



# Water Lines

## City of Washington, North Carolina 2010 Water Quality Annual Report



### Report Informs Public About City Water Quality

This annual Water Quality Report published by the City of Washington shares important information with customers about the quality of drinking water provided by the City of Washington. This newsletter meets the requirements of the federal Safe Drinking Water Act (SDWA). Articles explain:

- ♦ the source of the City's water
- ♦ description of treatment processes
- ♦ test results from laboratory analysis
- ♦ Telephone numbers to call for more information.
- ♦ definitions of terms used

Water treatment operations are provided by the Water Resources Division of the City's Public Works Department. The City works hard to provide a safe water supply to customers and will continue to do so.

For more information

- ♦ Drinking water quality. Water Resources Division, 252-975-9374, 252-975-9310, 8 a.m.-5 p.m., Monday through Friday
- ♦ Water-related emergencies. 252-975-9320 at any time

### 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>
Well # 1	Lower
Well # 2	Lower
Well # 3	Lower
Well # 4	Lower
Well # 5	Lower
Well # 6	Lower
Well # 7	Lower
Well # 8	Lower

The complete SWAP Assessment report for The City of Washington may be viewed at the Water Resources Office during regular business hours. Call 252-975-9374 or 252-975-9310 for appointments or questions regarding the SWAP assessment report.

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 PCSs in the assessment area.

### What Is The Source Of Washington's Water?

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 1 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.

## Preventing Lead, Copper Contamination At Home

"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 Regional Water Treatment Plant 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 your 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>."

Customers can reduce the potential for lead buildup in the water in their homes by doing the following:

- ♦ Run faucets for a minute or two in the morning or when water hasn't run for awhile before using water for drinking, bathing or cooking.
- ♦ Use only cold water for cooking and making beverages.
- ♦ Remove and clean faucet aerator screens regularly.
- ♦ If you have reason to be concerned about the water in your home, you may have your water tested by an independent water testing laboratory.

Here are some labs serving our area:

- ♦ Greenville — Environment 1 (252) 756-6208
- ♦ Wilson — Southern Testing (252) 237-4175
- ♦ Wilmington — Element One (910) 793-0128; Environmental Chemists (910) 392-0223; Oxford Laboratories (910) 763-9793.

## 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 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.

**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.** pC/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 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.

# 2009 Laboratory Analysis Results

## Volatile Organic Compounds

Compound	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

## 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	0.93 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	<0.1 mg/l	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	10.2mg/l	5mg/l	250mg/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
Carbafuran	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-Epoxyde	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-dithylhexyl)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.

\*last tested 2/5/09

## Trihalomethanes

Compound	Washington Average	MCLG	Federal MCL
Total Trihalomethane	17 ug/l	0 ug/l	80 ug/l

## HAA5

Compound	Washington Average	MCLG	Federal MCL
Total Haloacetic Acid	7.1 ug/l	0 ug/l	60 ug/l

## Microbiological

Compound	Washington Average	MCLG	Federal MCL
Total Coliform	0.00%	0.00%	< 5% positive
Turbidity	0.055 NTU	n/a	0.5 NTU

## Additional Parameters

Compound	Washington Average
pH	7.58 pH units
Hardness	58 mg/l
Sodium	77.35 mg/l
Temperature	64.8 F
Total Alkalinity	201 mg/l
Carbon Dioxide	9.4 mg/l
Chlorides	11.1 mg/l

## Radiological

Values in picoCuries/liter

Compound	Washington Average
Gross Alpha	ND
Gross Beta	2.01
Combined-	
Radium	ND
Radium 226	ND
Radium 228	ND

## Testing Schedules

**Inorganic Compounds** testing required every three years, last tested April 2, 2009. **Volatile Organic compounds** testing required every three years, last tested February 20, 2008. **Synthetic Organic Compounds** testing required every three years, last tested February 14, 2008. **Radiological** Radionuclide Monitoring 4 Qtrs. 11/15/06 – 8/13/08. All other parameters were tested through 2009.

## Special Concerns

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

## Both Tap & Bottled Water Are Regulated

To ensure that tap water is safe to drink, EPA prescribes regulations that 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. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. However, the presence of contaminants does not necessarily indicate that water poses a health risk. For more information about contaminants and potential health effects, call EPA's Safe Drinking Water Hotline at (800) 426-4791.

## Cryptosporidium Presence Unlikely

Cryptosporidium, a microscopic parasite that can be found in surface water (rivers, lakes and streams), has received much national attention; however, since the City of Washington's water supply comes from ground water, the threat of cryptosporidium being found in our water supply is greatly diminished. Cryptosporidium can be transmitted in a variety of ways including ingestion of contaminated food and drinking water or through the direct contact with fecal matter of an infected human or animal. Cryptosporidium usually only affects people for about two weeks when exposed. However, persons with a compromised immune system would be at much greater risk of complications.

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