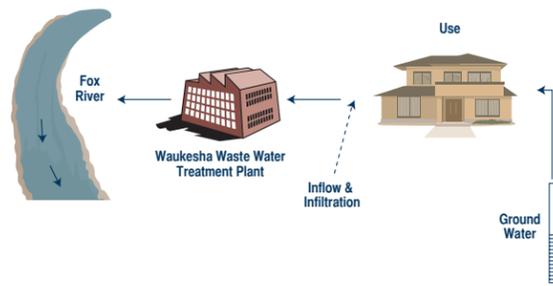
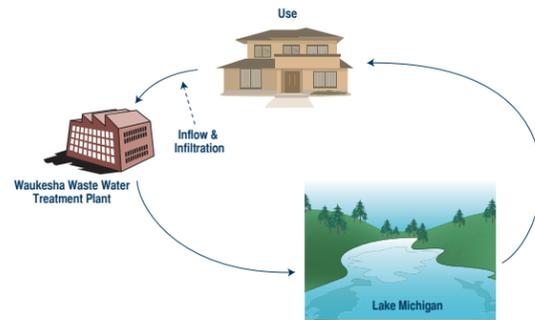


### Existing Water Supply, Treatment and Discharge System



### Proposed Supply, Treatment and Return Flow System



# LAKE MICHIGAN: the best water choice for the environment and our region

## Waukesha has effective urban housing and transportation programs

Waukesha is the seventh-largest city in Wisconsin. It is an urban city with a downtown and a long history. Its urban services include a metro bus system that serves Brookfield and Pewaukee and provides a link to the metro Milwaukee area as well as Badger Bus/Wisconsin Coach providing a link to the Madison metropolitan area. Waukesha also has a housing authority to provide rental vouchers for income-qualified residents. The city has a well-balanced housing stock that provides housing for all income levels within the City of Waukesha. Lake water for Waukesha would not lead to further growth or “sprawl.” Lake water simply ensures that the best environmental option for providing drinking water is used.

## Waukesha’s application would set a high standard

Waukesha’s application for Great Lakes water would allow recovery of the deep aquifer. Its landmark proposal to use return flow water as a resource would improve the environment for the region. Waukesha’s water conservation efforts, which are unmatched by any Midwest city, would create a new standard for utilities in the Great Lakes states. And Waukesha’s commitment to recycle water back to Lake Michigan after use would protect our water resources and prove that the Great Lakes Compact will work in meeting reasonable state needs for water while protecting Lake Michigan from any harm.

The city is likely to apply to the DNR for Lake Michigan water mid-2009 after public hearings to receive citizen input. The DNR will also hold public hearings, and will review the application, under state laws designed to protect both the environment and ratepayers. Waukesha proposal will also go to the governors of all the Great Lakes states for review and approval.

Because of the requirement to fully comply with federal radium standards and the desire to provide environmental benefits, the city must move forward with obtaining a new water supply as quickly as possible.



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## Waukesha needs a new water supply

The City of Waukesha must find a new water supply. The deep aquifer that the city depends on has had severe drawdowns. Those drawdowns have been caused by years of overpumping by communities in southeastern Wisconsin (including Milwaukee until the 1950s). It is also due to a geological feature that limits the recharge of the aquifer from rain and snow in much of the region, including Milwaukee and eastern Waukesha counties.

Radium is only one of the growing quality and quantity problems associated with the deep aquifer that Waukesha uses. The city has pulled up groundwater with contaminants so high that it is essentially salt water. It has also pumped water with temperatures as high as 98 degrees.

The Waukesha Water Utility, with approximately 19,000 customers, has invested approximately \$13.5 million to deal with the radium problem (or more than \$700 per customer), and the city currently meets radium standards about eight months out of the year. Waukesha is legally required to fully comply with radium standards to protect the health of its citizens. The city is currently negotiating a final date for full compliance with the Wisconsin Department of Justice.

Waukesha will temporarily come into full compliance by tapping into shallow groundwater south of the city by blending that water with non-compliant water and also by treating deep aquifer water to bring it into compliance with the radium standards. However, the long-term solution to radium and other contaminants, and to preserving the deep aquifer, is to obtain a new water supply.

## Lake Michigan water is the best environmental answer



### Lake Michigan water can be recycled back to the source after use

The best environmental option for a City of Waukesha water supply is Lake Michigan water. That is because Lake Michigan water, unlike groundwater, can be returned, or recycled, back to its source. Groundwater cannot be pumped back in the ground after its use. Groundwater is discharged to rivers that lead to the oceans, instead of being recycled back to the source.

An extensive study by experts for the Waukesha Water Utility examined all the water supply options and concluded that the use of lake water was the best environmental option. In addition, the Southeastern Wisconsin Regional Planning Commission (SEWRPC) also has issued a preferred alternative for the Regional Water Supply Study recommending that the City of Waukesha switch to Lake Michigan water. SEWRPC's Technical Advisory Team found that the change would allow the deep aquifer water levels to recover,

benefitting the local environment, including regional surface waters. According to the U.S. Geological Survey, if communities in southeastern Wisconsin ended their use of the deep aquifer, it would recover 50% in seven years and 90% in 70 years.

In addition, SEWRPC found that a switch to lake water would allow users to stop or reduce their use of water softeners, reducing the amount of salt that ends up in our surface waters and reducing energy use. Energy use would also be reduced as the city turned off pumps that bring up water from up to 2,000 feet underground.

### Water can be used to improve the environment as it flows back to Lake Michigan

Waukesha has developed an innovative proposal to return water to Lake Michigan by using a tributary river, instead of a pipe. The city is proposing to discharge its treated water to one of two Lake Michigan tributaries. The first is Underwood Creek, which leads to the Menomonee River and then to Lake Michigan. The second option would be to discharge to the Root River, which also discharges into Lake Michigan. In either case, the city would create a positive new precedent of using wastewater as a resource to improve regional surface waters.

River experts confirm that the tributaries, their fish and other aquatic life would benefit from the increased flow of water, especially during the driest parts of the year. The city's very high quality of wastewater treatment meets all state water quality standards and is superior to that of lakeside communities. With Underwood Creek, return flow water would provide the enhanced flows needed to allow fish to thrive in a soon to be restored section of the stream. If the Root was chosen instead, additional flow would allow a longer period during which DNR's hatchery could operate.

Waukesha's innovative plan would also prevent any fears of flooding in the tributaries by cutting off the return flow water during heavy rain or snowmelt events. During such periods, the water would instead be sent to the Fox River after use. The Fox has much greater capacities than the tributaries and is where Waukesha currently sends its water.

### Waukesha would meet the requirements of the new Great Lakes Compact

The eight Great Lakes States and Congress recently enacted the Great Lakes Compact, which protects the lakes by requiring communities like Waukesha that use lake water to return it to the lake, minus an allowance for consumptive use. Waukesha actively supported passage of the Compact and intends to submit a proposal that sets a high standard for compliance.

Like most municipalities, Waukesha actually treats and discharges more water at its wastewater plant than the amount of water it originally pumps, treats and sends to customers. That is because water infiltrates the system on its way to the treatment plant, through manholes, pipes and other sources. Over the last five years, Waukesha has treated 18% more water than it has pumped from the ground. Therefore, it would have more water available to return to the lake than the amount it would withdraw. However, that percentage is lower during dry years and higher during wet years. The city would return less than the maximum amount of water that it could send to the lake during years that it sends water to the Fox River, in order to avoid any risk of flooding along tributaries. However, the city would still meet the requirements of the Compact for return flow.



## The region would benefit from Waukesha's innovative proposal

### Waukesha is the Midwest leader in water conservation

Water use by customers of the Waukesha Water Utility dropped 25% from 1988 to 2004, despite a 17% increase in population. However, the utility adopted a comprehensive water conservation plan in 2006 to achieve further reductions – 20% less per capita by 2020. The City of Waukesha's plan has made it the Midwest's leader in water conservation efforts.

As part of the plan, the city adopted a new ordinance that bans daytime sprinkling and limits sprinkling at other times to two days per week. As a result, summer use fell by 12.5% since 2005, while overall water use fell 7.5%.

In partnership with Kohler, water-conserving toilets, urinals and faucet aerators were installed at Waukesha City Hall as a demonstration project for utility customers. Water use declined 15% to 25%. With a subsequent changeover from a water-cooled to an air-cooled air conditioning system, water use is now down 90% at City Hall. Waukesha became the first water utility in the state to apply for and receive permission to adopt a water conservation rate structure that increases rates as water use goes up, the opposite of most utilities. The Public Service Commission has called the idea a model for other utilities. The utility will be revising the program to strengthen it in early 2009.

Waukesha is also the first utility in the state to ask the PSC for permission to start a rebate program to replace old, inefficient toilets – a major source of wasted water.

Education programs in schools, creation of a regional conservation planning group, a water conservation contest, enactment of stormwater regulations, redefining development practices, and many other initiatives are also part of Waukesha's comprehensive plan.

### A Lake Michigan water supply is the most cost-effective option

The water utility's analysis of water supply options and the SEWRPC draft regional water supply study both found that a switch to Lake Michigan water was the most cost-effective and environmentally responsible option for Waukesha ratepayers.

In addition, Waukesha's proposal makes the best use of existing infrastructure. It continues to use Waukesha's high-quality wastewater treatment plant. Also, it is likely the city would purchase water from a water utility such as Milwaukee's, which has great amounts of unused capacity and infrastructure to treat lake water for drinking purposes. Ratepayers of the utility that sells the water to Waukesha could see their rates drop by approximately \$2 million per year because of the new revenue for their local water utility. If Milwaukee decides not to sell water to Waukesha, Racine and Oak Creek are alternative sources of lake water.

### The environment in Waukesha and Milwaukee Counties would benefit

A switch to lake water would allow the groundwater aquifer to recover – the primary reason the City of Waukesha is pursuing the option and that the SEWRPC draft report recommends it as the best choice. That would help ensure that water supplies will be sustainable for the long term. It also would prevent water from lakes, rivers and streams, especially in the Kettle Moraine area, from being pulled down into the deep aquifer's cone of depression.

But Waukesha's proposal to return the water to Lake Michigan via a tributary would also improve the health of that tributary, along with the fish and other aquatic life that live in it, by increasing the stream flow. The increased flow would be cut off during heavy rain or snow melt events, preventing any risk of environmental damage or flooding.