

**City of Hickory**  
**Annual Wastewater Quality Report**  
**July 1, 2015 to June 30, 2016**

**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.*

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 (3) Wastewater Treatment Facilities and (2) Collection Systems. 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 a State Certified Operator, 8 hours per day, Monday thru Friday, with visits on the weekends. These Facilities and the Collection Systems were designed and constructed to properly transport wastewater and then treat the wastewater to meet stringent discharge requirements. 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.

# 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 Northern Hickory, portions of Eastern Caldwell County, and portions of Southern Alexander County.

The plant 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, 2015 to June 30, 2016											
	Monthly	Weekly	Daily	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16
Flow (MGD)	6 MGD	-	-	2.2	2.3	2.5	3.0	3.7	3.9	3.0	3.4	2.7	2.7	3.1	2.5
BOD	30 mg/l	45 mg/l	-	5.2	4.8	4.5	5.1	4.8	5.1	5.4	8.3	9.6	6.9	7.1	5.5
TSS (solids)	30 mg/l	45 mg/l	-	8.4	12.3	5.1	6	4.7	4.4	5.1	7	6.3	4.5	9.9	5.5
DO	-	-	Over 5 mg/l	7.3	7.1	7.4	7.5	7.6	7.5	7.6	7.6	7.3	7.3	6.7	6.5
Fecal Coliform	200/ 100 ml	400/ 100 ml	-	15	3	2	2	5	3	1	1	1	1	2	1
pH	-	-	6 to 9	6.8	6.5	6.3	6	6.1	6.0	6.0	6.0	6.2	6.0	6.0	6.1
Total Chlorine	-	-	28 ug/l	0	0	0	0	0	0	0	0	0	0	0	0
Total Cyanide	37 ug/l		138 ug/l	6	5	5	7	6	6	6	0	6	7	6	7
<b>Toxicity</b>	<b>Quarterly Pass or Fail</b>			<b>Pass</b>			<b>Pass</b>			<b>Pass</b>			<b>Pass</b>		

### Noncompliance Violations

Date	Violation	Actual	Reason	Environmental Impact
	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 and 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, 2014 to June 30, 2015											
	Monthly	Weekly	Daily	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16
Flow (MGD)	9MGD	-	-	2.3	2.3	2.3	3.0	3.5	3.9	2.8	3.0	2.4	2.4	2.8	2.3
BOD Summer	19mg/l	28.5mg/l	-	5.1	3.9	3.9	5.3	-	-	-	-	-	6.0	4.8	3.2
BOD Winter	30mg/l	45mg/l	-	-	-	-	-	7.6	6.6	8.0	7.3	8.1	-	-	-
NH3 Summer	2.5mg/l	7.5mg/l	-	0.32	0.17	0.08	0.29	-	-	-	-	-	0.65	0	0.05
NH3 Winter	6.2mg/l	18.6mg/l	-	-	-	-	-	0.71	0.53	1.22	1.31	1.60	-	-	-
TSS (solids)	30mg/l	45mg/l	-	5.9	4.4	5.1	7.0	9.0	7.6	7.7	6.4	10.6	5.9	5.7	3.4
DO	-	-	Over 5	7.5	7.4	7.4	7.7	7.7	7.5	7.5	7.5	7.6	8.4	8.3	7.8
Fecal Coliform	200/100ml	400/100ml	-	30	30	17	12	7	11	3	4	2	28	26	6
pH	-	-	6-9	6.9	6.9	6.9	6.5	6.9	6.9	6.6	6.6	6.6	6.7	6.5	6.5
Toxicity	Quarterly Pass or Fail			PASS			PASS			PASS			PASS		
Bis(2-ethylhexyl) phthalate Quarterly	29ug/l	-	29ug/l	0	-	-	0	-	-	7.0	-	-	0	-	-
Total Nickel	258ug/l	-	677ug/l	0	0	0	0	0	0	0	0	0	0	0	0
Total Mercury	35ng/l	-	35ng/l	2.04	2.05	1.25	1.81	2.92	02.92	3.27	2.49	2.12	2.38	3.66	2.06
Total Chlorine	-	-	28ug/l	0	0	0	0	0	0	0	0	0	0	0	0
Total Cyanide	15ug/l	-	57ug/l	0	0	5	0	5	5	5	0	0	5	5	0
Total Chromium	147ug/l	-	2652ug/l	0	0	0	0	0	0	0	0	0	0	0	0

### 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: M. Shawn Pennell, CS-4, DS-A  
 Telephone Number: (828) 323-7427

The Hickory Collection System generally consists of 500 miles of utility lines; 478 miles of gravity sewers and 22 miles of pressurized or force mains. 50 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

<b>Date</b>	<b>Location</b>	<b>Spill</b>	<b>Cause</b>
7/16/15	839 Old Lenoir Rd	2,800 gallons	Debris, paper products, and wipes
8/4/15	1000 Blk South Gate Corporate Park SW	20,000 gallons	Debris, Fill material from external land owner, concrete, rocks, and bricks
8/19/15	20 <sup>th</sup> St NE and 13 <sup>th</sup> Ave NE	1,000 gallons	Grease
10/3/15	1845 9 <sup>th</sup> ST Ct NW	68,000 gallons	Severe natural conditions; 6" of rain on Friday and a total of 9" in 3 days
10/21/15	1000 Blk South Gate Corporate Park SW	10,000 gallons	Debris, Fill material from external land owner, concrete, rocks, and bricks
2/3/16	Moose Club Pump Station	19,107 gallons	Severe natural conditions; 2.25" of rain in six hours causing flooding in the region
5/8/16	1998 Mosteller Estate Dr	3,000 gallons	Debris, paper products, and wipes
6/20/16	925 Old Lenoir Rd	3,000 gallons	Debris, paper products, and wipes

## HICKORY-CATAWBA WASTEWATER TREATMENT FACILITY (TOWN OF CATAWBA)

City of Hickory  
Hickory-Catawba Wastewater Treatment Facility  
104 6<sup>th</sup> Avenue NW  
Catawba, NC 28609

NPDES Permit Number: NC0025542  
Operator in Responsible Charge: Watkins C. Bradberry, WWT-4  
Telephone Number: (828) 323-7427

The Hickory-Catawba Wastewater Treatment Facility is a 0.225 MGD wastewater treatment system that accepts and treats wastewater from locations in the Town of Catawba.

The Facility was operated this year as a 0.225 MGD conventional activated sludge facility. The facility is currently undergoing a major upgrade and expansion to a 1.5 MGD advanced tertiary treatment biological nutrient removal facility capable of removing BOD, nitrogen and phosphorus. The effluent is chlorinated to remove pathogens that may be present and then dechlorinated to remove residual chlorine residuals before discharging into the receiving stream. This facility will also be equipped with sand filters for improved solids removal. The Bio-solids residuals removed as part of the treatment process are transported to the Hickory Regional Compost Facility for processing into Class A-EQ compost.

Permit Parameters	Limits			Actual Monthly Average July 1, 2015 to June 30, 2016											
	Monthly	Weekly	Daily	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16
Flow (MGD)	1.5 MGD			.047	.044	.054	.063	.121	.131	.090	.089	.052	.075	.082	.043
BOD	10 mg/l	15 mg/l		4.0	2.0	1.5	0.6	2.6	3.5	3.6	4.2	2.2	2.3	2.7	1.0
NH3-N	2 mg/l	6 mg/l		0.1	0.31	0	0	0	0	0	0	0	0	.96	.11
TSS (Solids)	30 mg/l	45 mg/l		3.7	4.7	0	0	0	0	0.9	0	0	0	0	0
DO			>5 mg/l	7.4	6.9	7.6	8.3	7.6	8.3	8.6	10.1	7.5	6.8	6.8	6.7
Fecal Coliform	200/100 ml	400/100 ml		10	6	3	1	5	1	1	2	1	1	2	2
pH			6 to 9	7.0	6.3	6.6	6.9	6.3	6.0	6.0	6.1	6.4	6.3	6.5	6.0
Total Chlorine			> 28 ug/l	0	0	0	0	0	0	0	0	0	0	0	0
Toxicity	Quarterly Pass or Fail			Pass			Pass			Pass			Pass		

### Noncompliance Violations

Date	Violation	Actual	Reason	Environmental Impact
	NONE			

## CITY OF HICKORY-CATAWBA COLLECTION SYSTEM

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

NPDES Permit Number: WQCS00256  
Operator in Responsible Charge: M. Shawn Pennell, CS-4, DS-A  
Telephone Number: (828) 323-7427

The Catawba Collection System generally consists of 40 miles of utility lines; 19 miles of gravity sewers and 21 miles of pressurized or force mains. 14 Duplex pumping stations ensure that service is available to the low points in the system. The Catawba Collection System serves the Town of Catawba and Southeastern Catawba County.

### Reportable Collection System Failures

Date	Location	Spill	Cause	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
- ❖ **NH<sub>3</sub> as N** – Ammonia
- ❖ **Fecal Coliform** – Indicator organisms used to measure the effectiveness of the disinfection process
- ❖ **Summer Months** – April 1<sup>st</sup> to October 31<sup>st</sup>
- ❖ **Winter Months** – November 1<sup>st</sup> to March 31<sup>st</sup>