Misawa AB, JAPAN
Drinking Water
Consumer Confidence Report (CCR)
2023

このレポートには飲料水に関する重要な情報が記載されています。この英文を訳してもらうか、またはどなたか英語が分かる方にたずねてください。

Contents:

1. Acronyms and Terms Used In This Report: The table below explains the acronyms, terms, and units of measure used in this CCR:

Table 1. Acronym/Term List

Unit Descriptions	
Term	Definition
mg/L	Milligrams per liter
ppm	Parts per million
pCi/L	Picocuries per liter
ppt	Parts per trillion

Important Drinking Water Definitions	
Term	Definition
Action Level	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
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.
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.
Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.

Acronym Explanation	
Acronym	Explanation
AB	Air Base
CCR	Consumer Confidence Report
CDC	Center for Disease Control
CES	Civil Engineering Squadron
DoD	Department of Defense
EPA	Environmental Protection Agency
N/A	Not Applicable
POL	Petroleum, Oils, and Lubricants
USAF	United States Air Force

2. What is a CCR?

The U.S. Environmental Protection Agency (EPA) and Japan Environmental Governing Standards (JEGS) requires community water systems to provide annual drinking water quality reports to their customers. These reports, known as Consumer Confidence Reports (CCRs), enable people to make practical, knowledgeable decisions about their health and their environment.

3. Where does Misawa AB's drinking water come from?

The USAF maintains three separate drinking water systems on Misawa AB (Main Base, North Area and Security Hill), and two separate water systems at the Draughon Range (Gate Area and Tower Area). The Main Base receives water from seven ground water wells and Lake Anenuma. The North Area receives its water from four ground water wells. Security Hill receives its water from two deep wells. Draughon Range contains two systems: the Air Force Range Office and surrounding buildings receive water from one ground water well, while the gate area receives its water from the City of Misawa. The City of Misawa receives its water from ground water wells. Bioenvironmental Engineering conducts water sampling for Air Force owned and operated systems. City water quality is monitored by the City of Misawa.

4. What types of contaminants may be in our drinking water?

a. 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 (1-800-426-4791).

b. 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/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).

c. 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:

- 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 byproducts 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 be the result of oil and gas production and mining activities.

d. In order to ensure that tap water is safe to drink, EPA prescribes regulations which 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.

e. During the last sample events in 2021 for Main Base, North Area and Security Hill, all results were below the EPA lead action level. 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. 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.

f. The characterization of Cryptosporidium inactivation in our surface water source is required in accordance with the 2022 JEGS and was identified as a monitoring violation in calendar year 2023. Cryptosporidium routine monitoring efforts commenced in 3 March 2024 in response to the monitoring violation identified; continuous monitoring will proceed over a period of twelve months. Turbidity is another parameter that requires further monitoring. Surface water turbidity is currently monitored in one hour intervals after being filtered multiple times. JEGS and EPA Surface Water Treatment Rule requires water to be monitored every 15 minutes. Turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. Further clarification of the monitoring violations are outlined in the table below.

Table 2. Monitoring Violations

Monitoring Violation	Explanation	Health Effects	Steps Taken to Correct the Violation
Failure to monitor for Cryptosporidium	Monitoring for Cryptosporidium, a microscopic parasite, is required as a component of both, the JEGS and the EPA's Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). Monitoring did not occur in 2023 but is now taking place in 2024.	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.	Initial sampling has begun on 3 March 2024, and will be reported as part of next year's CCR. Consumers do not need to take any further actions.
Failure to monitor turbidity at specified frequency	Turbidity is monitored, but not at the intervals specified in both, JEGS and EPA's Surface Water Treatment Rule. For Public Water Systems with more than two filters, the combined filter effluent must be recorded every 4 hours. In addition, the individual filter effluent must be recorded every 15 minutes.	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.	The Civil Engineering Squadron (CES) and Bioenvironmental Engineering are working in conjunction to determine a solution for increasing the frequency of turbidity monitoring. Consumers do not need to take any further actions.

5. Is Our Drinking Water Safe?

Yes. We receive high-quality water that meets the same standards as drinking water in the US. Civil Engineering provides constant treatment and maintenance of our water distribution system; while Bioenvironmental Engineering collects samples and analyzes our potable water.

6. How is our drinking water treated?

Treatment systems are operated in a manner that ensures appropriate chemical concentrations are maintained throughout the distribution system. Chlorine concentrations and contact times (i.e. CT values) are monitored to ensure proper disinfection of the water in accordance with applicable regulations. Table 2 below describes the treatment process for each location on the installation.

Table 3. Water Treatment

Location	Source	Water Treatment Processes
Main Base	Well Water	Sand sedimentation to remove suspended matter such as sand, dirt, rust, loose scale, clay or organic material from the water.
		Chlorination to disinfect/prevent distribution system contamination.
		Fluoridation to prevent cavities in children.
	Lake Water	Activated carbon filtration to absorb chemicals.
		Coagulation/flocculation/sedimentation to remove algae/large particles.
		Rapid Sand Filtration to remove particles.
		Chlorination to disinfect/prevent distribution system contamination.
		Fluoridation to prevent cavities in children.
North Area	Well Water	Sand sedimentation to remove suspended matter such as sand, dirt, rust, loose scale, clay or organic material from the water.
		Chlorination to disinfect/prevent distribution system contamination.
		Fluoridation to prevent cavities in children.
Security Hill	Well Water	Sand sedimentation to remove suspended matter such as sand, dirt, rust, loose scale, clay or organic material from the water.
		Flouride is not added because of no children and no child activities in the area.
		Chlorination to disinfect/prevent distribution system contamination.
Draughon Range Tower Area	Well Water	Chlorination to disinfect/prevent distribution system contamination. US owned well; however, JASDF responsible for maintenance including chlorination.
Draughon Range Gate Area	City Water	Chlorination to disinfect/prevent distribution system contamination Sand Stripping to remove suspended matter such sand, dirt, rust, loose, scale, clay or organic material from the water.

7. How often is Misawa AB's drinking water tested?

In compliance with USAF and DoD regulations, the Bioenvironmental Engineering Flight monitors for more than 100 possible substances in Misawa's drinking water at different intervals. Table 3 below identifies the sampling they conduct.

Table 4. Contaminant Groups and Monitoring Frequencies

Contaminant Group	Examples	Monitoring Frequency
Biological Contaminants	Coliform bacteria	All water systems - Monthly
	Cryptosporidium	Main Base Lake Water – Monthly

Inorganic Contaminants	Metals (e.g. selenium, arsenic, mercury, nickel)	Main Base Lake Water - Annually
		Main Base Well Water - Once every three years
		North Area - Once every three years
		Security Hill - Once every three years
	Nitrate, Nitrite, Total Nitrate and Nitrite	Main Base Lake Water Annually
		Main Base Well Water - Annually
		North Area - Annually
		Security Hill – Annually
Volatile Organic Compounds	Benzene, Trichloroethylene, Carbon Tetrachloride, etc.	Main Base Lake Water - Annually
		Main Base Well Water - Quarterly
		North Area - Once every three years
		Security Hill - Once every three years
Synthetic Organic Compounds	Pesticides, Herbicides, PCBs	Main Base Lake Water - two consecutive quarters every three years
		Main Base Well Water - two consecutive quarters every three years
		North Area - Once every three years
		Security Hill - Once every three years
Lead & Copper From Plumbing Materials	Lead, Copper	Main Base, North Area, Security Hill - Once every three years
Radioactive Contaminants	Gross Alpha, Radium- 226, Radium-228, Uranium	Main Base - Every four years (distribution system)
		North Area – Every four years (distribution system)
		Security Hill - Not required
	Beta Particle & Photon Activity	Main Base - Every nine years (distribution system)
		North Area – Every nine years (distribution system)
		Security Hill - Not required
Disinfectant By-Products	Trichloromethanes, Haloacetic Acids (HAA5)	Main Base - Quarterly (distribution system)
		North Area - Annually
		Security Hill - Annually
	Total Organic Carbon, Alkalinity	Main Base - Quarterly
	Turbidity	Combined Filter Effluent – every 4 hours
Non Regulated Compounds/Emerging Contaminants	PFAS (per- and polyfluoroalkyl substances)	Main Base – Semi-annually North Area – Semi-annually Security Hill – Semi-annually Draughon Range Tower Area – Semi-annually Draughon Range Gate Area – Semi-annually

Note 1 : It was determined the two water systems at Draughon Range is non-public water system. Therefore, the monitoring requirements listed in the 2022 Japan Environmental Governing Standards (JEGS) do not apply, except for total coliforms and disinfectant residual.
Note 2 : Systems with results indicating PFAS analytes above the MRL will sample semi-annually until results are below the MRL for two consecutive sampling events. Then sampling may proceed as described in paragraph (i) above. EPA method 533 is required for semi-annual sampling. (Source: Implementation Guidance memorandum: Sampling of Per-and Polyfluoroalkyl Substances (PFAS) in DoD-Owned Drinking Water Systems; 30 August 2023.)

8. What is in our drinking water?

The contaminants presented in the following tables are organized by the respective water distribution system. Only contaminants detected are reported, results below the analytical detection limit are not included. Some contaminants are not tested annually. In these cases, the most current results are reported even though the actual sample may have

been collected in a previous year. The presence of contaminants in the water does not indicate immediate health risks.

Table 5. Detected Contaminants for Main Base Distribution System

Contaminant	MCLG	MCL	Highest Level	Sample Date	Above MCL?	Typical Source	Health Effects
Inorganic Contaminants							
Nitrate	10.0 mg/L	10.0 mg/L	3.08 mg/L	2023	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Fluoride	4.0 mg/L	4.0 mg/L	0.72 mg/L	2023	No	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
Barium	2.0 mg/L	2.0 mg/L	0.0050 mg/L	2023	No	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
Chromium, Total	0.1 mg/L	0.1 mg/L	0.0020 mg/L	2023	No	Discharge from steel and pulp mills; erosion of natural deposits	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
Sodium	No MCLG	200 mg/L	22.5 mg/L	2023	No	Discharge from mines; discharge from petroleum refineries	Sodium in drinking water is a more serious concern if you have a medical condition such as high blood pressure, or certain heart, kidney or liver diseases.
Nickel	0.1 mg/L	0.1 mg/L	0.0046 mg/L	2023	No	Leaching from metals in contact with drinking-water,	Exposure to high levels of nickel compounds that dissolve easily in water (soluble) may also result in cancer when nickel compounds

						such as pipes and fittings. However, nickel may also be present in some groundwaters as a consequence of dissolution from nickel ore-bearing rocks.	that are hard to dissolve (less soluble) are present, or when other chemicals that can produce cancer are present.
Lead	zero	Action Level 0.015 mg/L	0.0014 mg/L	2021	No	Corrosion of household plumbing systems; erosion of natural deposits	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
Copper	1.3 mg/L	Action Level 1.3 mg/L1.3 mg/L	0.12 mg/L	2021	No	Corrosion of household plumbing systems; erosion of natural deposits	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.
Volatile Organic Compounds							
Trichloroethylene See Note 5	zero	5.0 ug/L	4.575 ug/L	2023	No	Discharge from metal degreasing sites and other factories	Lifetime consumption of trichloroethylene excess levels in drinking water may be associated with liver problems and increased risk of cancer.
Synthetic Organic Chemical							
2,4-D	0.07mg/L See note 3	70 ug/L	0.27 ug/L	2023	No	Runoff from herbicide used on row crops	2,4-D has low toxicity for humans, except certain acid and salt forms can cause eye irritation. Swimming is restricted for 24 hours after application of certain 2,4-D products applied to control aquatic weeds to avoid eye irritation.
Disinfectant Byproducts							
Total Trihalomethanes	See Note 1	0.08 mg/L	0.0245 mg/L	Range Low / High	2023	No	Lifetime consumption of TTHMs in water may have an increased

(TTHMs) (Veterinary Clinic)				0.0046 mg/L	0.042 mg/L			Byproduct of drinking water disinfection	risk of bladder or colorectal cancer over a lifetime of drinking water.
Haloacetic Acids (Veterinary Clinic)	See Note 1	0.06 mg/L	0.0088 mg/L	Range		2023	No	Byproduct of drinking water disinfection	Lifetime consumption of Haloacetic Acids in water may have an increased risk of cancer.
				Low	High				
				<0.002 mg/L	0.0153 mg/L				
Total Trihalomethanes ((Main Base Water Tower Admin. Office)	See Note 1	0.08 mg/L	0.00717 mg/L	Range		2023	No	Byproduct of drinking water disinfection	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
				Low	High				
				<0.004 mg/L	0.022 mg/L				
Haloacetic Acids (Main Base Water Tower Admin. Office	See Note 1	0.06 mg/L	0.0070 mg/L	Range		2023	No	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
				Low	High				
				<0.002 mg/L	0.013 mg/L				
Total Organic Carbon (Source)	See Note 2	N/A	0.0020 mg/L	2023			No	Organic contaminants (natural organic substances, insecticides, herbicides, and other agricultural chemicals)	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection by products. These byproducts include trihalomethanes (TTHMs) and haloacetic acids (HAA5s). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
Alkalinity (Source)	See Note 2	N/A	58.3 mg/L	2023			No	Most alkalinity in water comes from calcium carbonate leached from rocks and soil.	
Alkalinity (Treated)	See Note 2	N/A	37.3 mg/L	2023			No	Most alkalinity in water comes from calcium carbonate leached from rocks and soil	
Total Organic Carbon (Treated)	See Note 2	N/A	1.185 mg/L	2023			No	Organic contaminants (natural organic substances, insecticides, herbicides, and other	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAA5s). Drinking water containing these

						agricultural chemicals)	byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
Turbidity	0	TT=1 NTU	0.09	3_6	No	Soil runoff	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
		TT=% of samples <0.3 NTU	100%	2023_6	No		
Radionuclide							
Beta Particle and Photon Radioactivity (Main Base Water Tower 1)	zero	See Note 4	1.62 pCi/L	2022~2023	No	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation.	Some people who drink water containing beta particles and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.Exposure to uranium in drinking water may result in toxic effects to the kidney.

Note:

1. The reported reading is the running annual average of quarterly averages of all samples taken in the distribution system. Although there is no collective MCLG for this contaminant group, there are MCLGs for some of the individual contaminants:
   - Trihalomethanes: bromodichloromethane (0 mg/L); bromoform (0 mg/L); dibromochloromethane (0.06 mg/L): chloroform (0.07 mg/L).
   - Haloacetic acids: dichloroacetic acid (0 mg/L); trichloroacetic acid (0.02 mg/L); monochloroacetic acid (0.07 mg/L). Bromoacetic acid and dibromoacetic acid are regulated with this group but have no MCLGs.

2. Total organic carbon (TOC), a form of disinfection byproducts precursors has no known health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (TTHMs) and haloacetic acids (HAA5s). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer. IAW 2022 JEGS, systems that use conventional filtration treatment (MB) must monitor each treatment plant water source for TOC on a quarterly basis. Samples must be taken from the source water prior to treatment and the treated water not later than the point of combined filter effluent turbidity monitoring. Source water alkalinity must also be monitored at the same time. Neither MCLG nor MCL are outlined in the regulation.

3. Contaminant was detected above JEGS reporting limit. However, this is still is below 70ug/L of JEGS MCL No immediate corrective action is required. Additional sample collection and monitoring is on-going IAW 2022 JEGS until one round of no detection is accomplished (e.g., Four consecutive quarters w/no detections).

4. According to the EPA guide(Radionuclides in Drinking Water : A Small Entity Compliance Guide), the system is in compliance if the results of testing for all beta and photon emitters is less than or equal to 50 pCi/L. EPA considers 50 pCi/l to be the level of concern for beta particles." If beta particles are detected above 50 pCi/l, the water supplier must determine the actual radioactive constituents present in the water to calculate the dose exposure level in mrem/year, and must report both the detected level and MCL as mrem/year.

5. Samples have previously been collected from the Misawa Air Base Sand Basin, which is only representative of water in the distribution system for part of the year. Moving forward, a new sampling location has been established, which will better characterize drinking water throughout the entire calendar year. Those results will be published in the 2024 CCR.

6. Turbidity results recorded in this table were recorded in 1 hour intervals for combined filter effluent in 2023. Civil engineering along with Drinking Water Working Group stakeholders are working to identify methods of monitoring individual filters every 15 minutes as described in Table 2.

Table 6. Detected Contaminants for North Area Distribution System

Contaminant	MCLG	MCL	Highest Level		Sample Date	Above MCL?	Typical Contaminant Source	Health Effects Language
Inorganic Contaminants								
Nitrate	10.0 mg/L	10.0 mg/L	0.15 mg/L		2023	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Arsenic	zero	0.01 mg/L	0.003 mg/L		2022	No	Erosion of natural deposits; runoff from orchards; glass & electronics production wastes	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
Chromium, Total	2.0 mg/L	2.0 mg/L	0.001 mg/L		2022	No	Discharge from steel and pulp mills; erosion of natural deposits	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
Fluoride	4.0 mg/L	4.0 mg/L	0.69mg /L		2019	No	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.

Sodium	No MCLG	200.0 mg/L	11 mg/L	2022	No	Discharge from mines; discharge from petroleum refineries	Sodium in drinking water is a more serious concern if you have a medical condition such as high blood pressure, or certain heart, kidney or liver diseases.
Copper	1.3 mg/L	Action Level 1.3 mg/L1.3 mg/L	0.0096 mg/L	2021	No	Corrosion of household plumbing systems; erosion of natural deposits	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.
Disinfectant Byproducts							
Total Trihalomethanes (Lakeview Grill)	See Note 1	0.08 mg/L	0.0023 mg/L	Range Low | High N/A – annual monitoring	2023	No	Byproduct of drinking water disinfection	Lifetime consumption of TTHMs in water may have an increased risk of bladder or colorectal cancer over a lifetime of drinking water.
Total Trihalomethanes (North Area Water Plant)	See Note 1	0.08 mg/L	0.0023 mg/L	Range Low | High N/A – annual monitoring	2023	No	Byproduct of drinking water disinfection	Lifetime consumption of TTHMs in water may have an increased risk of bladder or colorectal cancer over a lifetime of drinking water.
Radionuclide							
Beta Particle and Photon Radioactivity	zero	See Note 2	5.58 pCi/L	2022~2023	No	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	Some people who drink water containing beta particles and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer. Exposure to uranium in drinking water may result in toxic effects to the kidney.

Note:

1. The reported reading is the running annual average of quarterly averages of all samples taken in the distribution system.

Although there is no collective MCLG for this contaminant group, there are MCLGs for some of the individual contaminants:

- Trihalomethanes: bromodichloromethane (0 mg/L); bromoform (0 mg/L); dibromochloromethane (0.06 mg/L): chloroform (0.07 mg/L).
- Haloacetic acids: dichloroacetic acid (0 mg/L); trichloroacetic acid (0.02 mg/L); monochloroacetic acid (0.07 mg/L). Bromoacetic acid and dibromoacetic acid are regulated with this group but have no MCLGs

2. According to the EPA guide (Radionuclides in Drinking Water : A Small Entity Compliance Guide), the system in compliance if the system is vulnerable to contamination and the results of testing for all beta and photon emitters is less than or equal to 50 pCi/L. EPA considers 50 pCi/l to be the level of concern for beta particles." If beta particles are detected above 50 pCi/l, the water supplier must determine the actual radioactive constituents present in the water to calculate the dose exposure level in mrem/year, and must report both the detected level and MCL as mrem/year.

Table 7. Detected Contaminants for Security Hill Distribution System

Contaminant	MCLG	MCL	Highest Level		Sample Date	Above MCL?	Typical Contaminant Source	Health Effects Language
Inorganic Contaminants								
Nitrate	10.0 mg/L	10.0 mg/L	0.04 mg/L		2023	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Sodium	No MCLG	200 mg/L	22 mg/L		2021	No	Discharge from mines; discharge from petroleum refineries	
Lead Note 1	zero	0.015 mg/L	0.0024 mg/L		2021	No	Corrosion of household plumbing systems; erosion of natural deposits	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
Copper Note 1	1.3 mg/L	Action Level 1.3 mg/L	0.0022 0 mg/L		2021	No	Corrosion of household plumbing systems; erosion of natural deposits	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.
Disinfectant Byproducts								
Total Trihalomethanes (Airman Leadership School)	See Note 2	0.08 mg/L	0.0243 0 mg/L	Range Low High N/A – annual monitoring	2023	No	Byproduct of drinking water disinfection	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
Haloacetic Acids (Airman Leadership School)	See Note 2	0.06 mg/L	0.0064 0 mg/L	Range Low High N/A – annual monitoring	2023	No	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
Total Trihalomethanes (Security Hill Water Plant)	See Note 2	0.08 mg/L	0.0196 0 mg/L	Range Low High N/A – annual monitoring	2023	No	Byproduct of drinking water disinfection	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
Haloacetic Acids (Airman Leadership School)	See Note 2	0.06 mg/L	0.0059 0 mg/L	Range Low High N/A – annual monitoring	2023	No	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Note:
1. Lead and copper are regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

2. The reported reading is the running annual average of quarterly averages of all samples taken in the distribution system. Although there is no collective MCLG for this contaminant group, there are MCLGs for some of the individual contaminants:
- Trihalomethanes: bromodichloromethane (0 mg/L); bromoform (0 mg/L); dibromochloromethane (0.06 mg/L): chloroform (0.07 mg/L).
- Haloacetic acids: dichloroacetic acid (0 mg/L); trichloroacetic acid (0.02 mg/L); monochloroacetic acid (0.07 mg/L). Bromoacetic acid and dibromoacetic acid are regulated with this group but have no MCLGs.

9. What are per- and polyfluoroalkyl substances and where do they come from?

Per- and polyfluoroalkyl substances (PFAS) are a group of thousands of man-made chemicals. PFAS have been used in a variety of industries and consumer products around the globe, including in the U.S., since the 1940s. PFAS have been used to make coatings and products that are used as oil and water repellents for carpets, clothing, paper packaging for food, and cookware. They are also contained in some foams such as aqueous film-forming foam, or AFFF, used for fighting petroleum fires at airfields and in industrial fire suppression processes. PFAS compounds

are persistent in the environment and some are persistent in the human body – meaning they do not break down and they can accumulate over time.

10. Is there a regulation for PFAS in drinking water?

In May 2016, the Environmental Protection Agency (EPA) established a lifetime health advisory (LHA) level at 70 parts per trillion (ppt) for individual or combined concentrations of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). Both compounds are types of PFAS. On 10 April 2024, the EPA published new drinking water standards for certain PFAS under the Safe Drinking Water Act (SDWA). AF is reviewing the EPA's new rule now, and will incorporate these standards into future sampling and analysis efforts.

Out of an abundance of caution, DoD pursued PFAS testing and response actions beyond EPA SDWA requirements. In 2020, the DoD established a policy to monitor drinking water for 17 PFAS compounds at all service owned and operated water systems. If results confirmed the drinking water contained PFOA and PFOS at individual or combined concentrations greater than 70ppt, water systems quickly took action to reduce exposures. While not a SDWA requirement, in 2023, DoD improved upon its 2020 PFAS drinking water monitoring policy by expanding the list of PFAS compounds monitored to 29, implementing continued monitoring of systems with detectable PFAS over the laboratory Method Reporting Limits (MRL), and requiring initial mitigation planning actions.

11. What about the EPA's 2022 interim Health Advisories?

Because the interim Health Advisories for PFOS and PFOA are based on draft analyses that are still undergoing review by EPA's Science Advisory Board, are below quantifiable limits, and are non-regulatory levels, DoD is instead looking to EPA to promulgate a regulatory drinking water standard, which is anticipated by the end of this year. DoD looks forward to the clarity that a nationwide regulatory standard for PFOS and PFOA in drinking water will provide.

In anticipation of this EPA drinking water regulation and to account for emerging science that shows potential health effects of PFOS and PFOA at levels lower than 70 ppt, DoD is evaluating its efforts to address PFAS in drinking water, and what actions we can take to be prepared to incorporate this standard, such as reviewing our current data and collecting additional sampling where necessary. We remain committed to fulfilling our cleanup responsibilities, operating within the law and authorities provided by the federal cleanup law, and clearly communicating and engaging with our communities.

12. Has Misawa AB tested its water for PFAS?

Yes. In October 2023 samples were collected from all water distribution systems, including Main Base, North Base and Draughon Range. We are informing you that 11 of the 29 PFAS compounds covered by the sampling method were detected above the Method Detection Limit (MDL). The results are provided in Tables 7-1 through 7-4, and public notification of these sample results was initially provided on 22 September 2023 via Misawa AB installation webpage. PFOA and PFOS were detected but below 70 ppt. As PFOA and PFOS were below the 70 ppt, there is not immediate cause for concern and we will continue to monitor the drinking water closely. In accordance with DoD policy, Misawa AB will collect semi-annual samples for PFAS, and periodic updates are available at https://www.misawa.af.mil/ .

Table 7-1. Main Base Water System (Water Tower 1)
Sample Date: 23 Oct 23

Contaminant	ABBREV.	Analysis Method	Result	EPA Health Advisory (HA)	Above HA?	Typical Source
Perfluorobutane sulfonic acid	PFBS	EPA533	2.9 ng/L	70 ng/L	N	Runoff from firefighting foam/other every day products
Perfluorohexane sulfonic acid	PFHxS	EPA533	17 ng/L	70 ng/L	N	
1H,1H,2H,2H-Perfluorooctane sulfonic acid	6:2 FTS	EPA533	2.7 ng/L	70 ng/L	N	
Perfluorobutanoic acid	PFBA	EPA533	3.0 ng/L	70 ng/L	N	
Perfluoropentanesulfonic acid	PFPeS	EPA533	2.6 ng/L	70 ng/L	N	
Perfluoropentanoic acid	PFPeA	EPA533	6.3 ng/L	70 ng/L	N	
Perfluoroheptanoic acid	PFHpA	EPA533	2.4 ng/L	70 ng/L	N	
Perfluorohexanoic acid	PFHxA	EPA533	6.1 ng/L	70 ng/L	N	
Perfluorooctane sulfonic acid	PFOS	EPA533	11 ng/L	70 ng/L	N	
Perfluorooctanoic acid	PFOA	EPA533	2.5 ng/L	70 ng/L	N	
PFOS + PFOA	PFAS	EPA533	13.5 ng/L	70 ng/L	N	

Table 7-2. Main Base Water System (Water Tower 2)
Sample Date: 23 Oct 23

Contaminant	ABBREV.	Analysis Method	Result	EPA Health Advisory (HA)	Above HA?	Typical Source
Perfluorobutane sulfonic acid	PFBS	EPA533	2.8 ng/L	70 ng/L	N	Runoff from firefighting foam/other every day products
Perfluorohexane sulfonic acid	PFHxS	EPA533	16 ng/L	70 ng/L	N	
1H,1H,2H,2H-Perfluorooctane sulfonic acid	6:2 FTS	EPA533	2.7 ng/L	70 ng/L	N	
Perfluorobutanoic acid	PFBA	EPA533	3.3 ng/L	70 ng/L	N	
Perfluoropentanesulfonic acid	PFPeS	EPA533	2.4 ng/L	70 ng/L	N	
Perfluoropentanoic acid	PFPeA	EPA533	6.3 ng/L	70 ng/L	N	

Perfluoroheptanoic acid	PFHpA	EPA537.1	2.5 ng/L	70 ng/L	N	
Perfluorohexanoic acid	PFHxA	EPA533	6.1 ng/L	70 ng/L	N	
Perfluorooctane sulfonic acid	PFOS	EPA533	11 ng/L	70 ng/L	N	
Perfluorooctanoic acid	PFOA	EPA533	2.5 ng/L	70 ng/L	N	
PFOS + PFOA	PFAS	EPA533	13.5 ng/L	70 ng/L	N	

Table 7-3. North Area Water System
Sample Date: 23 Oct 23

Contaminant	ABBREV.	Analysis Method	Result	EPA Health Advisory (HA)	Above HA?	Typical Source
Perfluorobutane sulfonic acid	PFBS	EPA533	3.3 ng/L	70 ng/L	N	Runoff from firefighting foam/other every day products
Perfluorohexane sulfonic acid	PFHxS	EPA533	7.7 ng/L	70 ng/L	N	
Perfluoropentanoic acid	PFPeA	EPA533	18 ng/L	70 ng/L	N	
Perfluoroheptanoic acid	PFHpA	EPA537.1	6.0 ng/L	70 ng/L	N	
Perfluorohexanoic acid	PFHxA	EPA533	11 ng/L	70 ng/L	N	
Perfluorooctanoic acid	PFOA	EPA533	3.7 ng/L	70 ng/L	N	
PFOS + PFOA	PFAS	EPA533	3.7 ng/L	70 ng/L	N	

Table 7-4. Draughon Range Tower Area System
Sample Date: 23 Oct 23

Contaminant	ABBREV.	Analysis Method	Result	EPA Health Advisory (HA)	Above HA?	Typical Source
Perfluorohexane sulfonic acid	PFHxS	EPA533	4.0 ng/L	70 ng/L	N	Runoff from firefighting foam/other every day products
Perfluorobutanoic acid	PFBA	EPA533	2.1 ng/L	70 ng/L	N	
Perfluoropentanoic acid	PFPeA	EPA533	5.3 ng/L	70 ng/L	N	
Perfluoroheptanoic acid	PFHpA	EPA537.1	4.7 ng/L	70 ng/L	N	
Perfluorohexanoic acid	PFHxA	EPA533	3.9ng/L	70 ng/L	N	
Perfluorooctane sulfonic acid	PFOS	EPA533	16 ng/L	70 ng/L	N	
Perfluorooctanoic acid	PFOA	EPA533	2.4 ng/L	70 ng/L	N	
PFOS + PFOA	PFAS	EPA533	18.4 ng/L	70 ng/L	N	

Note: Results for Security Hill systems were below the limit of detection.
Water System consists of wells, treatment facilities and distribution points

13. Where can we get more information?

Additional information regarding on-base water quality may be obtained by contacting the Bioenvironmental Engineering Flight at 226-6010 or email us at usaf.misawa.35-mdg.list.35-omrs-sgxb@mail.mil. Public participation in decisions affecting drinking water quality may also be arranged through the Bioenvironmental Engineering. In addition, customers can address any drinking water concerns during the quarterly Drinking Water Working Group meeting. Please contact 226-6010 for more information or to make an appointment to attend the meeting. This report is located on the Misawa Air Base web site at http://www.misawa.af.mil. The EPA's drinking water web site provides additional information at http://water.epa.gov/drink/. For more information on the 2022 JEGS please go to https://www.usfj.mil/Resources/JEGS/.