

# ANNUAL WASTEWATER SYSTEM PERFORMANCE REPORT 2012 - 2013



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



### SYSTEM OVERVIEW

# **ACCOMPLISHMENTS**



The Cape Fear Public Utility Authority's sewage collection and wastewater treatment facilities provide service to homes, commercial establishments, and industries. There are 141 pump stations and approximately 840 miles of gravity sewer line and 104 miles of pressurized sewer force main. CFPUA collects the wastewater, treats it, and then discharges, either directly or indirectly, into the Cape Fear River. 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. <u>James A. Loughlin (Northside Plant)</u> 2311 N. 23rd Street Permitted to treat up to 10 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
- Walnut Hills 17 Little Creek Road
   Permitted to treat up to 100,000 gallons of wastewater daily





# 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.

James R. Flechtner, PE Chief Operations Officer CFPUA is responsible for the daily operation of treatment and collection facilities and with ensuring compliance with strict environmental standards. Approximately \$12,243,000 in operational wastewater expenditures were funded (by bi-monthly user charges) during this report period. Accomplishments during the fiscal year:

- Collection system air release valve assessment initiated and added to preventative maintenance program
- Continuing Phase 2 rehabilitation and repair of Burnt Mill Creek gravity sewer
- Improvements to Northside Plant include aeration tank effluent slide gate automation and effluent pH adjustment chemical feed equipment installation
- Improvements to Southside Plant include residuals conveyor belt replacement, trickling filter gate replacement and sludge pump replacement for digesters
- · Safety improvements to the Walnut Hills Plant
- FOG (Fats, Oil & Grease) public education campaign expanded to include radio and TV spots and distribution of over 1,300 Fat Trappers™

#### 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



"In mean. Out clean."

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 34,811 lab analyses.

During this report period, CFPUA treated about 5.90 billion gallons of wastewater and returned it to the Cape Fear River. In addition, 24,763 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 99.77% compliance overall.

# ANNUAL PERFORMANCE SUMMARY REPORT JULY 1, 2012 THROUGH JUNE 30, 2013

LOCATION/NPDES PERMIT	TON/NPDES PERMIT TYPE OF VIOLATIONS OR DEFICIENCY		PARAMETER	CORRECTIVE ACTION	
James A. Loughlin (Northside) WWTP / NC0023965	None	1////			
	Toxicity	9/10-11/2012	Effluent Toxicity		
M'Kean Mafflitt (Southside) WWTP / NC0023973	Toxicity	12/17-18/2012	Effluent Toxicity	Investigations to ascertain the cause(s) and corrective action(s) for the test failures are underway and continue	
	Toxicity	3/12-13/2013	Effluent Toxicity		
	Toxicity	6/4-5/2013	Effluent Toxicity		
Walnut Hills WWTP / NC0039527	None				
Collection System / WQCS00012	SSO - Discharge without valid permit	11/3/2011	NOV - Force Main along Bayfield Rd.	Internal administrative controls implemented; failed section of pipe was replaced	
	SSO - Discharge without valid permit	11/9/2011	NOV - Force Main at 221 Bayfield Rd.	Internal administrative controls implemented; falled section of pipe was replaced	
	SSO - Discharge without valid permit	11/16/2011	NOV - Force Main near 416 Marsh Oaks Dr.	Internal administrative controls implemented; failed section of pipe was replaced	
	SSO - Discharge without valid permit	11/20/2011	NOV - Force Main near 425 Marsh Oaks Dr.	Internal administrative controls implemented; failed section of pipe was replaced	
	SSO - Discharge without valid permit	9/6/2012	NOV - Barnard's Creek bridge crossing	Internal administrative controls implemented and the valve on the line was taken out of service. The line was cut, capped and abandoned in place.	
	SSO - Discharge without valid permit	9/25/2012	NOV - Force Main at Market St. and Torchwood	Internal administrative controls implemented and the line was repaired.	
	SSO - Discharge without valid permit	11/5/2012	NOV - Force Main in Country Haven pump station driveway	Internal administrative controls implemented; falled section of pipe was replaced	

# SYSTEM OVERFLOWS JULY 1, 2012 THROUGH JUNE 30, 2013

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MONTH OF OVERFLOW	INCIDENT START DATE	VOLUME (GALLONS)	WATERSHED	LOCATION	PROBABLE CAUSE			
MONTH OF OVERLEON	011111111111111111111111111111111111111	(0) (110)	TTTT TTTT	LOG (IIIO)	THOUADLE CAUSE			
September 2012	9/6/12	35,000	Cape Fear River	Barnard's Creek at River Road	Contractor Error			
	9/25/12	1,377	Pages Creek	Intersection of Market St. at Torchwood Road	Force Main Failure			
November 2012	11/5/12	2,500	Pages Creek	Country Haven Pump Station #95	Pipe Failure			
December 2012	12/10/12	2,400	Cape Fear River	412 N. Harnett Street	Pipe Failure			
	12/25/12	700	Whiskey Creek	621 Barksdale Drive	Paper and Grease			
	12/26/12	111	Hewlett's Creek	Pirates Cove P5 near 218 Buccaneer Road	Pipe Failure			
January 2013	1/27/13	71,400	Cape Fear River	M'Kean Maffitt Wastewater Plant	Operator Error			
February 2012	2/23/13	800	Cape Fear River	1002 Cypress Drive	Roots and Sewer Debris			
	2/24/13	500	Cape Fear River	Water and Harnett Streets	Pipe Failure, Grease and Debris			
May 2013	5/7/13	1,750	Smith Creek	440 Alpine Drive	Grease			
No known adverse environmental Impacts were associated with these overflows.								
FY 12-13 Sanitary Sewer Overflow /Plant By								

47,193

71,400

#### Number and Cause of Overflows vs. Gallons Spilled FY12-13

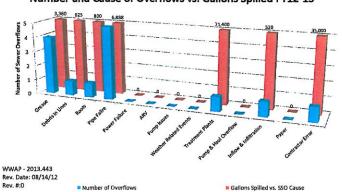
**Total Gallons Lost** 

**Total Gallons Lost** 

■ Gallons Spilled vs. SSO Cause

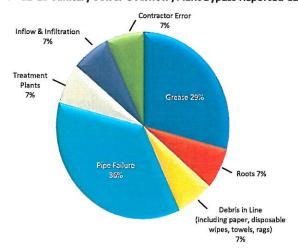
**Collection System Overflows** 

Wastewater Plant Bypasses



Number of Overflows

#### Reported Cause





#### HELP PREVENT SPILLS



#### **COLLECTION SYSTEM PERFORMANCE**

- CFPUA collections system staff completed over 17,062 work orders for preventative and/or corrective maintenance that is captured within the CMMS/Maximo work order system.
- Our permit requires 10% of the collection system to be cleaned annually. During fiscal year 2012/2013, CFPUA crews cleaned approximately 98 miles of sewer lines which is equal to 11.6% of the system.
- Approximately 22.59 miles of the gravity system was videoed by closed circuit television to evaluate its condition and to identify the need for further maintenance.
- CFPUA completed 5 of the 10 emergency repairs initiated in FY12-13 and replaced/rehabilitated 1,048 linear feet of sewer mains, 4 manholes, and 15 services at a cost of \$909,700 of the \$2.6 million under contract. 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 60 main stops and 928 sewer service calls.

One of the leading causes of sanitary sewer overflows in our area is pipe blockages caused by fats, cooking oil, and grease. These substances are commonly referred to as FOG and can be found in items such as: lard,



meat fats, shortening, peanut butter, food scraps, butter, vegetable oil spreads like margarine, dairy products, batters, dressings, and icing. Even unsaturated fats found in foods like soy, flax, and fish contribute to FOG. These and other products like them should be disposed of properly...in the trash, not into sink drains (even if equipped with a garbage disposal) or toilets.

Pouring liquefied animal fats, grease and vegetable oils into sink drains is a common mistake. FOG may go down the drain easily but it eventually solidifies and causes clogged pipes that result in sewer line backups, manhole overflows and other sewer spills that threaten homes, businesses and the environment.

#### Root Invasion







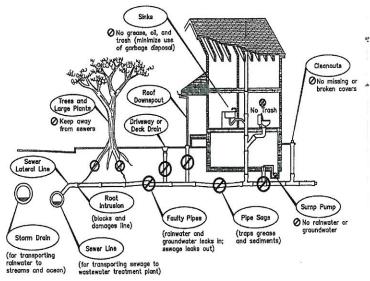
In addition to FOG, tree roots can cause sewer overflows. Roots grow through cracks or loose joints in sewer pipe. Once inside, the roots continue to grow, creating a mass. The mass can become matted with grease, paper, wipes, and other solid materials causing a blockage or perhaps an overflow. As roots 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 2012/2013, the Authority treated 7.4 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.

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## HOW DO SPILLS HAPPEN?





CFPUA's Wastewater Collections System Division has been ISO 14001 certified since 2011 and we are committed to gaining certification for all wastewater divisions. As members of professional associations, we actively participate with the following organizations:

- Water Environment Federation (WEF)
- Lower Cape Fear River Program
- American Water Works Association (AWWA)
- NC Water Quality Association
- New Hanover County Water Quality Roundtable
- Cape Fear River Partnership
- North Carolina Pretreatment Consortium



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 <a href="www.cfpua.org">www.cfpua.org</a>. Notification of availability is provided through printed notice on water/sewer bills and the Authority's website. This report was completed by staff of the Cape Fear Public Utility Authority 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 the CFPUA 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

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