



2014 Drinking Water Quality Annual Report



Kadena AB Okinawa, Japan (Including Chibana and O'Donnell Military Family Housing)

Kadena, your water is safe to drink. Our goal is to provide you with a safe and dependable supply of drinking water, and we do just that. This annual report summarizes the quality of water delivered to Kadena Air Base. 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 of our water, its constituents and the health risks associated with any contaminants.

The 18th Aerospace Medicine Squadron, Bioenvironmental Engineering Flight (BEF), is responsible for drinking water monitoring of AF-owned or managed installations, including military family housing (MFH) on Okinawa. The BEF provides drinking water test results through the Consumer Confidence Report (CCR) to report the findings to the affected occupants and MFH residents.

All sections of the CCR are written in English. Please contact the BEF at 634-4752 for Japanese translation.

第18航空医療中隊、生物環境工学部（BEF）は、沖縄にある空軍所有の施設及びその他の関連施設、更には基地内住宅の水道飲料水のモニタリングを空軍規則により行なっています。BEFはモニタリングの水道水分析結果をCCRで利用者及び関係者に報告しています。

CCRの全てが英文訳の文書です。日本語訳希望者はBEFまでご連絡下さい。基地内：634-4752 基地外から：098-938-1111 ext. 634-4725

Where does our water come from?

The Kadena AB drinking water system, to include Chibana and O'Donnell MFH is operated and maintained by the 18th Civil Engineering Squadron (CES). The water is pumped from the Ishikawa and Chatan water treatment plants. The water supplied to these treatment plants are a combination of surface rivers and reservoirs, a desalination plant fed by the East China Sea, and ground water wells located on Kadena AB.

During the 2014 Sanitary Survey performed by the PACAF Primacy, it was recommended that Kadena AB, Chibana MFH, and O'Donnell MFH be treated as separate water systems. Therefore, starting CY2015 all three will be treated as separate water systems and additional sampling will be performed.

How pure is our water?

The sources of drinking water (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 in some cases, trace-amounts of radioactive material, and can pick up substances resulting from the presence of animals or human activity. Contaminants that may be present in any source water 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, mining, or farming.
- ◆ **Pesticides and herbicides**, which 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**, which can be naturally-occurring or the result of oil/gas production and mining activities.
- ◆ In order to ensure tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.
- ◆ **Volatile Organic Chemicals**, are ground-water contaminants of concern because of very large environmental releases, human toxicity, and a tendency for some compounds to persist in and migrate with ground-water to drinking-water supply.
- ◆ **Disinfection By-Products**, are formed when disinfectants used in water treatment plants react with bromide and/or natural organic matter (i.e., decaying vegetation) present in the source water.
- ◆ 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 by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).
- ◆ The CES manages the maintenance and operations of the drinking water supply and distribution system. CES Utility personnel operate on 24 hour work shifts to ensure the system is pressurized and maintains sufficient chlorine residual.
- ◆ The BEF monitors the quality of the drinking water provided to consumers and addresses any health related concerns.

How our water is monitored?

The BEF routinely monitor for over 80 contaminants using certified laboratories and approved methods in accordance with Japan Environmental Governing Standards (JEGS).

- ◆ **Microbial contaminants** sampling is conducted every week at distribution points (such as child care facilities, DoDDs schools, youth centers, MFH units and the clinic), to include analysis for the levels of chlorine and pH in the water. No compliance monitoring violations were ob-

served in 2014. However due to construction projects and water main breaks, precautionary monitoring beyond required compliance sampling and boil water notices have been provided to the public as needed.

- **Other contaminants** (*inorganic, pesticides & herbicides, organic chemical and radioactive contaminants*) are monitored on different frequencies. The contaminants, listed in Table 1, were the primary contaminants monitored in our drinking water.

Potential Health Effects & Risk

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer 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 from infections. These individuals should seek advice about drinking water from their health care providers if they have any concerns.

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. CES Utility 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. The BEF monitors lead and copper in housing, annually. All test results have met JEGS drinking water requirements. If you are concerned about lead levels in your home's water, please contact the BEF at 634-4752. 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 online at:

<http://www.epa.gov/safewater/lead>.

Kadena AB drinking water is on reduced sampling frequency for Synthetic Organic Chemicals (Pesticides/PCBs). This is based on the study completed in CY2012. Sampling frequency for these chemicals was reduced from four quarterly samples per year to two consecutive quarterly samples per year.

We are pleased to announce that our drinking water meets all JEGS and EPA requirements!

Table 1: 2014, Kadena AB Water Monitoring Data for the period of January 1 to December 31, 2014

Substances	Violation? Yes/No	Units	Highest Level Detected	MCL	Frequency	Likely Source of Contamination
				Japan Environmental Governing Standards		
Inorganic Chemicals						
Sodium	No	mg/L	36	200	Quarterly	Erosion of natural deposits
Antimony	No	mg/L	< 0.0010	0.006	Quarterly	Erosion of natural deposits
Arsenic	No	mg/L	< 0.0010	0.01	Quarterly	Erosion of natural deposits
Barium	No	mg/L	0.0063	2.0	Quarterly	Erosion of natural deposits
Beryllium	No	mg/L	< 0.0003	0.004	Quarterly	Erosion of natural deposits
Cadmium	No	mg/L	< 0.0010	0.003	Quarterly	Erosion of natural deposits
Chromium	No	mg/L	< 0.0009	0.05	Quarterly	Erosion of natural deposits
Nickel	No	mg/L	< 0.0010	0.1	Quarterly	Erosion of natural deposits
Selenium	No	mg/L	0.0031	0.01	Quarterly	Erosion of natural deposits
Cyanide	No	mg/L	< 0.01	0.01	Quarterly	Erosion of natural deposits
Fluoride	No	mg/L	< 0.1	4.0	Quarterly	Erosion of natural deposits
Thallium	No	mg/L	< 0.0003	0.002	Quarterly	Erosion of natural deposits
Mercury	No	mg/L	< 0.0001	0.0005	Quarterly	Erosion of natural deposits
Total Nitrate/Nitrite	No	mg/L	0.7	10	Quarterly	Runoff from fertilizer use; leaching septic tanks/sewage; erosion of natural deposits
Pesticides/PCBs						
Endothall	No	mg/L	< 0.0090	0.1	Quarterly	Agriculture; urban storm water runoff; residential uses
Diquat	No	mg/L	< 0.0004	0.02	Quarterly	Agriculture; urban storm water runoff; residential uses
Chlordane	No	mg/L	0.0001	0.002	Quarterly	Agriculture; urban storm water runoff; residential uses
Toxaphene	No	mg/L	< 0.0010	0.003	Quarterly	Agriculture; urban storm water runoff; residential uses
2,4-D	No	mg/L	< 0.0001	0.07	Quarterly	Agriculture; urban storm water runoff; residential uses
Dalapon	No	mg/L	< 0.0010	0.2	Quarterly	Agriculture; urban storm water runoff; residential uses
Dinoseb	No	mg/L	< 0.0001	0.007	Quarterly	Agriculture; urban storm water runoff; residential uses
Pentachlorophenol	No	mg/L	< 0.00004	0.001	Quarterly	Agriculture; urban storm water runoff; residential uses
Picloram	No	mg/L	< 0.0001	0.5	Quarterly	Agriculture; urban storm water runoff; residential uses
2,4,5-TP	No	mg/L	< 0.0001	0.05	Quarterly	Agriculture; urban storm water runoff; residential uses
Aldicarb	No	mg/L	< 0.0005	0.003	Quarterly	Agriculture; urban storm water runoff; residential uses
Aldicarb sulfone	No	mg/L	< 0.0007	0.003	Quarterly	Agriculture; urban storm water runoff; residential uses
Aldicarb sulfoxide	No	mg/L	< 0.0005	0.004	Quarterly	Agriculture; urban storm water runoff; residential uses
Carbofuran	No	mg/L	< 0.0009	0.04	Quarterly	Agriculture; urban storm water runoff; residential uses

Oxamyl	No	mg/L	< 0.0010	0.2	Quarterly	Agriculture; urban storm water runoff; residential uses
Glyphosate	No	mg/L	< 0.0060	0.7	Quarterly	Agriculture; urban storm water runoff; residential uses
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	No	mg/L	< 0.00000005	0.00000003	Quarterly	Agriculture; urban storm water runoff; residential uses
1,2-Dibromo-3-chloropropane	No	mg/L	< 0.0002	0.0002	Quarterly	Agriculture; urban storm water runoff; residential uses
PCBs (as decachlorobiphenyls)	N/A	mg/L	N/A	0.0005	Quarterly	Agriculture; urban storm water runoff; residential uses
Alachlor	No	mg/L	< 0.0001	0.002	Quarterly	Agriculture; urban storm water runoff; residential uses
Atrazine	No	mg/L	< 0.0001	0.003	Quarterly	Agriculture; urban storm water runoff; residential uses
Benzo[a]pyrene	No	mg/L	< 0.00002	0.0002	Quarterly	Agriculture; urban storm water runoff; residential uses
Di (2-ethylhexyl) adipate	No	mg/L	< 0.0006	0.4	Quarterly	Agriculture; urban storm water runoff; residential uses
Di (2-ethylhexyl) phthalate	No	mg/L	< 0.0006	0.006	Quarterly	Agriculture; urban storm water runoff; residential uses
Endrin	No	mg/L	< 0.00001	0.002	Quarterly	Agriculture; urban storm water runoff; residential uses
Ethylene dibromide (EDB)	No	mg/L	< 0.00001	0.00005	Quarterly	Agriculture; urban storm water runoff; residential uses
Heptachlor	No	mg/L	< 0.00004	0.0004	Quarterly	Agriculture; urban storm water runoff; residential uses
Heptachlorepoxyde	No	mg/L	< 0.00002	0.0002	Quarterly	Agriculture; urban storm water runoff; residential uses
Hexachlorobenzene	No	mg/L	< 0.0001	0.001	Quarterly	Agriculture; urban storm water runoff; residential uses
Hexachlorocyclopentadiene	No	mg/L	< 0.0001	0.05	Quarterly	Agriculture; urban storm water runoff; residential uses
Lindane	No	mg/L	< 0.00002	0.0002	Quarterly	Agriculture; urban storm water runoff; residential uses
Methoxychlor	No	mg/L	< 0.001	0.04	Quarterly	Agriculture; urban storm water runoff; residential uses
Simazine	No	mg/L	< 0.00007	0.004	Quarterly	Agriculture; urban storm water runoff; residential uses
Volatile Organic Chemicals						
Benzene	No	mg/L	< 0.0005	0.005	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Carbon tetrachloride	No	mg/L	< 0.0005	0.005	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
1,2-Dichlorobenzene	No	mg/L	< 0.0005	0.6	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
1,2-Dichloroethane	No	mg/L	< 0.0005	0.005	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
1,1-Dichloroethylene	No	mg/L	< 0.0005	0.007	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
cis-1,2-Dichloroethylene	No	mg/L	< 0.0005	0.07	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
trans-1,2-Dichloroethylene	No	mg/L	< 0.0005	0.1	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Dichloromethane	No	mg/L	< 0.0005	0.005	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
1,2-Dichloropropane	No	mg/L	< 0.0005	0.005	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Ethylbenzene	No	mg/L	< 0.0005	0.7	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Styrene	No	mg/L	< 0.0005	0.1	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Tetrachloroethylene	No	mg/L	< 0.0005	0.005	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Toluene	No	mg/L	0.0005	1.0	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
1,1,1-Trichloroethane	No	mg/L	< 0.0005	0.2	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
1,1,2-Trichloroethane	No	mg/L	< 0.0005	0.005	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Trichloroethylene	No	mg/L	< 0.0005	0.005	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Vinyl chloride	No	mg/L	< 0.0002	0.002	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Xylenes, Total	No	mg/L	< 0.0005	10	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Monochlorobenzene	No	mg/L	< 0.0005	0.1	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
para-Dichlorobenzene	No	mg/L	< 0.0005	0.075	Quarterly	By-products of industrial processes; gas stations; urban storm water runoff
Radionuclides						
Uranium (CY2014)	No	ug/L	< 1.0	30	Every 4 Years	Erosion of natural deposits

Gross Alpha (CY2014)	No	pCi/L	1.2 ± 0.3	15	Every 4 Years	Erosion of natural deposits
Combined Radium (CY2014)	No	pCi/L	1.38 ± 0.74	5	Every 4 Years	Erosion of natural deposits
Microbial Contaminants						
Total Coliform	No	N/A	0	>1 repeat positive per month	Monthly	Naturally present in the environment
Residual Disinfectants						
Free Chlorine	N/A	ppm	2.2	N/A	Monthly	Water additive use to control microbes
Disinfectant/Disinfection By-Products						
Total Trihalomethanes	No	mg/L	0.0601	0.08	Quarterly	By-products of drinking water chlorination
Halo-Acetic Acids	No	mg/L	0.0069	0.06	Quarterly	By-products of drinking water chlorination
Other Substances						
Asbestos (CY2006)	No	fibers/L	1.66	7.0	Every 9 Years	Decay of asbestos cement water mains, erosion of natural deposits
Lead	No	mg/L	0.005 0% of total samples above 0.015	>10% of total samples above 0.015	Annually	Corrosion from household plumbing systems
Copper	No	mg/L	0.0545 0% of total samples above 1.3	>10% of total samples above 1.3	Annually	Erosion of natural deposits

Terms Defined

Maximum Contaminant Level (MCL) - The highest level of a contaminant allowed in drinking water.

N/A - Not applicable

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

Parts per Million (ppm) - One ppm corresponds to 1 minute in 2 years, or a single penny in \$10,000.

Parts per Billion (ppb) - One ppb corresponds to 1 minute in 2,000 years, or a single penny in \$10,000,000.

Picocuries per Liter (pCi/L) - A unit of measure of radioactivity in water.

Milligrams per Liter (mg/L) - A unit of concentration of constituents in water.

Fibers per Liter (fibers/L) - A unit of measure of the presence of asbestos fibers in water.

Customer Views Are Welcomed!!

This CCR will be posted on the Kadena AB homepage at <https://www.kadena.af.mil>. Select Library Tab, choose Consumer Confidence Report.

Customers can address any drinking water concerns during the monthly Water Quality Working Group meeting. Please contact the number below for more information or to make an appointment to attend the meeting.

18 AMDS/SGPB

Bioenvironmental Engineering Flight

DSN: 634-4752

Commercial: 098-938-1111 ext. 634-4752

基地内 : 634-4752

基地外から : 098-938-1111 ext. 634-4752

Civil Engineering Help Desk

DSN: 634-2424

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