2019 Malmstrom AFB
Consumer Confidence Report

We are pleased to present this year's Annual Water Quality Report, Consumer Confidence Report (CCR) as required by the Environmental Protection Agency (EPA) Safe Drinking Water Act. This report is designed to inform you about the drinking water Malmstrom AFB provides every day. Our number one goal is to provide you and your family a safe and dependable supply of drinking water. This report also provides details about where your water comes from, what it contains and how it compares to standards set by regulatory agencies. Testing results from 2019 are included in this report and from the data, you can be confident that the dedicated staff of highly qualified and state-certified professional water treatment operators will protect the integrity and quality of your drinking water. We are committed to providing you the data because informed customers are our best resource.

Where does my water come from?
Malmstrom AFB, Public Water System MT0000515, is "consecutive" to the city of Great Falls drinking water distribution system. The Great Falls Water Treatment Plant supplies drinking water to Malmstrom AFB after filtering and disinfecting surface water from the Missouri River.

Description of water treatment processes
Disinfection involves the addition of chlorine or other disinfectants to inactivate disease-causing (pathogenic) organisms. Disinfection is considered to be one of the major public health advances of the 20th century. The Great Falls Treatment Plant first disinfects Missouri River water with gaseous chlorine. After filtration, the plant converts residual chlorine into monochloramine. Malmstrom AFB performs a final monochloramine adjustment at the pumping plant before distributing the finished drinking water.

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 EPA Safe Drinking Water Hotline (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. It also can pick up substances resulting from the presence of animals or from human activity. 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 storm water 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 storm water 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 storm water runoff, and septic systems.

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

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

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. The EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

How can I become involved?
Please contact the Bioenvironmental Engineering Flight at 406-731-1580 regarding any Malmstrom AFB drinking water questions.

Additional information for 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. Malmstrom AFB 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 (800-426-4791) or at http://www.epa.gov/safewater/lead.

Additional information for copper
Copper is an essential nutrient, but some people who drink water containing copper, in excess of the action level over a relatively short amount of time, could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.

City of Great Falls water quality information
Please see the City of Great Falls Public Drinking Water Supply CCR for more information on the quality of finished drinking water being supplied to Malmstrom AFB. In addition, the Great Falls CCR contains information on the source water assessment and its availability. The Great Falls CCR is available on the Malmstrom AFB website at www.malmstrom.af.mil.

Notice of Violation
Our water system violated a drinking water standard over the past year. Even though this was not an emergency, as our customers, you have a right to know what happened and what we did to correct the situation. We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the first quarter of 2019 (January - March), our system exceeded the Maximum Contaminant Limit (MCL) for the Disinfection Byproduct (DBP) Locational Running Annual Average (LRAA) which is

calculated over the last consecutive three quarters of 2018 and the first quarter of 2019. The Stage-2 DBP Rule maximum level for Haloacetic Acids (HAA5) is 60 microgram per liter (ug/L). The test results showed that our system exceeded the MCL for HAA5 at 61.25 ug/L. Although the LRAA was in exceedance by 1.25 ug/L for the four consecutive quarters, the actual first quarter 2019 reading was 39 ug/L, well below the standard of 60 ug/L.

What happened?
HAA5 concentrations were elevated during the 2nd and 3rd quarters of 2018 perhaps due to organic material from the spring wildfires present in the drinking water. Because Malmstrom AFB is a consecutive water system to Great Falls, MT, our elevated HAA5 concentrations were due in part to HAA5 concentrations being elevated in the Great Falls water system during the 2nd, 3rd and 4th quarters of 2018 with readings of 60.5 ug/L, 73.8 ug/L and 74.8 ug/L respectively. Based on the above results, their system also received a Notice of Violation for first quarter 2019.

What should I do?
There is nothing you need to do at this time. This was not an emergency. However, according to the EPA, ***"Some people who drink water containing HAA5 in excess of the MCL over many years, may have an increased risk of cancer."*** This is based on preliminary animal research and drinking 2 liters of water daily over an average lifespan. It is not necessary to boil the water or to use an alternate water source. Although, if you want to take extra precautions, you can use an activated carbon filter. Please contact your health care professional, if you have specific health concerns.

What is being done?
We worked with the city of Great Falls and the state's water quality experts to engineer water infrastructure upgrades. The main chlorination injectors were relocated in the treatment process which vastly reduced the HAA5 formation. In addition, the new ultra violet (UV) disinfection system was brought online in February 2019. Since implementation of these new features, there has been a greater than 50% reduction in HAA5 production.

For any questions, more information, or a printed copy of this CCR, please contact Capt Thaddeus Schafer. Bioenvironmental Engineering Flight Commander at 406-731-1580 or write the Bioenvironmental Engineering Flight at 341 OMRS/SGXB, 7300 N. Perimeter Rd., Malmstrom AFB, MT 59402-6780.

Printable versions can also be obtained through a link on www.malmstrom.af.mil

Malmstrom AFB Drinking Water Quality Table

In order to ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. All drinking water sources contain naturally occurring contaminants. At low levels, these substances are generally not harmful. Removing all contaminants would be extremely expensive and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in calendar year 2019. The EPA or the State of Montana requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year or the system is not considered vulnerable to this type of contamination. This means that, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table. For more information regarding contaminants detected by the city of Great Falls before the connection to Malmstrom AFB, please see the City of Great Falls Public Drinking Water Supply CCR at www.malmstrom.af.mil.

Detected Contaminants - Malmstrom AFB Drinking Water System								
Contaminants		**MCLG or MRDLG**	**MCL or MRDL**	**2019 Qtrly (Avg)**	**2019 Low/High**	**Sample Date**	**Violation**	**Typical Source**
Disinfectant By-Products - Total Trihalomethanes (TTHMs) and Five Haloacetic Acids (HAA5s)								
TTHMs (ppb)	Site #1	N/A	80	48	37 / 60	13 Mar 2019 11 Jun 2019 11 Sept 2019 17 Dec 2019	No	By-product of drinking water disinfection
	Site #2			42	30 / 55			
HAA5s (ppb)	Site #1	N/A	60	7	3 / 17	13 Mar 2019 11 Jun 2019 11 Sept 2019 17 Dec 2019	Yes (Avg from 2nd Qtr 2018 thru 1st Qtr 2019 was 61 ppb)	By-product of drinking water disinfection
	Site #2			41	32 / 52			
Disinfectants								
Chlorine (ppm)		MRDLG = 4	MRDLG = 4	0.67	0.02 / 1.44	Continuously	No	Water additive used to control microbes
Inorganic Contaminants								
Copper - action level at consumer taps (ppm)		1.3	1.3	0.248	0.019 / 0.807	18-20 June 2018 & 9 July 2018 (Due: 2021)	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead - action level at consumer taps (ppb)		0	15	0.1	0.0 / 6	18-20 June 2018 & 9 July 2018 (Due: 2021)	No	Corrosion of household plumbing systems; erosion of natural deposits

Non-Detected Contaminants - Malmstrom AFB Drinking Water System							
Contaminants	**MCLG**	**MCL**	**Your Water**	**Date**	**# Samples Exceeding MCL**	**Violation**	**Typical Source**
Total Coliform	0	1 positive monthly sample	0	Monthly	0	No	Naturally present in the environment
Asbestos (MFL)	7	7	0	28 Jun 2013 (Due: 2022)	0	No	Decay of asbestos cement in water mains, erosion of natural deposits

Unit Descriptions	
Term	**Definition**
MFL	million fibers per liter
NA	not applicable
ppb	parts per billion, or micrograms per liter (µg/L)
ppm	parts per million, or milligrams per liter (mg/L)

Important Drinking Water Definitions	
Term	**Definition**
AL	Action Level (AL): the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
LRAA	Locational Running Annual Average (LRAA) which is calculated over the last consecutive four quarters.
MCL	Maximum Contaminant Level (MCL): 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 (MCLG): 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 (MRDL). 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 (MRDLG). 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.
TT	Treatment Technique (TT): a required process intended to reduce the level of a contaminant in drinking water.
Variances and Exemptions	Variances and Exemptions: state or EPA permission not to meet an MCL or a treatment technique under certain conditions.

For more information, please contact Bioenvironmental Engineering:

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