



*SYSTEM PERFORMANCE
ANNUAL REPORT FOR
CITY OF KINGS MOUNTAIN
PILOT CREEK WWTP
NC0020737
AND COLLECTION SYSTEM
WQCS0036*

JULY 01, 2019 - JUNE 30, 2020

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The responsible parties including contact numbers are as follow:

TOWN MAYOR

Mr. Scott Neisler 704.734.4604

CITY MANAGNER

Mrs. Marilyn Sellers 704.734.4606

CITY COUNCIL

Mr. Mike Butler 704.734.0333

Mr. Jimmy West 704.734.0333

Mr. Tommy Hawkins 704.734.0333

Mr. Keith Miller 704.734.0333

Mr. Jay Rhodes 704.734.0333

Mr. David Allen 704.734.0333

Ms. Annie Thombs 704.734.0333

WATER RESOURCE DIRECTOR

Mr. Ricky Duncan

704.734.4525

WATER RESOURCES SUPERINTENDENT

Mr. Don Spencer

704.477.2928

WWTP SUPERVISOR/ORC

Ms. Richelle Meek

704.739-7131

COLLECTION SYSTEM SUPERVISOR

Mr. Aaron Kondzielski

704-472-5868

PRETREATMENT COORDINATOR

Mr. Jason Davis

704-739-7131

FACILITY OPERATORS

(Contact Number 704.739.7131)

Mr. Lee Douglass (Back-Up ORC/Operator)

Mr. Gary Beason (Operator)

Mr. Asa Harris (Operator)

Ms. Suzanne Harris (Lab Analyst)

The City of Kings Mountain is pleased to present the Annual Wastewater Treatment System Report for fiscal year 2020. As a requirement of the City's Collection System Permit Number WQCS00036, issued by the State of North Carolina, the City of Kings Mountain is required to report the System Performance to all of its customers on an annual basis. This report provides information about the performance of the City of Kings Mountain Pilot Creek Wastewater Treatment Facility, in addition to the performance of the City's wastewater collection system for the period of July 01, 2019 through June 30, 2020. All of the information contained in this report is accurate and complete to the best of my knowledge.

-Richelle Meek

Wastewater systems have evolved considerably from early systems in the 1800's. Although the purpose has always been to collect human waste and transport it away from urban areas to protect human health, early systems merely transported the wastewater to a nearby stream, where it was discharged. Today, wastewater systems are not only expected to protect human health, but to protect the environment as well.

In 1972, the U.S. Congress passed landmark legislation entitled the "Clean Water Act" which insured environmental protection as a performance benchmark for all wastewater systems. Long before the passage of this act, and every day since, the protection of public health and the environment have been the operating standard of the City of Kings Mountain's wastewater system.

To learn more about the City's wastewater collection system or the wastewater treatment plant, please contact the City of Kings Mountain, Water Resource Department or visit the City's web site at www.cityofkm.com.

WASTEWATER COLLECTION

The City of Kings Mountain owns and operates its Collection System and Wastewater Treatment Facility.

The City of Kings Mountain serves a population of approximately 10,933 people and 4,565 water Customers which consist of an average of 4,289 Residential and 276 Commercial.

The Collection System operates under the permit #WQCS00036 issued by the State of North Carolina.

On average the City collects 1,697,000 gallons of wastewater (55% Domestic/Commercial and 45% Industrial Process) each day and transports it through 113 miles of gravity collection lines, 37 miles of force mains and 35 pumping stations, and approximately 2,260 covered manholes, to the Pilot Creek Wastewater Treatment Plant.

The City's goal is to have zero spills and overflows from its Collection System. Unfortunately, because pumping stations are mechanical devices and sewer collection systems are subject to clogs from grease, roots, construction debris and litter, all systems are subject to spills and overflows.

WASTEWATER COLLECTION

In order to help prevent spills and overflows, the City uses television equipment to visibly inspect lines and routinely flushes lines to help prevent future problems. Since June 2019, the collection department has cleaned 205,089 feet of sewer lines and 5,328 feet of lines have been videoed. In addition, a Sewer Overflow Response Plan has been prepared that identifies equipment, supplies and on-call employees that are available to help mitigate spills and procedures to follow should an overflow occur.

The City of Kings Mountain Wastewater Collection System have had 9 spills between July 2019 and June 2020.

The City of Kings Mountain's Collections Department has replaced the Beason Creek pump station going from 1000 gpm to 1600 gpm. A new bar was also installed at this location. The Collection Department replaced 80 feet of 24 inch sewer main lines and installed two new manholes.

PUBLIC NOTICES

Residents can help minimize future overflow events by reporting unauthorized uncovering of sewer manholes, improper disposal of materials into manholes, vandalism of manhole structures, any observed overflow or spills, and strong sewage odor in or around sewer lines to the City of Kings Mountain at 704-734-0333.

The City of Kings Mountain's website contains a flyer for the public stating the harm of pouring oil and grease into drains which lead to the collection system.

Publication:

A copy of this Annual Report may be obtained by contacting the City's Water Resource Department or visiting the Cities website.

WASTEWATER COLLECTIONS DEPARTMENTS FUTURE IMPROVEMENTS

*All capital improvements have been put on-hold due to
Covid-19.*

Collection System Monthly Violations

July 2018 - June 2019

<i>July 2019</i>	<i>Total SSO's: None</i>	<i>Total Gallons Spilled: 0</i>
<i>August 2019</i>	<i>Total SSO's: None</i>	<i>Total Gallons Spilled: 0</i>
<i>Sept. 2019</i>	<i>Total SSO's: One</i>	<i>Total Gallons Spilled: 100</i>
<i>Oct. 2019</i>	<i>Total SSO's: None</i>	<i>Total Gallons Spilled: 0</i>
<i>Nov. 2019</i>	<i>Total SSO's: None</i>	<i>Total Gallons Spilled: 0</i>
<i>Dec. 2019</i>	<i>Total SSO's: One</i>	<i>Total Gallons Spilled: 9,200</i>
<i>Jan. 2020</i>	<i>Total SSO's: Two</i>	<i>Total Gallons Spilled: 27,500</i>
<i>Feb. 2020</i>	<i>Total SSO's: Four</i>	<i>Total Gallons Spilled: 3,113,600</i>
<i>March 2020</i>	<i>Total SSO's: None</i>	<i>Total Gallons Spilled: 0</i>
<i>April 2020</i>	<i>Total SSO's: One</i>	<i>Total Gallons Spilled: 330</i>
<i>May 2020</i>	<i>Total SSO's: None</i>	<i>Total Gallons Spilled: 0</i>
<i>June 2020</i>	<i>Total SSO's: None</i>	<i>Total Gallons Spilled: 0</i>

The State of North Carolina regulates the treated wastewater which is discharged into the Buffalo Creek. The (NPDES) Permit Number for this facility is NC0020737. This facility is located off U.S. Highway 74 Bypass, West of Kings Mountain (Cleveland County).

PROCESS DESCRIPTION

When wastewater is discharged from a home, industry, etc., flow travels through miles of underground lines by gravity or conveyed by pumps. This process is called a Collection System.

Once the wastewater enters the facility it contains organic and inorganic material which, at this time, consist of approximately forty percent (45%) Industrial Wastewater.

The wastewater is lifted approximately thirty two (32) foot by one of two (1 of 2) Spiral Screw Pumps. Wastewater then travels through a (Mechanical Step Feed) Bar Screen, where debris is removed, compacted, and discharged into a dumpster for disposal. It then travels through a Parshall Flume with a twenty four (24) inch throat, which includes a staff gauge, and a flow meter, all for measuring the incoming flow. A 24

hour circular chart, pH meter is also installed at the Influent. As the wastewater travels through the throat of the Parshall Flume a flow proportional refrigerated twenty four (24) hour composite sample is collected for analysis.

The wastewater then enters a Splitter Box (Diversion Box) that splits the flow into three (3) Aeration Basins based on their design flow. Sodium Hydroxide (50% Caustic Soda), is added at the diversion box to adjust the incoming pH and alkalinity to the aeration basins. Once the fresh wastewater enters the aeration basin the organic material is consumed by the microorganism. The aeration basins are equipped with floating diffusers, which supplies oxygen and mixing for the microorganism to survive. The detention time in these basins are approximately four (4) to seven (7) days. This process is called activated sludge.

The activated sludge then enters at the center well of the secondary circular clarifier(s), which is where the microorganism settle at the bottom to digest the organic material that was consumed in the aeration basin. The detention time in these clarifier(s) are approximately two (2) to four (4) hours. As the activated sludge settles in the clarifier's, a portion of it is either returned to the head of the aeration basin

(RAS) or wasted (WAS) to the aerobic holding tank for disposal by pumps.

As the treated wastewater leaves the clarifier's, it then enters a Chlorine Contact Basin, where Chlorine Gas is injected to kill the disease causing bacteria (Fecal Coliform), before leaving the facility. These contact chambers are equipped with baffles (walls) to provide enough contact time. The flow exit's these chambers over a rectangular weir or a V-Notch weir, which has a staff gauge and a flow meter that sends a signal to a totalizer.

As the three (3) effluent flows combine into a manhole, Sulfur Dioxide Gas is injected to remove the residual chlorine. The flow continues to travel to the plants effluent flow proportional twenty four (24) hour refrigerated composite sampler, where a sample is collected for laboratory analysis. A new flow meter has been installed at the final effluent of the facility.

This facility is also equipped with a waste pump station that has two (2) grinder pumps that conveys the floatable solids from the clarifiers back to the head of the Influent.

Also included is a wash water pump station that pumps treated wastewater to the Belt Filter press

which is used to operate our 2.2 meter Klamp Press. This Klamp Press is used to dewater the waste activated sludge. This press produces a dry sludge cake of approximately 15 to 18%. A dry polymer is used in the polymer system that mixes with the waste sludge to form a floc so the water can drain through the pores in the belts.

The disposal process includes two (2) aerobic holding tanks which are gravity fed to the disposal sludge pump station. These pumps convey the waste sludge to the belt filter press for operation.

Once the dry cake leaves the belt filter press, it travels up a conveyor belt, through a hopper, into a tandem truck and is hauled to the Cleveland County Landfill for final disposal. This is a lined landfill.

*VIOLATIONS OR DEFICIENCIES
FOR PILOT CREEK WWTP
JULY 01, 2019 - JUNE 30, 2020*

<u><i>MONTH/YEAR</i></u>	<u><i>RESULTS</i></u>
<i>JULY 2019</i>	<i>NONE</i>
<i>AUGUST 2019</i>	<i>Arsenic violations</i>
<i>SEPTEMBER 2019</i>	<i>NONE</i>
<i>OCTOBER 2019</i>	<i>Cl₂ & NH₃</i>
<i>NOVEMBER 2019</i>	<i>NONE</i>
<i>DECEMBER 2019</i>	<i>NONE</i>
<i>JANUARY 2020</i>	<i>Inspection- #3 weirs need replaced and dead spots found in aeration basins.</i>
<i>FEBRUARY 2020</i>	<i>NONE</i>
<i>MARCH 2020</i>	<i>NONE</i>
<i>APRIL 2020</i>	<i>NONE</i>
<i>MAY 2020</i>	<i>NONE</i>
<i>JUNE 2020</i>	<i>NONE</i>

VIOLETIONS/DEFICIENCIES
FOR
JULY 01, 2019 - JUNE 30, 2020

During this period from July 2019 to June 2020, there were no violations reported for Toxicity.

All Notice of violations have been issued to industries exceeding SIU permit limits.

WASTEWATER TREATMENT PLANT
IMPROVEMENTS

The City of Kings Mountain's WWTP has completed or in the process of improvements to its system to include:

- SCADA system at the facility updated*
- Additional pH and D.O. monitoring equipment has been purchased and will be installed in all aeration basins by the end of 2020.*

- *Huffstetler Group (contractors) are repairing all major components on #4 clarifier and will replace weirs on #3 clarifier once #4 project is complete.*
- *FUTURE PLANS: Installing two (2) mixers in each of the three basins to avoid dead-spots, depending on Covid-19 pandemic.*

NOTIFICATION

This Annual Report is available upon request. If there are any questions concerning this report, please feel free to contact the Supervisor/ORC at the WWTP (Pilot Creek).

CERTIFICATION STATEMENT

I certify that this report is accurate to the best of my knowledge.

WWTP Supervisor/ORC

Richelle Meek

WWTP ORC/Supervisor

June 26, 2020