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May 1, 2014

Catawba-Wateree Water Management Group

Re: Comments on Water Supply Master Plan

To the Members and Stakeholders of the Catawba-Wateree Water Management Group:

Included in this letter are comments regarding the development and provisions of the Water Supply Master Plan (WSMP). We have major concerns regarding the plan itself, the planning process, and the assumptions made during the planning process, especially as this WSMP will be a framework for managing the water for more than two million people for decades to come.

The Catawba Riverkeeper Foundation (CRF) is a 501(c)(3) non-profit founded in 1997 to advocate and educate for the protection of the Catawba-Wateree River basin for all who depend on and enjoy it. We were born out of a 1995 Centralina Council of Governments study that identified the need for an environmental advocate on the river and its tributaries. Throughout the basin, over the same area covered by the CWWMG plus the Wateree River, we have approximately 800 members who support our work.

In 2008, the Catawba River was named the #1 Most Endangered River in America because of water supply/demand problems in the basin during drought. A recent study by the University of Colorado, Eastern Forest Environmental Threat Assessment Center, Southern Research Station (USDA Forest Service) and other research entities identified the Catawba basin as the most stressed east of the Mississippi River, practically exclusively the result of thermoelectric power production; this study also considered agriculture and public water supply uses separately, finding nowhere near the stress to water quantity from thermoelectric power production (Averyt et al., 2013).

The Catawba River also has significant water quality problems, including sediment, bacteria, nutrients and metals. These problems are exacerbated by stressed water quantity and again earned the Catawba a top-10 Most Endangered River ranking (#5) in 2013. Multiple other studies have also listed the Catawba River as one of the nation's most stressed and

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threatened because of the tremendous demand and stress within a relatively small drainage basin. This is why the CWWMG must complete a more comprehensive and adequate WSMP – as well as with more public input – and not rush to produce the plan.

Neither CRF nor the public has been a member or stakeholder in this process, and that has very much inhibited the input of diverse viewpoints in the development of the best WSMP possible. As noted on the first page of the WSMP, "Previous studies have indicated that by mid-century (i.e., 2050), the safe yield for many of the Basin's reservoirs will be exhausted. This water supply limitation creates significant challenges for those who depend on the river, and it makes continued population and economic growth beyond that point unsustainable." We share those concerns for supplying the population with clean, plentiful water, both for the sake of life as well as for local economies and governments, which are heavily invested in waterways to the tune of hundreds of billions of dollars via property tax base, sales tax, recreation and tourism.

Concerns

1. Strategies for water consumption reductions focused almost exclusively on Public Water Supply (PWS) utilities

Page xv provides a Glossary of Terms, in which Low Inflow Protocol is defined, including the line, "The LIP is developed on the basis that all parties with interests in water quantity will reduce their water consumption as needed and therefore share the responsibility of conserving the limited water supply." Managing water quantity requires **all parties** will reduce their water consumption, but the WSMP fails to include strategies for such reductions across the board. Water quantity can proactively be preserved through more efficient use of the water already available and through reductions in net withdrawals (e.g., evaporative consumption and inter-basin transfers). A last resort to lower intake structures would allow water users to draw waterways even lower during a time of drought, but this serves only to buy a short amount of time of additional water, and it shifts attention away from mitigation strategies that will slow the approach of a water body toward the critical intake elevation and allow business and recreation to prosper in the meantime.

While the WSMP categorizes water users as PWS, Power, Industrial and Agriculture/Irrigation, the proposed scenarios for maintaining water quantity revolve almost exclusively around PWS utilities, which consume an approximately equal amount of water as the Power category. As shown in Table 7-40 (page 7-50) of the draft WSMP, which quantifies changes in safe yield and yield enhancement for Power consumptive reduction scenarios, none of the five proposed Power scenarios has any effect on yield.

Thermoelectric power generation in the basin can require the use of billions of gallons of water per day, and ultimately, it consumes approximately the same amount of water as PWS utilities. It makes no sense to ask for reductions from only one piece of the pie. The WSMP places multiple burdens on PWS utilities to reduce use and consumption:

- Re-routing wastewater flows
- Lowering intake structures and/or constructing new intakes
- Reducing use by its customers
- Foregoing revenue
- Increasing water rates to deter usage

Source: Table 6-1

These strategies not only create significant costs for utilities (at least when the WSMP consumption reduction strategies are all PWS-focused), but they will continue to leave the Catawba-Wateree extremely susceptible to drought. And as noted in Table 9-1, many PWS utilities have already made significant reductions in their per capita use between 2002 and 2008-2011, so utilities could be challenged trying to change consumer behavior. Based on LIP data from the last drought, the PWS utilities averaged 13% water savings, which contributed 8.3 MGD savings out of the 1,300 MGD saved overall, including from slowing water flow.

To reduce water consumption in the Power category, many utilities across the nation have implemented closed-loop cooling systems. Almost 10 years ago, South Carolina Electric & Gas installed a hybrid closed-loop cooling system on Wateree Steam Station. Such possibilities were not (and should be) considered as possible mitigation scenarios in the WSMP, and the mere lack of consideration is a failure in due diligence to at least consider other viable strategies, especially when they have been implemented elsewhere and PWS utilities are being asked to take on mitigating costs with the WSMP. This lack of consideration is particularly baffling when the CWWMG considered some extreme and far-fetched strategies, including cloud seeding (to increase precipitation) and lake covers (to reduce evaporation)

Also inadequately addressed are inter-basin transfers (IBTs), a variable that could be a tremendous loss of water for the basin. IBTs present and future comprise a significant portion of PWS water consumption; however, recipients of IBTs are not part of the CWWMG such that they will be reducing their consumption as PWS utilities in the Catawba River basin will be. Furthermore, keeping IBTs in check is a way to preserve water quantity without the cost of infrastructure changes (i.e., lowering intakes). This must be a greater priority. Especially for a group trying to manage the Catawba River basin's water, the CWWMG must make more of an effort and emphasis on keeping Catawba water within the basin for the CWWMG's management.

The PWS consumptive reduction strategy fails to place any consumptive reduction burden on the Power category (Duke Energy). It encourages a more rapid approach to drought

conditions with major collateral damage along the way for facets not considered in the WSMP that will be described in the next section of these comments.

2. Unconsidered impacts

In multiple facets, the WSMP fails to make extremely important considerations in efforts to preserve water supply, and they must be a part of any plan. However, the current WSMP only bases its definition of failure on the inability of an intake structure to withdraw water, and there will be many other problems before water levels reach that point. A thorough cost analysis should be performed to determine what mitigation scenarios are overall best for all parties affected.

- Economic Impacts
    - Counties and local governments have significant portions of their economies invested along waterways, namely in the form of property tax base. River- and lake-area homes disproportionately provide tax revenue. In some cases, as much as 25–30% of a county's property tax base is located within a few percent of the acreage near the major waterway. Under scenarios with the current WSMP, Catawba-Wateree lakes could resemble the oft-barren Lake Hartwell, yet the system might not be considered 'failing.' Unusable docks and unattractive waterfront areas would decrease home values and ultimately detract from the property tax base. Such lost revenue would require counties to make it up by shifting the tax burden to others in the county. Additionally, the resulting decreased recreation would harm local economies through lost business and sales tax revenues.

- Recreational Impacts
    - Duke Energy has the privilege of being the only entity to manage water in the basin, where lakes are open to the public. Recreation is a major public use and thus concern for the lakes. However, loss of this use is not at all considered in the WSMP. Lost recreation from an inability to use boat access ramps would be an easily distinguishable point at which point an intermediate category for failure should be considered, especially in the CHEOPS model. Recreation is a significant economic driver around lakes, and counties should not have to experience economic dry spells in addition to meteorological ones because of poor water management. The exclusion of the public from this process has been a key reason for the omission of this as a priority, and that must change prior to the passage of any WSMP.

3. CHEOPS model

a. Co-development with WSMP

The provisions of the WSMP, including the recommendation for the adoption of Planning Case MP-01Mb, are based on runs of a model (CHEOPS) that has been neither completed nor even submitted for the legally required public notice and comment process. This is a case of 'the cart coming before the horse.' The model needs to be refined, finalized, and then utilized in the development of the final WSMP.

b. *Definition of 'failure'*

As mentioned before, the definition of 'failure' in the system is simply the fall of a water level below an intake. The definition for 'pending failure' also goes far too close to 'failure.' There should be other criteria considered for where a water level range is no longer deemed to be at an acceptable level because of recreational and economic impacts, and at this point, behavior needs to change for the sake of water quantity. For example, if Lake James is down 49 feet (critical intake elevation of 50 feet below full pond), it cannot still be considered at an 'acceptable' water level, but the current definition as created by the WSMP/CHEOPS allows business as usual even at such a drastically low point. There must be other mitigation steps and strategies that are activated as water levels fall during dry spells and drought.

c. *Missing Variable: Urbanization and Runoff Changes*

The WSMP acknowledges that the population in the basin will continue to increase. Yet, CHEOPS does not account for the runoff response that this will cause. The increased population will lead to increased development and impervious surface area, which will result in more instantaneous runoff responses. Reservoirs will fill much more quickly and to a higher level than they would have previously for identical precipitation events. This will force more spillage from dams and will decrease base flow during drought because of inhibited groundwater recharge.

d. *Missing Variable: Sedimentation*

The influx of sediment continues to be a major problem in multiple ways for Catawba-Wateree reservoirs. With regard to CHEOPS, the continued shoaling of reservoirs needs to be considered particularly for the sake of evaporation as shallower water more readily heats up and evaporates. Instead, section 8.6.4 (page 8-9) notes that sediment-related scenarios are not considered.

e. *Missing Variable: Ecological Flows*

Whether (and if so, to what extent) ecological flows and impacts were considered in the WSMP and CHEOPS is very unclear.

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4. Procedural problems and failure to meet desired congruence with Water Resources Policy Act of 2009 and public trust

First and foremost, despite requests to be included, CRF was not included as a stakeholder. This group, if purporting to desire diverse input, should have allowed those with different thoughts and viewpoints. CRF Executive Director Rick Gaskins and I bring graduate-level backgrounds in geochemistry, hydrology, engineering, law, and communications, and we feel that we could have been assets in the development of the WSMP, which in many ways has happened behind closed doors. There are many citizens who also bring valuable backgrounds and perspectives, and they, too, should have been allowed input in this process.

Despite repeated requests at meetings to be added to distribution lists, I was never included in emails that included CWWMG updates on meetings, progress and other information. I was also unable to acquire a draft copy of the WSMP until hearing secondhand about its impending final approval and distribution. In contrast to multiple links to studies and reports on the CWWMG website, the draft WSMP was never posted for access and comments.

The WSMP does acknowledge the impact of regulations, whether "currently enacted or anticipated in the future." This is important, that the CWWMG be able to partner with regulatory bodies for the implementation of water supply rules and regulations. Section 14.5.1 of the WSMP discusses the Water Resources Policy Act of 2009 and the River Basin Planning Organizations (RBPOs) that would be created by the bill (Senate Bill 907, House Bill 1101), noting, "The CWWMG previously reviewed the potential and the process for the CWWMG to be designated as a river basin planning organization of the Catawba-Wateree River Basin by North Carolina and South Carolina," including discussions to determine how it could achieve that role.

In the Declaration of Policy, the bill states that "water is a public resource" and one that should be used efficiently by its users "in order to protect the public health, safety, and welfare by promoting economic growth, mitigating the harmful effects of drought, resolving conflicts among competing water users, achieving balance between consumptive and non-consumptive uses of water, encouraging conservation, protecting ecological integrity, and enhancing the productivity of water-related activities." It also calls for "efficient and equitable allocation during shortfalls," also calling for a plan "to protect the public interest of the waters of the State…an orderly strategy to allocate available water efficiently and equitably in times of water shortage or water emergency." In its discussion of RBPOs (§ 143-355.1), the bill states that other organizations, such as CRF, can be members (even while not withdrawing water). Section 4.6 of the bill (Promote Public Access to Water and Water Funding Information) calls for greater public access to information such as that in the WSMP.

Based on the procedure for the development of the WSMP thus far and the lack of equitable allocation strategies (placing the burden on PWS utilities), the CWWMG would fall short of the RBPO definition and duties and of the Declaration of Policy in the bill, particularly

with regard to the recognized purpose for protecting water as a public trust resource. Rather, the WSMP seems only to protect one of its major funders – Duke Energy – from any effort and cost associated with adapting to the impending shortage of water in the basin.

Conclusion

While the Catawba-Wateree River basin and its dense population need a water management plan, the current WSMP falls short of considering all variables, impacts, and possibilities. There are countless significant facets that received no research or consideration in the WSMP, and for the public interest, such due diligence must be performed and a publicly accessible version of an additional draft must consider those additional facets:

- Water consumption reductions on the part of thermoelectric power category
    - Research and include closed-loop cooling technologies as strategies in scenarios
- Financial burdens for mitigation strategies (e.g., lowering intake structures)
    - What will material and labor costs be?
    - Detailed cost analyses should be provided for strategies
    - Emphasis and detailed planning on gaining water without infrastructure changes in the form of challenging the IBTs
- Economic impacts (e.g., lost property tax base, sales tax) from drought on local governments and businesses
- Intermediate failure levels (and associated mitigation measures) based on lost ability to recreate
    - Ties in to economic impacts, as well as public interest
    - Failure cannot be defined as being within a foot or a fraction of a foot of failure
    - Lost ability for public access at boat launches should be one metric
- Multiple revisions to the CHEOPS model
    - Must be finalized through the public notice and comment process before utilized in the development of the WSMP
- Policy changes to bring the CWWMG in line with the Water Resources Policy Act of 2009, as it seemed to desire

As has been frequently noted, all water users must be a part of the solution with an even distribution of mitigation burdens across the water user board. And while we appreciate how the CWWMG has moved quickly to develop a WSMP, we feel that a much better, more comprehensive plan will be worth the additional effort. The most immediate and problematic facet is that the CHEOPS model serving as the engine for the WSMP is not itself complete, and until it is, the WSMP should not be finalizing a WSMP with conclusions that might change with changes to the model.

Please do not hesitate to contact myself (sam@catawbariverkeeper.org or 704-651-5974) or our Executive Director, Rick Gaskins (rick@catawbarivekeeper.org or 704-679-9494), if you have any questions or would like to discuss this further.

Sincerely,

Sam Perkins, Catawba RIVERKEEPER®