

The City of Hickory's Public Utilities Division is pleased to present you, our customers, with this year's Annual System Performance Report. This report is required by House Bill 1160, the Clean Water Act of 1999. The purpose of this report is to display the past year's wastewater treatment performance. The following data includes average concentrations discharged into streams and any events of permit noncompliance. The City of Hickory owns and operates three Wastewater Treatment Facilities and 544 miles of Collection System lines. The Northeast Wastewater Treatment Facility and the Henry Fork Wastewater Treatment Facility are staffed 24 hours a day with state certified operators and the Hickory-Catawba Wastewater Treatment Facility in the Town of Catawba is staffed with two state certified operators. These Facilities and the Collection System were designed and constructed to properly transport wastewater and then treat the wastewater to meet stringent discharge requirements. During the past year, our Facilities collected and treated 2.05 billion gallons of wastewater. The effluent discharge from all plants is disinfected prior to entering the receiving streams. As this report indicates, we are committed to protecting our most valuable resources; water and people.



ANNUAL WASTEWATER QUALITY REPORT

JULY 1, 2022 TO JUNE 30, 2023

Mission Statement: *To promote and protect the environment, health and natural resources of our customers through responsible stewardship in the treatment of wastewater returned to our streams and lakes.*

NORTHEAST WASTEWATER TREATMENT FACILITY

City of Hickory

Northeast Wastewater Treatment Facility

310 Cloninger Mill Road, Hickory, NC 28601

NPDES Permit Number: NC0020401

Operator in Responsible Charge: Keith Rhyne, WWT-4

Telephone Number: (828) 322-5075

The Northeast Wastewater Treatment Facility is located at 310 Cloninger Mill Road, Hickory, NC. It is a 6.0 MGD wastewater treatment system which accepts and treats wastewater from locations in NE & NW Hickory, portions of eastern Caldwell County, and portions of southern Alexander County.

The facility is an advanced secondary treatment process that utilizes Carrousel Oxidation Ditch Technology that's capable of removing BOD, nitrogen and phosphorus. The effluent is chlorinated to remove pathogenic bacteria that might be present and then dechlorinated to remove the residual chlorine left before it is discharged into the receiving stream. The Bio-solids residuals removed as part of the treatment process are transported to the Regional Compost Facility for processing into Class A-EQ compost.

PERMIT PARAMETERS	Limits			Actual Monthly Average July 1, 2022 to June 30, 2023											
	Monthly	Weekly	Daily	Jul- 22	Aug- 22	Sep- 22	Oct- 22	Nov- 22	Dec- 22	Jan- 23	Feb- 23	Mar- 23	Apr- 23	May- 23	Jun- 23
Flow (MGD)	6.0 MGD	-	-	2.5	2.7	2.6	2.3	2.7	2.9	3.4	3.1	2.7	2.9	2.6	2.8
BOD	30.0 mg/L	45.0 mg/L	-	3.3	3.8	3.7	3.5	3.4	5.2	4.7	3.2	4.2	4.4	3.2	3.9
NH3-N	6.0 mg/L	18.0 mg/L	-	0.09	4.6	0.09	0.03	0.38	0.29	0.28	0.29	0.77	0.18	0.59	0.12
TSS	30.0 mg/L	45.0 mg/L	-	5.4	11.2	9.6	5.5	4.8	9.7	6.0	5.6	6.0	4.1	4.4	5.8
Fecal Coliform	200/100mL	400/100mL	-	4.1	2.4	3.1	4.5	1.7	2.0	2.2	2.4	1.7	1.8	1.3	4.2
pH	-	-	6.0-9.0	6.2	6.4	6.4	6.3	6.3	6.2	6.4	6.3	6.5	6.4	6.2	6.1
Total Residual Chlorine	-	-	28 ug/L	0	0	0	75.1	0	0	0	0	0	0	0	0
Chronic Toxicity	Quarterly Pass or Fail			Pass			Pass			Pass			Pass		

Noncompliance Violations				
Date	Violation	Actual	Reason	Environmental Impact
10/2022	Total Residual Chlorine	75.1 ug/L	Chemical supply chain issues and delivery logistics	NONE

HENRY FORK WASTEWATER TREATMENT FACILITY

City of Hickory

Henry Fork Wastewater Treatment Facility

4014 River Road, Hickory, NC 28602

NPDES Permit Number: NC0040797

Operator in Responsible Charge: Robert Shaver, WWT-4

Telephone Number: (828) 294-0861

The Henry Fork Wastewater Treatment Facility is located at 4014 River Road, Hickory, NC. It is a 9.0 MGD Wastewater Treatment System which accepts and treats wastewater from locations in SE & SW Hickory, Hildebran, portions of eastern Burke County, and Longview.

The facility is an advanced secondary treatment biological nutrient removal (BNR) system with oxic/anoxic stages of treatment. Chlorine gas disinfection and Sulfur Dioxide gas dechlorination are utilized. Cascade post aeration is also used. The facility is constructed as two treatment trains that can be operated independently of one another. The Bio-Solids residuals removed as part of the treatment process are transported to the Regional Composting Facility for processing into Class A-EQ compost.

Permit Parameters	Limits			Actual Monthly Average July 1, 2022 to June 30, 2023											
	Monthly	Weekly	Daily	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Flow (MGD)	9.0 MGD	-	-	2.6	2.8	2.7	2.4	2.7	2.9	3.0	3.0	2.7	2.8	2.6	3.0
BOD Summer	19.0 mg/L	28.5 mg/L	-	3.9	3.6	2.7	3.9	-	-	-	-	-	5.8	3.4	3.2
BOD Winter	30.0 mg/L	45.0 mg/L	-	-	-	-	-	3.4	4.1	4.2	4.9	5.0	-	-	-
NH3-N Summer	2.5 mg/L	7.5 mg/L	-	0.06	0.67	0.13	0.06	-	-	-	-	-	0.09	0.05	0.07
NH3-N Winter	6.2 mg/L	18.6 mg/L	-	-	-	-	-	0.26	0.34	0.95	0.51	0.05	-	-	-
TSS	30.0 mg/L	45.0 mg/L	-	3.9	5.6	5.0	9.4	7.9	7.2	6.8	7.7	9.7	8.9	4.5	4.1
DO	-	-	> 5.0	7.2	7.6	7.9	9.3	9.2	9.8	9.9	10.2	10.4	9.2	8.7	8.3
Fecal Coliform	200/100mL	400/100mL	-	9.0	12.7	19.5	10.5	15.3	15.1	12.1	18.2	8.4	18.1	9.8	11.5
pH	-	-	6.0-9.0	6.1	6.4	6.5	6.3	6.4	6.7	6.6	6.5	6.5	6.5	6.4	6.1
Bis (2-ethylhexyl) phthalate - Quarterly	28.5 ug/L	-	28.5 ug/L	0	0	0	0	0	0	0	0	0	0	0	0
Total Residual Chlorine	-	-	28 ug/L	0	0	0	0	0	0	0	0	0	0	0	0
Total Copper	27.06 ug/L		34.65 ug/L	8.9	9.0	5.2	9.6	7.3	6.6	4.5	9.3	7.6	7.1	9.4	12.1
Chronic Toxicity	Quarterly Pass or Fail			Pass			Pass			Pass			Pass		

Noncompliance Violations				
Date	Violation	Actual	Reason	Environmental Impact
NONE				

CITY OF HICKORY-HICKORY COLLECTION SYSTEM

City of Hickory
Hickory Collection System
76 North Center Street, Hickory, NC 28601

NPDES Permit Number: WQCS00020
Operator in Responsible Charge: Kenneth Pennell, CS-4
Telephone Number: (828) 323-7427

The Hickory Collection System generally consists of 503 miles of utility lines; 481 miles of gravity sewers and 22 miles of pressurized or force mains. 56 Duplex pumping stations and 1 simplex pumping station ensure that service is available to the low points in the system. The Hickory Collection System serves the greater Hickory area and parts of Catawba County, parts of Burke County and the Bethlehem Community of Alexander County.

Reportable Collection System Failures			
Date	Location	Spill	Cause
8/15/2022	2051 Snow Creek Rd, Hickory, NC	34,000 gal	Pipe failure on force main
8/19/2022	818 2 nd St NE, Hickory, NC	400 gal	Pipe failure
9/13/2022	812 38 th Ave NE, Hickory, NC	200 gal	Backup due to debris in line
10/4/2022	3030 11 th Ave Dr SE, Hickory, NC	300 gal	Pipe failure
10/21/2022	950 20 th St NE, Hickory, NC	400 gal	Backup due to grease in line
10/24/2022	2009 13 th Ave NE, Hickory, NC	75 gal	Backup due to grease in line
10/25/2022	1030 Old Lenoir Rd, Hickory, NC	1,800 gal	Pipe failure
11/17/2022	1352 5 th St Cir NW, Hickory, NC	300 gal	Backup due to debris in line
12/1/2022	831 Old Lenoir Rd, Hickory, NC	100 gal	Backup due to debris in line
12/13/2022	2031 Snow Creek Rd, Hickory, NC	30,000 gal	Pipe failure on force main
12/27/2022	615 21 st Ave Dr NW, Hickory, NC	2,100 gal	Backup due to grease in line
1/6/2023	4320 3 rd St NW, Hickory, NC	900 gal	Pipe failure
1/30/2023	370 18 th Ave NE, Hickory, NC	300 gal	Backup due to grease and debris in line
2/9/2023	2115 8 th St Dr NW, Hickory, NC	360 gal	Backup due to debris in line
4/7/2023	1321 13 th St Cr NE, Hickory, NC	120 gal	Backup due to debris in line
4/20/2023	2233 9 th Ave NE, Hickory, NC	70 gal	Backup due to debris in line
4/26/2023	2130 9 th Ave NE, Hickory, NC	1,100 gal	Pipe failure
4/28/2023	839 Old Lenoir Rd, Hickory, NC	50 gal	Backup due to debris in line
5/16/2023	2274 1 st St SE, Hickory, NC	12,000 gal	Pipe failure

Wastewater collection systems are designed to handle only three things – used water, human body waste and toilet paper. 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. Most sewer backups occur between the house and the City's sewer main. The property owner is responsible for correcting this problem.

Many disinfecting wipes and baby wipes are touted as disposable, and some are even labeled as "flushable", but both contribute to sanitary sewer overflows (SSOs) throughout the sanitary sewer system. Their cloth-like material doesn't break down in the sanitary sewer system like toilet paper. Instead, they block sewer lines and clog pumps throughout the system, which increases maintenance and repair costs. Please help the city protect the environment and reduce costs by disposing of these items in the trash, not down the drain.

Property owners are responsible for the care and maintenance of service lines from their homes or businesses to the sanitary sewer mains in the street. The Hickory City Code also prohibits property owners from planting trees, shrubs and other vegetation on sewer lines and easements, covering manholes, erecting fences or permanent structures on sewer lines and easements, or damaging sewer lines in any manner.

Significant achievements by Collection System Staff for this year include;

- SSO rate of 0.03 gallons per foot of collection system, or 4 spills for every 108.4 miles of collection system
- Over 300,000 feet of sewer line cleaned, exceeding the 10% required in our permit
- 26,000 feet of sewer line treated for root control
- Over 40,000 feet of right-of-way cleared

The City of Hickory is committed to protecting the quality of the Catawba River and the environment. The water returned to the Catawba River from the NPDES permitted wastewater treatment plants is higher quality water by most parameters than when it was removed for drinking water treatment from Lake Hickory.

Grease and "flushable" wipes continue to be a significant problem, three of the sanitary sewer overflows in the sewer collection system were caused by grease or "flushable" wipes over the past year. You can continue to help the City of Hickory Public Services Department 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.
 - Place a wastebasket in each bathroom for the disposal of items such as disposable diapers, baby wipes, disinfecting wipes, condoms and personal hygiene products. These products **DO NOT** belong in the sewer system.
 - Call Public Services at (828) 323-7427 to report sewer overflows. By promptly reporting the overflow, the City is able to minimize the impact of the overflow to the environment.
 - Report illegal dumping by calling Public Services at (828) 323-7427. Grease and other materials illegally dumped can lead to sanitary sewer overflows (SSOs), which are a public health, environmental and regulatory concern.
 - Do not flush old/outdated medication or prescription drugs down the toilet. Take medication to one of the area drop off locations for proper disposal.
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HICKORY-CATAWBA WASTEWATER TREATMENT FACILITY

(TOWN OF CATAWBA)

City of Hickory

Hickory-Catawba Wastewater Treatment Facility

104 6th Avenue NW, Catawba, NC 28609

NPDES Permit Number: NC0025542

Operator in Responsible Charge: David Archambault, WWT-4

Telephone Number: (828) 323-7427

The Hickory-Catawba Wastewater Treatment Facility is located at 104 6th Avenue NW, Catawba, NC. It is a 1.5 MGD wastewater treatment system which accepts and treats wastewater from locations in the Town of Catawba and Southeastern Catawba County.

The facility is an advanced secondary treatment process that utilizes oxidation ditch technology to treat wastewater. The effluent is chlorinated to remove pathogenic bacteria that might be present and then dechlorinated before it is discharged into the receiving stream. The Bio-solids residuals removed as part of the treatment process are transported to the Regional Compost Facility for processing into Class A-EQ compost.

Permit Parameters	Limits			Actual Monthly Average July 1, 2022 to June 30, 2023											
	Monthly	Weekly	Daily	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Flow (MGD)	1.5 MGD	-	-	0.13	0.11	0.12	0.11	0.14	0.16	0.16	0.16	0.14	0.15	0.12	0.13
BOD	10.0 mg/L	15.0 mg/L	-	3.8	3.2	2.2	0.34	2.0	2.7	3.5	2.9	3.2	2.3	4.2	2.4
NH3-N	2.0 mg/L	6.0 mg/L	-	0	0.04	0.03	0.11	0.14	5.9	14.6	8.1	0.01	0.17	0.58	0.02
TSS	30.0 mg/L	45.0 mg/L	-	0.3	0.6	0	0	0	0	0.4	1.0	0.8	0	0.5	0.5
DO	-	-	≥ 6.0	6.8	6.7	7.5	8.0	8.7	9.7	9.9	9.9	9.4	8.4	8.6	7.6
Fecal Coliform	200/100mL	400/100mL	-	3.5	2.3	1.5	2.1	2.5	1.4	1.3	1.1	1.3	1.5	6.2	2.3
pH	-	-	6.0-9.0	6.6	6.2	6.2	6.6	6.7	7.1	7.0	6.5	6.6	6.0	6.1	7.0
Total Residual	-	-	28 ug/L	0	0	0	0	0	0	0	0	0	0	0	0
Methyl Bromide	0.26 ug/L	-	-	0	0	0	0	0	2.2	2.9	2.2	7.2	2.6	2.1	0
Chronic Toxicity	Quarterly Pass or Fail			Pass			Pass			Pass			Pass		

Noncompliance Violations				
Date	Violation	Actual	Reason	Environmental Impact
12/2022	NH3-N	5.9 mg/l	Cold Weather Inhibition of Microbes	NONE
01/2023	NH3-N	14.6 mg/l	Cold Weather Inhibition of Microbes	NONE
02/2023	NH3-N	8.1 mg/l	Cold Weather Inhibition of Microbes	NONE

CITY OF HICKORY-CATAWBA COLLECTION SYSTEM

City of Hickory

Hickory-Catawba Collection System

76 North Center Street, Hickory, NC 28601

NPDES Permit Number: WQCS00020

Operator in Responsible Charge: Kenneth Pennell, CS-4

Telephone Number: (828) 323-7427

The Hickory-Catawba Collection System generally consists of 41 miles of utility lines; 20 miles of gravity sewers and 21 miles of pressurized or force mains. 19 duplex pump stations ensure that service is available to the low points in the system. The Hickory-Catawba Collection System serves the Town of Catawba and Southeastern Catawba County.

Reportable Collection System Failures			
Date	Location	Spill	Cause
NONE			

In the preceding tables you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we have provided the following definitions:

- **mg/L** – Milligrams per liter or parts per million
- **ug/L** – Micrograms per liter or parts per billion
- **DO** – Dissolved Oxygen. DO is the molecular (atmospheric) oxygen dissolved in water or wastewater.
- **BOD** – The rate at which organisms use the oxygen in wastewater while stabilizing decomposable organic matter under aerobic conditions. In decomposition, organic matter serves as food for the bacteria and energy results from its oxidation. BOD measurements are used as a measure of the organic strength of wastes in water.
- **TSS** – Total suspended residue in wastewater
- **MGD** – Million gallons per day
- **NH3 as N** – Ammonia
- **Fecal Coliform** – Indicator organisms used to measure the effectiveness of the disinfection process
- **Summer Months** – April 1st to October 31st
- **Winter Months** – November 1st to March 31st



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