



# CITY OF DURHAM, NORTH CAROLINA **ANNUAL SANITARY SEWER SYSTEM REPORT FY 2012-2013**



Welcome to the City's annual summary of the performance of Durham's sewer system. In addition to informing our customers about the sewer system, this report also meets the requirements of House Bill 1160 passed by the North Carolina General Assembly in 1999. The bill requires owners and/or operators of wastewater collection and treatment systems to provide an annual report to users or customers.

Each year's report summarizes the treatment works' and collection system's performance over a 12-month period. This report is available to all customers and is submitted to the North Carolina Department of Environment and Natural Resources.

## **About the Department**

All water and sewer operational units are a part of the Department of Water Management. The Water and Sewer Maintenance Division is responsible for the operations and maintenance of the collection system. Sometimes referred to as the sanitary sewer system, this is the series of pipes that transport wastewater to the treatment

facilities operated by the Wastewater divisions. Wastewater includes all used domestic and process water from any drain leaving a residence,

The Department of Water Management treats approximately 18 million gallons of wastewater every day at our plants in South Durham and North Durham.

business, industry or other facility and entering the collection system.

Wastewater travels through underground sewer pipes to the treatment plant. At the plant, wastewater is treated by physical, biological and chemical processes before it is returned to the environment via receiving streams.

The City is committed to protecting the environment and the health of downstream users by ensuring that Durham's wastewater discharge meets all applicable standards. Because of this high level of

treatment, water downstream of a water reclamation facility may be cleaner than the water upstream of the facility.

This report describes the collection system operation, the wastewater treatment process and the City's grease reduction initiative. As with any large municipal system, occasional blockages cause backups and overflows. Included in this report is a table listing the spills and overflows that occurred this year and the steps taken to mitigate the impact and prevent recurrences. ALL incidents were reported to the state within 24 hours of their occurrence. By policy, news releases to inform the public are distributed by the end of the next business day after the occurrence.

The Annual Sanitary Sewer System Report is available at City Hall, Water Management and Public Works facilities and on the City's website: [www.durhamnc.gov](http://www.durhamnc.gov). Additional copies of the report may be requested by calling Water Management at (919) 560-4381.

<b>Durham's Sewer System Facilities</b>			
	<b>Collection System</b>	<b>Water Reclamation Facility</b>	
<b>Name of Facility</b>	Water and Sewer Operations Center	North Durham Water Reclamation Facility	South Durham Water Reclamation Facility
<b>Permit Number</b>	WQCS00005	NCOO23841	NCOO47597
<b>Address</b>	1110 Martin Luther King Jr. Pkwy.	1900 East Club Blvd.	6605 Farrington Rd.
<b>Operator in Responsible Charge (ORC)</b>	Andy Brogden	John Dodson	Charles Cocker

**Down the Drain! Where does it go?**

When wastes exit a home, business or industry via piping, the wastewater enters the collection system. These pipes carry wastewater away from homes, businesses, schools, hospitals and industries.

The waste flows by gravity or may flow to lift stations located in strategic areas throughout the service area. Pumps in the lift stations do just that — they “lift” the wastewater to a higher elevation where it again flows by gravity, ultimately to one of the City’s two water reclamation facilities. Sixty-two pump stations for the collection system are monitored and maintained by Plant Maintenance division staff.

Durham sits on a ridgeline that generally runs along Pettigrew Street and the railroad tracks. Wastewater on the north side of the ridgeline flows to the North Durham Water Reclamation Facility and after treatment is ultimately discharged into the Neuse River Basin. The South Durham Water Reclamation Facility receives wastewater that flows south of the ridgeline.

After processing, the discharge flows into the Cape Fear Basin. Durham County owns and operates a third wastewater treatment plant that serves most of Research Triangle Park, Parkwood and a few other southern Durham neighborhoods. The Durham County sewer system report is posted at [www.dconc.gov](http://www.dconc.gov).

**Collection System Performance**

City departments continue to use the Geographical Information System (GIS) mapping of the collection system which provides an accurate method of tracking both operations and maintenance activities.

Approximately 1,100 miles of the collection system are represented by GIS mapping. During this reporting period, Water and Sewer Maintenance crews and City contractors conducted numerous maintenance activities to clean and rehabilitate the collection system. These maintenance activities include lateral service, flushing, inspection (CCTV), mains replaced, and easements mowed. Maintenance crews repaired/replaced 70 sewer

**Wastewater treatment clarifier at North Durham Water Reclamation Facility**



<b>Maintenance Activities</b>	
<b>Activity</b>	<b>Linear Feet</b>
Lateral Service	59,427
Flushing	1,398,097
Inspections (CCTV)	805,460
Mains Replaced	593.5
Easements Mowed	1,828,037
Cured in Place Pipe	42,056
Smoke Testing	86,828

services and responded to 527 blockages. Improper disposal of grease continues to be the number one cause of blockages in the sewer system.

City staff will continue to focus resources on repeat blockages and



**Chemist Lito Chiu prepares a sample for metal analysis at the South Durham Water Reclamation Facility.**

promote a maintenance campaign to alleviate the environmental and financial impacts of this problem. One major element of the program has been an extensive cleaning of problem areas of the system. The second major element of the program is the education, prevention and enforcement effort coordinated by the Department's Industrial Pretreatment/FOG Program. Funding of infrastructure rehabilitation is a high priority of the department's Capital Improvement Projects (CIP).

### **Water Reclamation Facility Plant Performance**

The City's two wastewater treatment facilities — North Durham and South Durham Water Reclamation facilities (WRFs) — have the combined capacity to treat (or reclaim) 40 million gallons per day (MGD) of wastewater. During this reporting period, the average daily flow treated by the two plants was 17.62 MGD.

In October 2012, the North Durham WRF failed its quarterly Whole Effluent Toxicity (WET) test, resulting in the issuance of a Notice of

Violation. Subsequent testing conducted in November and December demonstrated a return to "pass" status for the test. The WET test measures the ability of microscopic water fleas (*Ceriodaphnia dubia*) to both survive and reproduce in the treatment plant's effluent (discharge). For both North and South Durham, the plant effluent makes up 99 percent of the stream

Visit <http://www.durhamnc.gov/departments/wm/goflow/atstf.swf> to learn more about the wastewater treatment process.

flow at the discharge point. This was the first failure for the facility in 20 years; the cause has not yet been identified, however staff are continually monitoring incoming wastes to prevent future occurrences.

In 2012, new preliminary treatment equipment was installed at the North Durham WRF. The new equipment,

which included new bar screens and a grit washer, allows staff to produce a drier, less odorous material that can be disposed of more economically. Future upgrades include the addition of supplemental carbon and alum feed. These projects will help North Durham meet Stage 1 of the Falls Lake Rules for nutrient reduction.

To ensure long-range compliance with the nutrient reduction requirements of the Falls Lake and Jordan Lake rules, the City will begin phased implementation of the recently completed Water Reclamation Facility Master Plans. The planning effort covers the next 20 years and addresses a number of improvements to meet anticipated regulations.

### **Industrial Pretreatment/FOG Program**

Industrial Pretreatment Program staff survey facilities discharging into the sewer system and issue permits to facilities in certain categories, determined either by the type of business activity they conduct or the type(s) of wastewater discharged from their facility. Permit limits are established based on the ability of the receiving treatment plant — either the North Durham Water Reclamation Facility or the South Durham Water Reclamation Facility — to assimilate, treat and remove substances from the waste. Currently, staff monitors 13 significant industrial users and hundreds of commercial establishments with high-strength discharges.

To help in the effort to reduce grease blockages in the sewer system, the Industrial Pretreatment/FOG Program staff coordinates the education and inspection portion of the grease reduction initiative.

Grease may enter the sewer system from either household drains or through poorly maintained grease traps in restaurants and other food service establishments. To meet the 250 mg/L limit for FOG (fats, oils and grease), food preparation and/or



**Safely dispose of grease by pouring it directly into a Fat Trapper and taking it to the Waste Disposal and Recycling Center on 2115 E. Club Blvd. Fat Trappers are available to residents at no cost.**

processing facilities must clean their removal systems (grease traps) on a monthly basis. More frequent cleaning will be required if a facility discharges more than 250 mg/L of FOG. Less frequent cleaning may be permitted if the facility can demonstrate that the 250 mg/L limit can be met with an alternate cleaning schedule. Cleaning and removal records must be maintained for three years and available for inspection on request.

While restaurants and other food service establishments typically use commercial processors to collect and remove grease from their grease traps, it is not practical for homeowners and residential customers to contract such services. For this reason, the City has provided — at no extra cost to residents — a collection container for used cooking oil at the Waste Disposal and

DO	DON'T
<ul style="list-style-type: none"> <li>Collect cooking oil and grease in containers and dispose of it properly.</li> <li>Remove oil and grease from kitchen utensils, equipment, and food preparation areas with scraper/towels/broom</li> <li>Keep grease out of wash water</li> <li>Place food scraps in a waste container for solid wastes</li> </ul>	<ul style="list-style-type: none"> <li>Pour oil or grease down the drain.</li> <li>Wash fryers/griddles, pots/pans, and plates with water until oil and grease are removed.</li> <li>Use hot water to rinse grease off surfaces.</li> <li>Use the drain as a means to dispose of food scraps.</li> </ul>

**Remember: The drain is not a trash can!**

Recycling Center at 2115 East Club Boulevard.

Residents are encouraged to implement measures designed to ensure that FOG is not introduced to the sanitary sewer. To assist customers with this effort, the Industrial

Pretreatment Program distributes small residential grease collection units called Fat Trappers. Customers can call 560-4386 and ask for Pretreatment staff for more information on obtaining a Fat Trapper.

#### Notice Under the Americans with Disabilities Act

The City of Durham will not discriminate against qualified individuals with disabilities on the basis of disability. Anyone who requires an auxiliary aid or service for effective communications, or assistance to participate in a City program, service, or activity, should contact the office of Stacey Poston, Acting ADA Coordinator, Voice: 919-560-4197 x21254, TTY: 919-560-4809; Stacey.Poston@durhamnc.gov, as soon as possible but no later than 48 hours before the scheduled event.