ONWASA
Onslow Water & Sewer Authority

2014 Water Quality Report

Onslow Water and Sewer Authority

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Introduction

We're pleased to present to you this year's Annual Water Quality Report. This report is a snapshot of last year's water quality. Included are details about where your water comes from, 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 effort 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. ONWASA had one violation in 2014 for exceeding the Secondary Contaminant Level of Fluoride in one of the water sources. The Notice for this violation was mailed to customers in February of 2015 and posted on the ONWASA web site.

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).

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. ONWASA 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.

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 micro-biological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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 land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present include microbial contaminants, inorganic contaminants, pesticides and herbicides, organic chemicals and radioactive contaminants.

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 provide the same protection for public health.

When You Turn on Your Tap, Consider the Source

Our source water is groundwater. ONWASA has 14 wells located throughout the county, which draw from the Black Creek Aquifer. The water provided by the treatment plants in Hubert and Dixon draw water from 22 wells in the Castle Hayne Aquifer.

Our Source Water Assessment Program (SWAP) was updated in 2009 and assigned a Susceptibility Rating of Higher, Moderate or Lower. Some wells have yet to be rated and are not included in the report. The Susceptibility Rating is the well's potential for contamination. Of the wells rated in the update, 14 have a lower rating, 9 a moderate rating, and 1 a higher rating. ONWASA's report may be viewed in entirety by accessing the following site: http://www.deh.enr.state.nc.us/pws/SWAP_susceptibility_results.HTM

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 (Potential Contaminant Sources) in the assessment area.

Questions concerning the SWAP report can be addressed by phone to the Source Water Assessment staff at 919-715-2633.

Summary

Please understand in our continuing efforts to maintain a safe and dependable water supply, it may be necessary to make improvements in your water system for the benefit of all customers. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements.

Periodically, we will conduct planned outages which allow us to perform maintenance on the water system. When an outage occurs, a precautionary boil water advisory will follow due to periods of low or no pressure in the distribution system which increases the potential for back siphonage and introduction of bacteria into the water system. Customers who are under a precautionary boil water advisory are encouraged to boil all water used for human consumption for a minimum of 1 minute which should kill any disease causing organisms that may have been introduced into the system.

If you have any questions or comments regarding this report or concerning your water utility, please contact Karen Wallace at (910) 937-7520. We want our customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled Board of Director's meetings held on the third Thursday of the month at 6:00 p.m. We would also like to encourage our customers to visit our web site at http://www.onwasa.com for more information on water audits, the conservation plan and public education.

Glossary of Terms

As you examine the tables, you may find many terms and abbreviations you might not be familiar with. We've provided the following definitions to help you better understand these terms.

Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.
Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years.
Action Level - 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 Contaminant Level - The "Maximum Allowed" (MCL) is 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 - The "Goal"(MCLG) is 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.
Million Fibers per Liter (MFL) - million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micro meters.

Possible Health Effects Associated With Contaminants Found in the Tables

Microbiological Contaminants
Total Coliform. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful bacteria may be present.

Inorganic Contaminants:
Copper. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Lead. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
Fluoride. Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth. Many years could develop kidney problems or high blood pressure.
Nitrate. Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

Disinfection By-Products:
TTHMs [Total Trihalomethanes]. 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.

Consumer Confidence Report Tables

ONWASA routinely monitors for contaminants in your drinking water according to Federal and State laws. The amount and frequency of sampling conducted is dictated by the population served and ONWASA's sampling history. This means that because certain contaminants have not been found or are unlikely to be found in your drinking water, monitoring is not required to be conducted every year for those contaminants. The Consumer Confidence Report Tables included in this report show the results of all required monitoring for the period of January 1st to December 31st, 2014.

Contaminants listed in the Regulated Contaminant Table only list contaminants that were detected above the required reporting limit. Many samples routinely conducted are below this limit and are reported as Non-Detects (N/D). For a list of all the sampling conducted in 2014 that had Non-Detects, you may access ONWASA's Drinking Water Watch web site at: https://www.pwss.enr.state.nc.us/NCDWW/JSP/Fact.jsp?tinwsys_is_number=5991&tinwsys_st_code=NC&begin_date=&end_date=&counter=.

Contamination levels are measured using Maximum Contaminant Levels (MCLs), which are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

2014 Analytical Results for Regulated Substances

Microbiological Contaminants

Substance	Violation Y/N	MCL	Number of sites testing positive	Likely Source
Total Coliform Bacteria	N	Presence in 5% of monthly samples.	1 of 1,200	Naturally present in the environment.
Fecal Coliform and E. Coli	N	A routine sample and repeat sample are total coliform positive, and one is also fecal coliform or E. coli positive.	0 of 1,200	Human and animal fecal waste.

What the chart means: ONWASA samples 100 sites per month throughout the service area for bacteriological contaminants. One of the 1,200 routine samples tested positive for Total Coliform Contamination. The repeat of this site tested negatve. Total Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other , potentially harmful bacteria may be present. None of the bacteriological samples were positive for fecal contamination. ONWASA draws these samples from sampling stations in the distribution system which allows us to sample in strategic areas. Although ONWASA does not sample at each individual resident all areas of the system are represented in the sampling plan. ONWASA received no violation because 5% of the samples did not test positive for both Total and Fecal Bacteria.

Inorganic Group

Substance	Violation Y/N	Action Level in MG/L	90th Percen-tile	Sites that exceeded MCL	Likely Source
Lead	N	AL=0.015	NA	0	Occurs naturally in soil. Its presence in drinking water is almost entirely due to corrosion of private household plumbing.
Copper	N	AL=1.3	NA	0	Occurs naturally in soil, but can be present in drinking water due to corrosion of private household plumbing.

What the chart means: ONWASA was not required to sample for Lead and Copper in 2014. The next routine sampling event will occur in 2016.

Secondary Inorganic Group

Substance	Violation Y/N	Action Level in MG/L	Range of Detection in MG/L	Sites that exceeded AL	Likely Source
Iron	N	AL = 0.3	<0.06	0	Erosion of natural deposits.
Manganese	N	AL = 0.05	<0.01	0	Erosion of natural deposits.
Fluoride	N	AL = 2.00	0.50 to 2.10	1	Erosion of natural deposits/addition to treated water at the Water Treatment Plants.
Sodium	N	NA	69.8 to 212	0	Erosion of natural deposits.
Chloride	N	250	2.5 to 87.5	0	Erosion of natural deposits.
pH	N	6.50 units to 8.50 units	8.24 units to 8.77 units	0	Natural dissolved gasses and minerals.

What the chart means: Secondary Inorganics are naturally occuring elements in the water supply that are regulated for aestitc purposes rather than the health affects. ONWASA was not required to sample for Secondary Inorganics in 2014 but 2013 sampling information has been provided to better inform you of the constiuents of your water. The results in the table above are for compliance purposes but ONWASA samples daily for iron, manganese and fluoride to insure water quality. ONWASA exceeded the Action Level of 2.00 mg/l for Fluoride at one of the water sources and a Notice was mailed to customers. The actual MCL for fluoride in which ONWASA would be in violation is 4.00 mg/l. All other Inorganics results, to include Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cyanide, Merecury, Nickle, Selinium, Sulfate, and Thalium, were below the detection limit.

Disinfection By-Products					
Location	**TTHM Range Detected in MG/L**	**HAA5 Range Detected in MG/L**	**Average TTHM**	**Average HAA5**	**Likely Source**
104 Manchester Lane	0.042-0.070	0.015-0.036	0.051	0.025	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.
23395 Hwy. 50	0.056-0.077	0.021-0.037	0.068	0.030	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.
900 Broadway	0.049-0.086	0.027-0.038	0.069	0.032	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.
1012 Barkley Ct.	0.027-0.034	0.04-0.015	0.030	0.011	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.
7561 New Bern Hwy.	0.043-0.061	0.009-0.026	0.048	0.020	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.
2900 White Oak River Rd.	0.038-0.079	0.010-0.024	0.061	0.020	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.

What the chart means: Disinfection By-Products are substances that can form when water is chlorinated for disinfection purposes. In 2014 ONWASA sampled 6 sites every quarter and the ranges of detection are reported above. The maximum level reported for Total Trihalomethanes was above the MCL for that substance at 1 out of the 6 sample stations in the system. Because the average for the 4 quarters at that stations was not above the MCL there was no violation. ONWASA takes every precaution to minimize the levels of Disinfection By-Products in the distribution system. ONWASA has placed automatic flushing devices at strategic points in the distibution system, such as White Oak River Road, to pull fresh water into the outer ends of the system where Trihalomethanes are most likely to occur. We also perform daily chlorine monitoring to maintain levels sufficiant for disinfection and to minimize creation of Disinfection By-Products. State mandates chlorine levels be maintained between 4.00 mg/l to 0.20 mg/l and ONWASA's average for the system is 0.80 mg/l. Through a regular flushing program and extra monitoring, ONWASA has lowered the TTHM levels below the MCL.

2014 sampling for Nitrates in 15 water sources detected levels less than the reportable levels of less than 1.0 mg/l. One source was not sampled due to mechanical issues.

2014 sampling for 21 Volitile Organic Chemicals (VOC) found levels lower than the reportable level for all 16 water sources. These are commonly refered to as No Dectection. VOCs are usually found as chlorinated solvents and fuel components. They include: 1,2,4-Trichlorobenzene, Cis-1,2-Dichloroethylene, Xylenes, Dichloromethane, o-Dichlorobenzene, p-Dichlorobenzene, Vinyl chloride, 1,1-Dichloroethylene, Trans-1,2-Dichloroethylene, 1,2-Dichloroethane, 1,1,1-Trichloroethane, Carbon tetrachloride, 1,2-Dichloropropane, Trichloroethylene, 1,1,2-Trichloroethane, Tetrachloroethylene, Chlorobenzene, Benzen, Toluene, Ethylbenzene, Styrene.

2014 sampling for 26 Pesticides & Synthetic Organic Chemicals (SOC) found levels lower than the reportable levels for all 16 water sources. These are commonly refered to as No Detection. SOCs are found as herbicides, pesticides and defoliants. They include: Endrin, Lindane, Methoxychlor, Toxaphene, Dalapon, Di(2-ethylhexyl)phthalate, Oxamyl(vydate), Simazine, Di-(2-ethylhexyl)phthalate, Picloram, Diinoseb, Atrazine, Carbofuran,Hexachlorocyclopentadiene, Alachlor, Heptachlor, Heptachlor epoxide, 2,4-D, 2,4,5-TP(Silvex), Hexachlorobenzene, Benzo(a)pyrene, Pentachlorophenol, PCBs(as decachlorobiphenol), 1,2-Dibromo-3-chloropropane(DBCP), Ethylene,Dibromide(EDB), Chlordane.

2014 sampling for Radiolgicals found no detects for Gross Alpha,Uranium,Radium 226 and Radium 228 at 15 of the source water sites. Reportable levels for Gross Alpha 4.4pCi/L, Uranium 1.0 pCi/L were detected at 1 of ONWASA's source water wells. The allowable limits are 15pCi/L and 5pCi/L respectively. Radiologicals are caused by the erosion of natural deposits.

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