



# 2018 Drinking Water Quality Annual Consumer Report

## Eielson Air Force Base Alaska

### Introduction

Once again, Eielson AFB is pleased to present you with its annual Drinking Water Quality Report.

**The 2018 report is about 2017 water quality.**

This report is designed to inform you about the high quality water Eielson AFB delivers to you every day.

The U.S. Environmental Protection Agency (EPA) and the State of Alaska Department of Environmental Conservation (ADEC) require all water agencies to produce for its customers an annual report about the previous year's drinking water quality.

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 AFB meets or exceeds established water quality standards set by the EPA and ADEC.**

### Where Our Water Comes From

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 five source intakes. The intakes for this Public Water System ID (PWSID) are groundwater wells. The groundwater is delivered to the Eielson AFB Water Treatment Plant via water production wells. At the Water Treatment Plant, the groundwater 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.

### Source Water Assessment

The Alaska Department of Environmental Conservation Source Water Assessment program was implemented to make public water system operators, as well as the public it serves, aware of potential sources of contamination in the vicinity of wells that may impact our water. The initial assessment was conducted in 2004. In 2010, an additional assessment was conducted for a new well on Eielson AFB. The assessment report included a vulnerability ranking, based on a prioritized list of possible contaminating activities. These potential activities of contamination in the area resulted in Eielson AFB's medium to high vulnerability rating. While ADEC has classified our water supplies to have potential vulnerabilities, you can see by the detected contaminants table on page four, we do not show any contamination that exceeds regulatory limits for 2017. The Source Water Assessment for Eielson AFB is available for review by contacting the 354th Medical Group, Bioenvironmental Engineering Flight at 907-377-6687.



### Water Quality

Eielson AFB takes weekly routine water quality samples. In addition to the required testing, Eielson AFB takes extra samples from both the distribution and the source water to safeguard water we supply to our customers.

Be assured that personnel from Bioenvironmental Engineering, the Water Treatment Plant and Utilities Maintenance make every effort to ensure the water provided to Eielson is safe for consumption and that the installation is notified should water quality deteriorate.



## Water Testing and Your Health

In order to ensure 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 or online at [epa.gov/safewater](http://epa.gov/safewater).

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 IN DRINKING WATER SOURCES MAY 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, can also come from gas stations, urban stormwater runoff, and septic systems.
- ◆ Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.
- ◆ 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. Lead in drinking water is primarily from material and components associated with service lines and home plumbing. Eielson 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 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).
- ◆ 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.

### CONSUMERS WITH SPECIAL HEALTH CONCERNS

Some individuals may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those with cancer undergoing chemotherapy, those 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.

Guidelines from the U.S. Environmental Protection Agency and Centers for Disease Control about 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.



## Testing Our Water

At Eielson AFB, Bioenvironmental Engineering and the Water Treatment Plant monitor for more than 80 contaminants using EPA-approved methods.

The Detected Contaminant Table on page four shows substances that are regulated by the U.S. EPA and ADEC and that were detected in our water. All of the substances were below the established Maximum Contaminant Level (MCL). Eielson AFB tests for many other substances, but because they were not detected, they are not reported here.

## How To Read The Water Quality Table

Starting on the far left, read across:

- Tested Date is usually in 2017 or years prior.
- Units are the means of measurement.
- MCLG is the goal level for that substance. MCL shows the highest level of substance allowed.
- Results are the laboratory analytical result for a contaminant.
- Range Detected represents the lowest to highest measured amount.
- Violation is the substance exceeded the government requirements.
- Typical Sources in Drinking Water tells where the substance usually originates.

Contaminant	Tested	Unit	MCLG	MCL	Results RAA/LRAA	Range	Violation	Typical Sources
<b>DISINFECTANTS</b>								
Chlorine Residual Distribution Lines	2017	ppm	MRDLG 4	MRDL 4	0.70	0.0-2.09	No	Water additive used to control microbes

## 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

### ADEC

Alaska Department of Environmental Conservation

### SDWA

Safe Drinking Water Act; the federal law which sets forth drinking water regulations.

### MCL

Maximum Contaminant Level; the highest level of a contaminant 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 health risk. MCLGs allow for a margin of safety.

### AL

Action Level; the concentration of a contaminant that, if exceeded, triggers treatment or other requirements 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.

### RESULTS

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 one minute in two years or one penny in \$10,000.

### ppb or ug/L

Parts per billion or micrograms per liter. One part per billion corresponds to one minute in 2,000 years or one penny in \$10,000,000.

### ppt or ng/L

Parts per trillion or nanogram per liter. One part per trillion corresponds to one grain of sand in an Olympic-size swimming pool or one second in 33,333 years.

### pCi/L

Picocuries Per Liter

### LRAA

Locational Running Annual Average

### RAA

Running Annual Average

### WTP

Water Treatment Plant

### LHAL

EPA's Lifetime Health Advisory Level. A lifetime health advisory level is the amount below which no harm is expected from these chemicals. The EPA publishes LHALs to offer a margin of protection against adverse health effects to the most sensitive populations.

## Detected Contaminants Results Table

The following table presents the results of our water monitoring for **2017 and earlier**.

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.

**We listed only those contaminants that the laboratory actually detected; all of the contaminants are below the established Maximum Contaminant Level (MCL) and the Maximum Contaminant Level Goal (MCLG).**

Contaminant	Tested	Unit	MCLG	MCL	Results RAA/LRAA	Range	Violation	Typical Sources
<b>DISINFECTANTS</b>								
Chlorine Residual Distribution Lines	2017	ppm	MRDLG 4	MRDL 4	0.70 RAA	0.0-2.09	No	Water additive used to control microbes
<b>ORGANIC CONTAMINANTS</b>								
<b>Total Trihalomethanes</b>	2017 Compliance based on the Locational Running Annual Average (LRAA) for Semi-Annual samples							
Bldg 1346	2017	ppb	NA	80	49 LRAA	47-50	No	By-product of drinking water disinfection
Bldg 3349					12 LRAA	8-16	No	
<b>Haloacetic Acids</b>	2017 Compliance based on the Locational Running Annual Average (LRAA) for Semi-Annual samples							
Bldg 1346	2017	ppb	NA	60	12 LRAA	11-12	No	By-product of drinking water disinfection
Bldg 3349					11 LRAA	6-15	No	
<b>LEAD AND COPPER – Tested at customer’s taps.</b>								
Copper 90 <sup>th</sup> percentile of 23 samples taken	6/14/16	ppm	1.3	AL 1.3	1.13 (90%)	23 samples: 0 exceeded AL	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead 90 <sup>th</sup> percentile of 23 samples taken	6/14/16	ppb	0	AL 15	1.36 (90%)	23 samples: 0 exceeded AL	No	Corrosion of household plumbing systems; erosion of natural deposits
<b>INORGANIC CONTAMINANTS</b>								
Nitrate WTP	1/17/17	ppm	10	10	0	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Barium	3/21/16	ppm	2	2	0.002	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (WTP)	3/21/16	ppm	4	4	0.14	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth
Fluoride (From Distribution Lines)	2017				0.72 RAA	0.38 – 1.02		
<b>VOLATILE ORGANIC CONTAMINANTS</b>								
Cis-1,2 Dichloroethene Wells A, B, F	1/17/17	ppb	70	70	0.4	0.15-0.88	No	Discharge from industrial chemical factories
Toluene	1/17/17	ppb	1	1	0.26	NA	No	Discharge from petroleum factories
Total Trihalomethanes WTP	1/17/17	ppb	NA	80	0.88	NA	No	By-product of drinking water chlorination
Trichloroethene Well B	1/17/17	ppb	0	5	0.3	NA	No	Discharge from metal degreasing sites and other factories
<b>RADIOLOGICAL CONTAMINANTS</b>								
Gross Alpha	2012	pCi/L	0	15	0.7	NA	No	Erosion of Natural Deposits
Beta Particle & Photon Emitters	2012	pCi/L	0	50*	2.2	NA	No	Decay of natural and manmade deposits
Combined Radium 226/228	2012	pCi/L	0	5	-0.06	NA	No	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.								
<b>UNREGULATED CONTAMINANTS - PERFLUOROALKYL SUBSTANCES (PFAS)</b>								
Perfluorooctanoic Acid (PFOA)	2017	ppt	NA	LHAL 70	4.9 LRAA	0 - 12	No	Firefighting foams; Industrial chemicals; Consumer goods
Perfluorooctane Sulfonate (PFOS)	2017	ppt	NA	LHAL 70	18.8 LRAA	9.1 - 36	No	Firefighting foams; Industrial chemicals; Consumer goods
Cumulative PFOA+PFOS	2017	ppt	NA	LHAL 70	23.7 LRAA	9.1 - 48	No	Firefighting foams; Industrial chemicals; Consumer goods



## Important Information About Your Water

As we have reported in the previous years' consumer water reports, Eielson AFB began sampling for the unregulated contaminants Perfluorooctane sulfonate (PFOS) and Perfluorooctanoic acid (PFOA) March 2015. PFOS and PFOA have been used in the production of carpets and became part of clothing, fabrics for furniture, paper packaging for food and other materials (e.g., cookware) that are resistant to water, grease, or stains. They are also used for firefighting at airfields as part of aqueous film forming foam (AFFF) fire extinguishing agent and in a number of industrial processes.

Because these chemicals have been used in an array of consumer products, most people have been exposed to them. Between 2000 and 2002, PFOS was voluntarily phased out of production in the U.S. by its primary manufacturer. In 2006, eight major companies voluntarily agreed to phase out their global production of PFOA and PFOA-related chemicals, although there are a limited number of ongoing uses. While consumer products and food prepared in nonstick pans are a source of exposure to these chemicals for most people, drinking water can be an additional source in the small percentage of communities where these chemicals have affected water supplies.

The EPA has established drinking water lifetime Health Advisories (LHAs) for PFOS and PFOA based on the agency's assessment of the latest peer-reviewed science. EPA states its intent is to provide U.S. drinking water system operators, and U.S. state, tribal and local officials who have the primary responsibility for overseeing these systems, with information on the potential health risks of these chemicals so the purveyor can make informed decisions and take appropriate actions to protect populations served. When both PFOS and PFOA are found in drinking water, the LHA level for their combined concentrations is 70 parts per trillion. The LHA is not enforceable; however, the DoD and AF, as concerned consumers, are committed to protecting human health and have mandated the testing of drinking water for PFOS and PFOA.

Eielson AFB is fully committed to providing safe and reliable drinking water to our community. In December 2017, Eielson AFB completed a project to add six granular activated carbon (GAC) vessels to the water treatment plant for the removal of PFOS and PFOA from the base groundwater. We continue to collect quarterly water samples for PFOS and PFOA and the table on page four shows the GAC system at the WTP is maintaining the PFOS and PFOA levels below the EPA LHA.



*Eielson AFB Water Treatment Plant Granular Activated Carbon system.*

If you would like additional information on PFOS and PFOA visit the following web sites:

Alaska Environmental Public Health Program  
<http://dhss.alaska.gov/dph/Epi/eph/Pages/default.aspx>

Agency for Toxic Substances and Disease Registry  
<https://www.atsdr.cdc.gov/pfc/index.html>

EPA  
<https://www.epa.gov/chemical-research/research-and-polyfluoroalkyl-substances-pfas>

National Toxicology Program:  
<https://ntp.niehs.nih.gov/pubhealth/hat/noms/pfoa/index.html>



*Water Treatment Plant personnel test the finished water several times a day.*



*Utilities Maintenance personnel performing routine fire hydrant flushing.*



*Bioenvironmental Engineering personnel test the base water weekly at various sites throughout Eielson AFB.*

**You can have the utmost confidence in the team of professionals from the 354 CES Water Treatment Plant, 354 CES Utilities Maintenance, and 354 MDOS Bioenvironmental Engineering who are dedicated and committed to providing Eielson AFB with clean safe water.**

## Public Involvement

Consumers who have questions about this report or concerns over their drinking water may contact **Public Affairs at 907-377-2116**. 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.

An electronic copy of this report is available on the Eielson Web Site at: <http://www.eielson.af.mil/Info/Environmental/>