Substances That Could Be in Water

To ensure that tap water is safe to drink, the US.EPA prescribes regulations limiting 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 must 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 these contaminants does not necessarily indicate that the water poses a health risk.

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 substances resulting from the presence of animals or from human activity. Substances 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 operation, or wildlife;

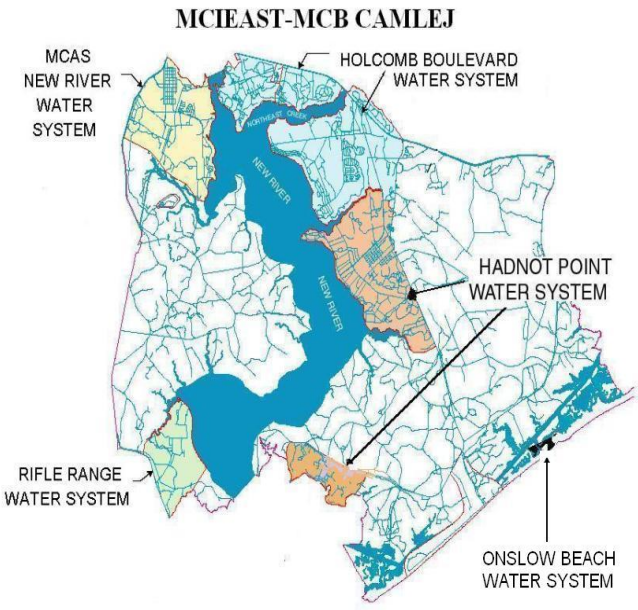
Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban 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 may also come from gas stations, urban stormwater runoff and septic systems;

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

For more information about contaminants and potential health effects, call the US.EPA's Safe Drinking Water Hotline at (800) 426-4791.



2012 Annual Water Quality Report

Holcomb Boulevard Water Treatment System

PWSID# 04-67-043

Marine Corps Installation East – Marine Corps Base
Camp Lejeune
"Home of Expeditionary Forces in Readiness."

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Water Conservation

You can play a role in conserving water by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water (Indoor savings are based on a family of two adults and one child). Here are a few tips;

- Run only full loads in dishwater and washing machine. Saves 300-800 gallons per month
- Turn off the tap when brushing your teeth. Saves three gallons each day
- Check every faucet in your home for leaks. Just a slow drip can waste 15-20 gallons a day
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak
- Don't use your toilet as an ashtray or wastebasket. Saves 400-600 gallons per month
- Don't run the hose while washing your car. Use a bucket of water and a quick hose rinse at the end. Saves 150 gallons each time
- Adjust your sprinklers so that water lands on your lawn or garden where it belongs – and only there. Saves 150 gallons per month
- Water your lawn during the cool parts of the day. Saves 300 gallons

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Robert Lowder (EMD) at (910) 451-5068.

Supplementary Constituents Sampling

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 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. Semiannual raw groundwater sampling in 2012 detected traces of two munitions constituents in wells supplying the Holcomb Boulevard Water Treatment System, and traces of one munition's constituent in finished water. There are no maximum contaminant levels (MCLs) established for munitions constituents.

Additionally, MCIEAST - MCB CAMLEJ sampled raw groundwater semiannually and finished water monthly for any listed Volatile Organic Contaminants (VOCs), and Synthetic Organic Contaminants (SOCs) including herbicides. Raw groundwater was also tested for metals beginning in the fall of 2012. This sampling was done voluntarily above what is required by current regulations. One raw groundwater sample SOC constituent exceeded a State water standard, however, it was not detected in subsequent sampling or in the finished water. The remaining constituents were below the (MCLs) at the Holcomb Boulevard Water Treatment System in 2012.

Lead and Drinking Water

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. MCIEAST - MCB CAMLEJ – Holcomb Boulevard is responsible for providing high quality drinking water, however, any older, commonly used plumbing materials and components can contribute to lead. When your water has settled for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may choose 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 USEPA's safe Drinking Water Hotline or at their website http://www.epa.gov/safewater/lead.

Meeting the Challenge

Marine Corps Installations East - Marine Corps Base Camp Lejeune (MCIEAST - MCB CAMLEJ) is committed to providing you with drinking water that is safe and reliable. We believe that providing you with accurate information about your water is the best way to assure you that your water is safe. This 2012 Water Quality Report for the Holcomb Boulevard Water Treatment System is a snapshot of last year's water quality. Included are details about where your water comes from 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 providing you with this information because informed customers are our best allies. On September 15, 2012, the Holcomb Boulevard Water Treatment Plant further provided water to the Hadnot Point water distribution system since the Hadnot Point Water Treatment Plant was temporarily closed for maintenance. In 2012, the Holcomb Boulevard Water Treatment System met all U.S. Environmental Protection Agency (EPA) and State drinking water health standards.

Important Health Information

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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Sampling Results

We routinely monitor for more than 150 contaminants in accordance with federal and State laws that could potentially be in your drinking water. The presence of contaminants does not necessarily indicate that water poses a heath risk. Unless otherwise noted, the data presented in these tables are from testing done January 1 through December 31, 2012. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. In order to ensure the safety of your drinking water, although it is not required, MCIEAST - MCB CAMLEJ sampled raw groundwater semiannually and finished water monthly for Volatile Organic Contaminants (VOCs), Synthetic Organic Contaminants (SOCs) including herbicides, and munitions constituents. Raw groundwater was also tested for metals beginning in the fall of 2012 and all detections are listed on the EMD website address located under Definitions. The tables below, Regulated Substances, and Detected Contaminants – Voluntary Monitoring, list all of the drinking water contaminants detected other than raw groundwater metals.

REGULATED SUBSTANCES

Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Amount Detected	Range Low-High	Violation	Typical Source
Fluoride (ppm)	2012	4	4	0.5	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids[1] [HAA] (ppb)	2012	60	NA	25.8	17-33	No	By-product of drinking water disinfection
Total Trihalomethanes[1] [TTHMs] (ppb)	2012	80	NA	39.0	23-54	No	By-product of drinking water disinfection
Total Coliform Bacteria (No. of positive samples)	2012	One positive sample per month[2]	0	3*	NA	No	Naturally present in the environment; used as an indicator that other, potentially harmful bacteria may be present

Tap Water Samples were collected from 30 sample sites throughout the community for Copper and Lead. Results are shown in the table below.

Substance (Unit of Measure)	Year Sampled	Action Level	MCLG	Amount Detected 90th Percentile	Sites Above Action Level	Violation	Typical Source
Copper (ppm)	2010**	1.3	1.3	0.296	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2010**	15	0	4	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

DETECTED CONTAMINANTS - Voluntary Monitoring

Voluntary Sampling Results (Detections) for Raw Groundwater Drinking Water Supply Wells (Pre-Treatment)

Substance (Unit of Measure = ppb)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Amount Detected[3]	Range Low-High[3]	Violation	Typical Source
2,4-D	2012	70***	70***	Range of values for two samples	0.038 - 0.12 Both (J, p)	No	Runoff from herbicide used on row crops
2-Amino-4,6-dinitrotoluene	2012	NE	NE	0.056 (J)	Only value	No	Munitions constituent
Chloroform	2012	NE	NE	Range of values for two samples	0.42(J)-0.63	No	Discharge from industrial activities
1,3-Dichlorobenzene	2012	NE	NE	0.14 (J)	Only value	No	Discharge from industrial activities
Di(2-ethylhexyl)phthalate	2012	6***	0	Range of values for four samples	0.64(J) - 19Δ	NoΔ	Plasticizer used in plastics
Di(2-ethylhexyl)adipate	2012	400***	400***	Range of values for two samples	0.69(J)-3.4(J)	No	Plasticizer used in plastics
Perchlorate	2012	NE	NE	Range of values for ten samples	0.020-0.053 All (J)	No	Munitions constituent
1,2,3-Trichlorobenzene	2012	NE	NE	Range of values for three samples	0.14 - 0.20 All (J)	No	Discharge from industrial activities
1,2,4-Trichlorobenzene	2012	70	70	Range of values for two samples	0.18 - 0.21 Both (J)	No	Discharge from textile finishing activities

Voluntary Sampling Results (Detections) for Finished Drinking Water (Post Treatment)

Haloacetic Acids [HAA]	2012	60	NA	Range of values reported	18-30	No	By-product of drinking water disinfection
Total Trihalomethanes [TTHMs]	2012	80	NA		19-54	No	By-product of drinking water disinfection
cis-1,2-Dichloroethene	2012	70	70	33ΔΔ	Only value	No	Discharge from industrial chemical sources
Dalapon	2012	200	200	Range of values for two samples	12 (J,p) -2.0 (J)	No	Runoff from herbicide used on rights of way
1,4-Dichlorobenzene	2012	75	75	0.19 (J)	Only value	No	Discharge from industrial chemical activities
Perchlorate	2012	NE	NE	Range of values for five samples	0.65 - 1.2	No	Partially due to aged sodium hypochlorite used for water treatment
1,2,4-Trichlorobenzene	2012	70	70	0.20 (J)	Only value	No	Discharge from textile finishing activities
Silvex (2,4,5-TP)	2012	50	50	0.089 (J,p)	Only value	No	Residue of banned herbicide

Footnotes:

[1] This is a running average

[2] For a water system collecting less than 40 samples/month

[3] J = estimated value p = lower value reported when a sample exceeded a lab QC confirmatory check

* Three positive samples detected for the year, two in one month NOTE: For that month, 40 samples were taken which meets a 5% maximum allowed rate of positives. No samples were positive for fecal coliform.

** Year that a compliance sample was last required

*** Finished drinking water EPA Std.

Δ One sample exceeded NC groundwater 2L Std. (3 ppb) and finished drinking water EPA Std. (6 ppb). Subsequesnt resampling of raw water well and water treatment plant entry point indicated "No Detection" of contaminant. No Notice of Violation issued by NCDENR. Original sample may have contained a lab contaminant or was a false positive

ΔΔ Subsequest (August 2012) sampling results for two samples and then monthly samples through the remainder of the year indicated "No Detection" for same contaminant.

Definitions

Amount Detected (90th percentile): Indicates that at least 90% of all of the samples tested were equal to, or below, the amount detected.

Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

EMD Website: http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt/AnnualReports.aspx

MCIEAST - MCB CAMLEJ: Marine Corps Installations East – Marine Corps Base Camp Lejeune

MCL (Maximum Contaminant Level): 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.

MCLG (Maximum Contaminant Level Goal): 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.

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 Disinfectant Level Goal): 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.

NA: Not applicable

NE (Not Established): No standard is established for this contaminant based on the type of sampling performed.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environment and Natural Resources (NCDENR), 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 reports that include maps, background information, and a relative susceptibility rating of Higher, Moderate or Lower. The relative susceptibility rating of each source for Holcomb Boulevard Water Treatment System 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 based on the SWAP report completed on March 15, 2010, are summarized in the table below:

Holcomb Boulevard Drinking Water Supply Wells

Source Name	Susceptibility Rating
557	Lower
558	Lower
584	Lower
617	Lower
618	Lower
619	Lower
643	Moderate
644	Moderate
646	Moderate
647	Moderate
648	Moderate
650	Higher
698	Moderate
699	Moderate
700	Moderate
701	Moderate
703	Higher
704	Higher
705	Higher
708	Moderate
LCH 4009	Higher

The complete SWAP report for Holcomb Boulevard Water Treatment System may be viewed on the web at http://www.ncwater.org/pws/swap/pages/swap.htm. Please note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this website may differ from the results that were available at the time this report was prepared. To obtain a printed copy of this report, please mail a written request to the Source Water Assessment Program Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email the request to swap@ncdenr.gov. Please indicate your system name, PWSID, 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.

When You Turn on Your Tap, Consider the Source

The Holcomb Boulevard community water system obtains water from 21 groundwater wells located on Base. Groundwater is pumped from the Castle Hayne freshwater aquifer approximately 180 feet below the ground.

Water Treatment Process

As the water enters the water treatment plant, sodium hypochlorite is added to protect against microbial contamination, and the water is placed into a storage reservoir. From the storage reservoir the water is moved to a set of large, cone-shaped devices called spiractors. The spiractors are used to soften the water by removing minerals. Lime is added at the bottom of the spiractors to aid the softening process. The water is then passed through a set of filters, which contain layers of sand and carbon, to remove particles through a process called filtration. Fluoride (to prevent tooth decay) is added to the water, and then the clean water is placed in a large storage tank called a reservoir. When water is needed by customers, it is pumped from the reservoirs and distributed throughout the Holcomb Boulevard community water system.