



Waukesha Water Utility

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Waukesha provides DNR with additional information on water application

Evaluations find no reasonable alternative to Lake Michigan water

Alternatives are more expensive and less protective of environment and health

The Waukesha Water Utility submitted detailed responses today to requests by the Wisconsin Department of Natural Resources (WDNR) for additional information regarding the city's request for a Lake Michigan water supply. The submittal is the latest step in an ongoing exchange of facts and data between Waukesha and the WDNR. Nearly 1,000 pages of information supplement the approximately 2,000 pages the city had previously submitted as its application and supporting materials. The information will be posted on the utility's web site (<http://www.ci.waukesha.wi.us/982>) by the end of the week.

The additional facts include more detailed evaluations of two water supply alternatives: the unconfined deep aquifer about 12 miles west of Waukesha, and a combination of water supply sources including shallow and deep aquifers, Fox River riverbank inducement wells, and rock quarries. Waukesha concluded that these alternatives are not reasonable water supply alternatives because they are less protective of the environment, less protective of public health, and cost more than a Lake Michigan supply. The city had previously reached the same conclusion in previous evaluations of deep and shallow groundwater alternatives.

"We had always anticipated that an application as complex as ours would include department requests for additional information following its initial review," said Dan Duchniak, general manager of the Waukesha Water Utility. "The utility staff and our consultants invested a great deal of time and money to ensure that the WDNR had the information it requires to complete a thorough analysis. This included contracting for additional groundwater modeling of the western unconfined deep aquifer alternative, which is further from the city than groundwater alternatives that had previously been evaluated."

Most of the city's water supply currently comes from deep groundwater. That supply is currently down 500 to 600 feet and is continuing to drop five to nine feet per year. In addition, the deep groundwater is contaminated with radium. The city is under a court order to reduce the radium to meet federal

standards for its drinking water by June 2018. Officials say construction of a new water supply will take years, so approval is needed soon.

"Our current deep groundwater supply is not sustainable for the long term," Duchniak said. "Scientific studies have shown that shallow groundwater alternatives are also unsustainable. Every shallow groundwater alternative would result in permanent impacts to thousands of acres of wetland habitats from groundwater drawdowns. This is one reason the Legislature has designated our area as one of only two Groundwater Management Areas in the state. Using Lake Michigan water, on the other hand, is sustainable because our proposed management plan includes returning 100% of the water to the lake over the planning period after use and treatment."

In addition to being less sustainable and less protective of the public's health, Duchniak said the data shows that all the alternatives to Lake Michigan are more expensive. "Legally, an alternative is not considered reasonable unless it has a similar cost to lake water and is also as environmentally sustainable and as protective of public health and the environment," he said. "None of the alternatives meet those criteria."

"Some people have said we should take smaller amounts of water from a number of different resources," said Duchniak. "In addition to environmental and health concerns, a major problem is that the infrastructure and operating costs for using multiple sources become very expensive and lead to varying levels of water quality." Duchniak said the multiple source option is estimated to have a capital cost of \$319 million, nearly double that of the proposed Lake Michigan option. "I think that the ratepayers would find it irresponsible to choose an option that is more expensive and less safe," he said.

For the new submittal to the WDNR, the city also:

- Refined the city's portfolio of water conservation measures, along with its implementation schedule, using the Alliance for Water Efficiency Water Conservation Tracking Tool. The city also reformatted its conservation plan to align with the tier structure of the new state water conservation rules. These materials demonstrate how the city intends to meet its goal of another 10 percent water savings.
- Completed additional quantification on the impacts to wetlands, fisheries, natural communities and other environmental features for water supply and return flow alternatives.
- Developed additional graphics and flow charts to demonstrate how the proposed return flow management plan would operate and not cause flooding with a return flow to Underwood Creek, a tributary to Lake Michigan.
- Obtained an agreement from the City of Brookfield for the discharge of return flow water on Brookfield land along Underwood Creek.
- Further evaluated the environmental impacts to wetlands in the Vernon Marsh Wildlife Area and other areas by non-Lake Michigan water supply alternatives.
- Further evaluated Fox riverbank wells as a portion of the water supply, and the subsequent adverse impacts on the environment and public health.

In addition, the water utility provided the WDNR information on the 53 public meetings held on the water supply issue between 2006 and 2010. The utility also provided a list of the hundreds of comments and questions at public hearings, along with responses to questions from the public.

The following tables summarize differences between the water supply alternatives in terms of environmental impacts, public health impacts, long-term sustainability and implementability (Exhibit 1), as well as costs (Exhibit 2). Waukesha's application concludes that a Lake Michigan water supply, with return of the water to Lake Michigan via Underwood Creek, is the only reasonable alternative.

EXHIBIT 1
Summary of Water Supply Alternatives Evaluation

Water Supply Alternatives	Major Criteria			
	Environmental	Public Health	Long-Term Sustainability	Implementability
1. Deep and shallow aquifers	●	●	●	●
2. Shallow aquifer and riverbank inducement	●	●	●	●
3. Unconfined deep aquifer	●	⊙	●	●
4. Multiple sources	●	●	●	●
5. Lake Michigan and shallow aquifer	●	⊙	⊙	●
6. Lake Michigan with return flow to Underwood Creek	⊙	⊙	○	⊙

○ No adverse impact ⊙ Moderate adverse impact
 ⊙ Minor adverse impact ● Significant adverse impact

EXHIBIT 2
Water Supply Alternative Cost Estimates

Water Supply Alternative	Capital Cost ^a (\$ million)	Annual Operation/Maintenance Cost (\$ million)	20 yr Present Worth Cost (\$ million, 6%)	50 yr Present Worth Cost (\$ million, 6%)
Deep and shallow aquifers	189	7.2	272	302
Shallow aquifer and riverbank inducement	184	7.4	269	301
Unconfined deep aquifer	228	6.6	304	332
Multiple sources	319	7.9	410	444
Lake Michigan and shallow aquifer	238	7.5	324	356
Lake Michigan with return flow to Underwood Creek	164	6.2	235	262

^aIncludes direct construction cost, contractor administrative costs (insurance, bonds, supervision etc), 25% contingency, and costs for permitting, legal, engineering, administrative.