2021 ANNUAL WATER QUALITY REPORT FOR WATER QUALITY IN 2020

U.S. ARMY GARRISON HUMPHREYS

A water quality report shares a snapshot of the overall drinking water quality provided to our community during the previous year. Included are details about where our water comes from, what it contains, and how it compares against established drinking water standards. Our constant goal is to operate and monitor our treatment systems in a way that provide you with a safe and dependable supply of drinking water. We are committed to ensuring the quality of our water.

So how is our water quality? We are proud that our drinking water meets or exceeds all the established water quality standards applicable to USAG Humphreys. As you will see in this summary and its supporting tables, our system again had no violations throughout the reporting period.

What are our drinking water sources? Camp Humphreys has two drinking water sources. The primary drinking water source is water purchased from Pyeongtaek City and it provides ~70% of our current drinking water demand. Pyeongtaek City water comes from the Han River and is treated by the Seongnam and Suji water treatment plants. The other drinking water source is groundwater from on-post deep wells which provides ~30% of our current drinking water demand.

Did you know? As water travels over land or through the ground it dissolves naturally occurring minerals and, in some cases, radioactive material, and 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- may come from a variety of sources such as agriculture, stormwater runoff, and residences.
- 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- can be naturally occurring or be the result of oil and 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 MEDDAC-Korea Area III, Sanitarian at 737-5762

This report contains important information about your drinking water. Have someone translate it for you, or speak with someone who understands it.

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

How is our drinking water treated? There are two drinking water treatment plants on Camp Humphreys. One plant boosts chlorination to better manage residual disinfectant in the already treated city water. The other plant treats our groundwater where processes like aeration, filtration, and chlorination are used as treatment methods. After treatment, both purchased city water and groundwater are tested independently to ensure that our drinking water quality standards are met.

How is water quality monitored? USFK Regulation 201-1 allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, is more than one year old. Water quality testing is conducted based on the contaminant group and specified frequency as shown in Table 1.

Table 1. Contaminant Group and Monitoring Frequencies

Contaminant Group	# of Contaminants	Examples	Monitoring Frequency
Physicochemical contaminants	3	Turbidity, pH, chlorine	Every 4 hours
Biological contaminants	2	Total coliform, e-coli	Weekly
Inorganic metals	14	Primary metals, nitrates	Annually
Asbestos	1	Asbestos	Every 9 years
Volatile organic compounds (VOCs)	21	Benzene, TCE, PCE	Quarterly
Synthetic organic compounds (SOCs)	34	Pesticides, PCB	Every 3 years
Sum of five haloacetic acids (HAA5)	5	Monochloroacetic acid, dichloroacetic acid	Quarterly
Total trihalomethanes (TTHMs)	4	Bromoform, chloroform	Quarterly
Bromate	1	Bromate	Monthly
Lead and copper	2	Lead, copper	Semi-annually
Radionuclide compounds	4	Gross alpha, Radium 226, Radium 228, Uranium	Every 4 years

Monitoring results. Listed in the Tables 2 - 4 below are 13 parameters detected in either treated purchased city water, groundwater, or both during the reporting period. All are below maximum contaminant levels allowed. Not listed are the many others we test for, but were not detected. Remember, the presence of contaminants does not necessarily indicate that the water poses a health risk.

Table 2. Groundwater Treatment Plant

Contaminants	MCL	Highest Level Detected	Range of Detection (multiple samples)	Year Sampled	Violation	Typical Sources
Inorganic Chemical						
Barium (ppm)	2.0	0.11	No Range	2020	**NO**	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium (ppb)	100	1.1	No Range	2020	**NO**	Discharge from steel and pulp mills; erosion of natural deposits
Nitrate (ppm)	10	2.44	1.28 - 2.44	2020	**NO**	Runoff from fertilizer use; leaching from sewage; erosion of natural deposits
Synthetic Organic Chemical						
Trichloroethylene (ppb)	5	0.9	0.6 - 0.9	2020	**NO**	Discharge from metal degreasing sites and other factories
Radionuclide						
Uranium (ppb)	30	2.5	No Range	2017[1]	**NO**	Erosion of natural deposits
Gross Beta (pCi/L)	50	4.7 ± 2.31	No Range	2017[1]	**NO**	Decay of natural and man-made deposits

Table 3. City Water Treatment Plant

Contaminants	MCL	Highest Level Detected	Range of Detection (multiple samples)	Year Sampled	Violation	Typical Sources
Inorganic Chemical						
Barium (ppm)	2.0	0.019	No Range	2020	**NO**	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium (ppb)	100	1.1	No Range	2020	**NO**	Discharge from steel and pulp mills; erosion of natural deposits
Nitrate (ppm)	10	2.63	1.3 - 2.63	2020	**NO**	Runoff from fertilizer use; leaching from sewage; erosion of natural deposits
Synthetic Organic Chemical						
Ethylbenzene (ppb)	700	0.8	ND - 0.8	2020	**NO**	Discharge from petroleum refineries
Toluene (ppm)	1	0.0207	ND - 0.0207	2020	**NO**	Discharge from petroleum factories
Xylenes (ppm)	10	0.0027	ND - 0.0027	2020	**NO**	Discharge from petroleum factories; Discharge from chemical factories
Radionuclide						
Gross Beta (pCi/L)	50	2.2 ± 0.79	No Range	2017[1]	**NO**	Decay of natural and man-made deposits

Table 4. Lead, Copper, and Disinfection Byproducts in the Camp Humphreys Water Distribution System

Contaminants	MCL or AL	Average Level Detected	Range of Detection (multiple samples)	Year Sampled	Violation	Typical Sources
TTHMs[4] (ppb)	80	38.0	15.9 - 65.5	2020	NO	By-product of drinking water disinfection
HAA5 (ppb)	60	18.2	11.8 - 25	2020	NO	By-product of drinking water disinfection
Copper (ppm)	AL = 1.0	0.44[2]	0[3]	2020	NO	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	AL = 15	ND[2]	0[3]	2020	NO	Corrosion of household plumbing systems; Erosion of natural deposits

Tables definitions, abbreviations, and notes

AL Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water systems must follow
HAA5 Haloacetic acids (five): sum of the concentrations of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid
IAW In accordance with
NA Not applicable
MCL Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close as feasible using the best available treatment technology.
ND Not detected at testing limits.
ppb Parts per billion or micrograms per liter (µg/L)
pCi/L Picocuries per liter (a measure of radioactivity in water)
ppm Parts per million or milligrams per liter (mg/L)
TTHM Trihalomethanes

Table Notes:

1) IAW USFK Regulation 201-1, radionuclide compounds monitoring frequency is every 4 years
2) This number represents the 90th percentile value of the samples collected
3) The number of samples above the action level
4) Some people who drink water containing TTHMs 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.

Some important health information: 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 MEDDAC-Korea Program Manager at 737-5762.

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. USAG Humphreys 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.

Testing for per- and polyfluoroalkyl substances (PFAS). In 2016 the US Environmental Protection Agency (EPA) issued a lifetime drinking water health advisory for PFOS (perfluorooctane sulfonate) and PFOA (perfluorooctanoic acid) of 70 parts per trillion (ppt). In an effort to ensure the safest water possible, the Army has been proactive to address PFOS and PFOA to include testing for these chemicals in drinking water. USAG Humphreys has been testing our drinking water for PFAS since 2017 to include in 2020, the period of this water quality report. Since testing began, the test results of our drinking water have consistently been less than the EPA lifetime health advisory of 70 ppt. PFAS substances are man-made chemicals found in many industrial and consumer products because they increase resistance to heat, stains, water and grease. Commercial and consumer use of PFAS substances started in the 1950s. Since the 1970s, PFOS and PFOA have been used in Aqueous Film-Forming Foam (AFFF), a critical firefighting agent used to quickly suppress petroleum fires at civilian airports, Army installations and other locations.

Where can you get more information? If you have any questions or would like additional information on your drinking water, please contact one of the people below:

Environmental Division (for compliance related questions)
Mr. Pak, Chung Mok DSN: 756-1059
Email: chungmok.pak.ln@mail.mil

MEDDAC-Korea (for health related questions)
Mr. Choi, Sung A DSN: 737-5762
Email: sung.a.choi.civ@mail.mil

If you would like to share your thoughts and/or concerns about our water quality please know that the Directorate of Public Works does not regularly hold public meetings about the water system. If you have any questions or concerns regarding the Camp Humphreys water system or water quality, please do not hesitate in contacting our Drinking Water Program Manager at (315) 756-1059.

Steps we can all can take to conserve our drinking water: