

**City of Rocky Mount: Wastewater Systems  
Annual Performance Report  
(January through December 2009)**

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  
Wayne A. Hollowell, Director of Water Resources

Person(s) in Charge/Contact: Kirk Bass, Supt. of Wastewater Treatment Plant  
Edward Joyner, Supt. of Water & Sewer Services

Applicable Permit(s) NPDES Permit #NC0030317  
Land Application Permit #WQ0005568  
Collection System Permit #WQCS00011

Description of Collection System and Treatment Process:

The City of Rocky Mount maintains 419 miles of wastewater collection lines with 37 sewer lift stations. This collection system receives wastewater from four 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 meet or exceed permit parameters and recycled through land application

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**II. Performance: Summary of performance for reporting period**

The Tar River Regional Wastewater Plant treated 3.77 billion gallons of wastewater in 2009. The plant was compliant with all permit conditions for the entire year.

Removal of CBOD<sub>5</sub> (Carbonaceous Biochemical Oxygen Demand) contaminants was 99.7%, total suspended residue was removed at a rate of 99.4%, and NH<sub>3</sub>N (ammonia nitrogen) removal rate was 99.4% .

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 Average	NPDES Limits	Actual Values Average
pH	6 to 9	6.4 to 7.4	6 to 9	6.3 to 7.1
Residual Chlorine	0.028 mg/L	<0.020 mg/L	0.028 mg/L	<0.020 mg/L
CBOD <sub>5</sub>	5 mg/L	0.4 mg/L	10.0 mg/L	0.5 mg/L
Ammonia Nitrogen	2 mg/L	0.1 mg/L	4 mg/L	0.1 mg/L
Total Suspended Residue	30 mg/L	0.6 mg/L	30 mg/L	2.1 mg/L
Fecal Coliform	200/100 ml	1.5/100 ml	200/100 ml	1.5/100 ml
Dissolved Oxygen	6.0 mg/L minimum	8.5 mg/L	6.0 mg/L minimum	9.6 mg/L
Cyanide	0.014 mg/L	< 0.005 mg/L	0.014 mg/L	<0.005 mg/L
Flow	21 MGD	8.6 MGD	21 MGD	12.8 MGD

**Permit Non Compliance:**

The Tar River Regional Wastewater Treatment Facility staff failed to capture the daily composite effluent and influent wastewater samples representing January 2, 2009 in miscommunication of a legal holiday. This constitutes an incident of non-compliance with our permit sampling requirements. In lieu of these composite samples, a series of representative grab samples were taken and analyzed. All parameters were determined to be well within permit discharge limits.

**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 instances of sewer overflows in 2009:

October 5, 2009: Suction pipe rupture on a sewer lift station at 9819 Highway 301 N in Whitakers caused the overflow of pump station with a loss of 500 gallons including 200 gallons reaching surface waters.

Dec. 9, 2009: Heavy rain and high river level caused excessive infiltration which led to a sewer overflow of 15,000 gallons at 100 block of River Drive and a 12,000 gallon overflow on the 1600 block of Overton Drive. At both sites the vacuum truck was employed to relieve excess flow.

### **Collection System Improvements:**

A supervisory control and data acquisition (SCADA) system was installed on thirteen high priority sewer pumping stations. Additional sewer lift stations will be added to the SCADA with the goal of having all the lift stations remotely monitored by 2013.

The sewer lines are inspected and cleaned daily by a full time CCTV crew and sewer jet trucks. Over 39 miles of sewer lines were smoke tested to identify points of inflow and other sewer defects such as missing sewer clean out plugs. Over 43 miles of sewer lines were cleaned to clear built up sediment, grease, debris, and root intrusions.

Johnson Street sewer pumps were upsized from 4" to 6" to increase that lift station's capacity by 33%.

### **Fats Oils and Grease Program:**


The city has implemented a program to ensure that food service establishments limit the grease discharged to collection system through proper operation and frequent cleaning of grease removal equipment. Over 170 establishments were visited and notified of requirements of program.

### **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.

  
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Wayne A. Hollowell  
Director of Water Resources  
City of Rocky Mount

Date: 15 February 2010