



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

AMIM-RPG-ZA

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

SUBJECT: Water Quality Consumer Confidence Report for Fiscal Year (FY) 2023,  
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 FY2023. This CCR is being provided for informational purposes and does not require any action by you.

Monitoring conducted by Public Health Command Europe (PHCE) and Landstuhl Regional Medical Center (LRMC) has confirmed that drinking water serving the USAG RP community complies with the Environmental Final Governing Standards – Germany (GFGS). Oversight of the Department of Defense (DoD) public water systems falls under the purview of the Directorate of Public Works (DPW). The DPW is committed to ensuring proper and effective operation of all USAG RP installations' drinking water systems, conducting regular monitoring to ensure a continuous supply of safe and compliant drinking water at all times.

2. If any contaminant levels require corrective action(s), DPW Environmental Management Division (EMD) notifies all residents in the affected building(s) as soon as possible and in accordance with the GFGS.

3. 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](mailto:anja.goering.ln@army.mil).

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**U.S. ARMY GARRISON (USAG) RHEINLAND-PFALZ**  
**Drinking Water Consumer Confidence Report**  
**Fiscal Year (FY) 2023**



**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. It covers essential aspects such as source water, detected contaminant levels, and compliance with drinking water regulations. This report is based on data that was provided by Public Health Command Europe (PHCE), Landstuhl Regional Medical Center (LRMC), and Baumholder Military Community Water Quality Laboratory. These entities collect a significant majority of our drinking water samples at USAG RP to ensure compliance with Environmental Final Governing Standards - Germany (GFGS) requirements.

**Where does our drinking water come from?**

USAG RP oversees ten (10) water systems, with the Directorate of Public Works (DPW) holding responsibility for their operation, maintenance, and monitoring to ensure compliance. Nine (9) of these systems are supplied by host nation vendors utilizing ground water sources for drinking water production. Water distribution to various U.S. installations occurs via pipeline networks operated and maintained by our suppliers who uphold water quality standards in accordance 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 off-post chlorination stations to comply with the U.S. Army drinking water requirements. Through April 2023, the Baumholder Military Community (BMC) water system, categorized as a surface water system, relied on water derived from water from U.S.-owned and operated surface and ground water sources. The BMC water system transitioned to a purchased water supply in May 2023. Monitoring of the old Hoppstaedten and Pfeffelbach water treatment plant ceased in April 2023, eliminating the need for additional monitoring. Monitoring of the new water system commenced in June 2023, with results slated for inclusion in the FY24 Drinking Water CCR. Refer to **Table 1**.

**Table 1. USAG Rheinland-Pfalz Water Sources**

Water System	Supplier/Provider	Area Served	Water Source
Kaiserslautern-East Community Water System (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) Pulaski Barracks	Ground
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 Non-Transient Non-Community Water System (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

## U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2023

Water System	Supplier/Provider	Area Served	Water Source
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)

\* The BMC water system transitioned to a purchased water supply in May 2023, and monitoring of the Hoppstaedten and Pfeffelbach water treatment plant ceased in April 2023.

### 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 oversees the DoD public water systems, ensuring their proper and effective operation on USAG RP installations. DPW also maintains regular monitoring of drinking water quality, to ensure a continuous supply of safe and compliant drinking water at all times.

To confirm the safety of our potable water system, Landstuhl Regional Medical Center (LRMC), Department of Public Health (DPH), Environmental Health (EH), Public Health Command Europe (PHCE) and Baumholder Military Community Water Quality Laboratory routinely sample the water and analyze over 60 water quality parameters, covering chemical, bacterial, and physical contaminant groups. LRMC EH and PHCE consistently assess whether the USAG RP water quality complies with the GFGS, a compilation of the most protective U.S. 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, ensuring water remains safe and compliant.

## All drinking water may contain trace detections of analytes

Drinking water, including bottled water, may detect trace amounts of analytes, depending on instrument sensitivity. The presence of trace amounts 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 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 provide. 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 FY23, as the sixth 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) per 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 GAD, Coleman Barracks, and BMC water systems. The current assessment is that 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 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, 2022 to September 30, 2023. 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 as soon as possible, but in no case later than 14 days after receiving the laboratory analytical results.

**U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2023**

**Table 2. Gernersheim CWS Water Quality Summary FY23**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Disinfectant Residuals and Byproducts</b>						
Chlorine as Free Available Chlorine (FAC)	Monthly	0.01 - 0.67	MRDL 4.0	mg/L	No	Disinfectant water additive used to control microbes
Trihalomethanes, total (TTHM)	Sampled: FY23 Due: FY24	0.054	0.080	mg/L	No	By-product of drinking water disinfection
Haloacetic Acids – Five (HAA5s), total	Sampled: FY23 Due: FY24	0.027	0.060	mg/L	No	By-product of drinking water chlorination
<b>Synthetic Organic Chemicals</b>						
Dalapon	Three quarters <sup>1</sup>	<0.00005 – 0.00150	0.2	mg/L	No	Herbicide; suspected by-product of drinking water disinfection
<b>Lead and Copper</b>						
Copper	Every 3 years Sampled: FY23 Due: FY26	90 <sup>th</sup> percentile: 0.17 0 of 10 samples above AL	AL 1.3	mg/L	No	Corrosion of plumbing systems
Lead	Every 3 years Sampled: FY23 Due: FY26	90 <sup>th</sup> percentile: 0.0077 0 of 10 samples above AL	AL 0.015	mg/L	No	Corrosion of plumbing systems
<b>Inorganic Chemicals</b>						
Aluminum	Annual	<0.0050	NL 0.200 <sup>2</sup>	mg/L	No	Erosion of natural deposits
Barium	Annual	0.089	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 <sup>2</sup>	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	<0.0011	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	10	NL 200 <sup>2</sup>	mg/L	No	Erosion of natural deposits
<b>Microbiological Contaminants</b>						
Coliform Bacteria	Monthly	0	One or more positive samples/month <sup>3</sup>	CFU	No	Naturally present in the environment
<b>Radionuclides</b>						
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 deposits

**U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2023**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Combined Radium 226/228		1.16	5	pCi/L	No	Erosion of natural deposits
<b>PFAS</b>						
Combined PFOS/PFOA	Sampled: FY23 Due: FY26	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
<p><sup>1</sup> Dalapon (or a congeneric compound) was detected in the GERMERSHEIM CWS and is currently understood to be 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 FY24.</p> <p><sup>2</sup> No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p><sup>3</sup> 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 FY23**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Disinfectant Residuals and Byproducts</b>						
Chlorine as Free Available Chlorine (FAC)	Monthly	0.03 – 0.57	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
<b>Synthetic Organic Chemicals</b>						
Dalapon	Three quarters <sup>1</sup>	0.00028 - 0.00046	0.2	mg/L	No	Herbicide; suspected by-product of drinking water disinfection
<b>Lead and Copper</b>						
Copper	Sampled: FY23 Due: FY26	90 <sup>th</sup> percentile: 0.24 0 of 10 samples above AL	1.3 (AL)	mg/L	No	Corrosion of plumbing systems
Lead	Sampled: FY23 Due: FY26	90 <sup>th</sup> percentile: 0.00068 0 of 10 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
<b>Inorganic Chemicals</b>						
Aluminum	Annual	<0.0050	NL 0.200 <sup>2</sup>	mg/L	No	Erosion of natural deposits
Barium	Annual	0.26	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	0.02	NL 1.0 <sup>2</sup>	mg/L	No	Erosion of natural deposits
Fluoride	Annual	0.11	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth

**U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2023**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Nickel	Annual	0.0015	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 <sup>2</sup>	mg/L	No	Erosion of natural deposits
<b>Microbiological Contaminants</b>						
Coliform Bacteria	Monthly	0	One or more positive samples/month <sup>3</sup>	CFU	No	Naturally present in the environment
<b>Radionuclides</b>						
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
<b>PFAS</b>						
Combined PFOS/PFOA	Sampled: FY23 Due: FY26	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
<p><sup>1</sup> Dalapon (or a congeneric compound) was detected in the Coleman CWS and is currently understood to be 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 FY24.</p> <p><sup>2</sup> No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p><sup>3</sup> 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 4. Grünstadt NTNCWS Water Quality Summary FY23**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Disinfectant Residuals and Byproducts</b>						
Chlorine as Free Available Chlorine (FAC)	Monthly	0.02 – 0.40	MRDL 4.0	mg/L	No	Disinfectant water additive used to control microbes
<b>Lead and Copper</b>						
Copper	Sampled: FY23 Due: FY26	90 <sup>th</sup> percentile: 0.80 0 of 5 samples above AL	1.3 (AL)	mg/L	No	Corrosion of plumbing systems
Lead	Sampled: FY23 Due: FY26	90 <sup>th</sup> percentile: 0.0028 0 of 5 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems



**U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2023**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Inorganic Chemicals</b>						
Aluminum	Annual	<0.0050	NL 0.200 <sup>1</sup>	mg/L	No	Erosion of natural deposits
Barium	Annual	0.11	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	0.04	NL 1.0 <sup>1</sup>	mg/L	No	Erosion of natural deposits
Fluoride	Annual	0.11	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	0.0012	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	2 samples per quarter <sup>2</sup> Sampled: FY23 Due: FY24	3.5 - 5.2	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	17	NL 200 <sup>1</sup>	mg/L	No	Erosion of natural deposits
<b>Microbiological Contaminants</b>						
Coliform Bacteria	Monthly	0	One or more positive samples/month <sup>3</sup>	CFU	No	Naturally present in the environment
<b>Radionuclides</b>						
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
<b>PFAS</b>						
Combined PFOS/PFOA	Sampled: FY23 Due: FY26	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
<p><sup>1</sup> No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p><sup>2</sup> 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 conducting twice quarterly increased nitrate monitoring. Within the last four 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.</p> <p><sup>3</sup> 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 2023**

**Table 5. Landstuhl CWS Water Quality Summary FY23**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Disinfectant Residuals and Byproducts</b>						
Chlorine Dioxide (ClO <sub>2</sub> )	Monthly	0.04 - 0.82	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
<b>Lead and Copper</b>						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 <sup>th</sup> 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 <sup>th</sup> percentile: 0.0020 0 of 11 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
<b>Inorganic Chemicals</b>						
Aluminum	Annual	0.0098	NL 0.200 <sup>2</sup>	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 <sup>2</sup>	mg/L	No	Erosion of natural deposits
Fluoride	Monthly <sup>1</sup>	0 – 1.6	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	0.0081	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	Annual	3.2	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	7.6	NL 200 <sup>2</sup>	mg/L	No	Erosion of natural deposits
<b>Microbiological Contaminants</b>						
Coliform Bacteria	Monthly	0	One or more positive samples/month <sup>3</sup>	CFU	No	Naturally present in the environment
<b>Radionuclides</b>						
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

**U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2023**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>PFAS</b>						
Combined PFOS/PFOA	Sampled: FY23 Due: FY26	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
<p><sup>1</sup> Fluoride testing was not able to be completed by LRMC EH from April to September 2023 due to supply being on back order.</p> <p><sup>2</sup> No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p><sup>3</sup> 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 FY23**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Disinfectant Residuals and Byproducts</b>						
Chlorine Dioxide (ClO <sub>2</sub> )	Monthly	0.04 - 0.68	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
<b>Lead and Copper</b>						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 <sup>th</sup> 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 <sup>th</sup> percentile: 0.0011 0 of 10 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
<b>Inorganic Chemicals</b>						
Aluminum	Annual	0.0057	NL 0.200 <sup>2</sup>	mg/L	No	Erosion of natural deposits
Barium	Annual	0.16	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 <sup>2</sup>	mg/L	No	Erosion of natural deposits
Fluoride	Monthly <sup>1</sup>	0.2 – 1.7	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	0.0031	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	Annual	4.0	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	6.8	NL 200 <sup>2</sup>	mg/L	No	Erosion of natural deposits

**U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2023**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Microbiological Contaminants</b>						
Coliform Bacteria	Monthly	0	One or more positive samples/month <sup>3</sup>	CFU	No	Naturally present in the environment
<b>Radionuclides</b>						
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
<b>PFAS</b>						
Combined PFOS/PFOA	Sampled: FY23 Due: FY25	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
<sup>1</sup> Fluoride testing was not able to be completed in February, April, and June to September 2023 due to supply being on back order. <sup>2</sup> No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels. <sup>3</sup> 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 FY23**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Disinfectant Residuals and Byproducts</b>						
Chlorine as Free Available Chlorine (FAC)	Monthly	0.02 - 0.76	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
<b>Lead and Copper</b>						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 <sup>th</sup> 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 <sup>th</sup> percentile: 0.002 0 of 10 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems

**U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2023**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Inorganic Chemicals</b>						
Aluminum	Annual	<0.0050	NL 0.200 <sup>1</sup>	mg/L	No	Erosion of natural deposits
Barium	Annual	0.37	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 <sup>1</sup>	mg/L	No	Erosion of natural deposits
Fluoride	Annual	<0.1	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	0.34	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	2.5	NL 200 <sup>1</sup>	mg/L	No	Erosion of natural deposits
<b>Microbiological Contaminants</b>						
Coliform Bacteria	Monthly	0	One or more positive samples/month <sup>2</sup>	CFU	No	Naturally present in the environment
<b>Radionuclides</b>						
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
<b>PFAS</b>						
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

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

<sup>2</sup> 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 2023**

**Table 8. Kaiserslautern-East CWS Water Quality Summary FY23**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Disinfectant Residuals and Byproducts</b>						
Chlorine as Free Available Chlorine (FAC)	Monthly	0 - 0.46 <sup>1</sup>	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
<b>Lead and Copper</b>						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 <sup>th</sup> 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 <sup>th</sup> percentile: 0.0011 0 of 20 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
<b>Inorganic Chemicals</b>						
Aluminum	Annual	0.051	NL 0.200 <sup>2</sup>	mg/L	No	Erosion of natural deposits
Barium	Annual	0.062	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 <sup>2</sup>	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	0.0021	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	Annual	0.86	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	4.4	NL 200 <sup>2</sup>	mg/L	No	Erosion of natural deposits
<b>Microbiological Contaminants</b>						
Coliform Bacteria	Monthly	0	One or more positive samples/month <sup>3</sup>	CFU	No	Naturally present in the environment
<b>Radionuclides</b>						
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

## U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2023

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>PFAS</b>						
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
<p><sup>1</sup> 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><sup>2</sup> No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p><sup>3</sup> 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
<b>Disinfectant Residuals and Byproducts</b>						
Chlorine as Free Available Chlorine (FAC)	Monthly	0.02 – 1.22	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
<b>Lead and Copper</b>						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 <sup>th</sup> 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 <sup>th</sup> percentile: 0.0012 0 of 10 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
<b>Inorganic Chemicals</b>						
Aluminum	Annual	0.006	NL 0.200 <sup>1</sup>	mg/L	No	Erosion of natural deposits
Barium	Annual	0.050	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 <sup>1</sup>	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	0.92	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 2023**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Sodium	Annual	4.7	NL 200 <sup>1</sup>	mg/L	No	Erosion of natural deposits
<b>Microbiological Contaminants</b>						
Coliform Bacteria	Monthly	0	One or more positive samples/month <sup>2</sup>	CFU	No	Naturally present in the environment
<b>Radionuclides</b>						
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
<b>PFAS</b>						
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
<sup>1</sup> No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels. <sup>2</sup> 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 FY23\***

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<b>Disinfectant Residuals and Byproducts</b>						
Chlorine as Free Available Chlorine (FAC)	Monthly	0 – 1.20 <sup>1</sup>	MRDL 4.0	mg/L	No	Disinfectant water additive used to control microbes
Trihalomethanes, total (TTHM)	Sampled: FY23 Due: Quarterly in FY24 <sup>2</sup>	0.038 (0.0087 – 0.087)	0.080	mg/L	No	By-product of drinking water disinfection
Haloacetic Acids – Five (HAA5s), total	Sampled: FY23 Due: Quarterly in FY24	0.016 (0.0081 – 0.024)	0.060	mg/L	No	By-product of drinking water chlorination
<b>Synthetic Organic Chemicals</b>						
Dalapon	Quarterly <sup>3</sup>	0.00018 – 0.0011	0.2	mg/L	No	Herbicide; suspected by-product of drinking water disinfection
<b>Lead and Copper</b>						
Copper	Every 3 years Sampled: FY22 Due: FY25	90 <sup>th</sup> 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 2023**

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
Lead	Every 3 years Sampled: FY22 Due: FY25	90 <sup>th</sup> percentile: 0.00078 0 of 23 samples above AL	0.015 (AL)	mg/L	No	Corrosion of plumbing systems
<b>Inorganic Chemicals</b>						
Aluminum	Annual	0.0051 – 0.010	NL 0.200 <sup>4</sup>	mg/L	No	Erosion of natural deposits
Barium	Annual	0.040 – 0.11	2.0	mg/L	No	Erosion of natural deposits
Boron	Annual	<0.02	NL 1.0 <sup>4</sup>	mg/L	No	Erosion of natural deposits
Fluoride	Monthly	0.18 – 0.50	4.0	mg/L	No	Erosion of natural deposits; Water additive which promotes strong teeth
Nickel	Annual	<0.0010 – 0.0046	0.1	mg/L	No	Naturally occurring, Chrome plating in plumbing and tap fittings
Nitrate as N	4 samples per quarter <sup>5</sup> Sampled: FY23 Due: FY24	1.8 – 6.9	10	mg/L	No	Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	Annual	14 - 15	NL 200 <sup>4</sup>	mg/L	No	Erosion of natural deposits
<b>Microbiological Contaminants</b>						
Coliform Bacteria	Monthly	0	One or more positive samples/month <sup>6</sup>	CFU	No	Naturally present in the environment
<b>Radionuclides</b>						
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
<b>PFAS</b>						
Combined PFOS/PFOA	Quarterly <sup>7</sup>	ND	0.070 (EPA HA)	µg/L	No	Aircraft Firefighting foam; Industrial Use; Discharge from manufacturing factories; Improper disposal
<p>* The BMC water system transitioned to a purchased water supply in May 2023. Monitoring of the Hoppstaedten and Pfeffelbach water treatment plant ceased in April 2023. Additional monitoring is not required. Monitoring of the new water system commenced in June 2023, and results will be included in the FY24 Drinking Water CCR.</p> <p><sup>1</sup> 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><sup>2</sup> In FY22, the TTHM annual average results were above the trigger level of 0.060 mg/L but below the MCL of 0.080 mg/L. The GFGS required quarterly standard monitoring for TTHM and HAA5 in FY23.</p>						

## U.S. ARMY GARRISON RHEINLAND-PFALZ - Drinking Water Consumer Confidence Report FY 2023

Contaminant	Sample Frequency	Detected Levels	MCL	Unit	Violation	Typical Sources
<p><sup>3</sup> Dalapon (or a congeneric compound) was detected in the treated water produced at the Hoppstaedten and Pfeffelbach WTP and is currently understood to be likely formed during the treatment process. Results remained below the GFGS MCL.</p> <p><sup>4</sup> No Standard per EPA, but the GFGS establishes notification levels for these parameters. Parameters were below their respective notification levels.</p> <p><sup>5</sup> During the FY18 annual sampling, the treated water produced at the Pfeffelbach 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><sup>6</sup> 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><sup>7</sup> PFAS detects in FY21 and FY22 triggered quarterly samples of both, the Pfeffelbach and Hoppstaedten treated water and each of its 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 2023

### Acronyms and Definitions

Acronym	Definition
<b>90th Percentile</b>	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.
<b>AAFES</b>	Army and Air Force Exchange Service
<b>AL</b>	Action Level. The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
<b>Disinfectant Byproducts</b>	They can form when disinfectants, such as chlorine, react with naturally present compounds in the water.
<b>CCR</b>	Consumer Confidence Report
<b>CFU</b>	Colony forming unit which means live bacteria that are able to multiply.
<b>CWS</b>	Community Water System
<b>DLA</b>	Defense Logistics Agency
<b>DBP</b>	Disinfectant byproduct
<b>DoD</b>	Department of Defense
<b>DPH</b>	Department of Public Health
<b>DPW</b>	Directorate of Public Works
<b>EH</b>	Environmental Health
<b>EPA</b>	United States Environmental Protection Agency
<b>EPA HA</b>	United States Environmental Protection Agency health advisory level
<b>EMD</b>	Environmental Management Division
<b>FY</b>	U.S. Government Fiscal Year. FY22 starts on 1 October 2021 and ends on 31 September 2022.
<b>GAD</b>	Germersheim Army Depot
<b>GOCO</b>	Government Owned, Contractor Operated
<b>GWUDISW</b>	Ground Water Under Direct Influence of Surface Water
<b>GFGS</b>	Environmental Final Governing Standards - Germany (latest edition 2016)
<b>KAD</b>	Kaiserslautern Army Depot
<b>LPMC</b>	Landstuhl Regional Medical Center
<b>MAD</b>	Miesau Ammo Depot
<b>MCL</b>	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.
<b>mg/L</b>	Milligrams per liter.
<b>MRDL</b>	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.
<b>NL</b>	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.
<b>NTNCWS</b>	Non-Transient, Non-Community Water System
<b>Parameter</b>	Substance being tested for
<b>pCi/L</b>	Picocuries per liter. Describes the radiological activity.
<b>PFAS</b>	Per- and polyfluoroalkyl substances
<b>PFOA</b>	Perfluorooctanoic acid
<b>PFOS</b>	Perfluorooctanesulfonic acid
<b>PHCE</b>	Public Health Command Europe
<b>ppt</b>	parts per trillion
<b>ROB</b>	Rhine Ordnance Barracks
<b>USAG</b>	United States Army Garrison
<b>WTP</b>	Water treatment plant