



ANNUAL  
**WATER  
QUALITY  
REPORT**

*Water testing performed in 2009*

*Presented By:*  
**TOWN OF LANDIS**

PWS ID#: 0180038

## Maintaining High Standards

Once again we are proud to present our annual water quality report. This report covers all testing performed between January 1 and December 31, 2009. The events of the past few years have presented many of us with challenges we could not have imagined. Yet, in spite of this we have maintained our high standards in an effort to continue delivering the best quality drinking water possible. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and citizen education while continuing to serve the needs of all our water users. There may be other hurdles in the future but know that we will always stand behind you and the drinking water we work diligently to provide.

An effective way of protecting our source water (streams, lakes and rivers) is through our Stormwater Management Plan. Stormwater is the number one source of pollution for fresh water streams and shorelines in North Carolina. When rain (stormwater) flows into storm drain systems, it picks up pollutants like pesticides, paint, household chemicals, sediment, yard waste, detergents, oil & grease, trash, and pet waste. The Town of Landis is required at a minimum to develop, implement, and enforce a stormwater program designed to reduce the discharge of pollutants to the maximum extent practicable. Public education, and storm water monitoring and management are instrumental in protecting our drinking water sources.

We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions, we are always available to assist you.

## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or [www.epa.gov/safewater/hotline/](http://www.epa.gov/safewater/hotline/).

## Substances That Could Be in Drinking Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

**Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

**Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

**Pesticides and Herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

**Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

**Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

## Community Participation

You are invited to participate in the Town of Landis Council meetings and voice your concerns about your drinking water. We meet the first Monday of each month beginning at 7 p.m. at City Hall, 312 South Main Street, Landis, NC.

## Cryptosporidium

Salisbury-Rowan Utilities: January–June 2009 *Cryptosporidium* results: Not detected. January 2009 Giardia results per 100 L=2 (3 Observed Oocysts). February–June 2009 Giardia results: Not detected. *Cryptosporidium* and Giardia are microscopic organisms that can cause diarrhea, fever, and other gastrointestinal symptoms when ingested. Public water systems provide protection through sedimentation, filtration, and disinfection. For additional information, visit the CDC website at <http://www.cdc.gov/crypto/>.

## Naturally Occurring Bacteria

The simple fact is, bacteria and other microorganisms inhabit our world. They can be found all around us: in our food; on our skin; in our bodies; and in the air, soil, and water. Some are harmful to us and some are not. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern because it indicates that the water may be contaminated with other organisms that can cause disease. Throughout the year, we tested 48 samples (4 samples every month) for coliform bacteria. In that time, none of the samples came back positive for the bacteria. Federal regulations now require that public water testing positive for coliform bacteria must be further analyzed for fecal coliform bacteria. Fecal coliforms are present only in human and animal waste. Because these bacteria can cause illness, it is unacceptable for fecal coliforms to be present in water at any concentration. Our tests indicate no fecal coliform present in our water.

## Questions?

For more information about this report, or for any questions relating to your drinking water, please call Brady Burgess, Water Distribution System ORC, at (704) 857-0131.



## Source Water Assessment Program

The North Carolina Department of Environment and Natural Resources (NCDENR), 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 reports that include maps, background information, and information on the susceptibility ratings of higher, moderate, or lower.

The relative susceptibility rating of each source for the Town of Landis 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 here:

SOURCE	SUSCEPTIBILITY RATING	SWAP REPORT DATE
Yadkin River	Higher	March 2007
Kannapolis Lake	Moderate	May 2007
Second Creek/ Back Creek	Moderate	May 2007

These susceptibility ratings do not imply poor water quality; rather, they signify the system potential to become contaminated by potential contaminant sources in the assessment area.

The complete SWAP report for the City of Kannapolis (System ID# NC0180065) and the Salisbury-Rowan Utilities (System ID# 0180010) may be viewed on the Web at [www.deh.enr.state.nc.us/pws/swap](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 North Carolina, 27699-1634, or e-mail a request to [swap@ncmail.net](mailto:swap@ncmail.net). Please indicate your system name, the PWSID number, and 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.

## Where Does My Water Come From?

The City of Kannapolis (System ID# NC0180065) is the primary provider of drinking water to the Town of Landis. The City Of Kannapolis drinking water comes from Kannapolis Lake, a 289-acre body of water. The lake has a 1.35 billion-gallon maximum capacity and is filled from a 10.6-square-mile drainage area. Supplemental raw water sources include Lake Don T. Howell in Cabarrus County and Second Creek in Rowan County. Kannapolis also obtains treated water through interconnections with the City of Concord and the City of Salisbury. The Town of Landis also purchases 75,000 gallons per day from the Salisbury-Rowan Utilities (System ID# NC0180010). Salisbury's source water intake is located on the Rowan-Davie-Davidson County line at the confluence of the South Yadkin River and the Yadkin River.

## What Causes the Pink Stain on Bathroom Fixtures?

The reddish-pink color frequently noted in bathrooms on shower stalls, tubs, tile, toilets, sinks, toothbrush holders, and on pets' water bowls is caused by the growth of the bacterium *Serratia marcescens*. *Serratia* is commonly isolated from soil, water, plants, insects, and vertebrates (including man). The bacteria can be introduced into the house through any of the above-mentioned sources. The bathroom provides a perfect environment (moist and warm) for bacteria to thrive.

The best solution to this problem is to continually clean and dry the involved surfaces to keep them free from bacteria. Chlorine-based compounds work best, but keep in mind that abrasive cleaners may scratch fixtures, making them more susceptible to bacterial growth. Chlorine bleach can be used periodically to disinfect the toilet and help to eliminate the occurrence of the pink residue. Keeping bathtubs and sinks wiped down using a solution that contains chlorine will also help to minimize its occurrence.

*Serratia* will not survive in chlorinated drinking water.

## What Are PPCPs?

When cleaning out your medicine cabinet, what do you do with your expired pills? Many people flush them down the toilet or toss them into the trash. Although this seems convenient, these actions could threaten our water supply.

Recent studies are generating a growing concern over pharmaceuticals and personal care products (PPCPs) entering water supplies. PPCPs include human and veterinary drugs (prescription or over-the-counter) and consumer products, such as cosmetics, fragrances, lotions, sunscreens, and household cleaning products. Over the past five years, the number of

## Lead and Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Town of Landis is responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

## Water Conservation

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.

Turn off the tap when brushing your teeth.

Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.

Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.

Use your water meter to detect hidden leaks. Simply turn off all taps and water-using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

U.S. prescriptions increased 12 percent to a record 3.7 billion, while nonprescription drug purchases held steady at around 3.3 billion. Many of these drugs and personal care products do not biodegrade and may persist in the environment for years.

The best and most cost-effective way to ensure safe water at the tap is to keep our source waters clean. Never flush unused medications down the toilet or sink. Instead, check to see if the pharmacy where you made your purchase accepts medications for disposal, or contact your local health department for information on proper disposal methods and drop-off locations. You can also go on the Web at [www.Earth911.com](http://www.Earth911.com) to find more information about disposal locations in your area.

# Sampling Results

During the past year, the Town of Landis, the City of Kannapolis, and Salisbury-Rowan Utilities have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. The state allows us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

## REGULATED SUBSTANCES

				Town of Landis		City of Salisbury		City of Kannapolis			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Beta/Photon Emitters <sup>1</sup> (pCi/L)	2005	50	0	2.65 (avg)	ND-5.7	NA	NA	NA	NA	No	Decay of natural and man-made deposits
Chlorine (ppm)	2009	[4]	[4]	0.96 (avg)	0.20-1.59	1.83	NA	1.3	0.22-1.9	No	Water additive used to control microbes
Fluoride (ppm)	2009	4	4	NA	NA	0.83	NA	0.97	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2009	60	NA	41 (avg)	28-60	19.9	16.5-25.5	37.9	32.6-43.2	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	2009	80	NA	69 (avg)	40-116	35.6	12-52	65.3 <sup>2</sup>	42-88.2 <sup>2</sup>	No	By-product of drinking water chlorination
Total Organic Carbon [TOC] (removal ratio)	2009	TT	NA	NA	NA	1.31	1.0-2.0	1.17	1.08-1.36	No	Naturally present in the environment
Turbidity <sup>4</sup> (NTU)	2009	TT = 1 NTU	NA	NA	NA	0.09	ND-0.09	0.21	ND-0.21	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2009	TT	NA	NA	NA	100	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community (lead was not detected at the 90th percentile)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH% TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2007	1.3	1.3	0.097	0/10	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

## UNREGULATED SUBSTANCES

		City of Salisbury		City of Kannapolis		
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Sodium (ppm)	2009	14.6	NA	24.8	NA	Erosion of natural deposits
Sulfate (ppm)	2009	7.80	NA	29.3	NA	Erosion of natural deposits

## INITIAL DISTRIBUTION SYSTEM EVALUATION<sup>5</sup>

				Town of Landis		City of Kannapolis			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Haloacetic Acids [HAA]-IDSE Results (ppb)	2009	39 (avg)	27-50	47.3	43.1-57.6				By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]-IDSE Results (ppb)	2009	76 (avg)	45-114	86.7	49-129				By-product of drinking water disinfection

<sup>1</sup>The MCL for beta particles is 4 mrem/year. U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

<sup>2</sup>Sampled in 2008

<sup>3</sup>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 the alternative % removal, we are in violation of a Treatment Technique.

<sup>4</sup>Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good

indicator of the effectiveness of our filtration system. The turbidity rule requires that 95% or more of the monthly samples must be less than or equal to 0.3 NTU.

<sup>5</sup>Some water utilities were required by the U.S. EPA to conduct an evaluation of their distribution systems. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in a distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

## Definitions

**AL (Action Level):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

**MCL (Maximum Contaminant Level):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**MCLG (Maximum Contaminant Level Goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**MRDL (Maximum Residual Disinfectant Level):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MRDLG (Maximum Residual Disinfectant Level Goal):** The level 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.

**NA:** Not applicable

**ND (Not detected):** Indicates that the substance was not found by laboratory analysis.

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**pCi/L (picocuries per liter):** A measure of radioactivity.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter).

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter).

**removal ratio:** A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

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