

2008 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 2007**. This report summarizes Lawrence's water quality information from 2007 compared to federal and state standards. To obtain additional information or more copies of this Water Quality Report, contact Jeanette Klamm, Utilities Program Manager, at **832-7861** or e-mail her at: jkklamm@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 have 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.

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 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).

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 (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 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, 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 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. When present in source water, these eggs are effectively removed by the water treatment processes of sedimentation and filtration.

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 and www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/default.htm

Definitions of Table Terms and Abbreviations

The definitions below are for terms used in the 2007 *Summary of Detected Contaminants in City of Lawrence Water Table*.

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 (μ mhos/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 (μ g/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.

2007 City of Lawrence Treated Water Quality Analyses

Regulated at the Customer's Tap (Monitored July-September 2005)

Contaminant	MCL	MCLG	90 th Percentile	Sources of Contaminant
Copper	1.3 ppm (AL)	1.3 ppm	0.140 ppm	Corrosion of household plumbing systems
Lead	15 ppb (AL)	0 ppb	2.9 ppb	Corrosion of household plumbing systems

Regulated in the Distribution System (Monitored January – December 2007)

Contaminant	MCL	MCLG	Highest Level Detected	Highest RAA	Range	Annual Average	Sources of Contaminant
Asbestos (8/19/04)	7 MFL	7 MFL	ND	N/A	N/A	N/A	Decay of asbestos cement water mains.
Total Coliform Bacteria	5% positives of all samples in calendar month	0%	2.06%	N/A	N/A	N/A	Naturally present in the environment
Total Trihalomethanes	80 ppb	N/A	N/A	58.8 ppb	40.0-85.0 ppb	N/A	Drinking water disinfection by-product
Haloacetic Acids	60 ppb	N/A	N/A	34.3 ppb	20.0-48.0 ppb	N/A	Drinking water disinfection by-product
Chlorine	4.0 ppm (MRDL)	4.0 ppm (MRDLG)	N/A	N/A	3.5-3.7 ppm	3.6 ppm	Water additive to control microbes.

Regulated at the Treatment Plant (Monitored January – December 2007)

Contaminant	MCL	MCLG	Clinton Reservoir Water Treatment Plant		Kaw River Water Treatment Plant		Sources of Contaminant
			Highest Level Detected	Range	Highest Level Detected	Range	
Alpha emitters	15 pCi/L	0 pCi/L	1.9 pCi/L	0.9-1.9 pCi/L	0.7 pCi/L	0.0-0.7 pCi/L	Erosion of natural deposits.
Arsenic	10 ppb	0 ppb	1.1 ppb	ND-1.1 ppb	2.1 ppb	ND-2.1 ppb	Erosion of natural deposits.
Atrazine	3 ppb	3 ppb	0.1 ppb	ND-0.1 ppb	0.2 ppb	ND-0.2 ppb	Runoff from herbicide used for crops.
Barium	2 ppm	2 ppm	0.047 ppm	0.042-0.047 ppm	0.110 ppm	0.028-0.110 ppm	Erosion of natural deposits.
Beta emitters	50 pCi/L*	0 pCi/L	6.9 pCi/L	1.3-6.9 pCi/L	8.4 pCi/L	4.0-8.4 pCi/L	Decay of natural and man-made deposits.
Chromium	100 ppb	100 ppb	9.6 ppb	ND-9.6 ppb	7.9 ppb	ND-7.9 ppb	Erosion of natural deposits.
Combined Radium 226/228	5 pCi/L	0 pCi/L	0.9 pCi/L	0.2-0.9 pCi/L	1.7 pCi/L	0.8-1.7 pCi/L	Erosion of natural deposits.
Fluoride	4 ppm	4 ppm	0.75 ppm	0.52-0.75 ppm	0.76 ppm	0.58-0.76 ppm	Water additive that promotes strong teeth.
Nitrate	10 ppm	10 ppm	0.49 ppm	0.11-0.49 ppm	1.3 ppm	1.0-1.3 ppm	Erosion of natural deposits. Runoff from fertilizer use.
Selenium	50 ppb	50 ppb	1.3ppb	ND – 1.3 ppb	1.7 ppb	ND – 1.7 ppb	Erosion of natural deposits.
Total Organic Carbon	TT	N/A	2.9 ppm	2.5-2.9 ppm	3.9 ppm	2.2 -3.9 ppm	Naturally present in the environment.
Turbidity (Percentage of samples <0.3 NTU)	TT	N/A	0.29 NTU (100%)	0.06-0.29 NTU	0.29 NTU (100%)	0.06-0.29 NTU	Soil runoff.
Uranium	30 ppb	9 ppb	1.4ppb	ND-1.4 ppb	ND	N/A	Erosion of natural deposits.

* EPA considers 50 pCi/L to be the level of concern for beta emitters.

Total organic carbon (TOC) has no health effects. However, total organic carbon 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, turbidity can interfere with disinfection and provide a medium for microbial growth.

Detected Secondary Drinking Water Contaminants (Sampling Date(s) January – December 2007)

Contaminant	Clinton Highest Level	Clinton Detection Range	Kaw Highest Level	Kaw Detection Range	Units	SMCL	Typical Source
Calcium	34	28-34	45	35-45	ppm	75-200	Erosion of natural deposits.
Magnesium	10	7.4-10	12	1.7-12	ppm	50-150	Erosion of natural deposits.
Sodium	13	9.0-13.0	82	26-82	ppm	100	Erosion of natural deposits.
Potassium	4.3	3.3-4.3	9.8	8.5-9.8	ppm	100	Erosion of natural deposits.
Chloride	13	11-13	100	27-100	ppm	250	Erosion of natural deposits.
Iron	0.021	ND-0.021	ND	NA	ppm	0.3	Erosion of natural deposits.
Sulfate	29	19-29	97	58-97	ppm	250	Erosion of natural deposits.
Total Hardness	130	100-130	140	96-140	ppm	400	Erosion of natural deposits.
Alkalinity as CaCO ₃	101	76.6-101	75.8	43.8-75.8	ppm	60-300	Erosion of natural deposits.
pH	9.1	7.5-9.1	10	7.3-10	pH Units	6.5-8.5	Erosion of natural deposits.
Specific Conductance	330	270-330	740	570-740	umhos/cm	1500	Erosion of natural deposits.
Total Dissolved Solids	180	140-180	410	240-410	ppm	500	Erosion of natural deposits.
Total Phosphorus (P)	0.36	0.29-0.36	0.20	ND-0.20	ppm	5	Erosion of natural deposits.
Silica	4.8	0.72-4.8	11	9.8-11	ppm	50	Erosion of natural deposits.

Secondary contaminants are not regulated, but provide guidelines for producing good tasting and aesthetically pleasing water.