linear feet of sewer mains, 2,351 of which were lined, at a cost of \$915,422. These projects were in areas which had numerous failures and backups.
- CFPUA crews are available 24-hours a day, 365 days per year to prevent and respond to sewer service blockages, overflows, and other emergencies. During the reporting period our crews handled 67 main stops and 447 sewer service calls.

HOW DO SPILLS HAPPEN?



DON'T FLUSH IT!

Wipes, paper towels, and similar items are one cause of sewer spills in Wilmington and New Hanover County. Products labeled as "flushable" might go down the toilet, but they don't break down as they should. Toilet paper and human waste are the only things that should be put in the toilet. A wipe, for example, won't break down for days or even weeks

and can get clogged in household plumbing. When wipes and other flushed materials make it to the neighborhood's sewer collection system, they can back up lines and pump stations and can cause financially and environmentally costly sewer spills.

Customers can help reduce sanitary sewer overflows by putting wipes, cotton balls, Q tips, dental floss and paper products in the trash rather than the toilet.



This is a picture of the sewer catch screen at CFPUA's Pump Station 20. It catches bigger objects as wastewater passes through it on its way to the treatment plant. What is shown here are paper towels, wipes, and other non-disposable products that could not pass through the screen.



HELP PREVENT SPILLS

You Can Prevent Sewer Spills!

No grease or oil in your sink!



Grease in Pipes

Don't flush wipes. They don't break down!



Toilet Paper vs. Wipes

Keep trees and plants away from sewers!



Roots in Pipes

ROOT INVASION



Tree roots can cause sewer overflows. Roots grow through cracks or loose joints in sewer pipe. Once inside, the roots continue to grow, creating a mass. The mass can become matted with grease, paper, wipes, and other solid materials causing a blockage or perhaps an overflow. As roots expand in the sewer pipe, pressure is exerted at their point of entry. If the pipe is not cleared, it may eventually rupture which is costly to fix or replace.

CFPUA's root control program uses both non-toxic chemical control methods and mechanical equipment to remove tree roots that infiltrate the wastewater collection system. During fiscal year 2014-2015, CFPUA treated 8.3 miles of sewer lines for roots.

Sewer spills are messy and can often be avoided. Sewer spills, overflows, and other water/wastewater emergencies can be reported anytime by calling (910) 332-6565.



CERTIFICATION

CFPUA's Wastewater Collections System Division and Environmental Management Department are ISO 14001 certified and committed to gaining certification for all wastewater divisions. As members of professional associations, we actively participate with the following organizations:

- Lower Cape Fear River Program
- NC Water Quality Association
- Cape Fear River Partnership
- Cape Fear River Assembly
- NC WaterWARN
- Water Environment Federation
- American Water Works Association
- North Carolina Pretreatment Consortium
- Water Environment Research Foundation
- New Hanover County Water Quality Roundtable
- Environmental Stewardship Initiative- Environmental Partner



Copies of this report are available at the Cape Fear Public Utility Authority Customer Service Center located at 235 Government Center Dr., our satellite payment center located at 325 Chestnut Street or by logging onto our website at www.cfpu.org. Notification of availability is provided through printed notice on water/sewer bills and CFPUA's website. This report was completed by Cape Fear Public Utility Authority staff and is accurate to the best of our knowledge and belief.

For more detailed information about this report, contact an Operator in Responsible Charge (ORC) from those listed below.

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/customers of CFPUA's system and that those users have been notified of its availability.

Geoffrey D. Cermak, ORC / (910) 332-6736
James A. Loughlin (Northside) Wastewater Treatment Plant
Permit No. NC0023965

Milton S. Vann, ORC / (910) 332-6735
M'Kean Maffitt (Southside) Wastewater Treatment Plant
Permit No. NC0023973

Carol D. Shidal, ORC / (910) 332-6736
Walnut Hills Wastewater Treatment Plant
Permit No. NC0039527

Robert Daughtry, ORC/ (910) 332-6737
CFPUA Utilities Collections System Manager
Permit No. WQCS00012