The City of Lawrence is committed to providing customers with reliable drinking water. In support of this, the City of Lawrence maintains membership in the Partnership for Safe Water and the American Water Works Association (AWWA).

The National Environmental Laboratory Accreditation Conference (NELAC) was established as a standards-setting body to support the National Environmental Laboratory Accreditation Program (NELAP), an EPA program which administers and oversees State and Federal accrediting authorities.

A major goal of the program is to assure that decisions are being made on analytical data from a technical, scientific, and statistical basis. Components of the accreditation process include qualified laboratory personnel who can perform satisfactorily on proficiency testing samples, meet specified quality assurance standards, maintain the laboratories, and demonstrate adherence to validated methods.

The Department of Utilities laboratories have been nationally accredited since 2000.

Public Health Security and Bioterrorism Preparedness and Response Act of 2002

Drinking water utilities today find themselves facing new responsibilities. While their mission has always been to deliver a dependable and safe supply of water to their customers, the challenges inherent in achieving that mission have expanded to include security and counter-terrorism. In the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Congress recognizes the need for drinking water systems to undertake a more comprehensive view of water safety and security. The Act amends the Safe Drinking Water Act and specifies actions community water systems and the U.S. Environmental Protection Agency (EPA) must take to improve the security of the nation's drinking water infrastructure.

Helpful Telephone Numbers

Emergency after 5 pm, weekends & holidays
843-2685

Billing Information & Customer Service	**832-7878**
Department of Utilities Administration Office	**832-7800**
Lawrence/Douglas Co. Health Department	**843-3060**
EPA's Safe Drinking Water Hotline	**800-426-4791**
Kansas Department of Health & Environment (N.E. District Office)	**842-4600**

Helpful Web Sites

American Water Works Association
www.awwa.org

Kansas Department of Health & Environment
www.kdhe.state.ks.us

Kansas Water Office
www.kwo.org

U.S. Geological Survey
http://ks.water.usgs.gov

Centers for Disease Control and Prevention
www.cdc.gov

Kaw Valley Heritage Alliance
www.kvha.org

Actions that are being taken to protect your drinking water and how you can get involved:

Call the EPA Safe Drinking Water Hotline;
(800) 426-4791

Visit EPA's Drinking Water Web Site;
www.epa.gov/safewater

Visit the City of Lawrence's Web Site;
www.lawrenceks.org

It is recommended that you keep this Consumer Confidence Report for reference because it provides useful information, as well as contacts and phone numbers you may need in the future.

Tampering with Public Water Supplies is a serious offense and violators will be punished to the fullest extent of the law.

The WATER WE DRINK 2005

Radionuclides and Radon in Drinking Water

The EPA revised maximum contaminant levels (MCLs) for radionuclides in drinking water (Radionuclide Rrule). The MCLs are: combined radium 226 / 228 (5 pCi/L), beta particles and photon emitters (4 mrem/yr), gross alpha particles (15 pCi/L), and uranium (30 ug/L).

In 2004, the City of Lawrence, Department of Utilities began initial monitoring for combined radium 226/228, uranium, and radon (proposed MCL is 300 pCi/L). The Radon Rule is not finialized.

Prior to 2004, gross alpha and beta particle samples were collected and analyzed under a separate rule (Phase II /V). These particles are now collected under the Radionuclide Rule.

Master Plan - What Improvements are We Making?

The goal of the City of Lawrence, Department of Utilities, is to ensure customer satisfaction by consistently delivering good quality water today and in the future. The Department of Utilities provides drinking water to more than 88,000 customers. Our water system supplies water directly to homes and businesses throughout Lawrence.

The water distribution system connects to over 31,119 service taps and it also delivers water to the City's fire hydrants, to ensure the safety of our residents.

The City of Lawrence, Department of Utilities has completed the Water/Wastewater Master Plan to analyze improvements and projected system requirements through 2025. The final reports for both the Water and Wastewater Master Plans are available in the City's website www.lawrenceks.org.

Zebra Mussels

The zebra mussel is a small bivalve mollusk native to Eastern Europe and Western Asia. It was introduced accidentally to North America between 1985 and 1986 in the ballast water of commercial ships arriving from Europe. Within a decade and a half, zebra mussels have infested all Great Lakes and over 20 mid-western and eastern states. In the last two years, several dead zebra mussel specimens have been recovered from the cooling water intake of a power plant located along the Missouri River near Kansas City. In August of 2003, live specimens were discovered in El Dorado lake and Cheney Reservoir in south-central Kansas.

Cooperative monitoring efforts ongoing by state agencies and industrial and public utilities continue to track the spread of zebra mussels. The U.S. Army Corps of Engineers, Kansas Department of Wildlife and Parks, and the City of Lawrence are sampling and monitoring Clinton Lake and the Kansas River for zebra mussel adults and juveniles. The City also periodicaly inspects the water treatment plant infrastructure for evidence of attached zebra mussels. To date, no zebra mussels have been discovered during the inspections.

Public adherence to recommended control practices and reporting zebra mussel sights will help prevent continual spread to our lakes and rivers. Please report any zebra mussel sighting by calling (800) 437-2744. To learn additional information and identify control measures targeted at the zebra mussel, please visit the U.S. Army Corps of Engineers website www.wes.army.mil or contact Kansas Department of Wildlife and Parks, Research and Survey Office at (620) 342-0658 or the Kansas Department of Health and Environment, Bureau of Environmental Field Services at (785) 296-6603.

What Programs are Established to Protect and Maintain the Quality of our Drinking Water?

The City of Lawrence completed a Source Water Assessment for the Source Water Assessment and Protection (SWAP) Program. Final Source Water Assessment Reports are available on the KDHE Watershed Management Section web page at www.kdhe.state.ks.us/nps/swap/. These reports include much information about potential sources of contamination, susceptibility, recommended water quality measures and will serve as a basis for future watershed protection planning efforts.

Protecting the watershed

The City of Lawrence continues to participate in the Watershed Restoration and Protection Strategy (WRAPS) process. This process is a planning and management tool to engage stakeholders to identify watershed and protection needs, establish watershed management goals, create a cost effective action to achieve goals and implement an action plan. This action plan includes actions necessary to achieve watershed goals, responsible parties to implement each action, cost estimates to implement actions, available funding and an implementation schedule. A WRAPS report has been prepared which includes education opportunities, targeted areas of the watershed and resources required to execute the plan. Progress of this process is monitored and adjustments are made to the plan as needed.

What the Department of Utilities is Doing to Help Protect and Maintain the Integrity of our Water:

Monitoring and reporting requirements

Federal and state regulations include procedures and schedules for monitoring water at the source, in the distribution system, and at the tap. KDHE ensures that public water systems comply with all of the regulations, follow monitoring schedules, and report monitoring results. The City of Lawrence, Department of Utilities monitors the physical, chemical, and microbiological characteristics of the source water and treated drinking water from the City's two water treatment plants.

The Quality Control Division continues to monitor for more than 120 constituents and properties in drinking water, and analyzes more frequently than required by law. This extensive testing program throughout the year plays an important role to ensure compliance with state and federal standards.

Disinfecting and treating drinking water

Any water can be exposed naturally to microbes that cause disease (sickness). The City of Lawrence disinfects the water with chlorine as one of many treatment barriers that prevent sickness. Ammonia is also added to the chlorinated water to form chloramines to ensure that there will be a chlorine residual throughout the distribution system. The pH, alkalinity, calcium hardness and phosphate levels are adjusted to control corrison of plumbing in buildings and pipes in the distribution system. This type of treatment reduces lead and copper levels in standing tap water.

Managing the distribution system

Another key to maintaining good water quality is to effectively manage the water distribution system. The water in the city's water distribution system is representative of both water treatment plants. At different times throughout the year, water demand dictates how much water enters the distribution system from the two treatment plants. The Distribution flushing program continues to advance with many sample collections and additional locations throughtout the City. The purpose of the program is to refresh the water flowing through the pipes to the customer. The Department of Utilities Quality Control staff coordinates efforts with distribution personnel on flushing procedures and also with the Lawrence Fire Department during pressure check procedures. A Geographical Information System (GIS) is used to locate and record all components of the city's water system. Each month, staff from the Quality Control Division collects and analyzes more than 140 samples in the distribution system for bacteriological content, and handles any water quality concerns from customers.

Splash on Mass.

A Downtown Waterline Reconstruction Project began in Spring 2005. It includes waterline improvements along 6th Street from Tennessee to Massachusetts; and Massachusetts, 6th to 7th Street, Massachusetts to New Hampshire. For more information about the project, please visit the City's website www.lawrenceks.org.

Year 2004 City of Lawrence Treated Water Quality Analyses

Regulated at the Customer's Tap

(Monitored July - Sept. 2002)

Contaminant	MCL	MCLG	90th Percentile	Sources of Contaminant
Copper	1.3 ppm AL	1.3 ppm	0.1713 ppm	Corrosion of household plumbing systems
Lead	15 ppb AL	15 ppb	4.1 ppb	Corrosion of household plumbing systems

Regulated in the Distribution System

(Monitored Jan. - Dec. 2004)

Contaminant	MCL	MCLG	Highest Level Detected	Highest RAA	Range	Annual Average	Sources of Contaminant
Asbestos	7 MFL	7 MFL	ND (<0.174 MFL)	N/A	N/A	N/A	Decay of asbestos cement water mains
Total Coliform Bacteria	5% positives of all samples in a single calendar month	0%	1.1%	N/A	0 -1.1%	N/A	Naturally present in the environment
Total Trihalomethanes	80 ppb	None	N/A	60.4 ppb	28.0 - 100.0 ppb	N/A	By-product of water disinfection
Haloacetic Acids	60 ppb	None	N/A	33.4 ppb	4.0 - 48.0 ppb	N/A	By-product of drinking water disinfection
Total Chlorine	MRDL = 4.0 ppm	MRDLG = 4.0 ppm	N/A	N/A	3.2 - 3.7 ppm	3.5 ppm	Water additive used to control microbes

Regulated at the Treatment Plant

(Monitored Jan. - Dec. 2004)

			Clinton Reservoir Water Treatment Plant		Kaw River Water Treatment Plant		
Contaminant	**MCL**	**MCLG**	**Highest Level Detected**	**Range**	**Highest Level Detected**	**Range**	**Sources of Contaminant**
Alpha particles	15 pCi/l	0 pCi/L	ND(3 pCi/L)	N/A	3.8 pCi/L	ND(3)-3.8 pCi/L	Erosion of natural deposits
Atrazine	3 ppb	3 ppb	ND(0.3 ppb)	N/A	ND(0.3 ppb)	N/A	Runoff from agricultural land
Barium	2 ppm	2 ppm	0.028 ppm	0.028 ppm	0.031 ppm	0.031 ppm	Erosion of natural deposits
Beta particles	50 pCi/L*	0 pCi/L	7.5 pCi/L	ND(4)-7.5 pCi/L	9.5 pCi/L	ND(4)-9.5 pCi/L	Decay of natural, man-made deposits
Di(2-ethylhexyl) phthalate**	6 ppb	0 ppb	1.0 ppb	ND(0.6) - 1.0 ppb	0.9 ppb	ND(0.6)-0.9 ppb	Discharge from rubber and chemical factories
Fluoride	4 ppm	4 ppm	0.88 ppm	0.78 - 0.88 ppm	0.90 ppm	0.76 - 0.90 ppm	Additive which promotes strong teeth
Nitrate	10.0 ppm	10.0 ppm	0.4 ppm	0.1 - 0.4 ppm	1.7 ppm	ND(0.01)-1.7ppm	Erosion of natural deposits Runoff from fertilizer use and animals
Selenium	50 ppb	50 ppb	ND(1ppb)	N/A	1.8 ppb	1.8 ppb	Erosion of natural deposits
Total Organic Carbon	TT	N/A	3.3 ppm	2.8 - 3.3 ppm	3.7 ppm	2.3-3.7 ppm	Naturally present in the environment
Turbidity	TT	N/A	0.22 NTU	0.05-0.22 NTU	0.28 NTU	0.06-0.28 NTU	Soil runoff
Percentage of samples < 0.3 NTU			100%		100%		
Uranium	30 ppb	0 ppb	ND(0.7 ppb)	ND(0.7)-0.7 ppb	ND(0.7 ppb)	N/A	Erosion of natural deposits

At the Clinton Water Plant during July 2004, one of four corrosion control requirements under the Lead and Copper Rule was not achieved. All four requirements were met during the other eleven months of 2004. At the Kaw Water Plant, all four requirements were met for all of 2004.

* EPA considers 50pCi/L to be the level of concern for beta particles. ** These data are estimated high due to laboratory Quality Control procedures.

Definitions:

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 a feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) -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

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. MRDLGs allow for a margin of safety.

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 measure of radioactivity)

ppb - micrograms per liter (ug/L) One part per billion (one penny in $10,000,000)

ppm - milligrams per liter (mg/L) One part per million (one penny in $10,000)

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

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

Listed are contaminants detected in Lawrence's drinking water. All are below allowed levels. Not listed are the hundreds of other contaminants that were tested but not detected.

Your Right to Know

To comply with the Safe Drinking Water Act Amendments, the 2005 Consumer Confidence Report (CCR) is being issued to you, the customer. The purpose of this report is to provide knowledge about the drinking water and heighten the awareness of the need to protect this precious resource. This report is applicable to homes, businesses, and industries served by our public water supply.

Landlords, businesses and schools are encouraged to share this report with non-billed users at their locations.

For more information on the contents of this City of Lawrence Water Quality Report or to obtain more copies, contact Shari Stamer, Water Quality Manager, at 832-7817 or e-mail your questions or concerns to: sstamer@ci.lawrence.ks.us

Public Notification Rule

Public notification helps to ensure that consumers will always know if there is a problem with their drinking water. These notices immediately alert consumers if there is a serious problem with their drinking water (e.g. a boiling water emergency). For less serious problems (e.g. a missed water test), water suppliers must notify customers in a timely manner. Public notice requirements have always been a part of the Safe Drinking Water Act. EPA revised the existing Public Notification Rule to improve the form, manner, and timing of the notices based on the relative risk to human health. Notices must be sent within 24 hours, 30 days, or one year depending on the tier to which the violation is assigned.

Lawrence Water Treatment Facilities

The Clinton Reservoir Water Treatment Plant currently produces an average of 5.9 million gallons of water a day and has the capability to treat up to 15 million gallons per day (MGD). The Kaw River Water Treatment Plant currently produces an average of 5.1 MGD and has the capability to treat up to 16.5 MGD. The plants are staffed 24 hours a day, 365 days a year by trained, state licensed operators. During hot summer days the combined demand will typically exceed 25 MGD. In 2004, the Department of Utilities provided 3.97 billion gallons of safe drinking water, averaging 10.9 million gallons per day.

Where Does Your Water Come From?

The City of Lawrence diverts water from two surface water sources, the Kansas River and the Clinton Lake. Supplemental water is also drawn from the Kansas River Alluvium. All of these bodies of water are located within the Kansas-Lower Republican Basin. The sources of drinking water are surface water (from a watershed), groundwater, or a combination of both.

What Common Contaminants May Be Present In Source Water?

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Listed below are some examples of such contaminants:

- Microbiological contaminants such as viruses, bacteria, and protozoans;
- Inorganic contaminants such as salts and metals;
- Pesticides, which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses;
- Organic chemicals from industrial or petroleum use; and
- Naturally-occurring radioactive contaminants.

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 (1-800-426-4791).

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.

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 microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Water Treatment Processes

Source water is treated to remove pathogenic organisms, excess color and turbidity, certain dissolved minerals, and undesirable chemicals. The processes listed below occur in a series of basins and filters at either water treatment plant.

- Primary Sedimentation - many of the larger suspended particles gravity settle in this basin.
- Powdered Activated Carbon - activated carbon is added to remove organic contaminants (including pesticides) and control tastes and odors.
- Coagulation / Flocculation - coagulation and softening chemicals (lime, soda ash, and/or polymer) are added. This causes hardness reduction and fine suspended particles to clump together forming "floc."
- Sedimentation - the "floc" is allowed to gravity settle, reducing the cloudiness of the water.
- Disinfection - chlorine is added to kill or inactivate microbial organisms including bacteria, viruses, and some protozoans.
- Filtration - remaining suspended particles are filtered out using sand/anthracite filters, resulting in clear water. Filtration serves as a barrier for *Cryptosporidium*.
- Other - chemicals added near the end of water treatment include: 1) ammonia which combines with chlorine to form chloramine, a disinfectant residual used in the distribution system; 2) phosphate to prevent corrosion of distribution system pipes; and 3) fluoride to prevent tooth decay, especially in children.

This entire treatment process is monitored and controlled by operations where an interactive computer program, the Supervisory Control and Data Acquisition (SCADA) system is used.

Microbial Contaminants

In 1990, EPA's Science Advisory Board concluded that exposure to microbial contaminants, such as bacteria, viruses, and protozoans were likely the greatest remaining health risk management challenge for drinking water suppliers.

Current and future regulations that apply are summarized below.

The Surface Water Treatment Rule (SWTR) is a current rule that requires disinfection to kill or inactivate bacteria, viruses, and protozoans living in the water. The City of Lawrence uses chlorine to achieve this disinfection.

The Interim Enhanced Surface Water Treatment Rule (IESWTR) is also a current rule which sets maximum allowable turbidity levels and requires continuous turbidity monitoring of individual filters.

Cryptosporidium oocysts are effectively removed by the combined processes of sedimentation and filtration. To ensure this removal is achieved, turbidity levels in the finished water are regulated and continuously monitored. Learn more about *Cryptosporidium* at www.cdc.gov/ncidod/dpd/parasites/factsht_cryptospordiosis.htm. In the near future, EPA is scheduled to release the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). In accordance with this rule, the City of Lawrence will conduct *Cryptosporidium* sampling of the Kansas River and Clinton Lake for a 24-month period. This information will be used to assess current and future treatment techniques.

Disinfectants and Disinfection Byproducts

During disinfection, chlorine combines with naturally occurring organic and inorganic matter present in the water. The products of these reactions are Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5). Current and future regulations that apply are described below.

Current regulation - Stage 1 Disinfectants / Disinfectant Byproduct Rule (Stage 1 D/DBPR) requires: 1) monitoring for TTHM and HAA5 at points in the distribution system, setting the maximum limits for these contaminants; 2) monitoring and sets maximum limits for disinfectants in the distribution system; and 3) a minimum percentage of Total Organic Carbon (TOC) removal through treatment. TOC is a measure of naturally occurring organic matter.

Future regulation - Stage 2 Disinfectants / Disinfectant Byproduct Rule (Stage 2 D/DBPR) will: 1) require the determination of the distribution system monitoring locations for TTHM and HAA5 by conducting an Initial Distribution System Evaluation (IDSE); 2) increase the number of distribution system sites monitored; and 3) modify calculations of annual averages to determine compliance.

Secondary Contaminants Detected at the Clinton and Kaw Water Treatment Plants.

Secondary Contaminant	Sampling Date(s)	Clinton Highest Level	Clinton Detection Range	Kaw Highest Level	Kaw Detection Range	Units	SMCL	Typical Source
Calcium	Jan - Dec 2004	30	23 - 30	44	34 - 44	ppm	75 - 200	Erosion of Natural Deposits.
Magnesium	Jan - Dec 2004	10	7 - 10	10	4 - 10	ppm	50 - 150	Erosion of Natural Deposits.
Sodium	Jan - Dec 2004	12	9 - 12	85	31 - 85	ppm	100	Erosion of Natural Deposits.
Potassium	Jan - Dec 2004	4	3 - 4	10	8 - 10	ppm	100	Erosion of Natural Deposits.
Chloride	Jan - Dec 2004	15	11 - 15	102	40 - 102	ppm	250	Erosion of Natural Deposits.
Sulfate	Jan - Dec 2004	33	22 - 33	126	63 - 126	ppm	250	Erosion of Natural Deposits.
Total Hardness	Jan - Dec 2004	112	92 - 112	132	96 - 132	ppm	400	Erosion of Natural Deposits.
Alkalinity as $CaCO_3$	Jan - Dec 2004	89	72 - 89	53	39 - 53	ppm	60 - 300	Erosion of Natural Deposits.
pH	Jan - Dec 2004	9.2	8.0 - 9.2	9.4	8.7 - 9.4	pH Units	6.5 - 8.5	Erosion of Natural Deposits.
Specific Conductance	3/23/2004	240	N / A	480	N / A	µmhos / cm	1500	Erosion of Natural Deposits.
Total Dissolved Solids	Jan - Dec 2004	150	130 - 150	410	230 - 410	ppm	500	Erosion of Natural Deposits.
Total Phosphorus (P)	3/23/2004	0.3	N / A	0.04	N / A	ppm	5	Erosion of Natural Deposits.
Silica	3/23/2004	2	N / A	7	N / A	ppm	50	Erosion of Natural Deposits.

SMCL - Secondary Maximum Contaminant Level (or optimal range) set by KDHE.
Secondary contaminants are not regulated, but provide guidelines for producing good tasting and aesthetically pleasing water.