

# Annual Consumer Confidence Report on the Quality of Tap Water

2016

Vance Air Force Base

Enid, OK

## Introduction

This is the annual water quality report for Vance AFB. This report applies only to Vance AFB, and not to privatized housing. This report aims to help consumers understand the quality of water received by Vance AFB from the Enid water system, over the course of the previous calendar year (2016), from 1 January to 31 December. 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 about the source of our water, its constituents, and the potential health risks, if any, associated with contaminants. The Source Water Assessment and Protection Plan (SWAP), has been completed by the Department of Environmental Quality and is available for public viewing at City Hall, 401 W. Garriott, during business hours Monday thru Friday, 8:00 a.m. to 5:00 pm.

This report serves as your annual notice of the quality of water supplied to Vance consumers. **The city of Enid and Bioenvironmental Engineering monitors our drinking water for contaminants and has determined our water is safe to drink.**

## Water System Information

All Enid water customers are invited to attend and participate in the decisions that affect local drinking water. The Enid City Commission meets every first and third Tuesdays of each month at 6:30 p.m. at 401 West Owen K. Garriott in the City Council Chamber. If you have any questions or are concerned about water quality, please contact:

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## Source of Water

Sources of drinking water can include rivers, lakes, streams, ponds, reservoirs, aquifers, 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. Additionally, water can pick up substances resulting from the presence of animals or from human activity. Vance AFB Bioenvironmental Engineering (BE) routinely monitors water purchased from the City of Enid (the city of Enid monitors prior to delivery) for constituents in your drinking water in accordance with EPA regulatory requirements. The Enid water system utilizes groundwater aquifers with several water well fields located near Enid. Water supplies are mixed, treated and monitored prior to Enid and Vance AFB distribution.

## Water Quality Assessment

Contaminants that may be present in source water before we treat it 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 a variety of sources such as agriculture and residential uses.

\**Radioactive contaminants*, which are naturally occurring.

\**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 storm water runoff, and septic systems

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. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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 EPA's Safe Drinking Water Hotline (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. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

All sources of drinking water are subject to potential contamination by constituents that are naturally occurring and/or man-made. These constituents can be from microbial contaminants, e.g. viruses and bacteria that may come from sewage treatment plants, septic systems and agricultural livestock operations. Organic chemical contaminants may result from gas stations, urban storm water run-off or septic systems. Pesticides and herbicides may come from agricultural uses or residential uses. Inorganic contaminants such as salts and metals may be naturally occurring or may result from industrial or domestic wastewater discharges, urban storm water run-off, oil and gas production, or farming. Finally, radioactive contaminants can naturally be present or be the result of oil and gas production or mining activities.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations, which sets limits of certain contaminants in public water systems. The FDA regulations establish limits for contaminants in bottled water. Drinking water, including bottled water, may reasonably be expected to contain amounts of some contaminants. The presence of contaminants does not necessarily indicate the water poses a health risk. The EPA's maximum contaminant level (MCL) and maximum contaminant level goal (MCLG) are set at very stringent levels. The city of Enid consistently maintains a quality of water above state and federal regulations. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791), or visiting their website at <http://www.epa.gov>.

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. Vance 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>.

## **Water Operations**

The Enid water system is maintained by the City of Enid Water Department staff from the source, through treatment, and distribution to Vance AFB. The Enid Water Department staff operates water plants with booster plants and performs the entire well and plant maintenance. This staff consists of a supervised team, with state certified operators and technicians. Civil Engineering contract workers from Arctic Slope Regional Corporation-Communications maintain the water system once it enters Vance AFB. These professionals perform all activities in accordance with the best practices and regulations of both state and federal regulatory agencies and meet the American Water Works Association (AWWA) standards.

### Sampling and Testing

The EPA and the Oklahoma Department of Environmental Quality water testing requirements are very stringent to guard against possible risk of contamination. The City of Enid performs tests of the water distribution system daily for chlorine residuals at multiple points and each month about 50 water samples are tested for bacteria. In addition, BE at Vance AFB collects six water samples throughout the water distribution system per month which are tested for bacteria. BE also tests pH and chlorine residual every two weeks on Vance AFB.

The City of Enid and Vance AFB use only EPA-approved laboratory methods to analyze drinking water. City of Enid and BE personnel take water samples from their respective distribution systems. The samples are then tested in an accredited laboratory.

### Water Quality Monitoring Results

The following tables present the results of monitoring for the reporting period 2016. The test results report those contaminants detected during the 2016 calendar year. The presence of these contaminants in the water does not indicate a health risk because the concentrations are below harmful levels. The City of Enid and Vance AFB consistently maintain a higher quality of water than what is required by state and federal regulations.

#### City of Enid Distribution System: Lead and Copper

Lead and Copper	Dated Sampled	MCLG	Action Level (AL)	90th Percentile	# Sites Over AL	Units	Violation	Likely Source of Contamination
Copper	2015	1.3	1.3	0.618	1	ppm	N	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead	2015	0	15	0	1	ppb	N	Corrosion of household plumbing systems; Erosion of natural deposits.

### Bacteriological Sampling

Contaminant	Violation Y/N	Highest Chlorine Level Detected	Range Detected	MCL	MCLG	Likely Source of Contamination
Total Coliform Bacteria (System takes 50 monthly samples)	N	2		Total No. of Positive E. Coli of Fecal Coliform "0"	0	Naturally present in the environment

### Regulated Contaminants

<b>Disinfectants and Disinfection By-Products</b>	<b>Collection Date</b>	<b>Highest Level Detected</b>	<b>Range of Levels Detected</b>	<b>MCLG</b>	<b>MCL</b>	<b>Units</b>	<b>Violation</b>	<b>Likely Source of Contamination</b>
Chlorine	2016	2	1-2	MRDLG = 4	MRDL = 4	ppm	N	Water additive used to control microbes.
Haloacetic Acids (HAA5)*	2016	3	1.15-8.27	No goal for the total	60	ppb	N	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM)	2016	26	8.79-45.8	No goal for the total	80	ppb	N	By-product of drinking water disinfection.
<b>Inorganic Contaminants</b>	<b>Collection Date</b>	<b>Highest Level Detected</b>	<b>Range of Levels Detected</b>	<b>MCLG</b>	<b>MCL</b>	<b>Units</b>	<b>Violation</b>	<b>Likely Source of Contamination</b>
Arsenic	2015	5	0-5	0	10	ppb	N	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	2015	0.37	.178-.37	2	2	ppm	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Fluoride	2015	0.55	.4-.55	4	4	ppm	N	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Nitrate (ppm) (as Nitrogen)	2016	9	8.22-9.48	10	10	ppm	N	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.

Radioactive Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Beta/photon emitters	2016	4.29	1.16-4.29	0	50	pCi/L	N	Decay of natural and man-made deposits.
Combined Radium 226/228	2016	1	0-1.88	0	5	pCi/L	N	Erosion of natural deposits.
Gross alpha excluding radon and uranium	2016	2	.62-4.43	0	15	pCi/L	N	Erosion of natural deposits.
Uranium	2016	3	2.09-3.43	0	30	ug/l	N	Erosion of natural deposits.

**Total Organic Carbon**

The percentage of Total Organic Carbon (TOC) removal was measured each month and the system met all TOC removal requirements set, unless a TOC violation is noted in the violations section.

**Summary of City of Enid Violations**

E. coli			
Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young			
Type	Violation Begin	Violation End	Violation Explanation
None			

This information is copied directly from the City of Enid’s Consumer Confidence report. Vance AFB does not assume responsibility for verifying the accuracy of Enid’s data.

While your drinking water meets EPA’s standard for arsenic, it does contain low levels of arsenic. EPA’s standard balances the current understanding of arsenic’s possible health effects against the costs of removing arsenic from drinking water. EPA 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.

Nitrate in drinking water at levels above 10 parts per million is a health risk for infants below the age of six months. High levels of nitrates in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. The City of Enid blends the water from high and low nitrate wells to maintain a low nitrate concentration. If you are caring for an infant that may be at risk, you should ask advice from your health care provider.

**Vance AFB Distribution System**

<b>Parameter</b>	<b>Collection Date</b>	<b>Highest Level Detected</b>	<b>Range Detected</b>	<b>MCL</b>	<b>MCLG</b>	<b>Units</b>	<b>Violation</b>	<b>Likely Source of Contamination</b>
Chlorine	2016	0.7	0.2-0.7	4	4	ppm	No	Water additive used to control microbes.
Total Coliform (TC) Bacteria (System takes 6 monthly samples)	2016	0	0	<1 TC positive sample per month; and 0 E-Coli or fecal coliform positive		N/A	No	Naturally present in the environment
Haloacetic Acids (HAA5) (µg/L) date: 2015	2016	1.9	1.2-1.9	60	N/A	ppb	No	By-product of drinking water chlorination
Total trihalomethanes (TTHM)	2016	57.3	37.3 - 57.3	80	N/A	ppb	No	By-product of drinking water chlorination

**Lead and Copper Rule**

<b>Lead and Copper</b>	<b>Date Sampled</b>	<b>MCLG</b>	<b>Action Level (AL)</b>	<b>90<sup>th</sup> Percentile</b>	<b># Sites Over AL</b>	<b>Units</b>	<b>Violation</b>	<b>Likely Source of Contamination</b>
Copper	2016	1.3	1.3	0.981	1	ppm	N	Erosion of natural deposits; leaching from wood preservatives; corrosion of household plumbing systems.
Lead	2016	0	15	17.3	2	ppb	N	Corrosion of household plumbing systems; Erosion of natural deposits.

## Summary of Vance AFB Violations and Exceedances

Parameter	Compliance Period	Violation or Exceedance Type
Lead - action level at consumer taps	1 Jan 16-31 Dec 16	A slight increase in lead was discovered in the Commissary, bldg. 527, and the Exchange, specifically in two seldom-used employee lavatories. The levels are not in violation of EPA standards, however they do require public notification and drive a more robust sampling schedule. Further samples showed levels lower than the AL. Public Education was made available to workers and the public through a Public Notification required by regulations. The notification included steps to take to reduce your exposure to lead in your water. Also an increased sampling schedule was established to monitor the lead levels in drinking water at Vance AFB.

### Definitions of Key Terms and Acronyms

To gain a better understanding of the content of this report, a listing of acronyms and terms (with explanations) used in this Consumer Confidence Report are as follows:

<b>MCL</b>	Maximum Contaminant Level: The highest level of a contaminant that EPA allows in drinking water. MCLs ensure that drinking water does not pose either a short-term or long-term health risk. EPA sets MCLs at levels that are economically and technologically feasible. Some states set MCLs which are stricter than EPA's.
<b>MCLG</b>	Maximum Contaminant Level Goal: The level of a contaminant at which there would be no risk to human health. This goal is not always economically or technologically feasible, and the goal is not legally enforceable.
<b>AL</b>	Action Level: The level of lead or copper which, if exceeded, triggers treatment or other requirements that a water system must follow.
<b>mg/L</b>	Milligrams per Liter: A unit of measure equivalent to 1 part per million (ppm)
<b>µg/L</b>	Micrograms per Liter: A unit of measure equivalent to 1 part per billion (ppb)
<b>mg/kg</b>	Milligrams per Kilogram: A unit of measure equivalent to 1 part per million (ppm)
<b>pCi/L</b>	Picocuries per Liter: A measure of radioactivity in water
<b>MRDL</b>	Maximum Residual Disinfectant Level: The maximum level allowed for a given disinfectant residual in drinking water by EPA as a running annual average.
<b>CCR</b>	Consumer Confidence Report
<b>SDWA</b>	Safe Drinking Water Act: A federal law which sets forth drinking water regulations
<b>NTU</b>	Nephelometric Turbidity Unit: A measure of turbidity in water
<b>TTHMs</b>	Total Trihalomethanes: By-products of drinking water disinfection
<b>TT</b>	Treatment Technique - (mandatory language) A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

<b>Turbidity</b>	The cloudy appearance of water caused by the presence of tiny particles. High levels of turbidity may interfere with proper water treatment and monitoring.
<b>Total Coliform</b>	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially- harmful, bacteria may be present.
<b>Range</b>	The range of the highest and lowest analytical values of a reported contaminant.
<b>ND</b>	None Detected