Cannon AFB 2011 Water Quality Report

Introduction

This is an annual report on the quality of water delivered by Cannon AFB, Curry County, New Mexico. Under the "Consumer Confidence Reporting Rule" of the Federal Safe Drinking Water Act (SDWA), community water systems are required to report water quality information to the consuming public. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect your drinking water sources. During the last three years we conducted tests for over 83 constituents at numerous sampling points in your water system. This report provides information on the source of our water, its constituents, and the health risks associated with any contaminants. If you have any questions about this report or your drinking water, please call the Bioenvironmental Engineering Flight at 575-784-4063.

Where does my water come from?

Cannon AFB uses ground water as the source for all potable water supplied to the base and Chavez housing areas. Water is extracted from the Ogallala Aquifer using six wells located on the base property. This water is disinfected with chlorine and delivered to the consumer through a network of underground pipes known as a distribution system. Based on the size of our system and the number of customers, the base wells are registered with New Mexico Environment Department (NMED) as community water sources.

Is my water safe?

Yes. Last year, as in years past, your tap water met all U.S. Environmental Protection Agency (EPA) and state drinking water health standards. Local water authorities vigilantly safeguard its supply and, once again, we are proud to report that our system has not violated a maximum contaminant level.

Why are there contaminants in my drinking water?

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 (1-800-426-4791). 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. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

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 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 can also come from gas stations, urban stormwater runoff and septic systems.
- **Radioactive contaminants**, which can be naturally-occurring or the result of oil and gas production and mining activities.

Do I need to take special precautions?

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 people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (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 (1-800-426-4791). Due to high levels of naturally occurring fluoride, parents of children under the age of 9 should take special precautions to avoid staining and pitting of their child's permanent teeth. For more information, see the paragraph titled "Elevated Fluoride Levels Detected."

Water Quality Results

The table below lists all of the drinking water contaminants that we detected during calendar year 2011. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the NMED requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently.

Substance	Year Sampled	MCLG or MRDLG	MCL, TT, or MRDL	Your Water (High Value)	Range		Compliance Achieved	Typical Source
					Low	High		
Disinfectants & Disinfection By-Products (There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.)								
TTHMs (Total Trihalomethanes) (ppb)	2009	NA	80	26.5	7.8	26.5	Yes	By-product of drinking water disinfection
Haloacetic Acids (ppb)	2009	NA	60	2.8	1.3	2.8	Yes	By-product of drinking water chlorination
Chlorine Residual (ppm)	2011	4	4	0.60[1]	0.15	1.6	Yes	Water additive used to control microbes
[1] Chlorine residual is reported by using a running annual average of the monthly samples.								
Microbiological Contaminants								
Total Coliform Bacteria	2011	0	1	0	NA	NA	Yes	Naturally present in the environment
Fecal coliform and E.coli	2011	0	1	0	NA	NA	Yes	Human and animal fecal waste
MCL for systems that collect < 40 samples/month is 1 positive monthly sample								
Inorganic Contaminants								
Arsenic (ppb)	2009	0	10	4.3	2.8	4.3	Yes	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	2009	2	2	0.056	0.043	0.056	Yes	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride (ppm)	2011	4	4	2.2	2.1	2.2	Yes*	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (measured as Nitrogen) (ppm)	2011	10	10	6.4	3.1	6.4	Yes**	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Selenium (ppb)	2009	50	50	11	6.5	11	Yes	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
*Compliant with the MCL for Fluoride; however, exceeds the Secondary MCL (SMCL) of 2.0 ppm **Compliant with the MCL for Nitrate; however, concentration exceeded 50 percent of the MCL. Additional monitoring required as a result.								
Radioactive Contaminants								
Alpha emitters (pCi/L)	2010	0	15	8.4	6	8.4	Yes	Erosion of natural deposits
Radium (combined 226/228) (pCi/L)	2010	0	5	0.76	0.26	0.76	Yes	Erosion of natural deposits
Uranium (µg/L)	2010	0	30	6.7	5.8	6.7	Yes	Erosion of natural deposits
Beta/photon emitters (pCi/L)	2010	0	50	7.8	6.9	7.8	Yes	Decay of natural and man-made deposits
Synthetic organic contaminants including pesticides and herbicides								
Atrazine (ppb)	2011	3	3	0.2	0.2	0.2	Yes	Runoff from herbicide used on row crops
Volatile Organic Compound								
Bromoform (ppb)	2011	0	NA	3.8	3.8	3.8	NA	By-product of drinking water chlorination
Dibromochloromethane (ppb)	2011	0.06	NA	0.6	0.6	0.6	NA	By-product of drinking water chlorination

Substance	Year Sampled	AL	Your Water	# Samples Exceeding AL	Compliance Achieved	Typical Source
Inorganic Contaminants						
Copper - action level at consumer taps (ppm)	2010	1.3	0.22	0	Yes	Corrosion of household plumbing systems; erosion of natural deposits
Lead - action level at consumer taps (ppb)	2010	15	<1.0	0	Yes	Corrosion of household plumbing systems; erosion of natural deposits

Additional Substances

In an effort to ensure the safest water possible, Cannon AFB monitors some contaminants not required by Federal regulations. The table below summarizes the results for the detected contaminant.

Substance	Year Sampled	MCLG or MRDLG	MCL, TT, or MRDL	Your Water (High Value)	Range		Typical Source
					Low	High	
Perchlorate (ppb)	2011	NA	NA	9.3	3.7	9.3	Rocket propellants; fireworks; munitions; flares; blasting agents
Sodium (ppm)	2011	NA	NA	74	43	74	Erosion of natural deposits; Leaching

How to Read Tables

Starting with a **Substance**, read across. **Year Sampled** is usually 2011. **MCLG** is the goal level for that substance (this may be lower than what is allowed). **MCL** shows the highest level of substance (contaminant) allowed. **AL** is the Action Level. **Your Water (High Value)** represents the highest amount that was found. **Range** identifies the highest and lowest amounts found. A **Yes** under **Compliance Achieved** means the amount of the substance is below what regulatory agencies require for compliance. **Typical Source** identifies where the substance usually originates. Additional substances are measured, but maximum contaminant levels have not been established.

Terms and Definitions

Unit Descriptions	
Term	**Definition**
ppm	parts per million, or milligrams per liter (mg/L)
ppb	parts per billion, or micrograms per liter (µg/L)
pCi/L	picocuries per liter (a measure of radioactivity)
NA	not applicable
Important Drinking Water Definitions	
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. MCLGs allow for a margin of safety.
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.
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. MRDLGs 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.
SMCL	Secondary Maximum Contaminate Level: Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

Additional Information:

Source Water Assessment Protection Program (SWAPP)

The Cannon AFB water system is well maintained and operated and sources of drinking water are generally protected from potential sources of contamination based on well construction, hydrogeologic settings, and system operations and management. The susceptibility rank of the entire water system at Cannon AFB is **Moderate.** If you would like to obtain a copy of the SWAPP report or discuss its findings, please contact the Bioenvironmental Engineering Flight at 575-784-4063. The table below summarizes the susceptibility rank for each water producing well at Cannon AFB. The susceptibility rank is a measure of the potential for contaminants to impact the quality of drinking water if the system is not properly maintained and operated.

SOURCE SUSCEPTIBILITY RANKING					
Well Number	**Sensitivity Rank**	**Vulnerability Rank**	**Susceptibility Rank**	**Operational Exceptions**	**Final Rank**
2	Moderately Low	High	Moderately High	Land Use	High
3	Moderately Low	Low	Moderately Low	Land Use	Moderate
4A[1]	Moderately Low	High	Moderately High	Land Use	High
5	Moderately Low	Low	Moderately Low	Land Use	Moderate
7	Moderately Low	Low	Moderately Low	Land Use	Moderate
8	Moderately Low	High	Moderately High	Land Use	High
12	Moderately Low	Low	Moderately Low	Land Use	Moderate

[1]Well 4A is normally a non-potable source, but can be connected to potable water distribution system, if necessary.

How can I get involved?

To obtain information on the operation and maintenance of the Cannon AFB water system, please contact the Water Treatment Plant at 575-784-6634.

Elevated Fluoride Levels Detected

This is an alert about your drinking water and a cosmetic dental problem that can affect children under 9 years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 ppm of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by Cannon AFB (sampled 25 July and 16 August 2011) had a fluoride concentration of 2.1 to 2.2 ppm. 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 the age of 9 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 drink the water without these concerns. Drinking water containing more than 4 ppm of fluoride (EPA drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 ppm of fluoride, but Cannon AFB is required to notify the consumer when fluoride levels in their drinking water exceed 2 ppm because of this cosmetic dental problem. For more information, please contact the Bioenvironmental Engineering Flight. Some home water treatment units are also available to remove fluoride from drinking water. Cannon AFB provides a low fluoride tap located outside the Water Treatment Plant (Bldg 336). Please share this information with people who drink this water, especially those who may not have received this notice directly. You can do this by posting this notice in a public place or distributing copies by hand or mail.

Informational Statement about Nitrate

A system which detects nitrate at levels above 5 ppm, but below the MCL (10 ppm) must include a short informational statement about the impacts of nitrate on children. The drinking water provided by Cannon AFB (sampled 25 July, 16 August, and 14 November 2011) had a nitrate concentration of 3.1 to 6.4 ppm. As a result of the 6.4 ppm concentration, Cannon AFB began quarterly compliance sampling at the entry point (EP #3) that indicated this reading. A minimum of one year of quarterly compliance sampling at EP #3 is required. The concentration of the first quarterly sampling indicated the concentration was 3.2 ppm. Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask advice from your health care provider.

Informational Statement about Lead

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. The Cannon AFB Water 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 or at *http:/www.epa.gov/safewater/lead.* Please share this information with people who drink this water, especially those who may not have received this notice directly. You can do this by posting this notice in a public place or distributing copies by hand or mail.

For more information

If you have any questions about this report or your drinking water, please contact:

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