



DURHAM COUNTY

Triangle Wastewater Treatment Plant PERFORMANCE ANNUAL REPORT

JULY 2025—JUNE 2026

SERVING OUR COMMUNITY EVERY DAY

Triangle Wastewater
Treatment Plant
5926 NC Hwy. 55 E.
Durham, NC 27713
(919) 560-9033

Permits:

Wastewater
Treatment Plant:
NC0026051

Collection System:
WQCS00038

Stormwater:
NCG110054

Reclaimed Water:
WQ0032821

Owned and Operated by:

Durham County
Engineering
&
Environmental Services
Utilities Division

Contact:

Stephanie Brixey
Deputy Director

*B*ehind every home, business, and school is a wastewater system that works quietly and reliably to protect public health and support our community's quality of life. Throughout the past year, the Utilities Division has remained dedicated to providing safe, dependable wastewater services while protecting the environment we all share.

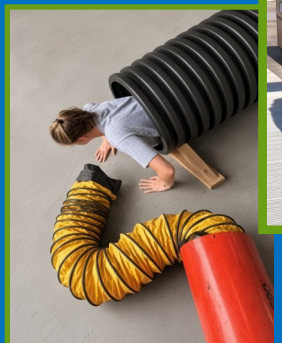
The accomplishments highlighted in this report are a direct reflection of the skill, dedication, and professionalism of the Utilities Division staff. From treatment plant operators and maintenance crews to laboratory technicians, engineers, and administrative staff, our team works around the clock to ensure that essential services are delivered safely and efficiently. Their commitment, often behind the scenes and out of public view, is the foundation of our success and the reason our community can depend on us every day.

From maintaining critical infrastructure to responding to customer needs, our work is centered on serving the people who rely on us. We continue to invest in system improvements that enhance reliability, reduce service disruptions, and prepare our community for future growth. Protecting our waters and natural resources remains a shared responsibility. Through efficient treatment processes, environmental monitoring, and responsible stewardship, we help preserve the health of our creeks, streams, rivers, lakes, and ecosystems for current and future generations.

Durham County Utilities is proud to be part of this community and grateful for the trust placed in us. We remain committed to delivering excellent service, being responsible stewards of public resources, and working to build a healthy, sustainable future for everyone we serve.



Utilities staff,



Hard at work, every day.

Collection System

Durham County owns and maintains a wastewater collection system which includes 112 miles of gravity sewer, 10 miles of pressurized force mains, and 13 lift stations.

In the past 12 months Durham County had three reportable sewer spills.

- On September 24, 2025, a spill estimated at 200 gallons of wastewater occurred due to a leaking air relief valve.
- A force main was struck during excavation by a contractor on November 26, 2025, causing a spill estimated at 15,700 gallons of wastewater.
- On June 16, 2026, a wastewater spill estimated at 95,000 gallons occurred due to a broken clay pipe.

Durham County Utilities prides itself on providing a high level of customer service. All commercial, industrial, and residential customers' questions and concerns are responded to in a timely manner. Questions or concerns regarding the collection system, services we provide, or any item covered in this report? Contact us at (919) 560-9033 or by e-mail at utilities@dconc.gov.



Reclaimed Water

Triangle Wastewater Treatment Plant (TWWTP) operates a reclaimed water system and is permitted to generate 5.6 million gallons per day (MGD). Some of the uses of this water include: landscape irrigation, industrial cooling, industrial process water, and sewer cleaning. Approximately 278 million gallons of reclaimed water was distributed to customers during the fiscal year.

The reclaimed water annual average data is reflected in the effluent annual average data except for the following:

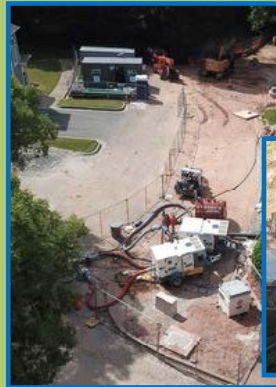
- Fecal Coliform: <1 cfu/100 ml
- Turbidity: 0.34 NTU
- Total Residual Chlorine: 5.5 mg/l

Projects & Rehabilitation

Throughout the last year, the County has continued its efforts to rehabilitate aging infrastructure and increase sanitary sewer capacity to facilitate economic growth in our service area.

Collection System

- ⇒ Central Park Lift Station ice pigging of the force main.
- ⇒ Central Park Lift Station suction tubes replaced.
- ⇒ Replaced ~750 LF of 18" sewer main along TW Alexander Drive
- ⇒ Wind River Lift Station rehabilitation underway.
- ⇒ Shiloh Glenn Lift Station construction has begun.



Wind River Site



Shiloh Glenn Progress

- ⇒ Lake Park Lift Station rehabilitated.
- ⇒ Page Road Lift Station rehabilitated.
- ⇒ Slater Lift Station; one pump rehabilitated.
- ⇒ Stirrup Iron Lift Station; replaced one pump and rehabilitated one pump, installed a new VFD.

TWWTP

- ⇒ Installed a new VFD at the influent pump station.
- ⇒ Installed new blower at grit collector and gear box and motor for jeta drive on grit collector.
- ⇒ Rehabilitation of BNR actuators and sludge knife gate.
- ⇒ Replaced wall pump on Train 2.
- ⇒ Coated clarifier trough #1.
- ⇒ Rehabilitated scum pit wet well; new grinder pump, mixer, and floats.
- ⇒ Rehabilitated concrete walls of filter structure.
- ⇒ Rehabilitation of equalization tank aerator.
- ⇒ Installed a new reclaimed water wet well mixer.
- ⇒ Completed the SCADA upgrade.

Biosolids System

TWWTP generates biological residuals (approximately 6,403 wet tons per year), which are dewatered by centrifuges. The dewatered cake (approximately 1,287 dry tons per year) is transported to McGill Environmental Systems, where it undergoes further biological treatment to produce a Class A biosolid. These biosolids are beneficially used as soil amendments in commercial landscaping and agricultural activities.



In the past year, the TWWT treated 1.63 billion gallons of wastewater.

Ultraviolet (UV) System

VIOLATIONS

A Sanitary Sewer Overflow of 20,447 gallons occurred on June 15, 2025, due to grease in the line and a Notice of Violation & Intent to Issue Civil Penalty was received (NOV-2025-DV-0245).

A Notice of Violation and Assessment of Civil Penalty (Case No. DV-2025-0107) in the amount of \$851.65 was received for the Sanitary Sewer Overflow that occurred June 15, 2025 (NOV-2025-DV-0245) of 20,447 gallons.

A Notice of Violation (NOV-2026-DV-0006) was received for a Sanitary Sewer Overflow of 15,700 gallons that occurred November 26, 2025, due to contractors hitting a force main.

The weekly average BOD for May 25, 2026 was 7.6 mg/L, which exceeds the limit of 7.5 mg/L.

Treatment System & Process

The **Influent Pump Station (IPS)** is used to pump raw wastewater (sewage) to the treatment process to be biologically treated. The IPS is sized for 12 million gallons per day average flow.

The **Fine Screens** are used to remove fine materials from the wastewater such as grit, sand, egg shells, etc. All of the organic materials are washed off and used in the biological treatment process.

The **Five Stage Biological Nutrient System** is where all biological treatment takes place, such as removing ammonia through nitrification and denitrification processes as well as the removal of phosphorus.

The **Chemical Polishing** process removes any phosphorus that is remaining after the biological treatment process. Methanol is used in this polishing process to add additional BOD to support the denitrification treatment process.

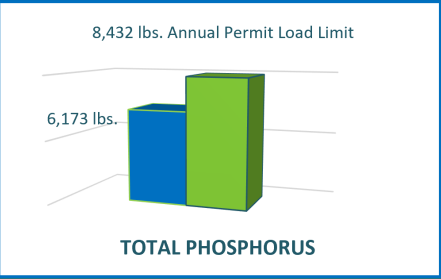
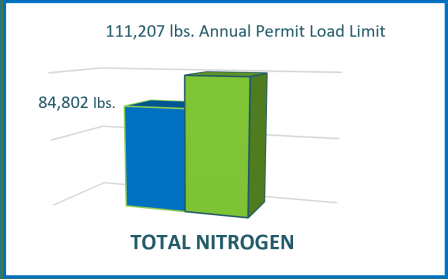
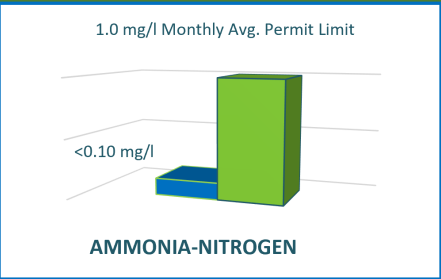
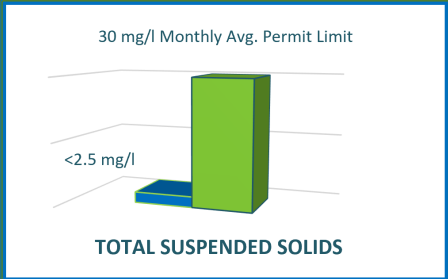
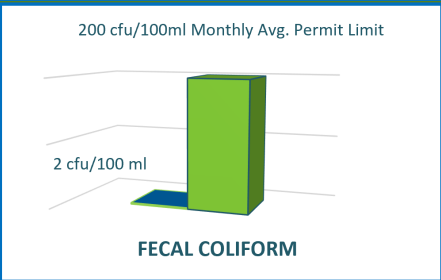
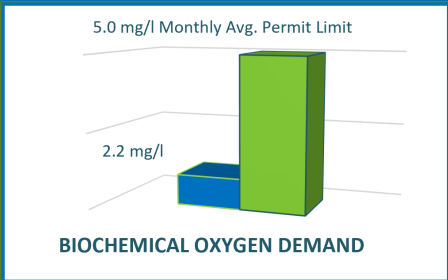
The **Clarifiers** are where the biomass is separated from the treated wastewater and then is returned to the BNR for further treatment.

The **Tertiary Filters** are next in the clarification process which removes all remaining unsettled biomass in the treatment process.

The **Ultraviolet Disinfection** treatment process is used to remove all disease causing bacteria without creating harmful by-products.

The **Reaeration** stage of the treatment process adds dissolved oxygen to the treated wastewater to meet required permit limits before it is discharged to Northeast Creek.

Effluent Annual Average Data



Lab

Triangle Wastewater Treatment Plant's (TWWTP) laboratory staff collects and analyzes wastewater samples as required by the NPDES permit and the reclaimed water permit. Currently, the laboratory is certified by the Division of Water Resources Laboratory Certification Branch to analyze ammonia, biochemical oxygen demand, total residual chlorine, conductivity, dissolved oxygen, fecal coliform, pH, temperature, and total suspended solids. Staff determines the age and health of the activated sludge and identifies microorganisms, such as amoebae, bacteria, ciliates, flagellates, nematodes, rotifers, and water bears.

Fats, Rags, Oil & Grease

Disposing of Fats, Rags, Oils, and Grease (FROG) down the drain or toilets causes build up inside pipes and could result in a complete blockage. Clogged pipes overflow in your home and in the environment resulting in costly maintenance and repairs to residents.



Pipe with Congealed F.O.G.

Industrial Pretreatment Program

TWWTP implements an Industrial Pretreatment Program (IPP) to control pollutants which may cause pass through or interfere with the treatment plant's processes, which may contaminate sewage sludge, or potentially be hazardous to worker's health and safety. Currently, there are seventy-one permitted industries that are regularly inspected and monitored to ensure their discharges meet specific permit limits. Sixteen of these industries are Significant Industrial Users (SIUs). Biosafety Laboratories in our service area have also been identified and twelve are currently permitted. Several of the Industrial Pretreatment Permit holders are required to certify that their facility has followed biosafety procedures consistent with the fifth edition of the Biosafety in Microbiological and Biomedical Laboratories, US DHHS - PHS, -CDC and -NIH for the deactivation of Biosafety Level 1, 2, 3 or 4 materials prior to discharge to the sewer system.



CCTV view of grease lined sewer pipe

FATS are solid at room temperature. Examples include butter, shortening, margarine, peanut butter, meat trimmings, uncooked poultry skin, and dairy products; chesses, milk, cream, sour cream, and ice cream. **RAGS** consist of paper towels, disposable wipes, tissues, napkins, and other textiles. **OILS** are liquid at room temperature and include all cooking oils and salad dressings. **GREASE** turns to liquid during cooking, but solidifies when cooled such as gravy, mayonnaise, melted meat fat, bacon and sausage, boiled poultry skin, and salad dressing.

August 31, 2026

Notification:

This Performance Annual Report covering July 1, 2025 through June 30, 2026, was forwarded to the NC Department of Environmental Quality. Public Notice of the report was advertised in the Durham Herald Sun newspaper and is available for review at the following locations:

Clerk to the Board
200 East Main St.

Main Library
300 N. Roxboro St.

South Regional Library
4505 S. Alston Ave.

Website
www.dconcc.gov/utilities

Certification:

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.

Stephanie Brixey
Deputy Director