



DEPARTMENT OF THE ARMY
UNITED STATES ARMY GARRISON RHEINLAND-PFALZ
UNIT 23152
APO AE 09067-3152

AMIM-RPG-ZA

13 MAR 2023

MEMORANDUM FOR United States Army Garrison Rheinland-Pfalz (USAG RP)
Community

SUBJECT: Consumer Confidence Water Quality Report for Fiscal Year (FY) 2022,
USAG RP

1. The enclosed consumer confidence report (CCR) is provided to you as a transparent overview of our drinking water conditions at USAG RP for FY2022. This CCR is being provided for informational purposes and does not require any action by you.
2. Monitoring conducted by Public Health Command Europe (PHCE) and Landstuhl Regional Medical Center (LRMC) confirmed that drinking water serving the USAG RP community is in compliance with the Environmental Final Governing Standards – Germany (GFGS). The Directorate of Public Works (DPW) is responsible for the Department of Defense (DoD) public water systems. The DPW ensures that the drinking water systems on our U.S. installations are operated properly and effectively, and regularly monitors the drinking water quality to sustain a continuous supply of safe and compliant drinking water at all times.
3. If any contaminant levels require corrective action(s) according to GFGS, DPW Environmental Management Division (EMD) notifies all residents in the affected building(s) within 14 days of receiving the laboratory analytical results.
4. If you have any questions, please contact Ms. Anja Goering, DPW, EMD, DSN 541-4704, or commercial 0611-143-541-4704, email: anja.goering.ln@army.mil.

Encls



REID E. FURMAN
COL, SF
Commanding



U.S. ARMY GARRISON (USAG) RHEINLAND-PFALZ
Drinking Water Consumer Confidence Report
Fiscal Year (FY) 2022



What is the purpose of this report?

This consumer confidence report (CCR) provides information about the United States Army Garrison Rheinland-Pfalz (USAG RP) drinking water systems on our U.S. installations including source water, the levels of detected contaminants and compliance with drinking water rules. This report is based on data that was provided by Public Health Command Europe (PHCE) and Landstuhl Regional Medical Center (LRMC), who collects a majority of our drinking water samples at USAG RP in support of the Environmental Final Governing Standards - Germany (GFGS) requirements.

Where does our drinking water come from?

USAG RP consists of ten (10) water systems. The Directorate of Public Works (DPW) is responsible for all of them and ensures that the drinking water systems on our U.S. installations are properly operated, maintained, and monitored. Nine (9) of those are supplied by host nation suppliers that use ground water sources to produce drinking water. Water is provided to the different U.S. installations through pipeline networks, which are operated and maintained by our suppliers. Our suppliers ensure water quality is in strict compliance with the German Drinking Water Ordinance (Trinkwasserverordnung). Once the potable water arrives at the USAG RP installations, it is treated to U.S. standards at the on and off-post chlorination stations to comply with the U.S. Army drinking water requirements. The Baumholder water system is supplied with water from U.S.-owned and operated surface and ground water sources and is classified as surface water system. Refer to **Table 1**.

Table 1. USAG Rheinland-Pfalz Water Sources

Water System	Supplier/Provider	Area Served	Water Source
Kaiserslautern-East CWS	Stadtwerke Kaiserslautern GmbH (SWK)	Kleber Kaserne	Ground
		Daenner Kaserne	
		Panzer Kaserne	
		Kaiserslautern Army Depot (KAD) and DLA Disposition Services	
		Kaiserslautern Equipment Support Center	
Kaiserslautern-West CWS	Stadtwerke Kaiserslautern GmbH (SWK)	Rhine Ordnance Barracks (ROB)	Ground
		Pulaski Barracks	
Landstuhl CWS	Verbandsgemeindewerke Landstuhl (VWL)	Landstuhl Hospital	Ground
		Landstuhl Heliport, SATCOM	
		Breitenwald Training Area	
Miesau CWS	Verbandsgemeinde Bruchmuehlbach-Miesau (GOCO)	Miesau Ammo Depot (MAD)	Ground Wells 1, 2, 3 (on installation)
Sembach CWS	Verbandsgemeindewerke Winnweiler	Sembach Kaserne	Ground
Pirmasens NTNCWS	Stadtwerke Pirmasens Versorgungs GmbH	Husterhoeh Kaserne	Ground
Coleman Barracks CWS	MVV Energie AG	Coleman Barracks	Ground
Gruenstadt NTNCWS	Stadtwerke Gruenstadt GmbH	Gruenstadt AAFES Facility	Ground
Germersheim CWS	Stadtwerke Germersheim GmbH (SWG)	Germersheim Army Depot (GAD)	Ground
Baumholder Military Community (BMC) CWS	Hoppstaedten Water Treatment Plant	Smith Barracks with Family Housing Area Wetzel Kaserne with Family Housing Area Baumholder Airfield	Nahe River (Surface Water) Wells 4 and 5 (GWUDISW)
	Pfeffelbach Water Treatment Plant	Baumholder Hospital Baumholder Quartermaster Area	Wells 1, 4, and 8 (GWUDISW)

Why do we conduct testing?

The Environmental Final Governing Standards – Germany (GFGS) require that drinking water be periodically analyzed for selected chemical, physical, and radiological water quality parameters. Continual maintenance of the distribution systems and ongoing water testing assures our water remains safe. The sources of drinking water in general include rivers, lakes, dams, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it can pick up and dissolve various natural and synthetic 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 stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- ❖ *Pesticides and herbicides*, which may come from agriculture, urban stormwater runoff, and residential uses.
- ❖ *Organic chemicals*, including synthetic and volatile organics from industrial processes, petroleum production, gas stations, urban stormwater runoff, and septic systems.
- ❖ *Radioactive materials*, which can be naturally occurring or the result of oil or gas production and mining activities.
- ❖ *Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA)*, which is a component of aqueous film forming foam, a firefighting foam.

Is our drinking water safe to drink?

The DPW is responsible for the DoD public water systems. The DPW ensures that the drinking water systems on our U.S. installations are operated properly and effectively, and regularly monitors the drinking water quality, to sustain a continuous supply of safe and compliant drinking water at all times.

To verify our potable water remains safe, Landstuhl Regional Medical Center (LRMC), Department of Public Health (DPH), Environmental Health (EH) and Public Health Command Europe (PHCE) routinely sample the water and send it to a laboratory for analysis of over 60 water quality parameters. The parameters include chemical, bacterial, and physical contaminant groups. LRMC EH and PHCE consistently report if the USAG RP water quality complies with the GFGS, a compilation of the most protective US and German drinking water standards and management practices. The DPW Environmental Management Division (EMD) provides overall management and technical oversight of the Drinking Water Program to ensure water remains safe and compliant.

All drinking water may contain contaminants

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

Lead:

If present, elevated levels of lead can cause serious health problems, especially for expectant or nursing mothers and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. USAG RP is responsible for providing high quality drinking water and the control of plumbing materials. There are no lead water pipes at USAG RP. Some pipes and fittings may have lead soldering, which can cause lead in drinking water. USAG RP cannot control the stagnation time of the water in the building service lines, all customers should flush the service lines in their building/facility every 72 hours if lines were not used. Our continuous lead testing in High

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Risk Facilities and Army Family Housing verifies our water supply is well below the regulatory action level.

Nitrate:

Nitrate in drinking water at levels above 10 milligram per Liter (mg/L) is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue-baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you're caring for an infant, you should ask for advice from your health care provider. The level of nitrate is consistently below the health effect level for all USAG RP water systems.

Legionella:

Legionella is not considered a drinking water quality parameter. Rather it is an inhalation health risk if *Legionella* contaminated water is aerosolized. Although not required stateside, the GFGS requires annual monitoring of hot water for *Legionella* bacteria in multi-family and community facilities having showers with large hot water heaters. In FY22, as the fifth year in a row, a certified German laboratory conducted garrison-wide *Legionella* sampling in occupied multi-apartment buildings with hot water boilers >400 Liters volume and where hot water is aerosolized. Any building that tested above the 100 colony forming units (CFU)/100 milliliters (ml) action level of *Legionella* prompts corrective actions commensurate to the detected level including the notification of building occupants, thermal/chemical disinfection, technical inspection of boilers, replacement of hot water circulation pumps and aerators, and flushing lines. For additional details or concerns, please contact Ms. Anja Goering, DPW, EMD, DSN 541-4704, or commercial 0611-143-541-4704, email: anja.goering.ln@army.mil.

Per- and Polyfluoroalkyl Substances (PFAS):

Department of the Army policies require PFAS monitoring for drinking water distributed on Army installations from both Army-owned and operated as well as non-Army-owned and operated drinking water systems. PFAS are compounds found in everyday life products, such as carpets, clothing, fabrics for furniture, food packaging, cookware, aircraft firefighting foams and other materials needing resistance to water, grease, and stains. USAG RP drinking water supplies were tested for PFAS in accordance with the Department of the Army policies since FY17. PFAS compounds were detected in the drinking water supplied to Sembach CWS, Pirmasens NTNCWS, and Baumholder Military Community (BMC) CWS and quarterly monitoring was initiated in FY21. PFAS levels were consistently below the EPA health advisory (HA) limit of 70 parts per trillion (ppt) for all four quarters.

Dalapon:

Dalapon was detected in trace amounts in the treated water supplied to the Germersheim (GAD), Coleman Barracks, and BMC water systems. Dalapon is likely formed during the treatment process based on pre- and post-chlorination testing results. Results are well below the respective MCL for all three systems. Dalapon may cause health problems if present in public or private water supplies in amounts greater than the MCL of 0.2 mg/L.

What can we do to improve our drinking water quality at home?

- ❖ **Flush cold water before initial daily use.** At the start of each day or after extended periods of non-use, flush all cold-water taps by running the water for about 30 seconds or until it becomes noticeably colder. Use the stagnant flush water for watering plants or cleaning purposes.
- ❖ **Use only cold water, not hot water** to prepare food, drinks and especially baby formula. Hot water is more aggressive at leaching metals from plumbing so be sure to use only cold water for drinking water purposes and heat it when hot water is needed.
- ❖ **Clean the aerator screens** at the end of your faucets twice per year. Sediment and mineral deposits accumulate on faucet aerators degrading water quality. Removing and soaking the aerators in

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

vinegar overnight dissolves these deposits, improving flow and water quality. As needed, replacement aerators are available at the on-post Self-Help Stores (Rhine Ordnance Barracks, Bldg. 335/Smith Barracks, Bldg. 8665). Make sure to bring the old aerators along, as there are several different types.

- ❖ **Consider using a pitcher with a water filter** which may reduce the hardness, remove chlorine, and improve taste. Be sure to replace the filter at proper intervals to prevent bacteria from developing.

DPW EMD recommends residents use their kitchen cold-water taps as the primary source of drinking water as these are the taps tested for lead and are likely used more often.

What are our water quality testing results?

Per the GFGS and the German Drinking Water Ordinance, our water is tested for a wide variety of parameters that must remain below the GFGS MCL to protect human health. If a parameter exceeds the MCL, the result is non-compliant, which requires necessary corrective actions. PHCE and LRMC consistently report if our water complies with the GFGS water quality criteria for the drinking water parameters evaluated each fiscal year. Table 2 to 10 list the contaminants that were detected in each water system for the reporting period of October 1, 2021 to September 30, 2022. As not all parameters require annual monitoring per the GFGS the table lists the results and dates of the most recent testing. DPW EMD notifies all residents of any contaminant levels that require corrective actions in their buildings within 14 days of receiving the laboratory analytical results.

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Table 2. Germersheim CWS Water Quality Summary FY22

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Disinfectant Residuals and Byproducts						
Chlorine as Free Available Chlorine (FAC)	Monthly	0 - 0.56 ¹	MRDL 4.0	mg/L	No	Disinfectant water additive used to control microbes
Trihalomethanes, total (TTHM)	Sampled: FY22 Due: FY23	0.055	0.080	mg/L	No	By-product of drinking water disinfection
Haloacetic Acids – Five (HAA5s), total	Sampled: FY22 Due: FY23	<0.0050	0.060	mg/L	No	By-product of drinking water chlorination
Synthetic Organic Chemicals						
Dalapon	Two quarters ²	0.00011 – 0.00088	0.2	mg/L	No	Herbicide; suspected by-product of drinking water disinfection
Lead and Copper						
Copper	Every 3 years Sampled: FY20 Due: FY23	90 th percentile: 0.14 0 of 10 samples above AL	AL 1.3	mg/L	No	Corrosion of plumbing systems
Lead	Every 3 years Sampled: FY20 Due: FY23	90 th percentile: 0.0059 0 of 10 samples above AL	AL 0.015	mg/L	No	Corrosion of plumbing systems
Inorganic Chemicals						
Aluminum	Annual	<0.0050	NL 0.200 ³	mg/L	No	Erosion of natural deposits
Barium	Annual	0.085	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 ³	mg/L	No	Erosion of natural deposits
Fluoride	Annual	0.10	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	<0.0010	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	Annual	0.22	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	9.7	NL 200 ³	mg/L	No	Erosion of natural deposits
Microbiological Contaminants						
Coliform Bacteria	Monthly	0	One or more positive samples/month ⁴	CFU	No	Naturally present in the environment
Radionuclides						
Gross Alpha Activity, total	Every 4 years Sampled: FY22 Due: FY26	0.036	15	pCi/L	No	Erosion of natural deposits
Gross Beta Activity, total		0.88	50	pCi/L	No	Decay of natural and man-made

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
						deposits
Combined Radium 226/228		1.16	5	pCi/L	No	Erosion of natural deposits
PFAS						
Combined PFOS/PFOA	Sampled: FY20 Due: FY23	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
<p>¹ Some samples may show 0 mg/L FAC due to the design of the drinking water network and low consumption in various building complexes. Recurring sampling showed detectable levels one month later.</p> <p>² Dalapon (or a congeneric compound) was detected in the Germersheim CWS and is likely formed during the treatment process based on pre- and post-chlorination testing results. Results remained below the GFGS MCL. Increased monitoring consisting of two samples collected in separate quarters will continue in FY23.</p> <p>³ No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p>⁴ If a system collecting fewer than 40 samples per month has two or more positive samples in one month, the system has a MCL violation.</p>						

Table 3. Coleman Barracks CWS Water Quality Summary FY22

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Disinfectant Residuals and Byproducts						
Chlorine as Free Available Chlorine (FAC)	Monthly	0.02 – 1.76	MRDL 4.0	mg/L	No	Disinfectant water additive used to control microbes
Trihalomethanes, total (TTHM)	Sampled: FY22 Due: FY25	0.030	0.080	mg/L	No	By-product of drinking water disinfection
Haloacetic Acids – Five (HAA5s), total	Sampled: FY22 Due: FY25	0.0096	0.060	mg/L	No	By-product of drinking water chlorination
Synthetic Organic Chemicals						
Dalapon	Two quarters ¹	0.00029	0.2	mg/L	No	Herbicide; suspected by-product of drinking water disinfection
Lead and Copper						
Copper	Sampled: FY22 Due: FY23 ²	90 th percentile: 0.350 1 of 10 samples above AL	1.3 (AL)	mg/L	No	Corrosion of plumbing systems
Lead	Sampled: FY22 Due: FY23	90 th percentile: 0.0078 0 of 10 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
Inorganic Chemicals						
Aluminum	Annual	<0.0050	NL 0.200 ³	mg/L	No	Erosion of natural deposits
Barium	Annual	0.260	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	0.02	NL 1.0 ³	mg/L	No	Erosion of natural deposits

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Fluoride	Annual	0.11	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	0.0011	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	Annual	0.22	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	17	NL 200 ³	mg/L	No	Erosion of natural deposits
Microbiological Contaminants						
Coliform Bacteria	Monthly	0	One or more positive samples/month ⁴	CFU	No	Naturally present in the environment
Radionuclides						
Gross Alpha Activity, total	Every 4 years Sampled: FY22 Due: FY26	1	15	pCi/L	No	Erosion of natural deposits
Gross Beta Activity, total		1.4	50	pCi/L	No	Decay of natural and man-made deposits
Combined Radium 226/228		0.67	5	pCi/L	No	Erosion of natural deposits
PFAS						
Combined PFOS/PFOA	Sampled: FY20 Due: FY23	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
<p>¹ Dalapon (or a congeneric compound) was detected in the Coleman CWS and is likely formed during the treatment process based on pre- and post-chlorination testing results. Results remained below the GFGS MCL. Increased monitoring consisting of two samples collected in separate quarters will continue in FY23.</p> <p>² In FY20 the Coleman CWS was out of compliance with the GFGS lead and copper monitoring standards due to elevated lead levels above the respective ALs. In FY22 Coleman CWS complied with the GFGS for lead and copper, resulting in continuation of annual reduced monitoring. However, one individual sampling location showed a copper level above the AL of 1.3 mg/L. No other individual samples exceeded the lead or copper AL. DPW implemented corrective actions and replaced water faucets and flushed water lines. The next monitoring event for Coleman CWS will occur in summer FY23. If levels during this sampling are compliant with the GFGS ALs, the CWS will move to ultimate reduced monitoring every three years.</p> <p>³ No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p>⁴ If a system collecting fewer than 40 samples per month has two or more positive samples in one month, the system has a MCL violation.</p>						

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Table 4. Grünstadt NTNCWS Water Quality Summary FY22

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Disinfectant Residuals and Byproducts						
Chlorine as Free Available Chlorine (FAC)	Monthly	0.02 – 0.26	MRDL 4.0	mg/L	No	Disinfectant water additive used to control microbes
Lead and Copper						
Copper	Sampled: FY20 Due: FY23	90 th percentile: 0.64 0 of 5 samples above AL	1.3 (AL)	mg/L	No	Corrosion of plumbing systems
Lead	Sampled: FY20 Due: FY23	90 th percentile: 0.01 0 of 5 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
Inorganic Chemicals						
Aluminum	Annual	<0.0050	NL 0.200 ¹	mg/L	No	Erosion of natural deposits
Barium	Annual	0.110	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	0.03	NL 1.0 ¹	mg/L	No	Erosion of natural deposits
Fluoride	Annual	0.12	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	0.0014	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	2 samples per quarter ² Sampled: FY22 Due: FY23	3.7 - 5.1	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	14	NL 200 ¹	mg/L	No	Erosion of natural deposits
Microbiological Contaminants						
Coliform Bacteria	Monthly	0	One or more positive samples/month ³	CFU	No	Naturally present in the environment
Radionuclides						
Gross Alpha Activity, total	Every 4 years Sampled: FY22 Due: FY26	6	15	pCi/L	No	Erosion of natural deposits
Gross Beta Activity, total		6.9	50	pCi/L	No	Decay of natural and man-made deposits
Combined Radium 226/228		1.47	5	pCi/L	No	Erosion of natural deposits
PFAS						
Combined PFOS/PFOA	Sampled: FY20 Due: FY23	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal

¹ No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.

² During the third quarter of FY16 annual sampling, the Grünstadt NTNCWS had an exceedance in nitrate (above 5 mg/L but below 10 mg/L), which triggered PHCE to begin

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
conducting twice quarterly increased nitrate monitoring. Within the last three years the average results were well below the trigger value of 5 mg/L. Nitrate concentrations below the GFGS MCL of 10 mg/L do not pose a health or sanitary risk to consumers.						
³ If a system collecting fewer than 40 samples per month has two or more positive samples in one month, the system has a MCL violation.						

Table 5. Landstuhl CWS Water Quality Summary FY22

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Disinfectant Residuals and Byproducts						
Chlorine Dioxide (ClO ₂)	Monthly	0 - 0.33 ¹	MRDL 0.8	mg/L	No	Disinfectant water additive used to control microbes
Trihalomethanes, total (TTHM)	Sampled: FY22 Due: FY26	<0.0050	0.080	mg/L	No	By-product of drinking water disinfection
Haloacetic Acids – Five (HAA5s), total	Sampled: FY22 Due: FY26	<0.0050	0.060	mg/L	No	By-product of drinking water chlorination
Lead and Copper						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.078 0 of 11 samples above AL	1.3 (AL)	mg/L	No	Corrosion of plumbing systems
Lead	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.0020 0 of 11 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
Inorganic Chemicals						
Aluminum	Annual	0.0080	NL 0.200 ³	mg/L	No	Erosion of natural deposits
Barium	Annual	0.095	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 ³	mg/L	No	Erosion of natural deposits
Fluoride	Monthly ²	0.1 – 1.1	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	0.0085	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	Annual	3.3	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	6.9	NL 200 ³	mg/L	No	Erosion of natural deposits
Microbiological Contaminants						
Coliform Bacteria	Monthly	0	One or more positive samples/month ⁴	CFU	No	Naturally present in the environment
Radionuclides						

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Gross Alpha Activity, total	Every 4 years Sampled: FY22 Due: FY26	1.1	15	pCi/L	No	Erosion of natural deposits
Gross Beta Activity, total		5.3	50	pCi/L	No	Decay of natural and man-made deposits
Combined Radium 226/228		1.8	5	pCi/L	No	Erosion of natural deposits
PFAS						
Combined PFOS/PFOA	Sampled: FY20 Due: FY23	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
<p>¹ Some samples may show 0 mg/L ClO₂ due to the design of the drinking water network and low consumption in various building complexes. Recurring sampling showed detectable levels one month later.</p> <p>² Fluoride was not able to be tested by LPMC EH during May and June 2022 due to supply being on back order.</p> <p>³ No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p>⁴ If a system collecting fewer than 40 samples per month has two or more positive samples in one month, the system has a MCL violation.</p>						

Table 6. Sembach CWS Water Quality Summary FY22

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Disinfectant Residuals and Byproducts						
Chlorine Dioxide (ClO ₂)	Monthly	0.02 - 0.78	MRDL 0.8	mg/L	No	Disinfectant water additive used to control microbes
Trihalomethanes, total (TTHM)	Sampled: FY22 Due: FY26	<0.00050	0.080	mg/L	No	By-product of drinking water disinfection
Haloacetic Acids – Five (HAA5s), total	Sampled: FY22 Due: FY26	<0.0050	0.060	mg/L	No	By-product of drinking water chlorination
Lead and Copper						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.047 0 of 10 samples above AL	1.3 (AL)	mg/L	No	Corrosion of plumbing systems
Lead	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.0011 0 of 10 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
Inorganic Chemicals						
Aluminum	Annual	0.0077	NL 0.200 ²	mg/L	No	Erosion of natural deposits
Barium	Annual	0.150	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 ²	mg/L	No	Erosion of natural deposits

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Fluoride	Monthly ¹	0.0 – 1.8	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	0.0028	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	Annual	3.8	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	7.2	NL 200 ²	mg/L	No	Erosion of natural deposits
Microbiological Contaminants						
Coliform Bacteria	Monthly	0	One or more positive samples/month ³	CFU	No	Naturally present in the environment
Radionuclides						
Gross Alpha Activity, total	Every 4 years Sampled: FY22 Due: FY26	0.78	15	pCi/L	No	Erosion of natural deposits
Gross Beta Activity, total		3.2	50	pCi/L	No	Decay of natural and man-made deposits
Combined Radium 226/228		2.5	5	pCi/L	No	Erosion of natural deposits
PFAS						
Combined PFOS/PFOA	Sampled: FY20 Due: FY23	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
¹ Fluoride was not able to be tested by LRMC EH during May and June 2022 due to supply being on back order. ² No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels. ³ If a system collecting fewer than 40 samples per month has two or more positive samples in one month, the system has a MCL violation.						

Table 7. Miesau CWS Water Quality Summary FY22

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Disinfectant Residuals and Byproducts						
Chlorine as Free Available Chlorine (FAC)	Monthly	0.03 - 0.55	MRDL 4.0	mg/L	No	Disinfectant water additive used to control microbes
Trihalomethanes, total (TTHM)	Sampled: FY22 Due: FY25	0.0021	0.080	mg/L	No	By-product of drinking water disinfection
Haloacetic Acids – Five (HAA5s), total	Sampled: FY22 Due: FY25	<0.0050	0.060	mg/L	No	By-product of drinking water chlorination
Lead and Copper						

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Copper	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.02 0 of 10 samples above AL	1.3 (AL)	mg/L	No	Corrosion of plumbing systems
Lead	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.002 0 of 10 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
Inorganic Chemicals						
Aluminum	Annual	<0.0050	NL 0.200 ¹	mg/L	No	Erosion of natural deposits
Barium	Annual	0.410	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 ¹	mg/L	No	Erosion of natural deposits
Fluoride	Annual	<0.10	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	<0.0010	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	Annual	0.33	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	2.6	NL 200 ¹	mg/L	No	Erosion of natural deposits
Microbiological Contaminants						
Coliform Bacteria	Monthly	0	One or more positive samples/month ²	CFU	No	Naturally present in the environment
Radionuclides						
Gross Alpha Activity, total	Every 4 years Sampled: FY22 Due: FY26	1.3	15	pCi/L	No	Erosion of natural deposits
Gross Beta Activity, total		4.7	50	pCi/L	No	Decay of natural and man-made deposits
Combined Radium 226/228		1.0	5	pCi/L	No	Erosion of natural deposits
PFAS						
Combined PFOS/PFOA	Sampled: FY22 Due: FY25	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
¹ No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.						
² If a system collecting fewer than 40 samples per month has two or more positive samples in one month, the system has a MCL violation.						

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Table 8. Kaiserslautern-East CWS Water Quality Summary FY22

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Disinfectant Residuals and Byproducts						
Chlorine as Free Available Chlorine (FAC)	Monthly	0 - 0.74 ¹	MRDL 4.0	mg/L	No	Disinfectant water additive used to control microbes
Trihalomethanes, total (TTHM)	Sampled: FY22 Due: FY25	0.016	0.080	mg/L	No	By-product of drinking water disinfection
Haloacetic Acids – Five (HAA5s), total	Sampled: FY22 Due: FY25	<0.0050	0.060	mg/L	No	By-product of drinking water chlorination
Lead and Copper						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.049 0 of 20 samples above AL	1.3 (AL)	mg/L	No	Corrosion of plumbing systems
Lead	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.0011 0 of 20 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
Inorganic Chemicals						
Aluminum	Annual	0.0088	NL 0.200 ²	mg/L	No	Erosion of natural deposits
Barium	Annual	0.063	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 ²	mg/L	No	Erosion of natural deposits
Fluoride	Annual	<0.10	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	0.0018	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	Annual	0.91	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	5.0	NL 200 ²	mg/L	No	Erosion of natural deposits
Microbiological Contaminants						
Coliform Bacteria	Monthly	1 ³	One or more positive samples/month ⁴	CFU	No	Naturally present in the environment
Radionuclides						
Gross Alpha Activity, total	Every 4 years Sampled: FY22 Due: FY26	0.28	15	pCi/L	No	Erosion of natural deposits
Gross Beta Activity, total		3.4	50	pCi/L	No	Decay of natural and man-made deposits
Combined Radium 226/228		0.29	5	pCi/L	No	Erosion of natural deposits
PFAS						
Combined PFOS/PFOA	Sampled: FY22	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
	Due: FY25					Use; Discharge from manufacturing factories; Improper disposal
<p>¹ Some samples may show 0 mg/L FAC due to the design of the drinking water network and low consumption in various building complexes. Recurring sampling showed detectable levels one month later.</p> <p>² No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p>³ One positive Coliform sample at Kleber Kaserne, Bldg 3209 in May 2022. Repeat sampling was conducted upon flushing. Repeat samples tested negative for total Coliforms. Therefore, no MCL violation.</p> <p>⁴ If a system collecting fewer than 40 samples per month has two or more positive samples in one month, the system has a MCL violation.</p>						

Table 9. Kaiserslautern-West CWS Water Quality Summary FY22

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Disinfectant Residuals and Byproducts						
Chlorine as Free Available Chlorine (FAC)	Monthly	0 - 0.66 ¹	MRDL 4.0	mg/L	No	Disinfectant water additive used to control microbes
Trihalomethanes, total (TTHM)	Sampled: FY22 Due: FY25	0.0088 – 0.0094	0.080	mg/L	No	By-product of drinking water disinfection
Haloacetic Acids – Five (HAA5s), total	Sampled: FY22 Due: FY25	<0.0050	0.060	mg/L	No	By-product of drinking water chlorination
Lead and Copper						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.070 0 of 10 samples above AL	1.3 (AL)	mg/L	No	Corrosion of plumbing systems
Lead	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.0012 0 of 10 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
Inorganic Chemicals						
Aluminum	Annual	0.0066	NL 0.200 ²	mg/L	No	Erosion of natural deposits
Barium	Annual	0.049	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 ²	mg/L	No	Erosion of natural deposits
Fluoride	Annual	<0.10	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	0.0013	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	Annual	1.0	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Sodium	Annual	5.3	NL 200 ²	mg/L	No	Erosion of natural deposits
Microbiological Contaminants						
Coliform Bacteria	Monthly	0	One or more positive samples/month ³	CFU	No	Naturally present in the environment
Radionuclides						
Gross Alpha Activity, total	Every 4 years Sampled: FY22 Due: FY26	0.85	15	pCi/L	No	Erosion of natural deposits
Gross Beta Activity, total		3.6	50	pCi/L	No	Decay of natural and man-made deposits
Combined Radium 226/228		0.67	5	pCi/L	No	Erosion of natural deposits
PFAS						
Combined PFOS/PFOA	Sampled: FY22 Due: FY25	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
¹ Some samples may show 0 mg/L FAC due to the design of the drinking water network and low consumption in various building complexes. Recurring sampling showed detectable levels one month later. ² No Standard per EPA, but the GFSG establishes notification levels for these parameters. Parameters were below their respective notification levels. ³ If a system collecting fewer than 40 samples per month has two or more positive samples in one month, the system has a MCL violation.						

Table 10. BMC CWS Water Quality Summary FY22

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Disinfectant Residuals and Byproducts						
Chlorine as Free Available Chlorine (FAC)	Monthly	0 - 0.9 ¹	MRDL 4.0	mg/L	No	Disinfectant water additive used to control microbes
Trihalomethanes, total (TTHM)	Sampled: FY22 Due: Quarterly in FY23 ²	0.065 (0.013-0.087)	0.080	mg/L	No	By-product of drinking water disinfection
Haloacetic Acids – Five (HAA5s), total	Sampled: FY22 Due: Quarterly in FY23	0.014 (<0.0050 – 0024)	0.060	mg/L	No	By-product of drinking water chlorination
Synthetic Organic Chemicals						
Dalapon	Quarterly ³	0.00015 – 0.00078	0.2	mg/L	No	Herbicide; suspected by-product of drinking water disinfection
Lead and Copper						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.014 0 of 23 samples above AL	1.3 (AL)	mg/L	No	Corrosion of plumbing systems

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Lead	Every 3 years Sampled: FY22 Due: FY25	90 th percentile: 0.00078 0 of 23 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
Inorganic Chemicals						
Aluminum	Annual	<0.0050 – 0.006	NL 0.200 ⁴	mg/L	No	Erosion of natural deposits
Barium	Annual	0.033 – 0.17	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02 – 0.03	NL 1.0 ⁴	mg/L	No	Erosion of natural deposits
Fluoride	Monthly	0.06 – 1.1	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	<0.0010 – 0.0012	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	4 samples per quarter ⁵ Sampled: FY22 Due: FY23	2.4 - 5.7	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	14 - 36	NL 200 ⁴	mg/L	No	Erosion of natural deposits
Microbiological Contaminants						
Coliform Bacteria	Monthly	0	One or more positive samples/month ⁶	CFU	No	Naturally present in the environment
Radionuclides						
Gross Alpha Activity, total	Every 4 years Sampled: FY21 Due: FY25	0.16 – 2.6	15	pCi/L	No	Erosion of natural deposits
Gross Beta Activity, total		1.4 – 4.8	50	pCi/L	No	Decay of natural and man-made deposits
Combined Radium 226/228		0.191 – 1.26	5	pCi/L	No	Erosion of natural deposits
PFAS						
Combined PFOS/PFOA	Quarterly ⁶	0.0018	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
<p>¹ Some samples may show 0 mg/L FAC due to the design of the drinking water network and low consumption in various building complexes. Recurring sampling showed detectable levels one month later.</p> <p>² In FY22, the TTHM results were above the trigger level of 0.060 mg/L but below the MCL of 0.080 mg/L. The GFGS requires systems that do not meet this level revert to standard quarterly monitoring for TTHM and HAA5 in the next quarter.</p> <p>³ Dalapon (or a congeneric compound) was detected in the treated water produced at the Hoppstaedten and Pfeffelbach WTP and is likely formed during the treatment process. Results remained below the GFGS MCL. Increased monitoring consisting of one sample per quarter at each WTP will continue in FY23.</p>						

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<p>⁴ No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p>⁵ During the FY18 annual sampling, the treated water produced at the Pfeffelbach water treatment plant (WTP) had an exceedance in nitrate (above 5 mg/L but below 10 mg/L), which triggered PHCE to begin conducting twice quarterly increased nitrate monitoring. Levels have not been detected above the MCL. Nitrate concentrations below the GFGS MCL of 10 mg/L do not pose a health or sanitary risk to consumers.</p> <p>⁶ If a system collecting fewer than 40 samples per month has two or more positive samples in one month, the system has a MCL violation.</p> <p>⁷ PFAS detects in FY21 and FY22 triggered quarterly samples of both, the Pfeffelbach and Hoppstaedten treated water and each of it's water sources for four consecutive quarters.</p>						

Where can we get more information?

Information on drinking water, testing methods and steps you can take to minimize exposure is available at <https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-information>.

For more information on this report or specific information on the drinking water available in your on-post household, contact DPW EMD during business hours at DSN (314) 541-4704, commercial 0611-143-541-4704 or visit the DPW EMD website at: [https://armyeitaas.sharepoint-mil.us/sites/IMCOM-ID-E-USAG-Rheinland-Pfalz/SitePages/DPW EMD Home.aspx](https://armyeitaas.sharepoint-mil.us/sites/IMCOM-ID-E-USAG-Rheinland-Pfalz/SitePages/DPW_EMD_Home.aspx)

DPW EMD welcomes your ideas and comments to improve this report and our services.

U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2022

Acronyms and Definitions

Acronym	Definition
90th Percentile	The 90th percentile is calculated by ranking the analytical results in ascending order from the sample with the lowest concentration to the sample with the highest concentration. The total number is then multiplied by 0.9 to arrive at the sample that represents the 90th percentile. The concentration of this sample determines compliance with the GFGS ALs for lead and copper.
AAFES	Army and Air Force Exchange Service
AL	Action Level. The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Disinfectant Byproducts	They can form when disinfectants, such as chlorine, react with naturally present compounds in the water.
CCR	Consumer confidence report
CFU	Colony forming Unit which means live bacteria that are able to multiply.
CWS	Community Water System
DLA	Defense Logistics Agency
DBP	Disinfectant byproduct
DoD	Department of Defense
DPH	Department of Public Health
DPW	Directorate of Public Works
EH	Environmental Health
EPA	United States Environmental Protection Agency
EPA HA	United States Environmental Protection Agency health advisory level
EMD	Environmental Management Division
FY	U.S. Government Fiscal Year. FY22 starts on 1 October 2021 and ends on 31 September 2022.
GAD	Germersheim Army Depot
GOCO	Government Owned, Contractor Operated
GWUDISW	Ground Water Under Direct Influence of Surface Water
GFGS	Environmental Final Governing Standards - Germany (latest edition 2016)
KAD	Kaiserslautern Army Depot
LPMC	Landstuhl Regional Medical Center
MAD	Miesau Ammo Depot
MCL	Maximum Contaminant Level. The highest level of a contaminant allowed in drinking water before some type of action is required. If results exceed the MCL, they are marked as violation.
mg/L	Milligrams per liter.
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.
NL	Notification Level. The concentration of a contaminant which, if exceeded, requires the notification of the German local health authority (Gesundheitsamt) and the appropriate DoD medical authority.
NTNCWS	Non-Transient, Non-Community Water System
Parameter	Substance being tested for
pCi/L	Picocuries per liter. Describes the radiological activity.
PFAS	Per- and polyfluoroalkyl substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PHCE	Public Health Command Europe
ppt	parts per trillion
ROB	Rhine Ordnance Barracks
USAG	United States Army Garrison
WTP	Water treatment plant