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**Via Email to:**

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Ms. Audra Dickson  
Wastewater Regulatory Program  
Environmental Protection Division  
2 MLK Jr. Drive  
Suite 1152E  
Atlanta, GA 30334

February 2, 2018

Re: **NPDES Permit Issuance – Georgia Power Company – Plant McIntosh**

Dear Ms. Dickson:

Please accept the following comments on the Permit No. GA0003883, the draft National Pollutant Discharge Elimination System permit (Draft Permit) for Georgia Power Company's Plant McIntosh facility located on the Savannah River at 981 Augusta Road Central, Rincon, Georgia 31326. These comments are submitted to the Georgia Environmental Protection Division (EPD) on behalf of Savannah Riverkeeper®, whose members rely on the quality of the Savannah River for their livelihoods and who regularly fish, swim, boat and recreate in the river. We appreciate the opportunity to provide these comments.

Savannah Riverkeeper® is a 501c(3) non-profit organization funded by individuals and foundations that share a commitment to create a clean and healthy river that sustains life and is cherished by its people. The Riverkeeper serves as the primary guardian of the Savannah River striving to respect, protect, and improve the entire river basin through education, advocacy, and action. The Riverkeeper strives to be an effective and sustainable organization solely focused on making the Savannah River a healthy and productive watershed ensuring the natural, economic, and recreational viability of the basin as a whole, now and for generations to come. It accomplishes these goals by working under the pillars of restoration, protection, education, and where necessary, legal action.

The Draft Permit would replace Plant McIntosh's current wastewater discharge (NPDES) permit, which expired on May 31, 2004, almost fourteen years ago. While we therefore welcome the Draft Permit's issuance, we have identified several deficiencies that should be corrected before issuance of the final permit. Specifically:

- **The Draft Permit fails to protect water quality from harmful thermal loading.** EPD has relied on a flawed mixing zone study to almost double the length of the mixing zone authorized under the prior permit. In addition, EPD has relied upon provisional and

incomplete data to change the permit's delta temperature limitation from 1.5 °F to 5 °F. Both proposed changes would, if finalized, violate the federal anti-backsliding rule.

- **The Draft Permit fails to protect aquatic life from impingement mortality and entrainment and otherwise to comply with requirements of the U.S. Environmental Protection Agency's cooling water intake structures rule.** The Draft Permit impermissibly defers compliance with the Clean Water Act Section 316(b) until the next permitting cycle, at least five years from now. This fails to assure compliance with the rule "as soon as practicable." EPD must establish a compliance schedule and an interim Best Technology Available to mitigate impingement and entrainment impacts.
- **The Draft Permit fails to require Plant McIntosh to meet effluent limitations for bottom ash transport wastewater as soon as possible.** Instead, EPD unjustifiably provides Georgia Power with the maximum time allowable (six years) to comply with federal regulations requiring conversion to dry bottom ash handling, even though Georgia Power has provided no substantive justification for such an extension. To remedy this, EPD should require Georgia Power to comply with federal technology based effluent limits for bottom ash wastewater no later than February 2020.
- **The Draft Permit fails to protect the Savannah River from the dewatering of Plant McIntosh's coal ash pond.** The Draft Permit purports to allow Georgia Power to drain toxins from the facility's ash pond into the river without any further modification of the permit, and the opportunities for public notice, comment, and permit strengthening that such modification would entail. To address this deficiency, Part III.C.7 must be revised to require permit modification subject to public notice and comment prior to authorizing the drawdown and draining of Plant McIntosh's coal ash ponds.

As a result of these and other deficiencies discussed at greater length herein, the Draft Permit must be withdrawn, substantially revised, and reissued for public comment.

## **I. GENERAL COMMENTS**

### **A. Facility Description**

Plant McIntosh is located at River Mile 43 on the west bank of the Savannah River, approximately six miles northeast of Rincon, Georgia. The facility has a single coal-burning unit, Unit 01, with a net summer generating capacity of around 156 megawatts (MWs). The coal unit commenced operation nearly 40 years ago and in recent years has been used only rarely, in a peaking capacity. According to the permit application, the coal unit's average capacity utilization over the last two years has been less than eight percent. *See* Permit Application, 316(b) Cooling Water Intake Structure Information, at 2. The facility also features two natural gas combined-cycle units, Units 10 and 11, with a cumulative generating capacity of 1260 MWs.

Georgia Power claims that no major upgrades have been made to the generating units over the last 15 years, but this is not the case. In fact, over the past few years Georgia Power has added activated carbon injection and dry sorbent injection to Unit 01 in order to comply with the federal Mercury and Air Toxics (MATS) Rule. In addition, in 2014 Georgia Power has converted Unit 01 to run on Powder River Basin (PRB) coal.

Plant McIntosh both withdraws from and discharges to the Savannah River. The volume of water withdrawn exceeds 65 million gallons per day, approximately 90 percent of which is used for cooling purposes. These massive intakes impinge and entrain large numbers of fish, fish larvae, and other aquatic species. Impingement occurs when an organism larger than the openings of the intake structure screen becomes impacted, or impinged, on the screen. Entrainment occurs when organisms that are smaller than the screen, especially eggs and larvae, are sucked into the plant along with the cooling water at the intake. Both result in injury or mortality to aquatic life.

In addition, Unit 01 lacks a cooling tower, meaning that significant volumes of heated wastewater are discharged into the river during Unit 01's operation. The facility's final discharge can reach flow volumes of 105 million gallons per day and temperatures exceeding 102 °F. Permit Narrative at 4.

Plant McIntosh has a single coal ash pond, AP-1. Coal ash refers generally to the waste byproduct left behind by the combustion of coal for the generation of electricity, including fly ash, bottom ash, and other coal combustion residual (CCR) wastes. Pond AP-1 contains approximately 51,650 cubic yards of CCR wastes. The pond is unlined, such that there is no physical barrier between the saturated coal ash and the underlying soil. Groundwater monitoring conducted by Georgia Power over the past two years under the federal CCR rule has detected multiple contaminants associated with coal ash waste, including arsenic in concentrations above the Maximum Contaminant Level (MCL).<sup>1</sup> Georgia Power has announced its intention to close the pond by excavating and disposing of its contents in a private industrial solid waste landfill located on site.<sup>2</sup> Closure will require dewatering the pond over a six-month period.<sup>3</sup> Georgia Power estimates that closure will be completed by 2022, making it likely that the pond dewatering will occur during the term of the Draft Permit.

## **B. The Savannah River and the Area Around Plant McIntosh.**

From its headwaters in the Blue Ridge Mountains, the Savannah River flows along the Georgia-South Carolina border for more than 300 miles before reaching the Atlantic Ocean. Its drainage basin covers some 10,577 square miles and hosts a number of diverse ecological systems, including agricultural and forest systems, as well as a network of free-flowing streams, swamps, and tidal marshes. The lower part of the basin is characterized by a meandering course with few tributaries and slow currents. Tidal action influences water levels and flows about 45 miles upriver from the river's mouth.<sup>4</sup> With its location at River Mile 43, Plant McIntosh is within this area of tidal influence. Downstream of the facility, the Savannah broadens into a marine estuary before flowing into the Atlantic Ocean near Tybee Island.

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<sup>1</sup> Plant McIntosh Ash Pond Analytical Data Summary, Ga. Power Co. (2017), <http://www.georgiapower.com/content/dam/georgia-power/pdfs/company-pdfs/plant-mcintosh/plant-mcintosh-ap-analytical-data-summary.pdf>.

<sup>2</sup> Initial Written Closure Plan, 40 C.F.R. Part 257.102, Plant McIntosh Ash Pond 1 (AP-1), Ga. Power Co., (Oct. 17, 2016), <https://www.georgiapower.com/content/dam/georgia-power/pdfs/company-pdfs/plant-mcintosh/20161017-clospln-mci-ap-final.pdf>.

<sup>3</sup> *Id.*

<sup>4</sup> U.S. FISH AND WILDLIFE SERV., SAVANNAH NATIONAL WILDLIFE REFUGE: TIDAL FRESHWATER MARSH (June 20, 2014), [https://www.fws.gov/refuge/Savannah/wildlife\\_and\\_habitat/tidal\\_freshwater\\_marsh.html](https://www.fws.gov/refuge/Savannah/wildlife_and_habitat/tidal_freshwater_marsh.html).

The Savannah River provides water to more than 1.4 million people, including the residents of Savannah and Augusta, two of Georgia's largest cities, which also depend upon the Savannah to assimilate their treated wastewater. The river offers recreation to millions who visit the river and its reservoirs each year; and it provides shipping routes to and from the Savannah Harbor, the country's fourth largest port.

Plant McIntosh is one of two power generation facilities located on the Georgia side of the river; the other is Plant Vogtle. Together, these two plants are permitted to use up to 257 million gallons per day (mgd) of the Savannah River's surface water.<sup>5</sup> In total, some 20 percent of the water withdrawn from the river is used for industrial purposes, such as cooling and in-plant use at Plant McIntosh and Plant Vogtle. Those same industrial facilities collectively impose a heavy discharge burden on the river. In 2010, industrial facilities released more than 5 million pounds of toxic chemicals into the river, earning the Middle Savannah River the unwelcome ranking as the third most polluted local watershed in the country.<sup>6</sup>

On the coast, the Savannah River is a shipping channel and home to Savannah Harbor, the nation's fourth-largest seaport for oceangoing container ships, which is currently being dredged from 43 to 47 feet. The Savannah Harbor Expansion Project has added to the already considerable concern over dissolved oxygen (DO) and salinity levels—and their impacts on marshland and wildlife—in the lower portions of the river.

More than a decade ago, the Savannah River Basin was listed on Georgia's Clean Water Act 303(d) list as impaired for dissolved oxygen, indicating that a Total Maximum Daily Load for DO was necessary to limit the damage. More recently the DO TMDL has been superseded by the so-called "5R Plan," which was developed by EPD in cooperation with the South Carolina Department of Health and Environmental Control. Permit Narrative at 9. The 5R Plan covers the middle and lower portions of the Savannah River basin, encompassing the area from Thurmond Dam to the Atlantic Ocean. *Id.* Although Plant McIntosh lies within this region, EPD has determined that it is not a significant contributor of oxygen-demanding substances. *Id.* at 10. However, this determination is based in part on EPD's review of the permit application, which includes flawed analyses regarding, among other things, the water quality impacts of Plant McIntosh's thermal plume. *See* Part II.A of these comments. Given the well documented relationship between temperature and dissolved oxygen, and the thin margin for error for resolving the river's longstanding DO impairment, EPD should revisit its determination after requiring Georgia Power to correct the errors identified in these comments.

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<sup>5</sup> Plant Vogtle Units 1 and 2 are permitted to withdraw a daily maximum of 127 mgd, and Plant McIntosh is permitted to withdraw a daily maximum of 130 mgd. EPD has now also permitted withdrawals of 74 mgd for Plant Vogtle Units 3 and 4, which are expected to come online in 2021 and 2022, respectively. Georgia Power is by far Georgia's largest water user on the Savannah River. *See* GA. ENVTL. PROT. DIV., LIST OF GEORGIA NON-FARM SURFACE WATER WITHDRAWAL PERMITS (Revised Jan. 2017), <https://epd.georgia.gov/watershed-protection-branch-lists>.

<sup>6</sup> JEFF INGLIS, TONY DUTZIK & JOHN RUMPLER, WASTING OUR WATERWAYS: TOXIC INDUSTRIAL POLLUTION AND RESTORING THE PROMISE OF THE CLEAN WATER ACT 14 (Env't Ga. Research & Policy Ctr. 2014), <https://environmentgeorgia.org/reports/gae/wasting-our-waterways>.

## II. SPECIFIC COMMENTS

### A. The Draft Permit fails to protect water quality from harmful thermal loading.

The Draft Permit impermissibly proposes to weaken two of the existing permit's limitations on thermal pollution. First, it would nearly double the length of the approved mixing zone, from 700 feet to 1,348 feet. Draft Permit at Part III.C.9. Second, it would relax the current delta temperature limit of 1.5 °F, which applies to estuarine waters, and replace it with a limit of 5°F, the standard for fresh waters. *Id.* at Part I.A.1. The proposed changes are based on flawed or incomplete analyses, and if finalized, would constitute impermissible backsliding.

Georgia water quality standards for temperature have a firm basis in science. They reflect a determination that 90 °F is “the upper tolerance limit for a balanced benthic population structure,” as well as that sudden temperature spikes can be lethal.<sup>7</sup> Temperatures above the 90 °F threshold have been documented to result in “an extensive loss in macroinvertebrate numbers, diversity and biomass.”<sup>8</sup> Temperatures above 95 °F can cause “almost complete elimination of vertebrate and invertebrate species.”<sup>9</sup> Indeed, temperature is properly considered “one of the most important and most influential water quality characteristics to life in water.”<sup>10</sup> Temperature is “a catalyst, a depressant, an activator, a restrictor, a simulator, a controller, [and] a killer.”<sup>11</sup>

Aquatic organisms have upper and lower thermal tolerance limits, which vary by species.<sup>12</sup> The upper (lethal) threshold for a given species may likewise vary due to acclimation temperature or other factors, with sudden temperature increases generally lowering the lethal threshold.<sup>13</sup> Aquatic species have optimum temperatures for growth, migration, spawning, and egg incubation.<sup>14</sup> The more stringent delta temperature limit applicable to estuarine waters is designed to protect aquatic species known to inhabit those waters. Those species include the federally endangered shortnose sturgeon, an enormous prehistoric fish that is extremely sensitive to fluctuations in temperature.

Accordingly, it is incredibly important that any mixing zone granted for Plant McIntosh's thermal pollution be reasonable and limited, reflect sound science, and most importantly, that it protect temperature sensitive species known to frequent the waters around and downstream of the facility.<sup>15</sup> Because the proposed mixing zone does not meet these criteria, it must be stricken from the Draft Permit.

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<sup>7</sup> Memorandum from Mike Gennings, Chief of Fisheries, Ga. Wildlife Res. Div., to David Word, Chief of Water Prot. Branch, Ga. Env'tl. Prot. Div. (July 27, 1990) (Attachment 1).

<sup>8</sup> *Id.*

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

<sup>15</sup> In addition, as discussed in Section I.B. *supra*, temperature impacts from Plant McIntosh and other facilities on the Savannah River can impact dissolved oxygen levels downstream in the Savannah Harbor.

1. *The proposed mixing zone is based on flawed modeling and is not reasonable and limited.*

Every NPDES permit and permit renewal must impose “any more stringent limitation” necessary to meet water quality standards, including state standards for temperature. 33 USC § 1311(b)(1)(C). While Georgia’s water quality regulations do permit the use of mixing zones, the mixing zone must be *reasonable* and *limited*. Ga. Comp. R. & Regs. 391-3-6-.03(10). It must be both substantiated and suitably protective: there must be “satisfactory evidence that such a zone is necessary and that it will not create an objectionable or damaging pollution condition.” *Id.* The permittee must, among other things, ensure a “zone of passage” for aquatic organisms. *Id.*

A proposed mixing zone is not reasonable and limited when it is designed to be as large as the discharger needs without regard for resulting ecological impacts. Yet that is precisely what EPD proposes to allow. The new mixing zone is based on CORMIX modeling performed by the consulting firm Environmental Resources Management (ERM) as set forth in its report dated November 12, 2017.<sup>16</sup> The report’s limitations for use in defining a mixing zone are evident from the outset: “The primary purpose of this study is to determine the size and configuration” of Plant McIntosh’s thermal plume.<sup>17</sup> Yet, as the report proceeds to make clear, the thermal plume’s dimensions *are* the mixing zone that is now proposed for adoption in the reissued permit.<sup>18</sup> In other words, the proposed mixing zone is defined as the area needed to assimilate the discharger’s thermal pollution without any change to the facility or its operations—the mixing zone is as large as the polluter needs for it to be. Under such circumstances, the proposed mixing zone is not reasonable and limited as Georgia law requires.

Georgia’s mixing zone regulation does not define the terms “reasonable and limited,” nor provide any spatial dimensions to limit the areal extent of mixing zones. Nevertheless, we can look to the overall regulatory scheme as well as relevant federal guidance to supply necessary meaning. For instance, the overriding purpose of Georgia’s water quality control regulations is to provide for the “enhancement of water quality and prevention of pollution.” Ga. Comp. R. & Regs. 391-3-6-.03(2)(a). While the regulation goes on to cite the public interest in “industrial uses,” those uses are balanced against multiple other interests, including the “conservation of fish, wildlife and other beneficial aquatic life.” *Id.* To promote industrial uses at the expense of the river and its inhabitants, as the proposed mixing zone would do, is inconsistent with these regulatory imperatives.

Moreover, EPA technical guidance states that mixing zones should be “carefully evaluated and appropriately limited in size.”<sup>19</sup> This is because, “if disproportionately large, [a mixing zone] could potentially adversely impact the productivity of the waterbody, and have unanticipated ecological consequences.”<sup>20</sup> The EPA recommends that mixing zones have both an acute area sized to prevent lethality to passing organisms and a chronic area sized to protect the

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<sup>16</sup> Env’tl. Resources Mgmt., CORMIX Modeling of Georgia Power Company’s Plant McIntosh’s Thermal Plume (Nov. 12, 2017) (hereinafter “CORMIX Study”).

<sup>17</sup> *Id.* at 1.

<sup>18</sup> *Id.* at 11, Table 2 (showing plume length and width for summer scenario of 1348 feet by 114.3 feet).

<sup>19</sup> U.S. ENVTL. PROT. AGENCY, TECHNICAL SUPPORT DOCUMENT FOR WATER QUALITY-BASED TOXICS CONTROL 33 (Mar. 1991) (hereinafter “Technical Support Document”).

<sup>20</sup> *Id.*

ecology of the water body as a whole.<sup>21</sup> “In all cases, the size of the mixing zone and the area within certain concentration isopleths should be evaluated for their effect on the overall biological integrity of the waterbody.”<sup>22</sup> Where state law allows for mixing zones to be set on a case-by-case basis, EPA recommends an assessment that takes into consideration “the physical, chemical, and biological characteristics of the discharge and the receiving system; the life history and behavior of organisms in the receiving system; and the desired uses of the waters.”<sup>23</sup> The EPA goes on to describe several analytical methods for minimizing the size of mixing zones, such as setting the acute boundary at a distance of 50 times the discharge length scale<sup>24</sup> in any spatial direction.<sup>25</sup> That standard, if applied here, would result in a mixing zone of just 109.5 feet, approximately one-twelfth of the proposed mixing zone.<sup>26</sup> Finally, the EPA notes that special considerations govern estuaries, which the agency defines as having a main channel reversing flow: “Determining the nature and extent of the discharge plume is complicated in marine systems by such conditions as differences in tide, riverine input, wind intensity and direction, and thermal and saline stratification.”<sup>27</sup> In such cases, dilution of discharge cannot be determined simply by calculating the discharge rate and the rate of the receiving water flow.<sup>28</sup>

Under the above considerations, CORMIX modeling is not the end of the analysis, but only the beginning. As the CORMIX User’s Manual states, where the governing regulations provide no numerical definition for a mixing zone, “the applicant generally uses actual concentration measurements for existing discharges, dye dispersion tests or model predictions to show at what plume distance, width or region, the applicable standard will be met.”<sup>29</sup> But that is not the end of the analysis, particularly when the governing regulation requires that the mixing zone be reasonable and limited: “The applicant may then use further ecological or water use-oriented arguments to demonstrate that the size of that predicted region provides reasonable protection.”<sup>30</sup> The permitting authority then evaluates the proposal and may pursue its “own independent proposal for a mixing zone.”<sup>31</sup> The mixing zone ultimately authorized by the agency is an “administrative construct” that is “independent of hydrodynamic mixing processes.”<sup>32</sup> In other words, the permitting agency must make a judgment on what is reasonable based upon ecological considerations and not merely modeling results.

The CORMIX Study for Plant McIntosh merely predicts where the applicable standards will be met, given certain assumptions regarding the flow and temperature of the effluent; the

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<sup>21</sup> *Id.*

<sup>22</sup> *Id.* at 34.

<sup>23</sup> *Id.* at 70.

<sup>24</sup> *Id.* at xx (defining “discharge length scale” as “the square root of the cross-sectional area of any discharge outlet.”).

<sup>25</sup> *Id.* at 72.

<sup>26</sup> The calculation, per Section 4.3.3 of the Technical Support Document, “Prevention of Lethality to Passing Organisms,” is as follows: 0.6675 meters (the discharge length scale) x 50 = 33.4 meters, or 109.5 feet for the acute condition boundary.

<sup>27</sup> *Id.* at 74.

<sup>28</sup> *Id.*

<sup>29</sup> GERJARD H. JIRKA, ET AL., USER’S MANUAL FOR CORMIX: A HYDRODYNAMIC MIXING ZONE MODEL AND DECISION SUPPORT SYSTEM FOR POLLUTANT DISCHARGES INTO SURFACE WATERS 12 (Sept. 1996) (hereinafter “1996 CORMIX User’s Manual”).

<sup>30</sup> *Id.* at 15.

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

dimensions, location, and configuration of the discharge structure; and the physical characteristics of the receiving waterbody.<sup>33</sup> The study contains no analysis regarding the ecological impacts of the thermal plume. The record is devoid of any analyses by Georgia Power or EPD showing that the proposed mixing zone is “reasonable and limited” in the sense of its ecological impacts on the river and its aquatic biota. In fact, there appears to be no biological analysis of the discharge’s impact on the receiving water; there is no information regarding the aquatic species present in the vicinity and their temperature tolerances; and there is absolutely no demonstration that the mixing zone will not produce acutely toxic conditions within its reach. Instead, the study appears to demonstrate the opposite: Figure 8, which depicts the mixing zone dimensions for the 90 °F temperature standard, appears to show the mixing zone occupying the entire width of the river in multiple places. A mixing zone so defined is not reasonable and limited, and it does not ensure a zone of safe passage for aquatic organisms. This is no small matter, as the very definition of “mixing zone” in the 1996 CORMIX User’s Manual requires it to be an area where “*acutely toxic conditions are prevented.*”<sup>34</sup> This imperative cannot be met where aquatic organisms have no zone of safe passage.

In addition to its general limitations that render it unsuitable for defining a “reasonable and limited” mixing zone, the CORMIX Study suffers from the following methodological errors:

- ***It uses the wrong CORMIX model.*** The 2007 CORMIX User’s Manual identifies the type of model that should be used for the river and discharge conditions that exist at Plant McIntosh.<sup>35</sup> The facility’s effluent release is a shoreline discharge, which must be evaluated using the CORMIX3 hydrodynamic model. This model is for buoyant (thermal) surface discharges as depicted in Figure 3.2a of the 2007 CORMIX User’s Manual.<sup>36</sup> ERM erroneously used CORMIX1, choosing to model a condition where a discharge pipe is suspended 8 feet above the Savannah River<sup>37</sup> rather than the shoreline discharge that actually exists at the site. The result of using the wrong CORMIX model is that river dilutions are exaggerated compared to actual outfall conditions.
- ***It uses different outfall values for the modeling than what is stated in the report.*** The outfall values reported by ERM in its report are inaccurate compared the actual values inputted to the CORMIX model. *See* Table 1 CORMIX input data for the summer and winter cases of the report for a comparison.<sup>38</sup> For example, a discharge port area of 65 ft<sup>2</sup> is listed in Table 1 as inputted to the CORMIX model, but the actual value used in ERM’s CORMIX modeling is a full order of magnitude less at 4.8 ft<sup>2</sup>. This is a problem because the smaller the discharge port area, the greater the apparent dilution. Thus, an actual outfall physical condition, i.e., discharge port area,

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<sup>33</sup> CORMIX Study at 3.

<sup>34</sup> 1996 CORMIX User’s Manual at 13.

<sup>35</sup> ROBERT L. DONEKER & GERHARD H. JIRKA, U.S. ENVTL. PROT. AGENCY, CORMIX USER MANUAL: A HYDRODYNAMIC MIXING ZONE MODEL AND DECISION SUPPORT SYSTEM FOR POLLUTANT DISCHARGES INTO SURFACE WATERS 23 (2007). (hereinafter “2007 CORMIX User’s Manual”). Note: the ERM report references this CORMIX User’s Manual.

<sup>36</sup> *Id.*

<sup>37</sup> *See* Plant McIntosh CORMIX1 results in “plant mcintosh summer.prd” and “plant mcintosh winter.prd” files for single port discharges.

<sup>38</sup> *See* CORMIX Study at 10, Table 1.



is neglected to arrive at an artificially increased dilution. This results in a deleteriously higher thermal discharge.

- ***The thermal discharge temperature of 110.7 °F, reported in the CORMIX Study and CORMIX analysis, is considerably higher than the actual discharge temperature of 102.0 °F allowed in the Draft Permit narrative.*** Permit Narrative at 4, Table 1.10. As can be seen for summer conditions, ERM inputted to CORMIX a temperature increase (delta T) of 22.3 °F, which is based on an effluent temperature of 110.7 °F. The effect of this error is to yield a thermal plume prediction that is larger than Plant McIntosh’s actual thermal plume, assuming the permit narrative is correct in stating that the actual discharge temperature is 102 °F.

For all the above reasons, the proposed mixing zone is not reasonable and limited as required by Ga. Comp. R. & Regs. 391-3-6-.03(10), and the analysis underlying it is flawed. EPD should require Georgia Power to re-perform the CORMIX modeling after correcting for the errors identified above. EPD should then require Georgia Power to propose a reasonable and limited mixing zone that is not merely the areal extent of its thermal plume. Georgia Power must demonstrate that its proposed mixing zone is reasonable and limited in terms of its impacts on the receiving waters and aquatic biota that inhabit those waters, and it should include both acute and chronic zones. If the mixing zone cannot be reasonably limited, EPD should instruct Georgia Power to apply for a variance, as described further below.

2. *The mixing zone is a de facto variance, which EPD proposes to grant without complying with the Clean Water Act’s requirements for variances.*

The Draft Permit’s unreasonably large mixing zone amounts to an illegal de facto variance. It would permit Georgia Power to violate state water quality standards for temperature for more than a quarter mile from the discharge point. If the reality is that Georgia Power cannot continue operating Unit 01, a small and little-used coal unit, without such an unreasonably large and ecologically damaging mixing zone, then what the Company really requires is a variance.

Georgia’s water quality regulations provide that “[i]n those cases where potential water quality impairment associated with a thermal discharge is involved, the division’s actions shall be consistent with Section 316 of the Federal Clean Water Act.” Ga. Comp. R. & Regs. 391-3-6-.03(1)(2)(d). Section 316(a) of the CWA provides that a state may allow a variance from water quality standards for temperature, but only if those standards are “*more stringent than necessary* to assure the protection and propagation of a balanced, indigenous population [BIP] of shellfish, fish and wildlife.” 33 U.S.C. § 1326(a) (emphasis added). The burden of proof is on the polluter to demonstrate that the variance will still ensure protection of the BIP, considering the “cumulative impact of its thermal discharge together with all other significant impacts on the species affected.” 40 C.F.R. § 125.73(a). The BIP is the population that existed prior to the impacts of the applicant’s thermal discharge. *In re Dominion Energy Brayton Point*, 12 E.A.D. 490, 557-58 (2006). Here that would mean the BIP that existed prior to 1979.

For the initial variance, the permit applicant must submit all information required under 40 C.F.R. §§ 125.72 and .73, which includes the requested alternative effluent limitation; the methodology used to support that limitation; the organisms comprising the BIP along with supporting data and information; the types of data, studies, experiments and other information

the applicant intends to use to demonstrate that the alternative thermal limit assures the protection and propagation of the BIP; and “any additional information or studies which the Director subsequently determines necessary to support the demonstration.” 40 C.F.R. § 125.72(b). For a renewal variance, “it is essential that permitting authorities require applicants to provide as much of the information described in 40 C.F.R. § 125.72(a) and (b) as necessary to demonstrate that the alternative effluent limit assures the protection and propagation of the BIP.”<sup>39</sup>

Rather than grant Georgia Power an unreasonably large mixing zone, EPD should instruct Georgia Power to seek a variance. If Georgia Power cannot make the showings required for a variance, EPD should require immediate compliance with Georgia’s temperature standards at the point of discharge.

3. *The Draft Permit should be revised to retain the delta temperature standard for estuarine waters.*

Georgia water quality regulations impose a greater restriction on the amount by which a discharger may raise the ambient temperature of receiving waters when the discharge occurs in estuarine waters. While the standard for fresh waters is no more than 5 °F change, the standard for estuarine waters is no more than 1.5 °F change. The reason for the difference is rooted in ecological considerations that apply to such waters, including the area around Plant McIntosh. A 2013 Biological Opinion by the National Marine Fisheries Service (now called “NOAA Fisheries”) indicates that the endangered species Atlantic and Shortnose Sturgeon are present in the lower Savannah River including Savannah Harbor,<sup>40</sup> the Savannah National Wildlife Refuge and upstream areas into which the GPC-McIntosh outfall discharges. The opinion emphasizes that sturgeon are very sensitive to temperature, with an increase of 1 °C (1.8 °F) producing declines in sturgeon habitat by 65 percent.<sup>41</sup> The 1986 EPA Quality Criteria for Water also identifies acute (i.e. lethality) and chronic (i.e. growth) conditions for saltwater marine and estuarine fish for temperature.<sup>42</sup> Estuarine fish, such as flounder, when exposed to temperature increases of 1 °C (1.8 °F) suffer adverse effects with a reduction of production (recruitment) of 68 percent.<sup>43</sup> The Georgia standard for temperature in estuarine waters avoids these effects with a 0.3 °F margin of safety.

EPD’s proposed adoption of the less stringent standard for fresh waters is based on a review of the past three years of salinity data from USGS Station #02198840, which is 15 miles

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<sup>39</sup> Memorandum from EPA’s Office of Wastewater Mgmt. Dir. James Hanlon to Reg’l Water Div. Dirs. 3 (Oct. 28, 2008) ([Attachment 2](#)).

<sup>40</sup> NAT’L MARINE FISHERIES SERV., U.S. DEP’T OF COMMERCE, FINAL BIOLOGICAL OPINION ON IMPACTS ASSOCIATED WITH THE SAVANNAH HARBOR EXPANSION PROJECT 6 (First Amendment 2013), <http://www.sas.usace.army.mil/Portals/61/siteimages/SavannahHarbor/SHEPprevamp/NMFS%20Bi%20op%201st%20amendment%202013.pdf>; *see also* Second Amendment (2017), <http://www.sas.usace.army.mil/Portals/61/siteimages/SavannahHarbor/SHEPprevamp/2nd%20amendment%20to%20NMFS%20Biological%20Opinion%20SHEP%2010-13-17.pdf> (hereinafter “BiOP Second Amendment”), and Original (2011), <http://www.sas.usace.army.mil/Portals/61/docs/SHEP/NOAA%20BA%20Opinion%20and%20Amendment.pdf>.

<sup>41</sup> BiOP Second Amendment at 33.

<sup>42</sup> U.S. ENVTL. PROT. AGENCY, QUALITY CRITERIA FOR WATER (1986), <https://www.orau.org/ptp/PTP%20Library/library/EPA/miscellaneous/goldbook.pdf>.

<sup>43</sup> *Id.*

downstream of Plant McIntosh. EPD states that the data “showed an average salinity of 0.01 parts per thousand which is well below the 0.5 parts per thousand threshold.” Permit Narrative at 39. The referenced “threshold” is contained within the Georgia regulatory definition of “areas where salt, fresh and brackish waters mix,” which are “those areas on the coast of Georgia having a salinity of 0.5 parts per thousand and greater.” Ga. Comp. R. & Regs. 391-3-6-.03(3)(o). Because the average value of three years’ worth of salinity data fell below this threshold, EPD proposes to change the permit to apply the default standard of delta 5 °F.

The problem with EPD’s reasoning is that it adds language absent from the regulatory definition. The regulation does not say “having a three-year average salinity value of 0.5 parts per thousand and greater.” It says “having a salinity of 0.5 parts per thousand or greater,” and even a cursory review of data from U.S. Geological Survey (USGS) Station #02198840 reveals readings that routinely exceed that standard, with some values as high as 4.9 parts per thousand, which is nearly 10 times the estuarine threshold. EPD provides no justification for its disregard of those values in favor of a three-year average (especially when ten years of data, going back to 2007, are available). Furthermore, the USGS data at Station #02198840 for the past three years is provisional and incomplete. The data have not been certified and there are significant gaps, making reliance on it for a valid three-year average an unreasonable exercise of agency discretion.

Finally, the USGS website is unclear regarding how the data are collected. In particular, it is unclear whether USGS collects its samples only from the surface or rather, throughout the water column. Similarly, EPD’s permit analysis does not explain how the salinity data it is relying on was collected in the vertical water column. This is a critical consideration identified by the EPA.<sup>44</sup> Colder and more saline waters coming in from the ocean would be located at greater depths in the water column, making mere surface readings an unreliable indicator of overall salinity levels. If the salinity in the water column is being averaged away, estuarine fish habitat will not be identified. Notably, the regulation defining brackish waters requires that “[m]easurements at each sampling location must be made in a distribution in the water column according to the [*National Coastal Assessment Quality Assurance Project Plan 2001-2004* (EPA/620/R-01/002)], with the minimum observations at each station including surface, mid-depth and near-bottom readings.” Ga. Comp. R. & Regs. 391-3-6-.03(3)(o). It is unclear whether the USGS Station #02198840 data comply with this and other measurement requirements of the rule. Thus, the permit record fails to provide information necessary for determining whether the data are sufficient for identifying the higher density saltwater intrusion along the bottom and middle water column of the Savannah River in the outfall vicinity. Without this critical information, EPD’s reliance on the data to make a significant change to the permit adverse to endangered species like the shortnose sturgeon is arbitrary. EPD cannot reasonably rely on one part of the regulatory definition (the salinity threshold) while ignoring another (how that salinity is threshold is determined).

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<sup>44</sup> U.S. ENVTL.PROT. AGENCY, NATIONAL COASTAL ASSESSMENT: QUALITY ASSURANCE PROJECT PLAN 2001-2004 (2001), [https://archive.epa.gov/emap/archive-emap/web/pdf/c2k\\_qapp.pdf](https://archive.epa.gov/emap/archive-emap/web/pdf/c2k_qapp.pdf).

The lower Savannah River, of which the GPC-McIntosh discharge is a part, is highly sensitive to salinity conditions.<sup>45</sup> Historical evidence indicates that saltwater (wedge) intrusion from the Atlantic Ocean may extend at least 45 miles upstream.<sup>46</sup> This distance is up to, and beyond, the Plant McIntosh outfall location at River Mile 43. As the data show, the receiving water at the Plant McIntosh discharge is periodically saltwater estuarine. Accordingly, EPD should retain the 1.5 °F standard, which is the more protective standard and the one that likely reflects conditions at and around the site.

4. *The Draft Permit's proposed doubling of the mixing zone's length and weakening of the delta temperature standard violate the CWA's Anti-Backsliding Regulatory Provisions.*

When reissuing a permit, EPD must assess whether any revised effluent limitations are consistent with the CWA requirements and NPDES regulations related to anti-backsliding.<sup>47</sup> “In general, the term anti-backsliding refers to statutory or regulatory provisions that prohibit the renewal, reissuance, or modification of an existing NPDES permit that contains effluent limitations, permit conditions, or standards less stringent than those established in the previous permit” unless an authorized exception is met.<sup>48</sup> There is no question that the proposed revisions to the authorized mixing zone and to the applicable delta temperature standard are less stringent than those established in the existing permit. Hence, they violate the anti-backsliding rule unless a valid exception applies.

EPD relies on the exception set forth at 40 C.F.R. § 122.44(l)(2)(B)(1), which allows for a less stringent effluent limitation in a reissued permit if “[i]nformation is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.” As the plain language of the exception shows, it requires two things: (1) information that was not available when the existing permit was issued; and (2) a determination that if the information had been available *at that time* it would have justified application of the less stringent effluent limitation.

The decision made by EPD in 2003, when the existing permit was issued, was to apply a mixing zone that was 700 feet long and 100 feet wide and a delta temperature standard for estuarine waters. The basis for those determinations is unclear. The current permitting record asks this very question: “The current permit has a max of 90 and delta of 1.5 with the edge of the mixing zone 700 feet downstream of the discharge. Is this the appropriate delta temperature target for the discharge location in the receiving stream? What methodology was used to determine the current target and mixing zone?”<sup>49</sup> The record does not supply an answer. Perhaps the original determinations were based on data that were more robust than those EPD purports to

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<sup>45</sup> GA. PORTS AUTH. & U.S. CORPS OF ENG'RS, SIMULATION OF WATER LEVELS AND SALINITY IN THE RIVERS AND TIDAL MARSHES IN THE VICINITY OF THE SAVANNAH NATIONAL WILDLIFE REFUGE (Oct. 17, 2006), <https://pubs.usgs.gov/sir/2006/5187/pdf/sir20065187.pdf>.

<sup>46</sup> See U.S. FISH AND WILDLIFE SERV., SAVANNAH NATIONAL WILDLIFE REFUGE: TIDAL FRESHWATER MARSH (June 20, 2014), [https://www.fws.gov/refuge/Savannah/wildlife\\_and\\_habitat/tidal\\_freshwater\\_marsh.html](https://www.fws.gov/refuge/Savannah/wildlife_and_habitat/tidal_freshwater_marsh.html).

<sup>47</sup> NPDES Permit Writers' Manual at 7-1.

<sup>48</sup> *Id.* at 7-2.

<sup>49</sup> E-mail from Audra Dickson, Industrial Permitting Manager, Ga. Emtl. Prot. Div., to Jeff Larson & James Capp, Ga. Emtl. Prot. Div. discussing the NPDES permits for Plants Hammond and McIntosh (Nov. 8, 2017, 08:43 AM).

rely on now. Perhaps the mixing zone determination was based on ecological considerations that are notably absent from the analysis underpinning the proposed change. Without a clear understanding of the circumstances supporting the existing permit limits, EPD cannot make the determination that the new information, if available *at that time*, would have justified the less stringent limits.

In any event, the new information is not a reliable basis for the proposed changes, for the reasons discussed previously. The new information supposedly justifying the near-doubling of the allowed mixing zone is, at most, a more accurate description of Plant McIntosh's thermal plume; it is not a determination of a reasonable and limited mixing zone. And the new information supposedly justifying the weakening of the delta temperature standard is provisional and incomplete; there has been no showing that it meets the methodological standards for determining salinity set forth in Georgia's water quality regulations. For these reasons too, the new information cannot be used to justify the proposed changes.

Finally, Clean Water Act Section 402(o)(3) – the “safety clause” provision – prohibits the relaxation of effluent limitations in all cases if the revised effluent limitation would result in violation of applicable water quality standards. EPD's anti-backsliding analysis fails to explain how and why this prohibition does not apply. The proposed changes will unquestionably result in the violation of applicable water quality standards above those authorized under the current permit. It will allow for the 90 °F temperature standard to be exceeded over a much larger area and will allow temperature increases over ambient conditions (delta temperature) more than three times greater than what is appropriate for estuarine waters.

For all these reasons, EPD must revise the Draft Permit to retain the current mixing zone and delta temperature standards, or to apply more stringent standards.

**B. The Draft Permit and supporting materials fail to comply with requirements set forth in EPA's cooling water intake structures rule and CWA Section 316(b).**

The Draft Permit fails to address federal requirements for protecting fish and aquatic life against impingement mortality and entrainment. It grants Georgia Power's request for an alternate schedule to comply with the applicable regulations, which the Company was entitled by law to seek (provided it could demonstrate its inability to prepare the information) because the permit expired before July 14, 2018. However, EPD's alternate schedule is no schedule at all; it simply defers Georgia Power's compliance obligations until the next permitting cycle, which is at least five years away. EPD does this even though a 316(b) schedule included in the permit application shows Georgia Power completing the required studies two years from now. In the meantime, EPD fails to set an interim best technology available (BTA) standard, even though this is required in connection with an agency decision to grant an alternate schedule.

For these and other reasons detailed below, the Draft Permit is deficient and must be revised to comply with federal law. To remedy these deficiencies, EPD must (1) establish an alternative compliance schedule to ensure that the best technology available to protect against impingement mortality and entrainment is implemented “as soon as practicable”; (2) prescribe interim best technology available for impingement mortality and entrainment; and (3) require Georgia Power to amend its application using complete and accurate information.

## 1. Legal Background

Section 316(b) of the Clean Water Act requires that standards established under Sections 301, addressing effluent limits, and 306, addressing national standards, “shall require that the location, design, construction, and capacity of cooling water intake structures reflect the *best technology available* for minimizing adverse environmental impact.” 33 U.S.C. §1326(b) (emphasis added). In 2014, EPA finalized its rule implementing Section 316(b), titled Final Regulations to Establish requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities (hereinafter “316(b) rule”). 79 Fed. Reg. 48,300, 48,424 (Aug. 15, 2014) (signed May 19, 2014).

The 316(b) rule requires facilities to implement BTA to reduce impingement mortality and entrainment. 79 Fed. Reg. 48,300. EPD must establish a site-specific BTA for entrainment, and Georgia Power must select the appropriate BTA for impingement mortality from options set out in the rule. *See* 40 C.F.R. § 125.94(c), (d); *Id.* § 125.98(d). The best option for BTA is installation of a closed cycle recirculating system. In the rule’s preamble, EPA explained: “Closed-cycle cooling is indisputably the most effective technology at reducing entrainment. Closed-cycle reduces flows by 95 percent and entrainment is similarly highly reduced.” 79 Fed. Reg. at 48,342. Yet, the Draft Permit contains no BTA for impingement mortality or entrainment.

The 316(b) rule requires that facilities submit a suite of information with their NPDES permit renewal applications. 40 C.F.R. § 122.21(r). But Georgia Power’s April 2017 permit renewal application—submitted, it should be noted, almost three years after the rule’s finalization—essentially punts this requirement. Georgia Power seeks to delay compliance with most of the 316(b) rule requirements, including BTA selection, for another five years. EPD proposes to allow this, and in the meantime, ignores its own obligation under the rule to set an interim BTA standard for the protection of aquatic life around Plant McIntosh.

## 2. EPD failed to determine an alternate compliance schedule.

In evaluating Georgia Power’s request for an alternate schedule, EPD was obligated to “determine the schedule for submission of any delayed requirements to be *as soon as practicable*.” 79 Fed. Reg. at 48,358 (emphasis added). The Draft Permit fails to include *any* schedule, much less an expedited one. The accompanying narrative simply states that “[t]he permittee requested an alternate schedule for the submittal of information required in 40 CFR 122.21(r) Subparts (4), (6-7), and (9-13) in accordance with the Rules and issuance of this permit constitutes EPD’s approval of this request.” Permit Narrative at 28. EPD provides no information detailing what alternate schedule will be imposed. EPD should set a schedule for Georgia Power to submit missing materials, and must require those submissions to occur “as soon as practicable.” Further, EPD may, and should, “include permit conditions to ensure that, for any subsequent permit, the Director will have all the information required . . . necessary to establish impingement mortality and entrainment BTA requirements . . . .” 40 C.F.R. § 125.98(b)(5).

Georgia Power’s permit application includes a document entitled “Plant McIntosh 316b Schedule.” If this document is intended to represent the alternate schedule, it should be incorporated into the permit. Importantly though, the schedule is incomplete. The alternate schedule proposal does not address all Section 122.21(r) requirements. Among other things, it

fails to address Georgia Power's chosen method of impingement mortality BTA (122.21(r)(6)); entrainment performance studies (122.21(r)(7)); comprehensive technical feasibility and cost evaluation study (122.21(r)(10)); benefits valuation study (122.21(r)(11)); study of non-water quality environmental impacts and other impacts attributable to technologies addressed in the feasibility study (122.21(r)(12)); and plans to submit feasibility, benefits valuation, and impacts studies for peer review (122.21(r)(13)). EPD should develop and incorporate into the permit a complete alternate schedule that requires compliance as soon as practicable.

3. *EPD must establish interim Best Technology Available requirements for impingement mortality and entrainment.*

Georgia Power's proposed delay in submitting the required studies does not mean it can do nothing in the interim to limit aquatic mortality at its intake structures. When granting a permittee's request for an alternate schedule, EPD "must establish interim BTA requirements in the permit based on the Director's best professional judgement on a site-specific basis . . ." 40 C.F.R. § 125.98(b)(5). Nothing in the Draft Permit or accompanying narrative indicates that EPD has used its best professional judgment in the required manner, and of course, the Draft Permit imposes no new requirements for limiting impingement and entrainment. The final permit must cure this deficiency by including interim BTA standards based on EPD's best professional judgment and consideration of factors and technologies listed at 40 C.F.R. 125.94 and 125.98.

Plant McIntosh already includes some technology for minimizing impingement. Specifically, information included with the permit application states that the intake structure includes two vertical traveling screens with 3/8-inch openings "designed to remove smaller debris and impinged organisms."<sup>50</sup> The screens "are rotated intermittently based on debris loading," and "organisms are removed from the screens with a high-pressure screen wash system."<sup>51</sup> However, the Draft Permit contains no reference to this existing technology, nor does it impose any conditions or limitations requiring its operation and maintenance, or any monitoring to ensure its effectiveness. In the 316(b) rule, EPA determined that modified traveling screens with fish returns and an accompanying performance standard was BTA for the impingement mortality standard. Georgia Power could feasibly and cost-effectively modify its existing traveling screens, to the extent they are nominally functional, as an interim measure while it continues to study more effective options like a cooling tower for minimizing impingement and entrainment, and for resolving the facility's thermal burden on the river.

Alternatively, EPD could mandate the installation and use of modified Ristroph screens with a fish handling and return system, along with verifiable and enforceable conditions that ensure the technology will perform as demonstrated. If selected, the modified screens should have the following features: non-metallic baskets, which are lighter, corrosion resistant and easier to maintain; a basket design that reduces turbulence; flat wire mesh screens to prevent descaling; and automated low and high pressure wash features that allow for gentle removal of fish species and more forceful debris removal. These measures could qualify as interim BTA, which EPD is obligated by law to set for Plant McIntosh.

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<sup>50</sup> Permit Application, "316(b) Cooling Water Intake Structure Information" at 2 (July 2017).

<sup>51</sup> *Id.*

4. *EPD should seek supplementation of information provided by Georgia Power regarding Plant McIntosh's cooling water intake structure.*

EPD has the authority to request additional information from Georgia Power to minimize adverse environmental impacts associated with the use of cooling water intake structures before issuing a permit. *See* 40 C.F.R. § 122.21(r)(ii)(C), § 125.90(a). Based on the record, it is clear more information is needed to determine whether Plant McIntosh is adversely affecting the endangered sturgeon and other fish and wildlife species. Indeed, an adverse impact is likely given the presence of the sturgeon and its sensitivity to temperature changes. When Georgia Power does provide the information, it should include all communications from NOAA Fisheries and the U.S. Fish & Wildlife Service. *See* 40 C.F.R. § 125.98(i). Although Georgia Power indicated in its application that it has provided such information, no evidence of it appears in the record. *See* Permit Application Addendum at 8.

Georgia Power has not sought an alternate schedule for all of the information required under the 316(b) rule. The Company's request applies only to the requirements set forth at 40 C.F.R. Part 122.21(r)(4) and (6)-(9). The Company has not sought to delay submission of the remaining information:

- Source water physical data, as required by 40 C.F.R. § 122.21(r)(2);
- Cooling water intake structure data, as required by 40 C.F.R. § 122.21(r)(3);
- Cooling water system data, as required by 40 C.F.R. § 122.21(r)(5);
- Operational status, as required by 40 C.F.R. § 122.21(r)(8); and
- All information received as a result of any communications with a Field Office of the Fish and Wildlife Service and/or Regional Office of the National Marine Fisheries Service, as required by 40 C.F.R. § 122.21(r)(1)(ii)(H).

Permit Application Addendum at 8. The information provided, however, appears incomplete, and in many cases raises more questions than answers.

a. Facility operational status

As noted previously, Georgia Power's claim that there have been no major upgrades to the generating units at Plant McIntosh is incorrect. In 2014, Georgia Power converted Unit 1 to run on PRB coal; this was a major upgrade in any meaningful sense, yet the Company appears to think otherwise. In addition, Georgia Power has added both dry sorbent injection and activated carbon injection to Unit 1 as pollution control measure for MATS compliance. This upgrade would also qualify as major, but Georgia Power does not even mention it. EPD should require Georgia Power to update this section accordingly.

Georgia Power should explain another operational ambiguity: Unit 1 is run only infrequently. In 2016 its capacity utilization factor was just 3 percent. But the application elsewhere states that Units 10 & 11, which use closed cycle cooling, "withdraw makeup water from Unit 1's discharge." *See* Permit Application, "316(b) Cooling Water Intake Structure Information" ("CWIS Section") at 2. Georgia Power fails to explain how this arrangement works as a practical matter given that – to take 2016 as an example – Unit 1 was non-operational 97 percent of the time while Units 10 and 11, operated 77 and 82 percent of the time, respectively. Can Units 10 and 11 withdraw makeup water directly from the river? This information is



pertinent to the operation and impacts of the cooling water intake structure and therefore required to be provided under 40 C.F.R. § 122.21(r)(3).

b. Source water physical data

The permit record shows that EPD sought additional information from Georgia Power required 40 C.F.R. § 122.21(r)(2). Specifically, a document entitled “Plant McIntosh Application Deficiencies” asked Georgia Power to “[p]lease provide areal dimensions as well as salinity and temperature regimes for the Source Water Physical Data in accordance with 40 CFR 122.21(r)(2). Also show contour lines out to the point of intake.” Similar handwritten comments appear on a copy of Georgia Power’s CWIS Layout, Figure 2.1: “need areal dimensions + salinity + temperature regimes; contour out to location of intake @ 25 ft depth.” It appears this information was not provided (e.g. the Figure 2.1 included in the application does not provide contours out to the intake depth of 25 feet). Handwritten notes reflect that Georgia Power may have refused to provide the requested information on the basis that it “would require another survey.” If so, that is not a good reason for refusing EPD’s request. EPD should revive its request and seek the following additional items of information.

(1) Source Waterbody Description

Georgia Power should supplement the information to state the channel width in the vicinity of the CWIS under low-flow conditions as opposed to the “normal” river stage range of 150-450 feet. In addition, Georgia Power should explain why the channel width range (i.e., 150-450 feet) is so large under “normal” river conditions. Georgia Power should also provide the approximate time period for when the 150-450 feet channel width was determined. The information may be outdated.

Finally, Georgia Power should provide additional information and support for its statement that “[t]his portion of the Savannah River is considered freshwater and is not affected by tidal salinity intrusion.” CWIS Section at 1. Considered by whom and based on what data? Georgia Power’s assertion is contradicted by several data points, including the Company’s own acknowledgment in the very next sentence that “changes in water surface elevations in the vicinity of the CWIS *do occur from tidal influence.*” *Id.* While Georgia Power proceeds to describe the changes as “minimal” (6 inches or less) and “due to backwater effects from incoming tides and not from tidal incursions,” the Company supplies no data to support these assertions. EPD should request that data given the importance of this issue. The data should include a description of how often (i.e. approximately how many times per year) tidal influences are observed near the CWIS.

(2) Source Waterbody Depth and CWIS Design Elevations

Georgia Power’s header in this section references Plant Hammond, which we presume is a typographical error.

Georgia Power states that main channel depths range from 25-30 feet under normal river stage. Similar to the comments above, EPD should ask Georgia Power to provide data supporting this assertion, as well as provide main channel depths under river low flow conditions.

### (3) Source Waterbody Temperature Regimes

Georgia Power here provides river water temperature data that are more than a decade old and which were developed under the Phase II 316(b) rule in effect at that time. EPD should ask the Company to supplement its application with more recent data. At the same time, EPD should ask Georgia Power to furnish any other information developed under the Phase II rule, such as any impingement study or data collected in the relevant timeframe (as was done, for example, at Plant Hammond). While such data is also outdated, it is better than nothing, and would give EPD and the public some sense of Plant McIntosh's historic impingement effects.

### (4) CWIS Area of Hydraulic Influence

EPD should seek supplementation of multiple assertions in this section in order to verify their accuracy:

- Request a copy of the entire report from which the diagram in Attachment 3 is derived, including all inputs and outputs for the referenced NCCHE model.
- Ask Georgia Power to describe whether in addition to using design data, the Company modeled actual operational scenarios (i.e., less than 100% utilization factors) for Units 1, 10 and 11 in the NCCHE model, to reflect real-world conditions.
- Ask Georgia Power to describe whether the area of influence (AOI) was determined for all river stages (e.g., for low flow conditions, etc.) or just for normal flow conditions. The Company should provide its river flow assumptions.
- Ask the Company to provide the extent of the AOI over the channel width under low flow conditions.
- Request the date of the bathymetric data used in the model along with a description of whether the data were determined in the vicinity of the CWIS. What was the geographical extent of the bathymetric data used in the model – i.e., how far upstream and downstream of the CWIS did the bathymetric data extend?
- Ask the Company to provide support for its assumption that bathymetric data over a decade old (i.e., since “mid-2000”) is valid today.

In addition, the information states that the area of the AOI is 3,800 square feet. However,  $(30+45)*45 = 3,375$  square feet. Thus, the extent of the AOI appears to be inconsistent with the dimensions of the AOI provided. Georgia Power should therefore explain how the 3,800 square feet figure was determined. In particular, which of the dimensions (upstream distance, downstream distance, or cross stream distance) is incorrect?

Finally, assuming that the cross stream distance of 45 feet is correct, this implies that the extent of the channel width covered by the AOI is  $45/150 = 30\%$ , using the lower value of the range of channel widths (150-450 feet) discussed earlier. This is considerably greater than 17% of river described in this section. EPD should ask Georgia Power to clarify this apparent discrepancy.

c. Cooling Water Intake Structure Data

EPD should seek the following supplemental information:

- The assumed river conditions in the context of the stated maximum water depth of 25 feet.
- The range of pressures used in the “high pressure” screenwash system?
- Whether the “potential littoral zone habitat” has been surveyed recently or at any time.
- Whether any modifications have been made to the CWIS in the last 5 years, including but not limited to any changes to the CWIS or how it is operated since Unit 1 was switched to PRB sub-bituminous coal in 2014.

d. Cooling Water System Data

Georgia Power does not specify whether the actual intake flow of 65.5 MGD is for all three units or just Unit 1. EPD should request this information.

**C. EPD must require Plant McIntosh to meet effluent limitations for bottom ash transport water as soon as possible.**

The Draft Permit proposes to give Georgia Power until December 31, 2023 to comply with recent technology-based effluent limitations guidelines (ELGs) governing the discharge of toxic metals and other harmful pollutants in coal ash transport waters. This is more than 62 months after the initial default compliance deadline of November 1, 2018, and the absolute latest possible date allowed under the Clean Water Act for any facility. This timeline is wholly unsupported and fails to provide for expeditious compliance as required.

The ELGs apply to flue gas desulphurization (FGD) wastewaters and require zero discharge of fly ash and bottom ash transport waters at coal units. Plant McIntosh does not have a scrubber, and Georgia Power expects to achieve compliance with the zero discharge requirement for fly ash transport water by the compliance deadline of November 1, 2018. Hence, compliance with the zero discharge standard for bottom ash transport water is the only issue.

As shown in the attached report by Dr. Ranajit Sahu—an expert with over twenty-five years of experience in environmental, mechanical, and chemical engineering, including extensive work regarding coal-fired power plants—Plant McIntosh can achieve compliance with the ELGs by February 2020 *at the latest*, even assuming no preparations had been undertaken, which Georgia Power’s statements in the permit application clearly contradict. Ranajit Sahu, *Technical Assessment of the Feasibility of Timely Compliance with FGD Wastewater and Ash Transport Effluent Limitations Guidelines at Plant McIntosh* (Jan. 2018) (hereinafter “Sahu Report”) (appended here as, Attachment 3). Accordingly, EPD should revise the Draft Permit to require Plant McIntosh to eliminate all discharges of ash transport waters by February 2020.

*1. Technology-based effluent limits.*

The CWA requires NPDES permits to include effluent limits based on the performance achievable through the use of statutorily-prescribed levels of technology that “will result in

reasonable further progress toward the national goal of eliminating the discharge of all pollutants.” 33 U.S.C. § 1311(b)(2)(A)(i), *see also id.* § 1311(b)(1)(A). Technology-based effluent limitations (TBELs) constitute the minimum level of control that must be included in a permit “regardless of a discharge’s effect on water quality.” *Am. Petroleum Inst. v. EPA*, 661 F.2d 340, 344 (5th Cir. 1981).

For sources constructed prior to the passage of the Federal Water Pollution Control Act of 1972, such as Plant McIntosh, discharges of pollutants must be eliminated or controlled through application of Best Available Technology (BAT). *See* 33 U.S.C. § 1311(b)(2)(A). In accordance with the Act’s goal to eliminate all discharges of pollutants, BAT limits “shall require the elimination of discharges of all pollutants if the Administrator finds, on the basis of information available to him . . . that such elimination is technologically and economically achievable . . . .” 33 U.S.C. § 1311(b)(2)(A).

EPA periodically codifies national ELGs for NPDES permits that reflect BAT standards for particular discharges, pollutants, and activities found in a category of point sources. *See* 40 C.F.R. Pt. 423. Where those guidelines have been set, they establish the floor or minimum level of control that must be imposed in a NPDES permit.

In 2015 EPA updated ELGs for steam electric power plants such as Plant McIntosh. 80 Fed. Reg. 67,838 (Nov. 3, 2015) (codified at 40 C.F.R. Pt. 423). EPA’s final rule, published in November 2015, noted: “Steam electric power plants contribute the greatest amount of all toxic pollutants discharged to surface waters by industrial categories regulated under the [Clean Water Act].” *Id.* Among other things, the new rule prohibits the discharge of pollutants from bottom ash transport water. 40 C.F.R. §§ 423.13 (g)(1)(i), (h)(1)(i), and (k)(1)(i). Dischargers must meet these limitations “as soon as possible beginning November 1, 2018.” *Id.*

On April 25, 2017, EPA published a notice that it would reconsider the ELG Rule and announced a stay of the rule’s pending implementation deadlines for the affected waste streams. 82 Fed. Reg. 19005 (Apr. 25, 2017). On September 18, 2017, EPA withdrew the stay of compliance dates and simultaneously postponed the earliest compliance dates for bottom ash transport water and the FGD wastewater for a period of two years, such that the revised earliest compliance date has been changed from November 1, 2018 to November 1, 2020. 82 Fed. Reg. 43494 (Sept. 18, 2017).

## 2. *EPD’s proposed effluent limitations compliance extension is not justified.*

When revising permits for direct dischargers—coal plants that discharge directly to surface waters—state permitting authorities must specify compliance deadlines for the ELGs, which are to be “as soon as possible beginning November 1, 2018.” *See* 40 C.F.R. §§ 423.13 (g)(1)(i), (h)(1)(i), and (k)(1)(i). The “phrase ‘as soon as possible’ means November 1, 2018,” unless the permitting authority establishes a later date, after receiving information from the discharger reflecting consideration of certain enumerated factors. 40 C.F.R. § 423.11(t) (emphasis added). Critically, permitting authorities *must* “provide a well-documented justification for how [they] determined the ‘as soon as possible’ date in the fact sheet or administrative record for the permit,” and to “explain why allowing additional time to meet the

limitations is appropriate.”<sup>52</sup> Moreover, as EPD acknowledges, Georgia water quality regulations require EPD to “determine the shortest reasonable period of time necessary to achieve such compliance ....” Permit Narrative at 36 (citing Ga. Comp. R. & Regs 391-3-6-.06(10)(a)).

Rather than properly assess and establish a timeline for expeditious ELG compliance, as its permitting duties require, EPD has simply rubber-stamped the protracted compliance dates requested by Georgia Power without any independent analysis or justification. EPD states merely that it has “reviewed the submitted information” and determined that Plant McIntosh “will need an extended timeframe” to comply. Permit Narrative at 37.

Yet the “submitted information” from Georgia Power contains no meaningful support for the December 31, 2023 extension, or any plant-specific analysis. Instead it offers only generic statements.<sup>53</sup> In fact, the information is in many instances nearly identical to language used purportedly to justify a similar ELG compliance deadline extension at Plant Hammond. Georgia Power cites various factors it claims stand in the way of expeditious compliance, such as “real estate requirements,” “parasitic loads,” “lead time on equipment orders,” and “electrical infrastructure,” but there is no specific discussion of how these factors apply at Plant McIntosh. The Company cites regulatory uncertainty and the need to coordinate planned outages, but these are issues faced by all utilities, many of whom already comply with the zero-discharge requirement for bottom ash transport water. As a result, the information in the permitting record is insufficient to justify the proposed extension and to explain why allowing additional time to meet the limitations is appropriate at Plant McIntosh.

Georgia Power admits to having begun planning to comply with the updated ELGs “well before the rule’s issuance” and to having undertaken “preliminary engineering work” and “initial scoping of projects.”<sup>54</sup> Its statements regarding its decade-long history of advanced research and development of wastewater technologies further underscore that it is well prepared. Georgia Power has been on notice of its precise obligations since the final rule was published in September 2015 and has known that new requirements were to be adopted far longer. Both Georgia Power and parent Southern Company submitted comments on EPA’s 2013 proposed rule, including detailed compliance case studies for bottom ash transport water ELGs.<sup>55</sup> Thus, by its own admission, Georgia Power has had plenty of time to begin working toward compliance and a 62-month extension from the compliance deadline is absurd.

The Draft Permit’s references to the 2016 Integrated Resource Plan (IRP) Stipulation between the Georgia Public Service Commission (PSC) and Georgia Power are misplaced. That

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<sup>52</sup> See U.S. ENVTL. PROT. AGENCY, TECHNICAL DEVELOPMENT DOCUMENT FOR THE EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS FOR THE STEAM ELECTRIC POWER GENERATING POINT SOURCE CATEGORY 14-11 (Sept. 2015), <http://goo.gl/PpzQ4F> (hereinafter “TDD”).

<sup>53</sup> Permit Application, “Plant McIntosh Effluent Limitation Guidelines Rule Applicability Timing NPDES Permit Application 2017.”

<sup>54</sup> *Id.*

<sup>55</sup> See Southern Co. Comments re Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (Sept. 19, 2013); Ga. Power Co. Comments on Proposed Steam Electric Effluent Limitations Guidelines Rule (Sept. 19, 2013). Indeed, EPA’s Environmental Assessment underlying the updated ELGs is based in part on a detailed study and wastestream modeling derived from adverse impacts on the water quality of the adjacent surface water body, Lake Sinclair, at Georgia Power’s Plant Branch (*see* EA, pp. 8-52 – 8-59). This is further evidence that Georgia Power and Southern Company have been acutely aware of the ELG rule development and specific concerns at Georgia Power’s facilities for some time.

Stipulation in part sensibly limited cost recovery from ratepayers for capital *spending* at Plant McIntosh.<sup>56</sup> However, the Stipulation should not delay compliance, as EPD seems to suggest. Indeed, it would be improper to allow Georgia Power to continue to pollute and shield itself from compliance by reference to a Stipulation that it willingly entered into with full knowledge of its compliance obligations. As explained above, Georgia Power has been well aware of the need to comply with the ELGs for years and has already begun preparations. And while the ELGs do allow some flexibility regarding the need to *raise* capital for compliance work, this is but one factor and is distinguishable from *spending* money, which Georgia Power may do so long as ratepayers are not on the hook. *See* 40 C.F.R. § 423.11(t). Moreover, such an interpretation flouts the goals, plain language, and legal requirements for direct dischargers in the CWA. Finally, Plant McIntosh has the option of complying with the effluent limitations by ceasing production, and subsequent discharge, of the regulated wastestreams through transitioning Plant McIntosh off of coal, a compliance mechanism neither Georgia Power nor EPD appear to have considered. *See* 40 C.F.R. § 122.47(b)(2). As expert testimony provided by PSC staff and others during the IRP proceedings demonstrates, continuing to operate the coal-fired unit at Plant McIntosh is simply uneconomic.<sup>57</sup> Whichever compliance pathway Georgia Power chooses, it cannot evade its obligations, and continue to threaten public and environmental health, by hiding behind and perverting the intent of the IRP Stipulation.<sup>58</sup>

Nothing in the permitting record supports an extension of the ELG compliance deadline until December 31, 2023 and the continued, unrestricted dumping of ash transport water for six more years. Indeed, even if Georgia Power has to date failed to undertake *any* planning or preparation for compliance with ELGs at Plant McIntosh (which is, as discussed above, contradicted by Georgia Power’s prior statements, filings with EPA, and filings with the Georgia PSC), Plant McIntosh can, as detailed in Dr. Sahu’s assessment, at the absolute latest, come into compliance by February 2020.

3. *EPD should require Plant McIntosh to comply with a zero discharge limit for bottom ash transport water by no later than February 2020.*

EPD should revise the Draft Permit to require elimination of toxic bottom ash transport water discharges at Plant McIntosh no later than February 2020. The BAT standard for bottom ash transport water under the updated ELGs is zero discharge, which EPA has determined can be achieved either by dry ash handling or by systems that completely recycle ash handling water. 80 Fed. Reg. at 67,852. Plant McIntosh does not currently meet the BAT standards: bottom ash generated at the plant is wet sluiced to Ash Pond 1 before discharge.

Expeditious compliance with the BAT standard by 2020 is achievable for Plant McIntosh. There are clear indications that Southern Company and Georgia Power have undertaken significant, multi-year efforts to begin planning for ELG compliance “years prior to the rule’s

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<sup>56</sup> Ga. Public Serv. Comm’n, Stipulation *in re Dockets No. 40161 and 40162* (Adopted Aug. 2, 2016), at ¶ 15 (limiting capital spending at McIntosh to \$1 million annually “through July 31, 2019”), <http://www.psc.state.ga.us/factsv2/Document.aspx?documentNumber=164778>.

<sup>57</sup> *See* Sierra Club, Direct Testimony of Jeremy Fisher, Ga. Public Serv. Comm’n, Dkts. 40161, 40162 (May 3, 2016), <http://www.psc.state.ga.us/factsv2/Document.aspx?documentNumber=163413>.

<sup>58</sup> Moreover, even if the Stipulation somehow allowed Georgia Power to evade compliance with the CWA, the Stipulation only precludes capital spending in excess of \$1 million annually until July 31, 2019. The Draft Permit does not—and cannot—justify a further delay in compliance of *four-and-a-half years* until December 31, 2023.

finalization,” including selecting the submerged flight conveyor technology as a preferred method of compliance at Plant Hammond.<sup>59</sup> While Georgia Power has not provided any details regarding its preferred compliance path at Plant McIntosh (which is itself unreasonable considering Georgia Power’s claims to have begun evaluations in 2007), there are multiple standard technology options that many utilities are already using to meet zero discharge requirements for bottom ash wastewater. Indeed, as EPA stated in the preamble to the ELG rule, more than 80 percent of the coal-fired generating units constructed in the past 20 years have installed dry bottom ash handling systems. 80 Fed. Reg. at 67,852. The technologies for achieving compliance are not new, and they are robust, with offerings from multiple vendors.

Dr. Sahu concludes that, based on industry experience and Georgia Power’s documented retrofit preparations, Plant McIntosh can comply with the bottom ash transport water ELGs by February 2020 at the latest, roughly 24 months from now.<sup>60</sup> Conversion to dry handling for bottom ash is, in fact, significantly less complex than other coal plant pollution control retrofit projects, such as the installation of scrubber or selective catalytic reduction systems. And yet the timelines for such projects are in the range of 3 to 5 years, significantly less than what Georgia Power seeks here.<sup>61</sup>

Depending on the scope of the required conversions (a.k.a., retrofits) at a particular coal plant, industry itself projects that the total time needed for bottom ash system retrofits ranges from just 27 to 36 months, from the start of conceptual engineering to final commissioning.<sup>62</sup> Such expeditious timelines have been demonstrated: At Duke Energy’s Mayo Plant in North Carolina, for example, a wet-to-dry bottom ash handling system conversion was completed in under a year and a half.<sup>63</sup> At the South Carolina Electric & Gas Company Wateree plant, conversion to a closed-loop bottom ash handling system was completed in two and a half years from bidding of the contracts to project completion.<sup>64</sup> In 2010, the BL England Station retrofitted a recycle system on two coal-burning units (one is 125-MW, the other is 155-MW) as well as a 170-MW oil-burning unit in less than two years from award of the contract to operation of the new system.<sup>65</sup> Southern Company’s own case studies show that conversion to dry bottom ash handling using a submerged flight conveyor, the technology cited by Georgia Power in its permit

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<sup>59</sup> Plant Hammond NPDES Permit Application, “Plant Hammond Effluent Limitation Guidelines Rule Applicability Timing NPDES Permit Application 2016” at 1, 4-5.

<sup>60</sup> Sahu Report at 3, 16.

<sup>61</sup> *Id.* at 10-11.

<sup>62</sup> Utility Water Act Group, Comments on EPA’s Proposed Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, Attach. 11: Retrofitting Dry Bottom Ash Handling (Sept. 20, 2013).

<sup>63</sup> See DEF Progress, Inc., Mayo Steam Electric Generating Plant, Quarterly Progress Report (January – March 2015) (“Dry bottom ash handling system began construction on December 14, 2012. As of March 31, 2014, construction of this system was 100% complete.”).

<sup>64</sup> U.S. ENVTL. PROT. AGENCY, FINAL NOTES FROM SITE VISIT AT SOUTH CAROLINA ELECTRIC & GAS COMPANY’S WATEREE STATION (Jan. 24, 2013), <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OW-2009-0819-1917>.

<sup>65</sup> DENNIS DEL VECCHIO & ROBERT G. WALSH, WET TO DRY BOTTOM ASH DISPOSAL CONVERSION PROJECT - BL ENGLAND STATION, POWER-GEN (Dec. 2011).

renewal application for Plant Hammond, can be completed in just 27 to 33 months.<sup>66</sup> These examples directly refute the Company's claim that it needs 6 additional years to comply.

Accordingly, EPD should revise the Draft Permit to require compliance no later than February 2020. Delaying compliance with the zero discharge standard for bottom ash transport water until December 31, 2023 is unnecessary and will gratuitously put public and environmental health at risk, as well as delay progress on ash pond closure. Bottom ash transport water is known to contain a number of toxic metals in both suspended and dissolved form.<sup>67</sup> Yet historically, EPD has required no limits on highly toxic metals discharged in Plant McIntosh's bottom ash transport water, including arsenic, cadmium, chromium, and lead. Given that EPA updated the ELGs to address the "outstanding public health and environmental problem" related to the discharge of effluent containing toxic and other pollutants from power plants EPD has all the more reason to ensure that Plant McIntosh complies with the zero discharge standard "as soon as possible," meaning no later than February 2020.

**D. The Draft Permit violates the Clean Water Act because it fails to adequately protect the Savannah River from the planned dewatering of Plant McIntosh's coal ash pond.**

Georgia Power plans to dewater and excavate Plant McIntosh's single ash pond, and this activity is likely to occur during the new permit term. Unfortunately, the Draft Permit continues a pattern seen in other recently reissued NPDES permits for Georgia Power facilities with on-site coal ash ponds: it proposes to pre-authorize dewatering discharges even though those discharges will represent material changes to Plant McIntosh's waste disposal practices. Draft Permit at Part III.C.7. The provisions contemplate that the wholesale emptying of the ponds' decades-worth of accumulated wastewater could occur without reopening the permit. The provisions would confer this advance blanket authorization even though no treatment methods, limits or other permit conditions related to dewatering discharges are specified. The Draft Permit imposes just one condition on this fundamental change to how the ponds have historically operated: Georgia Power must first submit a "Coal Ash Pond Dewatering Plan," which EPD will evaluate and may approve without undergoing public notice and comment as required by state and federal law.

Accordingly, we reiterate comments made in respect to this same permit defect in the recent draft NPDES permits for Georgia Power Plants McDonough, Hammond, and Branch. Specifically, the provisions in Part III.C.7 of the Draft Permit are improper for the following reasons:

- Material changes to waste disposal practices, such as the complete draining of Plant McIntosh's coal ash waste ponds, require major permit modifications so that appropriate effluent limitations and other conditions can be imposed, subject to full public notice and comment concerning the specific treatment methods, conditions and restrictions that will be imposed by the permit on the dewatering discharges.

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<sup>66</sup> Southern Company Comments re Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (Sept. 19, 2013), Appendix B.

<sup>67</sup> See e.g., U.S. ENVTL. PROT. AGENCY, STEAM ELECTRIC POWER GENERATING POINT SOURCE CATEGORY: FINAL DETAILED STUDY REPORT, EPA 821-R-09-008, 3-19 (Oct. 2009); U.S. ENVTL. PROT. AGENCY, DEVELOPMENT DOCUMENT FOR FINAL EFFLUENT LIMITATIONS GUIDELINES, NEW SOURCE PERFORMANCE STANDARDS, AND PRETREATMENT STANDARDS FOR THE STEAM ELECTRIC POINT SOURCE CATEGORY, Table V-33 (Nov. 1982).



- The Draft Permit’s effluent limitations do not purport to cover future dewatering discharges, nor are they sufficient for that purpose. Dewatering discharges result from a fundamentally different activity than the passive, gravity-based settling treatment method contemplated by the Draft Permit and underlying application.
- Hence, the Draft Permit commits a fundamental error by purporting to defer ash pond dewatering approval to some future date, while leaving the critical details for EPD alone to decide. Without reopening the permit for public review and comment, EPD may unilaterally approve such details as the appropriate treatment technology to be applied, whether numerical effluent limits will be imposed, the manner and frequency of influent and effluent sampling to be performed, and numerous other conditions and restrictions that are appropriate for the dewatering discharges. This “EPD will decide later” procedure violates the Clean Water Act and its attendant regulations, which require that either: (i) all proposed terms and conditions relating to planned discharges be addressed in the draft permit put out for public notice and comment, or (ii) that the Draft Permit expressly prohibit ash pond dewatering discharges as a fundamental change in plant waste disposal and treatment practices unless and until the permit undergoes a major modification covering such activities. What EPD cannot do is reserve to itself the determination of whether these fundamentally different waste streams are authorized and the conditions under which they may occur. Whether it happens now (in the instant Draft Permit) or later (through a proposed major modification), the Clean Water Act requires that the public be given the opportunity to weigh in.
- The Draft Permit sets *no* technology-based effluent limits on the discharge of pollutant-laden wastewater from the lower portions of the ash ponds, which will require pumping or other mechanized draining in order for the discharges to occur.
- Finally, the Draft Permit only requires EPD to address water quality impacts in connection with its subsequent approval of the Dewatering Plan. The Draft Permit improperly fails to require EPD to perform an analysis of whether a more stringent technology-based effluent limitation should apply to these dewatering discharges. Both analyses are required by state and federal law.

Accordingly, Part III.C.7 of the Draft Permit must be amended by striking the entire sentence appearing after subsection a.ix.2., page 31 of 36, which currently reads:

EPD will evaluate the submitted data and determine if there is a reasonable potential for the discharge to cause or contribute to a violation of the instream water quality standards and if necessary, may open the permit to include applicable effluent limits to protect the receiving water body.

In place of this language, Part III.C.7 of the Draft Permit should be amended by inserting in place of the above the following sentence to read as follows:

EPD will evaluate the submitted data and act in accordance with the requirements of EPA’s regulations for permit modification under 40 C.F.R. § 122.62(a), to develop appropriate effluent limitations and other conditions applicable to discharges comprising

coal ash pond dewatering. EPD will develop appropriate water-quality based effluent limitations or technology-based effluent limitations in accordance with 33 U.S.C. § 1311(b)(1)(C), 40 C.F.R. § 125.3(g); Ga. Comp. R. & Regs. 391-3-6-.06(4)(a)(1), (a)(10), (d). No discharge of effluent associated with the large-scale decanting or dewatering of the ash ponds for closure purposes shall be authorized under this Permit prior to modification of this Permit in accordance with this Paragraph 7.

Furthermore, Part II.A.1.c of the Draft Permit at page 20 of 36 must be amended by inserting the following language underlined below to read:

Following notice in paragraph a. or b. of this condition, the permit may be modified in accordance with 40 C.F.R. § 122.62 and any other applicable requirements imposed by law. The permittee shall not make any changes, or conduct any activities, requiring notification in paragraph a. or b. of this condition without approval from EPD.

The Savannah Riverkeeper requests that EPD make the above detailed changes in order to protect the river from toxic metals that may be released during the dewatering process.<sup>68</sup> This is of particular concerns because there are several public drinking water intakes downstream of the Plant McIntosh coal ash pond.

**E. The Draft Permit fails to require monitoring of bromide discharges that can mix with chlorine to form carcinogens in downstream drinking water.**

EPD should require Georgia Power to monitor for bromide discharges from all of its outfalls at Plant McIntosh to ensure that drinking water downstream of the plant is adequately protected.

Bromide is naturally present in coal at trace amounts, is highly soluble in water, and is not typically removed from steam electric power plant wastewaters prior to discharge to adjacent surface waters.<sup>69</sup> Bromide can also be used as an additive in certain air pollution control methods.<sup>70</sup> Georgia Power acknowledges in its permit application that it discharges bromide from at least one outfall.<sup>71</sup> The application indicates that bromide was detected at a concentration of 1,800 µg/L for Outfall 06.<sup>72</sup>

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<sup>68</sup> Savannah Riverkeeper has additional concerns about the ultimate disposal of coal ash. In particular, Savannah Riverkeeper is concerned about the placement of coal ash waste on land, including in roads, throughout the Savannah River Basin. The Riverkeeper urges EPD to require the permittee to submit more detailed information about where and how coal ash waste will be ultimately disposed of.

<sup>69</sup> See U.S. ENVTL. PROT. AGENCY, ENVIRONMENTAL ASSESSMENT FOR THE EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS FOR THE STEAM ELECTRIC POWER GENERATING POINT SOURCE CATEGORY, Docket No. EPA-821-R-15-006 3-11 (Sept. 2015) (emphasis added), [https://www.epa.gov/sites/production/files/2015-10/documents/steam-electric-envir\\_10-20-15.pdf](https://www.epa.gov/sites/production/files/2015-10/documents/steam-electric-envir_10-20-15.pdf) (hereinafter “2015 ELG EA”).

<sup>70</sup> At Plant McIntosh, Georgia Power uses several types of injections to remove air pollutants, including activated carbon injection and dry sorbent injection. It is unclear whether any of these injections contain bromide or other halides. Georgia Power should be required to disclose to EPD whether its injections used to reduce air pollution contain bromide/bromine or other halides.

<sup>71</sup> See Georgia Power’s permit renewal application at EPA Form 3510-2C for Outfall 06.

<sup>72</sup> *Id.*

Bromide and other halides are known to cause carcinogens to form when they enter downstream drinking water intakes.<sup>73</sup> These carcinogens are called trihalomethanes (THMs), and form when bromides mix with chlorine in drinking water supplies. In other words, bromides that are introduced into the Savannah River and other connected water bodies from Georgia Power's operations at Plant McIntosh may end up contributing to cancerous substances in drinking water that thousands of Georgians rely on.

Several drinking water intakes are located downstream of the discharges from Plant McIntosh, including Beaufort-Jasper Water & Sewer Authority (SC0720003) and the City of Savannah Industrial and Domestic Water System (GA510004).<sup>74</sup> While the maximum contaminant level for total THMs is 80 µg/L, *EPA has set a maximum contaminant level goal for total THMs of zero.*<sup>75</sup> THMs have frequently been detected in drinking water supplied by both of these facilities.<sup>76</sup> Public records from EPD reveal that total THM levels from the City of Savannah Industrial and Domestic Water System exceeded the EPA-set maximum contaminant level on at least 27 occasions between May 2005 and June 2017. The highest reported total THM level during this timeframe was 120.5 µg/L, fifty percent higher than the drinking water standard.

Because bromides in surface waters can react with chlorine in drinking water supplies to form carcinogens, the release of bromides from Plant McIntosh should be closely monitored—and if detected, reduced or eliminated. EPD can accomplish this by requiring Georgia Power to conduct regular monitoring for bromide at each of its outfalls. EPD should also evaluate whether the activated carbon injection upgrades made at Unit 1 over the last few years involve the use of brominated compounds, which could result in increased production of bromine wastes on site.

### III. CONCLUSION

For the foregoing reasons, the draft Plant McIntosh NPDES permit must be revised to address the deficiencies identified above before finalization. The current McIntosh NPDES permit expired almost fourteen years ago, a period that has included many important technological and regulatory developments. The final permit must incorporate those developments with requirements that are more (not less) stringent than those found in the existing permit.

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<sup>73</sup> See 2015 ELG EA at 3-10. EPA has concluded that while bromide itself is not thought to be toxic at levels naturally present in the environment, its reaction with other constituents in water may be cause for concern from a human health standpoint. The bromide ion in water can form brominated disinfection by-products (“DBPs”) when drinking water plants use certain processes including chlorination and ozonation to disinfect the incoming source water for human consumption. According to EPA, studies indicate that some DPBs from chlorinated water are associated with human bladder cancer, and that bromine-substituted DPBs “are generally thought to have higher risks of cancer and other adverse human health effects compared to DBPs containing chlorine instead of bromine...” *Id.*

<sup>74</sup> The Cities of Savannah and Bluffton also have drinking water intakes in close proximity to the Plant McIntosh discharge point.

<sup>75</sup> U.S. ENVTL. PROT. AGENCY, NATIONAL PRIMARY DRINKING WATER REGULATIONS 5 (May 2009), [https://www.epa.gov/sites/production/files/2015-11/documents/howeparegulates\\_mcl\\_0.pdf](https://www.epa.gov/sites/production/files/2015-11/documents/howeparegulates_mcl_0.pdf).

<sup>76</sup> See BEAUFORT-JASPER WATER & SEWER AUTH., WATER QUALITY REPORT, <http://www.bjwsa.org/water-quality-report/> and Tap Water Database, Env'tl. Working Group, Savannah I & D (2010-2015), <https://www.ewg.org/tapwater/system.php?pws=GA0510004>.

Savannah Riverkeeper appreciates the opportunity to provide feedback on the Draft Permit. If you have any questions or would like to discuss any comments raised in this letter, please contact Kurt Ebersbach at kebersbach@selcga.org.

Sincerely,



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