

## Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. 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;

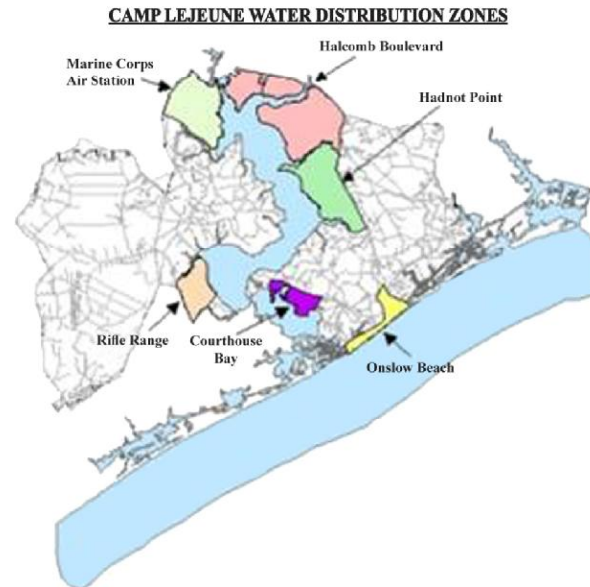
**Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

**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;

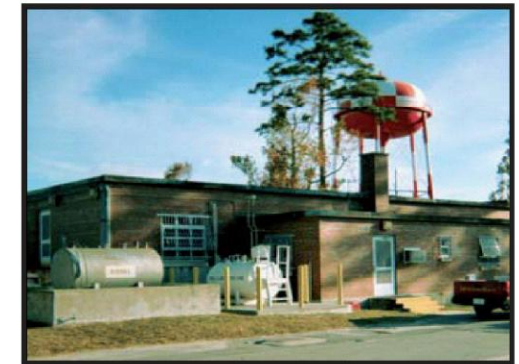
**Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

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



## 2008 Annual Water Quality Report

### Courthouse Bay Water Treatment System



PWSID# 04-67-047



## Meeting the Challenge

Marine Corps Base (MCB) Camp Lejeune 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 2008 Water Quality Report for Courthouse Bay 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 to providing you with this information, because informed customers are our best allies. In 2008, Courthouse Bay 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 U.S. EPA/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.

## Supplementary Constituents Sampling

As part of our commitment to ensure that we are providing the safest, most reliable drinking water possible to our Base population, Marine Corps Base (MCB) Camp Lejeune has monitored drinking water for compounds found in explosives (nitroaromatics, nitramines, nitrate esters) and perchlorate, in finished water since 2004. These compounds, commonly known as "munitions constituents," are used in the manufacture of explosives or are the breakdown products of compounds used in explosives. Routine monthly sampling in 2008 did not detect any munitions constituents at the Courthouse Bay Water Treatment System.

Additionally, MCB Camp Lejeune sampled finished water monthly for Volatile Organic Contaminants (VOCs) and Synthetic Organic Contaminants (SOCs), including pesticides and herbicides. This sampling was done in addition to that required by current regulations. Detections of these constituents were well below the maximum contaminant levels (MCLs) at the Courthouse Bay Water Treatment System in 2008.

## 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. USMC Camp Lejeune – Courthouse Bay is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has settled 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 or at the EPA website <http://www.epa.gov/safewater/lead>.

## 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 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 Brynn Ashton (EMD) at (910) 451-9385.

## Sampling Results

We routinely monitor for more than 150 contaminants in your drinking water according to federal and State laws. The table below, Regulated Substances, lists all the drinking water contaminants that we detected for the particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. Unless otherwise noted, the data presented in these tables are from testing done January 1 through December 31, 2008. 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. Although it is not required, in order to ensure the safety of your drinking water, MCB Camp Lejeune sampled finished water each month for Volatile Organic Contaminants (VOCs) and Synthetic Organic Contaminants (SOCs), including pesticides and herbicides. There was a trace amount of four contaminants, as indicated below.

### REGULATED SUBSTANCES

Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Amount Detected	Range Low-High	Violation	Typical Source
Fluoride (ppm)	2006	4	4	0.168	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids <sup>1</sup> [HAA] (ppb)	2008	60	NA	23.9	18-29	No	By-product of drinking water disinfection
Total Trihalomethanes <sup>1</sup> [TTHMs] (ppb)	2008	80	NA	51	40-71	No	By-product of drinking water disinfection

Tap Water Samples were collected from 10 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)	2008	1.3	1.3	0.24	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2008	15	0	5	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

### Synthetic Organic Contaminants including Pesticide and Herbicides

Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Average Detected	Range Low-High	Violation	Typical Source
2,4-D <sup>2</sup> (ppb)	2008	70	70	0.19J	Only value	No	Runoff from herbicide used on row crops
Dalapon <sup>2</sup> (ppb)	2008	200	200	0.41J	0.29 - 0.64J	No	Runoff from herbicide used on rights of way

### Volatile Organic Contaminants

Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Average Detected	Range Low-High	Violation	Typical Source
Ethylbenzene <sup>2</sup> (ppb)	2008	700	700	0.19J	Two values of 0.19J	No	Petroleum sources
Xylenes (ppm)	2008	10	10	0.0013	0.0010-0.0016	No	Petroleum/Chemical sources

#### Footnote:

<sup>1</sup> This is a running average

<sup>2</sup> "J" indicates an estimated value, which is a value below reporting limit but above method detection limit (MDL)

## Definitions

### Amount Detected (90th percentile):

Indicates that at least 90% of all of the samples tested were equal to, or below the amount detected.

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

**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.

**MDL (Method Detection Limit):** The lowest concentration of a contaminant detectable in drinking water utilizing an approved method.

**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

**ND (Not Detected):** Indicates that a substance was not found by laboratory analysis.

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

**ppm (parts per million):** One part substance per million part 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 Courthouse Bay 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 May 16, 2007, are summarized in the table below:

Courthouse Bay Drinking Water Supply Wells	
Source Name	Susceptibility Rating
BB 44	Lower
BB 47	Moderate
BB 218	Lower
BB 220	Higher
BB 221	Lower
BB 280	Lower
BB 281	Moderate

The complete SWAP report for Courthouse Bay Water Treatment System may be viewed on the Web at <http://www.deh.enr.state.nc.us/pws/swap>. Please 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 report was prepared. To obtain a printed copy of this report, please mail a written request to Source Water Assessment Program Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email the request to [swap@ncmail.net](mailto:swap@ncmail.net). 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) 715-2633.

**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 Courthouse Bay community water system obtains water from seven (7) groundwater wells. Groundwater is pumped from the Castle Hayne aquifer approximately 180 feet below the ground.

## Water Treatment Process

Groundwater is pumped from the wells to a detention basin (storage) located at the Courthouse Bay Water Treatment Plant. As the water enters the detention basin, air is forced (aeration) into the cascading water, then hydrated lime is added to raise the pH of the water, along with sodium hypochlorite, which is used to protect against microbial contamination. This water is then pumped to a series of pressure filters to remove particles. After filtration, the water passes through a set of softening units to remove minerals and then is stored in a large tank called a reservoir. When water is needed by customers, it is pumped from the reservoir and distributed throughout the Courthouse Bay community water system.

