City of Rocky Mount: Wastewater Systems
Annual Performance Report
(January 2013 - December 2013)

Tar River Regional Wastewater Treatment Plant and Collection System

I. General Information

Facility/System Name:	Tar River Regional Wastewater Treatment Plant
Responsible Entity:	City of Rocky Mount Jonathan L. Boone, Director of Public Works & Water Resources
Persons in Charge:	Kirk Bass, Supt. of WWTP, Land Application Nathaniel Williams, Supt. of Water & Sewer Services
Applicable Permits	NPDES Permit #NC0030317 Land Application Permit #WQ0005568 Collection System Permit #WQCS00011

Description of Collection System and Treatment Process:

The City of Rocky Mount maintains 434 miles of wastewater collection lines with 33 sewer lift stations. This collection system receives wastewater from five municipalities and parts of Nash and Edgecombe counties. The collection system discharges to the Tar River Regional Wastewater Treatment Plant. This plant is permitted to treat twenty-one (21) million gallons per day of wastewater by a pure oxygen activated sludge process using the Air Products "A2O OASES" biological nutrient removal process which provides both nitrification (conversion of ammonia to nitrates) and denitrification (conversion of nitrates to gaseous nitrogen). The effluent is filtered and disinfected before being returned to the Tar River. Waste activated sludge is aerobically digested to permitted parameters and recycled through land application.

II. Performance: Summary of performance for reporting period

The Tar River Regional Wastewater Plant treated 3.95 billion gallons of wastewater in 2013.

Removal of $CBOD_5$ (Carbonaceous Biochemical Oxygen Demand) contaminants was 99.43%, total suspended residue was removed at a rate of 99.71%, and NH_3N (ammonia nitrogen) removal rate was 99.59%.

The table below will serve to exhibit the Wastewater Facility's performance in relationship with our NPDES (National Pollutant Discharge Elimination System) permit limits.

TAR RIVER REGIONAL WASTEWATER PLANT
EFFLUENT ANALYSIS

Parameter	Summer (Apr-Oct)		Winter (Jan-Mar & Nov-Dec)	
	NPDES Limits	Actual Values	NPDES Limits	Actual Values
pH	6 to 9	5.8 to 7.4	6 to 9	6.2 to 7.4
Residual Chlorine	0.028 mg/L	<0.020 mg/L	0.028 mg/L	<0.020 mg/L
$CBOD_5$	5 mg/L	0.834 mg/L	10.0 mg/L	0.751 mg/L
Ammonia Nitrogen	2 mg/L	0.029 mg/L	4 mg/L	0.105 mg/L
Total Suspended Residue	30 mg/L	0.416 mg/L	30 mg/L	0.863 mg/L
Fecal Coliform	200/100 ml	4.6/100 ml	200/100 ml	1.21/100 ml
Dissolved Oxygen	6.0 mg/L minimum	9.06 mg/L	6.0 mg/L minimum	9.84 mg/L
Flow	21 MGD	10.8 MGD	21 MGD	10.9 MGD

Permit Non Compliance:

The Tar River Regional Wastewater Treatment Facility had one (1) permit non-compliance event for the year 2013. On July 3, the effluent grab pH was 5.8 SU. The effluent composite pH was 6.3 SU. Due to summer storms, excessive amounts of rain in the area resulted in an increase of flow to the Wastewater Facility lowering the pH.

Sanitary Sewer Overflows:

The City of Rocky Mount Water Resources Department has a goal of zero sanitary sewer overflows. Sanitary sewer overflows result from various causes including infiltration and inflow due to high water level, blocked pipes from rags, roots, and grease accumulations, broken pipes from corrosion and construction activities, and power failures at sewer pump stations. The City is reducing the potential for overflows by installing back up generators for pump stations, cleaning lines, and working to reduce infiltration and inflow problems. Citizens of Rocky Mount area can help with the problem by properly disposing of spent household products and disposing of greases, oils, and food scraps in solid waste rather than down the drain.

There were three (3) incidents of Sanitary Sewer Overflows within this report period as follows,

1. 5/23/2013- Riverside Dr, manhole at the railroad trestle
2. 6/07/2013- Overton Rd, manhole in the cul-de-sac
3. 6/07/2013- Riverside Dr, manhole at the railroad trestle

All included sanitary sewer overflows occurred during torrential rain events as documented by USGS data. In addition corrective measures outlined under completed contracts #3 and 4 were remediation efforts in response to sanitary sewer overflows # 1 and # 3.

Collection System Improvements:

A supervisory control and data acquisition (SCADA) system is now complete fitting all lift stations with remote monitoring. This satisfied our previous goal of having all lift stations remotely monitored by 2013. The sewer lines are inspected and cleaned daily by a full time CCTV crew and sewer jet trucks. 79.1 miles of sewer lines were cleaned to clear built up sediment, grease, debris, and root intrusions.

In 2013 the city completed contracts for the following,

1. Chemical root treatment of approximately 18,490LF of sewer main
2. Spray line rehab of 143LF of sewer manholes
3. Mechanical cleaning of 2,981LF of 18" sewer main on Stoney Creek Outfall Line
4. Mechanical cleaning of 1,362Lf of 15" sewer main on Riverside Dr Outfall Line

III. Notification:

This report has been included on the City of Rocky Mount Water & Sewer web page and published in the Rocky Mount Telegram.

Certification:

I certify under penalty of law that this report is completed 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 system and that those users have been notified of its availability.

Jonathan L. Boone, P.E.
Director of Public Works & Water Resources
City of Rocky Mount, NC

11 February 2014
Date