

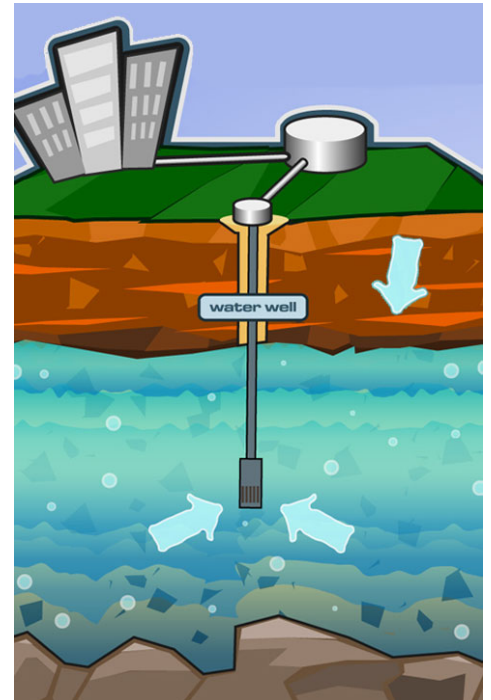
# 2021 Consumer Confidence Report (CCR) Drinking Water Quality

## Special points of interest:

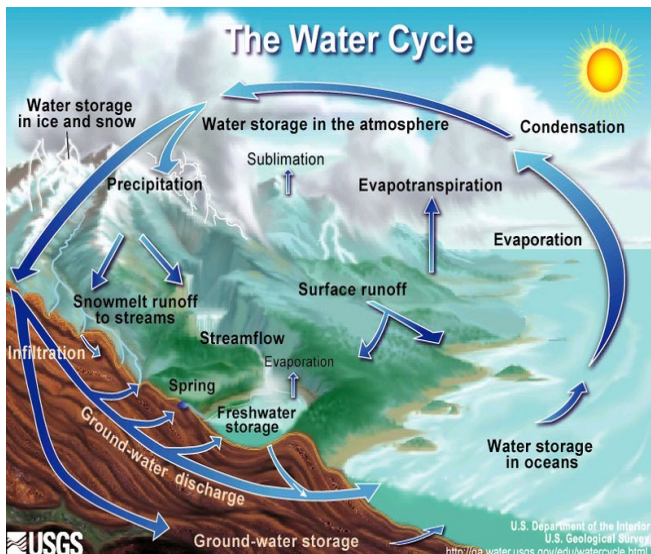
- Where our drinking water comes from
- Who ensures our drinking water is safe
- What standards are used for drinking water compliance
- Potential contamination sources
- The Earth's water cycle
- Contact names and numbers for questions or concerns

### **The Spangdahlem Air Base Drinking Water is Safe!**

The 52d Occupational Medical Readiness Squadron, Bioenvironmental Engineering (BE) Flight, informs consumers annually about the quality of their drinking water from the previous year (2021). Spangdahlem AB has five groundwater wells, two water treatment plants, and four storage reservoirs which supply our potable water system. All five wells extract water from the same partially confined aquifer which meets the demand requirements for the entire installation. The water treatment plants use a filtration system followed by chlorination for disinfection. Fluoride is also added to the water during this process to help maintain healthy teeth. The water treatment plant personnel, along with the Bioenvironmental Engineering Flight, ensure compliance with Final Governing Standards for Germany (FGS-G). The FGS-G standards are a compilation of the most stringent standards published within the European Union, United States Environmental Protection Agency and the Safe Drinking Water Act.



## The Water Cycle



Water is constantly being cycled between the atmosphere, the ocean, and the land. As water evaporates, vapors rise and condense into clouds, which then move over the land and produce precipitation in the form of rain, ice, or snow. Water fills streams and rivers, and eventually flows back into the oceans where evaporation starts the process again. Although water continuously changes state from solid to liquid to gas, the amount of water on Earth remains constant. However, not all water can be treated to produce potable (drinkable) water. Good water conservation practices are key to conserving the treatment efforts and drinkable water that we have available. Therefore, consider reduction of daily water usage to a minimum amount needed (see Page 4 for some helpful water conservation tips).

## What Constituents are Analyzed?

Contaminants that may be present in source water before we treat it include:

- *Microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- *Inorganic contaminants*, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, and mining or farming.
- *Pesticides and herbicides*, which may come from a variety of sources such as agricultural and residential uses.
- *Radioactive contaminants*, which are naturally occurring.
- *Organic chemical contaminants*, includes synthetic and volatile organic chemicals, are by-products of industrial work and petroleum production, also come from gas stations, urban storm water runoff, and septic systems.

### Acronyms and Definitions Used in This Report

Max Contaminant Limit (MCL) - highest level of a contaminant that is allowed in drinking water.  
Action Level (AL) - a set level requiring modifications to the water system if exceeded  
Milligrams per Liter (mg/L) - amount of contaminant per liter of water.  
Picocuries per Liter (pCi/L) - amount of contaminant per liter of water.  
Micrograms per Liter (µg/L) - amount of contaminant per liter of water.

Unless otherwise noted, the tables below list most of the drinking water contaminants that were sampled and tested from January 1 – December 31, 2021. In some instances, the Environmental Protection Agency (EPA) requires certain contaminants be monitored less than once per year as some contaminant concentrations are not expected to vary significantly from year to year. If a contaminant was sampled for but fell below detectable limits, the contaminant is not listed. However, the presence of those contaminants listed does not necessarily indicate the water poses a health risk.

BE and Civil Engineering (CE) started escorting contractors that conducted Legionella sampling during calendar year (CY) 2020 & 2021. This sampling requirement is derived from the FGS-G, which establishes annual monitoring. Legionella bacteria can be found in both potable and non-portable water systems, but more specifically in facilities where warm water can be aerosolized, such as: facilities with showers, pools, water-based saunas, hospitals, etc. A reduction in sampling exemption is available and can be requested once there is at least three (3) consecutive years of results showcasing Legionella bacteria as non-problematic within these facilities. For information regarding health effects of the Legionella bacteria, contact BE or Spangdahlem AB's Public Health office.

**Table 1: Microbiological Contaminants**

Contaminant of Concern	Result	Max Contaminant Limit [MCL] <sup>1</sup>	Within Regulatory limits?
Total Coliform Bacteria <sup>2</sup>	Non-Detect <sup>3</sup>	1/month	✓

**Note 1:** Total Coliform Bacteria MCL: 3 positive monthly sample (in systems that collect <40 samples/month). Spangdahlem is required to take at least 10 samples a month according to the FGS-G; Spangdahlem collects 13 water samples every month.

**Note 2:** Coliforms are bacteria that are naturally present in the environment. Their presence in water can indicate the water supply may be vulnerable to contamination by more harmful, disease-causing organisms.

**Note 3:** Non-Detect means the water had been sampled and analyzed for these contaminants, and the contaminants have not been found. Contact Bioenvironmental Engineering for specific limits of detection for individual contaminants.

**Table 2: Inorganic Chemicals (including Metals)<sup>4</sup>**

Contaminant of Concern	Result	Max Contaminant Limit [MCL]	Within Regulatory limits?
Aluminum	0.028 mg/L	Not Regulated	N/A
Barium	0.031 mg/L	2 mg/L	✓
Fluoride {F}	0.78 mg/L	4 mg/L	✓
Sodium	6.0 mg/L	Not Regulated	N/A
Nitrate {NO <sub>3</sub> }, as N	5.9 mg/L	44.3 mg/L	✓
Nitrite {NO <sub>2</sub> }, as N	Non-Detect <sup>5</sup>	3.3 mg/L	✓
Total Nitrate/Nitrite, as N	5.9 mg/L	10 mg/L	✓

**Note 4:** Inorganic Compounds include salts and metals, occur naturally and from urban storm water runoff.

**Note 5:** Non-Detect means the water had been sampled and analyzed for these contaminants, and the contaminants have not been found. Contact Bioenvironmental Engineering for specific limits of detection for individual contaminants.

**Table 3: Disinfection Byproducts<sup>6</sup>**

Contaminant of Concern	Result	Max Contaminant Limit [MCL]	Within regulatory limits?
Dibromoacetic acid	0.0012 mg/L	0.06	✓
Bromodichloromethane	0.0010 mg/L	0.08 mg/L	✓
Bromoform	0.00058 mg/L	0.08 mg/L	✓
Chloroform	0.0021 mg/L	0.08 mg/L	✓
Dibromochloromethane	0.0024 mg/L	0.08 mg/L	✓
Trihalomethanes, Total {TTHM}	0.0071 mg/L	0.08 mg/L	✓

**Note 6:** Disinfection Byproducts are the reaction of chlorine with organic matter present in water that had been treated.

**Table 4: Radiologicals<sup>7</sup> (Results from 2016-2017)<sup>8</sup>**

Contaminant of Concern	Result	Max Contaminant Limit [MCL]	Within regulatory limits?
Gross Alpha Activity (total)	1.1 pCi/L	15 pCi/L	✓
Gross Beta Activity (total)	2.4 pCi/L	4 pCi/L	✓
Radium-226 Activity	0.13 pCi/L	5 pCi/L	✓
Radium-228 Activity	1.100 pCi/L	5 pCi/L	✓
Uranium	Non-Detect <sup>9</sup>	0.03 mg/L	✓

**Note 7:** Radiological contaminants such as Uranium and Radium are naturally occurring.

**Note 8:** Sampling event for Radiologicals is scheduled for: 2021-2022.

**Note 9:** Non-Detect means the water had been sampled and analyzed for these contaminants, and the contaminants have not been found. Contact Bioenvironmental Engineering for specific limits of detection for individual contaminants.

**Table 5: Lead (Results from 2021)<sup>10</sup>**

Contaminant of Concern	Avg. Result	Action Level [AL] <sup>11</sup>	Within regulatory limits?
Lead	0.0093 mg/L	0.015 mg/L	✓

**Note 10:** Sampling frequency as established by the FGS-G for Lead is once every three (3) years. Last sampling event for Lead was completed in 2021. Next scheduled sampling: Summer 2024.

**Note 11:** 90 percent (18/20) of samples collected for Lead were below the Action Level. The 90th percentile sample is required by the EPA to be compared to the Action Level for Lead samples. This is within the FGS-G and EPA Lead and Copper Rule requirement that 90% of total samples for lead are below the Action Level.

## Lead in Drinking Water

Lead levels on Spangdahlem AB are very low and pose no risk to health. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Spangdahlem is required, per FGS-G to use only lead-free solder, flux, and fittings in the installation or repair of water systems and plumbing systems for drinking water. Small traces of lead may still be present in the above mentioned components; therefore, lead samples are still taken to ensure drinking water safety. Elevated levels of lead can cause health problems, especially for pregnant women and young children. Water that has been sitting in pipes for long periods can collect contaminants like lead; although this risk is already very small, you can further minimize the potential for lead exposure by running your tap for a few seconds before using water for drinking or cooking, and only utilizing cold water from your faucets.



A1C Devon Norman from the Bioenvironmental Engineering Flight conducting pH sampling and analysis.

## Legionella

Legionella is a type of bacterium found naturally in freshwater environments, like lakes and streams. It can become a health concern when it grows undisturbed in manmade building water systems like showerheads, sink faucets, hot water tanks/heaters, etc. Susceptible individuals are exposed by breathing in small droplets of water in the air containing the bacteria. In general, most healthy people exposed to Legionella do not get sick; individuals at risk are those with immuno-compromised diseases/disorders. BE oversaw the contractor that conducted an installation-wide sampling event for Legionella during calendar year 2020 & 2021. For more information regarding sampling methodology or overall questions about Legionella, please contact the BE Office.

## Perfluorinated Compounds (PFCs)

Perfluoroalkyl and polyfluoroalkyl compounds (PFAS) are a large group of human-made chemicals that have been used in industry and consumer products worldwide. In military applications, these have been used primarily in firefighting foam. Per the U.S. EPA, these chemicals have been categorized as emerging contaminants. Although there are no FGS-G requirements to sample for PFCs in drinking water, BE and Spangdahlem AB's Drinking Water Working Group have established biennial monitoring for PFCs contaminants since 2016. All results to this date have been reported as 'negative' or as 'non-detect'. For more information regarding BE's PFC sampling methodology or overall questions about these chemical of concerns, please contact the BE Office.

## Immuno-compromised persons

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people, such as individuals with cancer who are undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk. The Environmental Final Governing Standards for Germany guidelines are designed to reduce the risk of infections by possible microbial contaminants. Bioenvironmental Engineering regularly tests for microbial contamination to ensure continuous water safety. Immune-compromised individuals with concerns should seek advice from their healthcare providers.

## How can you help conserve water?

- Take shorter showers.
- Turn off the faucet in your bathroom while you brush your teeth.
- Don't let the water run constantly while you're washing or rinsing dishes.
- Fill a pitcher with tap water and put it in the fridge, rather than running the water every time you want a cold drink.
- Clean sidewalks and driveways with a broom—not the water hose.
- Water your lawn in the early morning to avoid rapid evaporation.
- Identify and repair dripping faucets as soon as possible.

## Contact information:

We are available to answer any questions or concerns you may have. If you would like additional copies of this report, please contact Bioenvironmental Engineering at DSN: 452-8348. We are located in Building 175, Third Floor (Office Hours: 0730-1630, Mon-Fri)

(Point of Contacts: 1st Lt Angela Magness or SSgt Donel Wanton)

Information in **deutscher** Sprache erhältlich bei der Umwelt-Abteilung. **Mr. Franz Steffes oder Mr. Christian Thurner** at Tel: 452-7257.