

# 2009 CITY OF LAWRENCE WATER QUALITY REPORT

*The City of Lawrence is pleased to inform you that your drinking water consistently met all regulatory compliance standards in 2008.* This report summarizes Lawrence's water quality information from 2008 compared to federal and state standards. To obtain additional information or more copies of this Water Quality Report, contact Aurora Shields, Water Quality Manager, at 832-7817 or e-mail her at: <mailto:ashields@ci.lawrence.ks.us>.

Lawrence has two major surface water sources: *the Kansas River* and *Clinton Lake*. Occasionally, groundwater is drawn from the *Kansas River Alluvium*. This shallow groundwater is directly influenced by surface water from the Kansas River. When in use, groundwater is a very small percentage of the total water treated at the Kansas River Water Treatment Plant. These sources are located in the Kansas - Lower Republican Basin. A Kansas Department of Health and Environment Source Water Assessment has evaluated Lawrence's source water as moderately susceptible to contamination and is available upon request or download at [www.kdheks.gov/nps/swap/SWreports.html](http://www.kdheks.gov/nps/swap/SWreports.html).

## Message from the EPA

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 healthcare 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).

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 (EPA) *Safe Drinking Water Hotline*.

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. Your water system is responsible for providing high quality 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>.

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 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** may come from a variety of sources such as storm water runoff, agriculture, and residential uses.
- ▶ **Radioactive contaminants**, which can be naturally occurring or the result of mining activity.
- ▶ **Organic contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, 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 requires regulations that limit the amount of certain contaminants in water provided by public water systems. We treat our water according to EPA's regulations. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

In January 2006, EPA added two new drinking water rules to the National Primary Drinking Water Regulations. These are the **Long Term 2 Enhanced Surface Water Treatment Rule (LT2EWSTR)** and the **Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 D/DBPR)**.

The *LT2 Rule* requires public water supplies to sample surface waters for *Cryptosporidium*. Lawrence completed the Initial Round of Monitoring of the Kansas River and Clinton Lake for the eggs (oocysts) of this organism. If ingested these eggs (oocysts) can cause the disease cryptosporidiosis.

*Cryptosporidium* is a microbial parasite found in surface water throughout the United States. Although filtration removes *Cryptosporidium*, the most commonly-used filtration cannot guarantee 100 percent removal. Monitoring of our source water indicates the presence of these organisms. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. Immuno-compromised individuals are encouraged to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water. Learn more about the LT2 Rule and cryptosporidiosis at [www.epa.gov/safewater/disinfection/lt2/regulations.html](http://www.epa.gov/safewater/disinfection/lt2/regulations.html) and [www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/default.htm](http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/default.htm).

Radon is a radioactive gas that you can't see, taste, or smell. Radon can move up through the ground through cracks and holes in the foundation. Radon can also get into indoor air when released from tap water. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a human carcinogen that can lead to lung cancer from breathing contaminated air and may also increase risk of stomach cancer if ingested. Currently EPA does not regulate radon in drinking water but the City of Lawrence monitors for radon in the water. If you are concerned about radon in your home, you should have the air tested. If the level of radon in your home is 4 picocuries per liter of air (pCi/L) or higher, you should pursue radon removal for your home. There are simple ways to fix radon problems that are not too costly. For additional information, call your state radon program or call EPA's Radon Hotline (800-SOS-RADON).

**Insert #29**

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## Primary Drinking Water Contaminants – Regulated at the Customer Tap

CONTAMINANT	MCL	MCLG	90 <sup>TH</sup> PERCENTILE	SOURCES OF CONTAMINANT
Copper (July – Sept. 2008)	1.3 ppm (AL)	1.3 ppm	0.097 ppm	Corrosion of household plumbing systems
Lead (July – Sept. 2008)	15 ppb (AL)	0.0 ppb	5.5 ppb	Corrosion of household plumbing systems

## Primary Drinking Water Contaminants – Monitored in the Distribution System (January – December 2008)

CONTAMINANT	MCL	MCLG	HIGHEST LEVEL DETECTED	HIGHEST RAA	RANGE	ANNUAL AVERAGE	SOURCES OF CONTAMINANT
Asbestos (8/19/04)	7MF/L	7MF/L	ND	N/A	N/A	N/A	Decay of asbestos water mains
Total Coliform Bacteria	5% positives of all samples in calendar month	0%	4.04%	N/A	N/A	N/A	Naturally present in the environment
Total Trihalomethanes	80 ppb	N/A	N/A	62 ppb	41 - 100 ppb	N/A	Disinfection by-product
Haloacetic Acids	60 ppb	N/A	N/A	39 ppb	23 - 63 ppb	N/A	Disinfection by-product
Chlorine	4.0 ppm (MRDL)	4.0 ppm (MRDLG)	3.8 ppm	N/A	3.3 - 3.8 ppm	3.5 ppm	Additive to control microbes

## Primary Drinking Water Contaminants - Monitored at the Treatment Plants (January – December 2008)

CONTAMINANT	MCL	MCLG	HIGHEST LEVEL DETECTED	RANGE	SOURCES OF CONTAMINANT
Gross Alpha	15 pCi/L	0 pCi/L	1.0 pCi/L	ND - 1.0 pCi/L	Erosion of natural deposits
Arsenic	10 ppb	0 ppb	4.0 ppb	1.0 - 4.0 ppb	Erosion of natural deposits. Runoff from crops, glass and electronic production.
Atrazine	3 ppb	3 ppb	1.4 ppb	0.2 - 1.4 ppb	Runoff from herbicide used on crops
Barium	2 ppm	2 ppm	0.1 ppm	0.032 - 0.1 ppm	Discharge from metal refineries
Chromium	100 ppb	100 ppb	4.8 ppb	ND - 4.8ppb	Discharge from steel and pulp mills
Combined Radium 226/228	5 pCi/L	0 pCi/L	1.0 pCi/L	ND - 1.0 pCi/L	Erosion of natural deposits
Fluoride	4 ppm	4 ppm	0.86 ppm	0.52 - 0.86 ppm	Erosion of natural deposits. Water additive that promotes strong teeth.
Nitrate	10 ppm	10 ppm	0.67 ppm	0.1 - 0.67 ppm	Runoff from fertilizer use
Selenium	50 ppb	50 ppb	2.1 ppb	ND - 2.1 ppb	Erosion of natural deposits
Total Organic Carbon*	TT	N/A	4.2 ppm	2.4 - 4.2 ppm	Naturally present in the environment
Turbidity** (Percentage of samples <0.3 NTU)	TT	N/A	0.82 NTU (99%)	0.06 - 0.82 NTU	Soil runoff

\*Total organic carbon (TOC) has no health effects. However, it provides a medium for the formation of disinfection byproducts. These by-products include trihalomethanes (THMSs) and haloacetic acids (HAAs).

\*\*Turbidity has no health effects. However, it can interfere with disinfection and provide a medium for microbial growth.

## Detected Secondary Drinking Water Contaminants (January – December 2008)

CONTAMINANT	HIGHEST LEVEL	DETECTION RANGE	UNITS	SMCL	TYPICAL SOURCE
Aluminum	0.069	ND - 0.069	ppm	0.05	Erosion of natural deposits
Calcium	57	32 - 57	ppm	75 - 200	Erosion of natural deposits
Corrosivity	0.57	0.28 - 0.57	Langelier Index	0	Erosion of natural deposits
Magnesium	10	2.1 - 10	ppm	50 - 150	Erosion of natural deposits
Nickel	0.0079	0.0013 - 0.0079	ppm	0.1	Erosion of natural deposits
Sodium	120	9.6 - 120	ppm	100	Erosion of natural deposits
Potassium	13	3 - 13	ppm	100	Erosion of natural deposits
Chloride	140	12 - 140	ppm	250	Erosion of natural deposits
Sulfate	180	22 - 180	ppm	250	Erosion of natural deposits
Total Hardness	180	89 - 180	ppm	400	Erosion of natural deposits
Alkalinity as CaCO <sub>3</sub>	113	38 - 113	ppm	60 - 300	Erosion of natural deposits
Orthophosphate as P	0.11	ND - 0.11	ppm	N/A	Additive to control pipe corrosion
pH	10.1	6.4 - 10.1	pH Units	6.5 - 8.5	Erosion of natural deposits
Specific Conductance	870	280 - 870	µmhos/cm	1500	Erosion of natural deposits
Total Dissolved Solids	560	160 - 560	ppm	500	Erosion of natural deposits
Total Phosphorus (P)	0.26	0.14 - 0.26	ppm	5	Erosion of natural deposits
Silica	11	0.59 - 11	ppm	50	Erosion of natural deposits

Secondary contaminants are not regulated, but indicate good tasting and aesthetically pleasing water.

## Additional Monitoring Conducted by the City of Lawrence (January – December 2008)

CONTAMINANT	HIGHEST LEVEL	DETECTION RANGE	UNITS	SMCL	TYPICAL SOURCE
Radon	23	ND - 23	pCi/L	N/A	Erosion of natural deposits

### DEFINITIONS & ABBREVIATIONS

**Action Level (AL)** – The contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**Maximum Contaminant Level (MCL)** – 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.

**MFL** – million fibers per liter.

**Maximum Residual Disinfectant Level (MRDL)** – The highest level of residual disinfectant that is allowed in drinking water.

**Maximum Residual Disinfectant Level Goal (MRDLG)** – The level of residual disinfectant in drinking water below which there is no known or expected risk to health.

**Micromhos per Centimeter (µmhos/cm)** – A measure of the ability to carry electric current.

**Not Applicable (N/A)** – The data does not apply for this contaminant and category.

**ND** – Not detected by the laboratory. The number in parentheses is the lowest concentration the laboratory can detect (method detection limit).

**NTU** – Nephelometric Turbidity Units.

**pCi/L** – picocuries per liter (a measurement of radioactivity).

**ppb** – micrograms per liter (µg/L) One part per billion

**ppm** – milligrams per liter (mg/L) One part per million

**RAA** – running annual average. This average is calculated every 3 months, using data from the previous 12 months.

**SMCL** – Secondary Maximum Contaminant Level (or optimal range) set forth by KDHE.

**Standard Units (S.U.)** – A measuring unit for pH, based on hydrogen ion concentration.

**Treatment Technique (TT)** – A required process intended to reduce the level of a contaminant.