



2014 Drinking Water Quality Annual Report



Okuma Recreational Area, Okinawa, Japan

Okuma Recreational Area, 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 Okuma Recreational Area. 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. 634-4752

Where does our water come from?

The Okuma Recreational Area drinking water is delivered from the Hiji River. The water is pumped into the water treatment plant then gravity-fed into the water distribution system. This treatment plant is operated by the 18th Force Support Squadron/Detachment 1, which treats the water prior to being supplied to the distribution system.

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 that 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 FSS/Detachment 1 manages the maintenance and operations of the drinking water supply and distribution system. FSS/Detachment 1 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 monthly at distribution points in Okuma, to include analysis for the levels of chlorine and pH in the water.
- **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. FSS/Detachment 1 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 triennially. 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>.

The Okuma Recreational Area drinking water system violated drinking water requirements over the past year. Even though these were not emergencies, as our customers, you have a right to know what happened and what we are doing to correct these situations.

BEF takes pride in our record of service of providing quality drinking water to the Okuma recreational facility. To ensure that quality, BEF samples for 113 substances annually. However, during the 2014 Drinking Water Sanitary Survey, conducted by the PACAF Drinking Water Regulatory Authority (Primacy), it was discovered that additional sampling for synthetic organic chemicals, Total Organic Carbon, and Alkalinity is required for the Okuma water system. This sampling is now incorporated into the environmental sampling and analysis management plan.

In addition, Total Organic Carbon (source water and treated water) and Alkalinity was monitored on a quarterly basis in 2014. However, JEGS requires those substances to be monitored monthly with average treated water of <2.0 mg/L for 2 consecutive years or <1.0 mg/L for 1 year before reducing sampling frequency to quarterly. These substances will be monitored monthly in 2015.

Table 1: 2014, Okuma Recreational Area 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 | 16 | 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 | 0.0025 | 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 | 0.0021 | 0.1 | Quarterly | Erosion of natural deposits |
| Selenium | No | mg/L | 0.0027 | 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 | 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 | 0.1 | 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; resi- |

| | | | | | | |
|-------------------------------------|------|------|--------------|------------|-----------|---|
| | | | | | | dential 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 | Yes* | mg/L | < 0.0001 | 0.002 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Atrazine | Yes* | mg/L | < 0.0001 | 0.003 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Benzo[a]pyrene | Yes* | mg/L | < 0.00002 | 0.0002 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Di (2-ethylhexyl) adipate | Yes* | mg/L | < 0.0006 | 0.4 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Di (2-ethylhexyl) phthalate | Yes* | mg/L | < 0.0006 | 0.006 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Endrin | Yes* | mg/L | < 0.00001 | 0.002 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Ethylene dibromide (EDB) | Yes* | mg/L | < 0.00001 | 0.00005 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Heptachlor | Yes* | mg/L | < 0.00004 | 0.0004 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Heptachlorepoide | Yes* | mg/L | < 0.00002 | 0.0002 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Hexachlorobenzene | Yes* | mg/L | < 0.0001 | 0.001 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Hexachlorocyclopentadiene | Yes* | mg/L | < 0.0001 | 0.05 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Lindane | Yes* | mg/L | < 0.00002 | 0.0002 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Methoxychlor | Yes* | mg/L | < 0.001 | 0.04 | Quarterly | Agriculture; urban storm water runoff; residential uses |
| Simazine | Yes* | 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 sta- |

| tations; 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 | 0.94 ± 0.27 | 15 | Every 4 Years | Erosion of natural deposits |
| Combined Radium (CY2014) | No | pCi/L | 1.07 ± 0.57 | 5 | Every 4 Years | Erosion of natural deposits |
| Microbial Contaminants | | | | | | |
| Total Coliform | No | N/A | 0 | >1 positive per month | Monthly | Naturally present in the environment |
| Residual Disinfectants | | | | | | |
| Free Chlorine | N/A | ppm | 2.6 | N/A | Monthly | Water additive use to control microbes |
| Disinfectant/Disinfection By-Products | | | | | | |
| Total Trihalomethanes | No | mg/L | 0.0218 | 0.08 | Quarterly | By-products of drinking water chlorination |
| Halo-Acetic Acids | No | mg/L | 0.0037 | 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 (CY2014) | No | mg/L | 0.009 0% of total samples above 0.015 | >10% of total samples above 0.015 | Triennially | Corrosion from household plumbing systems |
| Copper (CY2014) | No | mg/L | 0.12 0% of total samples above 1.3 | >10% of total samples above 1.3 | Triennially | Erosion of natural deposits |
| Total Organic Carbon (Source) | Yes* | mg/L | Quarterly Sample Average 0.826 | N/A | Monthly | By-products of industrial processes; gas stations; urban storm water runoff |
| Total Organic Carbon (Treated) | Yes* | mg/L | Quarterly Sample Average 0.622 | 2 year average < 2.0 or 1 year average < 1.0 | Monthly | By-products of industrial processes; gas stations; urban storm water runoff |
| Total Alkalinity | Yes* | mg/L | 42.3 | N/A | Monthly | By-products of industrial processes; gas stations; urban storm water runoff |

*Frequency Violation

Terms Defined

Maximum Contaminant Level (MCL) - The highest level of a contaminant that is 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.

Microgram per Liter (ug/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 Welcome!!

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

Commercial: 098-938-1111 ext. 634-2424

基地内 : 634-2424

基地外から : 098-938-1111 ext. 634-2424