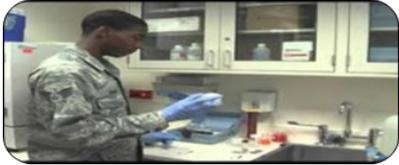




## 2011 Annual Water Quality Report (Consumer Confidence Report)

### RAF Lakenheath, UK



### Introduction

Air Force Instruction 48-144, *Safe Drinking Water Surveillance Program*, and the United States Environmental Protection Agency (US EPA) require all community water systems to provide their consumers an annual water quality report. This report will 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 families' health and help you understand the importance of protecting our drinking water sources.

### Source Water

The 48th Civil Engineer Squadron (CES) operates RAF Lakenheath's potable water distribution system. Water comes from three boreholes (wells) that are recharged from groundwater obtained from the Chalk aquifer. Additionally, RAF Lakenheath purchases

water from the local supplier, Anglian Water that supplements the base water supply and is used as needed.

### Treatment Process

RAF Lakenheath's water supply is chlorinated using a sodium hypochlorite solution. Chlorine is added to the water supply for disinfection purposes and prevents bacteriological growth in the distribution system. Additionally, all water runs through a de-nitrification plant to control the level of nitrates. Finally, fluoride is added to the water supply to prevent tooth decay in children.

### Testing

Bioenvironmental Engineering (BE) technicians collect bacteriological samples from various locations in the water distribution system. These samples are analyzed in the BE water lab to ensure no bacteriological growth is present in the distribution system. Additionally, BE technicians collect water samples for chemical and radiological analysis, as well as further bacteriological testing from representative locations in the water system. They are sent to Northumbrian Water Laboratory (NWL) for analysis. NWL is headquartered in Newcastle Upon Tyne, England. They have laboratories throughout England, but primarily analyze drinking water at their Horsley Laboratory in Newcastle. Additionally, due to a history of false positives for a particular pesticide, as well as low EPA and FGS-UK requirements for detection limits, several water samples are sent to the US Army Public Health Command US Laboratory in Germany. All lab results are reviewed and maintained by the BE Flight at RAF Lakenheath to ensure compliance with both US and UK safe drinking water standards.

### Water Analysis Results

RAF Lakenheath's water supply is tested for 131 different substances. The table below lists the contaminants detected that require reporting by the US EPA and the September 2010 US Department of Defense Environmental Final Governing Standards - United Kingdom (FGS-UK).

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 water poses a health risk.** More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791 or going to their ground and drinking water website at <http://www.epa.gov/safewater>.

of animals or from human activity. The table of analysis results below lists possible, generic sources for some detected contaminants; an identification of a possible source is not specific to RAF Lakenheath, but applies to all water in general.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems and wildlife

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff and industrial or domestic wastewater discharges

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff and residential use  
Organic chemical contaminants, including synthetic or volatile organic chemicals, which are by-products of industrial processes and can come from gas stations, urban storm water runoff and septic systems

Radioactive contaminants, which can be naturally occurring or be the result of industrial activities

In order to ensure that tap water is safe to drink, limits are established on the amount of certain contaminants in water provided by public water systems. The limits below are from the FGS-UK. This document integrates US and UK requirements by implementing the more stringent limit of any chemical regulated by either country.

### Results Discussion

The results in the table below include all chemicals covered by the US EPA's Safe Drinking Water Act for which analysis was performed and concentrations of the chemicals that were detected from 1 January 2011 to 31 December 2011. During CY 2010 sampling time frame, RAF Lakenheath received zero exceedances of maximum contaminant limit (MCL) for any of the chemicals of health concern.

**The tap water at RAF Lakenheath is safe and healthy .**

### Additional Health Information

Nitrate in drinking water at levels above 10 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 are caring for an infant you should ask advice from your health care provider.

If present, elevated levels of lead can cause seri-



ous 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. We strive to provide high quality drinking water, but cannot control the variety of materials used in plumbing components. 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. More information is available from the Safe Drinking Water Hotline (800) 426-4791 or at <http://www.epa.gov/safewater/lead>.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 from the Safe Drinking Water Hotline or on the US EPA's website, <http://www.epa.gov>.

### Input and Information

This report is available online at the following: <http://www.lakenheath.af.mil/>. Copies can be requested via mail by sending a self-addressed stamped envelope to:

48 AMDS/SGPB  
ATTN: 2011 Water Quality Report  
Unit 5210 Box 230  
APO, AE 09461

For more information please contact Capt Kirk at the 48th Aerospace Medicine Squadron, Bioenvironmental Engineering Flight

### Table of Detected Contaminants

<u>Microbial</u>	Units	Range	MCL	Possible Source
Total Coliform	# pos	1 positive	>1 per month	Natural bacteria present in the environment
<b>Organic</b>				
Total Trihalomethanes	mg/L	0.0224-0.032	0.08	By-product of drinking water chlorination
Total Organic Carbon	mg/L	0.95-1.6	No Abnormal Changes	Previous data shows no abnormal trend nor significant increase in the last 3 years
<b>Inorganic</b>				
Arsenic	mg/L	0.00036-0.00073	0.01	Erosion of natural deposits; runoff from orchards, runoff from glass & electronics production wastes
Barium	mg/L	0.037-0.045	2.0	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Bentazone	mg/L	0.00014-0.00018	0.0001	
Boron	mg/L	0.03-0.051	1	Released from rocks and soils through weathering
Conductivity	µS/cm at 20°C	360-510	2500	Some conductivity is expected in drinking water
Colony Counts After 3 Days at 22°C	#/ml	10	No Abnormal Change	
Cyanide	mg/L	0.00057-0.0021	0.05	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories
Endothal	mg/L	0.0028	0.1	
Lead	mg/L	0.000061-0.0071	0.015	Corrosion of household plumbing systems; erosion of natural deposits
Nickel	mg/L	0.00059-0.0027	0.02	Corrosion of plumbing system
Nitrate (as N)	mg/L	0.384-2.936	10	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Selenium	mg/L	0.0004-0.00052	0.01	
Sodium	mg/L	11-14	200	Stems from rocks and soils and naturally ends up in water systems
Total Pesticides	mg/L	0.0063-0.018	0.0005	

### Table of Detected Contaminants

<u>Inorganic</u>	Units	Range	MCL	Possible Source
Turbidity	NTU	None Detected	1	Measure of water clarity, not health related
<b>Radionuclide</b>				
Gross Alpha	Bq/L	0.014-0.034	0.555	A natural element of the Earth's crust
Gross Beta	Bq/L	0.025-0.045	1.85	A natural element of the Earth's crust

### Secondary Standard Contaminants\*

<u>Inorganic</u>	Units	Range	MCL	Possible Source
Aluminum	mg/L	0.0089	0.2	
Chloride	mg/L	20-30	250	
Copper	mg/L	0.00065-0.12	2.0	Corrosion of plumbing system
Color	mg/L	1-1.3	20	
Fluoride	mg/L	0.39-0.64	1.5	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Manganese	mg/L	0.000068-0.000074	0.05	
pH (Hydrogen Ion)	pH units	7.5-7.7	6.5 -9.5	Drinking water is expected to have a fairly neutral pH amount (5.5-9.5)
Sulfate	mg/L	18-22	250	
Turbidity	NTU	None Detected	1	Measure of water clarity, not health related
Zinc	mg/L	0.0041-0.010	5	

\*Secondary standards have a PCV rather than an MCL and are non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic effects in drinking water.

**Definitions:** **MCL:** Maximum Contaminant Level, or the highest level of a contaminant that is allowed in drinking water. MCLs are enforceable standards, **Range:** Shows the lowest and highest levels found during a testing period, if only one sample was taken, then this number equals the Level Found, **FGS-UK** - Final Governing Standards for the United Kingdom - The governing environmental regulation for US military bases in the UK, **ND** - Not Detected - No chemical detected; however, laboratories can only detect a specified quantity or concentration of the chemical in drinking water, **NTU** - Nephelometric Turbidity Units. A unit used to describe the clarity of water. Higher numbers relates to more cloudy water, **Total Trihalomethanes.** The sum of the detected concentrations of chloroform, bromoform, dibromochloromethane, and bromodichloromethane in mg/L.

**Abbreviations:**

°C: degrees in Celsius, **mg/L** - milligrams per liters, **µS/cm** - microsiemens per liter, **Bq/L** - Becquerels per liter