

**2022 Annual Water Quality Report
Rifle Range Water Distribution System**

PWSID # 04-67-046



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.

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

Source Water

The MCB CAMLEJ Rifle Range distribution system is supplied with drinking water from the Onslow Water and Sewer Authority (ONWASA), PWSID # 04-67-035. Ten water supply wells provide groundwater from the Castle Hayne Aquifer to ONWASA's Dixon Water Treatment Plant. There, the raw water is treated by filtration, disinfection, and softening practices prior to entering the Rifle Range's distribution system. A copy of ONWASA's 2022 Water Quality Report can be accessed at:

<https://www.onwasa.com/177/Forms-Applications-Reports>

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

<https://www.ncwater.org/?page=600>



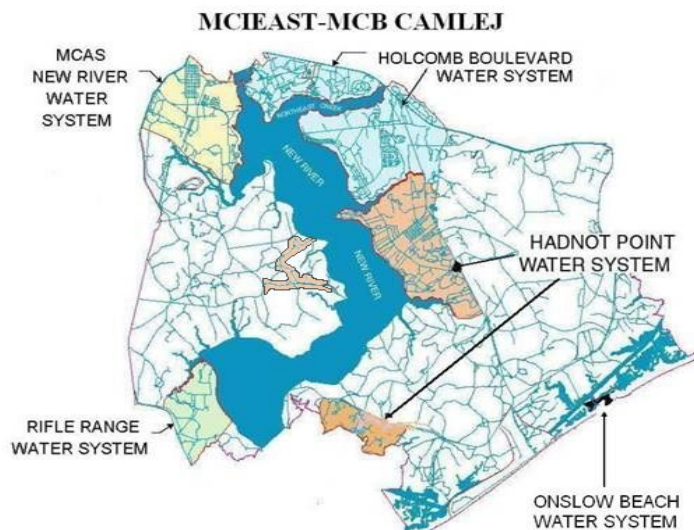
MARINE CORPS BASE
CAMP LEJEUNE
"Home of Expeditionary Forces in Readiness"

Important Drinking Water Terms and Definitions

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 Rifle Range 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 those 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	0.93 ¹	0.36	2.01	2022	No	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	NA	60 (LRAA)	37 ²	31	40	2022	No	By-product of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	NA	80 (LRAA)	70 ²	63	81 ³	2022	No	By-product of drinking water disinfection

¹ Result reported is the running annual average (RAA), which is the average of the sample results from the previous four quarters. 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.

³ For TTHM: 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 system, and may have an increase risk of getting cancer.

Inorganic Contaminants

Fluoride (ppm)	4	4	0.80 ⁴	NA		2020	No	Erosion of natural deposits, water additive which promotes strong teeth, discharge from fertilizer and aluminum factories.
Sodium (ppm) ⁵	NA	NA	38.1 ⁴	NA		2020	No	Naturally occurring in the environment. Adequate levels of sodium are required for good health.

⁴ Data obtained from sampling conducted at ONWASA's Dixon Water Treatment Plant prior to delivery to the Rifle Range distribution system.

⁵ 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 ⁶	0 ⁷	N/A	2022	No	Naturally present in the environment; used as an indicator that other, potentially harmful bacteria may be present.
-------------------------	---	--	----------------	-----	------	----	---

⁶ For a water system collecting less than 40 samples per month.

⁷ There were no coliforms found in samples.

Regulated Contaminants	MCLG	AL	Amount Detected	# Samples Exceeding AL	Year Sampled	Exceeds AL	Typical Source
------------------------	------	----	-----------------	------------------------	--------------	------------	----------------

Inorganic Contaminants

Copper (ppm)	1.3	1.3	0.727 ⁸	0	2022	No	Corrosion of household plumbing systems, erosion of natural deposits
Lead (ppb)	0	15	< 3 ⁸	0	2022	No	Corrosion of household plumbing systems, erosion of natural deposits

⁸ 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. MCB CAMLEJ's Rifle Range 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:

<http://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 your 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 to our Base population, 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 one munitions constituents in the finished water. There are no MCL's 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 Rifle Range water 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, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These persons 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 federal or North Carolina state regulation for PFAS in drinking water?

There is currently no federal drinking water standard or regulation for any PFAS compound. In May 2016, the U.S. Environmental Protection Agency (EPA) established a health advisory 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.

In North Carolina, there is not a PFAS drinking water regulation.

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 1) take immediate action to reduce exposure to PFOS or PFOA, to include providing alternative drinking water; and 2) 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 Camp Lejeune tested its water for PFAS?

The MCIEAST-MCB CAMLEJ Rifle Range distribution system is supplied with drinking water from ONWASA. ONWASA tested its water system for PFAS, including PFOS and PFOA. Test results for all 18 compounds, including PFOS and PFOA ave 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 chemicals, 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 call David Towler (EMD) at (910) 451-9385.