

Comments and Responses
Application for the City of Racine Great Lakes Water Diversion
April 2018

Introduction

The Department of Natural Resources (department) held a public comment period from January 31 to March 21, 2018 on the Racine Diversion Application (application). With the support of the straddling community of Mount Pleasant, the City of Racine is applying to receive a diversion of Great Lakes water for a straddling community under the *Great Lakes – St. Lawrence River Basin Water Resources Compact* (Compact). The department received ~780 written comments (email/mailed postcards, letters, written comments at hearing) from individuals and groups. Additionally, comments were received at a public hearing on March 7, 2018 in Sturtevant. Of the 243 people who registered at the hearings, 54 provided oral testimony.

Comments received are grouped and summarized under topic headings. Responses are provided to the summarized comments. Representative individual comments are also included for some comment topics.

City of Racine as Applicant

Summary

Comments expressed the opinion that under the Great Lakes – St. Lawrence River Basin Water Resources Compact (Compact), the Great Lakes – St. Lawrence River Basin Sustainable Water Resources Agreement (Agreement) and Wisconsin’s Compact implementation statutes, the Diversion applicant should be the Village of Mount Pleasant, as the straddling community, not the City of Racine. Comments also expressed the opinion that the Village of Mount Pleasant was avoiding review under the Compact’s exception standard with the application coming from the City of Racine.

Response

Wisconsin’s Compact implementing legislation requires that an application for a diversion must come from a community with a public water supply system that proposes to divert the water (Wis. Stat. § 281.346(4)(b)2). Mount Pleasant does not own a public water supply system and cannot directly apply for a diversion under Wisconsin legislation. The Racine water utility (RWU) owns and operates the public water supply system which provides municipal water service to the residents and businesses of Mount Pleasant. The application identifies that RWU would supply the diverted water to the portion of the Village of Mount Pleasant in the Mississippi River Basin. Therefore, the City of Racine is the appropriate diversion applicant. The Village of Mount Pleasant is a straddling community as defined in the Compact and Wis. Stat. § 281.346(1)(t). Ninety-two percent of the Village of Mount Pleasant is in the Lake Michigan Basin, and eight percent is in the Mississippi River Basin. The Village of Mount Pleasant provided a letter of support to the City of Racine’s application.

The requirement to review the application under the Compact exception standard applies if there will be a new withdrawal of water from the Great Lakes or an increase in a withdrawal that

would average 100,000 gallons or more per day in any 90-day period. RWU holds an individual water use permit with authorization to withdraw water from Lake Michigan in an amount such that serving water to the Village of Mount Pleasant will not require an increase in a withdrawal that would average 100,000 gallons or more per day in any 90-day period. Thus, the exception standard does not apply and no review criteria are avoided with the City of Racine as the applicant. See Comment and Response on exception standard for more information.

Public Water Supply

Summary

The department received many comments that expressed the opinion that the purpose of water being diverted was primarily for a private industry (Foxconn) not for “public water supply” purposes (i.e., a group of largely residential customers).

Other comments stated that most customers served by the RWU are residential, and that Racine owns and operates a public water supply system consisting of a physically connected system of distribution, treatment, and storage facilities that serve a group of largely residential customers.

Response

Both the Compact and Wisconsin’s implementing statutes define public water supply purposes to mean water distributed to the public through a water supply *system* that serves “a group of largely residential customers [and] that may also serve industrial, commercial, and other institutional operators.” Compact Sec. 1.2; Wis. Stat. § 281.343(1)(pm). This focus on the water supply system is further supported by the Compact which goes on to state that, “[w]ater withdrawn directly from the basin *and not through such a system* shall not be considered to be used for public water supply purposes.” Compact Sec. 1.2 (emphasis added).

The City of Racine (City) operates a public water supply system that distributes water to the public through a physically connected system of treatment, storage and distribution facilities. The City serves a group of largely residential customers—approximately 90 percent of the City’s customers are residential. For reference, other Wisconsin municipal water suppliers drawing water from Lake Michigan report a range of residential customers between 87 and 93 percent of the total number of customers. See Table 1. The City’s proposal also indicates that 88% of its customers in the straddling community of Mount Pleasant are residential and only 12% are industrial or commercial users. The City’s water supply system and its service to the straddling community of Mount Pleasant both comply with the “public water supply purposes” requirements of the Compact and Wisconsin’s implementing statutes, and therefore the diversion qualifies for the straddling communities exception.

Table 1. Percentage of metered connections by customer class for Wisconsin municipal water suppliers that withdraw from Lake Michigan.¹

Municipality	Water Customer Class (% of metered connections)				
	Residential	Commercial	Wholesale	Industrial	Public Authority
Cudahy	92%	6%	<1%	1%	<1%
Green Bay	92%	6%	<1%	<1%	<1%
Kenosha	92%	7%	<1%	<1%	1%
Manitowoc	92%	6%	<1%	1%	1%
Marinette	86%	10%	<1%	2%	1%
Milwaukee	91%	8%	<1%	1%	1%
Port Washington	91%	7%	<1%	1%	1%
Racine	92%	7%	<1%	1%	<1%
Sheboygan	92%	7%	<1%	1%	1%
South Milwaukee	91%	8%	<1%	<1%	1%
Oak Creek	93%	6%	<1%	1%	<1%

Note: These data are based on numbers of connections and not volume.

Precedent

Summary

Comments expressed the opinion that allowing the proposed diversion of Lake Michigan water to Mount Pleasant sets a poor precedent, including one that encourages diversions for industrial and private entities under the Great Lakes – St. Lawrence River Basin Water Resources Compact (Compact) and the Great Lakes – St. Lawrence River Basin Sustainable Water Resources Agreement (Agreement).

Response

The Agreement and Compact generally ban diversions, but provide limited exceptions for a public water system in a “straddling community” or a “community within a straddling county” to divert water with return flow to the Great Lakes. Before the approval of any future diversion application, that applicant would be required to independently meet statutory criteria and Compact requirements applicable to the diversion request. This includes the requirement that water can only be diverted for public water supply purposes. Private entities are prohibited from applying for diversions of Great Lakes Water under the Compact. The specifics of any diversion

¹ Calculated from metered data provided by the Wisconsin Public Service Commission for 2016. Residential and Multi-family residential are combined into one category.

approval are likely to be a unique set of facts that will have limited applicability to any other diversion application.

Return Flow Water Quality

Summary

Concerns were expressed about the treatment processes and quality of water that will be returned to the City of Racine and Lake Michigan. These concerns included that there is no evidence in the application to demonstrate that the return flow will be adequately treated by Foxconn and/or Racine; and that more details regarding nanoparticles, toxics, chemicals and heavy metals and the disposal of these materials should have been included in the application. Comments also requested that pretreatment applications and wastewater permits related to the Foxconn facility be made readily available to the public.

Additional comments noted that the Racine Wastewater Utility must comply with federal, state and local laws that govern the discharge of water into Lake Michigan which will protect water quality.

Response

The City of Racine will be required to return all water diverted, less an amount for consumptive use, back to Lake Michigan after treated. at the Racine Wastewater Treatment Plant (WWTP). The wastewater returned to Lake Michigan from the WWTP will be required to meet all applicable WPDES permit requirements. The department has authority to limit discharges of pollutants that may exceed state or federal water quality standards or effluent limitation guidelines. The department has promulgated pollutant specific criteria for toxics and heavy metals in chapter NR 105. The department also has authority under ch. NR 106, Wis. Admin. Code, to establish limits and calculate criteria or secondary values on a case by case basis. The Racine Wastewater Utility monitors its whole effluent toxicity (WET) annually, and the department could impose WET limits on the discharge from Racine's Wastewater Treatment Plant if it exhibits persistent acute or chronic toxicity effects on aquatic organisms due to toxic substances contributed by industries discharging to the WWTP.

In addition, the City of Racine has oversight over industrial wastewater sources that direct wastewater into the City's treatment plant (such as Foxconn). This oversight means significant industrial users of the Racine Wastewater Utility's sewer system must obtain, from the City, a pretreatment permit that contains wastewater sampling and reporting requirements and water quality discharge limits, if necessary (see Wis. Admin. Code ch. NR 211).² These limits would include local limits established in Racine's Sewer Use Ordinance and technology-based categorical pretreatment standards developed by EPA for certain industrial categories of discharges. In addition, the department must review and approve, conditionally approve, or deny plans and specifications for the design of any wastewater pretreatment technology proposed for construction by any industry (pursuant to Wis. Admin. Code ch. NR 108, and Wis. Stat. s. 281.41).

² [Memo from Keith Haas, Racine Water and Wastewater Utility, to Adam Freihoefer, re: Racine industrial Pretreatment Program, April 2, 2018; Racine Wastewater Utility Industrial pretreatment Program Enforcement Response plan, July 2013](#)

Any sludge (as defined by Wis. Admin. Code ss. NR 661.10 (105) and 500.03(212)) removed from a wastewater pretreatment system shall undergo a hazardous waste determination as outlined by Wis. Admin. Code. s. NR 662.011. If the sludge meets the definition of hazardous waste, the industrial user would be required to properly manage and dispose of the hazardous waste in accordance with the hazardous waste requirements of Wis. Admin. Code chs. NR 660 to 679. If the sludge is not classified as hazardous waste, is shown to have beneficial properties as a soil conditioner or fertilizer, and does not have detrimental effects on the soil, crops, or groundwater, it may be land spread in accordance with a WPDES permit that contains applicable loading limits that are protective of human health. See Wis. Admin. Code chs. NR. 660-679 for Hazardous Waste Regulations, and Wis. Admin. Code chs. NR 214, 518, and 668 for regulations governing land application of industrial sludge.

The department inspects the Racine WWTP to ensure compliance with WPDES permit and requirements at least once every two years. The department also reviews semi-annual pretreatment reports from the WWTP summarizing its sampling, inspection and enforcement activities at local industries and audits the city of Racine's pretreatment program every five years to assess more broadly the WWTP compliance with its pretreatment program requirements. In addition, the department also has the authority under Wis. Admin. Code s. NR 211.32(1)(b) to inspect any industry (ex: Foxconn) to ensure that pretreatment standards and requirements are being properly implemented and enforced. In case of violations, the department may seek civil and criminal penalties and injunctive relief from an industry (such as Foxconn) or the municipality as necessary.

The department will post or link to wastewater related permit applications for any industry in the diversion area, including Foxconn, on the department Racine diversion approval webpage. See dnr.wi.gov, search "[Racine diversion.](#)"

Consumptive Use

Summary

Comments suggested that the estimated consumptive use of 40 percent in the diversion application and the proposed Foxconn facility is unreasonable, and that the consumptive use should be minimized with more water returned to Lake Michigan.

Response

Both the Great Lakes Compact and Wisconsin's implementing statute allow for "all diverted water to be returned, less an allowance for consumptive use." Typical consumptive use varies by water use activity and may vary from less than one percent to more than 95 percent depending on the water use. Industrial consumptive use can be highly variable and site specific. The estimated consumptive use associated with this diversion is 2,700,000 gallons per day (~40 percent of the 7,000,000 gallons per day diversion). The consumptive use is calculated by adding the consumptive use associated with industrial and commercial water use (~550,000 gallons per day) and the consumptive use associated with the cooling tower at the Foxconn facility (2,100,000 million gallons a day).

The ~550,000 gallons per day for general industrial and commercial water use was calculated by multiplying the water use of 4,600,000 gallons per day times a twelve percent consumptive use

coefficient. This twelve percent coefficient is in the middle of the range of applicable coefficients for the expected purposes of the water.³

The additional 2,100,000 gallons per day consumptive use was estimated at a constant rate due to evaporative losses from the planned cooling tower at the Foxconn facility.

Any industrial facility that uses a cooling tower, like the proposed Foxconn facility, would have a higher consumptive use due to recirculating water, than if the facility used a once-through cooling method (which requires 90 to 95 percent more water).⁴ For example, consumptive use for thermoelectric power production can vary from less than 1 percent, for facilities that use once-through cooling to 60 percent or more for facilities that use cooling towers.⁵ Additionally the consumptive use rate is higher in this proposal because the Foxconn facility plans to reclaim and retreat approximately 85 percent of wastewater from its processes. This will reduce the net volume of water needed from the City of Racine. Recycling the water results in reducing Foxconn water need from 20,600,000 gallons per day to 5,800,000 gallons per day. Without the water recycling the volume of diversion requested would be much higher and the consumptive use rate would be closer to 10 percent. The volume of consumptive use does not change, but the percentage changes based on the net volume needed from the water utility.⁶

Impacts to Lake Michigan

Summary

Comments expressed concern that application requests to divert up to 7,000,000 gallons of water per day could have a detrimental effect on the water quantity of Lake Michigan. Additional comments stated that the proposed water usage would have an insignificant impact on Lake Michigan and effectively balances the protection of water resources with promoting appropriate uses of those resources for the benefit of Wisconsin citizens.

Response

Department staff compile a water use report based on reported withdrawals⁷ each year. In 2016, the average daily withdrawal from all sources along Wisconsin's Lake Michigan shoreline was approximately 3.6 billion gallons per day. The proposed 7,000,000 gallons per day diversion represents a 0.19 percent increase based on reported 2016 withdrawals. In addition, the Great Lakes Commission reports the total surface water withdrawn from Lake Michigan from all states in 2016 as 9.6 billion gallons per day.⁸ An additional 7,000,000-gallon withdrawal would result in an 0.07 percent increase in the total surface water withdrawals from Lake Michigan. Because these numbers do not consider the amount of water that will be returned to Lake Michigan, the impact of the proposed diversion will be even less than the small percentage increases noted above.

³ Memo to Adam Freihofer, WDNR, from Ruckert and Mielke. "[Consumptive use coefficient](#)" dated April 3, 2018.

⁴ Vickers, Amy, 2001, Handbook of Water Use and Conservation. Amherst, MA. WaterPlow Press, p. 292.

⁵ P. 46 Shaffer, K.H., and Runkle, D.L., 2007, Consumptive water-use coefficients for the Great Lakes Basin and climatically similar areas: U.S. Geological Survey Scientific Investigations Report 2007-5197.

⁶ Memo to Adam Freihofer, WDNR, from Ruckert and Mielke "[Foxconn's responses to DNR questions regarding Water efficiency, Cooling and Consumptive Use](#)" dated April 24, 2018.

⁷ <https://dnr.wi.gov/topic/WaterUse/WithdrawalSummary.html>

⁸ <https://waterusedata.glc.org/pdf/2016-Water-Use-Report-Final.pdf>

The Compact also provides for checks to monitor the cumulative impacts of withdrawals and consumptive use of Great Lakes Basin water (Wis. Stat. § 281.343 (4z)(a)). The most recent cumulative impacts assessment shows that the net effect of consumptive uses and diversions in the Great Lakes Basin is positive – that is more water is coming into the Great Lakes than leaving the Great Lakes Basin from diversions and consumptive uses. Water is diverted in Ontario from Hudson Basin into Lake Superior through the Long Lac and Ogoki diversions creating the net increase in water coming into the Great Lakes Basin. The report also shows that processes such as precipitation, inflows, outflows and evaporation significantly dominate the water budget for the Great Lakes orders of magnitude beyond the role of diversions and consumptive uses.⁹ The cumulative impacts assessment is updated every five years and will give the Great Lakes states and provinces advanced warning if consumptive uses are negatively impacting water levels in the Great Lakes basin.

Exception Standard

Summary

Comments stated that the diversion application should have to meet the exception standard because this application should be considered a new or increased withdrawal for the City of Racine (under Wis. Stat. § 281.346 (4)(c)3). Other comments noted this is not a new or increased withdrawal for the City of Racine. Additional comments stated that the department should require the applicant to meet the exception standard even though it is not required.

Response

The exception standard does not apply to the Racine diversion application. The Great Lakes Compact authorized Great Lakes states and provinces to set baseline withdrawal amounts in permits for existing withdrawals of water from the Great Lakes. These baseline withdrawal amounts were intended to be the basis for determining if a future withdrawal is a new or increased withdrawal. Wisconsin set baselines for public water supply systems such as the City of Racine, based on the maximum hydraulic capacity of their water supply system (Wis. Stat. §§ 281.346 (4e) and (4g)). The Racine Water Utility has a baseline of 60,010,000 gallons per day and has sufficient approved capacity to serve its public water supply system, including the proposed diversion area. In 2017, Racine’s withdrawal from Lake Michigan averaged 17,100,000 gallons of water per day. A withdrawal from the Racine Water Utility would only be considered a new or increased withdrawal if the utility needed to increase its permitted withdrawal amount above 60 million gallons per day, in which case Racine would need a new water use permit. Excess capacity in the Racine Water Utility system is due in part to a 40 percent decrease in water sales in the last twenty years with decreased industrial water use. The applicant is not required to meet the exception standard under either Wisconsin law (Wis. Stat. § 281.346(4)(f)) or the Compact.

⁹ [Great Lakes-St. Lawrence River Water Resources Regional Body and Great Lakes – St. Lawrence River Basin Water Resources Council, 2017, “Cumulative Impact Assessment of Withdrawals, Consumptive Uses and Diversions, 2011-2015,” p. 9.](#)

Water Conservation

Summary

Comments stated that the application's water conservation and efficiency measures lack the specificity as required under the Compact. Comments also noted that the conservation plan does not include specific information on the conservation practices for industrial use (Foxconn) and stated that the department should require additional detail on the conservation measures Foxconn is using or efficiency measures they could use to reduce the amount of water that will be diverted.

Response

There are no water conservation and efficiency requirements in the Compact for straddling community diversion applications that do not need to meet the Exception Standard. However, Wisconsin's Water Conservation and Efficiency rule requires any diversion applicant to submit a water conservation and efficiency plan that meets the rule's standards. The department has determined that the conservation plan submitted by Racine meets the conservation requirements under Wis. Admin. Code ch. NR 852. The department requested additional information on water conservation and efficiency planned for the Foxconn facility. Foxconn water use is designed to be efficient. Foxconn intends to recycle approximately 85 percent of its process water, reducing their water demand from 20,600,000 million gallons per day to the current proposal of 5,800,000 million gallons per day.

The Foxconn facility is also planning on using closed loop cooling to reduce water use. This method of cooling reduces the cooling water needed by 90 percent from that needed for open loop cooling water systems.¹⁰ (see Memo on Foxconn Water Conservation and Efficiency", www.dnr.wi.gov Search "Racine Diversion").

Regional Review and Compact Council Review

Summary

Comments stated that the application should undergo review by the Compact Council. Comments also stated that Wisconsin should request Regional Review.

Response

The Compact (Section 4.9) specifies when Compact Council review is required for an exception to the prohibition of diversions. The Compact does not require Compact Council review for straddling community exceptions. Instead, the Compact states that straddling communities' exceptions shall be managed and regulated by the Originating Party, in this case the State of Wisconsin. Under limited circumstances, when the application would result in a new or increased consumptive use of 5 million gallons per day or greater, a straddling community application is subject to Regional Review. A majority of jurisdictions can also request Regional Review. In the case of the Racine application, the department believes the Compact delegates the authority to review and act on the application to the State of Wisconsin and the Compact provides the criteria for that review.

¹⁰ Memo to Adam Freihoefer, WDNR, from Ruckert and Mielke "[Foxconn's responses to DNR questions regarding Water efficiency, Cooling and Consumptive Use](#)" dated April 24, 2018.

Other Comments and Responses

Comment: I am opposed to the proposed diversion/no Lake Michigan Water for Racine Water Utility and Foxconn.

Response: Comment noted.

Comment: I support the proposed diversion of Lake Michigan water to the City of Racine Water Utility.

Response: Comment noted.

Comment: The proposed diversion will support numerous economic and job developing throughout the State of Wisconsin.

Response: Comment noted.

Comment: Diversions should be a last resort.

Response: Comment noted.

Comment: Racine's application lacks sufficient details for the department to decide if the application meets straddling community diversion application criteria. The department should hold the review of the application until there is more information and more time to consider the application.

Response: The department requested and received additional information from the applicant on consumptive use, pretreatment, water withdrawals, and customers in the Village of Mount Pleasant and determined that the application meets the Compact criteria.

Comment: An environmental impact analysis or study should have been conducted for all department permits.

Response: The department is not required to draft an Environmental Impact Statement for this diversion under current state law or administrative rules. For reference, the department did not conduct an environmental impact statement when reviewing the City of New Berlin's straddling community diversion application. The department drafted an Environmental Impact Statement for the City of Waukesha 'community in a straddling county' diversion application, but was not required to do so.

Comment: The application lists demand and consumptive use estimates. If additional water is required or consumptive use is higher than estimated, any subsequent request should be considered cumulatively.

Response: The department will consider any future applications cumulatively as required by the Compact. The Compact requires that additional applications in a ten-year period be considered cumulatively (Compact Section 4.12.3. and Wis. Stat. § 281.343 (4t) (c)).

Comment: Information provided to the City of Racine by Foxconn to inform the application should be made public.

Response: Comment noted. Information received by the department as part of the application is available at www.dnr.wi.gov, search "Racine diversion" under 'Application information'.

Comment: The technology is available to capture evaporative losses for reuse.

Response: Wisconsin rules does not require capturing evaporative losses for reuse.

Comment: If the department does not approve the diversion application, Foxconn will withdraw water from the deep aquifer that is connected to the Lake Michigan basin and negatively impact other area wells. Lake Michigan has plenty of water. Other comments noted Foxconn should use groundwater for their water needs and more efficiently use/recycle water. Several comments noted Foxconn should use the City of Waukesha's wastewater as its water supply.

Response: Comment noted.

Comment: LCD technology changes very quickly. The technology may be obsolete soon and Foxconn may leave.

Response: Comment noted.

Comment: Foxconn should use zero liquid discharge (ZLD) and recycle all of the water they use. ZLD technology existed and was noted in the application.

Response: Comment noted.

Comment: Foxconn has a poor environmental record.

Response: Comment noted.

Comment: The diversion proposal is no different than the impact to Lake Michigan if Foxconn were built in the Lake Michigan basin.

Response: Comment noted.

Comment: The City of Chicago diverts 2.1 billion gallons of water a day and does not return the water to Lake Michigan. In comparison the 7 million gallons a day is irrelevant.

Response: Comment noted.

Comment: Lake Michigan is a massive water resource. The water loss from the proposed diversion is equivalent to a tiny fraction of the evaporation from Lake Michigan.

Response: Comment noted.

Comment: Industrial air quality and water quality are heavily regulated.

Response: Comment noted.

Comment: Foxconn should have located in the Great Lakes Basin and avoided the need for a diversion.

Response: Comment noted.