

2024 Consumer Confidence Report (CCR)



Annual Water Quality Report RAF Lakenheath United Kingdom



Introduction

This is an annual report detailing aspects of the water quality delivered to Royal Air Force Lakenheath (RAFL). The 48th Medical Group Bioenvironmental Engineering Flight tests the drinking water quality for 74 different contaminants as well as Per- and Polyfluoroalkyl substances as required by the U.S. Department of Defense Environmental Final Governing Standards for the United Kingdom and U.S. Department of Defense directives. This report shows the results of our monitoring for the period of 1 January 2024 through 31 December 2024. Department of the Air Force Instruction 48-144, *Drinking Water Surveillance Program* requires all Department of the Air Force owned or operated systems to provide their consumers an annual water quality report. This following report is to help you understand where your drinking water comes from and what is in it. It will also help you to make informed choices that affect your family's health and help you understand the importance of protecting our drinking water sources.

Where does our water come from?

The RAFL drinking water system draws water from two sources; on-base groundwater boreholes (wells) and purchased water from a local supplier, Anglian Water. We have three boreholes that are filled with groundwater obtained from the Chalk aquifer. RAF Lakenheath's water supply is treated with chlorination using a sodium hypochlorite solution for disinfection purposes and prevents bacteriological growth in the distribution system. Additionally, water may run through a denitrification plant to control the level of nitrates.

In addition to the boreholes, RAF Lakenheath receives water from Anglian Water on an as needed basis through a water main that mixes with the well water to ensure the supply meets all drinking water requirements outlined by U.S. Air Force and Final Governing Standards. The water we receive from Anglian Water is supplied in finished drinking water quality form (this water line serves other local community Anglian Water customers). The Anglian Water supply is primarily from a groundwater borehole (well). As a water wholesaler, Anglian Water publishes Drinking Water Quality Reports for each of their Public Water Supply Zones every three months. These reports are available at <http://waterquality.anglianwater.com/map.aspx> and include a postcode search with test results for your area. The RAFL post code is IP27 9PN.



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Drinking Water Sources

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained through the U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

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 dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity.

Contaminants that may be present in source water include:

- **Microbial contaminants**, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. **Turbidity and Total Organic Carbons are mentioned within this report. According to the EPA, neither have health effects. Although, they can interfere with disinfection and provide mediums for microbial growth and the formation of disinfection by products such as trihalomethanes and haloacetic acids, respectively. Turbidity may indicate the presence of disease-causing organisms.**
- **Inorganic contaminants**, such as salts and metals, are naturally-occurring or resulting from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- **Pesticides and herbicides** that may come from a variety of sources including agriculture, urban storm water runoff, and septic systems.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals that are byproducts of industrial processes or petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- **Radioactive contaminants**, which can be naturally occurring or resulting from oil and gas production and mining activities.

Water Monitoring Results Summary

In order to ensure that tap water is safe to drink, the US EPA and the Final Governing Standard for United Kingdom (FGS-UK) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems.

Tables 1 – 7 list all the primary drinking water standard contaminants that were detected during surveillance over either the last year or when last sampled. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The FGS-UK requires us to monitor certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Table 1
Synthetic Organic Contaminants

Parameter and Units of Measure	Highest Level Detected	Range of Levels Detected	Maximum Contamination Level (MCL)	Maximum Contamination Level Goal (MCLG)	Major Sources in Drinking Water
Atrazine (ppb)	0.019	0.015 - 0.019	0.1	0	Leaching from farm land

Table 2
Inorganic Contaminants

Parameter and Units of Measure	Highest Level Detected	Range of Levels Detected	MCL	MCLG	Major Sources in Drinking Water
Arsenic (ppb)	0.64	0 - 0.64	10	0	Erosion of natural deposits in soil; runoff from orchards; glass and electronics production wastes
Barium (ppm)	0.038	0.032 - 0.038	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits in soil
Boron (ppm)	0.016	0.012 - 0.016	1	1	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits in soil
Chromium (ppb)	2.2	0.68 - 2.2	50	50	Discharge from steel and pulp mills; erosion of natural deposits in soil
Nickel (ppb)	1	0.83 - 1	20	20	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits in soil
Nitrate (as N) (ppm)	4.2	2.3 - 4.2	10	10	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits in soil
Selenium (ppb)	0.53	0 0.53	10	10	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits in soil; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive)

Table 3
Lead and Copper—Housing

Parameter and Units of Measure	Samples Collected	90 th %	Range	AL	MCLG	Typical Source of Contaminant
Lead (ppb)	78	2.6	0.3 - 3.8	10	0	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits in soil
Copper (ppm)	78	0.37	0.015 - 0.6	1.3	1.3	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits in soil

Table 4
Lead — Youth Facilities

Parameter, Units of Measure, Action Level and Goals	<ul style="list-style-type: none"> • Lead is measured in parts per billion (ppb) • AL is 10 ppb • MCLG is 0 ppb 		
Location	Locations Tested	Samples Above AL	Range
RAFL CDC-East	46	10	0 - 40
RAFL CDC-West	77	13	0 - 29
RAFM CDC	80	21	0.78 - 32
RAFL Youth Center	21	0	0.84 - 14
RAFM Youth Center	30	3	0.49 - 5.4
RAFL Elementary School	154	33	0.1 - 270
RAFF Elementary School	104	1	0.08 - 24
RAFL Intermediate School	63	5	0.14 - 49
RAFL Middle School	136	1	0.07 - 16
RAFL High School	114	34	0.25 - 25

Table 5
Disinfection By-Product Compounds

Parameter and Units of Measure	Highest Level Detected and range of constituents	MCL	MCLG	Major Sources in Drinking Water
Total trihalomethanes (TTHMs) (ppb)	0.50 - 12	60	N/A	By-product of drinking water disinfection
Haloacetic Acids (HAA5) (ppb)	2-3	80	N/A	By-product of drinking water disinfection

Table 6
Radioactive Contaminants

Parameter and Units of Measure	Highest Level Detected	MCL	MCLG	Major Sources in Drinking Water
Gross Beta (pCi/L)	2.50	27	0	Erosion of natural deposits in soil
Uranium (µg/L)	0.35	30	0	Erosion of natural deposits in soil

Table 7
Unregulated Contaminants: Per and Polyfluoroalkyl Substances (PFAS)

Parameter and Units of Measure	Highest Level Detected	MCL	Major Sources in Drinking Water
Perfluorooctanoic Acid (PFOA) (ppt)	0.88	4	Aqueous Film-Forming Foam (AFFF)
Perfluorooctane Sulfonate (PFOS) (ppt)	0.98	4	Aqueous Film-Forming Foam (AFFF)
Perfluorohexanesulfonic acid (PFHxS)	2.8	10	Aqueous Film-Forming Foam (AFFF)
Hexafluoropropylene oxide dimer acid	0	10	Aqueous Film-Forming Foam (AFFF)
Perfluorononanoic acid (PFNA) (ppt)	0	10	Aqueous Film-Forming Foam (AFFF)
Perfluorobutanesulfonic acid (PFBS) (ppt)	0	N/A	Aqueous Film-Forming Foam (AFFF)
Mixture of two or more: PFHxS, PFNA, HFPO-DA, and PFBS (Hazard Index of 1)	0.28	1	This is a combination of multiple PFA substances that when combined together must maintain a ratio less than 1.

Additional Information

PFOS/PFOA

What are per- and polyfluoroalkyl substances and where do they come from?

Per- and polyfluoroalkyl substances (PFAS) are a group of thousands of man-made chemicals. PFAS have been used in a variety of industrial and consumer products around the globe, including in the U.S., since the 1940s. PFAS have been used to make coatings and products that are used as oil and water repellents for carpets, clothing, food packaging, and cookware. They are also contained in some fire-fighting foams such as aqueous film-forming foam, or AFFF, used for fighting petroleum fires.

Is there a federal regulation for PFAS in drinking water?

Yes. On April 26, 2024, the Environmental Protection Agency (EPA) published a final National Primary Drinking Water Regulation for certain per- and polyfluoroalkyl substances (PFAS) under the Safe Drinking Water Act (SDWA). This rule went into effect on June 25, 2024 with a compliance deadline of April 26, 2029, five years from the date of publication. While the rule requires routine sampling for certain PFAS by no later than 2027, DoD has been sampling drinking water for PFAS compounds at all DoD-owned and operated water systems since 2017. Under the new rule, the following limits, called Maximum Contaminant Levels (MCL), were established, and DoD water systems will need to meet these levels by April 2029.

For systems where DoD provides drinking water, the Department is collecting the necessary sampling information and is taking actions to ensure compliance within the required 5-year timeframe. Currently, DoD is finalizing a policy on how to apply the EPA rule OCONUS.

Substance	MCL
PFOA	4.0 ppt
PFOS	4.0 ppt
PFHxS	10 ppt
HFPO-DA (GenX)	10 ppt
PFNA	10 ppt
PFBA	n/a
Mixture of two or more: PFHxS, PFNA, HFPO-DA, and PFBS	HI of 1 (Unitless)

Mixture of PFA Substances.

The sampling point is above the Hazard Index (HI) MCL if the HI exceeds the MCL and if two or more Hazard Index analytes had an observed sample result at or above the PQL in any of the samples.

Has RAF Lakenheath tested its water for PFAS?

Yes. In May and November 2024, samples were collected from RAF Lakenheath.

We are informing you that drinking water testing results were below the MCL for all 6 PFAS compounds covered by the EPA drinking water rule, including PFOA and PFOS. The water system will be periodically resampled as required by the DoD drinking water policy to ensure continued compliance.

Nitrate

Although the level of nitrate (refer to Table 2) is consistently not above the health effect level, the US EPA requires the following information be included in this report: “Nitrate in drinking water at levels above 10 ppm 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 are caring for an infant, you should ask advice from your health care provider.”

Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Lead and Copper sampling is conducted every 6 months by regulation. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at: 1-800-426-4791 or at <http://www.epa.gov/safewater/lead>.

Youth Facility Lead Testing

The 48th OMRS Bioenvironmental Engineering office focused on sampling lead throughout all Tri-base Youth Facilities in 2024. Overall, we collected samples from 875 sinks and water fountains across five schools and four care facilities. During that sampling, we identified a total of 126 fixtures that exceeded the 10 ppb action level set by the EPA. The majority of these fixtures were not primary drinking sources for our children, but were removed from use as a precautionary measure to minimize health risk. Overall, considering historical medical surveillance data and detected lead levels, we assessed the health risk to the base population is low.

Long-term mitigation plans started with the Lakenheath Elementary School, with identified lead-containing pipe removed from building structure over the summer break. Follow-on testing revealed that it was effective in removing lead in most, but not all fixtures. Additional work and testing are being done to fully remove lead from our school.

In addition to physical mitigation of the systems in the affected buildings, the 48th Medical Group increased availability to blood lead testing for our youth population when requested by parents. To date, blood lead testing has identified no increases to blood lead levels in our children that attend our schools or use our care facilities. The increased availability of blood lead testing remains in effect, and we recommend that concerned parents speak to their child’s PCM regarding testing.

Customers with Special Health Concerns

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, those with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA and Center for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available on the Safe Drinking Water Hotline or on the US EPA's website, <http://www.epa.gov>.

This report is available online at: <http://www.lakenheath.af.mil/>. For more information or questions about this CCR please contact the 48th Operational Medical Readiness Squadron, Bioenvironmental Engineering Flight at 01638-528047.



Terms Used in This Report

90th Percentile Level: The level of lead and copper at which 90% of drinking water samples taken in a system are below. This level is compared with the MCL for lead and copper to determine system compliance.

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

FGS-UK: Final Governing Standards for the United Kingdom. The governing environmental regulation for US military bases in the UK.

Level Detected: Laboratory analytical result for a contaminant; this value is evaluated against an MCL or AL to determine compliance.

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 below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

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.

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Maximum residual disinfectant level goal (MRDLG): 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.

Method Detection Limit (MDL): refers to the lowest concentration of a substance that can be reliably detected by a specific analytical method.

NTU: Nephelometric Turbidity Units. A unit used to describe the clarity of water. Higher numbers relates to more cloudy water.

pCi/L: picocuries per liter

ppb: parts per billion or micrograms per liter ($\mu\text{g/L}$)

ppm: parts per million or milligrams per liter (mg/L)

ppt: parts per trillion or nanogram per liter (ng/L)

Primary Drinking Water Standards (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Range: The range of the highest and lowest analytical values of a reported contaminant.

TT: Treatment Technique– required procedure or level of technological performance set when there is no reliable method to measure a contaminant at very low levels.