

Section 1

Proposed Project Overview

SECTION 1

City of Waukesha Water Supply Proposed Project Overview

This Environmental Report (ER) has been developed to meet the Wisconsin Environmental Policy Act (WEPA) as required by the Wisconsin Department of Natural Resources (WDNR) and regulated under NR 150 Environmental Analysis and Review Procedures for Department Actions. The WDNR has indicated they will follow the WEPA process, that includes completing an Environmental Impact Statement (EIS) for evaluating the City of Waukesha water supply alternatives considered under the City's Application for Lake Michigan Water Supply (Application). This document is organized to support the development of the EIS.

The WEPA process calls for interagency coordination, including federal agencies, and references developing reviews consistent with National Environmental Policy Act (NEPA) where multiple agencies are involved. This document is intended to meet the NEPA process should it be required in the future. The City of Waukesha has evaluated multiple water supply alternatives to secure a sustainable and reliable water supply that is protective of public health and provides regional environmental benefits. Despite significant success with an aggressive water conservation program, the City is faced with a declining groundwater supply and water quality conditions that do not meet regulatory requirements for radium and gross alpha. The City is under a consent order to bring its water into compliance by June 30, 2018. Consequently, the City has studied various water supply alternatives to meet the City's long-term water supply needs, determining that the only reasonable alternative is a Lake Michigan water supply.

The WDNR issued a formal EIS scoping request for a City of Waukesha Lake Michigan water supply on February 5, 2010. This request has been issued to interested parties and resources agencies and has also been made available to the general public on the WDNR's website. The WDNR has obtained input from the public through a series of public meetings held between July 26-28, 2011 in Pewaukee, Wauwatosa, and Sturtevant, Wisconsin.

As part of water supply planning process, the City of Waukesha has conducted multiple public meetings to solicit comments from City of Waukesha residents and the general public. Four public meetings have been held, including one meeting in a neighboring community adjacent to one of the Lake Michigan return flow alternatives (Wauwatosa, WI), where the public provided verbal or written comment regarding Waukesha's water supply alternatives. Many more public meetings have been conducted in prior years. The information gathered from these public meetings and comments from the public have been used to identify issues of concern which have been addressed in this ER. A compilation of comments received from City meetings and other public involvement processes is included in the Water Supply Service Area Plan, Appendix B of the Application.

A variety of water supply alternatives have been evaluated, including groundwater and surface water sources in the Mississippi River and Lake Michigan basins. The Great Lakes-St. Lawrence River Basin Water Resources Compact (Compact) and Wisconsin State Statute § 281.346

regulates Lake Michigan as a water supply diversion for the City of Waukesha and requires return flow back to the Lake Michigan basin. The Lake Michigan water supply alternatives evaluated for the City each include return flow back to the Lake Michigan basin.

This ER evaluates water supply alternatives and the environmental impacts of a City of Waukesha long-term water supply.

1.1 Existing Conditions

The development of a new water supply and return flow discharge for the City is being driven by a June 30, 2018, deadline to achieve public health protection standards for radium in drinking water. The City currently obtains more than 87 percent of its water supply from the deep St. Peter Sandstone Aquifer. Near and beyond the City of Waukesha, this aquifer is confined by a geological feature—the Maquoketa shale layer—that limits natural recharge of the aquifer. Continued use of the aquifer by the City and surrounding communities since the 19th century and the presence of the Maquoketa shale have led to the 500- to 600-foot decline in aquifer water levels.¹ These levels continue to drop 5 to 9 feet per year.² Reduced groundwater levels in southeastern Wisconsin have in turn affected regional surface waters, which now receive about 18 percent³ less in groundwater contribution as water migrates toward the deep aquifer. Significant water quality issues occur with declining water levels in the deep aquifer, including increased levels of salts and radium (a naturally occurring element in the deep aquifer that can cause cancer). To provide drinking water with low levels of radium, the City treats some deep aquifer water to remove radium and blends some deep aquifer water with water from the shallow Troy Bedrock aquifer. Never-the-less, the City's water supply is not in compliance with radium water quality standards.

The City obtains less than 13 percent of its water supply from the shallow aquifer. Increased pumping of it will stress surface water resources by reducing base flows to local streams and wetlands.⁴ The City's existing water supply system does not meet radium water quality standards, the water level in the existing supply continues to drop, and water quality continues to worsen.

1.2 Purpose and Need

The City of Waukesha needs a long-term water source that can meet future water supply demands, is protective of human health by meeting drinking water quality standards, is protective of the environment, and is sustainable. The City must also obtain a water supply that meets their consent order for radium compliance by June 30, 2018. The water supply source will be used for public water supply and considers year 2035 and ultimate build-out water demands.

¹ SEWRPC. 2010. A Regional Water Supply Plan for Southeastern Wisconsin. Planning Report No. 52.

² Waukesha Water Utility 2009 operating data.

³ U.S. Geological Survey and Wisconsin Geological and Natural History Survey.

⁴ SEWRPC. 2010. A Regional Water Supply Plan for Southeastern Wisconsin. Planning Report No. 52.

1.3 City of Waukesha Water Supply Proposed Project

The City seeks a water supply of 10.9 million gallons per day (mgd) to meet future average day water demands and a future maximum day demand of 18.5 mgd in the City's projected water service area as delineated by the local planning authority, the Southeastern Wisconsin Regional Planning Commission (SEWRPC). The City of Waukesha water supply needs have been documented in the Water Supply Service Area Plan, Appendix B of the Application.

Water supply alternatives included continued use of the deep and shallow aquifer, increased withdrawal from the shallow aquifer, local river supplies, local lake supplies, and wastewater reuse. Multiple alternatives for return flow to the Lake Michigan basin were also considered for a Lake Michigan water supply. Alternatives that were not eliminated are compared side by side to the proposed project in Section 6. This ER presents a comprehensive review of the alternatives.

The proposed project is a water supply from Lake Michigan through an existing Lake Michigan water treatment plant, with return flow to Lake Michigan via Underwood Creek. A Lake Michigan water supply would be obtained from one of three potential suppliers: the City of Milwaukee, the City of Oak Creek, or the City of Racine. The final water supplier will be determined through contract negotiations which are currently in progress. Table 1-1 summarizes the pipe size and length anticipated for the proposed project.

TABLE 1-1
Proposed Pipeline Facilities for the Proposed Project

Alternative	Diameter (In.)	Approximate Length (miles)	Affected Counties
Proposed Project Lake Michigan Supply			
Lake Michigan (City of Milwaukee)	36	15	Milwaukee and Waukesha
Lake Michigan (City of Oak Creek)	36	27	Milwaukee and Waukesha
Lake Michigan (City of Racine)	36	38	Racine and Waukesha
Proposed Project Return Flow			
Underwood Creek to Lake Michigan	36	11.5	Milwaukee and Waukesha

1.4 Project Location

The project is located in southeastern Wisconsin as shown in Figure 1-1. The potential Lake Michigan water suppliers and return flow through Underwood Creek are shown in Figure 1-2. Additional details of the proposed project are described in detail in Section 3.

1.5 Document Layout

This ER includes eight major sections in addition to the Executive Summary. The document layout is consistent with the outline that the WDNR anticipates following as they develop their EIS. A brief summary of the sections include:

- Section 1 (this section) provides a summary of the project need, location and the proposed project.
- Section 2 summarizes all of the water supply sources and their alternatives that have been studied since the City began their water supply planning more than 10 years ago. The section identifies water supply and return flow alternatives which were eliminated and have no further analysis as well as those that have detailed analysis later in this document.
- Section 3 is a summary of the proposed project, including the water supply pipelines and water treatment, and the wastewater treatment of return flow to the Lake Michigan basin.
- Section 4 documents the authorities and approvals required for the proposed project, from local, state, federal, and tribal entities.
- Section 5 documents the affected environment and environmental effects of the proposed project, including the physical and biological environment, aquatic resources, terrestrial resources, and socioeconomics.
- Section 6 documents the alternatives to the proposed project together, including details of their water supply and return flow infrastructure and treatment. This section includes the same analyses as Section 5, and includes the same information as Section 5 for the proposed project. Information from Section 5 is largely repeated in Section 6 to provide a side-by-side comparison of the system alternatives that survived screening and that were evaluated in detail.
- Section 7 documents the proposed projects' environmental significance as it relates to short and long term effects, scarce resources, reversibility of effects, cumulative effects, risk, precedence and public controversy.
- Section 8 includes a list of references and works cited.

Many sections include multiple attachments with data tables and additional analyses to support the documentation in each section. The ER also summarizes and includes reference to several appendixes and other reports related to the City of Waukesha Lake Michigan Application that provide necessary supporting backup analyses.

FIGURE 1-1
General Location Map



FIGURE 1-2
Proposed Project Lake Michigan Supply Alternatives with Return Flow

