



# Drinking Water Quality Annual Report for Calendar Year 2016



## Yokota Air Base & Tama Hills (Published: June 2017)

この年次報告書には横田基地の飲料水の品質についての重要な情報が記載されています。この英語版が正式な原本として公示されますが、日本語版が必要な方は第 374 航空医学中隊生物環境工学課 (担当:助川) 内線 225-8040 までご連絡下さい。

This annual report summarizes the quality of water delivered by Yokota Air Base, Japan. Under the "Consumer Confidence Reporting Rule" of the federal Safe Drinking Water Act (SDWA), community water systems are required to report this water quality information to the consuming public. Presented in this report is information on the source(s) of our water, its constituents, and the associated health risks. This report is designed to strengthen public understanding about the safety of their public water systems; technical language included is required by the Environmental Protection Agency (EPA). **The drinking water systems at Yokota Air Base and Tama Hills are safe and reliable.**

### 1. Drinking Water Sources for Yokota Air Base and Tama Hills

**Yokota:** The primary Yokota AB water supply system consists of eleven (11) deep ground water wells on the installation\*. These sources provide water to five different treatment and distribution plants within three distinct areas on the base (East, Main, and West). Chlorination of the water occurs at these plants. The approximate population served on Yokota AB is 11,500 people. The water supply, pumped from wells with an average of 2.1 million gallons per day, is then sent to the on-base treatment plants for chlorination and fluoridation then pumped to elevated storage tanks prior to entering the distribution system.

*\*Yokota AB also maintains connections to **Musashi-Murayama** and **Fussa** cities used for use during **emergency situations only** treated at **Ozaku** and **Fussa-Musashinodai** treatment plants (monitoring is adjusted to accommodate the change if used.)*

**Tama:** The water supply system at Tama Hills Recreational Annex consists of two wells within the annex. Chlorination of the water occurs at two water treatment plants. The Tama Hills water system serves approximately 200 transient personnel.

### 2. Common Sources of Drinking Water Contamination

Drinking water sources (both tap 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 other substances from animal or human activity. Contaminants that may be present in source water include:

- **Microbial contaminants:** Viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants:** Salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- **Pesticides and herbicides:** May come from agriculture, urban storm water runoff, and residential uses.
- **Organic chemical contaminants:** Including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and can come from gas stations, urban storm water runoff, and septic systems.
- **Radioactive Contaminants:** Can be naturally-occurring or the result of oil/gas production and mining activities.

### 3. Water Safety and Quality Assurance Responsibilities

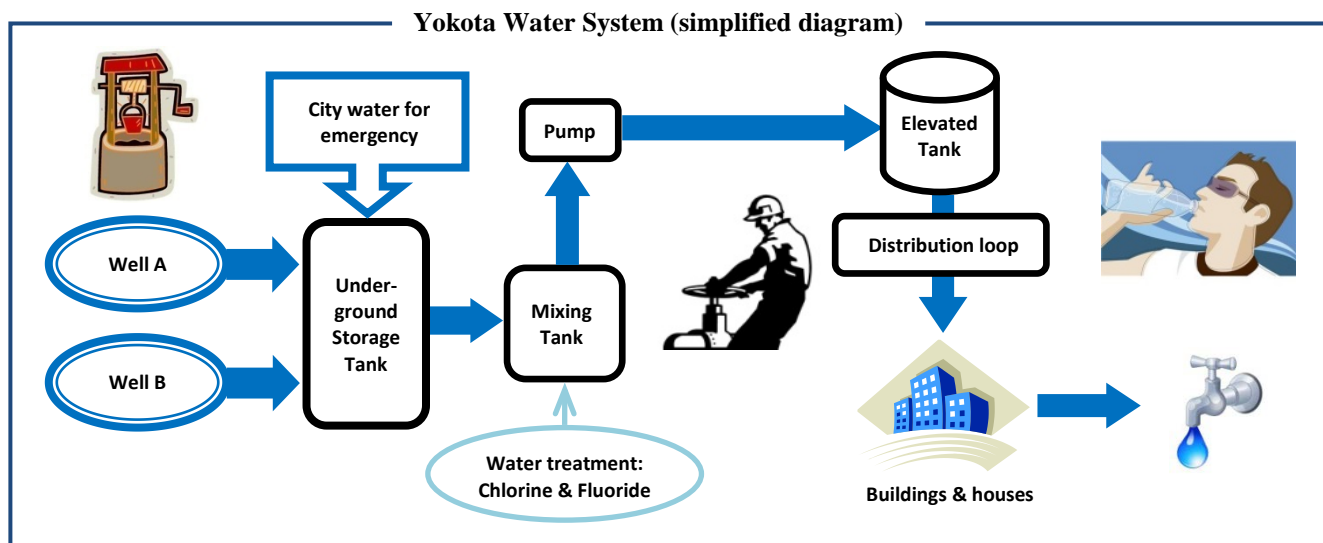
The 374th Civil Engineer Squadron (CES) manages the maintenance and operations of the drinking water supply and distribution system. CES Utilities personnel operate 24 hours a day to maintain sufficient pressurization, chlorination, and fluoridation.

The 374th Aerospace Medicine Squadron (AMDS) Bioenvironmental Engineering (BE) Flight monitors the quality of the drinking water provided to consumers and addresses any health related concerns. Analysis is conducted by EPA-certified laboratories.

**The Drinking Water Working Group (DWWG), required by AFI 48-144 is held quarterly at the BE Conference Rm (Bldg. 1585, Rm 103) by members of CE Utility Shop, CE Environmental Element, and BE. The DWWG meets to address all local DW issues involving compliance, risk reduction, and continuous improvement. DWWG has the authority to call a special meeting with Public Affairs (PA), Base Legal (JA), or other related members as needed. Consumers are welcome to attend this meeting, please call 225-8040 for more information.**

### 4. Drinking Water Treatment Information

Water is treated at the plant before it is sent to the distribution system. The treatment method is chlorination for disinfection. BE monitors the levels of chlorine, fluoride, and presence of bacteria at the distribution sites weekly at Yokota and monthly at Tama. BE contacts the CES Utilities shop when adjustments are needed.



### 5. Drinking Water Monitoring

Yokota BE routinely monitors for over 170 contaminants using EPA-certified laboratories and approved methods in accordance with Japan Environmental Governing Standards (JEGS) and EPA regulations.

- **Microbial contaminants:** Sampling is conducted every week at distribution points (such as child care facilities, elementary schools, youth center and the hospital), the analysis includes chlorine and pH levels and coliform testing. Coliforms are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Tests for both total and fecal coliforms have been negative in Yokota's water.
- **Other contaminants (inorganic, pesticides & herbicides, organic chemical and radioactive):** Monitored on a different frequency respectively as shown below Table 1;

**Table 1. Contaminant Groups and Monitoring Frequencies**

Contaminant Group	Chemical Name	Monitoring Frequent	Sampling Location
<b>Microbial</b>	Total coliform, Fecal coliform, pH, Free Available Chlorine	Weekly (19 samples/month)	CDCs, Schools, Hospital, Food Facilities, Aircraft watering point
<b>Inorganic</b>	Metals, (e.g. lead, copper, selenium, arsenic, mercury, nickel, sodium, etc.) <b>*(14 Total)</b>	Once every 3 years	7 water plants Yokota - 5 Plants Tama - 2 Plants
	Nitrate, Nitrite	Annually	
	Asbestos	Once every 9 years	
<b>Volatile Organic Compounds (VOC)</b>	Benzene, Trichloroethylene, Carbon Tetrachloride, etc. <b>*(21 Total)</b>	Quarterly	7 water plants
<b>Synthetic Volatile Organic Compounds (SVOC)</b>	Pesticides, Herbicides, PCBs, etc. <b>*(33 Total)</b>	Every 3 years 2 quarterly	7 water plants
<b>Disinfectant By-Products</b>	Total Trihalomethanes (TTHM) Total Haloacetic Acids (HAA5)	Annually	7 distribution area
<b>Lead &amp; Copper From Plumbing Materials</b>	Lead, Copper	Once every 3 years	30 Housing (each 10 samples from main, east and west)
<b>Radiological Compounds</b>	Gross Alpha and Beta, Radium226/228,Uranium	Every 4 years 4 quarterly	7 water plants

**\*All regulated chemicals listed in JEGS Chapter 3, Table C3.T7, C3.T9 and C3-T10**

## 6. Special Precautions

Although our water is safe to drink and meets all water quality standards, some individuals are more susceptible to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer and undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk. These people should seek advice about drinking water from their health care providers.

About **“Lead in Drinking Water”**: 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. 374 CES Utilities is responsible for providing 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.** BE monitors lead and copper in housing every three years. **All test results are acceptable by JEGS and EPA water quality standards.** If you are concerned about lead levels in your home’s water, please contact BE at DSN

225-8040. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>. For further information regarding contaminants and potential health effects, contact the EPA's Safe Drinking Water Hotline at 1-800-426-4791 or please visit EPA website at: <http://www.epa.gov/safewater/index.html>

## 7. Monitoring Results in Calendar Year 2016

**OUR DRINKING WATER MEETS ALL JEGS AND EPA REQUIREMENTS.** Table 2 (Yokota Water System), Table 3 (Tama Water System) and Table 4 (Non-Regulated Compound) summarize monitoring results.

**Table 2. 2016 Yokota AB Water System Detected Contaminants**  
-Detected Chemicals Only-

Substances	Violation? Yes / No	Units	Detected Level		MCLG	MCL	Last Sampled	Major Sources in Drinking Water
			High	Low		EPA (JEGS)		
<b>Inorganics</b> Monitoring Frequency: Annually for Nitrate, every 3 years for other Inorganics <i>Only chemicals detected are listed below, 10 others were tested.</i>								
Arsenic	No	ppb	2.8	ND	0	10 (10)	Nov 2015	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium	No	ppm	0.0042	ND	2	2 (2)	Nov 2015	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride	No	ppm	0.8	0.3	4	4 (4)	Nov 2015	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
*Nitrate	No	ppm	*5.1	0.72	10	10 (10)	Apr 2016	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	No	ppm	19	12	N/A	N/A (200)	Nov 2015	Erosion of natural deposits
<b>Volatile Organic Compounds</b> Monitoring Frequency: Quarterly <i>Only chemicals detected are listed below, 19 others were tested.</i>								
1,1-Dichloroethylene	No	ppb	1.0	ND	7	7 (7)	Nov 2016	Discharge from industrial chemical factories
Tetrachloroethylene	No	ppb	1.5	ND	0	5 (5)	Nov 2016	Discharge from factories and dry cleaners
<b>Disinfectant By-Products</b> Monitoring Frequency: Annually <i>Only chemicals detected are listed below, HHA5 chemicals were not detected</i>								
Total Trihalomethanes (TTHM)	No	ppb	0.5	ND	N/A	100 (80)	Jul 2016	By-product of drinking water disinfection
<b>Radiological Compounds</b> Monitoring Frequency: every 4 years								
Combined Radium	No	pCi/L	1.87	ND	0	5 (5)	Nov 2013	Erosion of natural deposits
Gross Alpha	No	pCi/L	2.8	ND	0	15 (15)	Nov 2013	
Uranium	No	pCi/L	0.25	0.01	0	30 (30)	Nov 2013	

\***Nitrate:** 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.

**Table 3. 2016 Tama Hills Water System Detected Contaminants**  
-Detected Chemicals Only-

Substances	Violation? Yes / No	Units	Detected Level		MCLG	MCL	Last Sampled	Major Sources in Drinking Water
			High	Low		EPA (JEGS)		
<b>Inorganics</b> Monitoring Frequency: Annually for Nitrate, every 3 years for Other Inorganics <i>Only chemicals detected are listed below, 12 others were tested.</i>								
Barium	No	ppm	0.0025	ND	2	2 (2)	Nov 2015	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Nitrate	No	ppm	1.0	0.09	10	10 (10)	Apr 2016	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	No	ppm	11	ND	N/A	N/A (200)	Nov 2015	Erosion of natural deposits
<b>Volatile Organic Compounds</b> Monitoring Frequency: Quarterly <i>Only chemicals detected are listed below, 19 others were tested.</i>								
Ethylbenzene	No	ppb	0.7	ND	700	700 (700)	Nov 2016	Discharge from petroleum refineries
Xylenes	No	ppm	0.0006	ND	10	10 (10)	Nov 2016	Discharge from petroleum factories; Discharge from chemical factories
<b>Disinfectant By-Products</b> Monitoring Frequency: Annually								
Total Trihalomethanes (TTHM)	No	ppb	14.6	1.3	N/A	100 (80)	Apr 2016	By-product of drinking water disinfection
Haloacetic Acids (HAA5)	No	ppb	1.2	ND	N/A	60 (60)	Apr 2016	
<b>Radiological Compounds</b> Monitoring Frequency: every 4 years								
Combined Radium	No	pCi/L	1.78	ND	0	5 (5)	Nov 2013	Erosion of natural deposits
Gross Alpha	No	pCi/L	1.05	ND	0	15 (15)	Nov 2013	
Uranium	No	pCi/L	0.25	0.01	0	30 (30)	Nov 2013	

**Non Regulated Compounds –Yokota and Tama**

- Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA)

**Table 4. PFOS/PFOA < Emerging Contaminants >**

Substances	Violation? Yes / No	Units	Detected Level		EPA Health Advisory	MCL	Last Sampled	Major Sources in Drinking Water
			High	Low		JEGS		
PFOS/PFOA	No	ppt	35.2	ND	70	N/A	Nov 2016	Component of aqueous film forming foam, a Firefighting foam

**Background:** PFOS and PFOA have been used for decades in many commercial products such as stain resistant carpeting, firefighting foam, nonstick cookware, fabric coatings and some food packaging. The EPA continues to develop the science on any health effects on humans and evaluate whether these contaminants should be regulated in drinking water. On May 19, 2016, the EPA established lifetime health advisory levels of 70 parts per trillion for PFOA and PFOS in drinking water. These two compounds are classified as emerging contaminants due to evolving regulatory standards.

**We continue to monitor the water sources:** Although PFOS/PFOA are unregulated and commonly used, the Air Force is taking aggressive measures to reduce the risk of mission-related PFOS/PFOA contamination to installation and supporting communities' drinking-water sources. Yokota BE modified its sampling plan to include these contaminants during quarterly monitoring.

## Terms Defined

**EPA** - United States Environmental Protection Agency

**JEGS** - Japan Environmental Governing Standards

**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 expected health risk. MCLGs allow for a margin of safety.

**N/A** - Not applicable, No MCL established.

**ND** - Means not detected and indicates that the substance was not found by laboratory analysis.

**Part per million (ppm)** – 1/1,000,000; One ppm corresponds to 1 minute in 2 years, or a single penny in \$10,000.

**Part per billion (ppb)** – 1/1,000,000,000; One ppb corresponds to 1 minute in 2,000 years, or a single penny in \$10,000,000.

**Part per trillion (ppt)** – 1/1,000,000,000,000; One ppt corresponds to 1 minute in 2,000,000 years, or single penny in \$10,000,000,000

**Picocuries per liter (pCi/L)** - Picocuries per liter is a measure of radioactivity in water.

## For more information

### Organization

374 CES Family Housing Office

Facility Manager

374 CES Water Utility Shop

374 AMDS Bioenvironmental Engineering

### DSN

225-9258

Varies

225-7089

225-8040

### Service Area

Military housing residents

Dorm residents

Water treatment and distribution

Drinking water quality concerns

