

June 2008

## City of St. Joseph Water Treatment Plant

# Annual Water Quality Report for 2007

**The purpose of this report** is to provide you with information on the quality of the drinking water produced by the St. Joseph Water Treatment Plant during the 2007 calendar year. The federal government established the requirement for this Water Quality Report, more formally known as a Consumer Confidence Report, in 1998. We welcome this opportunity to provide you with details of where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and Michigan Department of Environmental Quality (MDEQ) Standards. In addition to the required information, this report includes articles to help keep you informed on current and upcoming projects and the ongoing efforts by City of St. Joseph and Authority<sup>1</sup> to meet the growing water demands of the service area in the most economical manner possible. Questions regarding this report can be directed to Tim Zebell, City Engineer or Michael O'Malley, Assistant Water Plant Superintendent.

**Lake Michigan** is the source of the water for the St. Joseph Water Treatment Plant. The intake extends approximately one quarter mile into the Lake. In 2004 a Source Water Assessment was conducted by the Michigan Department of Environmental Quality using procedures established in the Great Lakes Protocol, Source Water Assessment Program. The criteria were used to develop a "sensitivity" rating, which reflects the natural ability of our source water area to provide protection against contamination of the water supply. A water source "susceptibility"

*(Continued on page 4)*

## Authority Water Towers are Reaching New Heights!

As you may have noticed, the water towers constructed as part of the Lake Michigan Shoreline Water & Sewage Treatment Authority's Water Tower Improvements Project are beginning to take shape. The concrete pedestals that will support the one million gallon tanks are complete as steel begins to arrive at the construction sites. Once welded together, the steel plates that comprise the tank will be raised and secured to the top of the pedestal completing the final shape of the towers at total heights of 180 feet. The towers, located along Jericho Road in Lincoln Charter Township and Miners Road in Royalton Township, are scheduled to be completed in October, 2008. Authority officials are pleased with the construction project and look forward to placing these essential pieces of infrastructure into service.

Along with the booster station and water main construction completed in 2007 and early 2008, the towers are part of the infrastructure improvements that will raise the less than desired pressures in the Stevensville, Royalton and highly elevated areas within the Authority service area to more acceptable levels. Furthermore, the improvements provide crucial water storage for peak demands and fire fighting purposes while attenuating pressure fluctuations throughout the entire Authority service area. The result is a safe and reliable water system that safeguards the public health, safety and welfare.

In a time when a lack of public infrastructure investment is creating significant hardships and shortfalls in other communities throughout the country, the Authority is proud to implement a project to sustain a safe and reliable water supply which is critical to the future prosperity of the area. This important project has been designed to handle the region's water storage needs for the next 40 years.

Article contributed by Alan Smaka, P.E., Wightman and Associates, Inc.— Authority Engineer

<sup>1</sup> The Lake Michigan Shoreline Water & Sewage Treatment Authority is composed of St. Joseph Charter, Lincoln Charter, and Royalton Townships and the Villages of Shoreham & Stevensville.



Above: Pedestal for new Authority Water Tower located in Lincoln Charter Township off Jericho Road. *Photo courtesy of Wightman and Associates.*

## General Information

**Contaminants and their presence in water:** Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of 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 (800-426-4791)**.

**Vulnerability of sub-populations:** 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 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 (800-426-4791)**.

**Sources of drinking water:** The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. Our water comes from surface water. 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 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**, which may come from a variety of sources such as agriculture and residential uses.
- **Radioactive contaminants**, which are naturally occurring or the result of oil and gas production and mining activities.
- **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 storm water runoff, and septic systems.

In order to ensure tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health. Many water suppliers add a disinfectant to drinking water to kill germs such as giardia and E. coli. especially after heavy rainstorms, your water system may add more disinfectant to guarantee that these germs are killed.

### Terms and abbreviations used on the facing page

**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.

**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.

**Maximum Residual Disinfectant Level (MRDL):** means 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.

**Maximum Residual Disinfectant Level Goal (MRDLG):** means 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.

**N/A:** Not applicable **ND:** not detectable at testing limit **ppb:** parts per billion or micrograms per liter **ppm:** parts per million or milligrams per liter **pCi/l:** Picocuries per liter (a measure of radioactivity). **Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

\* EPA considers 50 pCi/l to be the level of concern for beta particles.

\*\* Unregulated contaminants are those for which EPA has not established drinking water standards. Monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

# Water Quality Data

The table below lists all the drinking water contaminants that we detected during the 2007 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 - December 31, 2007. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All of the data is representative of the water quality, but some are more than one year old. Chlorine, HAA5 and TTHM results are reported as "Running Annual Averages" (RAAs).

<b>Regulated Contaminant</b>	<b>MCL</b>	<b>MCLG</b>	<b>YOUR WATER</b>	<b>RANGE</b>	<b>SAMPLE DATE</b>	<b>VIOLATION YES/NO</b>	<b>TYPICAL SOURCE OF CONTAMINANT</b>
Fluoride (ppm)	4	4	1.0	N/A	5/21/07	No	Erosion of natural deposits. Discharge from fertilizer and aluminum factories.
Nitrate (mg/L)	10	10	0.5	N/A	6/7/06	No	Erosion of natural deposits; leaching from septic tanks and sewage.
TTHM - Total Trihalomethanes (ppb)	80	N/A	34	17 to 58	4 quarters	No	Byproduct of drinking water disinfection.
HAA5 Haloacetic Acids (ppb)	60	N/A	32	14 to 50	4 quarters	No	Byproduct of drinking water disinfection.
Chlorine (ppm)	4	4	0.97	0.84 to 1.11	Daily	No	Water additive used to control microbes.
<b>Radioactive Contaminant</b>	<b>MCL</b>	<b>MCLG</b>	<b>YOUR WATER</b>	<b>RANGE</b>	<b>SAMPLE DATE</b>	<b>VIOLATION YES/NO</b>	<b>TYPICAL SOURCE OF CONTAMINANT</b>
Beta emitters (pCi/L)	50 *	0	0	N/A	11/03	No	Decay of natural and man-made deposits.
Combined radium (pCi/L)	5	0	1.29	N/A	11/03	No	Erosion of natural deposits.
<b>Special Monitoring and Unregulated Contaminant **</b>			<b>YOUR WATER</b>	<b>RANGE</b>	<b>SAMPLE DATE</b>	<b>TYPICAL SOURCE OF CONTAMINANT</b>	
Bromodichloromethane (ppb)			5.4	N/A	6/8/06	Byproducts of drinking water Chlorine disinfection. Part of Total Trihalomethanes.	
Chlorodibromomethane (ppb)			2.4	N/A	6/8/06	Byproducts of drinking water Chlorine disinfection. Part of Total Trihalomethanes.	
Chloroform (ppb)			8	N/A	6/8/06	Byproducts of drinking water Chlorine disinfection. Part of Total Trihalomethanes.	
Carbon Tetrachloride (ppb)			0.6	N/A	April 2002	By-products of drinking water Chlorine disinfection (cleaning solution residual for chlorine tanks).	
Sulfate (ppm)			32	N/A	5/21/07	Treatment process additive to help remove suspended particles in water & erosion of natural deposits.	
Sodium (ppm)			8	8	5/21/07	Erosion of natural deposits.	
<b>Contaminant Subject to AL</b>	<b>ACTION LEVEL</b>	<b>MCLG</b>	<b>90% OF SAMPLES ≤ THIS LEVEL</b>		<b>SAMPLE DATE</b>	<b>NUMBER OF SAMPLES ABOVE AL</b>	<b>TYPICAL SOURCE OF CONTAMINANT</b>
Lead (ppb) 1 <sup>st</sup> Set	15	0	2		6/14/05	0	Corrosion of household plumbing systems; erosion of natural deposits.
Copper (ppb) 1 <sup>st</sup> Set	1300	1300	13		6/14/05	0	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Lead (ppb) 2 <sup>nd</sup> Set	15	0	3		9/27/05	0	Corrosion of household plumbing systems; erosion of natural deposits.
Copper (ppb) 2 <sup>nd</sup> Set	1300	1300	11		9/27/05	0	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

## Water Quality Data (continued)

Microbial Contaminants	MCL	MCLG	Number Detected	Violation Yes / No	Typical Source of Contaminant
Total Coliform Bacteria	>1 positive monthly sample (>5% of monthly samples positive)	0	0	No	Naturally present in the environment
Fecal Coliform and <i>E. coli</i>	Routine and repeat sample total coliform positive, and one is also fecal or <i>E. coli</i> positive	0	0	No	Human and animal fecal waste

Substance (units)	MCL	MCLG	Highest Level Detected	Range of Detection	Violation Yes/No	Typical Source of Contaminant
Turbidity (NTU)	0.3 or no sample above 1	N/A	0.39	0.04–0.39	No	Soil Runoff

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 water service lines and home plumbing. The City of St. Joseph Water Treatment Plant 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 lead exposure by flushing your tap 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in drinking water, testing methods, and steps you can take to minimize exposure, information is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>

Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Nephelometric Turbidity Units (NTU) is a measure of the clarity of water.

(Lake Michigan—Continued from page 1)

rating was then established based upon the sensitivity rating coupled with other factors that affect whether a contaminant reaches the intake. Surface source sensitivity and susceptibility ratings range from moderate sensitivity/moderately low susceptibility to very high sensitivity/very high susceptibility. The conclusion of the assessment indicated the Lake Michigan water used by the St. Joseph Water Treatment Plant is considered highly sensitive and highly susceptible to potential contamination but the report also stated the “City of St. Joseph Water Treatment Plant has effectively treated this source water to meet drinking water standards.” A copy of the Source Water Assessment Report is available at St. Joseph City Hall, in the City Engineer’s office.

### IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

#### 2nd Quarter Total Organic Carbon Monitoring Requirements Not Met for the City of St. Joseph Water Treatment Plant

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the second quarter, 2007 monitoring period, we did not monitor or test for Total Organic Carbon (TOC) and therefore cannot be sure of the quality of our drinking water during that time.

TOC is not a specific contaminant, however, it provides a medium for the formation of disinfection byproducts. Results of regular TOC monitoring are an indicator of whether or not our treatment is removing natural organics to help reduce the formation of disinfection byproducts.

**What should I do?** There is nothing you need to do at this time. This is not an emergency. You do not need to boil water or use an alternative source of water at this time.

The table below lists the what we did not properly test for during the second quarter 2007 monitoring period, the frequency of sampling, and how many samples we are supposed to collect, how many samples we collected, when samples should have been collected, and the date on which follow-up samples were collected.

Contaminant	Required sampling frequency	Number of samples taken	When all samples should have been taken	Date additional samples were collected
Total Organic Carbon	One paired set of samples	0	April 1, 2007 – June 30, 2007	December 10, 2007

**What happened? What is being done?** Subsequent samples taken show that TOC is within acceptable limits.

For more information, please contact Mr. Michael O’Malley at 269-983-1240.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

## Drinking Water Revolving Fund (DWRF) Project Update

In May 2007, the City of St. Joseph submitted a DWRF Project Plan to the State of Michigan in order to be considered for low-interest loan funding for drinking water infrastructure projects. The projects included \$3.1 million for a new City of St. Joseph water tower, \$3.9 million for water distribution, \$7.4 million for the Water Treatment Plant intake and low service pump station, \$6.0 million for upgrades to the existing water treatment plant and \$7.4 million for expansion of the water treatment plant. The City scored well on the DWRF Project Plan which placed all of the projects in the “fundable” range; good news because the savings for the full list of these projects has been estimated in excess of \$8 million over the twenty-year term of the proposed financing.

The first two projects listed above, the water tower and water distribution projects, are to be funded fully by the City, while the funding for the remainder of the projects at the Water Treatment Plant are proposed as system-wide costs. The City water tower project will be bid in July and construction is expected to commence in September 2008 with completion in late summer of 2010. The new water tower will be located on the west side of Cleveland Road, just north of Hilltop Road behind the Marathon Gas Station. This location is ideal because the ground elevation is approximately 80 feet higher than the location of the existing tank and elevated storage here will provide significantly better water pressure

## Lawn Sprinkling—Conserve & Save \$\$\$

The odd/even sprinkling ordinance remains in effect which leads to the question, how much is enough when it comes to watering your lawn? The following information is adapted from an article written by Joanne Davidhizar, County Director at the MSU Extension.

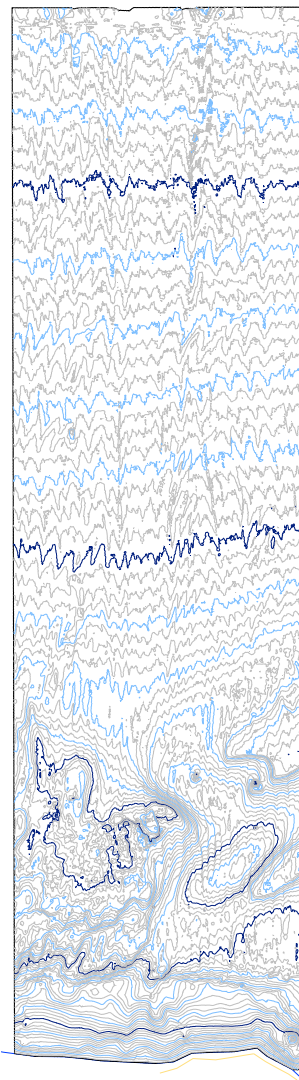
Lawn grasses in our area consist primarily of bluegrass varieties that do well in the moist cool conditions of spring and fall. In the hot dry periods of summer and under natural conditions, these grasses go dormant, produce little growth, may turn brown and require much less water. In a normal year your lawn will survive on natural rainfall - so you don't need to water your lawn.

If you chose to irrigate your lawn, start in spring and continue through the season and keep the following points in mind.

- Your lawn needs ½ to 1 ½ inches of water weekly depending upon the time of year, weather conditions and sun exposure. You can test the amount of water you are delivering by placing a few cans around your yard when watering.
- Take rainfall into account and decrease water delivery through an override device, re-program the system or other method. The reduction in your water bill will help to pay for an override device.
- Consider light watering (0.1 to 0.2 inches) in the early afternoon to enhance drying and minimize disease development.
- Tune up your system to water only the grass, not the sidewalks and the streets. Aside from the money this will save you, it will also reduce runoff with high concentrations of fertilizer/nutrients and thus improve the water quality of Lake Michigan, the St. Joseph River and its tributaries.

Further information is available online at [www.turf.msu.edu](http://www.turf.msu.edu) or you can contact Jamie at the Berrien County MSU Extension office. (Telephone: 269-944-4126).

equalization for the Water Treatment Plant customer base particularly in light of the addition of the two booster stations recently added by the Authority.



The highest priority project at the Water Treatment Plant is the construction of a new, larger intake into deeper Lake Michigan waters. The City is currently wrapping up a water quality study with the consulting firm of Fishbeck, Thompson Carr & Huber to determine the best location of the new intake. The results of the study will be used in the intake design work which is expected to commence in July.

Left: Graphic of the bathymetric survey (topography) of bottom of Lake Michigan westward of the Water Treatment Plant completed as part of the water intake study.



# St. Joseph CITY OF

700 Broad Street  
St. Joseph, MI 49085

The St. Joseph Water Treatment Plant was originally constructed in 1892 and has served the St. Joseph area with water drawn through the 24" diameter intake pipe installed in 1955. Treatment plant processes include screening, disinfection, settling and filtering. The treatment plant is manned 24 hours per day and your water is constantly monitored for quality. The current Water Plant personnel, listed below, have more than 140 years of collective experience at the St. Joseph Water Treatment Plant and are dedicated to providing safe and reliable drinking water to our community.

## Contact Information

City Engineer: Tim Zebell  
Phone: 269-983-5541  
Fax: 269-985-0346  
E-mail: zebell@sjcity.com

### St. Joseph Water Treatment Plant Personnel

Director of Utilities/Water Plant Superintendent:	Greg Alimenti	Email: <a href="mailto:alimenti@sjcity.com">alimenti@sjcity.com</a>
Assistant Water Plant Superintendent:	Michael O'Malley	E-mail: <a href="mailto:omalley@sjcity.com">omalley@sjcity.com</a>
Chief Plant Operator:	Bill Schadler	
Maintenance Foreman:	Dave Ostrander	
Water Plant Operators:	Bob Janke, Tom Schramm, Shawn Orlaske, Jeff Faultersack, Marc Rowland	

## Thank You for Your Patience during the March 25<sup>th</sup> Boil Water Order

On March 25th, an electrical power line problem in the downtown area set off a series of events that resulted in the need to issue a Boil Water Order in St. Joseph Charter, Lincoln Charter and Royalton Townships as well as the Villages of Stevensville and Shoreham. The rapid pressure drop in the south end of the system was determined to be caused by surge anticipator valves at the new Authority Booster Stations that opened as the result of the power interruption. While the Water Department Staff diagnosed the problem amazingly quickly given the lack of remote readings available to the Water Treatment Plant at that time (this has since been corrected), we left some room for improvement in communicating with our water service customers. On the positive side, the City received exceptional help from Berrien County Emergency Operations Center and the media in disseminating the boil order and subsequent information. However, it was apparent that the message of lifting the order became unclear by the volume of telephone calls the City received, partly due to City's inability to update the website as a result of the number of customers visiting it. City Staff is working to improve our method of communication and the responsiveness of the City website updates. We would like to take this opportunity to thank Berrien County and the media for their assistance and our customers for their patience.