Supplemental Questions to WDNR regarding Waukesha Diversion Application from Michigan

WDNR responses are provided in blue.

1. We continue to struggle with the connection WDNR contends exists between your water service area planning requirements and the Compact requirement that any community seeking a diversion must demonstrate need, etc. It is clear, as the applicant, the City of Waukesha must meet that burden – but if part of the application includes service to adjoining communities do they not also need to meet that burden? It is also possible WDNR miss understands the basis of Michigan's concern – Michigan understands the wisdom in planning utility service and the work done by SEWRPC. The issue is NOT if that makes sense but rather it appears that WDNR is using the defined water and service are boundaries to suggest that all communities within the service area need not demonstrate compliance with the Compact criteria if the applicant has. Even if this application may appear to be simply adding a few existing customers (250) in a few small adjoining areas, the apparent precedent may be the exception that has the potential to swallow the rule. If this is approved as presented what prevents any straddling county to arrange/adopt a water service area that covers the entire county and then seeks a diversion to serve the entire county when only one community has a demonstrated need? We do not believe that was intended under the Compact. Wisconsin's intent to "control any diversion amount through the Applicant's water supply service area plan." Has the potential to cut both ways – that is – can Wisconsin "control any diversion amount" by expanding the water supply service area plan to include communities that have not meet Compact criteria – arguing that such action is required by State law. We ask WDNR to explain what conditions/laws/controls WDNR intends to impose or adopt to ensure Compact criteria are met in each community served – for example a commitment to ensure conservation conditions are met does not address, a demonstrated need, that there are no other reasonable alternatives and that return flow is guaranteed. Finally, WDNR suggests that somehow raising these issues implies that the water supply must be cut off at the jurisdictional boundary – which would be contrary to Wisconsin law. The real issue is how does one allow this and tell any other community that has not met Compact criteria that it cannot have diversion water? What is WDNR's legally enforceable strategy to address this concern?

   The diversion applicant is the City of Waukesha on behalf of the Waukesha Water Utility. Wisconsin Compact implementation law requires a diversion applicant to have a water supply service area plan, including a delineated water supply service area. The Applicant's water supply service area was delineated to be consistent with its previously established sewer service area. Under Wisconsin law, the diversion area must be the water supply service area, which defines the needs of the Applicant.

The WDNR analysis in Technical Review section S1 found that the Waukesha Water Utility is currently without adequate supplies of potable water. Preliminary Final EIS section 4.2 provides additional detail on the limitations of the existing water supply system capacity. The department assessed the adequacy of the Applicant's municipal water supply system according to the delineated water supply service area, which was delineated in accordance with Wisconsin law to align with the previously delineated sewer service area. Areas in adjoining townships that are outside the area to which the Applicant currently serves water, yet within the delineated water supply service area, are currently served by private well and septic. The Applicant has the only public water supply system in the delineated water supply service area. The proposed water supply service/diversion area sets the outer boundary of municipal service (water and sewer) for the Applicant. Any expansion of municipal service outside the delineated area, or increase its diversion amount above any diversion approval, would require a new diversion application, state technical review, and Regional Review.

Once the Applicant's water supply service area plan is approved, areas included in the delineated water supply service area not currently connected to Waukesha municipal water supply could request water service from the Applicant 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 delineated service area, is primarily up to the property owners, the jurisdictions within the delineated service area, and the Wisconsin Public Service Commission (WPSC). In Wisconsin, water service is typically extended based on a request from property owners to the responsible utility. The department does not interpret the Agreement/Compact to be intended to restrict orderly planned development by a community seeking a diversion. In this instance, the Applicant estimates that 85% of the delineated water supply service is either already developed or is designated as environmental corridor. Any extension of municipal water within the delineated service area would be primarily to already developed properties that are currently on private well and septic.

In Wisconsin, several factors mitigate the potential for "any straddling county to arrange/adopt a water service area that covers the entire county." Under Wisconsin law, the delineated water supply service area must be consistent with the approved sewer service area. In order for a delineated water supply service area to include the entire county, the approved sewer service area would have to include the entire county and be backed by a detailed planning process. The planning process includes a delineation of regional wastewater sewer service areas after determining the most cost-effective option over a 20-year planning period. The cost-effectiveness analysis must identify the alternative that would minimize the total resource costs over the planning period—including monetary costs as well as environmental and other non-monetary costs[1]. In addition, the process details environmentally sensitive areas (environmental corridors) which are excluded from the sewer service area. These areas are locations deemed unsuitable for sewerage systems due to physical or environmental constraints including, wetlands, floodways and floodplains, steep slopes, and highly erodible soils.

Nowhere in Wisconsin does an approved sewer service area include the entire county. If Wisconsin were to receive a diversion application from areas served by multiple public water supply systems, each area community served by a public water supply system would be required to be a co-applicant for a diversion and would have to demonstrate compliance with all Compact criteria including the Compact criterion that the community "is without adequate supplies of potable water." We

[1] Wis. Admin. Code § NR 121.03 (5).

understand the need to think through hypotheticals to consider how this application may serve as precedent for future applications. However, the facts of any given diversion application will be site specific.

The department will control the withdrawal volume associated with a diversion approval through the Applicant's water supply service area plan. The department has proposed to approve an initial withdrawal amount of an annual average daily withdrawal of 8.1 MGD which reflects the Applicant's demand estimates for the areas currently served by the Applicant through the term of its water supply service area plan (2030). The department would incorporate any conditions imposed by the Regional Body/Compact Council into any state diversion approval.

2. (IN OTHER WORDS) Upon reviewing the WDNR comments, they appear to rely heavily upon "service area boundaries" as being consistent with Compact principles. This jurisdictional distinction could allow communities that have not demonstrated a "need" to support and encourage expanded growth based on new water supply as a marketing tool. Doesn't this approach require Compact law to be viewed with greater flexibility than its expressed terms? This could drive demand for diversions based on water service rather than need. How can that be reconciled with Compact strict criteria? NOTE – good planning principles support everything proposed by Waukesha – but how can the Compact criteria be trumped by planning issues? This discussion is not about the merits of good planning – its how can what is proposed comply with the Compact criteria?

   The department believes that service area boundaries and Wisconsin's planning process that delineated those boundaries are consistent with the Agreement/Compact. The department does not see planning and "need" as independent concepts. Typically, planning includes consideration of potential future sewer service or water supply service needs for an area. The planning process (described in question 1) is not based on an analysis of individual properties, but based on an analysis of areas to which municipal water and sewer could be extended. The areas included in the delineated service area were subject to the planning process before those areas were included in the Applicant's approved sewer service area. The Applicant estimates that 70% of the land within the delineated service area has already been developed, 15% of the land is available for new development, and 15% of the land is designated as environmentally protected (not able to be developed). Additionally, only 1.9 MGD of the proposed full build-out (~ 2050) diversion amount of 10.1 MGD is set aside to potentially serve areas outside the City of Waukesha's jurisdictional boundaries. The department does not interpret these demands as a marketing tool for growth. The department understands the Declaration of Finding from the Regional Body as a mechanism to clearly identify the factual basis for this diversion proposal according to strict criteria and thus limits its potential as an "unintended" precedent for other unknown potential diversion applications. The diversion area, delineated in accordance with Wisconsin Compact implementation legislation, sets the outer edge of where municipal water could be extended under any diversion approval. Any extension of service beyond the delineated area would require a new application and Regional Review.

3. Please supply a map that shows where within the water service area current residents are served in adjoining communities and confirm that the sanitary service are coincides with the water service area. Moreover, what legally enforceable mechanism does WDNR have to ensure that if a customer using well water switched to diversion water they will also be connected to the sanitary system and not use a septic system?

The requested map will be forthcoming. The WDNR confirms those portions of other jurisdictions currently served municipal water by the City of Waukesha are currently within the approved sewer service area for Waukesha. The department would condition any diversion approval to require that if a parcel switches to a Waukesha water supply that it must also connect to the City of Waukesha's wastewater treatment plant (WWTP) to ensure the return of Great Lakes water to the source watershed. Wisconsin has the authority to implement and enforce conditions related to the diversion approval under Wis. Stat. ss. 281.346 (14) and 281.98. These statutory provisions provide for monetary penalties and injunctive relief to "abate any nuisance, restore a natural resource, or take, or refrain from taking, any other action as necessary to eliminate or minimize any environmental damage caused by the violation."

4. WDNR suggests that the Waukesha water service area meets the Compact definition of a Community as an "or equivalent thereof". However, Wisconsin statute does not have the same phrase "or equivalent thereof" – so how can an area that does not qualify as a "Community" under state law nonetheless comply with the Compact? Wisconsin argues that State law must be followed regarding establishment of water service areas so how can it be ignored that a water service area is not a Community under state law? WDNR submitted testimony (Mr. Henderson) that supports the proposition that the Compact was adopted with the understanding that a water service area qualifies as an "equivalent thereof" – yet, if so, why is that language not in Wisconsin law which was enacted before the Compact was approved by Congress?

   The definition of "community within a straddling county" in Wis. Stat. s. 281.346 (I) (d) describes who may apply for a diversion. Under Wisconsin's Compact implementing statute, a diversion applicant must operate a public water supply system (Wis. Stat. s. 281.346 (4) (b) 2). Because Wisconsin's Compact implementing statute clearly links the delineated water supply service area with the diversion area, it was not necessary to add "or the equivalent thereof".

5. Please expand on the legal authority that Wisconsin will use to enforce any conditions imposed under a possible approval with conditions – this is predicated on the expectation that the Compact Council will not plan to engage in direct enforcement but rather the Compact process must depend on the host State's administration and enforcement of any approved diversion. For example can you cite to enforcement authority under Wisconsin Compact law that addresses this issue?

   Any conditions placed in a diversion approval from the Regional Body and Compact Council would be incorporated into the State's diversion approval. Wisconsin has the authority to implement and enforce conditions related to the diversion approval under Wis. Stat. ss. 281.346 (14) and 281.98. These statutory provisions provide for monetary penalties and injunctive relief to "abate any nuisance, restore a natural resource, or take, or refrain from taking, any other action as necessary to eliminate or minimize any environmental damage caused by the violation."

6. With respect to the water conservation goals and the anticipated 1 million gallon per day savings – how much of that has already been attained (as of February 2016) and how much is expected going forward? How much is expected in the initial stages of the program and how much is expected over time?

   The Applicant plans to achieve conservation reductions of 1.0 MGD at full build-out (~ 2050). Of the 1.0 MGD, 0.48 MGD is expected to result from the Applicant's conservation programs and targeted conservation initiatives. To date, the City of Waukesha has attained 20% of this goal. Specific details

of these programs and plans are available in the Application Volume 3 and in the Technical Review sections C1 and C2. The remaining 0.52 MGD of conservation savings is expected to result from ongoing replacement and upgrade of customer appliances, fixtures and processes. The Applicant anticipates attaining a majority of all conservation savings by 2030. The Alliance for Water Efficiency's Conservation Tracking Tool was used to calculate these estimates.

7. In our initial set of questions under the permit heading we asked what legally enforceable mechanism does Wisconsin have to ensure return flow is maintained – WDNR's answer referenced NPDES permit compliance - how will an NPDES permit be used to ensure return flow is maintained?

   Under Wisconsin's Pollutant Discharge Elimination System (WPDES) Program, Wisconsin could require the Applicant to monitor daily flow of effluent to the Root River to ensure return flow is maintained. Subchapter V of Wis. Stat. Ch. 283 provides for WPDES permit enforcement. In addition, conditions can be incorporated into any diversion approval and made enforceable under Wis. Stat. s. 281.346 (14).

8. We noted that in the discussion of alternatives the potential of connecting to Milwaukee was described but not included in the alternatives analysis. Can the reasoning to reject that alternative be explained further and why more discussion was not included on that option? This information would allow a reviewer the opportunity to understand the alternative better.

   The department reviewed water supply alternatives in the Mississippi River Basin as required under the Agreement/Compact criteria to evaluate whether there is a "reasonable water supply alternative" in the Mississippi River Basin. The department did not reject the City of Milwaukee as a proposed water supplier to the Applicant. The Applicant selected the City of Oak Creek as the water supplier and the department considers this selection to be a decision of the Applicant. The department has not identified any Agreement/Compact criterion that would allow the department to require an analysis of a specific potential water supplier.

9. How is Waukesha managing Radium waste generation from their existing deep water aquifers? How is the waste Radium disposed of? Beyond the process of reverse osmosis, are there filters being used now, and why cannot this be a viable option for future continued use of groundwater? Can the additional wells being utilized all have HMO filtration systems installed? What would be the long term cost of using more technologically advanced filtration systems vs. building the pipelines? How much of Waukesha's current water usage (approx. 6 mgd) is being effectively treated for radium, vs. how much of the proposed additional volume of water (up to 10.1 mgd via the diversion) could also be treated for radium? How is the concentrated radium now being disposed of? How much of the "up to 10.1 mgd being applied for" is strictly to meet the future needs of Waukesha vs. the expanded communities anticipated needs beyond Waukesha?

   Currently, the Applicant treats water from three of its deep wells for radium wells using HMO filtration systems. The Applicant backwashes the HMO filters and discharges the filter backwash water to the Waukesha Wastewater Treatment Plant (WWTP). The majority of the radium is transferred to the WWTP sludge that is subsequently land applied. As required under the WPDES permit, the WWTP tests the land applied solids for radium to ensure that the radium content does

not exceed the WPDES permit limit. Under the WPDES permit, the WWTP is not required to test for the radium concentration in the wastewater discharged to the Fox River.

The department's Technical Review considers the alternative suggested in the question. The department reviewed six water supply alternatives in depth in the Technical Review section S2. The Application provides additional information on these alternatives in Volume 2. Under one of the water supply alternatives reviewed, the Applicant would continue to use the existing deep aquifer wells, with additional radium treatment, and add additional shallow wells to meet the projected water demand. In the Technical Review section S2, this alternative is referred to as alternative 1. The capacity of the deep wells and the existing shallow wells in the Applicant's current water supply system is insufficient to meet the Applicant's current demand (pump runtimes are currently in excess of standard engineering practices) or the projected future demand for the delineated water supply service area . Based on the analysis of the current water supply system with additional radium treatment outlined in the preliminary final EIS section 4.2, the system would have 4.6 MGD of 12-hour firm well capacity,[2] to meet average day demand (2014 average day demand was 6.6 MGD). With added capacity from wells in the shallow aquifer, the department determined that alternative 1 (the Deep Confined and Shallow Aquifers Alternative) is not a reasonable water supply alternative because of potential significant adverse environmental impacts to wetlands from the shallow wells. The existing system with additional radium treatment is also not a reasonable water supply alternative, see preliminary final EIS section 4.2. This section of the EIS also discusses the different radium treatment alternatives.

Technical Review Section S2, page 26, provides costs for all of the water supply alternatives in Table 6. The 50-year present worth for the deep and shallow aquifers alternative is $275,560,000 and the 50-year present worth for the Lake Michigan Supply is $332,400,000. Technical Review Section S1, page 14, describes how much of the current system's water is treated for radium or blended. In 2014 of the 6.6 MGD withdrawn, 5.1 MGD was treated or blended before entering the water distribution system.

The Applicant projects the demand at full build-out to be 8.2 MGD for the City of Waukesha. The remainder of the 10.1 MGD, 1.9 MGD, is the projected demand for the areas in the delineated water supply service area that are not currently served by the City of Waukesha Water Utility.

10. After reviewing the alternatives analysis we are interested in more background on alternative 5 – which reduces the amount of water from groundwater sources and also requires less water from Lake Michigan – it appears that the primary reasons for rejecting this option were impacts on wetlands from shallow pumping and possible contamination burdens for treatment purposes. Yet is it possible reduced draw from groundwater sources will allow further recovery of the aquifer and improved water quality in that aquifer through, in effect, more prudent aquifer management – something that should be encouraged not just in the Great lakes but across the country. If the aquifer is managed to return to a sustainable level is it also true that less groundwater flow will be directed away from the Great Lakes?

[2] Firm capacity is the system capacity with the largest well out of service. In the Applicant's system, this is Well No. 10.

Yes, the department specifically rejected water supply alternative 5 for impacts on wetlands from shallow pumping. It is unknown if reduced use of the deep aquifer will result in lower concentrations of radium in the deep aquifer. To date, while the deep aquifer water levels have increased by approximately 100 feet in the last 15 years from reduced use of that aquifer regionally, radium concentrations have not declined. See Technical Review section S1, figure 4, page 16. Note in this figure that concentrations below the Safe Drinking Water Act standard are primarily from wells with radium treatment in place as described in detail in the notes for figure 4. The Southeastern Wisconsin Regional Planning Commission developed a regional water supply plan specifically to address the significant drawdowns in the deep aquifer in southeast Wisconsin. This plan recommended that the Applicant switch to a Lake Michigan supply to reduce the stress on the deep aquifer and the cone of depression. The groundwater movement in the deep aquifer in southeast Wisconsin is described in detail in Technical Review section AC1. The findings for AC1 include:

1. Part of the Applicant's current water supply, the deep aquifer, is derived from groundwater that is hydrologically interconnected to Waters of the Basin.
2. Groundwater pumping from the deep aquifer in southeast Wisconsin has changed the predevelopment groundwater flow direction from flowing towards Lake Michigan to flowing towards pumping centers. Currently the largest pumping center from the deep aquifer in southeast Wisconsin is in Waukesha County.
3. Wells in the deep aquifer, such as the Applicant's, are pumping and distributing water that once flowed towards Lake Michigan and is now flowing towards pumping centers.
4. Pumping wells in the deep aquifer induces water that would otherwise have discharged to surface water. Groundwater flow models find that 70 percent of the water is derived from the Mississippi River Basin (MRB) and 30 percent is derived from the Lake Michigan Basin. Of the Lake Michigan Basin water, 4 percent is induced directly from Lake Michigan.
5. None of the water currently withdrawn from deep wells is water induced directly from Lake Michigan.

It is correct that eliminating the Applicant's use of the deep aquifer should reduce the flow of groundwater away from Lake Michigan.