



Water Lines

2013 Annual Drinking Water Quality Report
City of Washington, North Carolina
Water System Number: 04-07-010



We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is a snapshot of last year's water quality. Included are details about your sources of water, what it contains, and how it compares to standards set by regulatory agencies. Our constant 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 water resources. We are committed to ensuring the quality of your water and to providing you with this information because informed customers are our best allies. **If you have any questions about this report or concerning your water, please contact the Water Resources Division at (252) 975-9374 or (252) 975-9310, 8 a.m. – 5 p.m., Monday through Friday. For water –related emergencies contact (252) 975-9320 at any time. We want our valued customers to be informed about their water utility.**

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 susceptibility rating of Higher, Moderate, or Lower.

The relative susceptibility rating of each source for the City of Washington 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 below.

Susceptibility of Water Sources to Potential Contaminant Sources (PCSs)

<i>Source Name</i>	<i>Susceptibility Rating</i>	<i>Swap Report Date</i>
Well # 1	Lower	March 2010
Well # 2	Lower	March 2010
Well # 3	Lower	March 2010
Well # 4	Lower	March 2010
Well # 5	Lower	March 2010
Well # 6	Lower	March 2010
Well # 7	Lower	March 2010
Well # 8	Lower	March 2010

The complete SWAP Assessment report for the City of Washington may be viewed on the Web at: www.ncwater.org/pws/swap. 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. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email requests to swap@ncdenr.gov. Please indicate your system name, number, 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 system's potential to become contaminated by PCSs in the assessment area.

When You Turn on Your Tap, Consider the Source

The City of Washington's water comes from ground water out of the Castle Hayne Aquifer. Eight wells have been installed into the aquifer to remove the water from the ground. These wells, located 5 to 10 miles east of Washington, pump raw water to the Regional Water Treatment Plant, located near the Douglas Cross Roads Community. At the plant, raw water is treated to remove odor, iron, manganese, and hardness. Before the water enters the plant, it is aerated to remove odors. It is then injected with potassium

permanganate to oxidize the dissolved iron and manganese. The oxidized iron and manganese is filtered out, and then 65% of the water passes through high capacity resin filters for the removal of calcium and magnesium (hardness).

The finished water from the resin filters is completely soft. It is then blended with the unsoftened water so that it will have about 60-75 mg/l of total hardness. As the water leaves the filters, chlorine is added as a disinfectant to make sure no bacteria are present, and a chloramine residual is kept in the water system. Phosphate is added to protect pipe lines in the water distribution system and prevent corrosion and rusty water from getting to the customers. Fluoride also is added in the treatment process to keep 0.75 mg/l in the water for the control of cavities in children's teeth.

Treated water is stored at the plant in two tanks which have a capacity of 2.5 million gallons. From these storage tanks, water is pumped into the system and to three elevated storage tanks located in the City of Washington. As the water is pumped to these tanks, ammonia is added.

This ammonia combines with the chlorine to make up chloramines, a type of disinfectant. The elevated storage tanks, when full, will store 1.3 million gallons of water.

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 microbial 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. The City of Washington 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 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 can also come from gas stations, urban stormwater 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.

Definitions & Abbreviations

CDC- Center for Disease Control, a federal government agency.
EPA- Environmental Protection Agency, a federal government agency.
D/DBP- Disinfectants and Disinfection By-Products Rule.
FDA- Food and Drug Administration, a federal government agency.
GWUID- Groundwater sources found to be under direct influence of surface water.
HAA5- Five Haloacetic Acids.
Inorganic Compounds- Substances such as salts, sand, and iron, that are of a mineral origin.
MCL- Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water.
MCLs are set as close to the MCLG 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 Levels.
Mf/l- Million fibers per liter. A measurement of 1 mf/l means that there are 1

Not-Applicable (N/A) – Information not applicable/not required for that particular water system or for that particular rule.
ng/l - Nanogram per liter (ng/l). A measurement of 1 ng/l means that 1 pound of a measured substance would be present in 1 trillion pounds of water.
ND- Not Detected. When a compound has ND beside it, that means lab analysis did not detect that compound in the water.
Picocurie- pCi/l. A measure of radioactivity. One picoCurie of radioactivity is equivalent to 0.037 nuclear disintegrations per second.
Synthetic Organic Compounds- SOCs. Substances that are manufactured, such as ether and acetone, and are not of plant or animal origin, that are capable of being changed to a vapor at relatively low temperatures.
Trihalomethanes- THMs. Derivatives of methane that can form during chlorination when chlorine reacts with natural organic materials in water. The resulting compounds (THMs) are suspected of causing cancer.
Turbidity- The cloudy appearance of water caused by suspended matter. In the waterworks field, a turbidity measurement is used to indicate the clarity of water. Technically, turbidity is an optical property of the water based on the amount of

million fibers (>10 micrometers) of asbestos in 1 liter of sample water.

µg/l- Micrograms per liter. A measurement of 1 µg/l means that 1 pound of a measured substance would be present in 1 billion pounds of water.

mg/l- Milligrams per liter, the most common unit of measurement for test results used by the water treatment community. A measurement of 1 mg/l means 1 pound of a measured substance would be present in 1 million pounds of water.

light reflected by suspended particles.

Volatile Organic Compounds- VOCs. Substances of plant or animal origin that are capable of being changed to a vapor at relatively low temperatures.

2012 Laboratory Analysis Results

Volatile Organic Compounds

Compounds	Washington Average	MCLG	Federal MCL
1,2,4- Trichlorobenzene	ND	70 µg/l	70 µg/l
Cis-1,2-Dichloroethylene	ND	70 µg/l	70 µg/l
Xylenes (total)	ND	10 mg/l	10 mg/l
Dichloromethane	ND	0 µg/l	5 µg/l
o-Dichlorobenzene	ND	600 µg/l	600 µg/l
p-Dichlorobenzene	ND	75 µg/l	75 µg/l
Vinyl Chloride	ND	0 µg/l	2 µg/l
1,1-Dichloroethylene	ND	7 µg/l	7 µg/l
Trans-1,2-Dichloroethylene	ND	100 µg/l	100 µg/l
1,2-Dichloroethane	ND	0 µg/l	5 µg/l
1,1,1-Trichloroethane	ND	200 µg/l	200 µg/l
Carbon Tetrachloride	ND	0 µg/l	5 µg/l
1,2-Dichloropropane	ND	0 µg/l	5 µg/l
Trichloroethylene	ND	0 µg/l	5 µg/l
1,1,2-Trichloroethane	ND	3 µg/l	5 µg/l
Tetrachloroethylene	ND	0 µg/l	5 µg/l
Chlorobenzene	ND	100 µg/l	100 µg/l
Benezene	ND	0 µg/l	5 µg/l
Toluene	ND	1 µg/l	1 µg/l
Ethyl Benzene	ND	700 µg/l	700 µg/l
Styrene	ND	100 µg/l	100 µg/l

Pesticides & Synthetic Organic Compounds

Compound	Washington Average	MCLG	Federal MCL
Edrin	ND	2 µg/l	2 µg/l
Lindane	ND	200 ng/l	200 ng/l
Methoxychlor	ND	40 µg/l	40 µg/l
Toxaphene	ND	0	3 µg/l
Dalapon	ND	200 µg/l	200 µg/l
Di (2ethylhexyl)adipate	ND	400 µg/l	400 µg/l
Oxamyl(vydate)	ND	200 µg/l	200 µg/l
Simazine	ND	4 µg/l	4 µg/l
Picloram	ND	500 µg/l	500 µg/l
Dinoseb	ND	7 µg/l	7 µg/l
Hexachlorocyclopentadiene	ND	50 µg/l	50 µg/l
Carbfulan	ND	40 µg/l	40 µg/l
Atrazine	ND	3 µg/l	3 µg/l
Alachlor	ND	0	2 µg/l
Heptachlor	ND	0	400 ng/l
Heptachlor-Epoxide	ND	0	400 ng/l
2,4D	ND	70 µg/l	70 µg/l
2,4,5-TP(Silvex)	ND	50 µg/l	50 µg/l
Hexachlorobenzene	ND	0	1 µg/l
Di(2-dthylhexyl)phantalate	ND	0	6 µg/l
Benzo(a)pyrene	ND	0	200 ng/l
Pentachlorophenol	ND	0	1 µg/l
PCBs	ND	0	500 ng/l
DBCP	ND	0	200 ng/l
Ethylene Dibromide (EDB)	ND	0	50 ng/l
Chlorodane	ND	0	2 µg/l

The City ran tests searching for an additional 44 unregulated organic compounds. None of these unregulated compounds was found.

Inorganic Compounds

Compound	Washington Average	MCLG	Federal MCL
Antimony	ND	6 µg/l	6 µg/l
Arsenic	ND	N/A	10 µg/l
Barium	ND	2 mg/l	2 mg/l
Beryllium	ND	4 µg/l	4 µg/l
Cadmium	ND	5 µg/l	5 µg/l
Chromium	ND	100 µg/l	100 µg/l
Copper	0.181 mg/l	1.3 mg/l	1.3 mg/l
Cyanide	ND	200 µg/l	200 µg/l
Fluoride	0.31 mg/l	4 mg/l	4 mg/l
Iron	60 µg/l	N/A	300 µg/l
Lead	4 µg/l	0	15 µg/l
Manganese	10µg/l	N/A	50 µg/l
Mercury	ND	2 µg/l	2 µg/l
Nitrate	ND	10 mg/l	10 mg/l
Nitrite	ND	1 mg/l	1 mg/l
Thallium	ND	0.5 µg/l	2 µg/l
Asbestos	ND	7 mf/l	7 mf/l
Sulfate	ND	5mg/l	250mg/l

HAA5

Compound	Washington Average	MCLG	Federal MCL
Total Haloacetic Acid	7.0 ug/l	0 ug/l	60 ug/l

Trihalomethanes

Compounds	Washington Average	MCLG	Federal MCL
Total Trihalomethane	15 ug/l	0 ug/l	80 ug/l

Microbiological Contaminants in Source Water

Compound	Washington Average	MCLG	Federal MCL
Total Coliform	0%	0%	< 5% positive

Additional Parameters

Compounds	Washington Average
pH	7.58 pH units
Hardness	59 mg/l
Sodium	79.19 mg/l
Temperature	64.8° F
Total Alkalinity	197.26 mg/l
Carbon Dioxide	9.82 mg/l
Chlorides	14.46 mg/l

Radiological

Values in picoCuries/liter

<i>Compound</i>	<i>Washington Average</i>
Gross Alpha	ND
Gross Beta	2.01
Combined- Radium	ND
Radium 226	ND
Radium 228	ND

EPA considers 50 pCi/L to be the level of concern for beta particles.

Turbidity

<i>Contaminant</i>	<i>Washington</i>	<i>Treatment Technique Violation if:</i>
Turbidity (NTU)- highest Single measurement NTU	0.086	Turbidity >1 NTU
Lowest monthly % of Samples meeting turbidity limits	100%	Less than 95% of monthly measurements are \leq 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 less than or equal to 0.3 NTU.

Testing Schedules

Inorganic Compounds testing required every three years, last tested April 5, 2012. **Volatile Organic compounds** testing required every three years, last tested February 16, 2011. **Synthetic Organic Compounds** testing required every three years, last tested May 5, 2011. **Radiological** Radionuclide Monitoring 4 Qtrs. 11/15/06 – 8/13/08. All other parameters were tested through 2012.