2017 Annual City of Jacksonville Drinking Water Quality Report

PWS ID# NC0467010 Report issued March 2018

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 from where your water comes, 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 Public Services Department at 910-938-5233. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of the Water and Sewer Advisory Board's regularly scheduled meetings. Meetings are held monthly at City Hall. More info is available online at JacksonvilleNC.gov

What the 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 at 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. The City of Jacksonville 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 1. microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; 2. 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; 3. pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; 4. 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 5. 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 City of Jacksonville draws its water from two aquifers located deep underground. The deepest source is a Cretaceous Aquifer known as the Black Creek Aquifer. The City has 15 Cretaceous wells that draw water from the Upper and Middle Black Creek Aquifer generally located along US258 and Gum Branch Road near the Town of Richlands. The water in this aquifer is high quality and requires no treatment other than chlorination for disinfection. It does contain natural fluoride, essential for dental health, and is naturally soft.

The City's second source of water is the shallower Castle Hayne Aquifer. Castle Hayne also contains good quality water; however, City does treat this water to remove organics and improve taste and smell. The City has 20 wells in the Castle Hayne Aquifer that are pumped to the City's nanofiltration water treatment plant. Once treated the water is pumped into the City's distribution system where it blends with water from the Black Creek Aquifer.

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environmental Quality(DEQ), 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 City of Jacksonville 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 on the next page:

Susceptibility of Sources to Potential Contaminant Sources (PCSs) - SWAP Date April 2017			
Lower Susceptibility Rating	Moderate Susceptibility Rating		
Well #3 - 258 Plant	Well #1 - 258 Plant	Bellfork #1	Well #6
Well #4 - 258 Plant	Well #2 - 258 Plant	Chaney's Creek #1	Well #7
Well #5 - 258 Plant	Well #11 - Gum Branch Plant	Chaney's Creek #2	Business Park #1
Well #12 - Gum Branch	Well #13 - Gum Branch	Common's North #1	BusinessPark#2
Well #13 - Gum Branch	Well #14 - Gum Branch	Common's North #2	Deerfield #1
Well #16 - Gum Branch	Well #15 - Gum Branch	Common's South #1	Williamsburg Plantation #1
Well #17 - Gum Branch	Well #18 - Gum Branch	Common's South #2	Williamsburg Plantation #2
Miracle Meadows #2		Piney Green #1	Drummer Kellum #1
Parkwood Soccer #1		Ramsey Road #1	Foxhorn Village
Drummer Kellum #2			

More about the Source Water Assessment Program

The complete SWAP Assessment report for the City of Jacksonville may be viewed on the Web at **swap.ncwater.org** 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 e-mail request to **swap@ncmail.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 919-715-2633. 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 area.

What If I Have Any Questions Or Would Like to Become More Involved?

If you have any questions about this report or concerning your water, please contact the Public Services Department at 910 938-5233. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of the Water and Sewer Advisory Board's regularly scheduled meetings. Meetings are held bi-monthly at City Hall. More info is available online at JacksonvilleNC.gov

Fluoride Level Information

The City of Jacksonville does not add fluoride to its drinking water. However, a test has found that naturally occurring fluoride in the City's water was slightly above a caution level in one sample. At low levels fluoride can help prevent cavities and is frequently used in toothpaste and other oral dental hygiene products. Children drinking water with higher levels of fluoride can experience cosmetic discoloration of their permanent teeth. The test revealed a one-time sample at a level well below the US Environmental Protection Agency's drinking water standard, but within a range that merits caution.

The sample with the cautionary alert was taken from a point in the City system which is served by three wells in the US258 area between Jacksonville and Richlands. This same well field is used by ONWASA which also reported a similar finding one time. The water that is drawn by the City from this field represents only about 3% of all the water used in the City's system within a year's period of time. Generally water from this field is blended with other water from another well field, and water treated at the City's water plant.

The Federal limit for fluoride in a drinking water system is 4 mg/l. The test found 2.1 mg/l. A finding above 2 mg/l requires an alert as a caution. The test, required once every three years, was conducted by a certified lab. No other samples have reported levels that high. As indicated, fluoride occurs naturally, and the City does not add fluoride to any water used in the City's system.

The EPA established the cautionary level, called a Secondary Maximum Contaminant Level to protect against moderate dental fluorosis, a discoloration of tooth enamel. Because the sample found by the City to be within that limit came from a less-used resource, the actual chance of causing dental fluorosis is extraordinarily small.. The City has been monitoring the fluoride levels and daily tests the City's water to ensure it meets safety standards.

Important Drinking Water Definitions:

Not-Applicable (N/A) - *Information not applicable/not required for that particular water system or for that particular rule.*
Non-Detects (ND) - *Laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used.*
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.*
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 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 Residual Disinfection Level Goal (MRDLG) – *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.*
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.*
Level 1 Assessment - *A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.*
Level 2 Assessment - *A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.*
Maximum Contaminant Level (MCL) - *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.*
Maximum Contaminant Level Goal (MCLG) - *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.*
Secondary Maximum Contaminant Level (SMCL): *Non-enforceable guidelines regarding chemicals that may cause cosmetic or aesthetic effects in drinking water. EPA recommends these secondary standards but does not require water-supply systems to comply.*

Public Notice: Important Information About Your Drinking Water

The **City of Jacksonville** *Water System Has Levels of Fluoride That Exceed the Secondary Maximum Contaminant Level (SMCL)*

This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system from one of the City of Jacksonville water sources, located on Hwy 258, has a fluoride concentration of 2.30 mg/l. This source provided only 3 percent of the City's water supply and is blended with water having much lower fluoride levels.

Dental fluorosis, in its moderate or severe forms, may result in a brown staining and or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.

Drinking water containing more than 4 mg/l of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/l of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/l because of this cosmetic dental problem.

For more information, please call Joseph Cram of City of Jacksonville Water System at 910 938-6534. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877 8-NSF-HELP.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail. For more information, please contact:

Responsible Person: Joseph Cram	**System Name**: City of Jacksonville	**System Address** (Street): 177 New Frontier Way
Phone Number: 910-938-6534	**System PWSID** # 04-67-010	**System Address** (City, State, Zip): Jacksonville, NC 28540
Violation Awareness Date: March 10, 2017		

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 the 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, 2017.** 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. Regulated Synthetic Organic Contaminants (SOC) and unregulated SOC contaminants were sampled in 2017, Volatile Organic Compounds (VOC) were sampled in 2016, and results of those analyses were all below detection limits. Inorganic Compounds were sampled in 2017, and the results for detected contaminants are contained within this report.

Water Quality Data Table of Detected Contaminants (See Definitions Section)

Microbiological Contaminants 2017 - 50 Monthly samples, 600 annual samples

Contaminant (units)	MCL Violation	Your Water	MCL Goal	Maximum Contaminant Level	Likely Source of Contamination
Total Coliform Bacteria (presence or absence)	No	N/A	N/A	TT*	Naturally present in the environment
Fecal Coliform or E. coli (presence or absence)	No	0	0	Routine and repeat samples are tot coliform-positive and either is E.coli-positive or system fails to take repeat samples following E.coli positive routine sample or system fails to analyze total coliform-positive repeat sample for E. coli Note: If either and original routine sample and/or its repeat sample(s) are E.coli-positive, a Tier I violation exists	Human and animal fecal waste

*If a system collecting 40 or more samples per month finds greater than 5% of monthly samples are positive in one month, an assessment is required.

Nitrate/Nitrite Contaminants - November 2017

Contaminant (units)	MCL Violation	Jacksonville Water	Range Low-High	Maximum Contaminant Level Goal	Maximum Contaminant Level	Likely Source of Contamination
Nitrate (as Nitrogen (ppm)	No	<1.0	N/A	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Water Quality Data Table of Detected Contaminants (See Definitions Section)

Lead and Copper Contaminants - June 2017 - 30 Samples

Contaminant (units)	Sample Date	Jacksonville Water	% of sites above the AL	Maximum Contaminant Level Goal	Maximum Contaminant Level	Likely Source of Contamination
Copper (ppm) (90th percentile)	2017	0.065	0%	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (90th percentile)	2017	<3	0%	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits

Radiological Contaminants 2016

Contaminant (units)	Sample Date	MCL Violation	Jacksonville Water	Maximum Contaminant Level Goal	Maximum Contaminant Level	Likely Source of Contamination
Alpha emitters (pCi/L)	2016	No	<3 - 4	0	15	Erosion of natural deposits
Combined radium (pCi/L)	2016	No	<1	0	5	Erosion of natural deposits
Uranium (pCi/L)	2016	No	<0.67	0	20.1	Erosion of natural deposits
* Note: The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.						

Disinfectants Residuals Summary

	Year Sampled	MRDL Violation	Jacksonville Water (Highest RAA)	Range Low-High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	2017	No	1.06	0.21-2.18	4	4.0	Water additive used to control microbes

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

Disinfection Byproduct	Year Sampled	MCL Violation	Jacksonville Water (Highest LRAA)	Range Low-High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb) [Total Trihalomethanes]			47		N/A	80	By-product of drinking water chlorination
B01	2017	No	43	26 - 35			
B02	2017	No	47	26 - 40			
B03	2017	No	43	25 - 45			
B04	2017	No	38	23 - 33			
HAA5 (ppb) [Total Haloacetic Acids]			13		N/A	60	By-product of drinking water disinfection
B01	2017	No	12	11 - 12			
B02	2017	No	10	8 - 12			
B03	2017	No	13	6 - 16			
B04	2017	No	11	8 - 11			

Inorganics Contaminants February 2017

Contaminant (units)	MCL/ MRDL Violation	Jacksonville Water (AVG)	Range Low-High	Maximum Contaminant Level Goal	Maximum Contaminant Level	Likely Source of Contamination
Fluoride (ppm)	No	1.02	<0.2 - <2.3	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Sodium (ppm)	No	153	32 - 245	N/A	N/A	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Sulfate (ppm)	No	27	<15 - 73	250	250	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
pH (pH units)	No		7.54 - 8.55	N/A	N/A	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

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