

Wisconsin Department of Natural Resources (department) Responses to Questions — from Michigan Department of Environmental Quality (MDEQ) Regarding WDNR Technical Review of the City of Waukesha’s Proposed Diversion of Great Lakes Water for Public Water Supply with Return Flow to Lake Michigan (Application) dated January 22, 2016

Summary Response 1 (Response to questions 1-6, 8, 13 & 22) - Water Supply Service Area

The following is a summary response to several of the overlapping questions from the MDEQ related to the proposed water supply service area; the department has offered some additional responses on specific questions as necessary. The information provided here is also discussed in the introduction to Wisconsin’s Technical Review (TR) and in detail in the TR section S3.

The Agreement/Compact is silent on how to delineate the area any potential diversion may serve. States may have different governance models for planning water service areas (ex: utility districts, contractual relationships, basin authorities, service areas, privatization, etc.). The department believes the Agreement/Compact respects these various approaches and allows for jurisdictions to be flexible as long the Agreement/Compact Exception Standards are met including that- “the exception will be implemented so as to ensure that it is in compliance with all applicable municipal, state, and federal laws...¹”

The Wisconsin Legislature, through Wisconsin’s Compact implementing legislation ([2007 Wisconsin Act 227](#)), directed the department to implement a water supply planning process to mirror Wisconsin’s existing sewer service area planning program. For over 30 years, Wisconsin has used a system of local service area planning and boundary delineation to identify how public wastewater services will be developed and managed. To promote sound long-range municipal planning and integrated public water resources management, wastewater and water supply service area boundaries are not based on jurisdictional boundaries.² Service area boundaries are delineated considering wetland, shoreland, and floodplain protection programs while accommodating current and future growth.

Wis. Admin. Code § NR 121 and Wis. Stat. § 281.348(3) establish the regional agencies responsible for sewer service area and water supply service area boundary delineation and planning. The Southeastern Wisconsin Regional Planning Commission (SEWRPC) is the regional planning agency statutorily tasked with delineating the sewer and water supply service areas for the City of Waukesha (Applicant). SEWRPC delineated the Applicant’s water supply service area in accordance with Wis. Stat. § 281.348 to include: the City of Waukesha, portions of the City of Pewaukee and the towns of Waukesha, Genesee, and Delafield. The towns of Waukesha, Genesee and Delafield are not incorporated municipalities and do not operate a public water supply system and are not eligible to apply for a diversion of Great Lakes water.

¹ Compact s. 4.10 ; Agreement art. 201

² In general the department is prohibited from limiting a water supply service area based on jurisdictional boundaries. Wis. Stat. § 281.348(3)(e) states, in part, “The department may not limit water supply service areas based on jurisdictional boundaries, except as necessary to prevent waters of the Great Lakes basin from being transferred from a county that lies completely or partly within the Great Lakes basin into a county that lies entirely outside the Great Lakes basin.” The entirety of the proposed water supply service area is within Waukesha County, a county that straddles the Great Lakes basin divide.



Portions of the City of Pewaukee receive water and sewer service from the Waukesha Utility based on the 1997 Boundary Agreement between the City(s) of Waukesha and Pewaukee.

As described in TR section S3, portions of the Towns of Waukesha, Delafield, and the City of Pewaukee, currently served by private wells and septic systems, were added to the City of Waukesha Water Utility water supply service area to meet the requirements of Wis. Stat. § 281.348 (3) (cm), specifically to maintain consistency with the Applicant's previously established areawide water quality management plan, including their approved sanitary sewer service area. These areas have been included in Waukesha's delineated sewer service area since 1999, long preceding the City of Waukesha diversion application. The inclusion of these areas is based on a regional analysis that includes monetary costs as well as environmental and other non-monetary costs. In addition, the Applicant currently provides water to approximately 250 customers beyond the City of Waukesha's jurisdictional boundaries, but within the Waukesha water utility's delineated water supply service area. Strictly limiting a diversion area to the Applicant's jurisdictional boundaries would have the effect of cutting off public water service to those customers – something strictly regulated under Chapters 196 and 66 of the Wisconsin Statutes³.

Areas included in the delineated water supply service area that are not currently connected to municipal water supply may request water service from the Applicant in the future, and the projected water supply service area demand is broken down by civil division in the Application⁴. The questions and concerns related to demand projections and the delineated water supply service area reveal the challenge in determining how a community's service area will change through time and what water will be needed to serve this area at any point.

As detailed in TR section S3, the department proposes to control any diversion amount through the Applicant's water supply service area plan. Though the diversion request is for up to an annual average of 10.1 million gallons per day (MGD) at full build-out of the water supply service area, the department proposes to approve an initial withdrawal amount of an annual average daily withdrawal of 8.1 MGD. This amount reflects the Applicant's demand estimates for its existing service area through the term of its proposed water supply service area plan (2030⁵). The department would allow this volume to be served anywhere in the delineated water supply service area, but would require the Applicant to demonstrate compliance with its water conservation plan in any area served. Any request to increase the diversion amount beyond the 8.1 MGD must be accompanied by revised demand projections, and must demonstrate an ability to serve the entire service area. In addition, any water service must be accompanied by sewer service assuring return flow to the Great Lakes basin.

The department does not interpret the Agreement/Compact to be intended to restrict orderly, planned development by a community seeking a diversion. Further, delineating a water supply service area provides an orderly mechanism to allow for this planned growth and provides flexibility, given the uncertainties inherent in long range planning.

³ In general once a utility begins serving a customer, it gains an ongoing obligation to provide that service which it cannot abandon without specific authorization from the Public Service Commission.

⁴ Application, Volume 2, Exhibit 6-5, p. 6-5

⁵ Under Wisconsin law, the period covered by a water supply service area plan may not exceed 20 years, after which it must be renewed (See Wis. Stat. § 281.348 (3)).

Questions as provided by MDEQ are in blue with WDNR responses in black.

Water Supply/Flow Rates/Return Flow Related Criteria

1. As acknowledged at page 3, one of the legal requirements of the Compact is “The Water shall be used *solely* for the Public Water Supply Purposes of the *Community within a Straddling County that is without adequate supplies of potable water.*” (Compact section 4.9.3.a; emphasis added.) In its review of the Application, is the Wisconsin DNR bound by the Wisconsin’s Compact implementation statute, which defines “Community within a straddling county” as “any *city, village, or town* that is not a straddling community and that is located outside the Great Lakes basin but wholly within a county that lies partly within the Great Lakes basin.” (Wis. Stat. 281.346(1)(d); emphasis added)?

See Summary Response 1. The diversion applicant is the City of Waukesha on behalf of the Waukesha Water Utility. The Applicant meets the definition of “Community within a straddling county” defined by the Agreement/Compact as “any incorporated city, town or the equivalent thereof that is located outside the Basin but wholly within a County that lies partly within the basin.” The water supply service area is a means of delineating the outer boundaries of a diversion area – a requirement of Wisconsin law and something on which the Compact is silent. Wis. Stat. s. 281.346 (4) (e) 1. em. requires that a diversion proposal be consistent with an approved water supply service area plan under Wis. Stat. s. 281.348. Agreement/Compact criteria Agreement art. 201 s. 4.f and Compact 4.9.4.f. require that the proposed diversion be in compliance with all federal, State, and local laws. As mentioned above, the Waukesha Water Utility currently provides water for approximately 250 customers beyond the City’s jurisdictional boundaries.

2. Here, as noted at page 1, the Applicant is the City of Waukesha. But, as stated at page 1, the Application proposes that Great Lakes water be diverted for use not only by the City of Waukesha, but also “portions of the City of Pewaukee and the towns of Waukesha, Genesee, and Delafield.” Have any of those other municipal entities formally joined in the City of Waukesha’s Application? If so, please identify the information in the agency record documenting that these other municipal entities are co-applicants with the City of Waukesha.

See Summary Response 1. Wisconsin’s Compact implementing laws require that “[a] person may apply ... for approval of a new or increased diversion ... only if the person operates a public water supply system that receives or would receive water from the new or increased diversion.” Wis. Stat. s. 281.346 (4) (b) 2. The Applicant is the only jurisdiction in the delineated water supply service area that meets this definition. The Applicant is required by Wisconsin Compact implementing law to have a water supply service area plan that includes a water supply service area that is consistent with its approved sewer service area. As discussed in TR section S3, this area was delineated according to Wisconsin’s Compact implementing law. The Applicant is the City of Waukesha, but the water supply service area sets the outer boundary of the City’s water supply service expansion.

3. Have any of these other municipal entities asserted that they currently are without



adequate supplies of potable water? Has the Wisconsin DNR determined that these other municipal entities are without adequate supplies of potable water? If so, please identify the information in the agency record relied upon in making such a determination.

See Summary Response 1. The WDNR considered whether the Waukesha Water Utility is currently without adequate supplies of potable water. The delineated water supply service area, which defines the needs of the Applicant, is without adequate supplies of potable water from the standpoint of a municipal water supply system. Areas included in the water supply service area not currently connected to municipal water supply may request water service from the Applicant if needed in the future. Under Wisconsin law, whether public water service is extended within the delineated service area, and the pace at which public water service is extended within the service area, is primarily up to the jurisdictions within the service area and the Wisconsin Public Service Commission (WPSC). Please see TR section S1 for more details.

The department did not make a determination about the adequacy of private water supply in areas not currently served by the Waukesha Water Utility, except in the case of certain areas of the Town of Genesee, which were added to the water supply service area upon recommendation by the department for public health reasons. Portions of the Town of Genesee have been designated as a special casing area by the department, which requires more stringent well construction for potable wells, since a survey of wells noted bacterial contamination in 38 percent of wells sampled (1970).

4. The Technical Review discusses, at pp. 46-51, the requirement, in Wisconsin's Compact implementation statute, Wis. Stat. 281.346(4)(e)1.em, that "[t]he proposal is consistent with an approved water supply service area plan under s. 281.348 that covers the public water supply system." The Technical Review refers to a proposed water supply service area plan, apparently not yet approved by the Wisconsin DNR that would include portions of the City of Pewaukee and the towns of Waukesha, Genesee, and Delafield. In the course of that discussion, the Wisconsin DNR quotes the Compact definition of "community within a straddling county" as "any incorporated city, town *or the equivalent thereof* that is located outside the Basin but wholly within a County that lies partly within the Basin that is not a Straddling Community." (Compact section 1.2; emphasis added in the Technical Review.) The Wisconsin DNR then states: "The department considers the delineated water supply service area to be a 'community within a straddling county' under the Compact and Wisconsin's Compact implementing laws and regulations." (Technical Review, p 47.) With respect to that interpretation:
 - a. Please explain whether, and how, under Wisconsin law, the Compact definition of the term takes precedence over the definition to the same term in the more specific Compact implementing statute, Wis. Stat. 281.346(1)(d), that the Department is applying in its Review.
 - b. Please identify any information contained in the legislative history of the Compact, and/or the Wisconsin Compact implementing statute supporting the Department's conclusion that the phrase "or the equivalent thereof" in the quoted Compact definition of "community" was intended to, and does include a water

supply service area delineated in a plan.

- c. Is a water supply service area a legal entity under Wisconsin law?
- d. Is a water supply service area eligible to apply for a diversion of Great Lakes water under the Compact and Wisconsin's Compact implementing legislation? Please explain.

See Summary Response 1. Several of these questions are predicated on jurisdictional boundaries as the controlling boundaries for diversion purposes; however, in Wisconsin, water supply service areas do not follow jurisdictional boundaries⁶. The department is not aware of documented legislative history that discusses the "or equivalent thereof" language. However, the department's administrative leadership during the legislative process for the Compact implementation legislation including former WDNR Office of Great Lakes Director, Charles Ledin and former WDNR Deputy Secretary, Patrick Henderson, provided a letter and testimony to the department on this topic. These documents are provided as attachments. As noted in Summary Response 1 the Applicant is the City of Waukesha and is eligible to apply for a diversion of Great Lakes water under the Compact and Wisconsin's Compact implementing laws.

- 5. In 2009 WDNR approved a diversion for the City of New Berlin based on an analysis that the City had a demonstrated need for alternate water supply due to radium contamination. A water service area was approved that is a contiguous area served by the Milwaukee Metropolitan Sewerage District. This water serve area appears to have been defined based on a determined need for a new water supply for the City of New Berlin. With the Waukesha application it appears that the water service area was defined for the purpose of expanding the area served by the diversion and not based on a determined need for a new supply in the City of Pewaukee and the towns of Waukesha, Genesee and Delafield. Given that the City of New Berlin provided a justification for a new water supply has Pewaukee, Waukesha (town), Genesee and Delafield done the same?

The City of New Berlin's application as a straddling community included a water supply service area that was delineated by the Southeastern Wisconsin Regional Planning Commission (SEWRPC). SEWRPC used the same process to delineate the Waukesha water utility's water supply service area. The water supply service areas SEWRPC delineated for New Berlin and Waukesha are consistent with their approved sewer service areas, as required by Wis. Stat. s. 281.348. In each instance the justification for a new water supply is based on the public water supply and the delineated water supply service areas. New Berlin's delineated water supply and sewer service areas are wholly within its municipal boundaries, please see attached map. New Berlin's service areas include areas within New Berlin where municipal sewer and water are currently not served, but municipal services can be extended under the terms of their approval. The entire township of New Berlin is incorporated as the City of New Berlin. New Berlin's growth is constrained geographically, due to borders with incorporated municipalities. In contrast, the City of Waukesha borders several unincorporated towns.

⁶ In fact Wisconsin law prohibits the department from limiting water supply service areas based on jurisdictional boundaries. (See Wis. Stat. s. 281.348(3)(e))



6. In the event that there is no independent need established for Pewaukee, Waukesha (town), Genesee and Delafield what would the diversion demand be for just the City of Waukesha?

See Summary Response 1. See Application, Volume 2, Exhibit 6-5, p. 6-5 that separates out the demand projections by jurisdictions.

7. It is not clear why the daily return flow rate is set on an annual basis. With continuous monitoring of flow why can't it be adjusted monthly - that is - each month the daily return flow is set at the rate of the last month's withdrawal?

The WDNR analyzed several options in TR section R1 (Table 19) and recommended to the Applicant that the return flow be equal to the previous year's average annual withdrawal amount. This scenario would return approximately 100% of the water withdrawn, provide less variability of flow to the Root River on a daily basis, and would decrease the amount of system maintenance on a monthly basis (less wear-and-tear on the wastewater valves and pumps, etc.). Historical monthly return flow was analyzed and resulted in more variability of flow to the Root River and fewer days of return flow to the Fox River. There would be no environmental benefit to either the Root or the Fox Rivers when decreasing the time step to monthly (or daily) flow. See also response to question 18.

8. What have the other communities said about being included in the water service area? Who initiated the water service area definition? If they do not have an independent need for a new water supply why were they asked to join? The document includes in communities that are not specifically requesting additional water supplies either now or in the future which casts doubt on their demand forecasts and seems to imply that the City is thinking of marketing this water as a growth opportunity for new industries, not a real drinking water need for the community. Please explain why these communities were included in the projections for water needs?

See Summary Response 1. The Application materials include documentation⁷ that demonstrates each of the affected communities held public meetings and voted to participate and support the Applicant's water supply service area plan as well as being included in the delineated water supply service area. Wisconsin has implemented long-term planning for sewer service for decades, however, water supply service area planning is new. Wisconsin's Compact implementing statutes provide an opportunity to integrate long-term water and sewer service planning. In addition, the Waukesha Water Utility already serves approximately 250 customers, who live in these other communities—beyond the City of Waukesha's jurisdictional boundaries.

9. Has WDNR responded to the critique offered by NWF, et al through the report

⁷ Application, Volume 2, Appendix F

prepared for them by GZA dated July 9, 2015? In essence they suggest with treatment existing wells can supply sufficient water. WDNR indicates in the January 2016 “Comments and Responses – Draft Technical Review” that existing wells can only supply 9.3 MGD – and not the required max flow of 11.1 MGD. If it is concluded that a max flow of 9.3 is all that is needed would the wells satisfy the need without Great Lakes water?

The department reviewed the GZA proposed alternative in the EIS Sections 2.2 and 4.2. The department’s review found that the GZA proposed water system with additional radium treatment would have a 12-hour firm capacity⁸ of 4.6 MGD and an 18 – 22-hour firm capacity of 7 – 8.5 MGD. To allow recovery of the aquifer and maintenance of pumping equipment, the industry standard (Al-Layla, 1977; AWWA, 2001) is to base an average day capacity on a 12-hour well run time and a maximum day capacity on an 18-22 hour run time. See the EIS Sections 2.2 and 4.2 for the full review of this alternative.

10. The growth projections have been questioned - please explain whether a flow of 6.3 to 6.7 may not be a better withdrawal flow given declining use rates and if the communities outside the City of Waukesha are not included?

See Application, Volume 2, Exhibit 6-5, p. 6-5 that separates out the demand projections by jurisdictions.

11. What is the commercial use of water in this area and what are the growth estimates for this sector?

See Application, Volume 2, Exhibit 6-4, p. 6-4 that separates out the demand projections by jurisdictions.

12. Given the concern about Root River flooding potential – was consideration given to adjusting the return flow rate to alleviate flooding concerns during major storm events? While still maintaining the overall return flow requirements?

The department considered adjusting the return flow rate to alleviate flooding concerns. The department recommended that the Applicant’s preferred flow management scenario (returning up to 16.7 MGD) be limited to 10.1 MGD (depending on the previous year’s average annual withdrawal) in an effort to balance the Compact provisions requiring a community to return “all water withdrawn...less an allowance for consumptive use” and to “maximize the portion of Great Lakes water returned” and minimize Mississippi River Basin water in the return flow.

13. Is there a demonstrated need that all of the local units of government in the Waukesha Water Supply Area must receive their drinking water from Lake Michigan

⁸ Firm capacity is the system capacity with the largest well out of service. In the Applicant’s system this is Well No. 10.



or should the diversion request, if authorized, be restricted to the City of Waukesha?

See Summary Response 1.

14. Waukesha is currently treating radium at some of their deep wells and that other municipal water supplies in Wisconsin are also treating radium so treating radium is technically possible. Is treating the radium in the groundwater at each affected source (prior to blending) a feasible and prudent alternative?

TR section S2 includes a review of water supply alternatives that would use the deep and shallow aquifer (see alternatives 1, 1a, and 4 as described in S2). Two of these alternatives propose treating deep aquifer wells for radium and supplementing the water supply with water drawn from the shallow aquifer south of the City of Waukesha. The third alternative includes the deep aquifer, the shallow aquifer and several other sources.

The Applicant's current water supply system, with deep aquifer wells (with radium treatment added) and shallow wells, does not have sufficient capacity to meet the projected water demand for the delineated water supply service area. This water supply system also does not have sufficient capacity to meet the Applicant's projected demand for the existing service area only.

The proposed additional shallow aquifer water supply wells for this alternative are expected to have significant adverse impacts on hundreds of acres of wetlands. Groundwater flow modeling was used to identify the number of acres of wetlands in the 1-foot drawdown contour in the model layer representing the water table. The department regularly uses one foot of drawdown in wetlands as a screening threshold for identifying potential significant adverse impacts to wetlands. Details of the groundwater flow model for environmental impacts can be found in Appendix B of the Technical Review. Additional information is also available in the EIS Section 4.3.1 and 4.3.2.

15. Given the range of very feasible diversion options, please explain why and how the preferred option meets the Compact criteria when compared to the other options?

It is not clear what is meant by "the range of very feasible diversion options." If this question is meant to refer to Mississippi River basin water supply options (rather than diversion options), see TR section S2 and EIS Section 4.3.1 and 4.3.2, which discuss in detail why these water supply options are not "reasonable water supply alternatives."

16. Page 63, Finding 2, states that "...up to 10.1 MGD would be returned daily to the LMB..." whereas other references seem to indicate that the previous year's demand (whatever it is) would be returned to the Lake Michigan Basin. Since these could be different numbers and could allow escalating withdrawals year-to-year (For example, a "10.1 MGD max" scenario could return 10.1 MGD each year while withdrawals went from 10 to 15 to 20 to etc. MGD), please explain how this scenario will not be allowed.

This question represents a misunderstanding of the application and TR. The Applicant is proposing 10.1 MGD for its maximum *average* annual withdrawal demand at full build-out (for the period 2010 to 2014 the Applicant withdrew 6.7 MGD). See TR section S4. The return flow scenario proposed is to return the previous year's average annual withdrawal – this will never be more than the proposed maximum annual average of 10.1 MGD.

17. The R1 section of the WDNR document uses the term “withdrawal” throughout, but it isn't clear to us whether this is solely new Lake Michigan Basin withdrawals, or if they would continue some withdrawals from existing wells. Please define the word withdrawal in the context of each proposal.

“Withdrawal” refers to the amount of water received by the Applicant from the City of Oak Creek in all instances. Existing public water supply wells (wells in the Mississippi River Basin) will no longer supply the Waukesha Water Utility, except in emergency situations if water were not available from the Oak Creek facility. Emergency water supply is regulated under Wis. Admin. Codes NR 810 and PSC 185.89.

18. Please explain how the requirements for “all water” to be returned and “maximizing return” of Lake Michigan Basin water are not inconsistent.

The department analyzed the Applicant's historical withdrawals and wastewater return flows from its wastewater treatment plant (WWTP). WWTP flows are generally much greater than withdrawals on an annual average basis due to infiltration and inflow. If “all wastewater” were returned to Lake Michigan, the return flow would include large amounts of Mississippi River Basin water and be returning on average 112-152% of the withdrawal – which does not minimize MRB water in the return flow.

The proposed return flow scenario to return the previous year's average annual withdrawal amount, not only returns all water, but also tries to maximize the amount of Lake Michigan Basin water returned to Lake Michigan (~100%) and minimize MRB water returned (See TR sections R1 and R2 for details).

19. The WDNR review uses data from 2005 – 2012, and identifies 2014 as a year in which the WBR method was invalid due to higher water use in winter. Is 2014 a serious outlier, or does these high winter uses occur more frequently than indicated?

2014 winter temperatures in Wisconsin were particularly severe resulting in an exceptional number of water main and service breaks at considerable cost to utilities and rate payers. To minimize these costs, many communities including the Applicant, asked some residents to keep a faucet open allowing a small amount of water to continually move through the water service line to prevent freezing. Consequently, February 2014 was the Applicant's highest month of water use. This is exceptionally rare; February is typically the Applicant's, and most Wisconsin utilities, lowest withdrawal month.

20. What other straddling communities are in the same water supply position as Waukesha in WI?

The City of Waukesha is applying for a diversion as a “community in a straddling county.” The State of Wisconsin has no other requests for diversions to “communities in straddling counties,” or “straddling communities”. Each diversion proposal within the Great Lakes basin will depend on the facts of the specific situation and will be judged according to Agreement/Compact criteria. The department is aware of only one report that examined the likelihood for other communities to apply for a diversion request under the Agreement/Compact. That report⁹ found eight additional communities, either straddling communities or communities located within straddling counties, on the U.S. side of the Great Lakes with water quality or quantity circumstances that indicate a *possible* need to apply for a diversion.

21. On Page 71, Figure 15, data is provided as quantitative diagram by source water. If we understand this correctly, the “sales” box in this diagram represents 8% of total withdrawals. If that’s the case, the figure is definitely not scaled accurately. For (another) example, while Alternative 6 would “regularly return approximately 100% of the volume of water withdrawn”, it’s not clear where the water would come from. Please explain the details in this figure.

The numbers in Figure 15 are rounded based on historical withdrawals and WWTP effluent data to show that nearly all of the withdrawal amount could be returned to Lake Michigan, and in addition, water would still be returned to the Fox River (to minimize MRB water in return flow).

22. Where do the additional communities included in the application (portions of the City of Pewaukee and the towns of Waukesha, Genesee, and Delafield) receive their water from now? Where would these communities obtain their water from in the future, if not from Lake Michigan?

See Summary Response 1.

23. What alternative considerations have been given or inquires made to the City of Milwaukee to potentially utilize their water supply and/or their treatment of waste water as the return flow?

The Applicant held some negotiations with the Milwaukee Water Utility regarding water supply. The Applicant also met with the Milwaukee Metropolitan Sewage District regarding return flow options. Due to cost and feasibility, the Applicant did not pursue a return flow to MMSD.

⁹ Teutsch, Jared, On Track? Ensuring the Resilience of the Great Lakes Compact, Alliance for the Great Lakes, September, 2013

Conservation/Environmental/Natural Resource Impact Related Issues/Criteria

1. Please confirm the measures that will be taken to ensure no invasive species will be transferred to the GLB via the mixed return flow that may include MRB water?

The Applicant's sanitary sewer system is not a combined system (there is a separate stormwater system). The WWTP would provide treatment before discharging water to the Root River. The Waukesha WWTP is an advanced facility with settling and biological treatment systems, dual media sand filters, and ultraviolet light disinfection designed to meet WPDES requirements. The treated wastewater would be contained within the WWTP before being discharged as return flow. The Applicant must take safety precautions to prevent any water going to the Root River in an emergency overflow situation. Consequently, there would be no opportunities for invasive species or VHS from the Mississippi Basin to be introduced to the Lake Michigan basin from the return flow discharge (see TR section R4 on *Invasive Species Prevention*).

2. Has WDNR considered if it is better to leave the radium in place? That is it is better to avoid extracting GW with radium and treating it to remove the radium – and then have to dispose of it – creating a waste issue that can be avoided if the GW is not used?

The department's technical review of "reasonable water supply alternatives" does not comment on the radium disposal issue as a basis for the decision that there is no reasonable water supply alternative to the proposed Lake Michigan diversion. However, the department does agree, that where possible, it is preferable to leave radium in place in the aquifer and avoid a waste that must be properly disposed. The Application includes in section 7.2.2 on page 7-3 a list of additional environmental impacts expected from the deep aquifer supply including the "addition of radium in wastewater treatment plant sludge into the environment through land application".

3. Please explain how a few local environmental impacts from the use of other water supplies than the Great Lakes by Waukesha should be more palatable than large scale future Great Lakes impacts with the door open for more straddling counties seeking Great Lakes water.

The Compact/Agreement provide for an exception to the ban on diversions provided that strict criteria are met. The Applicant has applied under the exception for a "community within a straddling county" – and the Wisconsin TR analyzes whether the application meets the strict criteria of that exception. Any diversion application must meet those strict criteria and must stand on its merits.

The question refers to "a few local environmental impacts." The department's environmental analysis of proposed water supply alternatives in the Mississippi River Basin concludes there are potential significant adverse impacts to hundreds of acres of wetlands in the Fox River for

alternatives that use the shallow aquifer and 6-12” of drawdown to several deep seepage lakes in excellent to good condition in Western Waukesha County for the alternative that uses the deep aquifer in western Waukesha Co. In comparison, the department concludes there will be minimal to no impacts to Lake Michigan from the proposed diversion. Based on the department’s analysis, the department does not agree with the characterization that the Mississippi River Basin alternative would result in “a few local environmental impacts” or that the proposed diversion would result in “large scale future Great Lakes impacts.” See TR Section IA1 and 2, specifically Table 25. The proposed diversion would withdraw at most 0.000284% of Lake Michigan’s water volume and all of this water would be returned to the Lake Michigan basin. See also the EIS Sections 4.4, 4.5 and 5 for a review of environmental impacts on the Great Lakes.

The Application has undergone an extensive review process in accordance with Agreement/Compact requirements. All future applications for diversions will be required to meet the exception standard set forth in the Agreement/Compact. Each diversion proposal within the Great Lakes basin will depend on the facts of the specific situation and will be judged according to Agreement/Compact criteria. The approval or denial of any diversion application will provide some precedent for how the Agreement/Compact criteria are evaluated.

4. Given the large change in discharge flows expected from the preferred option going into the Root River, please explain how you will avoid widespread geomorphic damage, particularly to sediment and material transport, to the Root River?

See Section 4.4.2.3.1 of the EIS for a discussion of discharge effects from the Root River return flow. Return flow of the maximum 10.1 MGD (15.6 cfs) would be less than two percent of the river flow during a 2-year frequency storm event, and even a smaller fraction during a 100-year flood. All additional flow, greater than the previous year’s annual average withdrawal, will be returned to the Fox River).

5. Please explain how Waukesha will prevent invasive species movement from the Mississippi River system into the Great Lakes Basin when there may be Waukesha sanitary system outages of any type?

See the first response above in the Conservation/Environmental/Natural Resource Impact Related Issues/Criteria. In the case of a system outage, those discharges will not be released to the Root River.

6. On Page 68, there is a reference to a Root River flood exception. What does this refer to as it is unclear in the document?

A reference to “exception” cannot be found on this page in the TR or the EIS.

7. We know it is stated that the withdrawal from Lake Michigan would have the least environmental impact out of their alternatives, but if Lake Michigan was removed as an option, would any of the alternatives considered by WDNR be approvable

under their own merits? What would the analysis look like if Lake Michigan weren't even an option?

The Agreement/Compact allow for exceptions to the ban on diversions of Great Lakes water for a "Community in a Straddling County." See Summary Response 1 on the eligibility of the Applicant to apply for an exception to the ban on diversions of Great Lakes water. See also TR section S2 and EIS Section 4.3.1 and 4.3.2, which discuss in detail why the Mississippi River Basin alternatives are not reasonable.

Permits/Regulatory/Enforcement Related Issues/Criteria

1. The requirement for return flow is essential. What legally enforceable mechanism does WDNR have to ensure the return flow requirement will be sustained and enforced? For example, if the diversion is allowed and subsequently the NPDES requirements can't be met or if the return flow fails for any reason what action is Wisconsin prepared to take to stop the diversion or require Waukesha to establish an alternate return flow solution?

The Applicant must meet all WPDES requirements. A final Diversion approval from the State of Wisconsin, after an approval from the Compact Council would be predicated on the Applicant meeting all WPDES permit requirements. Any non-compliance issues would follow normal department enforcement procedures.

2. The draft Technical Review leaves uncertainty about the ability and cost to meet NPDES requirements in the return flow to Root River. Is there any more analysis that can be shared on the likely ability to actually meet and manage discharge requirements?

The department requested additional information from the Applicant to analyze the feasibility of meeting discharge requirements for the Root River in order to determine if a WPDES permit would be approvable (see TR section R4 and correspondence on the department's website). Additional information regarding specific treatment and costs will be required at the time of the WPDES permit application, if the diversion is approved by the Compact Council.

3. Does WI DNR intend to issue a draft Wisconsin Pollutant Discharge Elimination System (WPDES) permit that meets Wisconsin water quality standards (i.e. for phosphorus, DO, total suspended solids, and chloride among others) prior to the approval of a diversion from Lake Michigan? In order for us to complete our review we are asking for copies of the following information from WIDNR:
 - a) Draft NPDES permit for the Waukesha WWTP to the Root River
 - b) Draft NPDES permit fact sheet
 - c) NPDES permit application
 - d) Draft Permit decision memo

As mentioned above, the diversion would not receive final approval by the State of Wisconsin until all necessary permits are issued to the Applicant. WPDES permit issues were discussed in TR section R4. However, there is no requirement in the Compact for the WPDES permit application materials to be part of the review. Intervention into the state permitting process is outside of the scope of the Regional Review process. In addition, other local and state permits are not part of this review, but the Applicant would be required to comply with all local and state permits.

4. If Waukesha's diversion request is approved as proposed, or modified with conditions, what will WDNR do to monitor Waukesha's compliance with the terms and conditions of WDNR's permit and any additional terms and conditions imposed by the regional approval under the Great Lakes Compact?

The department would monitor any conditions of future permits at least annually or as specified in the approval. Any diversion approval from the State of Wisconsin would include any reporting and other conditions from the Compact Council's documented approval.

5. What enforcement provisions would there be in WDNR's permit to enforce any terms and conditions that are part of a conditional regional approval under the Great Lakes Compact?

Any terms and conditions that are part of an approval or conditional approval by the Compact Council would be a binding part of any final diversion approval issued by the State of Wisconsin.

6. Are the stormwater flows separate from sewerage in the Waukesha sanitary system? Will both be discharged to the Root River? If so, how will Waukesha prevent invasive species movements to the Great Lakes Basin by stormwater discharges?

Stormwater flows are separate from sewerage in the Waukesha sanitary system (stormwater will not be discharged to the Root River). See previous answers above regarding the prevention of invasive species movement.

7. Given that the City of Waukesha is a new discharger to an already impaired Root River, please explain how there are no other feasible alternatives are available that would allow little or no degradation of water quality?

Other alternatives are discussed in the EIS Section 5.4. Any new discharge would be required to meet permits to prevent degradation of water quality.

8. The document implies that all waters would be mixed at the Wastewater Treatment Plan. Is this correct? Are there any other unstated possible mixing locations such as

February 10, 2016

stormwater contributing sources?

See above answers. The Applicant does not have a combined sewer system and does not treat stormwater at the WWTP.

ATTACHMENTS

Mr. Dan S. Duchniak P.E.
General Manager
Waukesha Water Utility
P.O. Box 1648
Waukesha WI 53187-1648

November 17, 2015

Re: Great Lakes Compact Inquiry

Dear Mr. Duchniak

You have asked me to summarize my involvement in the negotiations leading to the Great Lakes Compact and the state implementation statute. In particular, you have asked me to comment on the concept of water service areas as part of the process.

I worked at DNR from June 1974 until August of 2008. When I retired in 2008 I was the Director of the Office of the Great Lakes. Beginning in 1987, in my role as the Water Quality Planning section chief, I was the technical lead for Wisconsin's review of regional water project proposals which required state action under both the Great Lakes Charter and the requirements of the federal law. I subsequently represented Wisconsin in the negotiations and technical discussions with the other Great Lake states and the Canadian provincial governments which resulted in the Great Lakes Compact. Following the agreement on the compact by the 10 jurisdictions, I represented the DNR as the technical lead in the legislative discussions resulting in the enactment of the Compact requirements in Wisconsin statutes and ultimately federal law.

The concept of a water service area did not arise as an issue in the regional workgroup discussions until very late in the process. In the very first discussions about creating the compact, there was consensus that only municipalities should be eligible for 'straddling community' or 'straddling county' procedures. However when the regional discussions about specific definitions and applicability began, it became apparent that a variety of governance models were being used in the 10 jurisdictions. This variety was particularly evident for those instances where several areas that are individually governed are served by one water supply withdrawal and interconnected delivery systems. Utility districts, contractual relationships, basin authorities and other models including privatization approaches were already in use throughout the 10 jurisdictions. From these discussions, we realized that simply using the term "municipality" without some additional flexibility could be problematic.

Further, as these discussions continued, the 10 governments also developed consensus on several other issues related to a "municipal" application process:

1. for systems serving multiple communities, there should only be one application submitted by the designated water supply authority

2. the application should be based on a projected long term water usage to prevent multiple applications for small incremental increases of withdrawals. Further, as municipal systems are financed through bonding, there is a need for certainty of service for at least the payback period of the bonds
3. the long term water use projections should be premised on sound planning, using accepted population growth projections and realistic industrial and commercial needs for the planning period rather than historic water usage

At this point, Wisconsin introduced the concept of water service areas as an approach which could address these points of consensus through a process that could also provide a framework for the diversion proposal applications and reviews. In Wisconsin, we had been using the concept of a service area in the wastewater management program for over 20 years. It was particularly effective for developing multiple community management systems for shared wastewater treatment and disposal systems. Through environmental reviews coupled with cost-effectiveness analyses and public involvement; wastewater collection, treatment and management alternatives to meet the regional needs for a 20 year planning period could be evaluated. This evaluation process resulted in selected approaches supported by the local governments. Through this process, a governance system, or the designated management agency for building and managing the selected plan would be identified.

However, the other nine jurisdictions were not using this concept. Different approaches existed at the provincial or state level in the other jurisdictions but through this discovery there was recognition that some overall flexibility would be needed. Wisconsin proposed changing the term municipality to be broad enough that if Wisconsin decided to use this service area approach at the state level, such an approach would not be precluded by the compact language. That concept of flexibility was supported by all the regional workgroup members and resulted in the "equivalent thereof" addition. Additionally there were no concerns raised by the regional workgroup members or the advisory group members about a service area approach. Underlying all the discussions was the recognition that the history of legislation in all 10 jurisdictions mandated a variety of implementation approaches based on equivalency with the Compact requirements rather than conformity with Compact language.

This need for flexibility was seen in several aspects of the final version of the Compact. Beyond the "equivalent thereof" addition, flexibility for a regional water supply was included in the term "Public Water Supply System". This phrase referred to a "physically connected system of treatment, storage and distribution facilities" without regard to political boundaries. The Compact Exception Standard also included a provision that it was to be implemented "to ensure that it is in compliance with all applicable municipal, state and federal laws".

When we began our state implementation discussions, comments were raised about solutions for existing needs only versus planning for future needs as well. These comments were coupled with concerns about minimizing the number of reviews which could be required in systems that supplied multiple communities. Other questions were raised about which entity was really the applicant and how was the return flow guaranteed if the governance was different for sewage versus water supply. As part of the outreach process, DNR met with the City of Kenosha to gather ideas from a community having experience with an earlier regional review process for their proposal to provide water to Pleasant Prairie. The issue of service areas was suggested by the City of Kenosha as an approach that was established and understood by municipalities. There was also an established public involvement process. So the concept was proposed and the regional planning agencies believed that it was a logical extension of the sewer planning. Other interested parties also supported this approach .

As a result, we transferred the applicable provisions of Wis Admin Code NR 121 to a water supply service area process and included a requirement that the water supply area be consistent with the sewer service area plans. This process also required the types of environmental analyses and cost-effectiveness evaluations needed to meet Compact requirements. In addition to identifying the projected water service map for 20 years, this procedure addressed the governance questions using a process that was familiar to potential applicants and which also required the designation of the management agency for the multi-community proposals. Finally we required that any application by communities in straddling counties or straddling communities be consistent with the water supply area plan. Thus a community in a straddling county like the City of Waukesha, would be required to submit an application that addressed the projected needs for a 20 year period in the water supply service area instead of water needs solely based on City boundaries.

While copies of state legislation were distributed broadly to the other parties and other requestors by the Council of Great Lakes Governors (whose staff also made the proposals available on the council internet site) , I do not know who received copies.

To my knowledge there was never any opposition to the use of water supply service areas in the state legislation either within or outside of the state.

If you have additional questions, please let me know.

Sincerely,



Charles Ledin
2970 Larsen Rd.
Madison, WI 53711

Testimony Provided to Wisconsin DNR
Patrick Henderson - Former WDNR Deputy Secretary
8/17/2015

19 MR. HENDERSON: Good evening. So in a
20 former life I was -- I had the pleasure of being
21 Governor Doyle's representative on the Great Lakes
22 government during the Compact negotiations, and I
23 led his efforts to enact Wisconsin's implementing
24 legislation. So you all have a tough job, and I
25 was proud to be a little bit a part of making that

1 a tough job. So you really do, these are hard
2 decisions to come to and I appreciate all the
3 effort going into it.

4 So at the time the Compact was being
5 written, there was a lot of talk about this
6 jurisdiction or that jurisdiction simply would
7 never allow a diversion under the old law world
8 because politics in their state simply wouldn't
9 allow for it, regardless of the merits of that
10 proposal. So this was not a reasonable way to
11 ensure that the Great Lakes and the local needs
12 were both protected.

13 So under the Compact, political dealings
14 were replaced by deliberate decision making based
15 on sound science and environmental protection. The
16 idea that the communities must return the water to
17 the Basin, we've heard a lot about that today; not
18 cause cumulative negative impacts; and establish a
19 reasonable test for determining if the supply --
20 supplies are available.

21 Now, that was a key part of the discussion
22 during the negotiations, it was reasonable. And we
23 chose not to say no other possible water, but we
24 chose reasonable instead. And that was done for
25 very good reason. So the Compact by no means

1 guarantees water, but it does provide a roadmap for
2 communities to follow and to have the proposal
3 judged based on objective criteria, not politics.

4 So the key to success when enacting the
5 Compact was the assertion of the communities and
6 straddling counties provision, which is why we're
7 here today. And I can tell you from every
8 jurisdiction along the way, everybody did it with a
9 full understanding that Waukesha was going to be
10 coming down the path. In fact, Waukesha was often
11 the litmus test for the criteria being put into
12 place. So it was clear from the very beginning of
13 the regional negotiations that the Compact could
14 not have been adopted without protecting the
15 interests of all communities in need of water
16 throughout the Great Lakes region, not just
17 Waukesha, but throughout the Great Lakes.

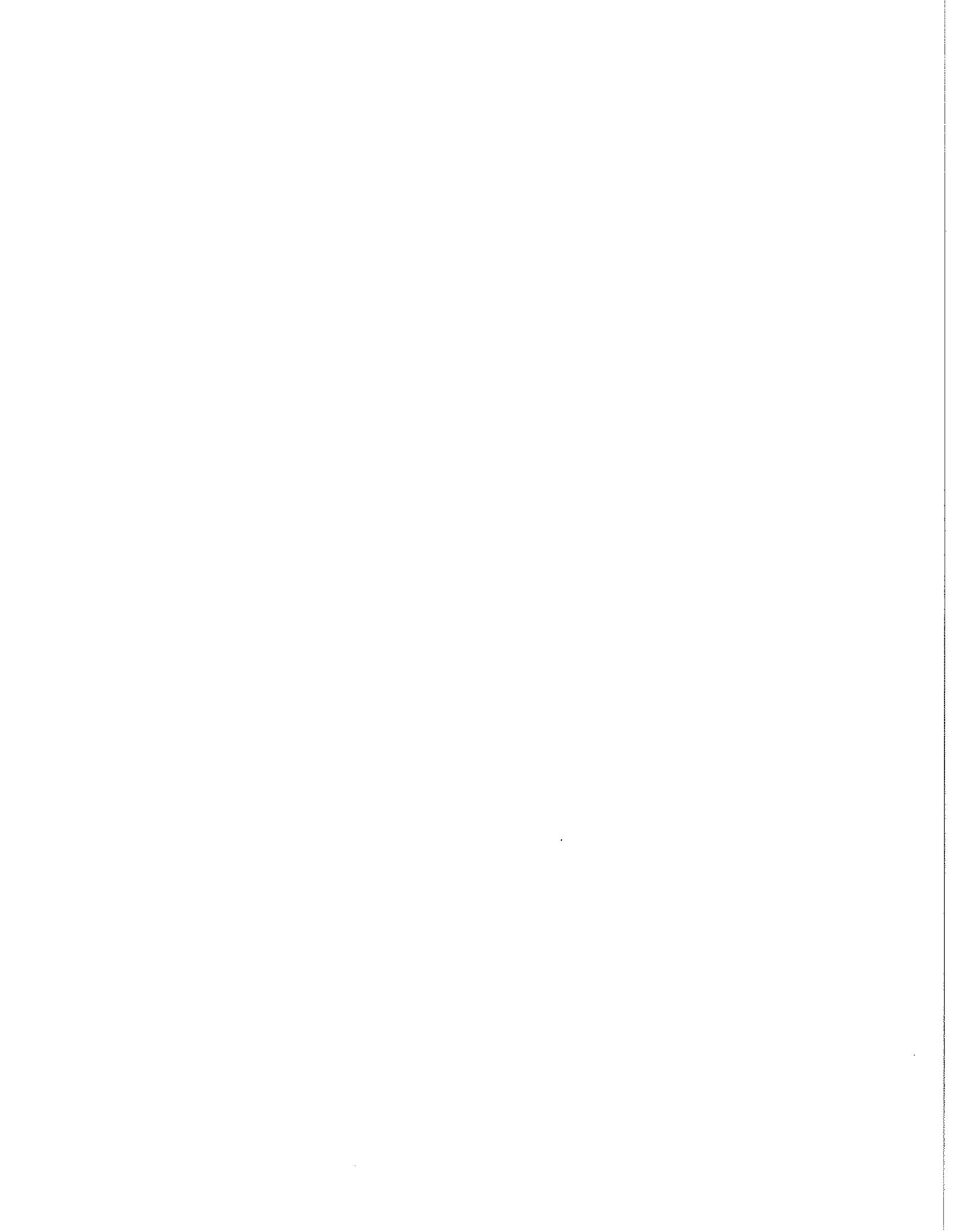
18 So the Great Lakes governors as well as the
19 U.S. Congress ratified the Compact knowing full
20 well that limited diversions would be a
21 possibility, and they decided in their wisdom that
22 those limited exceptions were acceptable, assuming
23 they met the Compact's environmental protections.
24 So a key part of both the regional Compact
25 negotiations and the Wisconsin implementing

1 legislation, was to build off the idea that
2 services should not be limited by municipal
3 boundaries, but by the service area. This was done
4 to build off Wisconsin's successful wastewater
5 treatment laws, avoid the purchase from one
6 watershed to another, and meet the Compact's
7 requirements to maximize return flow while
8 minimizing (inaudible) Basin water.

9 So during those negotiations, it became
10 clear that in every state and Canada, there were
11 simply too many potential jurisdictions that we
12 simply could not list them all for fear that we
13 would unintentionally miss one. Therefore, we
14 developed the language of equivalent thereof. In
15 Wisconsin, the DNR has determined that the water
16 supply service area meets this definition, and
17 consider the language of the Wisconsin implementing
18 statute, they really had no other choice.

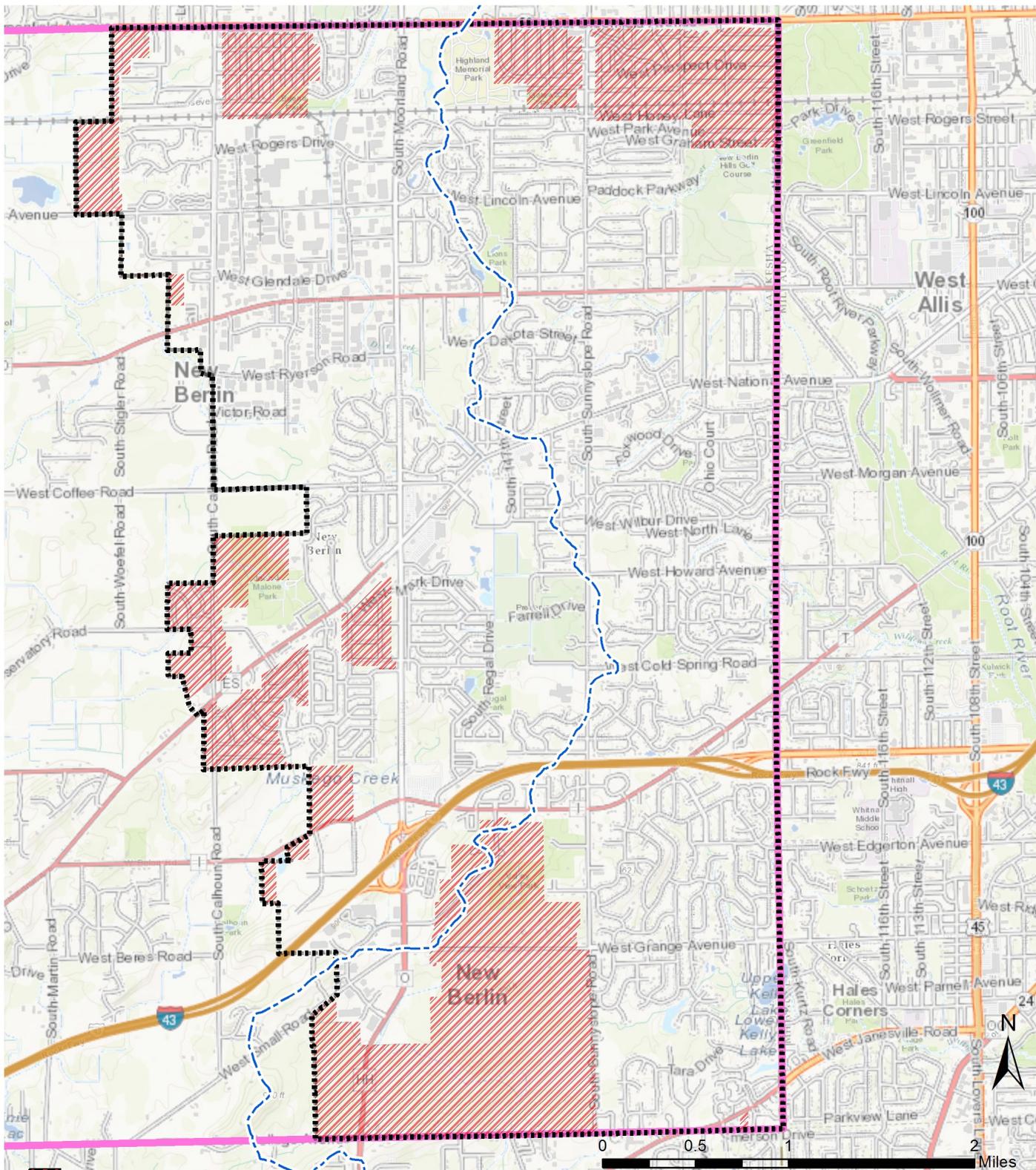
19 And I'd also like to point out, this was in
20 the Wisconsin legislation, nobody objected to it at
21 the time. And when Congress ratified it, their job
22 was determine that the state had adopted Compact
23 compliant laws. So Waukesha is not a threat to the
24 Compact. Waukesha is an opportunity to show that
25 the Compact works, and that decisions will be made

1 on what is best for the resource as well as for the
2 folks that turn on their kitchen faucet each day to
3 give their sons and daughters a clean drink of
4 water. Thanks.



New Berlin Water Supply Service Area

(Datasets provided by City of New Berlin, 2015)



DNR Water Use Section
February 2016

-  New Berlin Water Supply Service Area
-  New Berlin Extent
-  Served by Private Wells (Area eligible but not currently served)
-  Great Lakes Basin Boundary