



City of Greensboro Water Resources Department

Sewage Collection and Water Reclamation Plant Report for 2015

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 2015. 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:

North Buffalo Water Reclamation Facility
Permit Number: NC0024325
ORC: Ed Osborne
(336) 373-7850

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

Sewage Collection System
Permit Number: WQCS00006
ORC: Patrick Smith
(336) 373-2033





**North Buffalo
Water Reclamation Facility**

**T.Z. Osborne
Water Reclamation Facility**



System Overview

The City of Greensboro Water Resources Department operates two water reclamation plants and a sewage collection system that collects and transports the sewage to these two plants. Some transfer of sewage occurs between the two plants. The North Buffalo Facility and the T.Z. Osborne Facility are permitted to process up to 16 and 40 million gallons of wastewater per day, respectively.

The sewage collection and water reclamation system of the City of Greensboro begins with approximately 103,480 connections that serve homes, commercial establishments, and industries. Every day an average of 33 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 our 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 1,624 miles of gravity lines, 39,864 sewer manholes, 49 pump stations, and 90 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 water must be reported to the State. Spills that exceed 1,000 gallons must also be reported to local news media outlets.



Wastewater Treatment Plant Performance

The City of Greensboro's wastewater treatment plants operate under National Pollutant Discharge Elimination System (NPDES) Permits. These are highly complex permits that include monitoring requirements and discharge limits. The permits can be viewed at our treatment plants upon request. Compliance with these permits requires our laboratory staff to conduct over 60,000 tests per year. Any one of these tests may result in a value that causes us to violate the limits of the NPDES Permit. Wastewater treatment plant operators have no control over some limited parameters (selenium and mercury) other than through regulating what industry and households can discharge to the sewers through the Industrial Waste and Pretreatment Program.

During 2015 the Water Resources Department treated 12.1 billion gallons of wastewater and returned it to our streams. We are proud of the outstanding performance of these facilities made possible by the dedicated efforts of the professionals who operate, maintain and conduct tests for these plants. All NPDES permit violations are reported to the State of North Carolina to ensure compliance with all reporting regulations. A list of violations that occurred during the 2015 calendar year is at the end of this report (Tables 1-2). There were no detected environmental impacts from any of these permit violations.

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



System Improvements

The Greensboro Water Resources Department is proud that given the capacity of our treatment plants 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 nutrient reduction requirements of the Jordan Lake Rules, upgrades that will provide a higher level of treatment for the T.Z. Osborne facility are currently underway. This \$115 million four-phase construction project will be completed in 2020.

How We Protect 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, an aggressive program to rehabilitate old infrastructure that exhibit signs of deterioration has allowed continual improvement of the system. Planning and making improvements to our wastewater collection system extends the life and operating efficiency of the City's sewer system.



Summary of Collection System Performance

From January 1st – December 31st of 2015, the City of Greensboro had 62 Sanitary Sewer Overflows (SSOs). SSOs occur when problems in the system cause sewage to emerge from manhole covers, service cleanouts or plumbing fixtures. Reported causes of sewer overflows included paper, rags and debris in line, 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, all Water Resources Department Facilities, and also on the City's website: www.greensboro-nc.gov/water.



Fats, Oils, and Grease Program

Sewer overflows and backups can cause health hazards, damage home interiors and threaten the environment. A significant cause of overflows is grease. Grease can enter the sewer system from household drains as well as from poorly maintained grease trap in restaurants and other businesses.

To help in the effort to prevent undue introduction of fats, oils, and grease (FOG) into the wastewater collection system, the City of Greensboro Water Resources Department implements a FOG Policy designed to educate and enforce the 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 Sanitary Sewer Overflow (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.

A comprehensive FOG educational program encourages both residential and commercial customers to implement measures to ensure that FOG is not introduced into the sanitary sewer system. Together, we can protect our sewer system and the environment. To learn more please visit www.greensboro-nc.gov/water.

Wastewater Treatment Plant Compliance/Violations for 2015

Table 1

North Buffalo - Permit #NC0024325		
Month	Description	Type of Violation(s)
N/A	N/A	N/A

Table 2

T.Z. Osborne - Permit #NC0047384*		
Month	Description	Type of Violation(s)
January	Ammonia-Nitrogen	Monthly Avg
February	Ammonia-Nitrogen [2/1-2/7] Ammonia-Nitrogen [2/8-2/14] Ammonia-Nitrogen [2/15-2/21] Ammonia-Nitrogen [2/22-2/28] Ammonia-Nitrogen Fecal Coliform [2/1-2/8] CBOD (Carbonaceous Biochemical Oxygen Demand)	Weekly Avg Weekly Avg Weekly Avg Weekly Avg Monthly Avg Weekly Avg Monthly Avg
March	Ammonia-Nitrogen [3/1-3/7] Ammonia-Nitrogen [3/8-3/14] Ammonia-Nitrogen	Weekly Avg Weekly Avg Monthly Avg
April	CBOD (Carbonaceous Biochemical Oxygen Demand) [4/19-4/25] CBOD (Carbonaceous Biochemical Oxygen Demand)	Weekly Avg Monthly Avg

* The T.Z. Osborne plant experienced an operational upset during first quarter 2015 due to cold temperatures, increased road salt loading due to several ice/snow events and unexpected incinerator down-time.

Contact Information

Water Resources Administration: (336) 373-2055
 T.Z. Osborne Water Reclamation Facility: (336) 373-7740
 North Buffalo Water Reclamation Facility: (336) 373-5913

www.greensboro-nc.gov/water

Table 3

Sewage Spills from Collection System Exceeding 1,000 Gallons

Sewage Collection System- Permit #WQCS00006						
Permitee	Permit Number	Incident Started	Volume Reaching Surface Water	Surface Water Name	Location	Probable Cause
City of Greensboro	WQCS00006	1/7/2015	2,500 (0 reached surface water)	North Buffalo Creek	2006 White Street	Broken Force Main
City of Greensboro	WQCS00006	1/14/2015	1,700	North Buffalo Creek	2301 White Street	Broken Force Main
City of Greensboro	WQCS00006	3/10/2015	18,000	Horsepen Creek	3844 Battleground Avenue	Lift Station Failure
City of Greensboro	WQCS00006	5/4/2015	1,500	North Buffalo Creek	404 Montrose Drive	Sticks
City of Greensboro	WQCS00006	6/20/2015	1,000	South Buffalo Creek	1808 Carlton Avenue	Grease
City of Greensboro	WQCS00006	7/8/2015	2,000 (0 reached surface water)	North Buffalo Creek	1256 Rankin Mill Road	Broken Force Main
City of Greensboro	WQCS00006	8/6/2015	75,000 (600 not contained)	North Buffalo Creek	1632 Oakleigh Road	Broke Main
City of Greensboro	WQCS00006	10/27/2015	1,500	Horsepen Creek	422 Chimney Rock Road	Paper
City of Greensboro	WQCS00006	12/15/2015	2,700	Deep River	3611 Groometown Road	Concrete/Brick
City of Greensboro	WQCS00006	12/21/2015	1,500	North Buffalo Creek	1715 Kay Street	Paper