



# Drinking Water Quality Annual Report for Calendar Year 2024



## Kunsan Air Base (Published: 1 July 2025)

This annual report summarizes the quality of water delivered by Kunsan Air Base (AB). Under the "Consumer Confidence Reporting Rule" of the federal Safe Drinking Water Act (SDWA) and Overseas Environmental Baseline Guidance Document, 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, its constituents, and the health risks associated with any contaminants. The goal of any water system is to provide the public with a safe and dependable supply of drinking water.

**“This report contains important information regarding your drinking water. Therefore, please have someone who can understand this report translate it for you. Please call Bioenvironmental Engineering (BE) at DSN: 315-782-6541 if you have any question regarding this report.”**

“이 보고서에는 귀하의 식수에 대한 중요한 내용이 실려있습니다. 그러므로 이 보고서를 이해할 수 있는 사람한테 번역해 달라고 부탁하시기 바랍니다. 보고서에 대한 질문은 생물환경공학과 315-782-6541 로 문의 하시기 바랍니다.”

### 1. Drinking Water Sources for Kunsan Air Base

During calendar year 2024, Kunsan AB used a direct connection with the regional water purveyor (Gunsan City), K-Water, which obtains water from the Yongdam Reservoir. This surface water source is the secondary water source for Kunsan AB. The primary source of potable water supplied to the Kunsan Water Treatment Plant comes from the Okgu Reservoir. Okgu Reservoir is a surface water source primarily used for agriculture and is located approximately 2.5 kilometers northeast of Kunsan AB. The secondary water source (K-Water) was used for the entirety of 2024 due to the Kunsan Water Treatment Plant undergoing renovations. Please contact the BE Flight (8 OMRS/SGXB) at DSN 315-782-6541 for more information on these water sources.

### 2. Common Sources of Drinking Water Contamination

Common sources of drinking water (both tap 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 animal or human activity. Contaminants that may be present in source or untreated 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 agriculture, urban storm water runoff and residential uses.
- **Organic chemical contaminants**, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and can come from gas stations, urban storm water runoff and septic systems.
- **Radioactive Contaminants**, which can be naturally occurring or the result of oil/gas production and mining activities.

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 Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (1-800-426-4791). The EPA prescribes regulations that limit the amounts of certain

contaminants in water provided by public water systems in order to ensure that tap water is safe to drink. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

### 3. Water Safety and Quality Assurance Responsibilities

The Water and Fuels System Maintenance (WFSM) Flight manages the maintenance and operation of the primary drinking water supply and distribution system. These personnel operate on 24-hour work shifts to ensure the system is pressurized and disinfectant levels are always adequate. The BE Flight monitors the drinking water quality provided to consumers on base and addresses any health-related concerns. Analysis is conducted by certified laboratories for all contaminants. Additionally, BE personnel analyze water samples for microbial contaminants on a monthly basis.

Department of Air Force Instruction 48-144 requires the Drinking Water Working Group (DWWG) to meet semi-annually and include representation from the WFSM Flight (8 CES/CEOIU), Civil Engineering Environmental Element, and BE. The DWWG meets to address all local drinking water issues involving compliance, risk reduction, and continuous improvement. The DWWG has the authority to call a special meeting with Public Affairs (PA), Base Legal (JA), or other related members as needed. Consumers are welcome to attend this meeting; please call 315-782-6541 for more information.

### 4. Drinking Water Monitoring

Kunsan AB BE Flight routinely monitors for over 80 contaminants using certified laboratories and approved methods in accordance with the 2024 United States Forces Korea Manual 4715.05, also known as the Korean Environmental Governing Standards (KEGS) and EPA regulations. Only contaminants that were detected are required to be included in the reporting tables. A breakdown of the categories of contaminants we monitor is as follows:

- **Microbial contaminants:** Sampling is conducted monthly at distribution points such as the Fire Department, dining facility, BX and various other administrative and industrial work centers on base to include analysis for the levels of disinfectants in the water. During 2024, a total of 60 microbiological samples were taken with NO samples testing positive for microbial contaminants.
- **Inorganic compounds:** Most recent sampling date: Aug 2024. This list can be found in KEGS Enclosure G, Page G-9, Table G-3
- **Volatile organic compounds:** Most recent sampling date: Dec 2024. This list can be found in KEGS Enclosure G, Page G-14, Table G-5.
- **Synthetic volatile organic compounds:** Most recent sampling date: Dec 2024. This list can be found in KEGS Enclosure G, Page G-13-G14, Table G-5. This includes pesticides and insecticides which are administered by Installation Pest Management.
- **Disinfection By-Products:** Most recent sampling date: Dec 2024. These contaminants form in water from the reaction of chlorine with chemicals in the water. See Enclosure G of the KEGS, page G-18, Table G-7.
- **Lead and Copper:** Most recent sampling date: Jul 2024. Lead and copper are present in older sections of the water distribution system. See Enclosure G, Page G-12, Table G-4 of the KEGS.
- **Radiological Compounds:** Most recent sampling date: Dec 2024. See Enclosure G, Page G-23, Table G-8 of the KEGS.
- **PFAS:** Most recent sampling date: Aug 2024. Monitoring requirements are based on OCONUS DoD Policy.

**Table 1. Contaminant Groups and Monitoring Frequencies as of 2024**

Contaminant	Chemical Names	Monitoring Frequency	Sampling Location
Microbial	Total coliform, Fecal coliform, pH, Free Available Chlorine	Monthly	Fire Dept., Food Facilities, etc.
Inorganic Compounds	Metals: antimony, arsenic, barium, beryllium, cadmium, chromium, mercury, nickel, selenium, sodium, thallium, cyanide	Annually	Entry Point (Bldg. 980)
	Nitrate, Nitrite	Quarterly	
	Asbestos	Once every 9 years	
VOCs	1,1,1-trichloroethane, chlorobenzene, cis-1,2-dichloroethene, 1,1,2-trichloroethane, 1,1-dichloroethene, benzene, 1,2,4-trichlorobenzene, ethylbenzene, p-xylene, 1,2-dichlorobenzene, styrene, tetrachloroethene, 1,2-dichloroethane, trans-1, 2-dichloroethene, trichloroethylene, 1,2-dichloropropane 1,4-dichlorobenzene, trichloroethene {TCE} vinyl chloride, carbon tetrachloride, toluene	Annual	Entry Point
SVOCs	Pesticides, Herbicides, PCBs, etc.	Once every 3 years (all 4 quarters)	Entry Point
DBPs	Total Trihalomethanes (TTHM) Total Haloacetic acids (HAA5)	Quarterly	Entry Point Bldg. 3506
Lead & Copper	Lead, Copper	Semi-annually	40 locations
Radiological Compounds	Gross Alpha, Radium 226, Radium 228, Uranium	Once every 4 years	Entry Point
	Gross Beta, Tritium, Strontium	Once every 9 years	
PFAS Compounds	Per- and polyfluoroalkyl substances (PFAS)	TBD <sup>1</sup>	Entry Point
<sup>1</sup> . The frequency will be determined once the OCONUS DoD PFAS Policy for Drinking Water has been finalized.			

## 5. 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/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).

**Lead:** Lead can cause serious health effects in people of all ages, especially pregnant people, infants (both formula-fed and breastfed), and young children. Lead in drinking water is primarily from materials and parts used in service lines and in home plumbing. Kunsan AB is responsible for providing high quality drinking water and removing lead pipes but cannot control the variety of materials used in the plumbing in your home. Because lead levels may vary over time, lead exposure is possible even when your tap sampling results do not detect lead at one point in time. You can help protect yourself and your family by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Using a filter, certified by an American National Standards Institute accredited certifier to reduce lead, is effective in reducing lead exposures. Follow the instructions provided with the filter to ensure the filter is used properly. Use only cold water for drinking, cooking, and making baby formula. Boiling water does not remove lead from water. Before using tap water for drinking, cooking, or making baby formula, flush your pipes for several minutes. You can do

this by running your tap, taking a shower, doing laundry or a load of dishes. If you have a lead service line or galvanized requiring replacement service line, you may need to flush your pipes for a longer period. If you are concerned about lead in your water and wish to have your water tested, contact the BE Flight at 782-6541. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at <https://www.epa.gov/safewater/lead>.

**Copper:** The primary sources of copper in drinking water are corrosion of household plumbing systems and erosion of natural deposits. Copper leaches into water by corrosion, dissolving or wearing away metal caused by chemical reaction between water and plumbing fixtures. Copper can leach into water primarily from pipes, but faucets (brass) and fittings can also be a source of copper contaminants. The amount of copper in your water also depends on the types and amounts of minerals in the water, how long the water stays in the pipes, the amount of wear in the pipes, the water's acidity and its temperature. When water sits in copper pipes or plumbing containing copper for several hours or more, the copper may dissolve into the water. This means the first water drawn from the tap for the day may contain elevated levels of copper. As a precaution, consumers are encouraged to flush water from their faucets for 30-60 seconds before consumption after the faucet has remained unused for 4 or more hours.

## 6. Monitoring Results in Calendar Year 2024

Monitoring results are summarized in the following tables.

**Table 2. 2024 Lead and Copper Results**

Substance	Date Sampled	Violation? Yes / No	Unit	Your Water (90 <sup>th</sup> Percentile)	EPA MCLG / KEGS Action Level (AL)	# of Sites Above AL <sup>1</sup>	Common Potential Sources in Drinking Water
Lead	Mar 2024	No	ppm	0.003	0.015	1 of 40	Corrosion of plumbing systems; Erosion of natural deposits
Lead	Aug 2024	No	ppm	0.006	0.015	1 of 40	
Copper	Mar 2024	No	ppm	0.912	1.3	0 of 40	Corrosion of plumbing systems; Erosion of natural deposits
Copper	Aug 2024	No	ppm	0.760	1.3	1 of 40	

<sup>1</sup>. 40 sites were sampled in accordance with KEGS guidance.

### Lead and Copper Notice:

During the semi-annual water sampling events conducted in March and August 2024, Bioenvironmental Engineering (BE) collected water samples from base housing and dormitories to test for lead and copper levels in the drinking water.

**Table 3. 2024 Disinfection By-Product Results**

Substance	Date Sampled	Violation? Yes / No	Unit	Detected Level		Your Water	MCLG	MCL	Common Potential Sources in Drinking Water
				Highest	Lowest				
Total Trihalomethanes (TTHM)	Dec 2024	No	ppb	50.3	0	48.8	N/A	80	By-product of drinking water disinfection
Haloacetic Acids (HAA5)	Dec 2024	No	ppb	65	0	54.4	N/A	60	By-product of drinking water disinfection

### 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 industrial 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, food packaging, and cookware. They are also contained in some fire-fighting foams such as aqueous film-forming foam, or AFFF, used for fighting petroleum fires.

### Is there a federal regulation for PFAS in drinking water?<sup>1</sup>

Yes. On April 26, 2024, the Environmental Protection Agency (EPA) published a final National Primary Drinking Water Regulation for certain per- and polyfluoroalkyl substances (PFAS) under the Safe Drinking Water Act (SDWA). This rule went into effect on June 25, 2024 with a compliance deadline of April 26, 2029, five years from the date of publication. While the rule requires routine sampling for certain PFAS by no later than 2027, DoD has been sampling drinking water for PFAS compounds at all DoD-owned and operated water systems since 2017. Under the new rule, the following limits, called Maximum Contaminant Levels (MCL), were established, and DoD water systems will need to meet these levels by April 2029.

**Table 4. PFAS**

PFAS	MCL
PFOA	4.0 ppt
PFOS	4.0 ppt
PFHxS	10 ppt
HFPO-DA (GenX)	10 ppt
PFNA	10 ppt
PFBS	n/a
Mixture of two or more: PFHxS, PFNA, HFPO-DA, and PFBS <sup>2</sup>	HI of 1 (unitless)

For systems where DoD provides drinking water, the Department is collecting the necessary sampling information and is taking actions to ensure compliance within the required 5-year timeframe. Currently, the DoD is finalizing a policy on how to apply the EPA rule OCONUS.

### Has Kunsan AB tested its water for PFAS?

Yes. In 2024, samples were collected throughout the year and the highest readings are displayed in Table 5 below.

We are informing you that drinking water testing results were below the MCL for all 6 PFAS compounds covered by the EPA drinking water rule, including PFOA and PFOS. The water system will be periodically resampled as required by the pending DoD OCONUS drinking water policy to ensure continued compliance.

**Table 5. Per-and Polyfluoroalkyl Substances (PFAS)**

Analyte	Source Water	Location	Result (ppt)	MCL	Last Sampled
Perfluorooctanoic acid (PFOA)	City Supply	Bldg 980	Non-detect	4.0 ppt	Nov 24
Perfluorooctanesulfonic acid (PFOS)			Non-detect	4.0 ppt	
Perfluorohexane sulfonate (PFHxS)			Non-detect	10 ppt	
Perfluorononanoic acid (PFNA)			9.9	10 ppt	
Hexafluoropropylene Oxide-Dimer Acid (HFPO-DA) (GenX)			Non-detect	10 ppt	
Mixture of two or more: PFHxS, PFNA, HFPO-DA, and PFBS <sup>2</sup>			0.99	Hazard Index of 1 (unitless)	

<sup>1</sup> This language may need to change to reflect any promulgated state standards applicable to the installation. Any language changes should be vetted through respective headquarters and public health centers.

<sup>2</sup> The sampling point is above the HI MCL if the HI exceeds the MCL and if two or more Hazard Index analytes had an observed sample analytical result at or above the PQL in any of the quarterly samples.



**Table 6. 2024 Kunsan AB Monitoring Violations**

Monitoring Violation	Explanation	Health Effects	Steps Taken to Correct the Violation
Missed monitoring for nitrate and nitrite	Monitoring for nitrate and nitrite is required every quarter in accordance with provisions in the KEGS. A sample due for collection during 4th quarter was not collected on time.	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.	We improved communication with the analytical laboratory to schedule testing requirements by the second month each quarter.  Remedial sampling occurred in the first quarter of 2025. Nitrate and Nitrite were not detected. There is no risk to consumers and further action is not required.

### Terms Defined

**Action Level (AL)** - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow. An AL exceedance is not a violation but can trigger other requirements that include water quality parameter (WQP) monitoring, corrosion control treatment, public education, and service line replacement.

**DoD** - Department of Defense.

**EPA** - United States Environmental Protection Agency.

**HAA5** - Haloacetic Acids (bromochloroacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, and trichloroacetic acid)

**KEGS** - Korean Environmental Governing Standards.

**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.

**Maximum Contaminant Level Goal (MCLG)** - The level of a contaminant in drinking water below which there is no expected health risk. MCLGs allow for a margin of safety.

**N/A** - Not applicable, No MCL established.

**ND** - Means not detected and indicates that the substance was not found by laboratory analysis.

**Part per million (ppm)** – 1/1,000,000; One ppm corresponds to 1 minute in 2 years, or a single penny in \$10,000.

**Part per billion (ppb)** – 1/1,000,000,000; One ppb corresponds to 1 minute in 2,000 years, or a single penny in \$10,000,000.

**Part per trillion (ppt)** – 1/1,000,000,000,000; One ppt corresponds to 1 minute in 2,000,000 years, or a single penny in \$10,000,000,000.

**SDWA** – The U.S. Safe Drinking Water Act is a law passed by Congress in 1974 to protect public health by regulation public drinking water supplies. This law contains multiple provisions and details are available at <https://www.epa.gov/sdwa>.

**TTHM** - Total Trihalomethanes

### For More Information

#### Organization

8 OMRS Bioenvironmental Engineering

8 CES Water & Fuel Systems Maintenance

#### DSN

315-782-6541

315-782-5519

#### Service Area

Drinking water quality concerns

Water treatment and distribution

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