

Water Quality Report 2014: 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 (PWS) 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.

Source Name	Susceptibility rating	Report Date
Cape Fear River	Higher	March 2010



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.

During 2014, we received a "Lead Consumer Notice Violation" for the 2013 compliance period. We have notified all customers, that participated in sampling, of the results of the lead testing. 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.

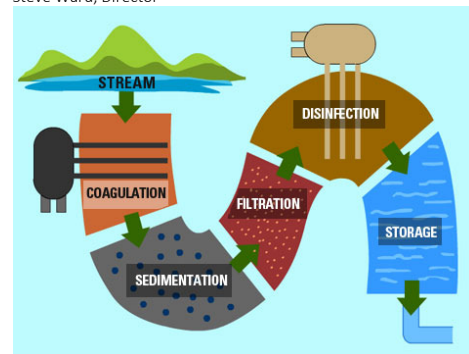
Additional Information

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 2014 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.

Director's Corner

The Harnett County Department of Public Utilities continues to provide the highest quality of water to our citizens as evidenced by the receipt of two major awards in 2014. HCDPU received the 10 year Directors Award from the Partnership for Safe Water, a national volunteer initiative developed by the US Environmental Protection Agency striving to provide their communities with drinking water quality that surpasses federal standards. HCDPU also received the NC Area Wide Optimization Award from the NC Division of Water Resources for providing outstanding water quality to our customers. Water quality is job one for our water treatment division and we are very fortunate to have a dedicated group of drinking water professionals who strive daily to provide the best drinking water to all of our citizens. HCDPU will continue to serve the citizens of Harnett County and the surrounding region by supplying only the best of the most important commodity in the world, water.

Steve Ward, Director



Community Water Treatment

Coagulation and Flocculation

Coagulation and flocculation are often the first steps in water treatment. Chemicals with a positive charge are added to the water. The positive charge of these chemicals neutralizes the negative charge of dirt and other dissolved particles in the water. When this occurs, the particles bind with the chemicals and form larger particles, called floc.

Sedimentation

During sedimentation, floc settles to the bottom of the water supply, due to its weight. This settling process is called sedimentation.

Filtration

Once the floc has settled to the bottom of the water supply, the clear water on top will pass through filters of varying compositions (sand, gravel, and charcoal) and pore sizes, in order to remove dissolved particles, such as dust, parasites, bacteria, viruses, and chemicals.

Disinfection

After the water has been filtered, a disinfectant (for example, chlorine, chloramine) may be added in order to kill any remaining parasites, bacteria, and viruses, and to protect the water from germs when it is piped to homes and businesses.

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 2014. 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	0.14	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	2.2%	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	0.77	N/A	1/13/14	N	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Lead and Copper Contaminants							
Copper (ppm) 90 th 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) 90 th Percentile	AL=15	0	N/D	N/A	8/20/13-9/20/13	N	Corrosion of household plumbing systems, erosion of natural deposits
Unregulated Inorganic Contaminants							
Sulfate (ppm)	250	250	34.4	N/A	1/13/14	N	
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)	2014	80	N/A	47		N	By-product of chlorination
TTHM (ppb) B01	2014	80	N/A		21-58	N	By-product of chlorination
TTHM (ppb) B02	2014	80	N/A		19-45	N	By-product of chlorination
TTHM (ppb) B03	2014	80	N/A		16-43	N	By-product of chlorination
TTHM (ppb) B04	2014	80	N/A		20-57	N	By-product of chlorination
TTHM (ppb) B05	2014	80	N/A		19-56	N	By-product of chlorination
TTHM (ppb) B06	2014	80	N/A		16-44	N	By-product of chlorination
TTHM (ppb) B07	2014	80	N/A		16-43	N	By-product of chlorination
TTHM (ppb) B08	2014	80	N/A		19-56	N	By-product of chlorination
HAA5 (ppb)	2014	60	N/A	22.5		N	By-product of chlorination
HAA5 (ppb) B01	2014	60	N/A		12.4-24.9	N	By-product of chlorination
HAA5 (ppb) B02	2014	60	N/A		11.9-20.8	N	By-product of chlorination
HAA5 (ppb) B03	2014	60	N/A		10.5-19.9	N	By-product of chlorination
HAA5 (ppb) B04	2014	60	N/A		11.2-25.9	N	By-product of chlorination
HAA5 (ppb) B05	2014	60	N/A		11.5-26.1	N	By-product of chlorination
HAA5 (ppb) B06	2014	60	N/A		10.8-25.4	N	By-product of chlorination
HAA5 (ppb) B07	2014	60	N/A		11.3-22.5	N	By-product of chlorination
HAA5 (ppb) B08	2014	60	N/A		13.4-27.3	N	By-product of chlorination
Chlorite (ppm) (daily)	2014	1	0.8	0.538	0.188-0.870	N	By-product of chlorine dioxide
Chlorite (ppm) (Distribution)	2014	1	0.8	0.304	0.140-0.440	N	By-product of chlorine dioxide
Chlorine Dioxide (ppb)	2014	800	800	61	0-702	N	Water additive used to control microbes
Chloramines (ppm)	2014	4	4	3.12	1.19-3.97	N	Water additive used to control microbes
Chlorine (only month of March)(ppm)	2014	4	4	1.82	0.45-3.02	N	Water additive used to control microbes

TTHM = Total Trihalomethanes HAA5 = Total Haloacetic Acids

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	1.29	1.07-1.45	N/A	TT	Naturally present in the environment	Step 1

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.

Step 1 TOC Removal Requirements			
Source Water TOC (Mg/L)	Source Water Alkalinity Mg/L as CaCO ₃ (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

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 # 319247				
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	60	µg/L	06/16/2014 11:30	06/17/2014 18:01	3043279
1088	Vanadium	200.8	0.2	0.3	µg/L	06/16/2014 11:30	06/17/2014 18:01	3043279
1080	Chromium, Hexavalent	218.7	0.03	0.04	µg/L		06/13/2014 17:43	3043278
1007	Chorate	300.1	20	480	µg/L		06/19/2014 00:20	3043277
2049	1,4 - Dioxane	522	0.07	4.4	µg/L	06/18/2014 11:30	06/20/2014 19:41	3043274
2802	Perfluoroheptanoic acid(PFHpA)	537	0.01	0.02	µg/L	06/16/2014 09:30	06/21/2014 03:20	3043275

† MRL (Minimum Reporting Level) EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices

Harnett County Public Works				Report # 325718				
Clearwell Effluent				PWS ID NC0343045				
UCMR Assessment Monitoring								
Analyte ID #	Analyte	Method	MRL †	Result	Unit	Preparation Date	Analyzed Date	EEA ID #
1084	Molybdenium	200.8	1	1	µg/L	9/24/2014 12:15	9/25/2014 14:54	3106696
1051	Strontium	200.8	0.3	63	µg/L	9/24/2014 12:15	9/25/2014 14:54	3106696
1088	Vanadium	200.8	0.2	0.3	µg/L	9/24/2014 12:15	9/25/2014 14:54	3106696
1080	Chromium, Hexavalent	218.7	0.03	0.04	µg/L		9/24/2014 13:36	3106695
1007	Chorate	300.1	20	470	µg/L		9/26/2014 22:40	3106694
2049	1,4 - Dioxane	522	0.07	2.5	µg/L	10/8/2014 8:30	10/10/2014 17:53	3106691
2802	Perfluoroheptanoic acid(PFHpA)	537	0.01	0.04	µg/L	9/26/2014 8:00	9/27/2014 22:43	3106692
2806	Perfluorooctanoic Acid(PFOA)	537	0.02	0.02	µg/L	9/26/2014 8:00	9/27/2014 22:43	3106692

† MRL (Minimum Reporting Level) EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices

Harnett County Public Works				Report # 330640				
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	66	µg/L	12/15/2014 11:30	12/16/2014 16:41	3153333
1088	Vanadium	200.8	0.2	0.02	µg/L	12/15/2014 11:30	12/16/2014 16:41	3153333
1080	Chromium, Hexavalent	218.7	0.03	0.06	µg/L		12/15/2014 16:30	3153332
1007	Chorate	300.1	20	290	µg/L		12/19/2014 18:39	3153331
2802	Perfluoroheptanoic acid(PFHpA)	537	0.01	0.04	µg/L	12/15/2014 7:35	12/16/2014 5:53	3153329
2806	Perfluorooctanoic Acid(PFOA)	537	0.02	0.02	µg/L	12/16/2014 7:35	12/17/2014 5:53	3153329

† MRL (Minimum Reporting Level) EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices

Harnett County Public Works				Report # 319251				
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	62	µg/L	06/16/2014 11:30	06/17/2014 17:44	3043287
1088	Vanadium	200.8	0.2	0.3	µg/L	06/16/2014 11:30	06/17/2014 17:44	3043287
1080	Chromium, Hexavalent	218.7	0.03	0.05	µg/L		06/17/2014 17:56	3043290
1007	Chorate	300.1	20	530	µg/L		06/19/2014 00:43	3043289

† MRL (Minimum Reporting Level) EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices

Harnett County Public Works				Report # 325719				
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	61	µg/L	9/24/2014 12:15	9/25/2014 15:00	3106696
1088	Vanadium	200.8	0.2	0.03	µg/L	9/25/2014 12:15	9/26/2014 15:00	3106696
1080	Chromium, Hexavalent	218.7	0.03	0.04	µg/L		9/24/2014 13:39	3106695
1007	Chorate	300.1	20	500	µg/L		9/26/2014 23:06	3106694

† MRL (Minimum Report Level) EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices

Harnett County Public Works				Report # 330657				
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	64	µg/L	12/16/2014 12:00	12/17/2014 13:46	3153487
1080	Chromium, Hexavalent	218.7	0.03	0.05	µg/L		12/16/2014 17:26	3153490
1007	Chorate	300.1	20	300	µg/L		12/20/2014 5:51	3153489

† MRL (Minimum Reporting Level) EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices