



City of Mebane Wastewater Collection and Treatment Facility

For the Fiscal Year July 1, 2009 – June 30, 2010

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
Land Application of Residual Solids (503) Permit No. - WQ0004033
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) – James Jobe

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, www.cityofmebane.com/.

System Overview

Every day an average of one million gallons of sewage is generated in our homes 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 3000 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 over 76 miles of these gravity sewer lines. During this reporting period, over 7.1 miles of this line was 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 process using activated sludge, 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 regulating authorities.

The permitting of treated wastewater discharges is based on a "7 Q 10" 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 dilution), 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 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 limitations 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.

Compliance with the permit requires that our laboratory must 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.

During the 2009-2010 fiscal year the Water Resources Department treated over 420 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. However, despite the effort of the staff, the wastewater treatment facility had one violation of the NPDES permit during this reporting period. This was reported to the State of North Carolina in compliance with reporting regulations and is summarized in Table 1. Wastewater flow amounts are summarized in Table 2.

Table 1: Wastewater Treatment Facility

Date	Parameter	Number of Violations	Violation Type
January 2010	Fluoride	1	Daily Maximum

There were no observed environmental impacts noted for the above listed violation

Table 2: Wastewater Flows

Summary of Wastewater Flows MG (Million Gallons) July 1, 2008 – June 30, 2009		
	Average MG per day	Total MG
July	0.850	26.361
August	0.865	26.807
September	0.902	27.069
October	0.951	29.488
November	1.473	44.194
December	1.591	49.331
January	1.371	42.488
February	1.583	44.323
March	1.197	37.111
April	0.974	29.207
May	1.073	33.259
June	1.033	31.001
Total Year (MG)		420.639
Average Day (MG)	1.155	

Collection System Performance

The City of Mebane operates a sewage collection system comprised of 76 miles of gravity line, over 700 manholes, 15 pump stations, and over 12 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.

Collection system sewage spills can occur for many reasons. Tree roots can enter the sewer lines obstructing them, grease from households and commercial establishments can collect in sewers causing obstructions as well as foreign objects that can be dropped into manholes or sewers. Rainwater can find its way into sewers overloading lines and pump stations. Pump stations can fail for mechanical or electrical reasons. Mebane, like most cities, has experienced heavy rains causing incidents of discharge of wastewater from our collection system. A list of sewage spills is included in Table 3. There were no observed environmental impacts from any of these incidents.

Table 3: Collection System Sewage Spills

Date	Location	Approximate Gallons	Probable Cause
10/15/09	New Castle Drive	450	Roots
02/05/10	Forest Ridge PS	750	Heavy Rain

PS – Pumping Station

Summary

The City of Mebane is proud that given the age of our treatment facility and collection system our permit violations 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 violations of the NPDES permit. The City’s ultimate goal is to have no permit violations or sewage spills. We want to provide the best possible service to our customers while being fiscally responsible as well as being good stewards of our environment. If more information is desired please contact our staff at 919-304-9215.



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For the Fiscal Year July 1, 2009 – June 30, 2010

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Corregidor Road, Mebane, NC
Phone (919) 563-6141
NPDES Permit No. NC0021474
Residuals Application Permit No. WQ0004033
Operator in Responsible Charge (ORC) – Dennis Hodge

Mebane Wastewater Collection System 635
636 Corregidor Road
Phone (919) 563-3401
Collection System Permit No. WQC500081
Operator in Responsible Charge (ORC) – James Jobe

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.

Dennis J. Hodge
Wastewater Director
City of Mebane

Date

