



2012 Annual  
**WATER  
QUALITY  
REPORT**

*Reporting Year 2011*



*Presented By* \_\_\_\_\_  
**City of Decatur**

## Meeting the Challenge

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2011. We have dedicated ourselves to producing drinking water that meets all state and federal standards, and continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts or concerns about the information in this report.

## Community Participation

City of Decatur Council meetings are open to the public. For further information, contact the City Clerk's office at (217) 424-2708.



## Source Water Assessment

The Illinois EPA has completed a source water assessment for Decatur. The Illinois EPA considers all surface water sources of public water supply to be susceptible to potential pollution problems. This is the reason for the mandatory treatment of all public surface water supplies in Illinois. Mandatory treatment includes coagulation, sedimentation, filtration, and disinfection. Primary sources of pollution in Illinois lakes can include agricultural runoff, land disposal (septic systems), and shoreline erosion.

Due to the low geologic sensitivity and the monitoring results of our DeWitt county wells, the Illinois EPA does not consider these wells to be susceptible to volatile organic contaminants (VOCs), synthetic organic contaminants (SOCs), or inorganic contaminants (IOCs). In accordance with Illinois EPA regulations, the wells each have a minimum protection zone of 200 feet.

Under the Clean Water Act Section 319, the U.S. EPA provides grants for the Illinois EPA to finance projects that demonstrate cost-effective solutions to nonpoint-source (NPS) problems and promote public knowledge and awareness of NPS pollution. Section 319 projects funded for the Lake Decatur Watershed include the Upper Sangamon River Basin Water Quality Improvement Project and the Nutrient Management Plan Implementation. The Macon County Soil and Water Conservation District and the Agricultural Watershed Institute also administer several water quality improvement projects in the watershed.

## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

## Where Does My Water Come From?

The City of Decatur uses Lake Decatur as its source of drinking water. Lake Decatur, which is 2,850 surface acres in size, is located entirely within the city limits of Decatur. The Sangamon River is the primary source of water for Lake Decatur, which has a drainage area of 925 square miles, 87% of which is used for growing corn and soybeans. When Lake Decatur water levels are low, the city uses wells located in Piatt and DeWitt counties to supplement the water supply.

## Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 at (800) 426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

## QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please contact Don Giger, Water Production Operations Supervisor, at (217) 424-2866 or [dgiger@decaturil.gov](mailto:dgiger@decaturil.gov).

## How Is My Water Treated and Purified?

The treatment process consists of a series of steps. First, raw water is pumped from Lake Decatur to the South Water Treatment Plant. Chlorine dioxide is added to destroy bacteria and protozoa that may be in the raw water. The water then goes to mixing basins where aluminum sulfate and calcium hydroxide are added for softening. The addition of these substances causes small particles to adhere to one another, making them heavy enough to drop to the bottom of large settling basins, and be mechanically removed. Powdered activated carbon is added for taste and odor control. The fine particles that still remain are removed in the filtration process, in which the water passes through layers of sand and anthracite. Chlorine is then added to maintain the disinfection process throughout the distribution system. Last, a small amount of fluoride is added to prevent dental decay. Positive water pressure is continuously maintained in the distribution system to prevent the intrusion of any contaminants into our water mains.

## Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

**Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

**Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may 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 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 may also come from gas stations, urban stormwater runoff, and septic systems;

**Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

## Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen, disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use and avoid using hot water, to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

# Fact *or* Fiction

Tap water is cheaper than soda pop. *(Fact: You can refill an 8 oz. glass of tap water approximately 15,000 times for the same cost as a six-pack of soda pop. And, water has no sugar or caffeine.)*

Methods for the treatment and filtration of drinking water were developed only recently. *(Fiction: Ancient Egyptians treated water by siphoning water out of the top of huge jars after allowing the muddy water from the Nile River to settle. And, Hippocrates, known as the father of medicine, directed people in Greece to boil and strain water before drinking it.)*

A typical shower with a non-low-flow showerhead uses more water than a bath. *(Fiction: A typical shower uses less water than a bath.)*

Water freezes at 32 degrees Fahrenheit. *(Fiction: You can actually chill very pure water past its freezing point (at standard pressure) without it ever becoming solid.)*

The Pacific Ocean is the largest ocean on Earth. *(Fact: The Atlantic Ocean is the second largest and the Indian Ocean is the third largest.)*

A single tree will give off 70 gallons of water per day in evaporation. *(Fact)*

## Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. The state requires us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

### REGULATED SUBSTANCES

| SUBSTANCE<br>(UNIT OF MEASURE)                              | YEAR<br>SAMPLED | MCL<br>[MRDL]                 | MCLG<br>[MRDLG] | AMOUNT<br>DETECTED | RANGE<br>LOW-HIGH | VIOLATION | TYPICAL SOURCE   |
|---|-----------------|-------------------------------|-----------------|--------------------|-------------------|-----------|--|
| Atrazine (ppb)  | 2011            | 3                             | 3               | 0.8                | ND–0.84           | No        | Runoff from herbicide used on row crops  |
| Barium (ppm)  | 2011            | 2                             | 2               | 0.007              | 0.007–0.007       | No        | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits                               |
| Chlorine (ppm)  | 2011            | [4]                           | [4]             | 0.9                | 0.84–1.07         | No        | Water additive used to control microbes  |
| Chlorite (ppm)  | 2011            | 1                             | 0.8             | 0.4                | 0.13–0.4          | No        | By-product of drinking water disinfection  |
| Fluoride (ppm)  | 2011            | 4                             | 4               | 1.07               | 0.93–1.2          | No        | Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories |
| Haloacetic Acids [HAAs] <sup>1</sup> (ppb)                  | 2011            | 60                            | NA              | 12                 | 2.4–24            | No        | By-product of drinking water disinfection  |
| Nitrate <sup>2</sup> (ppm)                                  | 2011            | 10                            | 10              | 7.0                | 0.07–7.4          | No        | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits                              |
| TTHMs [Total Trihalomethanes] <sup>1</sup> (ppb)            | 2011            | 80                            | NA              | 52                 | 15–93             | No        | By-product of drinking water disinfection  |
| Turbidity <sup>3</sup> (NTU)                                | 2011            | TT = 1                        | NA              | 0.14               | 0.08–0.14         | No        | Soil runoff  |
| Turbidity (Lowest monthly percent of samples meeting limit) | 2011            | TT = 95% of samples < 0.3 NTU | NA              | 100                | NA                | No        | Soil runoff  |

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

| SUBSTANCE<br>(UNIT OF MEASURE) | YEAR<br>SAMPLED | AL  | MCLG | AMOUNT<br>DETECTED<br>(90TH%TILE) | SITES<br>ABOVE AL/<br>TOTAL SITES | VIOLATION | TYPICAL SOURCE   |
|--------------------------------|-----------------|-----|------|-----------------------------------|-----------------------------------|-----------|--|
| Copper (ppm)                   | 2011            | 1.3 | 1.3  | 0.02                              | 0/30                              | No        | Corrosion of household plumbing systems; Erosion of natural deposits |
| Lead (ppb)                     | 2011            | 15  | 0    | 7.9                               | 0/30                              | No        | Corrosion of household plumbing systems; Erosion of natural deposits |

### STATE REGULATED SUBSTANCES

| SUBSTANCE<br>(UNIT OF MEASURE) | YEAR<br>SAMPLED | MCL<br>[MRDL] | MCLG<br>[MRDLG] | AMOUNT<br>DETECTED | RANGE<br>LOW-HIGH | VIOLATION | TYPICAL SOURCE   |
|--------------------------------|-----------------|---------------|-----------------|--------------------|-------------------|-----------|--|
| Sodium <sup>4</sup> (ppm)      | 2011            | NA            | NA              | 14                 | 14–14             | No        | Erosion of naturally occurring deposits; used in water softener regeneration |

### SECONDARY SUBSTANCES

| SUBSTANCE<br>(UNIT OF MEASURE) | YEAR<br>SAMPLED | SMCL | MCLG | AMOUNT<br>DETECTED | RANGE<br>LOW-HIGH | VIOLATION | TYPICAL SOURCE   |
|--------------------------------|-----------------|------|------|--------------------|-------------------|-----------|--|
| Sulfate (ppm)                  | 2011            | 250  | NA   | 39                 | 39–39             | No        | Runoff/leaching from natural deposits; Industrial wastes |

<sup>1</sup>We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water, when disinfectants combine with organic matter that naturally occurs in the Lake Decatur.

<sup>2</sup>Nitrate in drinking water at levels above 10 ppm is a health risk for infants of 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 advice from your health care provider.

<sup>3</sup>Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

<sup>4</sup>Sodium is not currently regulated by the U.S. EPA. However, the state has set an MCL for this contaminant for supplies serving a population of 1,000 or more.

## Definitions

**AL (Action Level):** The concentration of a contaminant that triggers treatment or other required actions by the water supply.

**MCL (Maximum Contaminant Level):** 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. Secondary MCLs (SMCLs) are set to protect the odor, taste and appearance of drinking water.

**MCLG (Maximum Contaminant Level Goal):** 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.

**MRDL (Maximum Residual Disinfectant Level):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MRDLG (Maximum Residual Disinfectant Level Goal):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**NA:** Not applicable

**ND (Not detected):** Indicates that the substance was not found by laboratory analysis.

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter).

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter).

**TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.