

## Roanoke Rapids Sanitary District

*Water Treatment Plant 537-3319*  
*Distribution & Collection 537-9747*  
*Wastewater Plant 536-4884*  
*Administrative Office 537-9137*

*Website: rrsd.org*

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*J.D. Bailey Secretary*

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*C.E. Turner, Chief Operator, Distribution & Collection*

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate or Lower.

The relative susceptibility rating of each source for The Roanoke Rapids Sanitary District was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area.). The assessment findings are summarized in the table below:

#### Susceptibility of Sources to Potential contaminant Sources (PCSs)

<b>Source Name</b>	<b>Susceptibility Rating</b>
Roanoke Rapids Lake	Moderate
Roanoke River	Moderate

The complete SWAP Assessment report for The Roanoke Rapids Sanitary District may be viewed on the Web at: <http://www.deh.enr.state.nc.us/pws/swap> To obtain a printed copy of this report, please mail a written request to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh NC 27699-1634, or email request to [swap@ncmail.net](mailto:swap@ncmail.net). Please indicate your system name, PWSID, and provide your name, mailing address and phone number. If you have any questions about the SWAP report please contact the Source Water Assessment staff by phone at 919-715-2633.

It is important to understand that a susceptibility rating of “higher” does not imply poor water quality, only the systems’ potential to become contaminated by PCS’s in the assessment ar

### Collection System

DWQ PERMIT # WQCS00027

Sanitary District’s Collection system consists of five pump stations and approximately 129 miles of pipes connecting our homes and businesses to the Wastewater Treatment plant. The pipes range in size from 8 to 12 inches in diameter in the subdivisions to 12 to 30 inches for the main lines. The fats, oils, and grease (FOG) program has been instrumental in decreasing sewer back-up problems. Placing ads in local newspapers and brochures to local restaurants are educating the public about problems that are caused by fats, oils, and grease.

During 2006 over 17 miles of sewer lines were cleaned by either TVing, jetting or rodding. There were several pipe repairs made in the Collection system to help with backups during large rain events.

In 2006 the Collection system had eleven reportable sewer system overflows, when approximately 32,810 gallons reached surface waters.

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

## Treated Water Quality Roundup

Constituent	Highest Level Allowed (EPA'S MCL)	Ideal Goals (EPA'S MCLG)	Normal Range	Frequency Of Sample	Sanitary District Annual Average	Sources of Constituents
Fluoride	4mg/L	4mg/L	.9mg/L- 1.2mg/L	Every 4 Hours	1.06mg/L	Naturally occurring, Water additive
Nitrate	10mg/L	10mg/L	1mg/L- 10mg/L	Yearly	.19mg/L	Wildlife & septic systems
Sodium	Not Regulated	20mg/L	15mg/L-25mg/L	Yearly	8.66mg/L	Naturally occurring
Sulfate	Not Regulated	500mg/L	None	Yearly	16mg/L	Soil runoff
Turbidity	.3NTU'S	Treatment Technique	.1NTU-.5NTU	Every 4 Hours	.047NTU'S	Soil runoff
Total Coliforms (Bacteria)	Less than 5% positive	0	Less than 5% positive	Daily	0	Naturally occurring
Iron	.3mg/L	.3mg/L	Less than .3mg/L	Weekly	.05mg/L	Naturally occurring
Manganese	.05mg/L (Action Level)	.05mg/L (Action Level)	Less than .05mg/L	Weekly	.03mg/L	Naturally occurring
pH (Standard Units)	N/A	N/A	6.5-8.0	Hourly	7.43	N/A
Alkalinity ,mg/L	N/A	N/A	Less than 35 mg/L	Daily	32.27mg/L	N/A
Hardness, mg/L	N/A	N/A	20mg/L-100mg/L	Daily	33.434mg/L	N/A

### Disinfection By-Product Precursors Contaminants

Contaminant (units)	Sample Date	MCL/TT Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Total Organic Carbon (ppm) (TOCs)-RAW	Monthly	N	2.98	2.34	4.23	N/A	TT	Naturally present in the environment
Total Organic Carbon (ppm) (TOCs)-TREATED	Monthly	N	1.72	1.38	2.35	N/A	TT	Naturally present in the environment

Note: Depending on the TOC in our source water the system MUST have a certain % removal of TOC or must achieve alternative compliance criteria. If we do not achieve that % removal there is an "alternative % removal". If we fail to meet that, we are in violation of a Treatment Technique.

### Disinfection By-Product Contaminants

Contaminant (units)	MCL/MRDL Violation Y/N	Your Water (AVG)	Range		MCLG	MCL	Likely Source of Contamination
			Low	High			
TTHM (ppb) [Total Trihalomethanes]	N	50.8	33.0	96.0	N/A	80 or 100	By-product of drinking water chlorination
HAA5 (ppb) [Total Haloacetic Acids]	N	35.4	19.0	58.0	N/A	60	By-product of drinking water disinfection
Chlorine (ppm)	N	1.27	.92	1.93	MRDLG = 4	MRDL = 4	Water additive used to control microbes

# 2006 Water Quality Report

## Yes, Your water is safe to drink

The Roanoke Rapids Sanitary District's number one priority is to provide all our customers with a safe and reliable supply of water that can be used with confidence. Every day, our employees are working to ensure that the water you drink meets all regulatory requirements and your expectations for safety, reliability, and quality.

To do this we conduct over 35,000 tests yearly on the water you drink. These tests start in the raw (untreated) water from the Roanoke Rapids Lake. (We also have an intake in the Roanoke River to draw water from in an emergency) We also run hundreds of tests on the water at different phases of the treatment process. The final tests are done on water from randomly selected homes and businesses. All of these test results are reported in accordance with the Water Quality Standards established by the United States Environmental Protection Agency (EPA) and the North Carolina Department of Environmental Health. We are proud to report that the water provided by the Roanoke Rapids Sanitary District exceeds all established water quality standards.

This 2006 **WATER QUALITY REPORT** is a summary of many of these tests and explanations of terms used in water quality reporting. If you have any further questions, please contact the **WATER TREATMENT PLANT** between 8AM and 4PM at **(252) 537-3319**.

### Lead & Copper Rule Testing

The 1994 Federal Lead & Copper Rule mandates a household testing program for these substances. According to the rule, 90% of the samples from high risk homes must have levels less than 0.015 mg/L of lead and 1.3 mg/L of copper. In 2004, lead levels in the District averaged .003 mg/L and copper levels averaged .171 mg/L, well below the Federal levels. Our next lead and copper testing will be conducted in August, 2007.

### EN ESPANOL

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

## Special Concerns

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

## Definitions

**Maximum Residual Disinfection Level Goal** – The “Level” (MRDLG) of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Maximum Residual Disinfection Level**- The “Highest Level” (MRDL) of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**Maximum Contaminant Level (MCL)**- An enforceable level of a contaminant as close to the goal as is practical to achieve in light of available treatment technology and cost/benefit considerations.

**Maximum Contaminant Level Goal (MCLG)**- A level of a contaminant, not necessarily achievable, safely below the level of human health concerns.

**Action Level (AL)**- The level of a contaminant at which a water treatment plant must take some type of action to reduce or contain the contaminant.

**Treatment Technique (TT)**- A required process intended to reduce the level of a contaminant in drinking water.

**Parts Per Million (PPM)**- Equivalent to milligrams per liter (mg/L). One part per million is comparable to one minute in two years.

**Parts Per Billion (PPB)**- Equivalent to micrograms per liter. One part per billion is comparable to one minute in two thousand years.

**Nephelometric Turbidity Units (NTU)**- Turbidity is a measure of cloudiness in water

## TURBIDITY

Turbidity is usually thought of as cloudiness of the water, and is caused by suspended matter. Organic and inorganic material, silt, algae or other tiny organisms can contribute to the turbidity of the water.

The degree of turbidity is measured at the Water Treatment Plant laboratory by shining a beam of light through water and measuring the angle at which the light is scattered by suspended matter. The reading gives the turbidity of the water measured in Nephelometric Turbidity Units (NTU'S).

Regulations passed in 1989 recognize reducing turbidity as one way to measure the removal or inactivation of certain targeted microorganisms. Currently, Giardia is one of those microorganisms and future regulations may include Cryptosporidium.

The EPA has established a Maximum Contaminant Level (MCL) for treated water turbidity of 0.3 NTU. The rule requires us to meet this standard 95% of the time during the month. In 2006, we met the standard 100% of the time with our highest reading at 0.204 NTU. For the year, we averaged 0.047 NTU.

Wastewater Treatment Plant  
National Pollutant Discharge Elimination System (NPDES) ID #  
NC0024201  
Land Application ID # WQ0001989  
Lab Certification ID # 70

The responsibility of the wastewater plant (WWTP) is to treat all industrial, commercial, and residential wastewater to a degree which can be assimilated by the Roanoke River as determined by the North Carolina Division of Water Quality. This responsibility is done so in the most cost effective manner possible to provide the most reasonable rates to customers within the Roanoke Rapids Sanitary District. The plant receives wastewater flows from Roanoke Rapids, Gaston, out-lying subdivisions, and other miscellaneous locations.

The WWTP has a capacity of 8.34 million gallons per day (MGD) with a peak flow of 12.5 MGD. Flows varied from a low of 2.1 to a high of 9.1 MGD. Wastewater treatment processes include grit and rag removal followed by primary clarification, trickling filters, aeration with mixing, secondary clarification, chlorination/de-chlorination, and final pH adjustment. In 2006, the average flow was 4.5 MGD. This is approximately 54 percent of capacity. This is up 8.9% from the previous year.

The WWTP continued to operate under a permit issued in 2003, and is in effect until March 2007. However, in 2006, as required, a request for permit renewal was applied for 180 days before current permit expiration. There is an effluent weekly total suspended solids (TSS) limit of 45 milligrams per liter (mg/l) and a monthly limit of 30 mg/l. Contained in the permit are also a carbonaceous biological oxygen demand (CBOD) weekly limit of 37.7 mg/l and a monthly limit of 25 mg/l. The yearly average TSS was 17.6 mg/l and the yearly average CBOD was 4.9 mg/l. Using yearly average influent values for the same parameters this calculates to 90.3 and 96.1 percent removal respectively. The permit requirement is 85 percent. Other effluent permit limits include Fecal Coliform, 400 colonies per week and 200 per month, pH between 6.0 and 9.0, and a maximum residual chlorine 28 parts per billion. Also, mercury is limited with an 868 parts per trillion maximum. Testing occurs weekly. After a year of upstream and effluent testing for mercury, all results came back below detection. A metals re-opener clause in the permit was requested for removing mercury from the permit. The request was deferred because it was considered a major permit modification and because it was so near to permit renewal. The request will be considered then. However, the sampling and testing frequency was reduced from weekly to monthly.

As a result of the removal efficiencies for TSS and CBOD stated above, wastewater treatment produces solids, a by-product of treatment, which must be treated and stabilized as mandated by the Environmental Protection Agency. The WWTP uses two processes to accomplish this. One process is anaerobic digestion. This process uses heat with mixing in the absence of oxygen. Another process is lime stabilization. This process uses lime to elevate the pH for required periods of time. In 2006, approximately 3,412,500 gallons of solids were stabilized. Once stabilized, solids can be land applied for its nutrient value, moisture content, and soil amendment properties. Thousands of tests are performed annually on residual solids to ensure regulated levels of treatment and for process control. Although the district has several thousand acres permitted with local area farmers for this application, there are times when this is difficult due to crop rotation or weather conditions. In 2004, the district purchased its own land for applications during these emergency times. During 2006, preparations for use included additional fencing and gating, additional access road rock, removal of abandoned house, Bermuda sprigging and fertilization.

In 2006, there were no monitoring, reporting or permit violations. There was no (0) reportable bypass of the treatment facility. As a result of applying for and receiving a general storm water permit in 2005, a written storm water pollution prevention plan (SPPP) was required. This plan was developed and implemented in 2006. Also, as a result of the permit process a plan had to be put in place to prevent sanitary sewer overflows (SSO). A fat, oil, and grease (FOG) ordinance was adopted to reduce the amount of FOG introduced into the sanitary sewer system and reduce SSO. In 2006 under the pretreatment program, a pretreatment technician, a newly created position, was established to manage the FOG ordinance.

In an attempt to eliminate or minimize spills, there are on-site tanks capable of holding approximately seven hundred thousand gallons (700,000). In 2006, approximately 5,319,000 gallons were stored and returned to the plant from various high flow events and maintenance projects. In addition, the wastewater plant has an emergency generator large enough to power the entire plant in the event of a power loss. In 2006, approximately 36,000 gallons were prevented from spilling into surface waters due to power loss and emergency generator use.

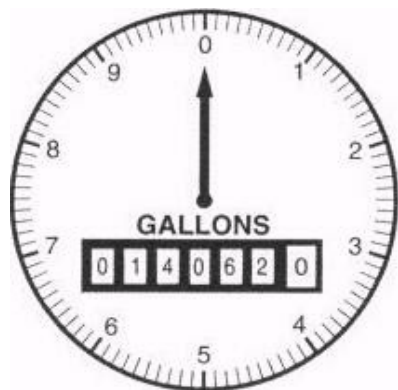
Improvements to the WWTP continued in 2006. Major projects included back-up grit removal system refurbishment, influent station pump controller replacement, trickling filter isolation valves replacement, effluent solids control polymer project refurbishment, million gallon solids storage tank repairs and SCADA computer plant monitoring system additions.

## Reading Your Meter

Meters are read by RRS&D and billed once a month. If the lid on your meter box is unlocked, you may access the meter for monitoring purposes. To read your meter, look at the numbers in the boxes below the word "gallons." RRS&D always converts the last three digits to zeros. For example, the numbers on the meter are 0140620, so the actual meter reading on which your bill is based is 0140000. Meters are not reset between readings. To find out how much water you have used in any given period, just subtract the reading on your last bill from the current meter reading.

Example:

Current reading	0140000	gallons
Minus reading on last bill	0135000	gallons
	<hr/>	
You used	0005000	gallons



### EXERCISE CAUTION AROUND METER BOXES

Customers are responsible for paying for repairs to damaged water meters. Please be careful when doing yard work near the meter boxes. For example, do not run a mulching lawnmower over one. It can create a vacuum powerful enough to suck the lid off the box. Lawnmower blades can also catch the side of the meter box, possibly injuring the operator and damaging the mower or meter box. The meter can also be damaged if cars are parked on top of them, or if they are opened.

Customer Service Department: 252-537-9137.

### New Meter Reading System

RRS&D is converting all customer water meters to a cost-effective automatic meter-reading system. There is no noticeable difference you can see at your meter. The system relies on low-power radio signals to record, store and transmit usage data from a customer's meter. RRS&D employees will now read the meter by simply driving a truck equipped with a special receiver down the street. As the truck passes, the computer inside sends a signal to each meter. The meter then automatically transmits a data package that contains detailed water usage information. This information is stored on the computer until your bill is printed. The meters are read without having to open the meter box or step onto the customer's property.

The radio-based system allows much faster readings, resulting in lower labor costs. A single meter reader in a specially equipped truck can read over 400 meters in an hour, which would take a meter reader entering data into a handheld computer an entire day. Other benefits include easier access to hard-to-reach meters, keeping billing cycles on schedule regardless of weather conditions, improving meter reading accuracy and easier transfer of information. This system will not change the operation of the meter or the water service you receive. Already installed in parts of RRS&D's service area, this new system has proven to be a valuable tool in providing better customer service.

## Source Water Assessment

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate or Lower.

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Susceptibility of Sources to Potential contaminant Sources (PCSs)

Source Name	Susceptibility Rating
Roanoke Rapids Lake	Moderate
Roanoke River	Moderate

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It is important to understand that a susceptibility rating of "higher" does not imply poor water quality, only the systems' potential to become contaminated by PCS's in the assessment area

## *Other Things You Should Know*

### **Keep drains fat-free**

Fats, oils, and greases aren't just bad for your arteries and your waistline; they're bad for sewers, too. Never put grease down the drain! Grease is considered a hazardous waste and sticks to the insides of your service lines (both on your property and in the streets). Over time, the grease can build up, block the entire lines, and cause growth of undesirable bacteria in the wastewater collection lines and treatment plant. Even a small amount of grease in sink drains can cause serious blockage in plumbing lines or even worse, an overflow in your home or yard. To dispose of grease safely, pour it into a metal can; once it hardens, cover and place in the garbage. The result will reduce our costs and keep us from having to pass the expense on to you, the consumer, in the form of wastewater rates.

### **Your Property's Water Shut-off Valve**

There may be occasions when you need to turn off your water supply—a plumbing emergency, need for repairs, or replacing a water heater. For this reason, all homes should be equipped with an emergency water shut-off valve. Knowing where your shut-off valve is before you have an emergency can save you time and money. Many homes are equipped with interior and exterior shut-off valves. Interior shut-off valves are easy to locate and convenient to use. They allow you to shut-off water to a specific area of the house. Interior shut-off valves are located inside bathroom and kitchen cabinets, under the sink, behind toilets, and above water heaters. Exterior shut-off valves are used to shut water off for the entire house or an irrigation system. They are generally found in one of two locations. The most common place is outside the home where the underground water line connects into the home. This is usually under the water spigot closest to the water meter. It may be buried, so you may have to dig down several feet to find it. Be careful not to dig into the water line! The second location is in front of the meter box and is usually easy to spot. Once you locate the valve, test it to be sure it is easy to access and easy to operate. If you cannot locate your water shut-off valve, you should have one installed as soon as possible, before you have a plumbing emergency. Call a plumber if you are unable to make the installation yourself. There is a valve inside the RRSD water meter box, but it is not always accessible or suitable for turning the water on and off. It is difficult to operate and usually requires a special tool. Many of the meter boxes are locked to protect the electronic meter reading equipment inside.

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## **Unidirectional Flushing Program**

Since 2001, The Roanoke Rapids Sanitary District, in cooperation with the City of Roanoke Rapids Fire Department, has been using a Unidirectional Flushing Program (UFP) to help maintain water quality in the distribution system. Flushing the system the traditional way (opening hydrants without directing the flow with closed valves) does not create the velocity required for flushing the distribution system of sand, sediments, and other debris.

While this flushing is going on, some customers may have some pressure fluctuations or slightly discolored water for a short time. The water pressure will return to normal in a few minutes, and you may have to run your cold water for a little while to clear up the discoloration.

Of all the available tools, flushing is the single most powerful and economic method to help maintain water quality. A sequenced Unidirectional Flushing Program will help identify stressed areas before problems occur. Overall, a successful flushing program will help to maintain the water quality between the treatment plant and the customer's tap.

### **Security**

In the aftermath of the tragic events of September 11th, 2001 all Americans have had to take a second look at what security means to them. We at the Sanitary District are no exception. While we took security very seriously before September 11th, since that time we have taken some additional steps to insure your water supply is safe. Intrusion alarms on all our elevated tanks, computer monitoring of the Distribution system and Wastewater lift stations, and securing our two plant sites 24 hours a day are just a few of the security measures we have taken to insure your safe water supply.

### **TOILET TROUBLES ???**

If you have a toilet back-up, be sure to call the Sanitary District **FIRST!!** Let our crew check the main line to see if it is clear **BEFORE** you call a plumber. They can advise you if the problem is in our main line or your service line from your house to the street.

### **HYDRO-PAY**

An easier way to pay your water bill.

Save the cost of a printed check

No more forgetting to pay your bill

Save postage

Avoid unnecessary penalties

Save time

It's FREE

Call our Administration office for more details

537-9137

## **TIPS FOR SUMMER: Don't Let Hot Weather Catch You Unprepared!**

**We in the Roanoke Valley are very fortunate to have an abundant supply of clean fresh water. Abundant, however, does not mean unlimited. While we do have a conservation plan in place, we have not had to use it, unlike some other communities in the state. Following are just a few of the many ways you can help conserve water, and make sure the water you do use is used effectively.**

Water lawns during the early morning hours when temperatures and wind speed are the lowest. This reduces losses from evaporation.

Don't water your street, driveway or sidewalk. Position your sprinklers so that your water lands on the lawn and shrubs ... not the paved areas.

Do not hose down your driveway or sidewalk. Use a broom to clean leaves and other debris from these areas. Using a hose to clean a driveway can waste hundreds of gallons of water.

Install sprinklers that are the most water-efficient for each use. Micro and drip irrigation and soaker hoses are examples of water-efficient methods of irrigation.

Raise the lawn mower blade to at least three inches. A lawn cut higher encourages grass roots to grow deeper, shades the root system and holds soil moisture better than a closely clipped lawn.

Avoid over fertilizing your lawn. The application of fertilizers increases the need for water. Apply fertilizers, which contain slow-release, water-insoluble forms of nitrogen.

Mulch to retain moisture in the soil. Mulching also helps to control weeds that compete with plants for water.

Use hose washers between spigots and water hoses to eliminate leaks.

Do not leave sprinklers or hoses unattended. Your garden hoses can pour out 600 gallons or more in only a few hours, so don't leave the sprinkler running all day. Use a kitchen timer to remind yourself to turn it off.

Check all hoses, connectors and spigots regularly.

If you have a swimming pool, consider a new water-saving pool filter. A single back flushing with a traditional filter uses from 180 to 250 gallons or more of water.

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P.O. Box 308  
Roanoke Rapids, NC 27870*

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