GREENSBORO
WATER RESOURCES

CITY OF GREENSBORO

Water Resources

2017 Sewage Collection & Water Reclamation Plant Report

The Clean Water Act of 1999 (House Bill 1160) requires all entities that own or operate wastewater collection and treatment systems to make an annual report available to their customers. The purpose of the report is to show how a system operates, how well it performed during the year, what violations occurred, and other important information.

This report is produced in compliance with these requirements and covers the calendar year January - December 2017. This report is available to all customers, and is submitted to the North Carolina Department of Environmental Quality.

The names listed are professionals designated by the State as the "Operators in Responsible Charge" (ORC) of the respective systems:

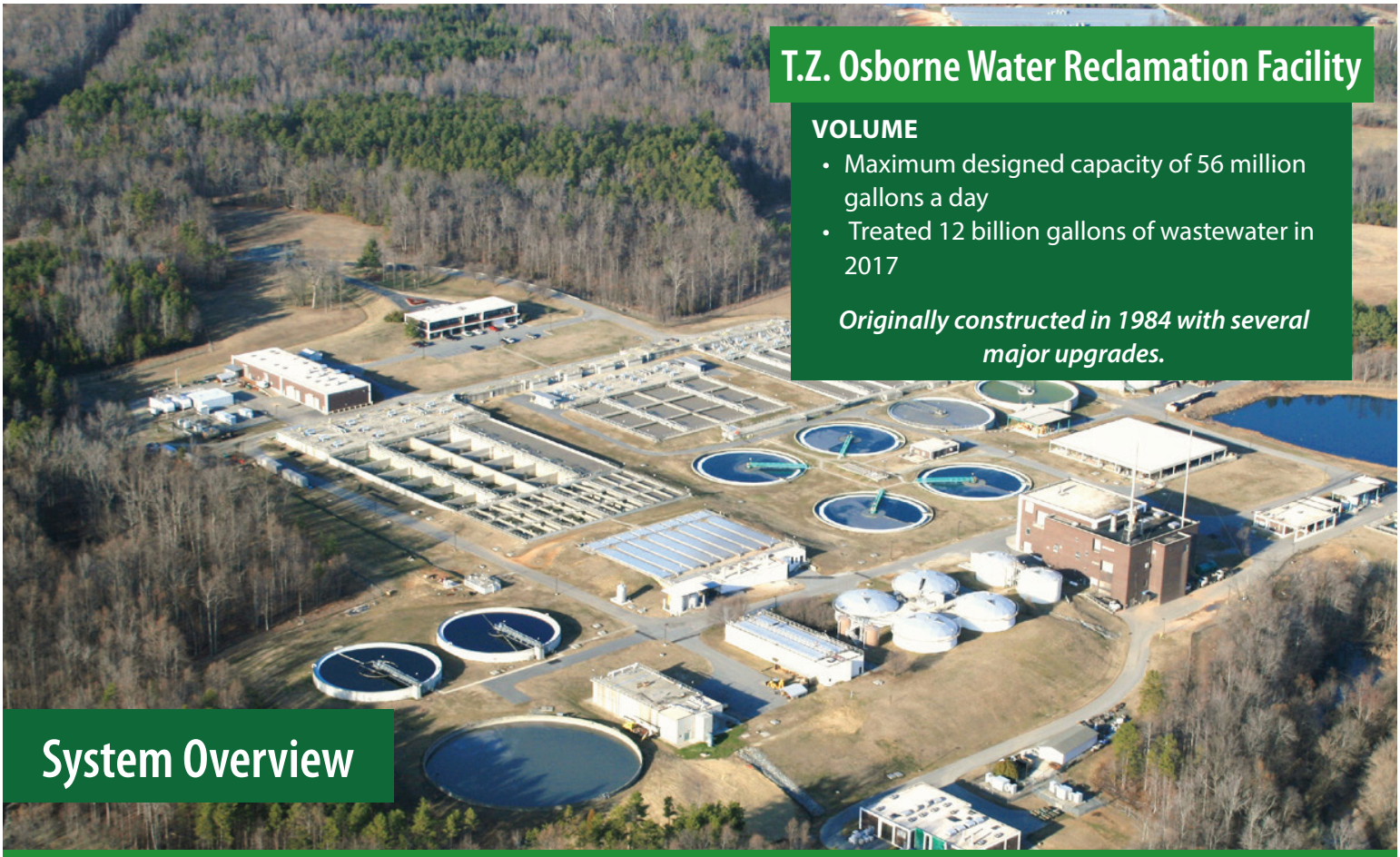
T.Z. Osborne Water Reclamation Facility
Permit Number: NC0047384
ORC: Bradley Flynt, (336) 433-7262

Sewage Collection System Permit
Number: WQCS00006
ORC: Robert Martin, (336) 373-2033

Contact Information
T.Z. Osborne Water Reclamation Facility
(336) 373-7740

www.greensboro-nc.gov/water

To report sewer overflows, please contact 336-373-2033



T.Z. Osborne Water Reclamation Facility

VOLUME

- Maximum designed capacity of 56 million gallons a day
- Treated 12 billion gallons of wastewater in 2017

Originally constructed in 1984 with several major upgrades.

System Overview

The long history of water reclamation in Greensboro began with the construction of the original 4 million gallon per day (MGD) South Buffalo Creek Treatment Facility in 1928. Over the next ten years, the North Buffalo Water Reclamation Facility opened to provide secondary treatment for the northern half of Greensboro. By 1984, South Buffalo Creek Treatment Facility closed only to be replaced by T.Z. Osborne Water Reclamation Facility.

Currently, the City of Greensboro Water Resources Department operates one water reclamation plant and a sewage collection system that collects and transports sewage to this plant. The North Buffalo Facility was decommissioned in October 2017. It is now a transfer pump station and all wastewater is currently treated at the T.Z. Osborne facility.

The sewage collection and water reclamation system of the City of Greensboro begins with approximately 99,797 connections that serve homes, commercial establishments, and industries. Every day an average of 32.09 million gallons of sewage is generated in our homes and industries that must be collected, transported, and treated to very stringent standards before it is released back into the environment (in our streams). This service is provided by the City's Water Resources Department and is funded almost entirely from the user charges that are paid monthly by our customers.

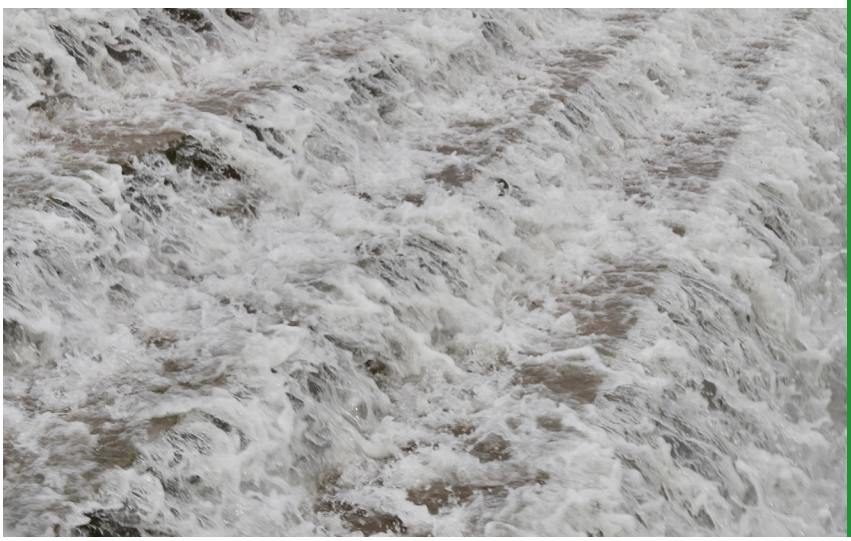
The City of Greensboro operates a sewage collection system comprised of 1,629 miles of gravity lines, 40,040 sewer manholes, 49 pump stations, and 88 miles of pressurized sewage force mains. The system is subject to many rules and regulations. All spills and overflows, of any volume, that reach surface waters must be reported to the State. The City of Greensboro notifies media any time a spill results in 1,000 gallons or more reaching surface waters.

Wastewater Treatment Plant Performance

The City of Greensboro's wastewater treatment plant operates under a National Pollutant Discharge Elimination System (NPDES) Permit. This highly complex permit includes monitoring requirements and discharge limits. The permit can be viewed at our treatment plant upon request. Compliance with these permits requires our laboratory staff to conduct over 60,000 tests per year. Wastewater treatment plants have no control over some parameters, other than through regulating what industry and households can discharge to the sewers through the Industrial Waste and Pretreatment Program.

During 2017 the Water Resources Department treated almost 12 billion gallons of wastewater and returned it to our streams. We are proud of the performance of these facilities made possible by the dedicated efforts of the professionals who operate, maintain and conduct tests for the plant. All NPDES permit violations are reported to the State of North Carolina to ensure compliance with reporting regulations. A list of violations that occurred during the 2017 calendar year is at the end of this report (Tables 1-2).

The City of Greensboro's water reclamation facility is a tertiary treatment plant that utilizes activated sludge processes. Solid waste (biosolids) generated in these processes is disposed of by a fluidized bed incinerator.



System Improvements

Water Resources is proud that given the capacity of our treatment plant and the age of our collection system, our permit departures have been minimal. However, we recognize that in the changing climate of environmental concern, total compliance is demanded by the public.

In an effort to continue to improve our wastewater collection system and meet the demands of new regulations, various capital improvement projects have been initiated. To prepare for State and Federal nutrient reduction regulations and the Jordan Lake Rules, upgrades to provide a higher level of treatment at the T.Z. Osborne facility are currently underway. This $115 million four-phase construction project will be completed in 2020.

Protecting the System

Each year, the City of Greensboro evaluates the wastewater collection system and prioritizes needs and resources. The system is monitored and maintained daily with the implementation of both preventative and corrective maintenance measures. In addition, the City of Greensboro continually improves the system using an aggressive program to rehabilitate old infrastructure that exhibit signs of deterioration. Planning and making improvements to our wastewater collection system extends the life and operating efficiency of the City's sewer system.

Summary of Collection

In 2017, there were 51 Sanitary Sewer Overflows (SSOs) in our community which is an increase from the 41 spills reported in 2016. SSOs occur when problems in the system cause sewage to emerge from manhole covers, service cleanouts or plumbing fixtures. The major contributors to sewer overflows include trash or debris, tree and shrub roots, grease, pump station equipment failure, and pipe failures or breaks. Listed on the following pages are the compliance and violation records for both wastewater treatment plants and the list of SSOs that were 1,000 gallons or more.

The annual sewage and water reclamation plant report is available at the following City of Greensboro locations: the Vance H. Chavis Lifelong Learning Branch Library, the McGirt-Horton Branch Library, the Central Library, the Melvin Municipal Office Building, T.Z. Osborne Wastewater Facility, and also on the City's website: www.greensboro-nc.gov/water.

Fats, Oils and Grease Program

Grease that comes from cooking oils, gravy, lard or shortening, and butter or margarine may not look harmful as a liquid, but when they cool they get thick and stick to pipes.

Cooking oil, fats, and grease that enter the sanitary system from household drains and poorly maintained grease traps in restaurants and other food establishments can result in sanitary sewer overflows (SSOs). Sewer overflows and backups can cause health hazards, damage home interiors and threaten the environment.

The City of Greensboro Water Resources Department implements a Fats, Oils, and Grease (FOG) Policy designed to educate and enforce proper disposal of FOG within the community. The FOG policy educational and enforcement programs are intended for all customers (Food Service Establishments, Nursing/Group homes, Schools/ Cafeterias, Industries, and Residents) that discharge wastewater into the City of Greensboro Sanitary Sewer System with the aim of mitigating or eliminating SSOs that are grease related. The City of Greensboro FOG policy requires all commercial and food service establishments to install and regularly maintain an appropriately sized grease trap or interceptor.

To learn more, please visit www.greensboro-nc.gov

Tips to Prevent Sanitary Sewer Overflows

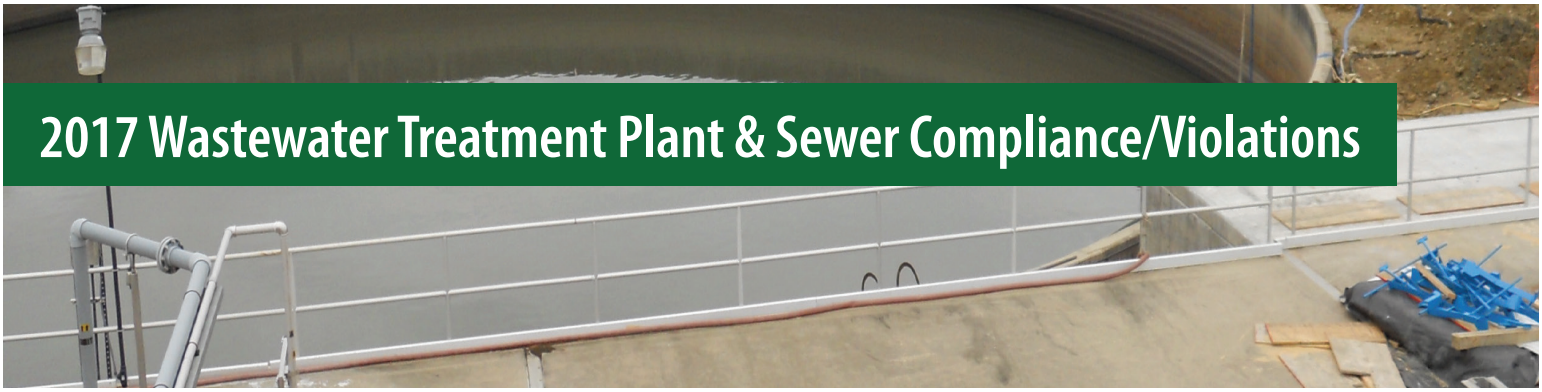
- Place cooled oil and grease into trash bins or covered collection containers. Never pour grease down the drain!
- Scrape food scraps from dishes into trash bins.
- Wipe off all fats, oils, grease and food residue from dishes and cookware into trash bins.
- Use a strainer in the sink to collect excess food particles.
- Clean up grease spills with absorbent material and place into trash bins.

2017 Wastewater Treatment Plant Compliance/Violations

TABLE 1

T.Z. Osborne - Permit #NC0047384

MONTH	DESCRIPTION	TYPE OF VIOLATION
April	CBOD (Carbonaceous Biochemical Oxygen Demand) 4/23-4/29	Weekly Average
	Fecal Coliform 4/23-4/29	Weekly Average
May	Fecal Coliform 4/30-5/6	Weekly Average
	TSS (Total Suspended Solids) 5/21-5/27	Weekly Average
	CBOD (Carbonaceous Biochemical Oxygen Demand) 5/21-5/27	Weekly Average
	CBOD (Carbonaceous Biochemical Oxygen Demand)	Monthly Average
June	CBOD (Carbonaceous Biochemical Oxygen Demand) 6/18-6/24	Weekly Average
	CBOD (Carbonaceous Biochemical Oxygen Demand)	Monthly Average
	Fecal Coliform 5/28-6/3	Weekly Average
	Fecal Coliform 6/18-6/24	Weekly Average
	Fecal Coliform	Monthly Average
July	CBOD (Carbonaceous Biochemical Oxygen Demand) 7/9-7/15	Weekly Average
	CBOD (Carbonaceous Biochemical Oxygen Demand)	Monthly Average
October	Fecal Coliform 10/1-10/7	Weekly Average
	Total Residual Chlorine 10/20	Daily Maximum



2017 Wastewater Treatment Plant & Sewer Compliance/Violations

TABLE 2

North Buffalo - Permit #NC0024325*

MONTH	DESCRIPTION	TYPE OF VIOLATION
N/A	None	None

*No violations in 2017

TABLE 3

Sewage Collection System - Permit #WQCS00006

Sewage Spills from Collection System Exceeding 1,000 Gallons

PERMITEE	INCIDENT STARTED	VOLUME REACHING SURFACE WATER	SURFACE WATER NAME	LOCATION	PROBABLE CAUSE
City of Greensboro	2/26/17	2,500 gallons	North Buffalo Creek	1915 Lendew St.	Grease
City of Greensboro	2/27/17	50,000 gallons	North Buffalo Creek	1402 Briarcliff Rd.	Pipe Failure
City of Greensboro	5/22/17	3,000 gallons	South Buffalo Creek	1500 Dans Rd.	Roots
City of Greensboro	7/25/17	1,200 gallons	North Buffalo Creek	303 Tremont Dr.	Debris
City of Greensboro	8/9/17	1,600 gallons	South Buffalo Creek	4807 Koger Blvd.	Debris
City of Greensboro	12/18/17	3,800 gallons	South Buffalo Creek	3800 West Ave.	Pipe