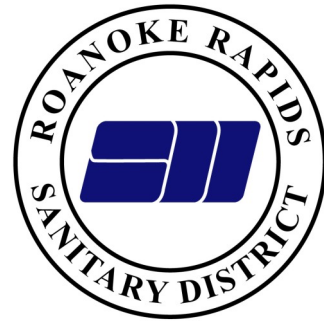


ROANOKE RAPIDS SANITARY DISTRICT

1000 Jackson St., Roanoke Rapids, NC 27870 www.rrsd.org

Wastewater Treatment Plant 536-4884
Collection System 537-9747
Administrative Office 537-9137
Pay-By-Phone (888) 626-9056



Board of Commissioners:
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Administrative Officers:
Dan Brown, P.E., CEO
Calvin Potter, Finance Officer
Gregg Camp, ORC, WWTP
Charles Turner, ORC, Collection System

PERMITS:
NPDES - NC0024201
LAND APPLICATION - WQ0001989
LAB - NC70
COLLECTION SYSTEM - WQCS00027

2010 **Wastewater System Report** www.rrsd.org

MISSION STATEMENT

To affordably provide the highest quality water services; safely collect wastewater and return clean water to the environment while promoting public trust and partnerships to the benefit of our associates and satisfaction of our customers.

The Roanoke River Wastewater Treatment Plant (WWTP) operated by the Roanoke Rapids Sanitary District (RRSD) treats wastewater from Roanoke Rapids, Gaston, Halifax County and Northampton County. Wastewater from industry, businesses, and homes enters collection system pipes and flows to the WWTP. Harmful pollutants, as determined by the North Carolina Division of Water Quality (DWQ), are removed by the treatment process. The public health and environment is protected through the discharge of high quality wastewater to the Roanoke River. Cost effective treatment is performed to maintain reasonable rates for customers of the RRSD.

DWQ has determined wastewater includes conventional and non-conventional pollutants. Conventional pollutants contain suspended solids from fecal matter or food. Non-conventional pollutants contain dissolved metals like copper and zinc. Pollutants can come from organic sources such as plant or animal origin or inorganic sources such as mineral origin. All pollutants combined and entering the treatment facility are called plant loading. Plant loading comes from two sources; controllable (industrial) and non-controllable (residential). Residential wastewater must meet RRSD's general use ordinance. It prohibits such items as petroleum products, toxic substances and cooking grease.

ROANOKE RIVER WWTP FUN FACTS

Location: 135 Aqueduct Road; Weldon, NC 27890
DWQ Plant Classification: IV (Largest State Classification)
Hours of Operation: 24 hours a day, 365 days a year (Note: DWQ requires a licensed operator onsite at all times)
Year Constructed: 1963.
Treatment & Flow Capacity Expansion: 1983
Original Design Capacity: 5.5 Million Gallons per Day (MGD)
Current Design Capacity: 8.34 MGD
Design Peak Flow: 12.5 MGD
Treatment Type: Secondary Biological
2010 Average Daily Flow (ADF): 4.1 MGD
2010 ADF Range: 2.1 MGD to 13.7 MGD
2009 ADF: 4.1 MGD
NPDES Permit Effective Period: 2007 – 2012
Number of Employees: 15 (including nine Licensed Operators)
Departments: Operations, Certified Laboratory, and Maintenance
Year Clean Water Act passed: 1970 (EPA established)

EN ESPANOL

El informe contiene informacion importante sobre la calidad del agua residual en su comunidad. Traduzcalo o hable con alguien que lo entienda bien.

Permit Violations - In 2010, there were no monitoring, reporting, or NPDES permit limit violations. There have been no parameter limited violations since 2002.

Bypasses - All bypasses no matter the volume must be reported to DWQ within 24 hours of first knowledge by phone. A written report must follow within 5 days with corrections. If the volume is less than 1000 gallons no further action is required. Over 1000 requires a press release & over 15,000 requires the same plus a public notice. In 2010 the WWTP had no bypasses.

Bypass Control - Wastewater that comes into the plant from storms faster than can be treated is stored in two tanks capable of holding approximately seven hundred fifty thousand (750,000) gallons. These two tanks are also used when maintenance on plant equipment requires draining or holding wastewater. In 2010 approximately 4,000,000 gallons were stored and returned to the plant from various high flow events and maintenance projects. At an ADF of 4,100,000 gallons in 2010 this is nearly one whole days worth of flow prevented from bypassing. To prevent bypasses during a power outage, there is an emergency diesel generator large enough to power the entire plant. Two days of fuel are on site. In 2010 there was one power outage which lasted nearly two & one half hours. Using the generator prevented over 500,000 gallons from bypassing. Since use of these tanks began in 2000 over 42,000,000 gallons of wastewater has been prevented from bypassing. At the 2010 ADF of 4,100,000 gallons this is over 10 days of flow.


NPDES Permit Limits

Effluent Parameter	Weekly	Monthly	2010 Actual
TSS	45 mg/l	30 mg/l	20.0 mg/l
CBOD	37.5mg/l	25 mg/l	6.9 mg/l
Fecal Coliform	400 colonies	200 colonies	25 colonies

pH = continuous monitoring must be between 6.0 and 9.0 units.
Residual Chlorine = continuous monitoring must be less than 50 ppb.
WET = quarterly testing must be Pass.
Note: - Permit requirements for TSS & CBOD removal are 85%.
- Also test only/no limit parameters include nitrogen, phosphorus, dissolved oxygen & metals such as copper & zinc.




Biosolids Land Application Site



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- **HYDRO-PAY - 537-9137**
- **ONLINE BILL PAY - www.rrsd.org**
- **PAY-BY-PHONE - (866) 626-9056**

A detailed Wastewater and Collection System Report is available upon request by calling (252) 537-9137.

DEFINITIONS

WASTEWATER PROGRAMS AND SERVICES

- I/I - Inflow of rain water or water from swollen creeks. Infiltration of ground water into old deteriorated collection system pipes. Excess I/I is expensive to treat at the WWTP and uses valuable capacity reserved for future economic development. *It is a violation of the Sewer Use Ordinance to connect roof drains or basement water pumps to the wastewater collection system.*
- NPDES - DWQ issues RRSD a National Pollutant Discharge Elimination System permit, which is reviewed and approved by the Environmental Protection Agency (EPA). During the next five years DWQ will do extensive testing not only on the waters of the Roanoke River but also its aquatic life to validate the limits that must be met in the NPDES permit.
- PPA - Priority Pollutant Analysis tests for dozens of wastewater contaminants. Conventional (oil & grease), Metals (lead) Volatile organic (benzene) Acid-extractable (phenol) & Base neutral (fluorene). EPA has determined these to be harmful to the WWTP. Elevated levels of the constituents can cause permit violations. They must be removed.
- CBOD - Carbonaceous Biochemical Oxygen Demand represents the Biological Oxygen Demand (BOD) from organic compounds and oxidation of inorganic compounds like ferrous iron and sulfide. Any BOD from nitrifying organisms, which consume oxygen in the nitrification process of converting ammonia to nitrate, is removed by adding a nitrification inhibitor. Effluent is tested for CBOD daily and the results are reported to DWQ monthly. Over 97% of CBOD in the wastewater is removed.

- TSS - Total Suspended Solids include all particles suspended in water which will not pass through a filter. Suspended solids are present in residential wastewater and many types of industrial wastewater. Effluent is tested for TSS daily and the results reported to DWQ monthly. Over 91% of the TSS in the wastewater is removed.
- Effluent - Treated wastewater discharge into a receiving stream which is the Roanoke River.
- Bypass - Incomplete treatment of wastewater into the Roanoke River. Considered as a spill.
- WET - Whole Effluent Toxicity refers to the total toxic effect to aquatic organisms from all pollutants contained in a facility's wastewater (effluent). RRSD uses the "Pass or Fail" Chronic Toxicity test procedure and it is one way EPA implements the Clean Water Act's prohibition of the discharge of toxic pollutants in toxic amounts. Quarterly WET tests measure our wastewater's effect on the water flea's (*Ceriodaphnia Dubia*) ability to survive, grow and reproduce.
- mg/l - A milligram per liter of water is equivalent to 1 ppm (part-per-million) because a liter of water weighs 1,000 grams and a milligram is 1 one thousandth of a gram. 1 ppm = 1 drop of gas in an auto gas tank or one minute in two years.*
- ppb - A part-per-billion is equivalent to 1 microgram (ug/l) per liter of water. 1 ppb = one second of time in 32 years or about one drop of water in a swimming pool.*

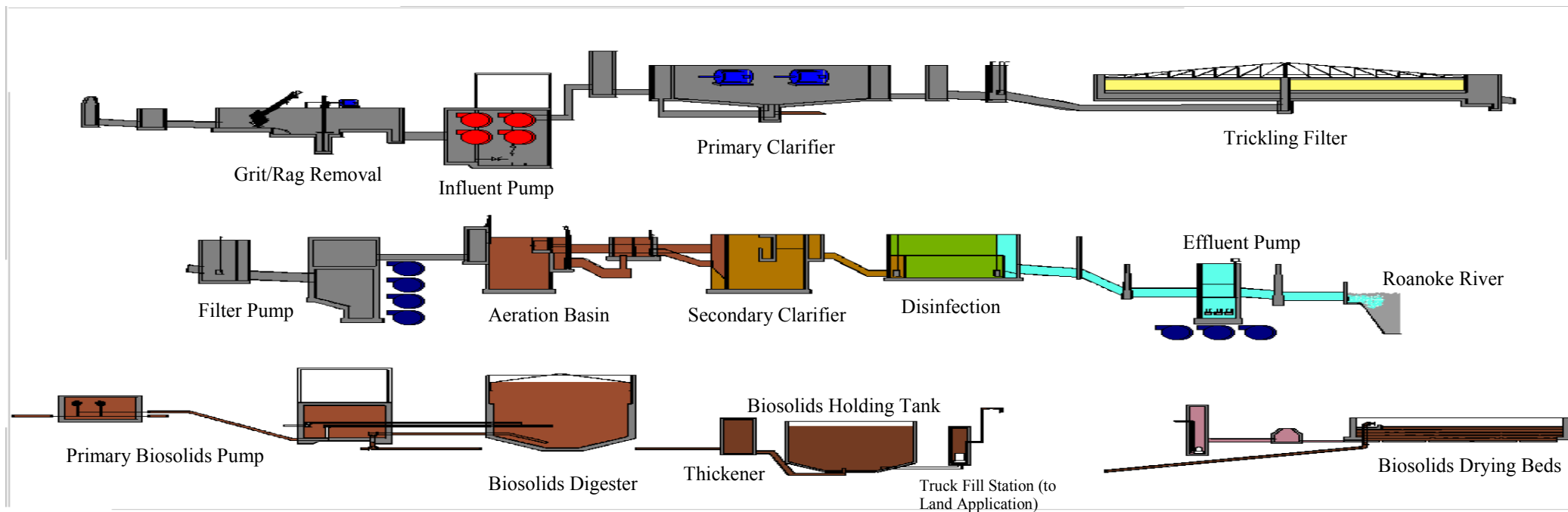
*Analogies are used to help people understand the magnitude of a concentration; not to minimize the risk of a concentration-its effect on human health or the environment

Collection System - The collection system consists of six pump stations and 130 miles of sewer pipes connecting homes and businesses to the WWTP. Main sizes are 8 inches in subdivisions and 12 to 30 inches along the river and creeks. The oldest pipes have been in the ground and in use since before 1930. During 2010 over 19 miles of sewer lines were TV inspected and cleaned while 71 vertical feet of manholes throughout the collection system were also rehabilitated. In 2010 we had five (5) reportable Sanitary Sewer Overflows (SSO) at four locations. *The NC Rural Water Association* assisted RRSD in an intensive smoke testing operation in the Belmont area, resulting in the discovery of several storm water connections to the sewer system. *The NC Rural Center* awarded RRSD \$480,000 in grants for Belmont I/I study, Capital Improvement Plan preparation and Bell's Creek Outfall Replacement projects, all of which began in 2010.


Pretreatment Program - The pretreatment program monitors local industries that discharge a controllable load. Overloading may interfere with the WWTP or cause pass through of the plant of a pollutant. The plant capacity to treat pollutant loading from controllable and uncontrollable sources is known from plant design capacity; verified by the results of certified lab testing. Available pollutant loading may be allocated to industry or left in reserve for future growth. Just as DWQ issues RRSD a permit to limit our discharge to the Roanoke River; RRSD issues industry permits to limit discharge to the WWTP.

FOG Program - Fats, Oils and Grease (FOG) are a controllable load discharged by restaurants or homeowners. The program is regulated by Ordinance as a condition of the Collection System Permit issued under a DWQ administrative order to reduce SSOs. One full time employee is responsible for public education, enforcement and inspection of grease traps. Placing ads in newspapers and distributing brochures to restaurants help educate the public about both the monetary and environmental benefit that the elimination of FOG has on the District. In addition to homeowner plumbing bills and collection system costs, FOG loading interferes with WWTP processes.

Bio-Solids Program - Removal of TSS and CBOD by the wastewater treatment process produces solids, which must be treated using anaerobic digestion and lime stabilization to reduce harmful pathogens. The anaerobic digestion process heats primary solids to 95° F with mixing in the absence of oxygen. Lime stabilization raises the pH of secondary solids to 12.0 for a specified period of time. Thousands of tests are performed annually on residual solids to ensure regulated levels of treatment are met. In 2010, approximately 2,600,000 gallons of solids were stabilized. Once stabilized, solids can be land applied for its nutrient value, moisture content, and soil amendment properties. DWQ issued RRSD a 5-year Land Application permit in 2007 that authorizes the District to safely manage the application of bio-solids. The District has over 3,000 acres permitted with local area farmers for this program. There are periods when crop rotations or weather conditions prevent land applying bio-solids. No biosolids were applied to RRSD's 150 acres of pasture land in 2010.



RRSD Wastewater Treatment Plant Profile



The Grease Goblin says " don't pour grease down the drain or toilet. Let it cool, place in a container and throw it in the trash."

PAY YOUR WATER BILL ONLINE

START TODAY

See the "Getting Started" instructions @ www.rrsd.org