

# Water Quality Report <sup>2013</sup>



## City Water, Light & Power • Springfield, Illinois

### About This Report

The City of Springfield is pleased to bring you the fifteenth annual Water Quality Report for consumers of drinking water provided by your municipal utility, City Water, Light & Power (CWLP). 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 the 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.

In 2013, as in years past, tap water produced by City Water, Light & Power 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 CWLP is pleased to report the utility had **no violations** of a contaminant level or of any other water quality standards in 2013. This report, which summarizes the quality of water CWLP provided last year, and other utility information are available on the CWLP website at [www.cwlp.com](http://www.cwlp.com).

CWLP utility issues are discussed at City Council meetings at 5:30 p.m. on the first and third Tuesdays of each month and at the Council Committee of the Whole meetings held at 5:30 p.m. on the Tuesday of each week prior to a City Council meeting. These meetings are open to the public and are held in the City Council chambers on the third floor of Municipal Center West, 300 S. 7th Street.

### 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 can 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/herbicides*, which can come from a variety of sources, such as agriculture, urban stormwater 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 runoff and septic systems;

- *Radioactive contaminants*, which can 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 in-

fants—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 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 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. 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, the USEPA and IEPA have issued no variances or exemptions to the CWLP Water Division.

This Water Quality Report includes tables that will give you a better picture of the drinking water contaminants CWLP tested for and detected during 2013.

## Testing and Reporting Regulated Contaminants

The *Detected Contaminants* table on page 3 lists all contaminants detected in drinking water produced by CWLP during 2013. Although testing was done for many more contaminants, only those substances listed in the table were found in the water. If you would like a full list of all tested substances, call the CWLP Water Purification Plant at (217) 757-8630.

All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful. Removing all contaminants would be extremely expensive and, in most cases, would not provide increased protection

to public health. A few naturally occurring minerals might actually improve the taste of drinking water and have nutritional value at low levels.

In the *Detected Contaminants* table on page 3 and the *Common Quality Analyses of Springfield Drinking Water* table on page 4, you might find a number of terms and abbreviations that are not familiar to you. To help you better understand these terms, please check the *Data Table Footnotes* section below, as well as the *Definitions of Terms* and *Measurement Definitions* sections located on page 4.

## Cryptosporidium Monitoring

Cryptosporidium is a microbial parasite found in surface water throughout the United States. 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, but people who are immunocompromised have a greater risk of developing a life-threatening illness. The disease may be spread through means other than drink-

ing water, such as poor sanitation practices.

Past monitoring has indicated the presence of Cryptosporidium in our source water, but these organisms have 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 threat of Cryptosporidium organisms getting through the treatment process and into the drinking water system is greatly reduced.

## Converting Lake Water to Drinking Water

Lake Springfield is the surface water source of our drinking water. It contains 17.6 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, water is pumped 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 pol-

lution 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 water supply to drinking water, lake water is pumped through CWLP's Water Purification 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.

## Data Table Footnotes

<sup>1</sup>**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.

<sup>2</sup>**Turbidity** Measure of the cloudiness of the water caused by suspended particles. A good indicator of water quality and the effectiveness of our filtration system and disinfectants.

<sup>3</sup>**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. 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 (1-800-426-4791) or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

<sup>4</sup>**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.

<sup>5</sup>**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.

<sup>6</sup>**Unregulated Contaminants** Neither state nor federal regulations have been established regarding a maximum contaminant level (MCL) or mandatory health effects language for these contaminants. The purpose of monitoring unregulated contaminants is to help the USEPA decide whether or not to set drinking water standards for them.

<sup>7</sup>**Total Organic Carbon (TOC)** The percentage of TOC removal was measured each month and CWLP met all TOC removal requirements.

<sup>8</sup>**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.

<sup>9</sup>**CaCO<sub>3</sub>** Calcium carbonate.

## 2013 Detected Contaminants

CONTAMINANT (unit of measurement) Typical source of contaminant	MCLG	MCL	Highest Level Found <sup>1</sup>	Range of Detections <sup>1</sup>	Violation	Date of Sample
<b>Microbial Contaminants</b>						
TOTAL COLIFORM BACTERIA (% pos/mo) naturally present in the environment	0	5	0.8	n/a		
TURBIDITY <sup>2</sup> (NTU) (<0.3 NTU) soil runoff	n/a	TT	99.72	99.72-100		
TURBIDITY <sup>2</sup> (NTU) soil runoff	n/a	TT= 1NTUmax	0.44	n/a		
<b>Inorganic Contaminants</b>						
Arsenic (ppb) erosion of natural deposits; runoff from orchards, glass and electronics production wastes	0	10	2	n/a		
COPPER (ppm) corrosion of household plumbing systems; erosion of natural deposits	1.3	AL=1.3	0.055	0 exceeding AL		
LEAD <sup>3</sup> (ppb) corrosion of household plumbing systems; erosion of natural deposits	0	AL=15	1.7	0 exceeding AL		
BARIUM (ppm) discharge of drilling wastes and from metal refineries; erosion of natural deposits	2	2	0.021	n/a		
FLUORIDE <sup>4</sup> (ppm) erosion of natural deposits; water additive to promote strong teeth; discharge from fertilizer and aluminum factories	4	4	0.8	0.78 – 0.97		
NITRATE (as NITROGEN) (ppm) runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10	10	4	0.05 – 6.48		
SODIUM <sup>5</sup> (ppm) erosion of natural deposits; leaching	n/a	n/a	18	n/a		
<b>Disinfectants/Disinfection By-Products</b>						
HALOACETIC ACIDS (HAA5) (ppb) by-product of drinking water disinfection	n/a	60	25	5.3 – 33.1		
CHLORAMINE (as Cl <sub>2</sub> ) (mg/L) water additive used to control microbes	MRDLG =4	MRDL=4	2	2 – 2		
TOTAL TRIHALOMETHANES (TTHMs) (ppb) by-product of drinking water disinfection	n/a	80	44	24 – 43.08		
<b>Radioactive Contaminants</b>						
ALPHA EMITTERS (pCi/L) erosion of natural deposits	0	15	0.365	n/a		2011
RADIUM (COMBINED 226/228) (pCi/L) erosion of natural deposits	0	5	0.828	n/a		2011
<b>Unregulated Contaminants<sup>6</sup></b>						
CHROMIUM (TOTAL CHROMIUM) (ppb) naturally occurring element	n/a	n/a	1.7	1.1 – 1.7		
CHROMIUM-6 (HEXAVALENT CHROMIUM) (ppb) naturally occurring element	n/a	n/a	1.8	0.091 – 1.8		
STRONTIUM (ppb) naturally occurring element	n/a	n/a	96	65 – 96		
VANADIUM (ppb) naturally occurring elemental metal	n/a	n/a	5.6	3.5 – 5.6		
COBALT (ppb) naturally occurring element	n/a	n/a	1.6	nd – 1.6		
MOLYBDENUM (ppb) naturally occurring element	n/a	n/a	1.3	nd – 1.3		
<b>Total Organic Carbon<sup>7</sup></b>	see Data Table Footnote #7					

Common Quality Analyses of Springfield Drinking Water			
<i>values in ppm unless otherwise noted</i>	<i>Minimum</i>	<i>Average</i>	<i>Maximum</i>
pH <sup>8</sup> (units)	9.2	9.4	9.7
TOTAL ALKALINITY (as CaCO <sub>3</sub> ) <sup>9</sup>	29	41	60
TOTAL HARDNESS (as CaCO <sub>3</sub> ) <sup>9</sup>	80	109	132
CALCIUM HARDNESS (as CaCO <sub>3</sub> ) <sup>9</sup>	46	70	100
MAGNESIUM HARDNESS (as CaCO <sub>3</sub> ) <sup>9</sup>	12	39	72
RESIDUAL CHLORINE, TOTAL	1.6	2.2	2.7

## 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 sam-

ple 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 IEPA 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 that, 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.

## Measurement Definitions

**%pos/mo** Percent of monthly samples that were positive.

**n/a** Not applicable.

**nd** Not detected at testing limits.

**NTU** Nephelometric Turbidity Unit; measures cloudiness in drinking water.

**%<0.3NTU** Percent of samples less than 0.3 NTU.

**ppm (mg/L)** Parts per million, or milligrams per liter.

**ppb (ug/L)** Parts per billion, or micrograms per liter.

**pCi/L** Picocuries per liter; measures radioactivity.

**positive samples** Number of positive samples taken during the year.

If you have questions about this report or your water system, please contact Todd LaFountain or Kim Lucas at (217) 757-8630.



prepared by the  
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