

Water Quality Report 2008



About This Report

In 2008, as in years past, your tap water produced by City Water, Light and Power (CWLP) met all United States Environmental Protection Agency (USEPA) and State of Illinois drinking water health standards. The purification process is monitored 24 hours each day, and we are pleased to report that the utility had **no violations** of a contaminant level or of any other water quality standard in 2008. This report summarizes the quality of water that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report and other utility information are also available on the CWLP website at www.cwlp.com.

CWLP utility issues are discussed at Utilities Committee meetings, which are held at 5:15 p.m. on each Wednesday preceding a regularly scheduled full City Council meeting. City Council meetings take place at 6 p.m. on the first and third Tuesdays of each month. These meetings are open to the public and are held in the Springfield City Council chambers on the third floor of Municipal Center West, 300 S. 7th St.

If you have any questions about this report or your water system, please contact Ted Meckes or Kim Lucas at (217) 757-8630. We are committed to providing you with high quality water for your use.

About Drinking Water Contaminants

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 can dissolve naturally occurring minerals and radioactive material and can pick up substances resulting from the presence of animals or from human activity. Possible contaminants consist of:

- **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 stormwater 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, urban storm-

water runoff, and residential uses;

- **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 stormwater run-off, and septic systems;
- **Radioactive contaminants**, which may be naturally occurring or the result of oil and gas production and mining activities.

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. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

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 USEPA's Safe Drinking Water Hotline (1-800-426-4791).

To ensure that tap water is safe to drink, the USEPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Illinois Environmental Protection Agency (IEPA) administers the drinking water program in Illinois under rules adopted by the Illinois Pollution Control Board. These rules are identical in substance to those of the USEPA. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Due to a favorable monitoring history, no variances or exemptions have been issued to the CWLP Water Division by the USEPA or IEPA.

This *Water Quality Report* includes tables that will give you a better picture of the drinking water contaminants CWLP tested for.



Timothy J. Davlin
Mayor

Converting Lake Water to Drinking Water

Lake Springfield is the surface water source of our drinking water. It contains 16.7 billion gallons when full and covers about 4,200 acres. Its 265-square-mile watershed, including the Sugar and Lick Creek drainage areas, is composed primarily of agricultural land. During times of low precipitation, we pump water from the South Fork of the Sangamon River at its confluence with Horse Creek.

A source water assessment for our supply has been completed by the IEPA. Information provided by this assessment indicates the vulnerability of our water supply to potential sources of contamination. Causes of pollution to the lake include nutrients, siltation, suspended solids, and organic enrichment. Primary sources of pollution include agricultural runoff, land disposal (septic systems), and shoreline erosion. If you would like a copy of the assessment, call the Water Purification Plant at (217) 757-8630.

To convert this raw supply to drinking water, lake water is pumped through CWLP's Water Treatment Plant where chemical reactions are initiated to assist in the removal of algae, suspended solids, hardness, and many chemical constituents. The clarification basins remove the bulk of these materials and the final filter beds remove very small particles. Fluoride is added to prevent tooth decay; chlorine to disinfect the finished water; and ammonia to stabilize the chlorine in the distribution system.

Common Quality Analyses of Springfield Drinking Water			
<i>values in ppm unless otherwise noted</i>	<i>Min.</i>	<i>Avg.</i>	<i>Max.</i>
pH ⁸ (units)	9.2	9.5	9.9
TOTAL ALKALINITY (as CaCO ₃) ⁹	30	51	82
TOTAL HARDNESS (as CaCO ₃) ⁹	90	118	152
CALCIUM HARDNESS (as CaCO ₃) ⁹	44	69	116
MAGNESIUM HARDNESS (as CaCO ₃) ⁹	14	49	88
RESIDUAL CHLORINE, TOTAL	1.4	2.1	2.9

The City of Springfield is pleased to bring you the tenth annual Water Quality Report for consumers of drinking water provided by your municipal utility, City Water, Light & Power. One result of the Safe Drinking Water Act amendments of 1996 is that water utilities across the nation are bringing unprecedented amounts of water quality information to their customers.

We hope the information provided here will enlighten you about some of the monitoring undertaken to evaluate the production of your drinking water. Details about where your water comes from, what it contains, and how it compares to standards set by the regulatory agencies are included.

As this report will demonstrate, the City of Springfield is committed to providing you with high quality water.

Sincerely,



Mayor



General Manager

2008 Detected Contaminants

CONTAMINANT (unit of measurement) Typical source of contaminant	MCLG	MCL	Highest Level Found	Range of Detections	Violation	Date of Sample
Microbial Contaminants						
TURBIDITY ¹ (NTU) (%<0.5 NTU) Soil runoff	n/a	TT	100.0	100.0 - 100.0		
TURBIDITY (NTU) Soil runoff	n/a	TT = 5NTU _{max}	0.22	n/a		
Radioactive Contaminants						
BETA/PHOTON EMITTERS ² (pCi/l) Decay of natural and man-made deposits	0	50	2.0	2.0 - 2.0		1/13/03
Inorganic Contaminants						
BARIUM (ppm) Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2	2	0.03	0.03 - 0.03		
BERYLLIUM (ppb) Discharge from metal refineries, coal-burning factories, and electrical, aerospace and defense industries	4	4	1.0	1.0-1.0		
COPPER (ppm) Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	1.3	AL = 1.3	0.071	0 exceeding AL		9/30/07
FLUORIDE ⁴ (ppm) Erosion of natural deposits; water additive for strong teeth; discharge from fertilizer/aluminum factories	4	4	0.85	0.85-1.11 ³		
LEAD ⁵ (ppb) Corrosion of household plumbing systems; erosion of natural deposits	0	AL = 15	1.4	0 exceeding AL		9/30/07
NITRATE (as NITROGEN) ⁶ (ppm) Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10	10	5.7	nd - 5.7		
SELENIUM (ppb) Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	50	50	1.0	1.0 - 1.0		
Synthetic Organic Contaminants						
SIMAZINE (ppb) Herbicide runoff	4	4	0.4	nd - 0.4		
METHOXYCHLOR (ppb) Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, and livestock	40	40	0.27	nd - 0.27		
Disinfectants/Disinfection By-Products						
TTHMs (TOTAL TRIHALOMETHANES) (ppb) By-product of drinking water chlorination	n/a	80	54.0	31.0-84.5 ³		
HAA5 (TOTAL HALOACETIC ACIDS) (ppb) By-product of drinking water chlorination	n/a	60	24.0	nd - 34.8 ³		
CHLORAMINES (ppm) Water additive used to control microbes	MRDLG=4	MRDL=4	1.8	1.4 - 1.8		
State Regulated Contaminants						
SODIUM ⁷ (ppm) Erosion of naturally occurring deposits; used as water softener	n/a	n/a	12.0	12.0 - 12.0		

Measurement Definitions

ppm Parts per million, or milligrams per liter

ppb Parts per billion, or micrograms per liter

pCi/l Picocuries per liter; measures radioactivity

NTU Nephelometric Turbidity Unit; measures cloudiness in drinking water

%<0.5 NTU Percent of samples less than 0.5 NTU



Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Filtration removes Cryptosporidium, but the most commonly used filtration methods cannot guarantee 100 percent removal. Ingestion of Cryptosporidium can cause cryptosporidiosis, the symptoms of which include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the infection within a few weeks. However, immuno-compromised people are at a greater risk of developing a life-threatening illness. The disease may be spread through means other than drinking water, such as poor sanitation practices.

Cryptosporidium Monitoring

CWLP has tested for Cryptosporidium in both the lake water and treated water for fourteen years. Cryptosporidium was detected in the source water in 2008. However, Cryptosporidium has never been detected in the drinking water. Treatment processes have been optimized to ensure that if there are Cryptosporidium cysts in the source water, they will be removed during the treatment process. By maintaining low turbidity, a result of efforts to remove particles from the water, the potential threat of Cryptosporidium organisms getting into the drinking water system is greatly reduced.

Data Table Footnotes

¹**Turbidity** Measure of the cloudiness of the water. A good indicator of water quality and the effectiveness of our filtration system and disinfectants.

²**Beta/Photon Emitters** The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/l to be a level of concern for beta particles.

³**Informational Statement** The *Range of Detections* column includes data from all samples taken to satisfy various monitoring requirements. Values in the *Highest Level Found* column represent only data collected for the IEPA compliance monitoring program.

⁴**Fluoride** Added to the water supply to promote strong teeth. The Illinois Department of Public Health recommends an optimal fluoride range of 0.9 mg/l to 1.2 mg/l.

⁵**Lead** 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. CWLP 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 might 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 www.epa.gov/safewater/lead.

⁶**Nitrate** Nitrate in drinking water at levels above 10ppm is a health risk for infants less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

⁷**Sodium** There is no state or federal MCL for sodium. Monitoring is required to provide information to consumers and health officials who are concerned about sodium intake due to dietary precautions. If you are on a sodium-restricted diet, consult a physician about this level.

⁸**pH** Measure of hydrogen ion concentration expressed as acidity or alkalinity. The pH scale is in units of 0-14, where 7 is neutral, less than 7 acidic, and greater than 7 alkaline.

⁹**CaCo₃** Calcium carbonate.

Definition of Terms

Maximum Contaminant Level Goal (MCLG) 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.

Maximum Contaminant Level (MCL) Highest level of a contaminant allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

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

Maximum Residual Disinfectant Level (MRDL) Highest level of disinfectant allowed in drinking water.

Highest Level Found Highest level found of sample result data collected during the calendar year. It may represent a single sample if only one sample was collected.

Range of Detections Range of individual sample results, from lowest to highest, collected during the calendar year.

Date of Sample If a date is provided, the Illinois EPA requires monitoring for this contaminant less than once per year because

concentrations change infrequently. If no date appears, monitoring for this contaminant was conducted during the calendar year of this report.

Action Level (AL) Concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Treatment Technique (TT) Required process intended to reduce the level of a contaminant in drinking water.

nd Not detectable at testing limits.

n/a Not applicable.

Many chemical parameters other than those listed in this report were evaluated but were not detected. For a full list of tested parameters, call the CWLP Water Purification Plant at 757-8630.