DEPARTMENT OF THE AIR FORCE
86TH AIRLIFT WING (USAFE)

MEMORANDUM FOR ALL PERSONNEL AT RAMSTEIN AB, GERMANY

FROM: 86 AMDS/SGPB

SUBJECT: 2018 Drinking Water Quality Report – Ramstein Air Base, Germany

Is my water safe?

We are pleased to present this year's Annual Drinking Water Quality Report (Consumer Confidence Report – CCR) as required by Air Force Instruction 48-144, Drinking Water Surveillance Program, and the Final Governing Standards for Germany (FGS-G). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. Our goal is to provide you with a safe, quality and reliable drinking water supply. We are committed to providing you with this information because informed customers are the best allies. For 2018, our systems were safe and in compliance, and no exceedances have been identified.

Where do we get our drinking water?

The Kaiserslautern Military Community (KMC) draws all its drinking water from deep wells several hundred feet below ground. Our water is pumped from these wells, treated, and then distributed to our communities. Within the KMC, there are many water distribution systems. Ramstein Air Base has one system, being fed by four water treatment facilities, and the Cold Storage Area has one system. Beginning in 2018, the two Construction Training Squadron systems are being supplied with potable water by the City of Ramstein as the drinking water provider. Since November 2007, Vogelweh, including Kapaun AS, is supplied by the City of Kaiserslautern water provider Stadtwerke Kaiserslautern – SWK.

Who ensures our water is safe?

Several offices are responsible for preserving the quality of our drinking water. Ramstein AB's drinking water is managed by two base agencies:

786th Civil Engineering Squadron Water and Fuels System Maintenance section operates and maintains the KMC water distribution systems and equipment. CES personnel work 24 hours a day, 7 days a week to ensure the system is pressurized and maintains sufficient disinfection (chlorine) residual. On a daily basis CES personnel conduct operational monitoring at the treatment plants to maintain the high quality of their final product - drinking water for the KMC.

The 86th Medical Group Bioenvironmental Engineering (BE) flight routinely monitors water quality throughout the system. Each month BE tests chlorine and pH levels, and collects water samples for bacteriological analysis. Analysis is conducted at the BE laboratory and then

reported to various organizations on a monthly basis. BE collects additional water samples based on a monitoring schedule directed by the Final Governing Standard for Germany to determine compliance. The FGS-G defines the parameters to be monitored (typically the most stringent of the US/German requirements are utilized), the sampling frequency, the maximum contaminant level (MCL), the notification procedures, and what processes should be initiated if non-compliance is detected (e.g., additional treatment techniques, bottled water issuance, etc.). BE is ultimately responsible for characterizing health risks and ensuring public notifications are provided on a timely basis.

In addition to the FGS-G required compliance monitoring, BE and CES respond to all drinking water-related problems, and are prepared to accomplish required sampling and analysis following a water shut off (i.e., water main breakage, routine maintenance, new facility being brought on line, etc.). The US Army Public Health Command Public Health Region - Europe (PHRE) at Landstuhl, a German and US certified and accredited laboratory, performs the analytical analyses for most of analytical requirements beyond bacteriological analysis.

How pure is my water?

As water travels underground it can pick up various natural and man-made substances to include:

- Microbes, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

- Inorganics, 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 chemicals, 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 materials, which can be naturally-occurring or the result of oil/gas production and mining activities.

Due to the exceptional quality of our groundwater source, treatment is generally not necessary. However, chlorination is accomplished because it provides a measurable means of ensuring our water is properly disinfected. All of our water sources are chlorinated, and some of our water sources are also filtered. This is done to ensure the safest, most aesthetically pleasing product for our consumers. More than 60 individual drinking water parameters are routinely monitored in accordance with Final Governing Standard for Germany (FGS-G). Reporting period for this report is January 1st to December 31st 2018.

Drinking Water and Your Health

All 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 the water poses a health risk. More information on contaminants and potential health effects can be obtained by calling BE at DSN 479-2220 (0049-6371-46-2220). According to the Environmental Protection Agency, some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised individuals such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, those with HIV/AIDS or other immune system disorders, some elderly, and infants are at a higher risk of waterborne illness. These people should seek advice about drinking water from their health care providers.

A final word on water quality

Your water quality team at Ramstein AB works around the clock to provide safe, dependable water at every tap. But they can only ensure the success of today's mission if everyone contributes. Tomorrow's success will depend on all of us, working together, to protect our vital water resources.

Remember, the water we use does not quickly return to the aquifer, but is, for the most part, "consumed" by our actions. The military installation (Ramstein AB) and many nearby villages draw water from the same aquifer. Conservation is therefore essential to protect our water supply.

You should also consider ways you can reduce your water consumption, i.e., don't let the water run while brushing your teeth, take a shower vs. a bath. There are numerous ways to save our most valuable natural resource for us and the future of our children. If you have ideas to reduce usage and contamination of this valuable resource submit it to the Ramstein AB Drinking Water Quality Working Group (POC – 86 AMDS Bioenvironmental Engineering). These efforts will help protect the future water supply by reducing the overall consumptive use.

Customer Views Welcome

We're available to address any questions or concerns you may have. Housing residents should contact the Housing Office with any water concerns. Dorm residents should contact their building manager.

For more information on this report or base drinking water quality, please call the 86 MDG Bioenvironmental Engineering at DSN 479-2220 (0049-6371-462220) or the 86 CES Environmental Management Flight at DSN 480-7712.

ANTHONY R. TY, LtCol, USAF, BSC
Bioenvironmental Engineering Flight Commander

Water Quality Data Table

In order to ensure that tap water is safe to drink, the Final Governing Standard (FGS) prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were detected in our water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. The FGS requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

Ramstein AB Drinking Water System ***Contaminants***	***MCLG or MRDLG***	***MCL, TT, or MRDL***	***High***	***Violation***
Inorganic Compounds				
Arsenic (ppb)	*0*	*10*	*<0.3*	*No*
Barium (ppm)	*2*	*2*	*0.19*	*No*
Beryllium (ppb)	*4*	*4*	*0.2*	*No*
Cadmium (ppb)	*5*	*5*	*< 0.2*	*No*
Chromium (ppb)	*100*	*100*	*<4*	*No*
Cyanide (ppb)	*200*	*200*	*<5*	*No*
Fluoride (ppm)	*4*	*4*	*1*	*No*
Mercury [Inorganic] (ppb)	*2*	*2*	*<0.1*	*No*
Nickel (ppb)	*100*	*100*	*<4*	*No*
Nitrate [measured as Nitrogen] (ppm)	*10*	*10*	*2.7*	*No*
Nitrite [measured as Nitrogen] (ppm)	*1*	*1*	*<0.03*	*No*
Selenium (ppb)	*30*	*30*	*<0.3*	*No*
Sodium (optional) (ppm)	*NA*	*NA*	*17*	*No*
Thallium (ppb)	*.5*	*2*	*<0.2*	*No*
Bacteriological				
Total Coliform (RTCR)	*0*	*0*	*0*	*No*
PAH *(Polycyclic Aromatic Hydrocarbons)*				
-benzo(b)fluoroanthene, benzo(k)flouroanthene, benzo(ghi)perylene, indneo(1,2,3-cd)pyrene (ppt)	*0*	*2*	*<0.000002*	*No*
Benzo(a)pyrene (ppt)	*0*	*200*	*<0.000003*	*No*
PCBs [Polychlorinated biphenyls]/Synthetic Organic Chemicals [SOCs]/Pesticides *(ppt)*				
Acenaphthene, Alachlor, Aldicarb, Aldicarbsufone, Aldicarbsulfoxide, Aldrin, Anthracene, Atrazine, Bentazon, Carbofluran, Chlordane, Chlordane, 1,2-Dibromo-3-chloropropane (DBCP), Dieldrin, Dinoseb, Diquat, Dalapon, 2,4D, Dinosep, Endrin, Endothall, Ethylene dibromide (EDB), Glyphosate, Heptachlor, Lindane, Methoxychlor,Oxamyl, Naphtalene, Phenantrene, Pentachlorophenol, Picloram, 2,4,5-TP {Silvex}, Pyrene, Simazine, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethylene Toxaphene, 1,2,4-Trichlorobenzene, 2,3,7,8 TCDD, 1,2-Dichloroethane,1,2-Dichloropropane, 1,2-Dichloropropane, Carbon Tetrachloride, Dichloromethane, Ethylbenzene, Styrene, Tetrachloroethylene, Toluene, Trichloroethylene, Vinyl Chloride, Xylenes, cis-1,2-Dichloroethylene, o-Dichlorobenzene, p-Dichlorobenzene, trans-1,2-Dichloroethylene	*0*	*500*	*< DL*	*No*

Cold Storage Drinking Water System ***Contaminants***	***MCLG or MRDLG***	***MCL, TT, or MRDL***	***High***	***Violation***
Inorganic Compounds				
Arsenic (ppm)	*0*	*10*	*<0.003*	*No*
Barium (ppm)	*2*	*2*	*0.19*	*No*
Beryllium (ppm)	*4*	*4*	*<0.002*	*No*
Cadmium (ppm)	*5*	*5*	*< 0.002*	*No*
Chromium (ppm)	*100*	*100*	*<0.004*	*No*
Cyanide (ppm)	*200*	*200*	*<0.005*	*No*
Fluoride (ppm)	*4*	*4*	*<0.1*	*No*
Mercury [Inorganic] (ppm)	*2*	*2*	*<0.0001*	*No*
Nickel (ppm)	*100*	*100*	*<0.004*	*No*
Nitrate [measured as Nitrogen] (ppm)	*10*	*10*	*1.9*	*No*
Nitrite [measured as Nitrogen] (ppm)	*1*	*1*	*<0.03*	*No*
Selenium (ppm)	*30*	*30*	*<0.003*	*No*
Sodium (optional) (ppm)	*NA*	*NA*	*7.9*	*No*
Thallium (ppm)	*.5*	*2*	*<0.0002*	*No*
Bacteriological				
Total Coliform (RTCR)	*0*	*0*	*0*	*No*
PAH *(Polycyclic Aromatic Hydrocarbons)*				
-benzo(b)fluoroanthene, benzo(k)flouroanthene, benzo(ghi)perylene, indneo(1,2,3-cd)pyrene (ppt)	*0*	*2*	*<0.000002*	*No*
Benzo(a)pyrene (ppt)	*0*	*200*	*<0.000003*	*No*
PCBs [Polychlorinated biphenyls]/Synthetic Organic Chemicals [SOCs]/Pesticides *(ppt)*				
Acenaphthene, Alachlor, Aldicarb, Aldicarbsufone, Aldicarbsulfoxide, Aldrin, Anthracene, Atrazine, Bentazon, Carbofluran, Chlordane, Chlordane, 1,2-Dibromo-3-chloropropane (DBCP), Dieldrin, Dinoseb, Diquat, Dalapon, 2,4D, Dinosep, Endrin, Endothall, Ethylene dibromide (EDB), Glyphosate, Heptachlor, Lindane, Methoxychlor,Oxamyl, Naphtalene, Phenantrene, Pentachlorophenol, Picloram, 2,4,5-TP {Silvex}, Pyrene, Simazine, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethylene Toxaphene, 1,2,4-Trichlorobenzene, 2,3,7,8 TCDD, 1,2-Dichloroethane,1,2-Dichloropropane, 1,2-Dichloropropane, Carbon Tetrachloride, Dichloromethane, Ethylbenzene, Styrene, Tetrachloroethylene, Toluene, Trichloroethylene, Vinyl Chloride, Xylenes, cis-1,2-Dichloroethylene, o-Dichlorobenzene, p-Dichlorobenzene, trans-1,2-Dichloroethylene	*0*	*500*	*< DL*	*No*

Contaminants	MCLG	AL	Your Water	# Samples Exceeding AL	Exceeds AL
Inorganic Contaminants					
Copper - action level at consumer taps (ppm)	1.3	1.3	0.003 – 0.1	0	No
Inorganic Contaminants					
Lead - action level at consumer taps (ppm)	0	0.15	<0.0002-0.0061	0	No

Unit Descriptions	
Term	**Definition**
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
ppt	ppt: parts per trillion, or nanograms per liter
% positive samples/month	% positive samples/month: Percent of samples taken monthly that were positive
DL	DL: Detection Level
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.

Important Drinking Water Definitions	
Term	**Definition**
MCLG	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	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.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
MNR	MNR: Monitored Not Regulated

For more information please contact: 86 AMDS/SGPB DSN 479-2220