

2021 Annual Water Quality Report

Hadnot Point Water Treatment System

PWSID # 04-67-041



Marine Corps Base Camp Lejeune (MCB CAMLEJ) is pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality.

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

Source Water

Twenty-nine drinking water supply wells provide groundwater from the Castle Hayne Aquifer to the Hadnot Point Water Treatment Plant (WTP). There, the raw water is treated by filtration, disinfection, and softening practices prior to distribution to our customers.

The North Carolina Department of Environmental Quality, Public Water Supply Section, Source Water Assessment Program (SWAP) conducted assessments for all 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:

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



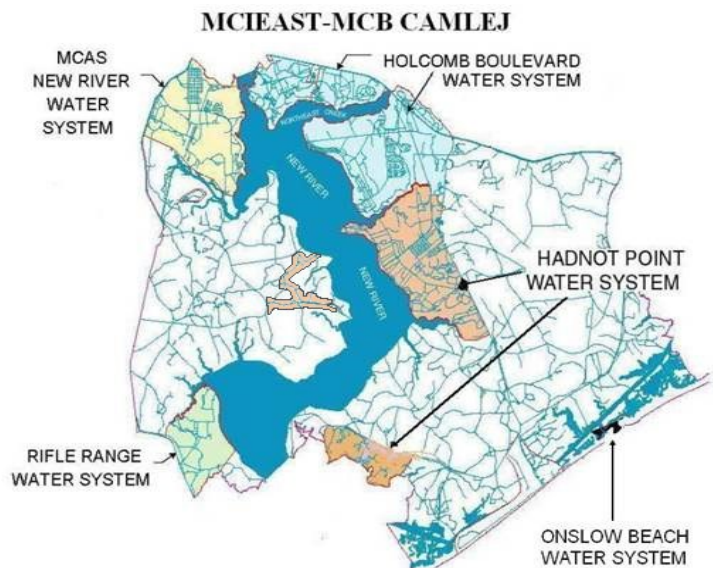
MARINE CORPS BASE
CAMP LEJEUNE
"Home of Expeditionary Forces in Readiness"

Important Drinking Water Definitions/Terms

Term	Definition
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.
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.
TT	Treatment Technique: A required process intended to reduce the level of a 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.
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.
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.
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.
UCMR	Unregulated Contaminant Monitoring Rule: Monitoring used by the EPA to collect data for contaminants that are suspected to be present in drinking water and do not have health-based standards set under the SDWA.
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.

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

MCB CAMLEJ routinely monitors for more than 150 contaminants that could potentially be in your drinking water according to Federal and State laws. The tables below list all of the regulated drinking water contaminants that were detected in the last 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 January 1 through December 31, 2021. The EPA and the State allow us to monitor for certain contaminants less than once per year because the concentrations of those contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old. Other data presented in this report are from the most recent monitoring performed in accordance with the regulations. Although many more contaminants were tested, only those substances listed below were found in your water. In 2021, the Hadnot Point water distribution system met all Federal and State drinking water standards.

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	1.35 ¹	0.28	2.2	2021	No	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	NA	60 (LRAA)	17 ²	9	24	2021	No	By-product of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	NA	80 (LRAA)	49 ²	25	68	2021	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.								
Inorganic Contaminants								
Fluoride (ppm)	4	4	0.751	NA		2021	No	Erosion of natural deposits, water additive which promotes strong teeth, discharge from fertilizer and aluminum factories.
Sodium (ppm) ³	NA	NA	10.9	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	Two positive samples per month ⁴	2 ⁵	N/A	2021	No	Naturally present in the environment; used as an indicator that other, potentially harmful bacteria may be present.
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⁴ For a water system collecting 40 or more samples per month.

⁵ Two positive samples were detected, none were positive for E. Coli.

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

Copper (ppm)	1.3	1.3	0.057 ⁶	0	2020	No	Corrosion of household plumbing systems, erosion of natural deposits
Lead (ppb)	0	15	< 3 ⁶	0	2020	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 Camp Lejeune 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 Hadnot Point 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/>

UCMR4 Monitoring

MCB CAMLEJ conducted additional monitoring as part of Phase 4 of the EPA's Unregulated Contaminant Monitoring Rule (UCMR4). 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.

This table lists all of the unregulated constituents that were detected during UCMR4 sampling. For more information about the Unregulated Contaminant Monitoring Rule please visit:

<https://www.epa.gov/dwucmr>

UCMR4 Contaminants	HAA Groups		Average Level	Range		Year Sampled
				Low	High	
Manganese (ug/L)			0.47	ONLY DETECTION		2020
Total Organic Carbon (TOC) (ug/L)			1,100	ONLY DETECTION		2020
Monochloroacetic acid (MCAA) (ppb)	HAA5		NO DETECTIONS			2020
Dichloroacetic Acid (DCAA) (ppb)			8.4	5.8	11	2020
Trichloroacetic Acid (TCAA) (ppb)			6.5	4.6	8.1	2020
Monobromoacetic acid (MBAA) (ppb)			0.55	0.39	0.64	2020
Dibromoacetic acid (DBAA) (ppb)			1.0	0.9	1.3	2020
Bromochloroacetic acid (BCAA) (ppb)	HAA6Br	HAA9	3.8	3.2	4.3	2020
Bromodichloroacetic acid (BDCAA) (ppb)			3.2	3.0	3.4	2020
Chlorodibromoacetic acid (CDBAA) (ppb)			1.2	1.0	1.3	2020
Tribromoacetic acid (TBAA) (ppb)			NO DETECTIONS			2020

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, MCB Camp Lejeune has monitored drinking water for compounds found in explosives (nitroaromatics, nitramines, nitrate esters) and perchlorate in finished water since 2004, and raw groundwater starting in 2011. These compounds, 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 in 2021 detected trace amounts of one munitions constituent in the finished water and one munitions constituent in the raw water. These trace amounts are not considered to be a health concern. There are no MCLs established for munitions constituents. Additionally, MCB Camp Lejeune sampled both raw groundwater and finished water for Volatile Organic Contaminants, Synthetic Organic Contaminants, Inorganic Contaminants, and Per- and polyfluorinated Alkyl Substances (PFAS). There was one detection of PFAS in the finished water. This sampling was done voluntarily above what is required by current regulations and DOD requirements. Results of all voluntary testing were within Federal, State, and DOD drinking water guidance. Detections for voluntary sampling conducted throughout the Hadnot Point water system can be viewed on the web at:

<http://www.lejeune.marines.mil/Offices-Staff/Environmental-Mgmt/Annual-Reports/Voluntary-Monitoring-Detected-Contaminants/>

Per and polyfluoroalkyl Substances (PFAS)

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

Per- and polyfluoroalkyl substances (PFAS) refers to a large class of substances, which includes perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). DoD's use of PFAS started in the 1970s, with the introduction of aqueous film forming foam (AFFF) for aircraft fuel fire-fighting purposes. AFFF is mission critical because it quickly extinguishes petroleum-based fires, thus minimizing loss of life. DoD is one of many users of AFFF, with other major users including commercial airports, the oil and gas industry, and local fire departments. PFAS are also present in many industrial and consumer products because they increase a product's resistance to heat, stains, water and grease. As such, they are not uniquely attributable to DoD activities.

Is there a regulation for PFAS in drinking water?

There is currently no federal drinking water standard or regulation for PFAS. In May 2016, the EPA established drinking water health advisory levels at 70 parts per trillion (ppt) for perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), individually or combined. Both PFOS and PFOA are types of PFAS.

While not a requirement under the Safe Drinking Water Act, DoD proactively issued a policy to monitor drinking water for 18 PFAS compounds at all DoD-owned and operated water systems at a minimum of every three years.

The EPA recommends if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than 70 parts per trillion, water systems should quickly undertake additional sampling to assess the level, scope, and localized source of contamination to inform next steps.

Has MCB Camp Lejeune tested its water for PFAS?

Yes. In May and September of 2021 samples were collected from the Hadnot Point Water Treatment Plant distribution point and from the system's wells.

Drinking water testing results were below the Method Reporting Limit (MRL) for all 18 PFAS compounds covered by the sampling method, including PFOS and PFOA. In accordance with policy, and continuing our commitment to providing safe drinking water, the water system will be sampled semi-annually for PFAS.

For more information about PFAS please visit:

<https://www.defense.gov/pfas/>

PFAS Monitoring

Finished Water Detections	Average Level	Range		Year Sampled
		Low	High	
Perfluoroheptanoic Acid (PFHpA) (ppt)	0.694	ONLY DETECTION		2021

Help Protect Your Water

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

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).

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).

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.