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Via Regular Mail

Plant Washington Comments
Georgia Environmental Protection Division
2 Martin Luther King, Jr. Drive, Suite 1152 –East Tower
Atlanta, GA 30334

Via Electronic Mail and Certified Mail

Kevin Farrell
Georgia Environmental Protection Division
Watershed Protection Branch
4220 International Parkway Suite 101
Atlanta, GA 30354

Re: Draft Surface Water Withdrawal Permit for Power4Georgians, LLC.

Dear Mr. Farrell:

The Southern Environmental Law Center and GreenLaw respectfully submit the following comments regarding Power4Georgians, LLC's (the "Applicant") Draft Permit to Withdraw, Divert, or Impound Surface Water (the "Draft Permit") on behalf of: Altamaha Riverkeeper; Center for a Sustainable Coast; Eco-Action; Fall-Line Alliance for a Clean Environment; Friends of the Chattahoochee; Georgia Coalition for the People's Agenda¹; The Georgia Conservancy; Georgia Interfaith Power and Light; Georgia River Network; Georgia Women's Action for New Directions (WAND);

¹ The Georgia Coalition for the People's Agenda includes among others: American Federation of Labor - Congress of Industrial Organizations; Atlanta Black Agenda; Concerned Black Clergy; Friends of Sweet Auburn; Georgia Association of Black Elected Officials; Georgia Coalition of Black Women; The King Center, Laborers' International Union; MLK March Committee; National Association for the Advancement of Colored People; National Council of Negro Women Southern Christian Leadership Council & SCLC/W.O.M.E.N., Inc.

Georgians for Smart Energy; Georgia Youth for Energy Solutions; Mothers and Others for Clean Air; Ogeechee-Canoochee Riverkeeper; Savannah Riverkeeper; Sierra Club – Georgia Chapter; Southern Alliance for Clean Energy; and the Southern Energy Network.

In short, the Applicant’s stream flow analysis is flawed due to a significant overestimation of the Oconee River’s capacity to meet Plant Washington’s water demands. As a result, the Applicant has failed to show that its withdrawal of surface water will not adversely affect downstream permitted users. Likewise, the Applicant has failed to provide the Georgia Environmental Protection Division (“EPD”) with an adequate Water Conservation Plan. We urge EPD to require the Applicant to address the blatant errors in its stream flow analysis and to resubmit a revised and accurate stream flow assessment and Water Conservation Plan. Alternatively, EPD should withdraw the Draft Permit.

For ease of reference, a few of the documents cited in this letter, relied upon for background or relevant to your consideration of these comments, have been provided in the enclosed CD. Thank you for accommodating our requests to review the relevant EPD files and your careful consideration of these comments.

I. BACKGROUND

a. The Proposed Facility

The Applicant’s Draft Permit allows up to 16 million gallons of water per day (MGD) to be withdrawn from the Oconee River, with an average daily flow not to exceed 13.5 MGD. Draft Permit at 1. Water withdrawn from the Oconee River will be used for refilling storage basins and cooling and process water for Plant Washington. Surface water is planned to be pumped through an estimated 30 miles of pipeline to a raw storage basin at Plant Washington and, following treatment, to the plant for its use. *Id.* at 2. In support of the Draft Permit, the Applicant has submitted a variety of forms, plans, and supporting documents. Most relevant to our comments on the Draft Permit are the Applicant’s Water Management Plan and Drought Contingency Plan.

b. Georgia Law on Surface Water Withdrawal

The Applicant has requested a permit to withdraw water from the Oconee River pursuant to Georgia's Water Quality Control Act ("GWQCA"), O.C.G.A. § 12-5-31 et seq. Pursuant to the GWQCA, EPD shall consider:

[T]he extent to which any withdrawals...are reasonably necessary, in the judgment of the director, to meet the applicant's needs and shall grant a permit which shall meet those needs; provided, however, that the granting of such permit *shall not have unreasonably adverse effects* upon other waters uses in the area, including but not limited to public use, farm use, and potential as well as present use." O.C.G.A. § 12-5-31(g) (emphasis added).

In furtherance of EPD's protection of current surface water uses, EPD shall "give preference to an existing use over an initial application." Id. at § 12-5-31(f). GWQCA's regulations enumerate an extensive list of permit requirements with which the Applicant must comply. See Ga. Comp. R. & Regs. r. 391-3-6-.07(4).

An applicant for a surface water withdrawal permit must "pass instream flow at or immediately downstream of the point of withdrawal..." Ga. Comp. R. & Regs. r. 391-3-6-.07(9)(iii)(II). This low flow protection provision is the GWQCA's keystone requirement—providing the information upon which EPD determines whether the applicant's withdrawal of surface water will result in "unreasonable adverse effects" on other water users. All low flow protection measures, including the Drought Contingency Plan, are based on the Applicant's stream flow calculations. EPD shall not issue a permit which "authorizes the depletion of the instream flow." Id. (iii). The term "Instream Flow" is defined as the "minimum continuous flow reserved to the Surface Waters of the State at or immediately downstream of the point of the withdrawal..." Ga. Comp. R. & Regs. r. 391-3-6-.07 (2)(i). The Instream Flow for a new permit may be (1) the 7Q10 flow, (2) the Non-Depletable Flow, or (3) an appropriate instream flow limit as determined by EPD. Id. (9)(iii)(II). The "7Q10 Flow" is defined as the "lowest average stream flow expected to occur for seven consecutive days with an average frequency once in ten years." Id. (2)(j). The Non-Depletable Flow is the "instream flow consisting of the 7Q10 flow plus an additional flow needed to ensure the availability of water to downstream users." Id. (2)(k).

Thus, the accuracy of the stream flow analysis is vital in determining whether the surface water source is sufficient to support the proposed use and whether the permitted use will have “unreasonably adverse effects” upon water users in the area. O.C.G.A. § 12-5-31(g). Furthermore, the stream flow determinations affect all other aspects of the permit, including but not limited to, the accuracy of long-range planning, the sufficiency of the Drought Contingency Plan, and the measures the applicant must implement to ensure the permitted use will not impact the source’s in-stream flow. Here, the Applicant’s groundwater withdrawal application is based on the stream flow calculations. Moreover, the flawed stream flow calculations also impact the Applicant’s water quality and effluent limitations and control measures. Most importantly, the stream flow analyses are the foundation upon which EPD must set permit conditions and limits and, ultimately, determine whether it will approve the permitted surface water use.

II. THE APPLICANT’S SURFACE WATER WITHDRAWAL PERMIT FAILS TO MEET THE GWQCA’S REQUIREMENTS

a. Water Management Plan

The Applicant’s Water Management Plan for Plant Washington has significant flaws in three main areas of the analysis, specifically: (1) the calculation of 7Q10 flow values; (2) calculation of the non-depletable flow values; and (3) analysis of river flow volume data to determine whether flows are adequate for withdrawal by the Applicant without negatively impacting downstream users. Unless the Applicant revises its stream flow analysis, EPD is precluded from determining whether the permitted surface water withdrawals will “not have unreasonably adverse effects upon other waters uses in the area, including but not limited to public use, farm use, and potential as well as present use.” O.C.G.A. § 12-5-31(g).

1. The Applicant’s Erroneous 7Q10 Determination

The determination of a 7Q10 flow for a stream requires a dataset with a long time series of daily data, preferably greater than 10 years in length. The Applicant based its 7Q10 analysis on 20 years of flow data, including dates from 1986 through 2007. See Water Management Plan (“WMP”) at 2-5. However, historical daily flow data for the Avant Mine gauge station only exist for the period 1993 through 2007. Id. In order to

extend the data at the Avant Mine gauge (USGS station No. 02223056), the Applicant used data from the Milledgeville gauge (USGS station 02223000), approximately thirteen (13) miles upstream from the Avant Mine gauge, which has a continuous record from 1904 to present. WMP, Appendix H, “Instream Flow Protection” at 2-1. The Applicant extended the data by performing a monthly regression analysis with synthesized data. Id. at 2-1 to 2-2. In order to synthesize the 7-day low flow statistics for the Avant Mine gauge station for 1986 to 1992, the Applicant analyzed the 7-day flow statistics from the period of overlap, 1993 to 2007, between the two gauge stations. Id.

The Applicant, however, has not provided the method of analysis, results, or plots for this 7-day low flow synthesis in its report. It appears that the method of analysis used by the Applicant is likely a form of regression analysis between 7-day flow statistics from the Milledgeville and the Avant Mine gauge stations. In doing so, the Applicant would have ignored EPD’s recommendation that the 7Q10 should be determined using the “drainage ratio method.” See EPD Comments on Initial Draft of Water Management Plan – Instream Flow Protection, dated May 12, 2008. While it is standard hydrological practice to use the regression analysis to extend the data of a gauge with limited data using another gauge with long-term data, this technique is generally used on concurrently measured base flow data. Regression model synthesizing should not be used with flow statistics such as 7-day low flow data. Various studies have shown that extending low flow data by applying the regression method produces results with a high degree of error. A regression analysis method is therefore not recommended for a low flow analysis.² Before issuing the Draft Permit, EPD must require the Applicant to resubmit a new 7Q10 analysis based on the “drainage ratio method” that EPD originally requested the Applicant use in its 7Q10 determination, or the Applicant should provide a detailed description of their methods and results for the public’s review.

2. Failure to Adequately Consider Downstream Withdrawals

² See J. Risley, A. Stonewall, and T. Haluska, June 2009. Estimating Flow-Duration and Low-Flow frequency Statistics for Ungaged Stream in Oregon. USGS Scientific Investigations Report 2008-5126, available at <http://pubs.usgs.gov/sir/2008/5126/>; see also J.R. Stedinger and W.O.Thomas, Jr, December 1985. Low-flow Frequency Estimation Using Base-Flow Measurements. Summary of USGS Open-File Report 85-95.

The Applicant fails to adequately assess the downstream users of the Oconee River in calculating the non-depletable flow. The non-depletable flow is the minimum daily flow that must pass Plant Washington's intake location to ensure availability of water to downstream users. WMP at 2-6. The permit must "ensure the availability of water to downstream users" and therefore the non-depletable flow is determined by "adding the 7Q10 flow to the pro rata share of downstream withdrawal, using the drainage area ratio method." Ga. Comp. R. & Regs. r. 391-3-6-.07(2)(k). The Applicant identified only three downstream users "all located in Dublin, Georgia." WMP at 2-4. Based on these permitted waters users, the Applicant determined the that "pro rata share of flow to be passed at the Avant Mine gage for protection of downstream water withdrawals is...22 MGD." WMP at 2-5.

In calculating the non-depletable flow the Applicant considered only three (3) users in determining withdrawals by downstream users. WMP at 2-4. The Applicant neglected to recognize that a significant quantity of downstream withdrawals for agricultural purposes have been permitted in neighboring counties. Our review of downstream withdrawals for agricultural uses indicates, at minimum, an additional five (5) million gallons per day.³ By excluding these other withdrawals, the Applicant underestimated the volume of water required for downstream users by at least thirteen percent (13%). Furthermore, if the Applicant performed a more comprehensive review of downstream users, this number would likely increase. The Applicant's failure to consider downstream withdrawals for agricultural uses fails to satisfy the regulatory requirement that the Applicant ensures the availability of water to downstream users, nor does it provide EPD with sufficient information to determine whether the Applicant's surface water withdrawals will not result in "unreasonably adverse effects" upon water users in the area. O.C.G.A. § 12-5-31(g).

3. Faulty Analysis of Oconee River Volumes

The Applicant asserts that the Oconee River will provide adequate operating flow for Plant Washington over the course of a year for every 3 out of 4 years. WMP at 2-6.

³ See Georgia EPD's "Watershed Protection Branch. Permitted Facilities" available at http://www.georgiaepd.com/Documents/index_water.html (last revised 1/30/09).

This analysis is based on “daily mean values.” Instream Flow Protection at 2-3. The daily mean values were obtained by averaging the flows over the year. *Id.* The Applicant’s analysis, however, has the effect of masking low-flow periods in the dataset. Plant Washington’s minimum operating flow requirements will be based on actual flow data, rather than the average flow data used in the historical analysis. An analysis of the actual stream flow data at the Avant Mine gauge for the period January 1993 to December 2008 demonstrates that daily flows in the Oconee River were below Plant Washington’s water use requirements for as many as 225 days per year. See Table 1.

Table 1. Days per year in which Oconee River flow is less than Plant Washington’s operational needs, i.e., below the non-depletable flow.

Year	Total Days Failure
1993	0
1994	8
1995	0
1996	0
1997	0
1998	1
1999	62
2000	95
2001	73
2002	107
2003	0
2004	4
2005	1
2006	13
2007	225
2008	194

Thus, contrary to the Applicant’s assertions that Plant Washington’s water demands will be fully met in 3 out of every 4 years, the existing flow data strongly suggests that the Oconee River will be sufficient to satisfy Plant Washington’s requirements for approximately 3 out of 10 years. See Table 1. Consequently, large amounts groundwater—far more frequently than the Applicant estimates—will have to be withdrawn to meet Plant Washington’s operational needs. The frequency of groundwater use will potentially increase when the errors in calculating the 7Q10 values and minimum operating flow discussed above are addressed by the Applicant.

b. Inadequate Drought Contingency Plan

Pursuant to the GWQCA, the Applicant must provide EPD with a Drought Contingency Plan that includes “alternative system and resource management strategies to be implemented under drought conditions that may severely reduce the availability of the resource.” Ga. Comp. R. & Regs. r. 391-3-6-.07(9). The Applicant’s Drought Contingency Plan envisions the use of onsite water storage basins and groundwater to meet the plants water requirements during a drought condition. See WMP at 2-6; see also Drought Contingency Plan at D-16. The onsite water storage is designed to meet Plant Washington’s water consumption for a 30-day period. WMP at D-16. This assertion is based on the Applicant’s assumption that the water storage basins are full at the start of the drought. The Applicant provides no information to support this assumption nor a discussion which contemplates less-than-full storage basins. In the instance that the tank is not full or the drought extends more than 30 days, as was experienced during the drought of 2007, groundwater—not the Oconee River—will provide one-hundred percent (100%) of Plant Washington’s requirements for an indefinite period of time.

The Oconee River is a gaining stream—during low flow conditions the river’s main source of water is from groundwater discharging into the stream channel. The Applicant’s submitted materials lack any analysis that assesses the effect of long-term groundwater withdrawals from the Cretaceous aquifer on discharge to the Oconee River and other waterbodies. It is likely that groundwater withdrawals over extended periods of time would limit the quantity of water available for discharge to the stream channel and, thus, decreased discharges to the Oconee River will exacerbate drought conditions for down stream users. While the Water Management Plan proposes returning non-contact cooling water used by Plant Washington back to the stream (WMP 2-8), the Applicant provides no analysis showing that this return water will be sufficient to offset any loss in direct discharge from groundwater to the stream caused by continuous long-term groundwater withdrawals.

Finally, the Applicant envisions no expansion of Plant Washington’s generating capacity and, thus, no additional water demand is expected or analyzed. See Water

Conservation Plan at D-19 (stating “no additional capacity is presently anticipated”). The Applicant, however, proceeds to discuss potential increases in generating capacity and states, “[p]eriodic assessments will be made on the demand for power and the ability of this plant to meet those demands including availability of resources and efforts to conserve water.” *Id.* While future increases in water demand are briefly discussed in the Water Conservation Plan under the heading “50-year Demand Forecast,” this does not foreclose Plant Washington’s expansion within the next 20 years. Therefore, in order to comply with the regulations requirement that “[p]ermittees must develop water demand projections covering a 20 year time period,” the Applicant must perform a sufficient 20-year water demand forecast analysis as part of the Water Conservation Plan. Ga. Comp. R. & Regs. r. 391-3-6-.07(8)(ix). The Applicant has failed to provide this 20-year water demand analysis.

III. CONCLUSION

For the reasons set forth above, we urge EPD to require the Applicant to resubmit an accurate and sufficiently-detailed Water Management Plan and Drought Contingency Plan, or withdraw the Draft Permit. Thank you for your consideration of these comments. We would be more than willing to discuss this matter in greater detail or answer any questions that you may have. Please do not hesitate to contact Brian Gist at (404) 521-9900 or by email at bgist@selcga.org.

Sincerely,


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