



# Drinking Water Quality Annual Report Kunsan AB, 2015

This annual report summarizes the quality of water delivered by Kunsan AB. 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, its constituents and the health risks associated with any contaminants. Our goal is to provide you with a safe and dependable supply of drinking water.

**"A copy of this Water Quality Report in Korean can be obtained by contacting the Kunsan Bioenvironmental Engineering office at DSN 782-4670 or from off base at 063-470-4670. This report is designed to further public understanding about public water systems and potential hazards"**

“이 보고서에는 귀하의 식수에 대한 중요한 내용이 실려있습니다. 그러므로 이 보고서를 이해할 수 있는 사람한테 번역해 달라고 부탁하시기 바랍니다.

보고서에 대한 질문은 생물환경공학과 782-4670 / 시내전화 063-470-4670 로 문의 하시기 바랍니다.”

## Where does our water come from?

**All potable water supplied to the Kunsan Water Treatment Plant (WTP) is sourced from the Okku Reservoir. This reservoir is located approximately 2.5 km northeast of Kunsan AB and is primarily an agricultural use reservoir. The Secondary water source is a direct intertie with the regional water purveyor, K-Water who provides water from the Yongdam Reservoir. Kunsan AB used its secondary source (K-Water) for this entire monitoring period. A copy of the Kunsan AB's most recent sanitary survey containing information on the water sources can be obtained from Bioenvironmental Engineering at DSN 782-4670 or from off base at 063-470-4670.**

## How pure is our water?

The 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 animals or human activity. Contaminants that may be present in source water include:

- ◆ **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ◆ **Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- ◆ **Pesticides and herbicides**, which may come from 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.
- ◆ 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. FDA 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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).
- ◆ The 8 CES/CEOIU manages the maintenance and operations of the drinking water supply and distribution system. CES Utility personnel operate on 24 hour work shifts to ensure the water system is pressurized and maintains sufficient chlorine residual.
- ◆ The 8 MDOS Bioenvironmental Engineering (BE) Flight monitors the quality of the drinking water provided to consumers and addresses any health related concerns. Analysis is conducted by certified laboratories.

## How our water is monitored?

Kunsan AB BE routinely monitors for over 80 contaminants using certified laboratories and approved methods in accordance with Korean Environmental Governing Standards (KEGS).

- **Microbial contaminants** sampling is conducted every other week at distribution points (such as the clinic, dining facility, BX and various other administrative and industrial work centers on base), to include analysis for the levels of chlorine in the water. A total of 111 microbiological samples were taken, during this monitoring period, and all samples were negative for microbial contaminants.
- **Other contaminants** (*inorganic, pesticides & herbicides, organic chemical and radioactive contaminants*) are monitored on different frequencies respectively. Some contaminants are only monitored every 4 years and for those, the last sampling results are listed on Table 1. The contaminants listed in the table were the only primary contaminants detected in our drinking water.

## Potential Health Effects & Risk

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.

**About Lead in Drinking Water:** 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. 8 CES/CEOIU 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. BE monitors lead and copper in housing semi-annually. **All test results for lead have met KEGS drinking water requirements.** If you are concerned about lead levels in your home's water, please contact BE at 782-4670. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

*Of the sampling conducted in 2015 we are proud that 80+ different substances were below the Maximum Contaminant Level (MCL). Of the copper samples taken in August of 2015, less than 10% were above the allowed Action Level of 1.3 mg/L which meets the Lead and Copper Rule standards for drinking water. Furthermore these levels do not pose a health threat.*

**Table 1: 2015, Kunsan AB Water Monitoring Data for the period of January 1 to December 31, 2015**

Substances	Violation? Yes / No	Units	Detected Level		MCLG	MCL	Likely Source of Contamination
			High	Low		EPA (KEGS)	
<b>Inorganic Chemicals</b> (17 contaminants sampled for in 2015: Required quarterly, last sampled: 4 <sup>th</sup> quarter 2015. Next required 1st quarter 2016)							
Barium	No	mg/L	0.013	0.011	2	2	Discharge of drilling waste, discharge from metal refineries, erosion of natural deposits.
Nitrate (Measured in Nitrogen)	No	mg/L	1.29	1.06	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Total Nitrite and Nitrate	No	mg/L	1.29	1.19	NR	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Sodium	No	mg/L	7.8	6.5	NR	NR	Erosion of natural deposits
<b>Synthetic Organic Compounds including</b>							
<b>Volatile Organic Chemicals</b> (21 contaminants sampled for in 2015: Required quarterly, last sampled: 4 <sup>th</sup> quarter 2015. Next required 1st quarter 2016)							
<b>Pesticides and PBCs</b> (33 contaminants sampled for in 2015: Required quarterly, last sampled: 4 <sup>th</sup> quarter 2015. Next required 1st quarter 2016)							
Dichloromethane (Methylene Chloride)	No	mg/L	0.0023	ND	0	0.005	Discharge from drug and chemical companies.
<b>Disinfectant/Disinfection By-Product</b> (11 contaminants sampled for in 2015: Required quarterly, last sampled: 4 <sup>th</sup> quarter 2015. Next required 1 <sup>st</sup> quarter 2016)							
Total Trihalomethanes (TTHM)	No	mg/L	0.043	ND	N/A	0.08	By-product of drinking water chlorination. Annual Average: 0.027 mg/L
Total Haloaceticacids (HAA5)	No	mg/L	0.036	ND	N/A	0.06	By-product of drinking water chlorination. Annual Average: 0.028 mg/L
<b>Lead and Copper</b> (Required every six months, last sampled: August 2015. Next required February 2016.)							
Lead	No	mg/	0.250	ND	0	0.015	Corrosion from plumbing systems; erosion of natural deposits
Copper	No	mg/	1.82	0.00815	1.3	1.3	Corrosion from plumbing systems; erosion of natural deposits
<b>Radioactive Particles</b> (Required every 4 years, last sampled: 2012*. Next required in 1 <sup>st</sup> Quarter 2016.)							
*This was the most recent mandated sampling.							
Gross Alpha	No	pCi/	0.476+/-0.569	0.476+/-	0.00	15	Erosion of natural deposits
Radium 226	No	pCi/	0.144+/-0.139	0.144+/-	0.00	5	Erosion of natural deposits
Radium 228	No	pCi/	0.175+/-0.242	0.175+/-	0.00	5	Erosion of natural deposits
Uranium	No	ug/	ND	ND	0.00	30	Erosion of natural deposits
Gross Beta	No	ug/	1.64	1.64	0.00	50	Erosion of natural deposits

Note: The contaminants listed in the table were the only primary contaminants detected in our drinking water.

#### Terms Defined

**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.

**Treatment Technique:** A required process intended to reduce the level of a contaminant in drinking water.

**Action Level:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**Maximum residual disinfectant level goal or MRDLG:** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Maximum residual disinfectant level or MRDL:** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

N/A - Not applicable, No MCL established

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

NR - Means not required.

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

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

**Picocuries per liter (pCi/L)** - Picocuries per liter is a measure of radioactivity in water.

### Customer Views Welcome!!

**If you have any specific issues or concerns that you would like to address, you may present them to the Occupational and Environmental Health Working Group or Drinking Water Working Group. To schedule an appointment at this working group, please contact Bioenvironmental at 782-4670 or 8 CES/CEOIU (Water Fuels) at 782-5519.**

**For more information on this report or base drinking water quality, please contact Bioenvironmental Engineering at 782-4670.**

This CCR was prepared by Kunsan AB Bioenvironmental Engineering (8 MDOS/SGOJ) and will be posted on the Kunsan AB homepage <http://www.kunsan.af.mil/>

Information about EPA water regulations can be found at: <http://www.epa.gov>.

General information about Korean water sources in English and Korean can be found at <http://www.kowaco.or.kr/>