

2011
Drinking Water Quality
Annual
Consumer Report

Eielson Air Force Base Alaska



Introduction

Once again Eielson AFB is pleased to present this year's annual drinking water quality report. The data used for this report was collected in calendar year 2010. This report is designed to inform you about the high quality water Eielson AFB delivers to you every day. Under the "Consumer Confidence Reporting Rule" of the federal Safe Drinking Water Act (SDWA), community water systems are required to report this water quality information to the consuming public. Presented in this report is information on the source of our water, the contaminant sampling frequency and the results for each contaminant found above the laboratory detection limit.

We continually monitor the drinking water for contaminants in accordance with federal, state, and Air Force requirements. **We are proud to report that the water provided by Eielson Air Force Base meets or exceeds established water quality standards set by the EPA and the Alaska Department of Environmental Conservation.**

Water Source Information

Your Eielson AFB main distribution system utilizes ground water from the Tanana Valley Alluvial Aquifer. The public water system for Eielson AFB is a community water system consisting of six source intakes. The intakes for this Public Water System ID (PWSID) are groundwater wells. The ground water is delivered to the Eielson AFB Water Treatment Plant via water production wells. At the Water Treatment Plant, the ground water is treated, disinfected, and prepared for distribution. The treated water is then sent to water faucets on Eielson AFB via a network of water distribution lines. A few outlying areas not connected to the base distribution system receive delivered water stored in tanks.

In 2004 the Alaska Department of Environmental Conservation (ADEC) performed a Source Water Assessment on our system. The assessment was conducted to provide information about any potential sources of contamination in the vicinity of our wells that may impact the water. The wells were assigned a natural susceptibility rating, which was derived by combining the susceptibility of the wellhead and the aquifer. Of the six wells utilized by Eielson AFB, one was commissioned in 2010 and has not yet been rated by the ADEC. Three of the wells received an overall susceptibility rating of Medium and the two remaining wells received a rating of Very High. In addition, the water system received a vulnerability rating for the following contaminants at each of the wells:

- Bacteria/Viruses - All five received a medium rating
- Nitrates/Nitrites - Three received a medium rating and two received a high rating
- Volatile Organic Chemicals - One received a medium rating and four received a high rating
- Other Organic Chemicals – Three received a medium rating and two received a high rating
- Synthetic Organic Chemicals – Four received a medium rating and one received a high rating
- Heavy Metals - Four received a medium rating and one received a high rating

The vulnerability ratings are calculated based on contaminant risk and natural susceptibility, and the score is expressed in terms of high, medium, and low. While ADEC has assessed our water supplies to have these potential vulnerabilities, you can see by the detected contaminants table on page five we do not show any contamination that exceeds regulatory limits.

The 2004 Source Water Assessment for Eielson AFB is available on the ADEC website:
<http://www.dec.state.ak.us/eh/dw/DWP/complete.aspx> PWSID: 370625.



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. Contaminants that may be present in source water include:

- o Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- o 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.
- o Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- o Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, can also come from gas stations, urban stormwater runoff, and septic systems.
- o Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.
- o Lead which may come from corrosion of household plumbing systems or erosion of natural deposits. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. 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. 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 www.epa.gov/safewater/lead.
- o 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.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. 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 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's Safe Drinking Water Hotline at 1-800-426-4791.

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 for infections. These people should seek advice about drinking water from their health care providers.

EPA/Centers for Disease Control 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 1-800-426-4791.



Monitoring Your Drinking Water

At Eielson AFB, Bioenvironmental Engineering and the Water Treatment Plant monitor for over 80 contaminants using EPA-approved methods. These contaminants, grouped by chemical type and monitoring frequency, are listed in the following table.

Contaminants & Monitoring Frequency Table

Contaminant Group	Monitoring Frequency
Disinfectant Residual	Daily at Water Plant
Turbidity	Daily at Water Plant
Fluoride	Daily at Water Plant; Weekly throughout water system; Every 9 years by Laboratory
Coliform Bacteria	Weekly throughout water system
Volatile Organic Chemicals (VOC)	Quarterly for 4 contaminants Annually for all 62 contaminants
Inorganic Chemicals	Every 9 years (Next sample due 2016)
Trihalomethanes (TTHMs)	Annually
Haloacetic Acids (HAA)	Annually
Arsenic	Every 3 years (Next sample due 2012)
Nitrate	Annually
Nitrite	One-time sample (Collected 20 Sep 94)
Pesticides & Other Organic Chemicals	Waiver until 2013
Radionuclides	Every 6 years (Next sample due 2012)
Lead and Copper	Every 3 years (Next sample due 2013)

Detected Contaminants Results Table

The following table presents the results of our water monitoring for **2010**. We listed only those contaminants that the laboratory actually detected, all of the contaminants are well below the established Maximum Contaminant Level (MCL) and the Maximum Contaminant Level Goal (MCLG).

The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Therefore, some of our reported data is more than one year old.

Contaminant	Violation Y/N	Sample Date	Highest Level Detected	Range Detected/ RAA	Unit Measure	MCL	MCLG	Major Sources in Drinking Water
Disinfectants								
Chlorine Residual Distribution Lines	N	2010	2.02	0.0-2.02 0.52 RAA	ppm	MRDL 4	MRDLG 4	Water additive used to control microbes
Disinfection By-products								
Total Trihalomethanes	N	2/4/10	56	49 RAA 38-56	ppb	80	N/A	By-product of drinking water disinfection
Haloacetic Acids	N	2/4/10	39	14 RAA 0 - 39	ppb	60	N/A	By-product of drinking water disinfection
Inorganic Contaminants								
Nitrate WTP	N	2/3/10	0.06	N/A	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Copper 90 th percentile of 23 samples taken	N	6/16/10	1.21 (90%) (1 of 23 over AL)	N/A	ppm	AL 1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead 90 th percentile of 23 samples taken	N	6/16/10	0.9 (90%) (0 of 23 over AL)	N/A	ppb	AL 15	0	Corrosion of household plumbing systems; erosion of natural deposits
Barium	N	7/21/09	0.05	N/A	ppm	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (WTP)	N	7/21/09	0.7	N/A	ppm	4	4	Water additive which promotes strong teeth
Fluoride (From Distribution Lines)	N	2010	1.32	0.65-1.32 1.02 RAA				
Volatile Organic Contaminants								
Total Trihalomethanes WTP	N	2/3/10	3	N/A	ppb	80	N/A	By-product of drinking water chlorination
cis-1,2-Dichloroethene Well B	N	2/3/10	0.4	N/A	ppb	70	70	Discharge from industrial chemical factories
Trichloroethene Well B	N	2/3/10	0.3	N/A	ppb	5	0	Discharge from metal degreasing sites and other factories
Radiological Contaminants								
Gross Alpha	N	2007	2.4	1.27 RAA -0.36 – 2.4	pCi/L	15	0	Erosion of Natural Deposits
Beta Particle & Photon Emitters	N	2007	4.7	3.78 RAA 3.2 – 4.7	pCi/L	50*	0	Decay of natural and manmade deposits
Combined Radium 226/228	N	2007	1.03	0.82RAA 0.02 – 1.0	pCi/L	5	0	Erosion of natural deposits
* The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.								

Additional Information About Your Water

On 26 January 2010 an anti-siphon valve failed to work properly at the water production plant, allowing an excessive amount of potassium permanganate into the water supply. Potassium permanganate is commonly used as a water conditioner to help remove iron and manganese from water. It is also used to improve taste and remove odors from well water. Excessive levels of the water conditioner drew concern from base officials, and an immediate water advisory was sent to the base community. Key points within the base water distribution system were identified and the water quality was checked at those locations, flushing the distribution lines where needed. The incident was resolved within 12 hours restoring the base water supply to normal conditions; however during the event the health hazards for base residents were minimal to none.

Acronyms & Terms Used In This Report

Below is a listing of acronyms and terms (with explanations) used in this *Drinking Water Quality Report*.

EPA	Environmental Protection Agency
SDWA	Safe Drinking Water Act; Federal law which sets forth drinking water regulations.
MCL	Maximum Contaminant Level; the highest level of a contaminant that is allowed in drinking water.
MCLG	Maximum Contaminant Level Goal; the level of a contaminant in drinking water below which there is no known or expected health risk.
AL	Action Level; the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
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 contamination.
Level Found	Laboratory analytical result for a contaminant; this value is evaluated against an MCL or AL to determine compliance.
90th Percentile	90% of all sample results fall below this level (23 sites throughout base housing are tested for lead and copper). This level is compared to the AL for compliance.
ppm or mg/L	Parts per million or Milligrams Per Liter. One part per million corresponds to one minute in two years.
ppb or ug/L	Parts per billion or micrograms per liter. One part per billion corresponds to one minute in 2,000 years.
pCi/L	Picocuries Per Liter
RAA	Running Annual Average
WTP	Water Treatment Plant

Public Involvement

Consumers who have questions about this report or concerns over their drinking water may contact **Public Affairs at 377-2116**. Based on public interest, this report may be the topic of a future 354 FW Town Hall Meeting to provide an opportunity for public participation in decisions that affect drinking water quality. Contact Public Affairs for more information. An electronic copy of this report is available on the Eielson website.

Water Conservation Tips for Consumers

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference – try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They are inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort!
- Visit www.epa.gov/watersense for more information.

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