2022 WATER QUALITY REPORT

04-67-035

Introduction

ONWASA is pleased to present to you the 2022 Annual Drinking Water Quality Report, which provides a summary of water quality information from that year. Included are details about our sources of water, 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. This document will help you understand the efforts we make to monitor water quality and continually improve the water treatment process, while protecting our water resources. ONWASA is 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 concerning your water or this report, please contact Seth A. Brown, Treatment Facilities Administrator, at (910) 937-7520 or visit the ONWASA website at www.onwasa.com.**

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 by calling the Safe Drinking Water Hotline (800-426-4791) of the Environmental Protection Agency (EPA).

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 persons 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 microbial contaminants are available from the Safe Drinking Water Hotline.

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 1 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 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.

When You Turn on Your Tap, Consider the Source

ONWASA utilizes groundwater wells located throughout Onslow County as its water source. Thirteen (13) wells draw from the Black Creek and Peedee Aquifers; these require minimal treatment prior to use. The Hubert and Dixon water treatment facilities are served from a total of twenty-four (24) wells that draw water from the Castle Hayne Aquifer. In addition ONWASA purchases water intermittently from a treatment facility at the New River Air Station aboard Marine Corps Base Camp Lejeune. Their Water Quality Report follows this document.

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 relative susceptibility rating of Higher, Moderate or Lower.

The relative susceptibility rating of each source for ONWASA 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 below:

Source Name	Susceptibility Rating	SWAP Report Date
Well 1	Lower	September 2020
R2	Moderate	September 2020
Dixon 1	Lower	September 2020
Hubert 1	Moderate	September 2020

The complete SWAP Assessment report for ONWASA may be viewed on the Web at: https://www.ncwater.org/SWAP_Reports/NC0467035_SWAP. 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. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email requests to swap@ncdenr.gov. Please indicate your system name (ONWASA), number (04-67-035), 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 system’s potential to become contaminated by PCSs in the assessment area.

Help Protect Your Source Water

Protection of drinking water is everyone’s responsibility. ONWASA maintains a Wellhead Plan adopted in 2002 to help protect our drinking water source. Customers can view this plan on our web site at www.onwasa.com. You can help protect your community’s drinking water source in several ways, such as: disposing of chemicals properly; taking used motor oil to a recycling center; and, volunteering in your community to participate in group efforts to protect source waters. ONWASA is also involved in the community and is available to speak to civic groups, schools, youth organizations, and others to educate our consumers on Source Water Protection.

Violations that ONWASA Received in 2022

ONWASA is pleased to announce that during 2022 *no* violations of permit requirements were received.

Important Drinking Water Definitions

Not-Applicable (N/A) – Information not applicable/not required for that particular water system or 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) - A measure of concentration; 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) - A measure of concentration; one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Parts per trillion (ppt) or Nanograms per liter (nanograms/L) - A measure of concentration; one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.

Parts per quadrillion (ppq) or Picograms per liter (picograms/L) - A measure of concentration; one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in $10,000,000,000,000.

Picocuries per liter (pCi/L) - A measure of the radioactivity in a unit volume of 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.

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) - the EPA has set national secondary drinking water standards (SMCLs) because they may cause cosmetic effects or aesthetic effects (such as taste, odor, and/or color) in drinking water. The contaminants with SMCLs normally do not have any health effects and normally do not affect the safety of your water.

ONWASA routinely monitors for over 150 contaminants in your drinking water, in accordance with Federal and State laws.

Water Quality Data Tables of Detected Contaminants

The tables that follow list all the drinking water contaminants that ONWASA sampled in the most recent round of sampling for each 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 from January 1 through December 31, 2022.** The EPA and the State of North Carolina allow for monitoring of certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. As a result some of the data, although representative of the water quality, is more than one year old. Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

2022 Analytical Results for Regulated Substances

Microbiological Group

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

What the chart means: ONWASA samples 120 sites per month throughout the service area for bacteriological contaminants. ONWASA is pleased to report that none of the 1,440 routine samples taken in 2022 tested positive for Total Coliform Contamination. 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. 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 residence, all areas of the system are represented in the sampling plan.

Inorganic Group

Substance	Sample Date	Your Water in mg/l	No. of sites found above the AL	MCLG in mg/l	AL (mg/l)	Likely Source
Lead	July-Dec 2022	0.0035	0	0	AL=0.015	Corrosion of household plumbing sys-tems: erosion of natural deposits.
Copper	July-Dec 2022	0.377	0	1.3	AL=1.3	Corrosion of household plumbing systems: erosion of natural deposits.

What the chart means: The sampling results shown are from the 2022 compliance period, which are the most re-cent results available. ONWASA's next sampling compliance period is July-Dec. 2025.

2022 Analytical Results (continued)

Inorganic Group

Substance	Sample Date	MCL Violation	Your Water in mg/l	Range Low	Range High	SMCL in mg/l	MCL in mg/l	Likely Source
Fluoride (Mg/L)	4/13/2020 11/09/2020	N/A N/A	2.73 3.50	0.64	3.5	2.00	4.00	Erosion of natural deposits/water additive which promotes strong teeth/ discharge from fertilizer and aluminum factories.
Chromium (ppb)	5/30/2017	N/A	0.021	<0.020	0.021	N/A	0.10	Discharge from steel and pulp mills; erosion of natural deposits.

Notice to the Public for Exceedance of Secondary MCL for Fluoride. Sampling results are from the 2020 compliance period. 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 2.0 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 [ONWASA] has a fluoride concentration of 3.5 mg/l. 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 4.0 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 4.0 mg/l of fluoride, but the utility is required to notify you when we discover that the fluoride levels in your drinking water exceed 2.0 mg/l because of the possibility of a cosmetic dental problem.

For more information, please contact Seth A. Brown of Onslow Water and Sewer Authority at 910-937-7520. 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.

Fluoride is naturally occurring in all of ONWASA's water sources with the exception of the Dixon and Hubert Water Treatment Plants, where it is added for dental benefits. This addition is well below the Secondary Maximum Contaminant Level (SMCL) of 2.00 mg/l. The results shown in these tables represent the highest level detected of all the source water samples. All other Inorganics results, to include Antimony, Arsenic, Barium, Beryllium, Cadmium, Cyanide, Mercury, Nickle, Selenium, Sulfate, and Thallium, were below the detection limit.

Iron	12/07/2020	N/A	0.36	<0.011	0.36	0.3	NA	Erosion of natural deposits.
Manganese	12/16/2020	N/A	0.085	<0.010	0.285	0.05	NA	Erosion of natural deposits.
Sodium	11/09/2020	N/A	233.0	38.1	233.0	N/A	NA	Erosion of natural deposits.
Chloride	10/01/2020	N/A	85.5	3.76	85.5	250	NA	Erosion of natural deposits.
pH	3/10/2020	N/A	8.80	7.62	8.80	6.50 units to 8.50 units	NA	Natural dissolved gases and minerals

2022 Analytical Results (continued)

Secondary Inorganics (continued)

What the chart means: Sampling results are from the 2020 compliance period. The next routine sampling event will occur in 2023. Secondary Inorganics are naturally occurring elements in the water supply that are regulated for aesthetic purposes rather than the health affects. The results in the table on the previous page are for compliance purposes, however ONWASA samples daily for iron, manganese and fluoride to insure water quality. These results represent the highest level detected of all the source water samples.

Disinfectant By-Products

DBP Type / Location	TTHM Range Detected in mg/l	HAA5 Range Detected in mg/l	Average TTHM in mg/l	Average HAA5 in mg/l	MCL in mg/l	Likely Source
104 Manchester Ln.	0.043-0.051	0.038-0.045	0.048	0.040	TTHM 0.080 HAA5 0.060	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.
23395 Hwy. 50	0.062-0.072	0.045-0.058	0.067	0.052	TTHM 0.080 HAA5 0.060	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.
900 Broadway	0.053-0.077	0.044-0.055	0.064	0.050	TTHM 0.080 HAA5 0.060	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.
1012 Barkley Ct.	0.021-0.033	0.023-0.028	0.028	0.026	TTHM 0.080 HAA5 0.060	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.
7561 New Bern Hwy.	0.031-0.068	0.020-0.031	0.047	0.026	TTHM 0.080 HAA5 0.060	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.
2900 White Oak River Rd.	0.029-0.069	0.024-0.034	0.045	0.030	TTHM 0.080 HAA5 0.060	Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5) By-product of drinking water chlorination.

2022 Analytical Results (continued)

Disinfectant By-Products (continued)

What the chart means: Disinfection By-Products are substances that can form when water is chlorinated for disinfection purposes. In 2022 ONWASA sampled 6 sites every quarter and the ranges of detection are reported in the prior table. The maximum level reported for Total Trihalomethanes was below the MCL for that substance at all 6 sample stations in the system. ONWASA takes every precaution to minimize the levels of Disinfection By-Products in the distribution system, including placing automatic flushing devices at strategic points in the distribution system to pull fresh water into remote areas of the system where Trihalomethanes are most likely to occur. We also perform daily chlorine monitoring to maintain levels sufficient for disinfection while minimizing the creation of Disinfection By-Products. State mandates chlorine levels be maintained between 4.00 mg/l to 0.20 mg/l. Through a regular flushing program, use of advanced membrane filtering and extra monitoring, ONWASA works diligently to keep TTHM levels below the MCL.

Disinfectant Residuals Summary

	Year Sampled	MRDL Violation Y/N	Your Water (Highest RRA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (PPM)	2022	N	1.26	0.33 - 2.28	4	4.0	Water additive used to control microbes

Other Constituents

Radiological

Compound (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MCL in pCiL	Likely Source Contamination
Gross Alpha pCiL	5/14/2018	N	8.0	<1.0 - 8.0	15.0	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation

2022 sampling found levels lower than the reportable levels. These are commonly referred to as No Detection. 2018 and 2019 Sampling found 11 of the 15 water sources to have No Detects for Gross Alpha, Uranium, Radium 226 and Radium 228. The reportable levels for Gross Alpha - 3.0 pCi/L, Uranium - 0.67 pCi/L, Gross Beta - 4.0 pCi/L, Radium 226 - 1.0 pCi/L and Radium 228 - 1.0 pCi/L. 3 Water sources showed a detect of Gross Alpha - 8.0 pCi/L, 1 Water Source showed a detect for Radium 226 - 1.9 pCi/L. The Allowable Limits are Gross Alpha - 15.0 pCi/L, Uranium - 20.1 pCi/L, Radium 226 - 3.0 pCi/L, Radium 228 - 2.0 pCi/L and Gross Beta - 50.0 pCi/L. Radiologicals are caused by the erosion of natural deposits.

Nitrates: 2022 sampling for in all 13 water sources detected levels less than the reportable level. There were No Detections reported in all 13 source water Nitrite samples.

Synthetic Organic Chemical (SOC) Contaminants Including Pesticides and Herbicides

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Dalapon (ppb)	11/02/2022	N	2	<1 - 2	200	200	Runoff from herbicide used on rights of way

2022 sampling for 25 of 26 Pesticides & Synthetic Organic Chemicals (SOC) found levels lower than the reportable levels. These are commonly referred 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.

2022 Analytical Results (continued)

Health Advisories

Asbestos Contaminant 2022; ONWASA is pleased to report all water sources sampled in 2022 for the presence of Asbestos, found levels lower than the reportable level.

Volatile Organic Chemicals (VOC) 2022; ONWASA is pleased to report all water sources sampled in 2022 for the presence of these contaminants found levels lower than the reportable level for all water sources sampled**:** 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, Benzene, Toluene, Ethylbenzene, Styrene.

Unregulated Contaminant Monitoring Rule (UCMR); Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

ONWASA was not required to sample for **UCMR** in 2022, however sampling in 2020 sampling for 7 Unregulated Contaminant Monitoring (UCMR) at 5 water sources resulted in No Detection for 1-butanol, 2-methoxyethanol, 2-propen-1- ol, Germanium, Butylated Hydroxyanisole, o-Toluidine, Quinoline

Voluntary Sampling

Per- and poly-fluoroalkyl substances (PFAS)

Contaminant (units)	Sample Date	Your Water	Range Low	Range High
Perfluoroheptanoic acid PFHpA (ppt)	12/07/2022	3.4	<0.41	3.4

Per- and poly-fluoroalkyl substances (PFAS) are synthetic chemicals that have been manufactured and used by a broad range of industries since the 1940s. PFAS are used in many applications because of their unique physical properties such as resistance to high and low temperatures, resistance to degradation, and nonstick characteristics. PFAS have been detected worldwide in the air, soil, and water. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. There is evidence that continued exposure above specific levels to certain PFAS may cause adverse health effects.

The result listed above is was part of an ongoing sampling program being conducted in portions of the raw (untreated) water system to monitor for more than 20 different PFAS-related compounds. The compound HFPO-DA, commonly referred to as GenX , has not been detected at reportable levels in ONWASA's raw or treated water supplies.

PFOA and **PFOS** In 2016, EPA published **health advisories** for PFOA and PFOS based on the evidence available at that time. The science has evolved since then, and EPA is now replacing the 2016 advisories with interim updated lifetime health advisories for PFOA and PFOS that are based on human epidemiology studies in populations exposed to these chemicals

Summary of the EPA Health Advisories

Chemical	Lifetime Health Advisory Level/Value (ppt)	Minimum Reporting Level (ppt)
PFOA	0.004 (Interim)	4
PFOS	0.02 (Interim)	4
GenX Chemicals	10 (Final)	5
PFBS	2,000 (Final)	3

2022 WATER QUALITY REPORT

Onslow Water and Sewer Authority
228 Georgetown Road
Jacksonville, North Carolina 28540
(910) 455-0722
WWW. ONWASA.COM

2022 Annual Water Quality Report

MCAS New River Water Treatment System

PWSID # 04-67-042

Marine Corps Installations East-Marine Corps Base Camp Lejeune (MCIEAST-MCB CAMLEJ) is pleased to present the Annual Water Quality Report (Consumer Confidence Report). This report provides details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies.

MCIEAST-MCB CAMLEJ is committed to providing you with information because informed consumers are our best allies.

Source Water

Eight drinking water supply wells provide groundwater from the Castle Hayne Aquifer to the MCAS New River Water Treatment Plant (WTP). There, the raw water is treated by softening, ion exchange, and disinfection practices before distribution.

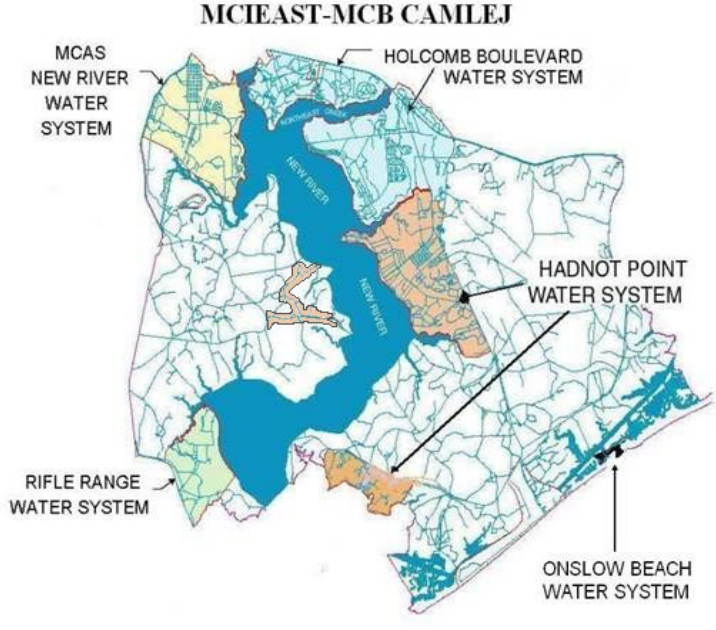
The North Carolina Department of Environmental Quality, Public Water Supply Section, Source Water Assessment Program (SWAP) assessed drinking water sources across North Carolina to determine the susceptibility of each drinking water source to potential contaminant sources. More information on the SWAP, including source water assessment reports for drinking water on Marine Corps Base Camp Lejeune, can be found on the web at:

http://www.ncwater.org/?page=600

MARINE CORPS BASE
CAMP LEJEUNE
"Home of Expeditionary Forces in Readiness"

Important Drinking Water Definitions/Terms	
Term	**Definition**
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
HAA	Halo Acetic Acids: Chlorine from the water disinfection process can react with organic matter and small amounts of bromide present in water to produce various HAAs.
MCL	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's 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. MCLG's allow for a margin of safety.
MRDL	Maximum Residual Disinfectant Level: 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.
MRDLG	Maximum Residual Disinfection Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.
NA	Not Applicable: Information not applicable/not required for that particular water system or for that particular rule.
SDWA	Safe Drinking Water Act: The federal law that protects public drinking water supplies throughout the nation.
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Unit Descriptions	
Term	**Definition**
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (ug/L)
ppt	ppt: parts per trillion, or nanograms per liter (ng/L)



Water Quality Data

The MCAS New River water distribution system met all Federal and State drinking water standards in 2022. MCIEAST-MCB CAMLEJ routinely monitors drinking water quality for more than 150 substances that may be in your drinking water. The information below lists all of the regulated drinking water substances that were detected in recent water quality sampling. The detection of substances does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the information below is from testing done January 1 through December 31, 2022. The EPA and the State allow us to monitor for certain substances less than once per year because the concentrations of the substances are not expected to vary significantly from year to year. Some of the information below, though representative of the water quality, is more than one year old. Other information presented in this report is from recent monitoring. Although many more substances were tested, only those substances listed below were detected in your water.

Regulated Contaminants	MCLG or MRDLG	MCL, TT OR MRDL	Amount Detected	Range		Year Sampled	Violations	Typical Source
				Low	High			
Disinfectants & Disinfection By-Products								
Chlorine (ppm)	4	4	1.21 [1]	0.28	1.73	2022	No	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	NA	60 (LRAA)	18 [2]	10	21	2022	No	By-product of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	NA	80 (LRAA)	59 [2]	33	64	2022	No	By-product of drinking water disinfection
[1] Result reported is the running annual average. Minimum of 0.2 ppm disinfectant residual concentration required.								
[2] Result reported is the highest locational running annual average (LRAA), which is the average of the sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters under the Stage 2 Disinfection and Disinfectant Byproducts Rule.								
Inorganic Contaminants								
Fluoride (ppm)	4	4	0.300	NA		2021	No	Erosion of natural deposits, water additive which promotes strong teeth, discharge from fertilizer and aluminum factories.
Sodium (ppm)[3]	NA	NA	87.7	NA		2021	No	Naturally occurring in the environment. Adequate levels of sodium are required for good health.
[3] Sodium is optional to report.								

Regulated Contaminants	MCLG or MRDLG	MCL, TT or MRDL	Amount Detected	Range		Year Sampled	Violations	Typical Source
				Low	High			
Microbiological Contaminants								
Total Coliform Bacteria	0	One positive sample per month [4]	1 [5]	N/A		2022	No	Naturally present in the environment; used as an indicator that other, potentially harmful bacteria may be present.

[4] For a water system collecting less than 40 samples per month.

[5] One sample was positive for total coliforms but negative for E. Coli.

Regulated Contaminants	MCLG	AL	Amount Detected	# Samples Exceeding AL	Year Sampled	Exceeds AL	Typical Source
Inorganic Contaminants							
Copper (ppm)	1.3	1.3	0.714 [6]	0	2022	No	Corrosion of household plumbing systems, erosion of natural deposits
Lead (ppb)	0	15	4 [6]	0	2022	No	Corrosion of household plumbing systems, erosion of natural deposits

[6] Amount Detected represents the 90th percentile level of all samples detected and is the number used to determine if MCB CAMLEJ is in compliance with Federal, State and DOD guidance.

Lead and Drinking Water

Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of women who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risk of heart disease, high blood pressure, kidney or nervous system problems.

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. MCAS New River's water treatment system 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 (1-800-426-4791) or at:

http://www.epa.gov/safewater/lead

Additional information about lead and drinking water can be viewed on the web at:
https://www.lejeune.marines.mil/Offices-Staff/Environmental-Mgmt/Additional-Resources/

Help Protect Your Water

Protection of drinking water is everyone's responsibility. You can help protect our drinking water sources in several ways: dispose of chemicals properly, take used motor oil to recycling centers, volunteer to participate in group efforts to protect water sources, etc.

Voluntary Sampling Program

In addition to what is required by regulation, and as part of our commitment to ensure that we are providing the safest, most reliable drinking water possible, MCIEAST-MCB CAMLEJ has monitored drinking water for substances found in explosives (nitroaromatics, nitramines, nitrate esters) and perchlorate in finished water since 2004, and raw groundwater starting in 2011. These substances, commonly known as "munitions constituents", are used in the manufacture of explosives or are the breakdown products of compounds used in explosives. Voluntary water sampling during 2022 detected trace amounts of two munitions constituents in the finished water. These trace amounts are not a health concern. There are no MCLs established for munitions constituents.

Additionally, MCIEAST-MCB CAMLEJ sampled finished water for Volatile Organic Compounds and Synthetic Organic Compounds. This sampling was done voluntarily above what is required by current regulations and Department of Defense (DoD) requirements. Results of all voluntary testing were within Federal, State, and DoD drinking water guidance.

Detections for voluntary sampling conducted throughout the MCAS New River system can be viewed on the web at: http://www.lejeune.marines.mil/Offices-Staff/Environmental-Mgmt/Annual-Reports/Voluntary-Monitoring-Detected-Contaminants/

Important Health Information

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, persons with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These persons or their parents or guardians should seek advice about drinking water from health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800) 426-4791.

Per- and polyfluoroalkyl Substances (PFAS)

What are per- and polyfluoroalkyl substances and where do they come from?

Per- and polyfluoroalkyl substances (PFAS) are a group of thousands of man-made compounds. PFAS have been used in a variety of industries and consumer products around the globe, including the United States, since the 1940s. PFAS have been used to make coatings and products that are used as oil and water repellants for carpets, clothing, paper packaging for food, and cookware. They are also contained in some foams (aqueous film-forming foam or AFFF) used for fighting petroleum fires at airfields and in industrial fire suppression processes because they rapidly extinguish fires, saving lives and protecting property. PFAS compounds are persistent in the environment, and some are persistent in the human body - meaning they do not break down and they can accumulate over time.

Is there a regulation for PFAS in drinking water?

There is currently no federal drinking water regulation for any PFAS compounds. In May 2016, the EPA established a health advisory (HA) level at 70 parts per trillion (ppt) for individual or combined concentrations of perfluorooctanoic acid (PFOA), and perfluorooctanesulfonic acid (PFOS). Both compounds are a type of PFAS.

Out of an abundance of caution for your safety, the Department of Defense's (DoD) PFAS testing and response actions go beyond EPA Safe Drinking Water Act requirements. In 2020, the DoD voluntarily began to monitor drinking water for PFAS at all military service owned water systems at least every three years using a combined concentration for PFOS and PFOA of 70 ppt as an action level.

DoD policy states that if water sampling results confirm that drinking water contains PFOS and PFOA at individual or combined concentrations greater than 70 ppt, water systems should immediately undertake additional sampling to assess the level, scope, and localized source of contamination to inform next steps.

What about the EPA's 2022 interim Health Advisories?

Because the interim Health Advisories for PFOS and PFOA are based on draft analyses that are still undergoing review by the EPA's Science Advisory Board, are below quantifiable limits, and are non-regulatory levels, DoD is instead looking to EPA to promulgate a regulatory drinking water standard. DoD looks forward to the clarity that a nationwide regulatory standard for PFOS and PFOA in drinking water will provide.

In anticipation of this EPA drinking water regulation and to account for emerging science that shows potential health effects of PFOS and PFOA at levels lower than 70 ppt, DoD is evaluating its efforts to address PFAS in drinking water, and what actions we can take to be prepared to incorporate this standard, such as reviewing our current data and additional sampling where necessary. We remain committed to fulfill our cleanup responsibilities, operating within the law and authorities provided by the federal cleanup law, and clearly communicating and engaging with communities.

Has MCIEAST-MCB CAMLEJ tested its water for PFAS?

Yes. As part of MCIEAST-MCB CAMLEJ's continuing voluntary sampling program, samples are collected twice a year from the MCAS New River Water Treatment Plant distribution point and from the system's water supply wells. Test results for all 18 PFAS compounds, including PFOS and PFOA, have been below the action level.

For more information about PFAS please visit: https://www.defense.gov/pfas/

Substances That Could Be in the Water

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. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which 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. The presence of contaminants does not necessarily indicate that the water poses a health risk. 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. Substances that may be present in the 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 stormwater runoff, industrial or domestic wastewater discharges, oil or gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic compounds, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

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).

Questions?

For more information about this report, or for any questions relating to your drinking water, please contact David Towler (EMD) at (910) 451-9385 or david.towler@usmc.mil.