



**Town of Garland: Wastewater Systems
Annual Performance Report
January 2020 through December 2020**

I. General Information

Facility/System Name: Town of Garland Collection System and Wastewater Treatment Plant

Responsible Entity: Winifred Hill Murphy, Mayor

Person(s) in Charge: Brandon Lee Hairr, Wastewater Treatment Plant Operator in Responsible Charge

Applicable Permit(s): NPDES Discharge Permit NC0025569

Town of Garland
Post Office Box 207
Garland, North Carolina 28441
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II. Collection System and Treatment Process Description

A. Collection System

The Town of Garland staff maintains 51,500 linear feet of wastewater collection lines with 3 duplex lift stations, 209 manholes and 349 connections. The Collection System discharges to the Town of Garland Wastewater Treatment Plant.

B. Wastewater Treatment Plant

The treatment plant is operated by the state certified Operator in Responsible Charge. The plant is permitted by the state to treat 126,000 gallons of wastewater per day by primary treatment, secondary treatment, and disinfection. The plant utilizes a supervisory control and data acquisition (SCADA) system for process supervisory management of incoming wastewater (influent) flow, pump status, and power status. Wastewater is settled and undergoes biological treatment via three wastewater lagoons. Following settling and biological treatment, the treated wastewater is disinfected, and discharged to the Great Coharie Creek of the Cape Fear River Basin. The Town utilizes a contract laboratory to monitor the influent, in-process water, and outgoing water (effluent) routinely to ensure the treatment processes are successful and that the water adheres to state and federal standards.

III. System Maintenance and Improvements

A. Collection System

During the 2020 calendar year, Town personnel performed cleaning of 6,300 linear ft. of collection lines via jet-vacuum means. All lift stations were also cleaned by means of jet-vacuum in February and again in December 2020. In addition to routine maintenance the following repairs and/or upgrades were made to the system in 2020:

Collection System Repairs/Upgrades in 2020
Manholes: 25 manholes replaced
Sewer Main Replaced: 5,068 linear feet

B. Wastewater Treatment Plant

During the calendar year of 2020, in addition to routine maintenance of the plant, the following major repairs, replacements or upgrades were made to the WWTP:

Wastewater Treatment Plant Repairs/Upgrades in 2020
Construction of new building for chlorine disinfectant feed system
Construction of new building for dechlorination feed system
Purchase and installation of new effluent auto-sampler at Lamb Road dechlorination site

IV. Performance: Summary of Performance for Reporting Period

A. Collection System Performance

The Town of Garland is routinely working to maintain and improve the efficiency of our Collection System. The Town is encouraging its citizens and system users to properly use the system to assist the Town in avoiding increased maintenance costs to the Town and taxpayers.

Sanitary sewer overflows (SSOs) may result from a variety of causes: inflow and infiltration due to high water levels; blocked pipes from wipes, rags, roots, and grease accumulation; broken lines from corrosion or construction activity; power failures at pump and lift stations within the system. Practices such as recycling used cooking oil, avoiding the use of ‘flushable’ wipes, and limiting garbage disposal usage are encouraged. The Town of Garland Collection System suffered no SSOs for the calendar year of 2020.

B. Wastewater Treatment Plant Performance

During the calendar year of 2020, the Town of Garland WWTP treated approximately 37.5 billion gallons of wastewater.

Town of Garland Wastewater Treatment Plant Effluent Analyses

The following table summarizes plant performance for the calendar year 2020 in comparison with the plant’s National Pollutant Discharge Elimination System (NPDES) permitted limits:

Parameter	Limit Interval	NPDES Limits	Measured Values
Flow	Monthly Average	0.126 MGD	0.068 to 0.169 MGD
BOD5	Monthly Average	30.0 mg/L	7.0 to 44.7 mg/L
BOD ₅	Weekly Average	45.0 mg/L	5.0 to 68.0 mg/L
Total Suspended Solids	Monthly Average	90.0 mg/L	3.7 to 47.2 mg/L
Total Suspended Solids	Weekly Average	135.0 mg/L	3.2 to 60.0 mg/L
Ammonia Nitrogen	Monthly Average	Monitor and Report	2.0 to 19.1 mg/L
Fecal Coliform	Monthly Geometric Mean	200 cfu / 100 mL	<1 to 94 cfu / 100 mL
Fecal Coliform	Weekly Geometric Mean	400 cfu / 100 mL	<1 to 793 cfu / 100 mL
Total Residual Chlorine	Daily Maximum	28/50 µg/L	< 10 to >500 µg/L
Temperature	Daily	Monitor and Report	10 to 27 °C
Total Nitrogen	Quarterly	Monitor and Report	11 to 22 mg/L
Total Phosphorus	Quarterly	Monitor and Report	1 to 13 mg/L
pH	Daily Maximum and Minimum	6.0 to 9.0 S.U.	6.6 to 8.3 S.U.

Town of Garland Wastewater Treatment Plant Non-Compliance Events

- In January and February of 2020, the plant was out of compliance for chlorine. This was determined to be due to a lack of dechlorination. Dechlorination was added to the treatment process following disinfection. In each of June and September of 2020, there was one chlorine non-compliance event. The events were due to heavy rains at the time of sampling.
- In February and June of 2020, the plant was out of compliance for monthly flow volume. This was due to repeated episodes of heavy rains and inflow and infiltration to the system.
- In August of 2020, there was one weekly non-compliance event for fecal coliform. This was determined to be due to heavy rainfall at the time of sampling.
- In October of 2020, the plant was non-compliant for monthly BOD₅ and Week 4 BOD₅. This was determined to be due to large temperature fluctuations in the weather, which negatively affected the biological organisms treating the BOD₅ in the wastewater lagoons.
- All non-compliance events were resolved, and the plant returned to compliance. All events were reported to the North Carolina Division of Water Resources as required.

Town of Garland Wastewater Treatment Plant Spill/Bypass Event

- The Garland Wastewater Plant suffered one spill during the calendar year of 2020. The spill occurred on February 7, 2020 due to an influent pump clogging with wipes at the same time the Town experienced 3 inches of heavy rainfall. The spill took place at the influent lagoon wet well, and the volume was estimated to be 80 gallons. The spill waters did not reach surface waters and were contained within the plant. The clog was resolved, and the spill was reported to the North Carolina Division of Water Resources as required.

V. Planned Upgrades and Maintenance Events

Planned Repairs/Upgrades to the Collection System for Calendar Year 2021
Collection System; replacement of 1,300 linear feet of sewer line as part of the CDBG Infrastructure Project
Collection System; replacement of 7 manholes as part of the CDBG Infrastructure Project

Future Planned Upgrades to the Wastewater Treatment Plant
Headworks bar screen installation
Cleaning / dredging of the three wastewater lagoon to remove the accumulated sludge
Installation of two floating aerators to wastewater lagoon #1
Installation of flow meter at the wastewater effluent discharge

VI. Notification

This report will be published to the Town of Garland website at <http://www.townofgarlandnc.com>.

Paper copies may be obtained by calling the Town of Garland at (910) 529-4141 M,T,Th,F: 9:00 AM to 5:00 PM, or W: 9:00 AM to 2:00 PM.

VII. 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.

Winifred Hill Murphy

Date

Mayor

Town of Garland

Signature on File

2/23/21

Brandon Lee Hairr

Date

Wastewater Treatment Plant Operator in Responsible Charge

Town of Garland

Signature on File

2/23/21