



ANNUAL SYSTEM PERFORMANCE REPORT 2010



Facility Information

First Broad Wastewater Treatment Plant
1940 South Lafayette Street
Shelby, NC 28152

Permits

Collection System: WQCS-00037
Wastewater Treatment: NC024538
Compost Facility: WQ0007780
Laboratory Certification: 238
Storm water Permit: NCG080700

City of Shelby Utilities
824 West Grover Street, Shelby, North Carolina 28151
ISO 14001 Certified

SYSTEM OVERVIEW

The City of Shelby wastewater collection and treatment system serves a customer base of 8,700 residential, commercial and industrial users. During last year the First Broad River Wastewater Treatment Plant (WWTP) collected and treated an average of 2.24 million gallons per day (MGD). Included in this flow is wastewater from Kingstown and Fallston.

The sewer collection system consists of gravity sewer lines, pump stations and force-mains that convey wastewater to the First Broad River WWTP. The City owns and maintains 204 miles of sewer lines with 19 pump stations. The City of Shelby is also maintains 5 pump stations for Fallston and 3 for Kingstown.



Aerial of
First Broad
WWTP

WHAT IS WASTEWATER?

Wastewater is sewage from your home's sinks, toilets, bathtubs and washing machines. People also create wastewater at work. Offices, businesses and manufacturers create not only domestic wastewater but also can create wastewater combined with the discharge associated with a manufacturing processes or services.

The City of Shelby's collection system and pump stations direct the flow of the wastewater to the First Broad WWTP for treatment.

The First Broad River WWTP is located on South Lafayette Street.

WHAT DO WASTEWATER TREATMENT PLANTS DO?

Wastewater treatment plants clean our wastewater and prevent pollution from getting into the environment. When wastewater enters our facility, bar screens catch and remove trash and large objects. Grit chambers then remove heavy particles like gravel, sand, seeds and coffee grounds. Wastewater then flows thorough large settling tanks called clarifiers where heavy solids to settle to the bottom and are removed. After the primary clarifiers, the liquid portion flows into the aeration basin where microorganisms breakdown the pollutants.

The wastewater then flows into final clarifiers where the microorganisms settle out and are returned to the basins. Some of these solids are removed from the system. The flow is disinfected before the treated water is returned to the First Broad River.

The solids, which have been removed from the process, are pumped to a holding tank where they are held until processed through our Compost Facility, where the solids are combined with bark mulch and treated for 30 plus days. After processing the compost is provided to the public for home use around trees and flowers. The product is also being used as fertilizer for pastures.

COLLECTION SYSTEM MAINTENANCE

The Field Operations Division maintains collection system pipes and lines in order to prevent sanitary sewer overflows (SSOs) and keep wastewater flowing through the collection system to the treatment plant for treatment. During the report year 36 miles of pipes were cleaned by rodding/jetting and 29,455 feet of sewer lines were videoed to inspect sewer lines for problems. During the year Field Operations also conducted inspections of 115 exposed aerial crossings and also performed maintenance of sewer right-of-ways. Field operations also is responsible for installation of sewer connections and also performs repairs to problematic connections, lines and manholes. Smoke testing is also performed to determine sources of Inflow and Infiltration.

Facility Maintenance conducts inspections of all pump stations and performs both preventative and corrective maintenance on the stations and the force mains. The City's pump stations are monitored by computers and are equipped with back-up generation (either permanent or portable capabilities).



Field Operations Flush Truck



Sewer Pump Station

COMPLIANCE SUMMARY

The City of Shelby's First Broad WWTP has permit limits and monitoring requirements regulated by the NC Department of Environment and Natural Resources (NCDENR). During the year thousands of samples are collected and analyzed to show compliance and to monitor plant operations. NCDENR requires all wastewater collection and treatment systems to annually report to its customers all sanitary sewer overflows, violations of state-issued permit limits and reporting requirements. The following overflows and violations occurred from January 2010 through December 2010.

Wastewater Plant Compliance
March 2010—Cyanide Limit Violation
 Limit 22.0 mg/L Result 27.3 mg/L

Sanitary Sewer Overflows
Monthly Spill Totals

Jan	208,984	Jul	6,825
Feb	50,870	Aug	191,191
Mar	3,820	Sep	0
Apr	318	Oct	0
May	0	Nov	0
Jun	1,300	Dec	1,193

Spills greater than 1,000 gallons

<u>Date</u>	<u>Address</u>	<u>Gallons</u>	<u>Cause</u>
1/25/10	Kings Rd ROW	11,250	HR
1/25/10	Grice St ROW	52,500	HR
1/25/10	1120 Ladell Ln	37,000	HR
1/25/10	Fanning Dr	30,234	HR
1/25/10	Dockery St ROW	78,000	HR
2/3/10	617 Waylen Dr ROW	1,950	P/G
2/5/10	300 Windsor Dr	3,900	HR
2/5/10	1317 Dockery Dr	4,875	HR
2/5/10	312 Windsor Dr	18,990	HR
2/5/10	707 E Dixon Blvd	11,250	PF
2/5/10	617 Waylen Dr ROW	4,875	HR
2/5/10	1120 Ladell Ln	3,900	HR
3/6/10	2928 Poplar Cir	1,270	R/G
3/23/10	1716 Arbor Way Dr	1,950	R
6/16/10	704 Hanover Dr	1,300	P/G
7/5/10	315 Robinwood Dr	2,925	D/G
7/28/10	324 E Grover St	3,900	PF
8/19/10	1902 Randolph Rd	3,600	HR
8/19/10	714 Kingsbury St	176,250	HR
8/19/10	1114 Ladell Ln	1,950	HR
8/19/10	312 Windsor Dr	3,900	HR
8/19/10	1735 Linton Barnett Sr Dr (ROW)	2,700	HR
8/31/10	3013 Arnold Dr	1,905	R
12/9/10	Seattle St ROW	1,025	G

D-Debris ** D/G—Debris and Grease ** D/R—Debris and Roots
 E—Equipment ** G—Grease ** HR—Heavy Rain
 P/G—Paper and Grease ** PF—Pipe Failure
 R—Roots ** R/G—Roots and Grease

All overflows and violations have been corrected and reported to the State of North Carolina. No environmental impacts or fish kills occurred with these events.

ENVIRONMENTAL PROGRAMS AND SERVICE INITIATIVE

As part of a commitment to support educational awareness and promote better learning, Shelby offers tours of the wastewater treatment plant to various interest groups. For a tour of the plant, contact Wastewater Plant Supervisor at 704-484-6850.



**HELP US
PREVENT
SEWER
OVERFLOWS!**

FATS, OILS and GREASE PROGRAM

Grease is a leading cause of sewer blockages and overflows in the sewer system and can lead to sewer back-ups into homes. The City urges residents to help our fight against grease:

- Never pour grease down the drain.
- Scrape grease and food scraps into the trash.
- Use sink strainers to prevent food scraps from going down the drain.

The Fats, Oil and Grease (FOG) Program seeks to reduce these occurrences by education to the public on how to prevent grease from entering the sewer system.

Special emphasis has been placed on food service establishments, but we all need to do our part to keep grease out of the sewer system. For more information on our program, contact :

Pretreatment Coordinator at 704-484-6850

Dumping waste into the City's manholes without permission is illegal. Residents can report suspicious activity, sewer overflows and other sewer issues any time by dialing (704) 484-6866.

FACILITY INFORMATION

- **Royster Avenue Sewer** — Sewer Line /Manhole Replacement
- **Hendrick Street O/F Sewer** — Sewer Line / Manhole Replacement 9 manholes and 1870 feet of sewer line.
- **Washington/Hudson Street Sewer** — Sewer Line /Manhole Replacement 7 manholes and 1535 feet of sewer line.
- **Right of Way Improvements** — Cleaning of grown up Right of Ways— 10,281 feet
- **Wastewater Treatment Plant—Preliminary Treatment Upgrades** — Repairs to headworks of treatment plant including rebuilding of grit equipment, barscreens, electrical repairs, handrails and painting.

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.

Todd Humphries
First Broad WWTP Supervisor /
Operator in Responsible Charge

JD Kimble
Field Operations Supervisor/
Operator in Responsible Charge

Copies of this report are available at

- **City Hall at 300 S Washington Street**
- **Utilities Operations Center at 824 W Grover Street**
- **First Broad Waste Treatment Plant at 1940 S Lafayette Street.**

Notification of availability is provided by the City's website at www.cityofshelby.com and via utility bills.

For more detailed information, contact the Assistant Utilities Director, David Hux at 704-484-6840 or david.hux@cityofshelby.com.