



# **City of Mebane Wastewater Collection and Treatment Facility**

**For the Fiscal Year July 1, 2015 – June 30, 2016**



# **City of Mebane Wastewater Collection and Treatment Facility**

**For the Fiscal Year July 1, 2015 – June 30, 2016**

## **Introduction**

This report is produced in compliance with House Bill 1160 passed by the General Assembly of the State of North Carolina requiring that all entities that own or operate wastewater collection and treatment systems make an Annual Report available to their customers. This report must include information regarding how well the system operated, what violations occurred, and other pertinent information. This report complies with these requirements.

The City of Mebane operates a wastewater treatment facility and a sewage collection system that collects and transports the sewage to the facility.

Following are the professionals designated by the state as the “Operator in Responsible Charge” (ORC) of the respective systems and permits for the systems:

City of Mebane Wastewater Treatment Facility  
635 Corregidor Road  
Phone (919) 563-6141  
NPDES Permit No. - NC0021474  
Operator in Responsible Charge (ORC) – Dennis J. Hodge

Mebane Public Works  
Sewage Collection System  
636 Corregidor Road  
Phone (919) 563-3401  
Collection System Permit No. WQC500081  
Operator in Responsible Charge (ORC) – Charlie Wayne Pore

We certify under penalty of law that this report is complete and accurate to the best of our knowledge. Copies will be available at the Wastewater Treatment plant, Public Works Building, City Hall, and on the City of Mebane website, [http://cityofmebane.com/city\\_hall/departments/water\\_resource\\_recovery\\_facility](http://cityofmebane.com/city_hall/departments/water_resource_recovery_facility).

## **System Overview**

Every day an average of one million gallons of sewage is generated in our homes, commercial establishments, and industries that must be collected, transported, and treated to very stringent standards before it is released back into our environment through our waterways. This service is provided by the City and is funded almost entirely from the user charges that are paid monthly by our customers.

The sewage collection and wastewater treatment facility of the City of Mebane begins with over 4,673 connections that serve homes, commercial establishments, and industries. Nearly all of the sewage or wastewater that is generated by customers flows by gravity through sewers that range from 6 to 16 inches in diameter. Mebane operates 95 miles of these gravity sewer lines. During this reporting period, over 10.0 miles of these lines were cleaned and inspected.

As the lines leave neighborhoods they increase in size to accommodate the flows that are collected from the many areas that are served. These sewers generally follow terrain to take advantage of gravity flow but at certain points pumping stations are used to transfer the flow to different basins. The City currently operates 15 pumping stations that range in capacity from 13 to 2000 gallons per minute.

The purpose of the collection system is to transport the wastewater to the wastewater treatment facility so it can be processed and returned to our waterways with minimal environmental impact. The wastewater treatment facility is permitted to process up to 2.5 million gallons of wastewater per day.

The wastewater treatment facility is complex, using physical, chemical, and biological processes to treat the wastewater. The wastewater is screened to remove large suspended materials, but the heart of the plant is a biological process that uses bacterial cultures to remove most of the suspended and dissolved wastes that are produced within the City. This biological, activated sludge process is sensitive to temperature, high flows produced by rainfall leaking into sewers, and toxic discharges that can be produced by industries or even homes. This sensitivity makes the wastewater facility susceptible to process upsets that can result in exceeding limitations permitted by regulatory authorities.

The permitting of treated wastewater discharges is based on a "7Q10" stream flow, or the lowest seven day stream flow expected every ten years. However permit limits that are issued to protect the stream at low flow (less assimilation), apply 24 hours per day and 365 days per year. Since Mebane's limits are calculated for discharging to a small stream, our limitations are extremely stringent. North Carolina has some of the most strict stream standards in the country. Mebane WWTP discharge constitutes over 90% of the stream only at the lowest stream-flows. However, when periods of rain create high stream flows and make treatment plant operations difficult, the treatment facility must continue to be compliant with dry weather limitations.

The City of Mebane's treatment plant operates under a NPDES permit, or National Pollutant Discharge Elimination System permit. The NPDES permit includes monitoring requirements and discharge limitations, some of which vary with seasons and have different maximums for daily values, weekly averages, monthly averages, and quarterly averages. Some limitations protect streams from oxygen depletion, such as biochemical oxygen demand (BOD) and ammonia-nitrogen (which exerts oxygen demand over a delayed yet prolonged basis). Some standards/limitations are to protect aquatic life in the receiving stream, such as metals like cadmium or mercury or other pollutants like fluoride or chlorine. Since aquatic life is more sensitive than humans to some pollutants, some standards are as low as 12 parts per trillion\* and in many cases are lower than drinking water standards.

*\* To help comprehend how small one part per trillion is: One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.*

### City of Mebane Annual Report – Page 3

Compliance with the permit requires that our laboratory conduct over 4,000 tests per year all of which must meet the NPDES permit requirements. To accidentally drop a sample or not analyze it within a specified period can result in a violation. There are some pollutants such as fluoride, mercury, and cadmium that the operators of the wastewater treatment facility have no control over and can only be regulated through controlling the discharges of industry and households. There are also times that maintenance on major equipment needs to be performed that can cause exceedances as well.

During the 2015-2016 fiscal year, the Water Resources Department treated over 497 million gallons and returned it to our streams. We are proud of the outstanding performance of the facility that was made possible by the dedicated efforts of the professionals who operate, maintain, and conduct tests for the facility. During this period the wastewater treatment facility experienced no exceedances of the NPDES permit. Wastewater flow amounts are summarized in Table 2.

**Table 1: Wastewater Treatment Facility**

Date	Parameter	Number of Exceedances	Exceedance Type
N/A	N/A	NONE	N/A

**Table 2: Wastewater Flows**

Summary of Wastewater Flows MG (Million Gallons ) July1, 2015 – June 30, 2016		
	Average MG per day	Total MG
July	1.120	34.714
August	1.096	33.984
September	1.191	35.717
October	1.360	42.159
November	1.525	45.751
December	1.807	56.023
January	1.410	43.715
February	1.530	44.359
March	1.376	42.653
April	1.283	38.492
May	1.361	42.185
June	1.254	37.621
<b>Total Year (MG)</b>		<b>497.373</b>
<b>Average Day (MG)</b>	<b>1.359</b>	

### Collection System Performance

The City of Mebane operates a sewage collection system comprised of 95 miles of gravity line, over 2,126 manholes, 15 pump stations, and over 18 miles of pressurized sewage force main. If sewage escapes from the collection system for whatever reason and reaches a surface water body in an amount exceeding 1,000 gallons, it must be reported to the news media. In addition, all spills of any volume reaching a water body must be reported to the State. A list of sewage spills is included in Table 3.

**Table 3: Collection System Sewage Spills**

Date	Location	Approximate Gallons	Probable Cause
2/16/16	Forrest Ridge outfall (Manhole #FR254)	19,875	Debris

\*PS – Pumping Station

## ***City of Mebane Annual report – Page 4***

Collection system sewage spills, known as sanitary sewer overflows (SSO) can occur for many reasons. Tree roots can enter sewer lines or foreign objects can be dropped into manholes or sewers causing obstructions. Rainwater can also find its way into sewers overloading lines and pump stations. In addition, pump stations can fail for mechanical or electrical reasons.

**Fats, Oils, and Grease (FOG)** from households, restaurants, and commercial establishments can also cause obstructions in the sewer system resulting in SSOs.

A byproduct of cooking, FOG comes from meat, fats, lard, oil, shortening, butter, margarine, food scraps, sauces, and dairy products. When washed down the drain, FOG sticks to the insides of sewer pipes. Over time, FOG can build-up, block entire pipes, and lead to serious problems. To prevent any undue introduction of FOG into the wastewater collection system, the City of Mebane implements a FOG Policy designed to educate and enforce the proper disposal of FOG within the City. The FOG policy is intended for all customers (residents, restaurants, and commercial establishments) that discharge wastewater into the City's sanitary sewer with the aim of preventing grease related SSOs. Within the FOG Policy, food service establishments are required to install and properly maintain an appropriately sized grease trap or interceptor.

While food service establishments typically deal with larger volumes of FOG than residents, everyone must do their part to prevent the introduction of FOG into the sewer system. To learn more about FOG, its impacts on the sewer system, and its proper disposal, please visit the City's website at [http://cityofmebane.com/city\\_hall/departments/water\\_resource\\_recovery\\_facility](http://cityofmebane.com/city_hall/departments/water_resource_recovery_facility).

### **Summary**

The City of Mebane is proud that, given the age of our treatment facility and collection system, our permit exceedances have been minimal. Circumstances, such as weather and vandalism, are beyond the control of collection system and wastewater treatment facility staff. Therefore, despite the dedicated efforts of these individuals, it can often be difficult to avoid spills and exceedances of the NPDES permit. The City's ultimate goal is to have no permit exceedances or sewage spills. We want to provide the best possible service to our customers while being fiscally responsible and good stewards of our environment. If more information is desired please contact our staff at 919-304-9215.



**City of Mebane  
Wastewater Collection and Treatment Facility**

**For the Fiscal Year July 1, 2015 – June 30, 2016**

City of Mebane Wastewater Treatment Facility  
635 Corregidor Road, Mebane, NC 27302  
Phone (919) 304-9215  
NPDES Permit No. NC0021474  
Operator in Responsible Charge (ORC) – Dennis Hodge

Mebane Wastewater Collection System  
636 Corregidor Road, Mebane, NC 27302  
Phone (919) 563-3401  
Collection System Permit No. WQC500081  
Operator in Responsible Charge (ORC) – Charlie Wayne Pore

*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 systems and that those users have been notified of its availability.*

A handwritten signature in black ink, appearing to read "D.H.", is written over a horizontal line.

Dennis J. Hodge  
Water Resources Director  
City of Mebane

A handwritten date "8/11/2016" is written in black ink over a horizontal line.

Date