



ANNUAL WASTEWATER REPORT
SEWER COLLECTION AND WASTEWATER TREATMENT FACILITIES
 Report for FY 2015-2016
 (July 1, 2015 through June 30, 2016)

On July 21, 1999, North Carolina Governor James Hunt signed a law, House Bill 1160, that placed reporting requirements on the owners or operators of wastewater treatment and wastewater collection facilities in North Carolina. Part of this new legislation was a requirement to provide the user or customers of the system with an annual report of the past year’s performance including a summary of violations.

The purpose of these reports is to provide an understandable and informative description of the wastewater treatment facilities and sewage collection system, describe the regulations with which these facilities must comply, and promote a general awareness of these facilities and their role in protecting the environment.

The City of High Point operates two wastewater treatment facilities and a wastewater collection system that collects and transports the wastewater to each of these two facilities. The names and permit information for these facilities are listed below as well as those professionals designated by the State of North Carolina as Operators in Responsible Charge (ORC):

Eastside Wastewater Treatment Plant	Westside Wastewater Treatment Plant	Sewage Collection System
5898 Riverdale Drive Jamestown, NC 27282	1044 W. Burton Road Thomasville, NC 27360	816 East Green Street High Point, NC 27260
Ph: 336-822-4732	Ph: 336-822-4782	Ph: 336-883-3691
NPDES Permit #: NC0024210	NPDES Permit #: NC0024228	Collection Permit #: WQCS00010
Randy Smith, ORC	Michael Swan, ORC	Bart Hepler, ORC

This report is available for viewing at City Hall (Public Services) or by logging onto our web site at www.highpointnc.gov. Customers will be notified of its availability by printed notice on water and sewer bills. Questions, comments, or requests for additional copies of this report should be directed to the Public Services Department at 336-883-3215. This report has been completed by staff of the City’s Public Services Department and is accurate to best of our knowledge and belief.

Terry L. Houk, Director of Public Services



SYSTEM OVERVIEW

The Public Services Department bears the responsibility for wastewater collection and treatment. The Divisions in the Department that are involved in wastewater collection and treatment are - Water & Sewer Mains, Residuals Management, Central Laboratory Services, Maintenance Services, Westside Wastewater Treatment Plant and Eastside Wastewater Treatment Plant.

The City's wastewater collection and wastewater treatment facilities provide service to homes, commercial establishments and industries. During this report period, there were approximately 38,000 connections through which an average of 17 million gallons of wastewater traveled each day. This wastewater was collected, treated, then discharged back into the receiving stream. The City also treats wastewater from Jamestown, Archdale and Sedgewick.

State agencies assure that stringent standards are met before the treated wastewater can be released into a receiving stream. These standards are listed in a National Pollutant Discharge Elimination System (NPDES) permit. Each facility that releases treated wastewater into surface water; a stream for example, must possess one of these permits. These permits regulate the type and amounts of pollutants that a facility can discharge. The discharge limits in these permits are based on a stream's ability to withstand the addition of pollutants without having noticeable impact on the stream's water quality. These complex permits include monitoring requirements and discharge limits. Some vary with seasons and have different maximums for daily values, weekly averages, monthly averages and quarterly averages.

Wastewater treatment is a complex process that oftentimes is taken for granted. However, it requires expensive equipment and skilled operations, maintenance, laboratory, solids handling and engineering personnel working constantly to assure adequate treatment twenty-four hours a day, seven days a week, and 365 days a year.

COLLECTION SYSTEM OVERVIEW

High Point's wastewater collection system consists of approximately 654.6 miles of gravity wastewater lines; 15.8 miles of pressurized force mains; 23 wastewater lift stations, and 16,762 manholes. On average, more than 17 (MGD) million gallons per day, of wastewater flows through this system, from homes and businesses, to either the Eastside or Westside Wastewater Treatment Plants. The collection system has both gravity lines and force mains. Wastewater discharged in neighborhoods flows by gravity into the collection system. The size of the collection system line increases to handle the higher flow as more and more wastewater is collected from other areas. Once the gravity lines get too deep, the flow must be pumped or lifted up, by the City's lift stations, to a higher elevation where use of the gravity lines will be resumed. The lift stations are monitored 24 hours a day for proper operation. The Mains Division has four crews that are responsible for line cleaning and emergency response to calls from the public dealing with collection system problems.

A State mandated fats, oils, and grease (FOG) program is in effect. The Collection System maintenance crew has worked, and continues to work, diligently at keeping the lines clean. A concerted effort is necessary between the City and its citizens in order to reduce the grease related problems in the collection system.

Despite the City's best effort, sanitary sewer overflows (SSO's) happen in High Point, just as they do in every municipality in North Carolina. A SSO is when wastewater escapes from the wastewater collection system to the ground or surface waters. The North Carolina Division of Water Resources defines a reportable SSO as any spill to the ground in excess of 1000 gallons or any spill, regardless of the amount, which reaches surface waters. During this report period, the City of High Point had 26 reportable SSO's. Approximately 34.62% of SSOs in the City was attributed to grease, 34.62% to debris blockages, 19.23% roots, and 11.54% sewer main breaks. The SSO's are summarized in the [Appendix](#).

What the Mains Division is doing to Prevent/Reduce Spills

- Inspect, repair, renovate or replace sewers and pump stations as needed to eliminate leaks or to increase system capacity.
- Inspect and clear collection lines with cutting and flushing equipment.
- Educate customers about proper grease disposal.
- Clear collection system easements to keep roots from growing into collection lines; limit plantings allowed along easements.
- Operate a continuous monitoring and alarm system at pump stations; maintain and repair pumps; use generators for backup power; replace pump stations with gravity sewers when practical; monitor and inspect pump stations to identify improvement needs.
- Ask customers to contact the City if they see debris or trash being deposited into the collection system.

Corrective Actions

Follow-up actions depend on the cause and severity of the spill and may include:

- Cleanup
- Disinfection
- Inspection
- Clearing of mains.
- Increased inspections or other maintenance.
- Repair, renovation or replacement of pipes.
- Replacement of sewers or pump equipment with larger capacity facilities, in some cases.

EASTSIDE WASTEWATER TREATMENT PLANT

The Eastside Wastewater Treatment Plant is a biological nutrient removal, 5-stage (BNR) facility. Essentially, this means that an environment has been created that encourages the growth of phosphorus removing



bacteria that will consume phosphorous at higher than normal levels, thus removing it before the water is discharged. Also, another environment will be created that forces the bacteria to use oxygen from nitrogen compounds thereby reducing the amount of total nitrogen in the treated effluent. The reduction of phosphorous and nitrogen in the plant's effluent will help in reducing the potential for algae growth in Randleman Lake, to which the treated effluent is discharged.

Other treatment processes include screening, grit removal, primary clarification, 5-stage activated sludge, secondary clarification, effluent filtration, ultraviolet disinfection, post aeration and solids handling, (dewatering and incineration) and odor control. All of these major processes, and numerous other minor processes, support the biological treatment process.

An average of 13.34 MGD, or a total of 4879.5 MG, was treated during the reporting year 2015-2016.

Eastside was compliant with its NPDES permit for nine (9) months of the 2015-2016 reporting year. Eastside was non-compliant with the NPDES limit for total phosphorus for the month of November 2015. Eastside was also non-compliant with the NPDES permit for effluent toxicity for the month of April and June 2016.

WESTSIDE WASTEWATER TREATMENT PLANT

The Westside WWTP is an activated sludge facility. Treatment processes include coarse bar racks, influent lift pumps, fine screening, grit removal, primary clarification, aerated sludge, biological filtration, final clarification, alum addition for phosphorus precipitation, lime slurry addition for alkalinity/pH adjustment, tertiary filters, RDT (Rotary Drum Thickener) sludge thickening and UV (ultraviolet light) disinfection, and odor control.

Westside was compliant with its NPDES permit for nine (9) months of the 2015-2016 reporting year. Westside was non-compliant with the NPDES limit for fecal coliform for the month of October 2015. In January 2016, Westside was non-compliant with the NPDES limit for toxicity, and in April Westside exceeded the NPDES limits for monthly and weekly ammonia and monthly BOD.

On November 1, 2005, the new seasonal phosphorus limits became effective. These limits are seasonal discharge poundage based. The winter season is November 1 - March 31 (7808 lbs.). The summer season is April 1 - October 31 (5533 lbs.).



An average of 2.90 MGD, a total of 1059.01 MG, was treated during the reporting year 2015-2016.



Phase 3, of the Westside Biological Nutrient Removal (BNR) upgrade, began in early 2014 with a thirty-three-month completion schedule. The design of this upgrade will increase the permitted treatment capacity of the Westside WWTP from 6.2 MGD to 8.2 MGD. Future receiving stream improvements will possibly allow a maximum increase in permitted treatment capacity to 10.0 MGD.

MAINTENANCE SERVICES

The Central Maintenance Division maintains the City of High Point Eastside Wastewater Treatment Plant, Westside Wastewater Treatment Plant, and all lift stations. The centralized maintenance department consists of a maintenance superintendent, an assistant maintenance superintendent, mechanics, electricians, and electronics technicians. The main maintenance shop is centrally located at the Ward Water Filtration Plant, with satellite shops at the Westside and Eastside Wastewater Treatment Plants. All the technicians are highly trained with many years of maintenance experience.

The electronics section technicians are qualified to perform technical and skilled work in the maintenance, repair and replacement of electrical, electronic and pneumatic equipment at the treatment and collection facilities. This section consists of individuals who possess a thorough knowledge and background in troubleshooting and programming PLC based systems, performing computer based technical assistance for the wastewater treatment plants and lift stations. They are capable of creating graphic screens and programming the SCADA systems allowing the lift stations, and Wastewater Treatment Plant equipment, to be monitored and controlled remotely and in some cases, controlled from a centralized location. They also are responsible for installing and repairing all hardware and software for the computers and peripheral devices and creating databases and spreadsheets so that historical data can be maintained and accessed easily.

The electrical section personnel work hand-in-hand with the electronics staff and are qualified to perform general skilled maintenance and repair of electric motors, high and low voltage switching equipment, electrical control systems, i.e., centrifuge/incinerator controls; circuits, lighting, heating and air conditioning electrical components, UV disinfection systems and troubleshoot the diesel generator electrical systems, etc.

The mechanical technicians troubleshoot and repair complex pumping and wastewater treatment equipment. They are capable of dismantling and overhauling gearboxes, grit collection equipment, conveyors, mechanical grinders, pumps of all types, blowers and compressors, mixers, centrifuges, fluidized bed incinerator, control valves and various other process equipment. They possess technical skills such as proper alignment techniques, welding, use of cutting torch and some limited machine shop skills.



An on-call Maintenance team is available after hours, weekends and holidays to respond to emergency and equipment breakdowns at the water filtration plant, both wastewater plants, and all lift stations.

The mission of the Water and Sewer Maintenance Department is to maintain the equipment at the Eastside Wastewater Treatment Plant, the Westside Wastewater Treatment Plant, the Frank L. Ward Water Filtration Plant and all Lift Stations, in order that they remain in compliance with all federal, state and local regulations. Maintenance staff accomplished these goals through their timely response to corrective maintenance work orders and by performing preventative maintenance as scheduled.

LABORATORY SERVICES

The state certified, Central Water Quality Lab, located at the Frank L. Ward Water Filtration Plant, provides comprehensive analytical monitoring and compliance support for the Public Services Department/Plants Division. This ensures monitoring and reporting compliance with all permitted State, Federal and local laws and ordinances. The central Water Quality Lab provides necessary and required testing to assure safe, clean drinking water, as well as performing analysis on the incoming and outgoing flows from both Wastewater Treatment facilities, as stipulated by the NPDES permits. On average, the lab reports over 15,000 permit required tests to the state that aid in the safe and efficient operation of the plants. Over 3500 quality control tests were performed during the reporting period.



The Industrial Pretreatment Program manages industrial and non-residential discharges into the City's sanitary sewer system. Staff of the Industrial Pretreatment Program survey facilities discharging into the sewer system and issue permits to those falling into certain categories. The type of business activity conducted determines all discharge permits, or the type(s) of waste discharged from their facility. The issuance of NPDES permit limits is based on the ability of the treatment plant – either the Westside WWTP or the Eastside WWTP – to assimilate, treat and remove substances from the incoming waste stream.

There were no discrepancies noted during the State inspection of IPP in 2015-2016.

RESIDUALS MANAGEMENT

The Residuals Management Division has the task of disposing of the wastewater sludge solids from Westside WWTP and Eastside WWTP, and the disposal of alum sludge solids generated by the Ward Water Plant.

The Residuals Division is currently undergoing an upgrade to replace aging equipment and to meet the US EPA released new Maximum Allowable Control Technology (MACT) Standards for sewage sludge incinerators with compliance required in 2016. The centrifuges and the incinerator were taken out of service in April 2015 to allow the contractor to begin work on the twelve-month upgrade project. The upgrade to the solids handling facility will include two new high solids centrifuges, the addition of a sludge “cake” holding bin and two new “cake” pumps. The incinerator upgrade will include the repair of existing reactor refractory and insulation, repair of the exterior steel shell and upgrade to the fluidized air blower. To meet the MACT standards the project includes the addition of control devices to improve the emissions from the incinerator. The control devices that are to be added are the injection of caustic to remove sulfur dioxide, the addition of an advanced multiple venturi for particulate removal and a granular activated carbon adsorber for mercury removal.



A contractor was hired to dewater and transport the dewatered solids from Eastside to a landfill(s) until June 24, 2016. The new centrifuges were placed in operation at that time. The new centrifuges are used to dewater residual solids while construction on the incinerator is being completed. The dewatered sludge is currently transported to landfills and compost facilities.



Westside solids continue to be dewatered at Westside and transported to Republic Services' landfill in Troy, North Carolina until the incinerator at Eastside is ready to accept solids.

Residuals Management Division is responsible for maintaining compliance with EPA and State air quality standards. Since Residuals Management Division operates under a State Air Quality Permit, it is also responsible for overseeing additional State air quality permits issued to the City. There were no compliance issues with the air quality standards during this reporting year.

Residuals Management Division has carried out its mission of providing efficient and prompt service with its staff of dedicated employees.

What is the City Response?

The City of High Point is committed to improving and maintaining compliance with all regulations regarding the wastewater system. Major capital improvement projects include:

- \$2,070,450 to upgrade/replace three sewer pump stations.
- Estimate \$2,200,000 for other sewer system improvements.
- \$21,300,000 for Bio-Solids Disposal Improvements.
- \$31,500,000 for improvements to the Westside WWTP - Phase 3.

Assistance from the Public is Appreciated

The leading cause of overflows is debris and grease blockages in the lines. While the collection system is designed to handle and safely transport sanitary waste to our treatment plants, too much grease or non-biodegradable material placed into the system can cause clogs and result in sanitary sewer overflows (SSOs). Dumping any fats and oils derived from animal and vegetable sources, including meats, nuts, cereals and beans, down any drain – home or business – can cause a stoppage that forces raw, untreated waste to spill into our yards, streets, and streams. It is very important to keep all foreign materials, such as grease and other household debris from entering the system, as these can cause blockages.

You can help the City of High Point reduce the number of overflows by following these simple steps:

- Collect grease, fats and oils from cooking in a container and dispose of it in the garbage instead of pouring it down the drain.
- Always scrape silverware, cookware, and dishes prior to washing.
- Place food scraps in the garbage for disposal with your household solid waste.

Please call 336-883-3111 to report a water main break or sanitary sewer overflow.

PUBLIC SERVICES DEPARTMENT

City of High Point, P.O. Box 230, 211 South Hamilton Street, High Point, NC 27261
Fax: 336.883.1675 Phone: 336.883.3215 TDD: 336.883.8517



APPENDIX

DATE	ADDRESS	GALLONS	CAUSE
July 25, 2015	310 Henley Street	24	Grease
July 25, 2015	East Farris & Denny Street	500	Grease
August 3, 2015	317 Westover	327	Grease
August 23, 2015	938 Marlboro	2200	Debris
November 14, 2015	3900 La Port Court	15000	Vandalism
November 15, 2015	3900 La Port Court	15000	Vandalism
December 21, 2015	Bowers Road & Dillion Road	1000	Grease
December 23, 2015	3507 Bentbrook Drive	1900	Natural Rain Event
January 25, 2016	2359 Hickwood Road	1000	Grease
March 4, 2016	2111 Swathmore	260	Grease
March 11, 2016	Shore and Inlet	500	Broken Pipe
April 2, 2016	7510 Sunnyvale Drive	1200	Lift Station
April 18, 2016	710 Westchester	2400	Grease