

# **Annual Consumer Confidence Report on the Quality of Tap Water**

Vance Air Force Base

Enid, OK

## **Introduction**

This is the annual water quality report for Vance AFB. 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 (2011). 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.

## **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**

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 Food and Drug Administration (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>.

**The city of Enid monitors our drinking water for contaminants and has determined our water is safe to drink.**

Some people; though, may be more vulnerable to contaminants in drinking water than the general population.

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.

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/Center 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 at 800-426-4791.

### **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, one Class "A" Certified Operator and a Class "B" Certified Laboratory Technician license, three with a Class "C" Certified Laboratory Technician license and three Class "C" Certified Operator licenses, and four Class "D" Certified Operators. Civil Engineer contract workers from CSC 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 (DEQ) 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 and fluoride residuals at multiple points and each month about 50 water samples are tested for bacteria. Many of the wells are tested monthly for chemical constituents. Semi-annually, the system is tested for herbicides, pesticides, hydrocarbons and inorganic constituents. Annually, a complete analysis is performed for over 130 contaminants. In addition, Vance AFB Bioenvironmental Engineering (BE) collects seven water samples throughout the water distribution system per month which are tested for bacteria. BE also tests pH and chlorine residual every 2 weeks.

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 where a full spectrum of water quality analyses is performed.

### **Water Quality Monitoring Results**

The following tables present the results of monitoring for the reporting period 2011. The test results report those contaminants detected during the 2011 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 is required by state and federal regulations.

### **City of Enid Distribution System**

Parameter	Violation Yes/No	Highest Level Detected	Range Detected	MCL	MCLG	Likely Source of Contamination
<b>MICROBIOLOGICAL CONTAMINANTS</b>						
1. Total Coliform Bacteria (System takes 50 monthly samples)	No	1		Total No. of Positive E. Coli Or Fecal Coliform 0	0	Naturally present in the environment
<b>RADIOCHEMICAL CONTAMINANTS</b>						
2. Gross Beta	No	2.934ppb	2.9-2.9	4ppm	0	Decay of natural and man-made deposits
3. Gross Alpha	No	5.793	3.2-5.793	15	0	Erosion of natural deposits
4. Combined radium	No	.513	.513 - .513	5	0	Erosion of natural deposits
5. Combined uranium	No	3.9	3.9-3.9	30	0	Erosion of natural deposits

Parameter	Violation Yes/No	Highest Level Detected	Range Detected	MCL	MCLG	Likely Source of Contamination
<b>INORGANIC CONTAMINANTS</b>						
6. Arsenic (ppb)	No	5.1 ug/l	1.9 ug/l to 5.1 ug/l	10	0	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
7. Barium (ppb)	No	.33	.27 - .33	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
8. Chlorine (ppm)	No	1.6 mg/l		MRDL = 4	MRDLG = 4	Water additive used to control microbes
9. Copper (ppm) 2009	No	# Sites over AL 3		AL=1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
10. Cyanide (ppb)	No	10 ug/l		200	200	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
11. Fluoride (ppm)	No	.988 mg/l	.945 - .988	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
12. Lead (ppb) 2009	No	# Sites over AL 2		AL=15 Action Level – 90% of samples must be below this level.*	0	Corrosion of household plumbing systems, erosion of natural deposits
13. Nitrate - NO <sub>3</sub> (ppm) (as Nitrogen)	No	9 mg/l	5.75 – 8.97	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
14. Nitrite - NO <sub>2</sub> (ppm) (as Nitrogen)	No	ND		1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Parameter	Violation Yes/No	Highest Level Detected	Range Detected	MCL	MCLG	Likely Source of Contamination
15. Nitrate-Nitrite	No	9 mg/l	5.57 mg/l – 8.97 mg/l	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
16. Selenium (ppb) date: 2006	No	3.1	3 – 3.1	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
<b><u>VOLATILE ORGANIC CONTAMINANTS</u></b>						
17. Haloacetic Acids (HAA5) (ppb) date: 2009	No	1	1.23 –1.26	60	N/a	By-product of drinking water chlorination
18. TTHM [Total trihalomethanes] (ppb) date: 2009	No	5	4.2-5.24	80	N/a	By-product of drinking water chlorination

### Summary of City of Enid Violations

Parameter	Compliance Period	Violation Type
None	2011	

### Vance AFB Distribution System

Parameter	Violation Yes/No	Highest Level Detected	Range Detected	MCL	MCLG	Likely Source of Contamination
<b><u>MICROBIOLOGICAL CONTAMINANTS</u></b>						
1. Total Coliform (TC) Bacteria (System takes 7 monthly samples)	No	1 TC positive Mar 11 1 TC positive May 11		>1 TC positive sample per month; and 0 E-Coli or fecal coliform positive		Naturally present in the environment

### Summary of Vance AFB Violations

Parameter	Compliance Period	Violation Type
None	2011	NA

## 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>TT</b>	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
<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>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>Results</b>	The laboratory analytical result for a contaminant; this value is evaluated against an MCL or AL to determine compliance.
<b>Range</b>	The range of the highest and lowest analytical values of a reported contaminant. For example, the range of reported analytical detections for an unregulated contaminant may be 10.1 ppm (lowest value) to 13.4 ppm (highest value). EPA requires this range to be reported.
<b>BPQL</b>	Below practical quantitation limits