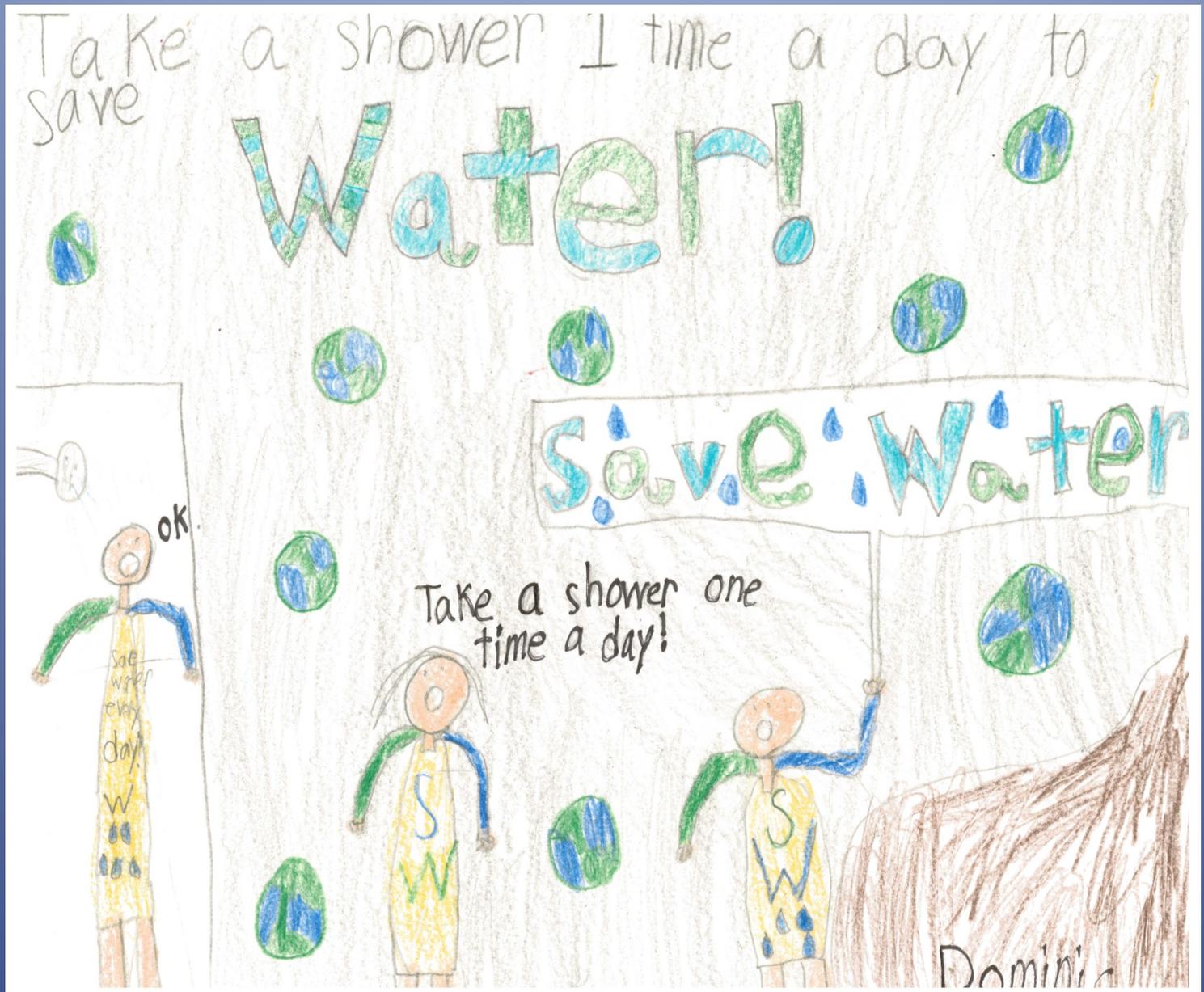


2014 Consumer Confidence Report AF Research Laboratory (AFRL), CA



**Illustration Provided by
Dominic Cook (2nd Grade)
Branch Elementary "Save Water" Drawing Contest Winner**

**2014 Consumer Confidence Report
Annual Water Quality Report
Edwards Air Force Base AFRL**

Este reporte contiene información muy importante sobre agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

INTRODUCTION

This is an annual report on the water quality delivered by Edwards Air Force Base (EAFB). The Bioenvironmental Engineering (BE) Flight, tests the drinking water quality for many constituents as required by state and federal regulations. This report shows our monitoring results from 1 January to 31 December 2014. **We are pleased to inform you, that our water system has met drinking water requirements outlined by USAF, State, and Federal Standards. These requirements are outlined in Title 22 articles 2 to 5.5, 15 to 16, and AFI 48-144.**

WHERE OUR WATER COMES FROM

The EAFB AFRL Drinking Water System draws water from one source:

On-base ground water wells.

We have three on-base ground water wells that are chlorinated at a booster station and sent through the distribution station. These wells are fed by the Antelope Valley Aquifer.

TERMS USED IN THIS REPORT

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

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 are set by the U.S. Environmental Protection Agency (USEPA).

ND: not detectable at testing limit

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

Secondary Drinking Water Standards (SDWS): MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.

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.

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

TERMS USED IN THIS REPORT

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

ppb: parts per billion or micrograms per liter (ug/L)

pCi/L: picocuries per liter (a measure of radiation)

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

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 from 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.
- *Inorganic contaminants*, such as salts and metals, which can be 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 such as agriculture, urban storm water runoff, and septic systems.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals that are by-products of industrial processes and 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.



A1C Lovlyn of BE analyzes chlorine levels at the Edwards CDC Kitchen

WATER MONITORING RESULTS SUMMARY

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the State Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

Tables 1 to 4 list all of the primary drinking water standard contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The California Department of Public Health Services 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
Primary Drinking Water Standard
1 Jan to 31 Dec 2014**

Chemical or Constituent (and reporting units)	Violation	Highest level detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Arsenic (ppb)	No	11.4	6.8 – 11.4 (Avg. 8.34)	10	10	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes. The state of California requires EAFB to have an average under 10 for arsenic. EAFB AFRL has an average annual arsenic value of 8.34.
Chromium (ppb)	No	ND	ND	50	2.5	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride (mg/L)	No	0.41	ND - 0.41	2.0	1.0	Erosion of natural deposits; water additive; discharge from fertilizer and aluminum plants
Nitrate (as NO ₃) (ppm)	No	1.97	1.86 -1.97	45	45	Runoff and leaching from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Total Trihalomethanes (ppb)	No	58.6	2.53 – 6.65 (4.93 avg)	80	N/A	By-product of chlorination
HAA5 (ppb)	No	34.5	ND	60	N/A	By-product of chlorination
Gross Alpha (pCi/l)	No	6.22	3.36 – 6.22	15	0	Radioactive mineral deposits
Perchlorates (ppb)	No	ND	ND	6	N/A	Use of Perchlorate containing munitions

Table 2
Secondary Drinking Water Standard
1 Jan to 31 Dec 2010

Chemical or Constituent (and reporting units)	Violation	Range	Avg.	MCL	PHG (MCLG)	Additional Information
Hardness (ppm)	N/A*	N/A	22.5	none	N/A	It is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring
Sodium	N/A*	N/A	N/A	None	N/A	N/A
Specific Conductance (µS/cm)	N/A*	N/A	390	1600	N/A	Substances that form ions when in water; seawater influence
Total Dissolved Solids (TDS) (ppm)	N/A*	N/A	270	1000	500	N/A
Color (units)	N/A*	5	5	15	N/A	Naturally-occurring organic materials
Turbidity (National Turbidity Units)	N/A*	0.11 - 23.8	1.37	5	N/A	Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.

*Note: The state of California monitors secondary drinking water standards such as, color, hardness, and turbidity. However, they do not represent a health hazard if desired threshold is exceeded.

Table 3
Detection of Coliform Bacteria
1 Jan to 31 Dec 2014

Microbial Contaminants	Highest No. of Detection	MCL	PHG (MCLG)	Typical Source of Bacteria
Coliform, Total	0	No more than 1 positive monthly sample	0	Naturally present in the environment
Coliform, Fecal or <i>E.coli</i>	0	A routine sample and a repeat sample are total coliform positive, and one of these is also fecal coliform or <i>E. coli</i> positive	0	Human and animal fecal waste

*Note: Samples collected during the month of November detected as positives do not indicate that the water poses a health risk. Our assessment indicates that weather conditions like extensive rainfall, stagnant water and error in sampling protocol affected the sampling results. After re-sampling the results were identified as negative.

**Table 4
Lead and Copper
Jul 2009**

Contaminant	Samples Collected	90th % Level Found	Exceeding MCL	MCL	PHG (MCLG)	Typical Source of Contaminant
Lead (ppb)	10	2.58	0	15	0.2	Internal corrosion of household water plumbing systems; erosion of natural deposits
Copper (ppb)	10	0.048	0	1.3	0.3	Natural deposits

***Note:** The table above shows that federal standards for Lead and Copper are met. California State standards however are not met but they constitute our Maximum Contaminant Level Goal (MCLG) and these are not required by law. This does not indicate that the water poses a health risk.

**Table 5
Chromium VI AFRL Wells
Dec 2014**

Contaminant	Violation	Highest Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Chromium VI	No	5.95	5.38-5.95	Not Regulated	?	Not typically required for Edwards; however this sample was collected for a DDW study.

Arsenic

The EPA established a new standard of 10 ppb for arsenic in 2001. All public water systems were required to comply with this standard by January 2006. The MCL applies to the annual average for the wells. The drinking water at AFRL is in compliance with the 10 ppb standard.

NOTE 1: The “highest level detected” represents the concentration of arsenic directly from ONLY one well and the average is determined from all the wells in use.

NOTE 2: during the month of October 2014, BE received a citation from the California Water Boards. The citation was given due to the notion that BE was not conducting bacteriological analysis for the AFRL wells on a quarterly basis. BE indeed analyzed and reported bacteriological samples, and assumed that California Water Boards received them through Electronic Data transfer (EDT) system. However, the state informed BE that it was not the case. BE provided the state with the bacteriological results they needed and closed the citation. This did not posed a health risk and the water continued to be potable.



AIC Gerard of BE analyzes chlorine levels at the Edwards DFAC Kitchen

While your drinking water meets the federal and state standard for arsenic, it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic’s possible health effects against the costs of removing arsenic from drinking water. The U.S. Environmental Protection Agency (USEPA) continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations, and is linked to other health effects such as skin damage and circulatory problems.

ADDITIONAL INFORMATION



AIC Gerard of BE takes water sample for arsenic analysis.

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 USEPA’s Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 people should seek advice about drinking water from their health care

providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

SOURCE WATER ASSESSMENT

The Civil Engineering (CE) Department at EAFB produced the 2003 Source Water Assessment, completed 18 June 2003, and is on file in the CE office (661-277-5000). Possible contaminating activities for the wells surveyed in this assessment include nearby abandoned wells, storm drainage discharge, above ground water storage tanks, and nearby roads. The health risks from these activities are diminished through weekly monitoring of the potable water system.

For more information, contact:

412th Aerospace Medicine Squadron/Bioenvironmental Engineering Flight (661-277-3272) or
412th Test Wing/Public Affairs (661-277-1454)

<http://cfpub.epa.gov/safewater/ccr/index.cfm>

WATER CONSERVATION TIPS

Turn water off when shaving and brushing your teeth.
Run only full loads in washing machine and dishwasher
Adjust lawn sprinklers to water the grass not the street.
Take shorter showers. Turn water off while lathering up.
Use the garbage can rather than the garbage disposal.

Water is a natural resource not to be wasted.

