Water Quality Report 2015: Drinking Water Analysis

Harnett County Regional WTP (PWS ID# 03-43-045)

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 questions about this report or concerning your water, please contact Tracy Tant, 910-893-7575 ext 3245. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of the regularly scheduled Harnett County Board of Commissioners' meetings. They are held on the first and third Monday of each month at the Harnett County Administration Building located on 102 East Front Street in Lillington, NC. The first meeting of the month is normally at 9:00 AM and the midmonth meeting normally begins at 7:00 PM.

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWSS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessment was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs).

The relative susceptibility rating for Harnett County Dept of Public Utilities (HCDPU) was determined by combining the contaminant rating (number and locations of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of watershed and its delineated assessment area.) The assessment findings are summarized in the table below.

SWAP Result Summary			
Source Name	**Inherent Vulnerability Rating**	**Contaminant Rating**	**Susceptibility rating**
CAPE FEAR RIVER	Higher	Moderate	Higher

The Complete SWAP Assessment report for Harnett Co Dept of Public Utilities may be viewed on the website: *http://www.ncwater.org/pws/swap/* Note that because SWAP results and reports are periodically updated by the PWS section, the results may differ from the results on the CCR. 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. Please indicate System Name (Harnett Co Dept of Public Utilities) PWSID (03-43-045), 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.

Violation Received for Report Year

During 2015, we received an "Online Turbidimeter failure Notice Violation" for May 2015. The Notice to the Public is attached to the end of this report. Appropriate paperwork was submitted to the State and we have returned to compliance.

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. Immunocompromised 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. Harnett County 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 our 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.

Water Treatment Plant Upgrade

The Harnett County Regional Water Treatment Plant is currently undergoing an expansion designed to increase its permitted production capacity from 24 to 42 million gallons per day. This is the second or Phase II of the water plant expansion. Phase 1 was completed in 2010. Starting at the Cape Fear River, our raw water pumping station will have backup power and two pumps and motors upgraded. The Low-lift pump station will have its 3 submersible pumps replaced with 3 vertical turbine pumps and add upper level reservoir intakes. The 2 up-flow clarifiers from the 1996 plant expansion will be rehabbed and concrete protective coating applied like the 2010 clarifiers. The completion of 4 filters started during phase I will make a total of 12 filters at this facility. The 4 Granular Activated Carbon filters will be rehabbed, have its media replaced and be enclosed. We will add an additional UV disinfection treatment module and support equipment. Many chemical feeding systems and storage vessels will be upgraded and we will install a new Chlorine Dioxide generator. Our waste and solids handling will be improved by the addition of a new 1.5 million gallon backwash tank and a pumping station with new piping infrastructure to transfer it to our wastewater treatment plant lagoons. These water treatment plant improvements and additions should allow for Harnett County Public Utilities to meet the systems future water demands and provide safe drinking water for its customers for many years to come.

Additional Information

The Harnett County Regional Water Treatment Plant monitors its source water for cryptosporidium. Cryptosporidium is a microbial parasite which is found in surface water throughout the United States. Our Monitoring for 2015 had zero detects. Cryptosporidium must be ingested for it to cause disease and may be spread through means other than drinking water. Contact the Safe/Drinking Water Hotline at 1-800-426-4791 for more information.

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The following tables list the contaminants detected in the last round of sampling. The presence of contaminants does not necessarily indicate that water poses a health risk. Unless otherwise noted, the data presented in these tables are from testing done January 1 through December 31 2015. In these tables you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

PPM *–Parts Per Million*
PPB *– Parts per Billion*
MCLG *– Maximum Contaminant Level Goal*
MCL *– Maximum Contaminant Level*
SMCL *– Secondary Maximum Contaminant Level*
TT *– Treatment Technique*
AL *– Action Level*
NTU *– Nephelometric Turbidity Unit*
ND *– Non-Detect*
NA *– Not Applicable*

Turbidity (NTU)	Treatment Technique (TT) Violation Y/N	Your Water	Treatment Technique (TT) Violation if :	Likely Source
Highest single measurement	N	0.1	Turbidity > 1 NTU	Soil runoff
Lowest monthly percentage of samples meeting turbidity limits	N	100%	Less than 95% of monthly Turbidity measurements are ≤ 0.3 NTU	

CONTAMINANT TEST RESULTS

Contaminant [code] (units)	MCL	MCLG	Your Water	Range	Date of Sample	Violation	Likely Source of Contamination
Microbiological Contaminants							
Total Coliform Bacteria (presence or absence)	> 5 %	0	2.1%	N/A	N/A	N	Naturally present in the environment
Fecal Coliform or E. coli (presence or absence)	0	0	0%	N/A	N/A	N	Human and Animal Fecal Waste
Regulated Inorganic Contaminants							
Fluoride (ppm)	4	4	0.54	N/A	1/6/15	N	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Lead and Copper Contaminants							
Copper (ppm) 90th Percentile	AL=1.3	1.3	0.098	N/A	8/20/13-9/20/13	N	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) 90th Percentile	AL=15	0	N/D	N/A	8/20/13-9/20/13	N	Corrosion of household plumbing systems, erosion of natural deposits
Asbestos Contaminants							
Total Asbestos (MFL)	7	7	N/D	N/A	1/13/11	N	Decay of Asbestos cement water mains: Erosion of natural deposits

Disinfection By-Product Contaminants

Contaminant	YEAR	MCL	MCLG	Your Water LRAA	Range Individual Results	Violation	Likely Source of Contamination
TTHM (ppb)	2015	80	N/A	33.5		N	By-product of chlorination
TTHM (ppb) B01	2015	80	N/A		27-49	N	
TTHM (ppb) B02	2015	80	N/A		23-50	N	By-product of chlorination
TTHM (ppb) B03	2015	80	N/A		20-43	N	By-product of chlorination
TTHM (ppb) B04	2015	80	N/A		26-49	N	By-product of chlorination
TTHM (ppb) B05	2015	80	N/A		23-49	N	By-product of chlorination
TTHM (ppb) B06	2015	80	N/A		22-43	N	By-product of chlorination
TTHM (ppb) B07	2015	80	N/A		19-38	N	By-product of chlorination
TTHM (ppb) B08	2015	80	N/A		27-48	N	By-product of chlorination
HAA5 (ppb)	2015	60	N/A	27.3		N	By-product of chlorination
HAA5 (ppb) B01	2015	60	N/A		13.7-28.9	N	
HAA5 (ppb) B02	2015	60	N/A		12.9-33.1	N	By-product of chlorination
HAA5 (ppb) B03	2015	60	N/A		11.9-29.2	N	By-product of chlorination
HAA5 (ppb) B04	2015	60	N/A		12.6-30.9	N	By-product of chlorination
HAA5 (ppb) B05	2015	60	N/A		13.2-31.6	N	By-product of chlorination
HAA5 (ppb) B06	2015	60	N/A		8.7-33.5	N	By-product of chlorination
HAA5 (ppb) B07	2015	60	N/A		13.1-25.7	N	By-product of chlorination
HAA5 (ppb) B08	2015	60	N/A		13.9-35.4	N	By-product of chlorination
Chlorite (ppm) (Distribution)	2015	1	0.8	0.326	0.270-0.360	N	By-product of chlorine dioxide
Chlorine Dioxide (ppb)	2015	800	800	82	0-565	N	Water additive used to control microbes
Chloramines (ppm)	2015	4	4	3.04	1.03-3.99	N	Water additive used to control microbes
.Chlorine (only month of March)(ppm)	2015	4	4	1.65	0.25-3.62	N	Water additive used to control microbes

Disinfection By-Product Precursors Contaminants

Contaminant (units)	TT Violation Y/N	Your Water Ratio	Range Ratio	MCLG	MCL	Likely Source of Contamination	Compliance Method
Total Organic Carbon (Ratio)	N	1.36	1.13-1.52	N/A	TT	Naturally present in the environment	Step 1

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

Additional Terms and Abbreviations

MCLG *– Maximum Contaminant Level Goal – The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.*
MCL *– Maximum Contaminant Level – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available Treatment technology.*
TT *– Treatment Technique – is a required process intended to reduce the level of contaminant in drinking water.*
AL *– Action Level – The concentration of a contaminant which, if exceeded triggers treatment or other requirements which a water system must follow.*
MFL*-Million Fibers per Liter- A measurement of the presence of asbestos fibers that are longer than 10 micrometers*
LRAA – *Locational Running Annual Average – 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.*

Unregulated Contaminant Monitoring Program

EPA uses the Unregulated Contaminant Monitoring (UCM) program to collect data for contaminants suspected to be present in drinking water, but that do not have health-based standards set under the Safe Drinking Water Act (SDWA). Every five years EPA reviews the list of contaminants, largely based on the Contaminant Candidate List. The SDWA Amendments of 1996 provide for:

☐ Monitoring no more than 30 contaminants every five years
☐ Monitoring only a representative sample of public water systems serving less than 10,000 people
☐ Storing analytical results in a National Contaminant Occurrence Database (NCOD)

The UCM program progressed in several stages. Currently, EPA manages the program directly as specified in the Unregulated Contaminant Monitoring Rule (UCMR). The history of the UCM program includes:

- UCMR 3 (2012-2016) – Current regulation monitoring for 30 contaminants (28 chemicals and 2 viruses) from 2012-2015.
- UCMR 2 (2007-2011) - UCMR 2 monitoring was managed by EPA and established a new set of 25 chemical contaminants sampled during 2008-2010.
- UCMR 1 (2001-2005) – The SDWA Amendments of 1996 redesigned the UCM program to incorporate a tiered monitoring approach and required monitoring for 25 contaminants (24 chemicals and one bacterial genus) during 2001-2003.
- UCM-State Rounds 1 & 2 (1988-1997) – State drinking water programs managed the original program and required public water systems (PWSs) serving more than 500 people to monitor contaminants.

Harnett County Public Works						Report # 336670		
Metro Water BPS #1						PWS ID NC0343045		
UCMR Assessment Monitoring								
Analyte ID #	Analyte	Method	MRL †	Result	Unit	Preparation Date	Analyzed Date	EEA ID #
1051	Strontium	200.8	0.3	47	µg/L	3/24/2015 12:15	3/25/2015 20:55	3209395
1080	Chromium, Hexavalent	218.7	0.03	0.04	µg/L		3/23/2015 22:06	3209398
1007	Chorate	300.1	20	290	µg/L		3/24/2015 17:49	329397

Harnett County Public Works						Report # 332059		
Clearwell Effluent						PWS ID NC0343045		
UCMR Assessment Monitoring								
Analyte ID #	Analyte	Method	MRL †	Result	Unit	Preparation Date	Analyzed Date	EEA ID #
2049	1,4 - Dioxane	522	0.07	4.8	µg/L	01/14/2015 07:20	01/14/2015 18:12	3167966

Harnett County Public Works						Report # 336671		
Clearwell Effluent						PWS ID NC0343045		
UCMR Assessment Monitoring								
Analyte ID #	Analyte	Method	MRL †	Result	Unit	Preparation Date	Analyzed Date	EEA ID #
1051	Strontium	200.8	0.3	46	µg/L	3/24/2015 12:15	3/25/2015 21:01	3209424
1080	Chromium, Hexavalent	218.7	0.03	0.03	µg/L		3/23/2015 22:19	3209423
1007	Chorate	300.1	20	220	µg/L		3/24/2015 18:13	3209422
2049	1,4-Dioxane	522	0.07	2.5	µg/L	3/27/2015 11:14	3/27/2015 19:48	3209419

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices

Misc. Water Characteristics Contaminants			
Contaminant (units)	**Sample Date**	**Your Water**	**Secondary MCL**
pH	1/6/15	7.2	6.5 to 8.5
Manganese(ppm)	1/6/15	0.012	0.05
Sulfate (ppm)	1/6/15	31.5	250
Sodium (ppm)	1/6/15	22.89	NA

NOTICE TO THE PUBLIC

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Violation Awareness Date:

May 22, 2015

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the compliance period specified in the table below, we ['did not monitor or test' or 'did not complete all monitoring or testing'] for the contaminants listed and therefore cannot be sure of the quality of your drinking water during that time.

CONTAMINANT GROUP**	**FACILITY ID NO./ SAMPLE POINT ID**	**COMPLIANCE PERIOD BEGIN DATE**	**NUMBER OF SAMPLES/ SAMPLING FREQUENCY**	**WHEN SAMPLES WERE TAKEN** (Returned to Compliance
WATER QUALITY PARAMETERS	NC0343045	MAY 2, 2015	ONLINE SAMPLING EVERY 15 MINUTES – HAD GONE TO EVERY 4 HOUR AS PER REGULATIONS	May 4, 2015

(WQP) Water Quality Parameters Filter #4 Turbidity – Online Turbidimeter failure

What should I do? There is nothing you need to do**.** Filter #4 online turbidimeter failed and water plant personnel went to grab sampling every four hours as per regulation. Plants serving over 10,000 customers have five days to get replacement. We acquired the new instrumentation and installed on May 4, 2015, but was greater than five days. The filter #4 grab sampling during instrument failure indicated that there were no turbidity issues with the filter.

What is being done? Harnett County Regional Water Treatment Plant has purchased a spare Hach Filter Trac 660 Turbidimeter and put on shelf for future use in case of instrumentation failure and to forgo having to try and emergency ship the instrument by five days.

Please share this information with all 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 about this violation, please contact the responsible person listed in the first paragraph of this report.