U.S. ARMY GARRISON WIESBADEN DRINKING WATER CONSUMER CONFIDENCE REPORT FISCAL YEAR 2022

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Letter from the U.S. Army Garrison Wiesbaden Garrison Commander

Dear USAG Wiesbaden Community Member,

I am pleased to present USAG Wiesbaden's third annual Consumer Confidence Report that offers you, our valued customers, a transparent overview of our drinking water supply sources, water quality information, and testing results over the past fiscal year. Our goal is to provide you and your family with reliably safe and compliant drinking water. We are continually striving to improve our services, protect our vital water resources and maintain your trust by keeping you informed.

Here at USAG Wiesbaden, we are blessed with a sufficient supply of high-quality drinking water. Please remember, we all play a part in protecting our environment, especially groundwater, which is key to replenishing our drinking water supply. By working together, we can preserve its quality and availability for generations to come.

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DAVID W.MAYFIELD

COL, MI

Commanding

1. Where does my drinking water come from?

USAG Wiesbaden installations receive their drinking water from several local reputable German suppliers who ensure water quality is in strict compliance with the German Drinking Water Ordinance. All suppliers publish water quality reports (in German) on their websites.

Table 1: USAG Wiesbaden Water Systems, Suppliers and Sources

Water System	Water Supplier	Source
1. Lucius D. Clay Kaserne	ESWE/Hessenwasser: Ried (Hassloch) https://www.hessenwasser.de/home.html	GW[1]
2. Army Family Housing Areas: Aukamm, Crestview, and Hainerberg	ESWE/Hessenwasser: Ried (Hassloch)/ Taunus/Niedernhausen https://www.hessenwasser.de/home.html	GW
3. Amelia Earhart Center	ESWE/Hessenwasser: Schierstein/Taunus https://www.hessenwasser.de/home.html	GW and GWUDISW[2]
4. Golf Course Rheinblick	ESWE/Hessenwasser: Ried (Hassloch)/Schierstein https://www.hessenwasser.de/home.html	GW and GWUDISW
5. Mainz Kastel Station	Mainz Netze GmbH: Petersaue/Hof-Schönau https://www.mainzer-netze.de/trinkwasser/trinkwasserqualitaet/	GWUDISW
6. McCully Support Center and Wackernheim Range	Rheinhessische Energie Wackernheim https://www.rheinhessische.de/wasser.html	GW and GWUDISW
7. Darmstadt Training Center (DAGGER)	HSE Hessenwasser https://www.hessenwasser.de/home.html	GW

Note: Report does not include water supplied to Army operational areas at Mainz Kastel Heavy Equipment Repair Shop and Egelsbach Transmitter facilities (non-potable water).

The majority of our water supply comes from groundwater that travels through purifying sand and activated carbon filtration to remove impurities prior to distribution. The water quality is *hard* meaning it is high in essential minerals, such as calcium and magnesium.

[1] Groundwater
[2] Groundwater under the direct influence of surface water

Although healthy for consumption, hardness causes white scaling to develop on appliances and around faucets. These mineral deposits are easily removable with vinegar or lemon juice. Hard water can contribute to dry skin, and soap not rinsing off easily. Therefore, residents may consider using German soaps and beauty products formulated for use in hard water.

2. Why do we conduct so much testing? – Required information per EPA

Continual maintenance of the distribution systems and ongoing water testing assures our water remains safe. The sources of drinking water – both tap water and bottled water – include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it 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.

Drinking water, including bottled water, may also contain small amounts of impurities that do not necessarily pose a health risk. Some people may be more vulnerable to impurities in drinking water than the general population.

Persons undergoing chemotherapy or organ transplants, with immune system disorders, some elderly and infants may be at a higher risk of waterborne illness. These people should seek advice about drinking water quality from their health care providers. More information on drinking water quality and potential health effects is available by visiting the EPA website at https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-information or by calling the EPA Safe Drinking Water Hotline at 001-800-426-4791.

3. Is our water safe to drink?

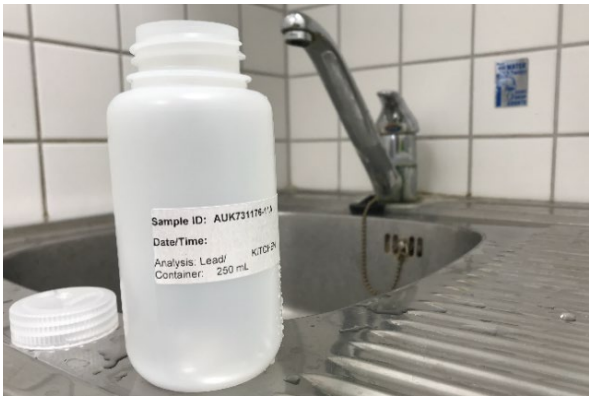
Yes, our water is safe to drink. In addition to the treatment and testing performed by water suppliers, the Directorate of Public Works (DPW) Sanitation Branch operates and maintains each installation's water distribution system. DPW personnel are on call 24 hours per day, 7 days per

week to maintain a continuous supply of safe and compliant drinking water. They conduct daily water quality field-testing to verify systems are operating properly, ensure water systems remain pressurized, and maintain sufficient disinfectant residual.

To verify our water remains safe, Landstuhl Regional Medical Center Environmental Health Service conducts monthly bacteriological and water quality monitoring at multiple locations throughout the garrison. Through a Service Agreement, IMCOM-Europe has Public Health Command-Europe (PHCE) conduct recurring water sampling and analyses at their U.S. /German accredited laboratory for over 60 parameters. PHCE consistently reports that all USAG Wiesbaden installation's water quality complies with German Final Governing Standards (GFGS) regulations. DPW Environmental Division provides overall management and technical oversight of the Drinking Water Program to ensure water remains safe and compliant.

4. What about lead in the water?

There are no known lead pipes in use at USAG Wiesbaden and lead testing verifies our water supply is well below the regulatory action level. Lead is a naturally occurring metal found in small amounts throughout our environment including groundwater. Lead is not absorbed through the skin from washing or bathing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children.



Additionally, the GFGS required Lead & Copper Rule monitoring conducted by PHCE (see results in Section 9), USAG Wiesbaden is an active participant in the Army-wide, 5-year lead testing campaign to ensure primary drinking water taps in child occupied facilities and occupied Army Family Housing units are safe. The first campaign was from FY16-FY20 and was completed with 100% Army Family Housing units tested.

Lead testing completed in Fiscal Year (FY) 2022 confirmed safe drinking water in USAG Wiesbaden community facilities occupied by children aged 6 and under. DPW Environmental Division has a goal of having 100% occupied Army Family Housing units tested by the end of FY2025. In FY21, DPW Housing Division began overseeing the Army lead sampling campaign and is seeking resident support to continue the testing.

Figure 1 illustrates the sampling procedure after a water stagnation period of at least 8 hours. During the second 5-year cycle, approximately 4% of the kitchen faucet first draw samples (A: first cup (250 mL) of water after 8 hours) reported results above the action level, which is likely attributable to lead leaching from the brass within the faucet to the water. In these cases, DPW quickly coordinates faucet replacements, which have proven effective at reducing lead levels.

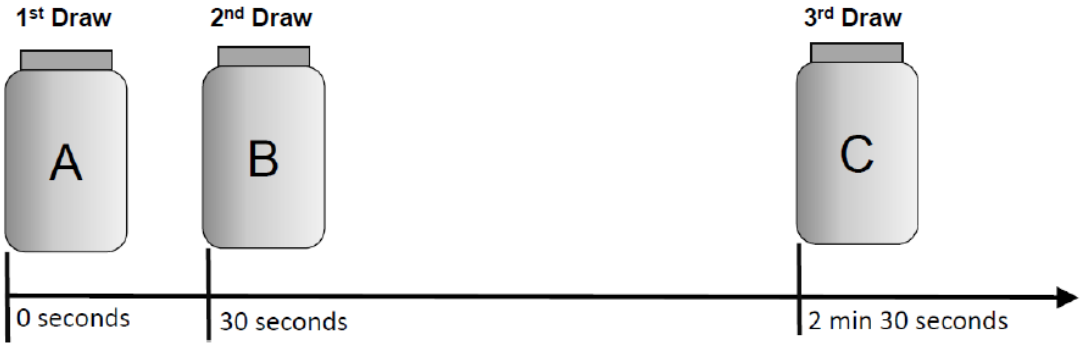


Figure 1: Timing of sample collection set after a water stagnation period of at least 8 hours using 250-milliter samples containers

All second draw (B) and third draw (C) testing results reported lead well below the action level, emphasizing the importance of flushing your tap until noticeably colder (30 seconds to 2 minutes) after extended periods of non-use before using the water for consumption purposes. DPW notifies all residents of their lead sampling results within 30 days of receiving the results. Lead testing results are too numerous to include in this report but are available by contacting DPW Environmental Division during business hours at 0611-143-**548-4093/4096**.

Information on lead in drinking water, testing methods, and steps you can take to minimize exposure wherever you are staying is available at https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water.

5. What about copper in Clay Kaserne barracks and Amelia Earhart Center?

Clay Kaserne Barracks: Lead and Copper Rule monitoring initially reported copper above action levels in several Clay Kaserne barracks in late 2017. This is likely attributable to copper leaching from the barrack pipes into the water due to low occupancy rates, which allow the water to stagnate. This emphasizes the importance of allowing the cold water to run prior to use for drinking or cooking purposes to flush out stagnant water.

Unlike lead, copper is essential for health with a Recommended Dietary Allowance (RDA) of 900 micrograms per day. Excessive copper exposure though can cause stomach and intestinal distress short-term, liver and kidney damage long-term, and complications in genetically predisposed people with Wilson's disease that allows excess copper to build up in the body.

Steps taken to effectively reduce copper levels in barrack drinking water include educating occupants to flush cold water before use, and filtering water at shared kitchens and fountains. Permanent solutions nearing completion include replacement of brass faucets and accessible copper piping within barracks, and installation of automatic flushing devices on top floors to reduce water stagnation.

In FY21, Clay Kaserne drinking water complied with lead and copper standards for two consecutive semi-annual monitoring events and now qualifies for reduced annual sampling. Results are provided in Table 2. FY22, the Clay Kaserne water system complied with the respective lead and copper standards and qualified for continued annual reduced monitoring.

Amelia Earhart Center (AEC) complied with Lead and Copper Rule monitoring until July 2020, when routine testing reported elevated copper. Copper reported slightly above the Lead & Copper Rule 1.3 mg/L action level is most likely a result of water stagnation due to most personnel working from home due to COVID since March 2020. Lead results remained well below the GFGS action level.

Elevated copper results did prompt increased monitoring in FY21, from annual to semi-annual testing for lead and copper. Slightly elevated copper results continued in the first half of FY22 at a level of 1.4 mg/L, resulting in continued semi-annual testing. The AEC Facility Manager was promptly notified and auto-flushing faucets were installed in upper floor bathrooms to improve water circulation. DPW Plumbing Shop continues to flush the water system on a recurring basis. In FY22, semiannual testing results complied with both lead and copper action levels in July 2022.

The Amelia Earhart Center facility is a large multi-story office building with over 300 employees that once served as a bachelor enlisted quarter (BEQ) facility. It was constructed in 1976 with most of the original plumbing still in place. According to the DPW the interior plumbing contains copper piping. Other potential copper sources are brass appurtenances such as faucets and connecting valves. Possible causes of the unexpected exceedance in FY20 and continuing into FY22 include aged plumbing, particulates in aerators, and low water usage by occupants. Due to the COVID-19 exposure reduction response, the majority of personnel have worked remotely since March 2020, primarily during the fall and winter months, which are also the months that show high copper levels in the first-draw samples. The low water usage increases stagnation in the interior plumbing of the large building and fosters the leaching of copper. When facilities are less occupied in the winter months, copper levels increase slightly. However, when facilities are more heavily utilized, and water can be flushed more frequently, copper levels are under threshold limits.

6. What else is being done to ensure our water remains safe?

Additional monitoring conducted to ensure water remains safe includes the following:

<u>McCully Support Center Increased Nitrate Monitoring:</u>

Per the GFGS, increased quarterly monitoring for nitrates began at McCully Support Center in 2012 when nitrate was initially reported above 5 parts per million (ppm). In FY22, nitrate

concentration ranged between 4.0 and 4.6 ppm, and remains consistently well below the maximum contaminant level (MCL) of 10 ppm.

Elevated nitrate levels in water are usually attributable to fertilizer applications from farming. Nitrate levels may rise quickly for short periods because of rainfall or agricultural activity. Levels above 10 milligrams per liter (mg/L) of nitrate in drinking water is a health risk for infants less than 6 months of age as it can cause blue baby syndrome. If you are drinking the water at McCully Support Center and breast-feeding, or preparing baby formula with the water, seek advice from your health care provider.

Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) Water Supply Testing:

PFOA/PFOS are compounds found in everyday life products such as carpets, clothing, fabrics for furniture, food packaging, cookware, firefighting foams and other materials needing resistance to water, grease, and stains. USAG Wiesbaden drinking water supplies were tested for PFOA and PFOS in FY2017 per Department of Defense (DoD) direction soon after the Environmental Protection Agency (EPA) established health advisory levels (HLA) for these emerging contaminants.

All testing results for the USAG Wiesbaden water supplies sampled in FY2022 were reported well below the EPA's lifetime health advisory levels for these unhealthy compounds (Table 9).

Testing Hot Shower Water for Legionella Bacteria:

Although not yet 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.

Inhaling water droplets containing high concentrations of Legionella bacteria can cause Legionnaires disease, a type of severe pneumonia. Persons over 50 years old, smokers or those with compromised immune systems are most susceptible to infection. Children are rarely affected. Legionella typically becomes a concern in poorly maintained hot water systems, where water is not hot enough to kill the bacteria or where water remains stagnant for long periods of time.

In FY22 at USAG Wiesbaden, a certified German Laboratory collected representative hot water samples (1 sample per stairwell or 2 per facility) from 145 buildings for Legionella analyses. Three of the buildings tested reported legionella above the 100 CFU/100 mL GFGS action level requiring notification of occupants and corrective actions including technical inspection of boilers, replacement of hot water circulation pumps, raising hot water temperatures and flushing of lines. Legionella sampling results are not included in this report, but you can contact DPW Environmental Division at 0611-143-**548-4093/4096** for further information.

7. What can I do to improve my drinking water quality?

Consider taking an active role at further improving the drinking water quality at your tap for you and your family by following the EPA Best Management Practices listed below, which are applicable wherever you live or are visiting:

- **Flush cold water before initial daily use.** At the start of each day or after extended periods of non-use, flush the cold-water tap by running the water for about 30 seconds or until it becomes noticeably colder indicating you are receiving fresh water. No need to waste this stagnant flush water as it is useful 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 then heat it when hot water is needed.
- Twice per year, **clean the aerator screens** at the end of your faucets. 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 Hainerberg Self-Help Store (Building 7802, 0611-143-**548-4072**). Make sure to bring the old aerators along, as there are several different types.
- **Consider using 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 Environmental Division recommends residents use their kitchen cold-water taps as the primary source of drinking water since these are the taps tested for lead, and likely used more often.

8. What can I do to conserve water and protect the environment?

Water is a precious resource that is not limitless or cheap. USAG Wiesbaden consumes over 160 million gallons of water every year at a rising cost of roughly $1.6 million dollars. During 2022 drought like conditions in Germany, water suppliers requested USAG Wiesbaden to reduce water consumption and conserve water. DPW water conservation measures taken and underway include reducing irrigation and installing low-flow plumbing fixtures during housing and office renovations. You too can conserve water and protect the environment by:

- Not letting the water run while shaving or brushing teeth;
- Only running the dishwasher and washing machine when full;
- Promptly reporting water leaks to DPW Customer Service at 0611-**548-4357** or create a service order on the ARMA web page: AMC Login - ArmyMaintenance.com

- Effectively using flush water for cleaning, watering plants, washing hands, etc.;
- Not using toilets for trash disposal. Dispose of tissues, cotton balls, etc. in the trash bin instead;
- Never flushing medicine down the drain where it can reenter the environment. Return unneeded medications and prescription drugs to the Wiesbaden Army Health Clinic;
- Never flushing hazardous products down the drain. Bring unneeded household hazardous materials to the Clay Kaserne Recycling Center Bldg. 2450 Heinigstrasse;
- Immediately reporting spills of hazardous substances to the USAG Wiesbaden Fire Department at 0611-143-548-0**112**.

9. What are our water quality testing results?

Per the GFGS, your water is tested for a wide variety of parameters. Results must remain below the regulatory limit to be in compliance. This limit, called the maximum contaminant level (MCL) establishes the regulatory criteria to protect human health. If a level exceeds the MCL, it is a violation. PHCE consistently reports our water complies with the GFGS water quality criteria for the drinking water parameters evaluated each fiscal year.

The results listed in Tables 2-8 were the only substances with health action levels (AL) detected by laboratory analyses, although testing included many other parameters. This allows an easy comparison of the impurities detected to the MCL. The reporting period for this report is October 1, 2020 to September 30, 2021; however, not all parameters require annual monitoring per the GFGS. In those cases, the tables list the results and dates of the most recent testing.

Quick view at definitions and units:

- Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water which there is no known or expected risk to health. MCLGs allow a margin of safety.
- Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
- Maximum residual disinfectant level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

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

- Units: The units of measurement typically used in the tables are *ppm,* which stands for the concentration in parts per million (or 1 drop in 1 million gallons); *ppb* is even smaller and stands for parts per billion (or 1 drop in 1 billion gallons); ppt is smaller still representing parts per trillion; *pCi/L* stands for picocurie per liter and describes radiological activity.

Table 2: Lucius D. Clay Kaserne Water Quality Summary

LEAD AND COPPER – Tested at customers taps twice per year.								
Contaminant	EPA's Action Level (AL)	Ideal Goal (EPA's MCLG)	90% of Test Levels Were Less Than…	# of Tests with Levels above EPA's Action Level	Lowest Level	Highest Level	Violation	Typical Sources
Lead (July 2022)	90% of samples <15 ppb	0 ppb	4.1 ppb	1 out of 21	<0.2 ppb	**25 ppb**	No	Corrosion of household plumbing
Copper (July 2022)	90% of samples <1.3 ppm	1.3 ppm	1.0 ppm	0 out of 21	7.4ppb	1.2 ppm	No	Corrosion of household plumbing
INORGANIC CHEMICALS								
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results		Sample Date		Violation	Typical Sources
Aluminum	No Standard*	N/A	<5 ppb		25 Jan 22		No	Erosion of natural deposits
Barium	2.0 ppm	2.0 ppm	0.13 ppm		25 Jan 22		No	Erosion of natural deposits
Fluoride	4 ppm	4.0 ppm	0.13 ppm		25 Jan 22		No	Erosion of natural deposits
Nitrate (as Nitrogen)	10 ppm	10 ppm	0.26ppm		25 Jan 22		No	Runoff from fertilizer use
Sodium	No Standard*	N/A	17ppm		25 Jan 22		No	Erosion of natural deposits
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)/ PFAS								
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results		Sample Date		Violation	Typical Sources
Total PAHs	0.2 ppb	N/A	Not Detected		25 Jan 22		No	Burning of coal/gas/wood.
Sum PFOS & PFOA	0.07ppb	N/A	0.0056 ppb		13 Jun 22		No	Industrial sites/ fire training
RADIOLOGICAL ACTIVITY - Sampling not required in FY2021. Next sampling scheduled for FY2022.								
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results		Sample Date		Violation	Typical Sources
Gross Alpha Activity, calculated	15 pCi/L	0 pCi/L	2.4 pCi/L		25 Jan 22		No	Erosion of natural deposits
Gross Beta Activity, total	50 pCi/L	0 pCi/L	2.4 pCi/L		25 Jan 22		No	Decay of natural and man-made deposits
Combined Radium 226/228 Activity	5 pCi/L	0 pCi/L	0.86 pCi/L		25 Jan 22		No	Erosion of natural deposits

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

*Table 3: Army Family Housing Areas Aukamm, Crestview and Hainerberg Water Quality Summary***

PESTICIDES AND PCBS						
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results	Sample Date	Violation	Typical Sources
Total Pesticides	No Standard*	0 ppm	Not Detected	13 June 22	No	Spraying around homes/ yards
Total PCBs	0.0005 ppm	0 ppm	Not Detected	13 June 22	No	Spraying around homes/ yards
INORGANIC CHEMICALS						
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results	Sample Date	Violation	Typical Sources
Aluminum	No Standard*	N/A	< 0.5 ppb	25 Jan 22	No	Erosion of natural deposits
Barium	2.0 ppm	2.0 ppm	0.1 ppm	25 Jan 22	No	Erosion of natural deposits
Fluoride	4 ppm	4.0 ppm	0.12 ppm	25 Jan 22	No	Erosion of natural deposits
Nitrate (measured as Nitrogen)	10 ppm	10 ppm	0.6 ppm	25 Jan 22	No	Runoff from fertilizer use
Sodium	No Standard*	N/A	14 ppm	25 Jan 22	No	Erosion of natural deposits
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)/ PFAS						
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results	Sample Date	Violation	Typical Sources
Total PAHs	0.2 ppb	N/A	Not Detected	25 Jan 22	No	Burning of coal/gas/wood.
Sum PFOS & PFOA	0.07ppb	N/A	<0.0018 ppb	13 June 22	No	Industrial sites/ fire training

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

** Includes Hainerberg Schools, Lodge and PX.

Table 4: Amelia Earhart Center Water Quality Summary

PESTICIDES AND PCBS						
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results	Sample Date	Violation	Typical Sources
Total Pesticides	No Standard*	0 ppm	Not Detected	25 Jan 22	No	Spraying around homes/ yards
Total PCBs	0.0005 ppm	0 ppm	Not Detected	25 Jan 22	No	Spraying around homes/ yards

LEAD AND COPPER – tested at customers taps twice per year								
Contaminant	EPA's Action Level	Ideal Goal (EPA's MCLG)	90% of Test Levels Were Less Than…	# of Tests with Levels above EPA's Action Level	Lowest Level	Highest Level	Violation	Typical Sources
Lead (Jan 22)	90% of samples <15 ppb	0 ppb	0.0017 ppm	0 of 10	0.00056 ppm	0.0018	No	Corrosion of household plumbing
Lead (Jul 22)	90% of samples <15 ppb	0 ppb	0.0012 ppm	0 of 10	<0.0002 ppm	0.0013	No	Corrosion of household plumbing
Copper (Jan 22)	90% of samples <1.3 ppm	1.3 ppm	**1.4 ppm**	4 of 10	0.2 ppm	1.4 ppm	No	Corrosion of household plumbing
Copper (Jul 22)	90% of samples <1.3 ppm	1.3 ppm	0.88 ppm	0 of 10	0.22 ppm	0.89 ppm	No	Corrosion of household plumbing

INORGANIC CHEMICALS						
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results	Sample Date	Violation	Typical Sources
Aluminum	No Standard*	N/A	<5 ppb	25 Jan 22	No	Erosion of natural deposits
Arsenic	10 ppb	0 ppb	<3 ppb	25 Jan 22	No	Erosion of natural deposits, runoff from production wastes
Barium	2.0 ppm	2.0 ppm	0.088 ppm	25 Jan 22	No	Erosion of natural deposits
Fluoride	4.0 ppm	4.0 ppm	0.21 ppm	25 Jan 22	No	Erosion of natural deposits
Nitrate (as Nitrogen)	10 ppm	10 ppm	0.87 ppm	25 Jan 22	No	Runoff from fertilizer use
Sodium	No Standard*	N/A	27 ppm	25 Jan 22	No	Erosion of natural deposits

DISINFECTANT RESIDUALS – annual monitoring						
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results	Sample Date	Violation	Typical Sources
Total Trihalomethanes	0.08 ppm	N/A	0.012 ppm	11 Jul 22	No	Sum total of disinfection byproducts
Total Haloacetic Acids	0.06 ppm	N/A	<.006 ppm	11 Jul 22	No	Sum total of disinfection byproducts

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

*Table 5: Golf Course Rheinblick Water Quality Summary***

INORGANIC CHEMICALS						
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results	Sample Date	Violation	Typical Sources
Aluminum	No Standard*	N/A	<5 ppb	25 Jan 22	No	Erosion of natural deposits
Arsenic	10 ppb	0 ppb	<3 ppb	25 Jan 22	No	Erosion of natural deposits, runoff from production wastes
Barium	2.0 ppm	2.0 ppm	0.12 ppm	25 Jan 22	No	Erosion of natural deposits
Fluoride	4.0 ppm	4.0 ppm	0.16 ppm	25 Jan 22	No	Erosion of natural deposits
Nitrate (as Nitrogen)	10 ppm	10 ppm	0.43 ppm	25 Jan 22	No	Runoff from fertilizer use
Sodium	No Standard*	N/A	18 ppm	25 Jan 22	No	Erosion of natural deposits
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)/ PFAS						
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results	Sample Date	Violation	Typical Sources
Total PAHs	0.2 ppb	N/A	Not Detected	25 Jan 22	No	Burning of coal/gas/wood.
Sum PFOS & PFOA	0.07ppb	N/A	0.0021 ppb	13 June 22	No	Industrial sites/ fire training

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

** As a transient non-community water system (TNCWS), applicable testing at Rheinblick Golf Course is limited to inorganics and ammonium/nitrates.

Table 6: Mainz Kastel Station Water Quality Summary

LEAD AND COPPER – Sampling not required in FY2021. Next sampling scheduled for FY2022.								
Contaminant	EPA's Action Level	Ideal Goal (EPA's MCLG)	90% of Test Levels Were Less Than…	# of Tests with Levels above EPA's Action Level	Lowest Level	Highest Level	Violation	Typical Sources
Lead (JUL 22)	90% of samples <15 ppb	0 ppb	0.001 ppm	0 of 5	0.00027 ppm	0.001 ppm	No	Corrosion of household plumbing
Copper (JUL 22)	90% of samples <1.3 ppm	1.3 ppm	0.4 ppm	0 of 5	0.043 ppm	0.52 ppm	No	Corrosion of household plumbing
INORGANIC CHEMICALS								
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results		Sample Date		Violation	Typical Sources
Aluminum	No Standard*	N/A	<5 ppb		25 Jan 22		No	Erosion of natural deposits
Arsenic	10 ppb	0 ppb	<3 ppb		25 Jan 22		No	Erosion of natural deposits, runoff from production wastes
Barium	2.0 ppm	2.0 ppm	0.063 ppm		25 Jan 22		No	Erosion of natural deposits
Fluoride	4.0 ppm	4.0 ppm	0.14 ppm		25 Jan 22		No	Erosion of natural deposits
Nitrate (as Nitrogen)	10 ppm	10 ppm	1.1 ppm		25 Jan 22		No	Runoff from fertilizer use
Sodium	No Standard*	N/A	25 ppm		25 Jan 22		No	Erosion of natural deposits
DISINFECTANT RESIDUALS								
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results		Sample Date		Violation	Typical Sources
Total Trihalomethanes	80 ppb	N/A	< 5 ppb		11 Jul 22		No	Sum total of disinfection by-products
Total Haloacetic Acids	60 ppb	N/A	< 5 ppb		11 Jul 22		No	Sum total of disinfection by-products
RADIOLOGICAL ACTIVITY								
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results		Sample Date		Violation	Typical Sources
Gross Alpha Activity, calculated	15 pCi/L	0 pCi/L	0.11 pCi/L		25 Jan 22		No	Erosion of natural deposits
Gross Beta Activity, total	50 pCi/L	0 pCi/L	0.11 pCi/L		25 Jan 22		No	Decay of natural and man-made deposits
Combined Radium 226/228 Activity	5 pCi/L	0 pCi/L	0.363 pCi/L		25 Jan 22		No	Erosion of natural deposits
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)/ PFAS								
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results		Sample Date		Violation	Typical Sources
Total PAHs	0.2 ppb	N/A	Not Detected		25 Jan 22		No	Burning of coal/gas/wood.

* No Standard per EPA, but the GFGS establishes notification levels for these para meters. Parameters were below their respective notification levels.

Table 7: McCully Support Center and Wackernheim Range Water Quality Summary

INORGANIC CHEMICALS						
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results	Sample Date	Violation	Typical Sources
Aluminum	No Standard*	N/A	<5 ppb	26 Jan 22	No	Erosion of natural deposits
Arsenic	10 ppb	0 ppb	<3 ppb	26 Jan 22	No	Erosion of natural deposits, runoff from production wastes
Barium	2.0 ppm	2.0 ppm	0.1 ppm	26 Jan 22	No	Erosion of natural deposits
Fluoride	4.0 ppm	4.0 ppm	0.17 ppm	26 Jan 22	No	Erosion of natural deposits
Nitrate (as Nitrogen)	10 ppm	10 ppm	4.6 ppm	26 Jan 22	No	Runoff from fertilizer use
Sodium	No Standard*	N/A	31 ppm	26 Jan 22	No	Erosion of natural deposits

DISINFECTANT RESIDUALS – annual monitoring							
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results in McCully	Your Water Results in Wackernheim	Sample Date	Violation	Typical Sources
Total Trihalomethanes	80 ppb	N/A	44 ppb	14 ppb	11 Jul 22	No	Sum total of disinfection by-products
Total Haloacetic Acids	60 ppb	N/A	< 6 ppb	<6 ppb	11 Jul 22	No	Sum total of disinfection by-products

RADIOLOGICAL ACTIVITY - Sampling not required in FY2021. Next sampling scheduled for FY2022						
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results	Sample Date	Violation	Typical Sources
Gross Alpha Activity, calculated	15 pCi/L	0 pCi/L	0.16 pCi/L	26 Jan 22	No	Erosion of natural deposits
Gross Beta Activity, total	50 pCi/L	0 pCi/L	1.9 pCi/L	26 Jan 22	No	Decay of natural and man-made deposits
Combined Radium 226/228 Activity	5 pCi/L	0 pCi/L	1.21 pCi/L	26 Jan 22	No	Erosion of natural deposits

POLYCYCLIC AROMATIC HYDROCARBONS (PAH)/ PFAS/VOCS							
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results in McCully	Your Water Results in Wackernheim	Sample Date	Violation	Typical Sources
Total PAHs	0.2 ppb	N/A	Not Detected	Not Detected	26 Jan 22	No	Burning of coal/gas/wood.
Sum PFOS & PFOA	0.07ppb	N/A	0.0023 ppb	0.0023 ppb	26 Jan 22	No	Industrial sites/ fire training
Volatile Organic Carbon (VOC)	5 ppb	N/A	< 0.5 ppb	< 0.5 ppb	26 Jan 22	No	

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

**Quarterly nitrate monitoring levels ranged from 4.2 to 4.7 ppm.

Table 8: Darmstadt Training Complex (DAGGER) Water Quality Summary

INORGANIC CHEMICALS						
Contaminant	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Your Water Results	Sample Date	Violation	Typical Sources
Aluminum	No Standard*	N/A	<5 ppb	29 Nov 21	No	Erosion of natural deposits
Arsenic	10 ppb	0 ppb	<3 ppb	29 Nov 21	No	Erosion of natural deposits, runoff from production wastes
Barium	2.0 ppm	2.0 ppm	0.055 ppm	29 Nov 21	No	Erosion of natural deposits
Fluoride	4.0 ppm	4.0 ppm	0.14 ppm	29 Nov 21	No	Erosion of natural deposits
Nitrate (as Nitrogen)	10 ppm	10 ppm	2.4 ppm	29 Nov 21	No	Runoff from fertilizer use
Sodium	No Standard*	N/A	13 ppm	29 Nov 21	No	Erosion of natural deposits
DISINFECTANT RESIDUALS – triennial monitoring. Sampling not required in FY2021. Next sampling scheduled for FY2022.						
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results	Sample Date	Violation	Typical Sources
Total Trihalomethanes	80 ppb	N/A	9 ppb	11 Jul 22	No	Sum total of disinfection by-products
Total Haloacetic Acids	60 ppb	N/A	<5 ppb	11 Jul 22	No	Sum total of disinfection by-products
RADIOLOGICAL ACTIVITY – Sampling not required in FY2021. Next sampling scheduled for FY2022.						
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results	Sample Date	Violation	Typical Sources
Gross Alpha Activity, calculated	15 pCi/L	0 pCi/L	2 pCi/L	29 Nov 21	No	Erosion of natural deposits
Gross Beta Activity, total	50 pCi/L	0 pCi/L	1 pCi/L	29 Nov 21	No	Decay of natural and man-made deposits
Combined Radium 226/228 Activity	5 pCi/L	0 pCi/L	0.374 pCi/L	29 Nov 21	No	Erosion of natural deposits
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)/ PFAS/VOCS						
Contaminant	MCL, TT or MRDL	MCLG or MRDLG	Your Water Results	Sample Date	Violation	Typical Sources
Total PAHs	0.2 ppb	N/A	Not Detected	29 Nov 21	No	Burning of coal/gas/wood.

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

10. What is the water tested for?

Table 9: Parameters requiring monitoring per German Final Governing Standards

Inorganics
Ammonia
Cyanide, free
Fluoride
Nitrate (as Nitrogen)
Nitrite (as Nitrogen)
Total Nitrate and Nitrite

Metals
Aluminum
Antimony
Arsenic
Barium
Beryllium
Boron
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Selenium
Sodium
Thallium

Organic Compounds (PAHs)
Benzo(a)pyrene
Total PAHs
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(g,h,h)perylene
Indeno(1,2,3-cd)pyrene

Disinfectant Byproducts
Trihalomethanes, total
Bromodichloromethane
Bromoform
Chloroform
Dibromochloromethane
Haloacetic Acids, total
Dibromoacetic acid
Dichloroacetic acid
Monobromoacetic acid
Monochloroacetic acid
Trichloroacetic acid

Volatile Organic Compounds (VOCs)
Benzene
Bromodichloromethane
Bromoform
Carbon tetrachloride
Chlorobenzene
Chloroform
Dibromochloromethane
1,2-Dichlorobenzene
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
Ethylbenzene
Methyl t-butyl ether
Methylene chloride
Naphtalene
Styrene
Tetrachloroethene
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Vinyl Chloride
Xylene, Total
Trihalomethanes, total
Di (2-ethylhexyl) adipate
Di (2-ethylhexyl) phthalate

Radiological Activity
Gross Alpha Activity, total
Gross Alpha Uncertainty
Gross Alpha Minimum Detect Activity
Gross Alpha Activity (calculated)
Gross Beta Activity, total
Gross Beta Uncertainty
Gross Beta Minimum Detect Activity
Uranium
Radium – 228 Activity
Radium – 228 Uncertainty
Radium – 228 Minimum Detect Activity
Radium – 226 Activity
Radium – 226 Uncertainty
Radium – 226 Minimum Detect Activity
Combined Radium 226/228

Additionally Analyzed Parameters
Alkalinity
Calcium
Magnesium
Phosphorus, total
Saturation (Langelier) Index
Total dissolved solids
Total hardness (calculated)

11. Customer input welcome

Our valued customers do not need to wait for Town Hall meetings to discuss water supply and drinking water quality. For more information on this report or drinking water quality in general, please visit the DPW-Environmental Division website at: https://home.army.mil/wiesbaden/index.php/my-fort/all-services/environmental or call 0611-143-**548-4086/4093** during working hours. The Environmental Division welcomes your ideas and comments to improve this report and our services.

12. Acronyms and definitions

Acronym	Meaning
AL	Action Level. A level below the maximum contaminant level that if exceeded requires initiation of additional monitoring and possible operational actions.
Disinfectant Byproducts	They can form when disinfectants, such as chlorine, react with naturally present compounds in the water.
DoD	Department of Defense
DPW	Directorate of Public Works
EPA	United States Environmental Protection Agency
FY	U.S. Government Fiscal Year. FY23 starts on 1 October 2022 and ends on 30 September 2023.
GW	Ground Water
GWUDISW	Ground Water Under Direct Influence of Surface Water
GFGS	German Final Governing Standards (latest edition 2020)
HLA	Health Advisory Level
LCR	Lead and Copper Rule
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.
MCLG	Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow a margin of safety.
mg/L	Metric unit of measure meaning milligrams per liter. 1 mg/l corresponds to 1 minute in 2 years, or a single penny in $10,000.
mL	Milliliter (1 cup or 8 ounces equals 236.5 mL)
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.
MRDLG	Maximum residual disinfectant level goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
Parameter	Substance being tested for
pCi/L	Metric unit of measure meaning picocuries per liter.
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
PHCE	Public Health Command-Europe
ppb	Parts per billion (or 1 drop in a billion gallons)
ppm	Parts per million (or 1 drop in 1 million gallons)
RDA	Recommended Dietary Allowance or popularly called the Recommended Daily Allowance.
TNCWS	Transient Non-Community Water System
USAG	United States Army Garrison