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Waukesha updates application for new water supply Great Lakes option protects water resources and public health, analysis shows

The City of Waukesha submitted a revised version of its application for Great Lakes water to the Wisconsin Department of Natural Resources today, including new preferences among the previously-identified alternatives for a water supplier and the route for returning water to the Great Lakes.

“The application includes thorough analyses of the environmental and public health impacts of various water supply alternatives we studied,” said Dan Duchniak, general manager of the Waukesha Water Utility. “The revised application compiles our 2010 application with additional information that was requested by the DNR or that addressed new regulations. We also updated our water conservation plan and water demand forecasts.” In addition, the revised application includes updates related to new DNR regulations on water use, water conservation, and phosphorus limits.

Duchniak said the positive precedents of Waukesha’s application include the return of no less than 100% of the volume of water withdrawn from the Great Lakes, the use of treated wastewater as an environmental resource to improve the water quality and fishery of a Great Lakes tributary, and the thorough analysis of its application through the Environmental Impact Statement process.

The DNR will likely issue a draft Environmental Impact Statement early next year, along with its proposed decision on the application, Duchniak said. The state will then provide opportunities for public hearing testimony and other comments.

The City will also hold informational briefings for the public in November about the revised application in Waukesha, Oak Creek, Racine and Milwaukee. Details on the briefings will be announced soon.

The revised application consists of five volumes, including a 75-page summary document, Waukesha’s water supply service area plan, its water conservation plan, the return flow plan and an environmental

report that analyzes the impacts of various water supply alternatives. The summary volume will be available online today at www.ci.waukesha.wi.us/web/guest/982. The other volumes will also be posted soon.

Waukesha submitted its original application in May 2010. The DNR then held public hearings on the scope of its review. Completing the revision of the application took time for several reasons, Duchniak said. The thoroughness of the DNR's review was a factor, along with the two years it took Town of Waukesha officials to decide to be included in the city's water supply service area that was recommended by regional planners. Waukesha's utility is also the first in the state to prepare a comprehensive water conservation plan and water supply service plan to conform to new state requirements. Complying with regulations that are the first of their kind requires unique challenges to be met," Duchniak said.

Waukesha's application can show the Great Lakes Compact works

Waukesha is only 1.5 miles outside of the Great Lakes Basin. Under the Great Lakes Compact, its request for Great Lakes water requires the approval of the Governors of the eight Great Lakes states, who will also consider input from the Great Lakes provinces in Canada. Duchniak said he expects the DNR to complete its review early next year and to then forward the proposal to the regional Great Lakes body.

The Compact is a 2005 agreement among the Great Lakes states and provinces that became federal law in 2008. The Compact bans diversions of water to areas outside of the Basin, with limited exceptions for communities such as Waukesha that are within counties that straddle the Basin divide.

"Waukesha's application is not a precedent for water to go to Las Vegas or China or even Madison. That line was clearly drawn in the Compact by the states and provinces working together," Duchniak said. "The Compact prohibits Great Lakes water from going anywhere beyond straddling counties. Waukesha is the precedent that can prove that cooperation among governments to protect the lakes through the Compact will actually work."

Waukesha will have no impact on lake levels

The Compact also requires communities in straddling counties to return water back to the lake after use, minus consumptive use. "We will exceed the requirements of the Compact and return no less than 100% of the volume of the water we withdraw," Duchniak said. "By recycling water back to the lake, we will create a positive precedent of having no impact at all on lake levels."

The revised application analyzes alternative plans for managing the return flow water. The preferred plan provides continuous return of all fully treated water coming from the wastewater treatment plant, up to 16.7 million gallons per day (mgd), which is the maximum amount that would be withdrawn in the future from the Lake Michigan on peak demand days.

The volume Waukesha will withdraw from the Great Lakes is equivalent to one teaspoon out of an Olympic-sized swimming pool (50 meters by 10 lanes), but will be returned.

Return flow will improve water quality and the fishery in the Root River

The revised proposal includes a change in Waukesha's preferred route for returning water to the Great Lakes after use. The preference is to return water via the Root River, a tributary that flows to Lake Michigan. The Root River was among the alternatives included in Waukesha's original application, but a discharge to Underwood Creek in Milwaukee County was the preferred return flow route at that time. "The Root is not a new alternative, but it now is our preferred alternative," Duchniak said.

"The DNR requested that additional evaluation be conducted for the Root River alternative," he said. "We are proposing the Root River as our preferred return flow route because of the environmental benefits to the river and the fishery. In addition, studies to determine allocations of the new phosphorus limits for Underwood Creek and the Menomonee River were started after the May 2010 application was submitted. Results of the studies may not be known for a long time, meaning Underwood Creek is not implementable by the DNR at this time."

For years, the DNR and regional planners have explored options for supplementing flow in the Root River, which has had its base flow reduced by development in the watershed. However, the costs of augmenting the river's flow were too high. "Waukesha's return flow water is an environmental resource that can benefit the Root River by increasing its base flow, but without a cost to the state. During the summer and fall, some sections of the river have very low flows. Adding water would improve the river and the fishery, especially during fall spawning runs of salmon and trout," Duchniak said. "However, during higher flow periods when the fish are not restricted by flows in the river, the return flow is a small fraction of the river flow. For example, Waukesha's maximum return flow would be less than 2.5 percent of the 2-year return period river flow and less than 0.6 percent of the 100-year return period river flow."

The river is also home to the Root River Steelhead Facility, where eggs are collected from spawning salmon and trout for DNR fish hatcheries. Increased flow in the river would improve the DNR's ability to collect eggs because low flows prevent the fish from reaching the facility. "Improving the flow of the Root and collecting more eggs would create more fishing opportunities in the Root and also offshore in Lake Michigan, providing recreational and economic benefits to thousands of anglers and to the businesses they patronize," Duchniak said.

"The quality of our return flow water will help the river meet water quality standards for parameters like phosphorus," he added. The return flow water, which would enter the river in Franklin, will be higher quality and have stricter permit limits than existing wastewater discharges in the area that discharge to Lake Michigan tributary rivers or directly to Lake Michigan. Waukesha's wastewater facility uses advanced treatment technologies and is one of the few Wisconsin facilities with effluent filtration and ultraviolet light (UV) disinfection, which is better for the environment than traditional disinfection with chlorine. Waukesha does not have combined sewers and there is no threat of overflows or of untreated discharges to the Root, he said.

Revised application includes Oak Creek supplier and new volume estimates

Waukesha's revised application reflects the change in its preferred supplier of water. The original application included Milwaukee as the preferred supplier, with Oak Creek and Racine as alternatives. However, the City of Milwaukee refused to negotiate to serve the entire service area that Waukesha is required to serve under Wisconsin's new water supply planning law. The DNR determined it could not approve an application under conditions proposed by Milwaukee. Waukesha did negotiate with Oak Creek and Racine, which led to an agreement with Oak Creek last year.

"Residents of the Great Lakes states should support Waukesha's application," said Oak Creek Mayor Stephen Scaffidi. "Waukesha has gone to great lengths to create a model application that protects the environment, promotes public health and returns every drop of water back to the lake. In working with Waukesha, Oak Creek has created a win-win scenario that is great for our region and promotes efficiency in local government, goals that can be supported by taxpayers regardless of what state they live in."

Waukesha also has revised its water demand forecasts based on new U.S. Census data, land use plans, economic conditions and revisions to its water conservation program. Waukesha estimates the amount of water it will need as 10.1 million gallons per day (mgd) on an average day and 16.7 mgd on a peak demand day for the future, fully developed service area. These values are down from previous estimates of 10.9 mgd and 18.5 mgd, respectively.

Only 15% of the land in Waukesha's water supply service area is available for development, because 70% is already developed and 15% is designated as environmentally protected. In the future, when Waukesha's service area is fully developed, average daily withdrawal at build-out will be approximately 1/1 millionth of 1% of the volume of the Great Lakes. Waukesha will return the water to ensure no impact on lake levels.

Waukesha's current water supply is not sustainable

Waukesha needs a new water supply because the deep aquifer, its primary source, is down 400 to 600 feet, creating problems with both the quantity and quality of its water. That drawdown is due in part to a natural formation (a layer of shale rock) that restricts recharge of the aquifer from rain and snowmelt. Groundwater problems are so significant that the area is one of only two Groundwater Management Areas designated by the state Legislature in Wisconsin.

Waukesha is under a court order to comply with federal drinking water standards for radium, a human carcinogen, by 2018. As the deep aquifer declines, contaminants such as radium increase and the water becomes brackish, like salt water. Continued use of the deep aquifer would require additional treatment systems, including energy- and water-intensive technologies like reverse osmosis, to remove contaminants. Pumping the deep aquifer until it is exhausted and adding the required treatment systems would be environmentally irresponsible.

Because of aquifer conditions, additional shallow wells to supplement the deep aquifer would be located outside of the city limits. Efforts to site wells outside the city have already been challenged in court. Adding shallow groundwater wells would have permanent impacts to thousands of acres of wetland habitats and designated environmental areas with valuable brooks and streams.

Waukesha is a leader in water conservation, but conservation can't eliminate the need for a new water supply. Waukesha was the first city in Wisconsin to adopt a daytime ban on sprinkling, the first to adopt conservation rates that increase with residential levels of water use, and the first to adopt a toilet rebate program in the state. It is also continuing its public education and outreach, including a new online program that allows residents to compare their use to the neighborhood average and to earn rewards for reducing their use.

Waukesha has evaluated 14 potential sources of water, and many water supply alternatives. All the other water supply alternatives have greater adverse environmental impacts and are less protective of public health than a Lake Michigan supply. Unlike other water supply alternatives in the area, a Lake Michigan water supply is environmentally sustainable because Waukesha will recycle water back to the lake. The Great Lakes option is the only reasonable alternative because it sustainably protects the environment and public health, while providing a reliable water supply for the long term.

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