

# 2014 ANNUAL DRINKING WATER QUALITY REPORT

South Granville Water and Sewer Authority (SGWASA)  
PWSID #02-39-107  
June, 2015

We're pleased to present to our customers this year's Annual Drinking Water Quality Report. It has been designed to inform you about the quality of water we deliver to you every day. Our continuous goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our watershed. We are committed to ensuring the quality of your drinking water. **If you have any questions about this report or concerning your water, please contact Mickey W. Alston at (919) 575-3118. We want our valued customers to be informed about their water utility.**

The SGWASA Water Plant routinely monitors for contaminants in your drinking water according to federal and state laws. This report shows the results of our monitoring for the period January 1st through December 31st, 2014 and includes contaminant testing results from previous years that were not scheduled to be tested in 2014.

## SGWASA WATER SOURCE

Our water source is R.D. Holt Reservoir located off Old Oxford Highway 75 just northwest of Butner, NC. This is a 2.2 billion gallon surface supply covering an area of approximately 374 acres. It is part of the Upper Neuse River Basin. Holt Reservoir is nestled within a heavily forested watershed (75%) that helps to minimize outside impacts on the lake itself. It also provides excellent seasonal non-contact (no swimming or water-skiing allowed) recreation such as fishing, boating and picnicking. The lake has the ability to provide over 13 million gallons of water for treatment each day. As you can see, R.D. Holt Reservoir is a valuable resource for the SGWASA.

## HOW DOES SGWASA TREAT YOUR WATER

Raw water from R.D. Holt Reservoir is treated at the SGWASA Water Plant. The plant has the ability to treat up to 7.5 million gallons of water a day. The treatment process has 5 main steps: coagulation, flocculation, sedimentation, filtration and disinfection. First, chemicals are added to the raw water where they form solid material around solid particles such as silt, mud, sand, etc. As these particles move along the treatment process, they clump together forming larger and heavier particles. These particles are allowed to settle to the bottom of large settling basins where they can be removed at a later time. The water then gets its first addition of disinfectant, chlorine, to eliminate any bacteria that may be present before flowing through filters. The filters remove any remaining particles in the water. Finally, one last dose of disinfectant, chloramines is added to ensure that the water is safe to drink when it reaches the consumers tap.

The SGWASA Water Plant laboratory is certified by the State of North Carolina for bacteriological analysis. Lab staff has gained individual certifications through the State Laboratory of Public Health voluntary certification program. Compliance and process control monitoring are routinely performed with all National Primary Drinking Water Regulations being met. If you have any questions about the contents of this report, please contact **Mickey Alston at (919) 575-3118.**

## What EPA Wants You to Know

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).

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. SGWASA is responsible for providing high quality drinking water, but 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 <http://www.epa.gov/safewater/lead>.

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 and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants 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, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water 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 storm water runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; and radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

### When You Turn on Your Tap, Consider the Source

The water that is used by this system is surface water from Knapp of Reeds Creek Impoundment (Holt Reservoir) and is located off Old Highway 75 just northwest of Butner.

### Source Water Assessment Program (SWAP) Results

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 SGWASA 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)

Source Name	Susceptibility Rating	SWAP Report Date
Knapp of Reeds Creek Impoundment (Holt Reservoir)	Lower	February 19, 2010

The complete SWAP Assessment report for SGWASA (Town of Butner) may be viewed on the Web at: <http://www.ncwater.org/pws/swap>. Please note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this web site may differ from the results that were available at the time this CCR was prepared. 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@ncdenr.gov](mailto:swap@ncdenr.gov). 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 919-707-9098. 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.

## Help Protect Your Source Water

Protection of drinking water is everyone’s responsibility. You can help protect your community’s drinking water source(s) in several ways: (examples: dispose of chemicals properly; take used motor oil to a recycling center, volunteer in your community to participate in group efforts to protect your source, etc.).

### Violations that Your Water System Received for 2014

During 2014 or during any compliance period that ended in 2014 we received a Total Haloacetic acid (HAA5) violation for our running annual average that ended on December 31, 2014. The investigation as to the cause of the elevated numbers is ongoing. A public notice was issued in February 2015. We are continuing to do quarterly monitoring.

### Water Quality Data Table of Detected Contaminants

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The table below lists all the drinking water contaminants that we detected in the last round of sampling for each particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. **Unless otherwise noted, the data presented in this table is from testing done January 1 through December 31, 2014.** The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

#### **Important Drinking Water Definitions:**

**Parts per million (ppm) or Milligrams per liter (mg/L)**- one part per million corresponds to one minute in two years or a single penny in \$10,000.

**Parts per billion (ppb) or Micrograms per liter (ug/L)**- one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

**Picocuries per liter (pCi/L)**- picocuries per liter is a measure of the radioactivity in water.

**Millirems per year (mrem/yr)**- measure of radiation absorbed by the body.

**Nephelometric turbidity Unit (NTU)**- nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5.0 NTU’s is just noticeable to the average person.

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

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

**Maximum Residual Disinfection Level (MRDL)** – 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.

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

**Locational Running Annual Average (LRAA)** – The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters under the Stage 2 Disinfectants and Disinfection Byproducts Rule.

**Maximum Contaminant Level (MCL)**- The “Maximum Allowed”(MCL) is the highest level of a contaminant that is allowed in drinking water. MCL’s are set as close to the MCLG’s as possible using the best available technology.

MCL’s are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink two liters of water every day at the specific Maximum Contaminant level for a lifetime to have a one-in-million chance of having the described health effect.

**Microbiological Contaminants**

Contaminant (units)	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Total Coliform Bacteria (presence or absence)	N	0	0	one monthly positive	Naturally present in the environment
Fecal Coliform or <i>E. coli</i> (presence or absence)	N	0	0	a routine sample and repeat sample are total coliform positive, and one is also fecal coliform or <i>E. coli</i> positive	Human and animal fecal waste

**Turbidity-Systems with population >10,000**

Contaminant (units)	MCL Violation Y/N	Your Water	MCLG	Treatment Technique (TT) Violation if:	Likely Source of Contamination
Turbidity (NTU)	N	0.210	N/A	Turbidity > 1 NTU	Soil runoff
		100 %	N/A	Less than 95% of monthly turbidity measurements are ≤ 0.3 NTU	

\* 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 below 0.3 NTU.

### Inorganic Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Antimony (ppb)	08/05/14	N	ND	NA		6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic (ppb)	08/05/14	N	ND	NA		0	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	08/05/14	N	ND	NA		2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium (ppb)	08/05/14	N	ND	NA		4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Cadmium (ppb)	08/05/14	N	ND	NA		5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium (ppb)	08/05/14	N	ND	NA		100	100	Discharge from steel and pulp mills; erosion of natural deposits
Cyanide (ppb)	08/05/14	N	ND	NA		200	200	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride (ppm)	08/05/14	N	0.45	0.3 – 1.0		4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Mercury (inorganic) (ppb)	08/05/14	N	ND	NA		2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Selenium (ppb)	08/05/14	N	ND	NA		50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Thallium (ppb)	08/05/14	N	ND	NA		0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

### Nitrate/Nitrite Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Nitrate (as Nitrogen) (ppm)	01/08/14	N	<1.00	N/A		10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (as Nitrogen) (ppm)	01/08/14	N	<0.01	N/A		1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

### Unregulated Inorganic Contaminants

Contaminant (units)	Sample Date	Your Water (average)	Range	
			Low	High
Nickel (ppm)	08/05/14	ND	NA	
Sodium (ppm)	08/05/14	24.0	NA	

### Lead and Copper Contaminants

Contaminant (units)	Sample Date	Your Water	# of sites found above the AL	MCLG	MCL	Likely Source of Contamination
Copper (ppm) (90 <sup>th</sup> percentile)	9/2014	0.105	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (90 <sup>th</sup> percentile)	9/2014	<0.003	0	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791) or at <http://www.epa.gov/safewater/lead>

### \*\*Lead and Copper Contaminants City of Creedmoor

Contaminant (units)	Sample Date	Your Water	# of sites found above the AL	MCLG	MCL	Likely Source of Contamination
Copper (ppm) (90 <sup>th</sup> percentile)	2014	0.200	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (90 <sup>th</sup> percentile)	2014	1.7	0	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791) or at <http://www.epa.gov/safewater/lead>

### Radiological Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Alpha emitters (pCi/l)	5/21/07	N	ND	0	15	Erosion of natural deposits
Uranium (pCi/l)	5/21/07	N	ND	0	20.1	Erosion of natural deposits
Radium 226 (pCi/l)	5/21/07	N	ND	0	3	Decay of natural and man-made deposits
Radium 228 (pCi/l)	5/21/07	N	ND	0	2	Erosion of natural deposits

### Disinfection By-Product Precursors Contaminants

Contaminant (units)	Sample Date	MCL/TT Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Total Organic Carbon (ppm) (TOCs)-RAW	Monthly	N	8.49	6.72 9.73	N/A	TT	Naturally present in the environment
Total Organic Carbon (ppm) (TOCs)-TREATED	Monthly	N	3.11	2.56 3.52	N/A	TT	Naturally present in the environment

STEP 1 TOC Removal Requirements	
Source Water TOC (mg/L)	Source Water Alkalinity Mg/L as CaCO3 (in percentages)

	0 - 60	>60-120	>120
> 2.0 - 4.0	35.0	25.0	15.0
> 4.0 - 8.0	45.0	35.0	25.0
> 8.0	50.0	40.0	30.0

### Total Organic Carbon (TOC) Removal

Contaminant (units)	TT Violation Y/N	Your Water (RAA Removal Ratio)	Range Monthly Removal Ratio Low - High	MCLG	TT	Likely Source of Contamination	Compliance Method (Step 1 or ACC#_)
Total Organic Carbon (removal ratio) (TOC)-TREATED	N	1.30	1.20 – 1.41	N/A	TT	Naturally present in the environment	STEP 1

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.

### Disinfectant Residuals Summary

	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range		MRDLG	MRDL	Likely Source of Contamination
				Low	High			
Chlorine (ppm)	2014	N	3.1	1.5	4.0	4	4.0	Water additive used to control microbes
Chloramines (ppm)	2014	N	2.8	1.8	4.0	4	4.0	Water additive used to control microbes

### Stage 2 Disinfection Byproduct Compliance - Based upon Locational Running Annual Average (LRAA)

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
TTHM (ppb)						N/A	80	Byproduct of drinking water disinfection
BSES (B02)	2014	N	77	36	104	N/A	80	Byproduct of drinking water disinfection
HAA5 (ppb)						N/A	60	Byproduct of drinking water disinfection
Skipping Stone (B04)	2014	Y	76	1.4	91	N/A	60	Byproduct of drinking water disinfection

*Some people who drink water containing Trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.*

*Some people who drink water containing Haloacetic Acids in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.*

**\*\*\*\*\*Disinfection By-Product Contaminants City of Creedmoor**

Contaminant (units)	MCL/MRDL Violation Y/N	Your Water (AVG)	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb) [Total Trihalomethanes]	N	70	61 80	N/A	80	By-product of drinking water chlorination
<b>HAA5 (ppb)</b> <b>[Total Haloacetic Acids]</b>	<b>Y</b>	<b>60</b>	<b>32 79</b>	<b>N/A</b>	<b>60</b>	<b>By-product of drinking water disinfection</b>
Chloramines (ppm)	N	1.05	0.1 2.9	MRDLG = 4	MRDL = 4	Water additive used to control microbes

**Secondary Contaminants, required by the NC Public Water Supply Section, are substances that affect the taste, odor, and/or color of drinking water. These aesthetic contaminants normally do not have any health effects and normally do not affect the safety of your water.**

**Other Miscellaneous Water Characteristics Contaminants**

Contaminant (units)	Sample Date	Your Water	Range Low High	SMCL
Iron (ppm)	08/05/14	<0.060	NA	0.3 mg/L
Manganese (ppm)	08/05/14	0.038	NA	0.05 mg/L
Nickel (ppm)	08/05/14	ND	NA	N/A
Sodium (ppm)	08/05/14	24.0	NA	N/A
Sulfate (ppm)	08/05/14	35.8	NA	250 mg/L
pH	08/05/14	7.63	NA	6.5 to 8.5



### **What does this mean?**

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 contaminants are available from the **Safe Drinking Water Hotline at 1-800-426-4791**.

Thank you for allowing us to continue providing your family with clean, quality drinking water. In order to maintain a safe and dependable water supply, we have developed a lake monitoring program that enables us to analyze seasonal changes in the lake water chemistry and biological processes. By taking this closer look at our reservoir, we are able to utilize the highest quality water available for treatment as well as optimize the plant for the most efficient production of excellent quality drinking water.

We, at the SGWASA Water Treatment Plant, work twenty-four hours a day to provide top quality water to every tap. We ask that all our customers help us to protect our water sources, which are the heart of our community, our way of life and our children's future.

### **WHAT CAN YOU DO TO PROTECT DRINKING WATER?**

**Get involved with water issues.** Contact the water plant at (919) 575-3118 for information.

**Use water wisely.** Check your plumbing for leaks and fix them. Use water for irrigation only in the early morning or late evening.

**Be environmentally conscious around the lake.** Try to prevent oil and fuel spills while boating. Minimize pet waste to the lake.

More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency Safe Drinking Water Hotline at **1-800-426-4791**.

**SGWASA  
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