2015 ANNUAL DRINKING WATER QUALITY REPORT

GENERAL INFORMATION

We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with information because informed customers are our best allies. Last year, we conducted tests for over 80 contaminants. We only detected 2 of those contaminants, and found only 1 at a level higher than the EPA allows. As we informed you at that time, our water temporarily exceeded drinking water standards. (For more information see the section labeled Violations at the end of the report.)

IS MY WATER SAFE?

The Luke Air Force Base potable water is deemed safe, according to EPA standards. All 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. 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. EPA/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 Water Drinking Hotline (800-426-4791).

WHERE DOES MY WATER COME FROM?

Luke AFB’s drinking water source is groundwater supplied through various wells that pump from the West Salt River Valley sub-basin within the Phoenix Active Management Area defined by the Arizona Department of Water Resources. The water from these on-base wells is treated with chlorine as a disinfectant at the well head, mixed within the distribution system, stored in two above ground tanks on base, and distributed throughout the base and base housing.

SOURCE WATER ASSESSMENT AND ITS AVAILABILITY

Source Water Assessments on file with the Arizona Department of Environmental Quality are available for public review. If a Source Water Assessment is available, you may obtain a copy of it by contacting the Arizona Source Water Coordinator at (602) 771-4641.

The Source Water Assessment Report provides a screening-level evaluation of potential contamination that could occur. It does not mean that the contamination has or will occur. We can use this information to evaluate the need to improve our current water treatment capabilities and prepare for future contamination threats. This can help us ensure that quality finished water is delivered to your home. In addition, the source water assessment results provide a starting point for developing a source water protection plan.

WHY ARE THERE CONTAMINANTS IN MY DRINKING 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 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 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 can dissolve naturally-occurring minerals and, in some cases, radioactive materials, 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, 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 run-off, industrial or domestic wastewater discharge, oil and gas production, mining or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in the water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for human health.

DESCRIPTION OF WATER TREATMENT PROCESS

Your water is treated by disinfection. Disinfection involves the addition of chlorine or other disinfectant to kill dangerous bacteria and microorganisms that may be in the water. Disinfection is considered to be one of the major public health advances of the 20th century.

WATER CONSERVATION TIPS

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference - try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Visit www.epa.gov/watersense for more information.

SOURCE WATER PROTECTION TIPS

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides - they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets.
- If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use EPA's Adopt Your Watershed to locate groups in your community, or visit the Watershed Information Network's How to Start a Watershed Team.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste - Drains to River" or "Protect Your Water." Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body.

ADDITIONAL INFORMATION FOR LEAD

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. Luke AFB 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. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

ADDITIONAL INFORMATION FOR ARSENIC

For 2015 the arsenic levels in your drinking water were above EPA’s standards. As a result, Luke AFB is utilizing an arsenic filtration process to greatly reduce the arsenic levels which are currently within standards. Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

ADDITIONAL INFORMATION FOR 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. If you are caring for an infant you should ask for advice from your health care provider.

WATER QUALITY DATA TABLE

The table below lists all of the drinking water contaminants that were tested during the calendar year of this report. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually

improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

These tables show the results of our monitoring for the period of January 1 to December 31, 2015 unless otherwise noted.

Microbiological Contaminants

Contaminant	MCL	MCLG	Unit	Result	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
Total Coliform Bacteria for Systems that collect <40 samples per month	No more than 1 positive monthly sample	0	Absent or Present	Absent:123 Present:1	No	Dec/15	10/Month	Naturally present in the environment
Fecal coliform and E. Coli	A routine sample & a repeat sample are total coliform positive, & one is also fecal coliform or *E. coli positive*	0	Absent or Present	Absent	No	Dec/15	10/Month	Human and animal fecal waste

Radionuclides

Contaminant	MCL	MCLG	Units	Result	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
Gross Beta emitters	4	0	mrem	<4	No	Mar/10	Every 6 yrs	Decay of natural and man-made deposits
Alpha emitters	15	0	pCi/L	3.0	No	Mar/10	Every 6 yrs	Erosion of natural deposits
Combined radium	5	0	pCi/L	<0.5	No	Mar/10	Every 6 yrs	Erosion of natural deposits
Uranium	30	0	µg/L	2.6	No	Mar/10	Every 6 yrs	Erosion of natural deposits

Lead and Copper

Contaminant	AL	MCLG	Units	90th Percentile	Number of Sites over AL	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
Copper	1.3	1.3	mg/L	0.0916	0	No	Aug/13	Every 3 yrs	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead	15	0	ppb	2.25	1	No	Aug/13	Every 3 yrs	Corrosion of household plumbing systems, erosion of natural deposits

Disinfectants

Contaminant	MRDL	MRDLG	Units	Result	Range	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
Chlorine	4	4	mg/L	0.47	0.37-0.69	No	Dec/15	Monthly	Water additive used to control microbes

Disinfection Byproducts

Contaminant	MCL	MCLG	Units	Result	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
Haloacetic Acids (HAA5)	60	N/A	ppb	<2	No	Aug /15	Annually	By-product of drinking water disinfection
Total Trihalomethanes (TTHM)	80	N/A	mg/L	13.7	No	Aug /15	Annually	By-product of drinking water disinfection

Inorganic Contaminants

Contaminant	MCL	MCLG	Units	Result	Range	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
Antimony	6	6	ppb	<2	N/A	No	Jan/13	Every 3 yrs	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic	10	0	ppb	12.5	4.9-16.4	Yes	Oct/15	2/Quarter	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Asbestos	7	7	MFL	<0.2	N/A	No	Jul/13	Every 3 yrs	Decay of asbestos cement water mains; erosion of natural deposits
Barium	2	2	mg/L	0.15	0.0221-0.15	No	Jan/13	Every 3 yrs	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium	4	4	ppb	<1	N/A	No	Jan/13	Every 3 yrs	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Cadmium	5	5	ppb	<1	N/A	No	Jan/13	Every 3 yrs	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium	100	100	ppb	24	6.1-24	No	Jan/13	Every 3 yrs	Discharge from steel and pulp mills; erosion of natural deposits
Cyanide	200	200	ppb	<10	N/A	No	Jan/13	Every 3 yrs	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride	4.000	4.000	mg/L	2.59	0.577-2.59	No	Jan/13	Every 3 yrs	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Mercury (inorganic)	2	2	ppb	<0.2	N/A	No	Jan/13	Every 3 yrs	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland

Contaminant	MCL	MCLG	Units	Result	Range	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
Nitrate (as Nitrogen)	10	10	mg/L	9.10	4.02-9.10	No	Oct/15	1/Quarter	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (as Nitrogen)	1	1	mg/L	<0.10	N/A	No	Nov/15	Every 9 yrs	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium	50	50	ppb	<2	N/A	No	Jan/13	Every 3 yrs	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Thallium	2	0.5	ppb	1.23	<1-1.23	No	Jan/13	Every 3 yrs	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

Synthetic Organic Contaminants, Including Pesticides and Herbicides

Contaminant	MCL	MCLG	Units	Result	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
2,4-D	70	70	ppb	<0.1	No	Nov/13	Every 3 yrs	Runoff from herbicide used on row crops
2,4,5-TP (Silvex)	50	50	ppb	<0.2	No	Nov/13	Every 3 yrs	Residue of banned herbicide
Alachlor	2	0	ppb	<0.2	No	Nov/13	Every 3 yrs	Runoff from herbicide used on row crops
Atrazine	3	3	ppb	<0.1	No	Nov/13	Every 3 yrs	Runoff from herbicide used on row crops
Benzo (a) pyrene (PAH)	200	0	ng/L	<20	No	Nov/13	Every 3 yrs	Leaching from linings of water storage tanks and distribution lines
Carbofuran	40	40	ppb	<0.9	No	Nov/13	Every 3 yrs	Leaching of soil fumigant used on rice and alfalfa
Chlordane	2	0	ppb	<0.2	No	Nov/13	Every 3 yrs	Residue of banned termiticide
Dalapon	200	200	ppb	<0.9	No	Nov/13	Every 3 yrs	Runoff from herbicide used on rights of way
Di (2-ethylhexyl) adipate	400	400	ppb	<0.6	No	Nov/13	Every 3 yrs	Discharge from chemical factories
Di (2-ethylhexyl) phthalate	6	0	ppb	<0.6	No	Nov/13	Every 3 yrs	Discharge from rubber and chemical factories
Dibromochloropropane	200	0	ppt	<20	No	Nov/13	Every 3 yrs	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards
Dinoseb	7	7	ppb	<0.2	No	Nov/13	Every 3 yrs	Runoff from herbicide used on soybeans and vegetables
Diquat	20	20	ppb	<0.4	No	Nov/13	Every 3 yrs	Runoff from herbicide use
Endothall	100	100	ppb	<9	No	Nov/13	Every 3 yrs	Runoff from herbicide use
Endrin	2	2	ppb	<0.01	No	Nov/13	Every 3 yrs	Residue of banned insecticide
Ethylene dibromide	50	0	ppt	<10	No	Nov/13	Every 3 yrs	Discharge from petroleum refineries
Glyphosate	700	700	ppb	<6	No	Nov/13	Every 3 yrs	Runoff from herbicide use
Heptachlor	200	0	ppt	<40	No	Nov/13	Every 3 yrs	Residue of banned temiticide
Heptachlor epoxide	200	0	ppt	<20	No	Nov/13	Every 3 yrs	Breakdown of heptachlor

Contaminant	MCL	MCLG	Units	Result	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
Hexachlorobenzene	1	0	ppb	<0.1	No	Nov/13	Every 3 yrs	Discharge from metal refineries and agricultural chemical factories
Hexachlorocyclo pentadiene	50	50	ppb	<0.1	No	Nov/13	Every 3 yrs	Discharge from chemical factories
Lindane	200	200	ppt	<20	No	Nov/13	Every 3 yrs	Runoff/leaching from insecticide used on cattle, lumber, gardens
Methoxychlor	40	40	ppb	<0.1	No	Nov/13	Every 3 yrs	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
Oxamyl [Vydate]	200	200	ppb	<2	No	Nov/13	Every 3 yrs	Runoff/leaching from insecticide used on apples, potatoes and tomatoes
PCBs [Polychlorinated biphenyls]	80	0	ppt	<80	No	Nov/13	Every 3 yrs	Runoff from landfills; discharge of waste chemicals
	20	0	ppb	<20				
	500	0	ppt	<500				
	300	0	ppt	<300				
	100	0	ppt	<100				
	100	0	ppt	<100				
	200	0	ppt	<200				
Pentachlorophenol	1	0	mg/L	<0.04	No	Nov/13	Every 3 yrs	Discharge from wood preserving factories
Picloram	500	500	ppb	<0.1	No	Nov/13	Every 3 yrs	Herbicide runoff
Simazine	4	4	ppb	<0.07	No	Nov/13	Every 3 yrs	Herbicide runoff
Toxaphene	3	0	ppb	<1	No	Nov/13	Every 3 yrs	Runoff/leaching from insecticide used on cotton and cattle

Volatile Organic Contaminants

Contaminant	MCL	MCLG	Units	Result	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
Benzene	5	0	ppb	<0.5	No	Aug/15	Annually	Discharge from factories; leaching from gas storage tanks and landfills
Carbon tetrachloride	5	0	ppb	<0.5	No	Aug/15	Annually	Discharge from chemical plants and other industrial activities
Chlorobenzene	100	100	ppb	<0.5	No	Aug/15	Annually	Discharge from chemical and agricultural chemical factories
o-Dichlorobenzene	600	600	ppb	<0.5	No	Aug/15	Annually	Discharge from industrial chemical factories
p-Dichlorobenzene	75	75	ppb	<0.5	No	Aug/15	Annually	Discharge from industrial chemical factories
1,2-Dichloroethane	5	0	ppb	<0.5	No	Aug/15	Annually	Discharge from industrial chemical factories
1,1-Dichloroethylene	7	7	ppb	<0.5	No	Aug/15	Annually	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene	70	70	ppb	<0.5	No	Aug/15	Annually	Discharge from industrial chemical factories
trans-1,2-Dichloroethylene	100	100	ppb	<0.5	No	Aug/15	Annually	Discharge from industrial chemical factories

Contaminant	MCL	MCLG	Units	Result	Violation (Yes or No)	Sample Date	Sample Frequency	Typical Source
Dichloromethane	5	0	ppb	<0.5	No	Aug/15	Annually	Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane	5	0	ppb	<0.5	No	Aug/15	Annually	Discharge from industrial chemical factories
Ethylbenzene	700	700	ppb	<0.5	No	Aug/15	Annually	Discharge from petroleum refineries
Styrene	100	100	ppb	<0.5	No	Aug/15	Annually	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene	5	0	ppb	<0.5	No	Aug/15	Annually	Discharge from factories and dry cleaners
1,2,4-Trichlorobenzene	70	70	ppb	<0.5	No	Aug/15	Annually	Discharge from textile-finishing factories
1,1,1-Trichloroethane	200	200	ppb	<0.5	No	Aug/15	Annually	Discharge from metal degreasing sites and other factories
1,1,2-Trichloroethane	5	3	ppb	<0.5	No	Aug/15	Annually	Discharge from industrial chemical factories
Trichloroethylene	5	0	ppb	<0.5	No	Aug/15	Annually	Discharge from metal degreasing sites and other factories
Toluene	1	1	ppb	<0.5	No	Aug/15	Annually	Discharge from petroleum factories
Vinyl Chloride	2	0	ppb	<0.5	No	Aug/15	Annually	Leaching from PVC piping; discharge from chemical factories
Xylenes *	10	10	mg/L	<0.5	No	Aug/15	Annually	Discharge from petroleum factories; discharge from chemical factories

Definitions	
Term	**Definition**
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
MCL	Maximum Contaminant Level: 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
MCLG	Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MFL	Million fibers per liter
mg/L	Milligrams per liter
MRDL	Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG	Maximum Residual Disinfection Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
mrem	millirem
N/A	Not Applicable
pCi/L	picocuries per liter (a measure of radioactivity)
ppm	parts per million, or milligrams per liter (mg/L)
ppb	parts per billion, or micrograms per liter (ug/L)
ppt	parts per trillion, or nanograms per liter (ng/L)
ug/L	Micrograms per liter

For more information please contact:

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