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Via Email to:
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Wastewater Regulatory Program
Environmental Protection Division
2 MLK Jr. Drive
Suite 1152E
Atlanta, GA 30334

April 13, 2017

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

Dear Ms. Dickson:

Please accept the following comments on the Permit No. GA0001457, the draft National Pollutant Discharge Elimination System permit ("Draft Permit") for Georgia Power Company's ("Georgia Power") Plant Hammond facility located on the Coosa River at 5963 Alabama Highway, SW, Rome, Georgia 30165. These comments are submitted to the Georgia Environmental Protection Division ("EPD") on behalf of Coosa River Basin Initiative ("CRBI") and Sierra Club, both of whom have members who rely on quality of Coosa River for their livelihoods and who regularly fish, swim, boat and recreate in the river. We appreciate the opportunity to provide these comments.

CRBI is a nonprofit environmental advocacy organization with over 3,500 members in Georgia. CRBI's offices are located at 408 Broad Street, Rome, Georgia. Since 1992, CRBI has been working to protect, preserve, and restore the biologically diverse Coosa River Basin, including the Coosa River and its tributaries. To accomplish this, CRBI engages in educational efforts, research, advocacy, and legal action where necessary.

Sierra Club, founded in 1892, is the nation's oldest and largest grassroots nonprofit environmental organization, with more than 11,000 members in Georgia. Sierra Club's purposes are to explore, enjoy, and protect the wild places of the Earth; to practice and promote the responsible use of the Earth's ecosystems and resources; to educate and enlist humanity in the protection and restoration of the quality of the natural and human environment; and to use all lawful means to carry out these objectives.

The Draft Permit would replace Plant Hammond's current wastewater discharge ("NPDES") permit, which expired on June 30, 2012, almost a full five-year permit term ago. In that respect, the Draft Permit's issuance is a welcome development. Nevertheless, we are disappointed to find that the Draft Permit on the whole fails to incorporate necessary and legally

mandated provisions that would provide long-overdue protections to this stressed segment of the Coosa River. For decades Plant Hammond has exerted an outsized impact on the river, claiming a more than half-mile stretch as a "treatment system" for its thermal pollution and other waste. Plant Hammond is the cause of ongoing temperature impairment of the river, as well as a leading contributor to its impairment for dissolved oxygen.

As EPD now revisits the permit for the first time in almost 10 years, this is a vital opportunity for the agency to strengthen the permit in a way that would require – once and for all – that Georgia Power install appropriate pollution controls for its wastewater discharges, rather than continue to use the river as its treatment system. Unfortunately, in its current form, the Draft Permit misses that opportunity. As discussed further in the body of these comments, the Draft Permit suffers from the following deficiencies:

- ***The draft permit fails to protect water quality from harmful thermal loading.*** To protect the Coosa from Plant Hammond's thermal discharges, EPD must establish a reasonable and limited mixing zone and rely on that mixing zone to develop appropriate thermal loading limits. EPD must also ensure that the new permit does not eliminate the current permit's temperature limits and monitoring requirements.
- ***The draft permit fails to protect aquatic life from impingement mortality and entrainment and otherwise to comply with requirements of EPA's cooling water intake structures rule.*** At Plant Hammond, the Best Technology Available to reduce fish impingement mortality and entrainment is the installation of a closed-cycle cooling tower. Not only would this dramatically reduce harm to aquatic life, it would reduce the Plant's thermal burden on the Coosa. In the meantime, 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 Hammond to meet effluent limitations for scrubber wastewater and ash transport wastewater as soon as possible.*** Instead, EPD unjustifiably provides Georgia Power with the maximum time allowable (more than 80 months from today) to comply with federal regulations limiting toxic pollutant discharges from its coal ash and scrubber wastes, 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 no later than April 2019.
- ***The Draft Permit fails to protect the Coosa River from the dewatering of Plant Hammond's coal ash ponds.*** The Draft Permit purports to allow Georgia Power to drain the facility's ash ponds 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.6 must be revised to require permit modification subject to public notice and comment prior to authorizing the complete drawdown and draining of Plant Hammond'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 Hammond is an 865 megawatt (MW) coal-burning electric generation facility located on the Coosa River approximately 10 miles west of Rome, Georgia. The facility includes the oldest remaining coal-fired generating units on Georgia Power's system—its three smaller units, Units 1, 2 and 3 (110 MW net each), commenced service in the mid-1950s, making them more than 60 years old. The largest unit, Unit 4 (510 MW net), commenced operation in 1970.

Plant Hammond's operation depends on significant quantities of water drawn from the Coosa River. The facility is permitted to withdraw up to 655 million gallons per day from the Coosa for its cooling needs. Most of that water is later returned to the river loaded with thermal pollution and other wastes. The Draft Permit would authorize four wastewater outfalls on the Coosa River (nos. 01, 03, 04 and 05) and one (no. 10) on a tributary known as Smith Cabin Creek. Outfall number 01 conveys the final plant discharge commingled with coal ash wastewater and stormwater. Fact Sheet at 3. This is by far the largest discharge, with a maximum daily flow of 620 million gallons per day, the most significant component of which is once-through cooling water. *Id.* at 4; *see also* Georgia Power Company Plant Hammond Application for Permit No. GA0001457 Renewal at Form 2C (May 27, 2016) (hereinafter, "Permit Application"). The remaining outfalls are designed to convey emergency overflows from the facility's ash ponds (Outfalls 03, 04 and 10) and intake water screen backwash (Outfall 05). Fact Sheet at 5-6.

While Georgia Power has in recent years retired coal-burning units of similar vintage, the Company has not done so with the Hammond units, even as it has also steadfastly refused to equip the facility with the full suite of modern pollution controls. The facility, for example, still relies on once-through cooling in lieu of a cooling tower, which would unquestionably resolve the facility's thermal burden on the river. In addition, the facility features a wet scrubber to capture sulfur dioxide and other pollutants. Some of the resulting scrubber waste is currently stored on-site in an unlined pit, referred to as AP-2. *See* Permit Application, at flow diagram; *see also* Letter from Georgia Power to EPD re Gypsum storage on ash stack (Apr. 3, 2008).

Coal ash is a term used to refer 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. Plant Hammond features four coal ash waste ponds (AP-1, AP-2, AP-3, and AP-4) that receive and treat CCR wastes, as well as waste entailing flue gas desulfurization (*i.e.* scrubber or "FGD") wastes. None of the ash ponds are lined, meaning that there is no physical barrier between the deposited, partially saturated coal ash and the underlying soil.[1] Public records indicate that coal ash waste in AP-1 and AP-2 will be excavated and

[1] Arsenic, a toxic pollutant associated with CCR waste, has been reported in concentrations exceeding reporting thresholds by Georgia Power in groundwater monitoring wells in the vicinity of the coal ash ponds at Plant Hammond. October 2016 Georgia Power disclosure entitled "Results Compared to Georgia Groundwater Standards for Regulated Substances", available at https://www.georgiapower.com/environment/docs/ccr/GW-MONITORING-RESULTS-CHART.pdf (accessed April 12, 2017); *see also* Plant Hammond Ash Ponds Analytical Data Summary May/August 2016 (available at https://www.georgiapower.com/environment/docs/ccr/Hammond-AP-BKG-01-Tables.pdf) (accessed April 13, 2017); Plant Hammond Ash Ponds Analytical Data Summary July/October 2016 (available at https://www.georgiapower.com/environment/docs/ccr/Hammond-AP-BKG-02-Tables.pdf).

removed to Huffaker Landfill, a Georgia Power-owned private industrial landfill, within the next three years.[2] Pond closure would be preceded by the large scale release of impounded wastewater and dewatering of these ponds.[3] Combined, AP-1 and AP-2 contain approximately 120,901,651 gallons of impounded wastewater in addition to CCR waste, a portion of which is in direct contact with, and is therefore saturated by, the impounded wastewater.[4] According to the flow diagram submitted with Georgia Power's application, wastewater discharges from AP-2, which include scrubber wastes, could discharge from three separate outfalls: directly through the emergency overflow for AP-2 at Outfall 03; transported to AP-1 which ultimately discharges wastewater through the plant's final discharge at Outfall 01; and potentially through Outfall 04 which acts as an emergency overflow for AP-4 if wastewater flows from AP-2 to AP-4.

While Georgia Power has not stated the volume of wastewater or ash in AP-3, records indicate that AP-3 will undergo similar large-scale dewatering attendant to "closure in place" of this ash pond, routing the dewatering wastewater to AP-1 for eventual discharge to adjacent surface waters.[5] Georgia Power has not provided information concerning coal ash or impounded wastewater contained within AP-4, nor any information concerning anticipated closure of this ash pond.[6] Importantly, *none* of the ash pond closure records were submitted as part of Georgia Power's NPDES permit application for Plant Hammond.

The facility's operation has declined steadily in recent years for economic reasons. Nevertheless, because economic factors can and will change, it should be assumed for purposes of the Draft Permit that Plant Hammond may again operate at higher capacity factors, in which case the facility may discharge at or near its permitted maximum, 620 million gallons per day. However, even if Plant Hammond continues to be used at a relatively low capacity factor, it may still cycle up and down as necessary to meet spikes in load, as occurred, for example, during the polar vortex in 2014. Such operation can pose unique ecological risks by exposing aquatic life to sudden and overwhelming shifts in key water quality criteria like temperature. In short, the Draft Permit must be suited to protect water quality for the full range of potential operating conditions.

B. The River and Impacts from Plant Hammond.

Plant Hammond is situated in the Upper Coosa River Basin at an almost equal distance from Rome, Georgia to the east and the Alabama state line to the west. The Coosa River itself

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[2] Georgia Power Company, Initial Written Closure Plan Plant Hammond AP-1 (Oct. 17, 2016), available at https://www.georgiapower.com/environment/docs/ccr/20161017_ClosPln_HAM_AP1_FINAL.pdf; Georgia Power Company, Initial Written Closure Plan Plant Hammond AP-2 (Oct. 17, 2016), *available at* https://www.georgiapower.com/environment/docs/ccr/20161017_ClosPln_HAM_AP2_FINAL.pdf.

[3] *Id.*

[4] Report of Annual Inspection of CCR Surface Impoundment, Plant Hammond AP-1 (Jan. 15, 2017), *available at* https://www.georgiapower.com/environment/docs/ccr/20170115_AnInsp_HAM_AP-1_FINAL.pdf; Report of Annual Inspection of CCR Surface Impoundment, Plant Hammond AP-2 (Jan. 15, 2017), *available at* https://www.georgiapower.com/environment/docs/ccr/20170115_AnInsp_HAM_AP-2_FINAL.pdf.

[5] Georgia Power Notification of Intent to Initiate Closure, Plant Hammond Inactive CCR Impoundment AP-3 (Dec. 7, 2015), *available at* https://www.georgiapower.com/environment/docs/ccr/20151207_3yrClosInt_HAM_AP3_FINAL.pdf.

[6] Georgia Power has however, provided a summary sheet stating that 3 of 4 ash ponds at Plant Hammond will be excavated and removed to a permitted landfill. Presumably, AP-4 will be excavated because Georgia Power has announced that AP-3 will be capped in place. *See* Georgia Power's Ash Pond Closure Update - October 2016, *available at* https://www.georgiapower.com/environment/docs/ccr/1601738_ASHPOND_CLOSURES.pdf.

begins as tiny springs in the Cohutta Mountains of Northwest Georgia (headwaters of the Oostanaula River) and in the Blue Ridge Mountains of North Central Georgia (headwaters of the Coosawattee and Etowah rivers). The river is formed by the confluence of the Etowah and Oostanaula rivers in Rome, Georgia. From there the Coosa winds to Weiss Dam near Centre, Alabama. Below Weiss Dam the river merges with the Tallapoosa River, forming the Alabama River and then flowing hundreds of miles to the Mobile River and Mobile Bay on the Gulf of Mexico.

No other river basin in North America has a higher percentage of endemic species than the Upper Coosa River Basin. Thirty different species of fishes, mussels, snails and crayfishes call the waters of the Coosa—and nowhere else—home. Researchers have called the Upper Coosa Basin a "globally significant biological treasure."

The Upper Coosa River is the historic home to 100 different fish species, including 12 endemic species. For a river basin in a temperate climate, the Coosa River basin has the greatest number of endemic fish species in the world. This includes six species listed as federally endangered or threatened. Due to the introduction of exotic species, currently, the basin is home to 114 different species.

The basin is also known for its tremendous diversity of mussels and snails. The basin is the historic home to 43 mussel species and 32 species of snails. Unfortunately, 15 species of mussels and eight species of snails have already been lost from the Upper Coosa Basin. In the Upper and Lower Coosa River Basins together, a total of 37 snail and mussel species have been lost. Researchers consider this loss the largest single extinction event in U.S. history.[7] Of the mussels and snails remaining in the Upper Coosa River Basin, seven are listed as federally threatened or endangered. Additionally, the Upper Coosa River Basin is home to 18 species of crayfish.

The Coosa River's fish population is unique in the variety of minnows and darters found in the water of the basin. These small fish represent over half of the Upper Coosa 114 fish species and all of the endemic and federally listed species. What they lack in size, they make up for in showmanship. Many darters are exceedingly colorful, sporting electric blues, emerald greens and fiery reds. They generally feed on aquatic insects, though larger species feed on smaller fish and some species eat only plant material. These fish depend upon flowing, silt-free habitat and high water quality.

Unfortunately for a river so blessed with aquatic life, and so beloved by fishermen and other recreational users, the Coosa River is currently not meeting water quality standards for those uses. Fact Sheet at 9. Ongoing thermal pollution from Plant Hammond is the leading cause of the Coosa's impairment, but the destruction of aquatic species by the facility's cooling water intake structure is also significant. Both problems would be resolved by the installation of cooling towers, but Georgia Power has so far resisted that move, and the Draft Permit would allow it to be postponed indefinitely. In addition, Plant Hammond's operation includes other enormously harmful discharges, including those associated with the facility's coal ash and scrubber waste impoundments. A brief discussion of Plant Hammond's outsized impacts on the ecology of the Coosa River follows.

[7] *See* The Global Decline of Nonmarine Mollusks, C. Lydeard, et al., Bioscience Vol. 54, 321, 325 (Apr. 2004).

1. *Temperature and dissolved oxygen.*

The River segment around and downstream of Plant Hammond is impaired for both temperature and dissolved oxygen. *See* EPD, Georgia's List of Priority Waters (Nov. 2015) (identifying segment of Coosa River from Beech Creek to Alabama state line as impaired for temperature); EPD, Total Maximum Daily Load Evaluation for the Coosa River in the Coosa River Basin for Dissolved Oxygen ("TMDL DO") at v (Jan. 2004) (discussing Coosa River's listing as "water quality limited due to dissolved oxygen"). Temperature and dissolved oxygen are, of course, related conditions:

> [T]he amount of oxygen available in a water body decreases as the water temperature increases. In summer months, river temperatures tend to be higher and dissolved oxygen concentrations tend to be lower than during the cooler seasons of the year. The greatest stress with respect to protection of aquatic life can occur during summer months.

TMDL DO at 33. But the effects of temperature go well beyond influencing the amount of oxygen available in the water column. Temperature is "one of the most important and most influential water quality characteristics to life in water." DNR Fisheries Memorandum, at attachment Impacts of Thermal Pollution on Aquatic Resources, at 1(July 27, 1990) (hereinafter, "July 1990 Fisheries Memo") (quoting Federal Water Pollution Control Administration). Temperature is "a catalyst, a depressant, an activator, a restrictor, a simulator, a controller, [and] a killer." *Id.* Aquatic organisms have upper and lower thermal tolerance limits, which vary by species. *Id.* 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. *Id.* Aquatic species likewise have optimum temperatures for growth, migration, spawning, and egg incubation. *Id.*

Georgia water quality standards for temperature—which require that waters designated for fishing and recreation not exceed 90ºF nor be increased more than 5ºF above ambient temperature—have a firm basis in science. They reflect a determination that 90ºF is "the upper tolerance limit for a balanced benthic population structure," as well as that sudden temperature spikes can be lethal. *Id.* (citing EPA). Temperatures above the 90ºF threshold have been documented to result in "an extensive loss in macroinvertebrate numbers, diversity and biomass." *Id.* Temperatures above 95ºF can cause "almost complete elimination of vertebrate and invertebrate species." *Id.*

Indeed, significant fish kills just downstream of Plant Hammond have occurred when river temperatures exceeded Georgia water quality standards. *See, e.g.*, DNR Memorandum, Fish Kill Investigation on the Coosa River in Floyd County, Ga., on July 11-12, 1986 (Aug. 1, 1986) (hereinafter, "August 1986 Fisheries Memo") (documenting fish kill from vicinity of Plant Hammond to Highway 100 Bridge where water temperatures were found to exceed 100ºF, as well as an increase over ambient temperatures of 9ºF); DNR Memorandum Fish Kill Investigation on the Coosa River in Floyd County (June 28, 1988) (hereinafter, "June 1988 Fisheries Memo") (documenting fish kill on June 27, 1988 when water temperatures were found to exceed 98ºF, as well as an increase over ambient temperatures of more than 16ºF).

Plant Hammond is the cause of the Coosa River's temperature impairment, although it has taken decades to get to a straightforward acknowledgment of this truth. Even now EPD seems disinclined to name the cause, favoring use of the passive voice: "The cause of the temperature impairment is known." EPD Wasteload Allocation Memorandum, Georgia Power Company – Plant Hammond, at 1 (Sept. 26, 2016) (hereinafter, "Sept. 2016 WLA Memo"). But EPD's approach to resolving the problem makes the culprit clear: EPD has developed a Wasteload Allocation ("WLA") and resulting thermal permit limits specifically for Plant Hammond because Plant Hammond is the cause.

It should not have taken so long to get to this point. As long ago as 1988, following the aforementioned fish kills, fisheries experts within the Georgia Department of Natural Resources ("DNR") declared it "obvious to us that Plant Hammond's thermal discharge is a significant adverse impact on the biota of the Coosa River system." DNR Game and Fish Division Memorandum, Fish Kill Investigation, Coosa River, Floyd County, at 4 (July 13, 1988). The experts determined that Plant Hammond's thermal discharge was so forceful, and its impact through the water column so total, that it could "act as a barrier to fish movements and at times as a lethal trap." *Id.* at 3. Among the experts' concerns were that fish would be lured into the discharge area during periods of low discharge and "then be trapped and killed when hot water is again released from Plant Hammond." DNR Memorandum, Coosa River Fish Kill Investigation (88-6-27-I-12) June 27th through July 6th, 1988, at 3 (March 16, 1989) (hereinafter, "March 1989 Fisheries Memo"). The experts also expressed concerns about the size and extent of Plant Hammond's mixing zone as "detrimental to aquatic life." DNR Memorandum, Georgia Power Company's Plant Hammond, NPDES Permit Number 0001457 (July 27, 1990).

But these conclusions were met with determined resistance from Georgia Power, who sought to lay blame on the "complex and variable" nature of the Coosa River's hydrothermal regime, which the Company has said is a function of Weiss Dam and Lake Weiss, and not of Plant Hammond's heated discharges. DNR Memorandum, Georgia Power – Plant Hammond, at 1 (Sept. 20, 1989). In response, DNR's Fish and Game Division held firm to its opinion that "Lake Weiss has nothing to do with temperature violations." By 1991, Georgia Power had succeeded in convincing EPD that "concerns raised by Game and Fish has [sic] been adequately addressed by the hydrothermal studies which Georgia Power has previously conducted and have been approved by EPD. Therefore, no additional studies related to the thermal discharge from Plant Hammond will be required until further directed by EPD." Letter from Chris M. Hobson, Georgia Power, to David M. Word, EPD, (Apr. 19, 1991). Since that time, there is no evidence in the permit record that DNR Fisheries experts have been consulted with respect to Plant Hammond's thermal discharges, including during development of the Draft Permit.

Likewise, in 2004, EPD determined that "[i]n order to attain the dissolved oxygen water quality standard in the Coosa River, a thermal reduction is required at Plant Hammond." TMDL DO at 33. EPD performed modeling to derive maximum allowable heat load limits for Plant Hammond during the critical summer months (June through September). *Id.* at Table 14. Nonetheless, while EPD assured the public that the TMDL limits would be used to assess NPDES permit renewals, the permit limits were not in fact incorporated into Hammond's NPDES permit when the permit was renewed in 2007. Instead, Georgia Power was allowed to continue using the same temperature compliance regime that has been in place for decades: no thermal loading limits; only a requirement to demonstrate that state water quality standards are

being met more than a half a mile downstream. Because the permit was not renewed upon its expiration in 2012, that is the same compliance regime in place to this day.

The Draft Permit proposes now finally to change the status quo, imposing for the first time thermal limits on Plant Hammond's heated discharges. This is based on EPD's determination that the cause of the Coosa River's temperature impairment "is known," that the known cause is Plant Hammond, and that the best way of addressing the problem is to strengthen Hammond's NPDES permit (the so-called "direct to implementation" alternative). While these determinations are certainly welcome (as well as long overdue), there are multiple problems with EPD's approach, as detailed in Section II.A below.

2. *Impingement and entrainment.*

Harm to aquatic life is further compounded by Plant Hammond's cooling water intake structure. This structure draws in about 260 million gallons of water from the Coosa River each day, but when the facility is operating at full capacity, it may take in over 600 million gallons of water per day. 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 through with the cooling water at the intake. Both result in injury or mortality to aquatic life.

Throughout its more than 60-year operating life, Plant Hammond has been impinging and entraining large numbers of fish, fish larvae, and other aquatic life. According to a 2006 impingement study, annual fish impingement estimates range between about 30,000 and 60,000 fish per year at Plant Hammond. Preliminary Report of Fish Impingement Mortality at the Plant Hammond Steam Electric Generating Facility, prepared by Georgia Power with GeoSyntec Consultants, at 23, 25 (Aug. 2006) (hereinafter, "2006 Impingement Study"). Further, the massive water withdrawals can at times claim nearly all of the river's flow. The design intake is 945 cubic feet per second (cfs). Permit Application at 316(b) Addendum. Flow measurements in Georgia Power's 2005-2006 Coosa River Survey range dramatically, but dropped below 1,000 cfs on several occasions.[8] Thus, when Plant Hammond is operating near its capacity during low flow, much of the river's water can be drawn in, putting aquatic life at risk.

Many aquatic organisms threatened by impingement and entrainment reside in impaired waters. 79 Fed. Reg. 48300, 48318 (Aug. 15, 2014). This is true for aquatic life in the Coosa River. The section of the Coosa on which Plant Hammond sits is already impaired for temperature, dissolved oxygen, fecal coliform, and PCBs. Fact Sheet at 9. The burden imposed by the thermal discharges, low dissolved oxygen levels, and damage from the cooling water intake system combine to degrade the overall ecology of the river. Thermal discharges can, in fact, exacerbate impingement mortality, by attracting aquatic life to the intake area.[9] Plant

[8] *See* Georgia Power's Coosa River Survey, 2005-2006 (3 of 102 sample dates indicated flows below 1,000 cfs - 8/28/2006, 9/20/2006, 11/6/2006).

[9] Literature review titled, Impacts of Thermal Pollution on Aquatic Resources at 2, attached to Memo re Georgia Power Company's Plant Hammond, to D. Word from M. Gennings (July 31, 1990) ("Where a portion of a thermal discharge is recirculated into the intake, increased impingement problems can result due to thermal attraction to the intake area.").

Hammond's thermal discharges are so forceful that they create an upstream swirl of water, pushing fish back upstream toward the intake. Mar. 1989 Fisheries Memo at 1.

3. *Coal ash and scrubber waste impoundments.*

Toxic pollutants common in coal ash and scrubber wastes include arsenic, mercury, and selenium. Arsenic causes cancer, including lung cancer, skin tumors, and internal organ tumors, and is connected to heart problems, nervous system disorders, and stomach pain. EPA estimates that nearly 140,000 people per year experience increased cancer risk due to arsenic in fish from coal-fired power plants. Mercury is a highly toxic compound and dangerous even in small concentrations as it bioaccumulates and impairs brain development in children and causes nervous system and kidney damage in adults. EPA estimates that almost 2,000 children per year are born with lower IQs because of mercury in fish that their mothers have eaten. Short-term exposure to selenium can cause hair and fingernail changes, damage to the peripheral nervous system, and fatigue and irritability, whereas long-term exposure can damage the kidneys, liver, and nervous and circulatory systems. Selenium is acutely poisonous to fish and aquatic life in even small doses; concentrations below 3-8 micrograms per liter can kill fish, and lower concentrations can leave fish deformed or sterile. Selenium, too, bioaccumulates and can impair ecosystems by interfering with fish reproduction. Finally, in addition to these toxic metals, EPA also limits the discharge of nitrates, which can lead to algal blooms and eutrophication that can choke watersheds and severely damage riverine and estuarine environments. Plant Hammond's ash ponds contain all of these pollutants and others, including cadmium, lead, and boron.

In its environmental assessment ("EA") addressing the new Effluent Limit Guidelines ("ELGs"), EPA concluded that "current scientific literature indicates that steam electric power plant wastewater is *not* a benign waste."[10] The EA explained that coal ash ponds at steam electric power plants such as Plant Hammond "accumulate high concentrations of toxic pollutants," and that "[l]eachate or seepage may occur from [these] surface impoundments or landfills containing combustion residuals."[11] EPA concluded that there is "substantial" evidence that pollutants from coal combustion wastewater discharges to nearby recreational waters can present a threat to human health.[12] Once these pollutants are released from coal ash pits to nearby waters, their harmful effects are persistent and widespread—precisely the sort of harm the Clean Water Act is designed to prevent. *See* 33 U.S.C. § 1251(a). As EPA recognized, "[a]fter being released into the environment, pollutants can reside for a long time in the receiving waters, bioaccumulating and binding with the sediment. There is documented evidence of slow ecological recovery as a result of these pollutant discharges . . . Some impacts might not be realized for years due to the persistent and bioaccumulative nature of the pollutants released."[13] "In addition, EPA's [EA case study] modeling demonstrates that pollutant loadings from discharges of [these wastestreams] are

[10] Environmental Assessment for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (hereinafter, "EA"), at 3-1 (Sept. 2015) (emphasis added), available at https://www.epa.gov/sites/production/files/2015-10/documents/steam-electric-envir_10-20-15.pdf (accessed March 10, 2017).
[11] *See id.* at 2-3.
[12] *Id.* at 1-1.
[13] *Id.* at 3-1.

impacting areas beyond the immediate receiving waters and *pose a threat to wildlife and human populations in thousands of river-miles downstream from steam electric power plants . . .*"[14]

4. *Coal ash pond dewatering.*

Harm associated with regular discharges from coal ash ponds could increase drastically with Georgia Power's planned coal ash pond dewatering. While ordinary pond discharges certainly pose a threat to the river, aquatic life, and the community downstream of Plant Hammond, these discharges are limited to the upper portion of the water column, leaving the removed, settled waste contained within the coal ash ponds themselves. The threat from toxic pollutants contained within coal ash wastes increases exponentially with the wholesale draining and dewatering of CCR and scrubber wastes, because both pumping wastewater from within lower portions of the water column and mechanical manipulation of the ash attendant to dewatering operations will re-suspend the removed and settled wastes, the attendant wastewaters saturating those wastes, and therefore contribute materially and substantially higher concentrations of pollutant-impacted wastewater to the effluent.

II. SPECIFIC COMMENTS

A. <u>The draft permit fails to protect water quality from harmful thermal loading</u>.

The Draft Permit proposes to set certain thermal loading limits on Plant Hammond's cooling water discharges. Draft Permit at I.A.1.b. However, despite the limits being based on a Wasteload Allocation that EPD developed specifically for Plant Hammond using a water quality model, and the thermal limits purportedly being designed to achieve state water quality standards for temperature, a closer examination of the proposed limits reveals critical flaws that would preclude the limits from adequately protecting the Coosa River.

First, whatever the merits of the modeling exercise as a general matter, it uses as a core assumption the same unreasonably large mixing zone that has been in place for decades, in spite of which (or more accurately because of which) the Coosa remains impaired for temperature. Rather than use the modeling exercise to determine the appropriate size of the mixing zone, EPD treats the existing, unreasonably large mixing zone as a given. EPD then derives maximum heat loads which, at best, are designed to achieve compliance only at the edge of that massive zone, and not a millimeter before. Thus, the Draft Permit would merely perpetuate the status quo, allowing Plant Hammond to burden as much of the river with waste heat as the current permit—a stretch of river that is *more than a half a mile long*. EPD's approach has things backwards. EPD should be using the modeling to define a *reasonable* and *limited* mixing zone, and not merely to continue the one already in place, which is not reasonably limited.

Second, the Draft Permit could actually allow for worsening of the status quo. The new effluent limitations would supplant the current permit's temperature limits and the corollary requirement to perform weekly instream temperature measurements as a means of demonstrating compliance. In place of requirements that demonstrate whether instream temperature standards are *actually being met*, EPD proposes requirements that merely *predict that outcome* based on theoretical modeling. Georgia Power would be required to measure and report instream

[14] *Id.* at 9-1 (emphasis added).

temperatures only twice per year, with no requirement to actually meet instream water quality standards for temperature. While EPD seeks to assure the public that these proposed revisions do not constitute backsliding, the unlawful relaxation of existing permit standards is precisely what these revisions amount to.

As discussed further herein, EPD can resolve these problems in the following ways: (1) define and implement a *reasonable* and *limited* mixing zone, as required by Georgia water quality regulations, and re-run the WLA model with that revised input (and other changes discussed below); (2) in addition to thermal limits, retain the current permit's temperature limits and requirements for instream monitoring on a weekly basis. This would provide a necessary backstop to ensure that the thermal effluent limits are actually achieving water quality standards at the edge of the mixing zone, as reasonably re-defined. And, (3) revise other modeling inputs so that the model produces thermal limits that are appropriately conservative.

1. *The Draft Permit relies on an unreasonably large and therefore unlawful mixing zone.*

The point of EPD's modeling exercise was to determine, for a range of modeled flows, the maximum amount of heat that Plant Hammond could put into the river in any given month "and still meet temperature standards downstream." Fact Sheet at 24. By "downstream," however, EPD simply means at the edge of the approved mixing zone and beyond. For the heat loads authorized under the proposed new thermal limits, the modeling predicts that temperature standards will be met "at that location"—i.e., the "edge of the mixing zone." ***Id.*** at 26-27. The edge of the mixing zone is defined as River Mile 269.6, which lies some 3,168 feet downstream of Plant Hammond's discharge.

The mixing zone has been in place for so long that the creation and substantiation of it are no longer apparent in the permit record. The current permit refers to it as the "defined mixing zone" but there is no definition of it in the permit or (that we could find) in the permit record, other than the frequently occurring description of its outer edge as occurring at River Mile 269.6. The lack of any clear definition of the mixing zone has puzzled past observers.[15] As long ago as 1988, DNR Game and Fish personnel were prompted to ask questions that remain relevant to this day:

> What are the legal requirements and duties of a mixing zone? What and where is the "mixing" zone for Plant Hammond? . . . How far does it extend upstream and downstream from the discharge? Does anyone know if this mixing zone creates a barrier for fish movement up or downstream? Is it acceptable to use the natural system as part of a treatment system?

DNR Memorandum, at 2 (Sept. 28, 1989).

What the record (such as it is) appears to show is that the mixing zone is defined as the *entire width and depth of the river* from the discharge point to river mile 269.6. Further, the

[15] In fact, past commenters raised similar questions in comments on the 2007 NPDES permit renewal. In response, EPD simply pointed to the vague, non-descript language in the current permit at Part I.A.2. at *2, asserting that the footnote defined Plant Hammond's mixing zone. *See* EPD's Response to Comments on 2007 draft Plant Hammond NPDES Permit, at 2 (Nov. 15, 2007).

record shows that EPD will consider Georgia Power to be in compliance with state water quality standards for temperature if those standards are met at the edge of the mixing zone—in other words, there is no requirement to meet temperature standards within the mixing zone (ever). Thus, although the record is far from clear in terms of the origins and substantiation of the mixing zone, we can deduce the following: (1) it is extremely large; (2) within its reach it provides a total exemption from state water quality standards for temperature; (3) it has resulted in periodic fish kills; and (4) although its purpose is to ensure the full and homogenous dispersion of effluent, its existence has not prevented the Coosa River's ongoing temperature impairment—in fact, it is the cause of that condition.

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). In assessing the need for water-quality based effluent limitations, Georgia's water quality regulations do permit the use of mixing zones, Ga. Comp. R. & Regs. 391-3-6-.03(10), and for that reason, water quality modeling may be necessary to characterize the interaction between the effluent and the receiving water.[16] However, the permit writer's task is first to assume critical conditions for protection of receiving water quality, and then to determine the size of the mixing zone that is available under those critical conditions.[17]

Furthermore, under Georgia's water quality regulations a 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.[18] *Id.*

Here, EPD's model improperly treats the existing mixing zone as a fixed input. *See* Sept. 2016 WLA memo at 7 ("To allow for complete mixing of Plant Hammond's cooling water discharge with the receiving stream, the facility's instream temperature compliance point is located~3000 feet downstream . . . For the heat loads given in the table above, the simulations predict that the maximum instream temperature will remain below 90ºF at that location. The results also predict that the maximum temperature increase will remain below 5ºF."). EPD should instead be using this permitting process to reconsider the appropriateness of the mixing zone, especially in light of the Coosa's persistent impairment for DO and temperature.

The current mixing zone is neither reasonable nor limited. Not only does it extend more than a half mile downstream, it extends upstream of the discharge as well. DNR personnel have observed that the discharge strikes the opposite river bank with sufficient volume and velocity to cause the swirling and movement of water upstream. March 1989 Fisheries Memo at 1; *see also* Email from Dr. R. Burke, EPD to C. Nezianya, EPD (Nov. 25, 2014) (hereinafter, "Dr. Burke email") (stating that "the current 'intake' temperature does not properly represent the 'cooler'

[16] NPDES Permit Writers' Manual at 6-16 (Sept. 2010), available at https://www.epa.gov/sites/production/files/2015-09/documents/pwm_2010.pdf.
[17] *Id.*
[18] While this language may refer only to toxic substances and not to heat *per se*, that does not mean a zone of passage is not required to protect against thermal pollution. It would make little sense to require a zone of passage against toxic discharges but not one for protection against heat-induced mortality. A mixing zone with no provision for safe passage through heat would not be reasonable or limited, and would fail to provide protection from an objectionable and damaging pollution condition.

open River temperature upstream unaffected by the heatload."). Within its reach, the mixing zone has been documented to produce "destratification" of the river so that uniformly high temperatures exist at all depths—i.e., the complete overtaking of water quality, the opposite of complete mixing. This in turn can produce, and has produced, objectionable and damaging pollutions conditions within the mixing zone, including conditions lethal to fish and the river segment's overall impairment for temperature. As DNR personnel have observed, the mixing zone can serve as both a barrier to fish movements, or during short-term fluctuations, a lethal trap.[19]

It is apparent from the permit record that Plant Hammond's thermal discharges suffer from incomplete mixing. In fact, Georgia Power's attempts to blame Lake Weiss for its past thermal exceedances rely on the assertion that the river is at times more "lake- or reservoir-like," which hinders rapid and complete mixing. But rather than justify the use of an unreasonably large mixing zone, this hydrodynamic reality compels a different result: Plant Hammond must rein in its thermal discharges so that only an appropriately limited portion of the river is impacted. In an incomplete mix situation, "the use and size of the mixing zone must be limited such that the waterbody as a whole will not be impaired and such that all designated uses are maintained."[20] The existing mixing zone is not so limited; it is the reason the Coosa is impaired for temperature.

Because the mixing zone is unlawful it cannot be used as the basis for new thermal limits in Plant Hammond's NPDES permit, and certainly should not be taken as a given for purposes of the modeling. EPD must instead define a reasonable and limited mixing zone. In order to provide a safe zone of passage for fish, the mixing zone must be defined as some reasonable fraction of the stream width at Outfall 01 (approximately 345 feet) and some reasonable length downstream. EPA's NPDES Permit Writers' Manual provides examples for rivers and streams that include the following:

- No larger than ¼ of the stream width and ¼ mile downstream
- Less than ½ stream width with a longitudinal limit of 5 times the stream width
- Not greater than 1/3 of the critical low flow[21]

The current mixing zone goes well beyond these illustrative examples. If a mixing zone is to be allowed at all, it must be reasonable and limited, and even then, Georgia Power must show that the mixing zone so redefined is both necessary and will not create an objectionable or damaging pollution condition.

2. *The mixing zone is a de facto variance, which EPD proposes to grant without complying with CWA requirements for variances*.

If the reality is that Georgia Power cannot continue operating without an unreasonably large and ecologically damaging mixing zone, then EPD should recognize that what the Company really requires is a variance. A mixing zone as large and comprehensive as Plant

[19] *See also* July 1990 Fisheries Memo ("Since the mixing zone under the current operating conditions includes the complete width and depth of the river over a 0.6 mile stretch, there is the possibility that an impediment to fish movement could occur at times.").
[20] NPDES Permit Writer's Manual at 6-21.
[21] *Id.* at 6-22, Exhibit 6-9.

Hammond's is a variance in all but name, albeit one without the special protections required of variances. EPD should recognize the absurdity of perpetuating a mixing zone that is *less protective* than what a variance would require.

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).

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."[22]

Georgia Power has provided none of the required information because EPD has (so far) allowed the Company to get away with asserting the need for an unreasonably large mixing zone rather than a variance. In the meantime, despite what amounts to a variance for a large section of the river, Georgia Power has provided no assurance that a balanced, indigenous population of aquatic life is being maintained. Georgia Power is unlikely to welcome that burden of proof and probably could not carry it. To be clear, Commenters would oppose the grant of a variance in this instance. But EPD ought not to continue the fiction that a mixing zone as vast and unreasonable as the one afforded to Plant Hammond for the last five decades is anything other than an unlawful variance from state water quality standards for temperature.

Ultimately, the outcome compelled by Georgia's water quality standards is neither to continue an unreasonably large mixing zone nor to grant a variance that has no chance of ensuring a balanced indigenous fish population. Instead, EPD should impose effluent limitations that actually require Plant Hammond to remedy its thermal burden on the Coosa River once and for all.

[22] Memo from James Hanlon, EPA, Director of Office of Wastewater Management to Regional Water Division Directors at 3 (Oct. 28, 2008) (Attachment 1).

3. *The Draft Permit's proposed elimination of temperature limits based on state water quality standards violates the CWA's Anti-Backsliding Regulatory Provisions.*

The current permit contains effluent limitations that directly incorporate state water quality standards for temperature. *See* Plant Hammond NPDES Permit No. GA0001457 at 3 (Nov. 9, 2007) (hereinafter, "current permit"). Plant Hammond's once-through cooling water must meet a "compliance temperature" of 90ºF or 5ºF above intake temperature. *Id.* Compliance is determined by monitoring temperature at the plant intake and at the edge of the mixing zone on a weekly basis. *Id.* at n.2. Georgia Power has had trouble meeting these limits. For example, on June 13, 2007, the Company reported an instream reading of 91ºF during drought conditions (990 cfs). Letter from Georgia Power to EPD re Exceedance of maximum temperature, Outfall 01A (June 18, 2007). In Georgia Power's 2005-2006 Coosa River Survey, at least 10 of 101 samples downstream of the discharge either exceeded 90ºF or 5ºF above intake temperature. 2005-2006 Georgia Power Plant Hammond Coosa River Survey.[23] These exceedances occurred at flows ranging from 961 cfs up to 2,880 cfs.[24] In addition, as noted previously, during the fish kill episodes of the late 1980s, instream temperatures and temperature changes in excess of 100ºF and 16ºF, respectively, were documented.[25]

The existing compliance regime is not perfect. It relies, as previously discussed, on an unreasonably large mixing zone. In addition, it uses temperature at the intake structure in order to measure compliance with the temperature change (delta-T caused by heat load) limitation of 5ºF. As past observers have noted, temperature at the intake location is not reflective of ambient conditions because, among other things, the facility's discharges are forceful enough to impact temperatures there. March 1989 Fisheries Memo at 1; *see also* Dr. Burke Email. This is contrary to Georgia's water quality regulations, which define "intake temperature" as the "natural or background temperature of a particular waterbody *unaffected by any man-made discharge or thermal input*." Ga. Comp. R. & Regs. 391-3-6-.03(3)(f) (emphasis added). The use of intake temperatures already above ambient conditions may produce false results, showing the facility to be in compliance with the 5ºF change limitation when in fact it may not be. This appears to be why EPD now recommends against using measured intake temperature as a means to determine permit compliance. *See* Sept. 2016 WLA memo at 7 (citing "potential influence among the various intakes and discharges within close proximity to Plant Hammond.").

But in fact EPD's proposed revisions go much further. The Draft Permit proposes to *eliminate* the existing permit's temperature-based effluent limitations. Instead of having to demonstrate compliance with the 90ºF and 5ºF criteria on a weekly basis, Georgia Power would now only be required to take and "report" the temperature values twice per year. Draft Permit at 2. This infrequent reporting of temperature conditions would be required not for purposes of demonstrating compliance with state water quality standards for temperature but merely in order to "validate the model predictions" that underlie the proposed new thermal limits. Fact Sheet at 27.

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[23] Georgia Power detected above 90^0F temperatures in 3 of 101 sample events (8/11/2006; 8/16/2006; 8/23/2006) and downstream temperatures at least 5^0F above the intake temperature in at least 9 of 101 sample events (8/31/2005; 6/15/2006; 6/22/2006; 7/18/2006; 7/25/2006; 8/11/2006; 8/23/2006; 9/15/2006; 9/20/2006).

[24] Only one of the 10 exceedances was detected at flows less than 1,000 cfs and four of the 10 exceedances were detected when flows exceeded 2,000 cfs.

[25] *See e.g.*, August 1986 Fisheries Memo at 2; June 1988 Fisheries Memo at 1.

In other words, not only will Georgia Power no longer have to conduct weekly monitoring (it can instead do just two monitoring events per year, whenever it wants), but any exceedances of state water quality standards that such monitoring reveals *will no longer be considered permit violations.* Compliance is instead judged solely on whether the facility is meeting its new thermal loading limits, and that compliance determination does not depend on the temperature (or temperature change) of the receiving water. Rather, compliance would be determined from an equation included in the Draft Permit, where temperature is determined as the result of the difference between two variables: the temperature at the "condenser outlet" and the temperature at the "condenser intake." Draft Permit at 4.

The proposed revisions violate the Clean Water Act's anti-backsliding 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.[26] "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.[27] Clean Water Act ("CWA") Section 402(o)(1) prohibits relaxation of an effluent limitation that is based on state standards, such as water quality standards, unless the change is consistent with CWA Section 303(d)(4).

Here the proposed revisions do not meet Section 303(d)(4) because the relevant segment of the Coosa is a "nonattainment water"—it is impaired for both temperature and dissolved oxygen. Where the water segment is not attaining water quality criteria, a permittee seeking relaxation of an existing effluent limitation must show two things: (1) that the existing effluent limitation is based on a TMDL or other WLA established under CWA Section 303 and (2) that attainment of water quality standards will be ensured despite the proposed change.[28] In addition, Clean Water Act Section 402(o)(3) – the "safety clause" provision – provides an absolute backstop, prohibiting the relaxation of effluent limitations in all cases if the revised effluent limitation would result in violation of applicable water quality standards.[29]

EPD's proposed changes meet none of the above requirements. First, the existing effluent limitations are not based on a TMDL or other WLA under Section 303. Instead, they directly incorporate and enforce state water quality standards for temperature. Hence, it does no good for EPD to assert that its changes do not constitute backsliding because "the permit limits in this permit, which are more stringent, supersede the 2004 DO TMDL heat allocation." Fact Sheet at 9. The 2004 DO TMDL limits were never incorporated into the existing permit, even though that was what EPD, at the time, promised to do. *See* TMDL DO at 33, 42. The relevant limits for purposes of the anti-backsliding analysis are the ones the existing permit actually contains, and those indisputably are not based on a TMDL or WLA analysis.

Second, the proposed revisions will not assure compliance with state water quality standards for temperature; in fact, the Draft Permit would not even allow such compliance to be determined as a real-world matter. So long as Georgia Power is meeting its thermal loading

[26] NPDES Permit Writers' Manual at 7-1.
[27] *Id.* at 7-2.
[28] *Id.* at 7-3.
[29] *Id.* at 7-4.

limits, it would be in compliance with the Draft Permit's terms, even if the river temperatures are violating state water quality standards throughout (and beyond) the unreasonably large mixing zone. Indeed, the proposed revisions would allow Georgia Power to substitute, for compliance demonstration purposes, an internal monitoring point for an external one. Georgia Power would now be permitted to demonstrate compliance solely on the basis of temperature monitoring within the plant boundary, as a function of the temperature difference entering and exiting the condenser. But internal monitoring—the monitoring of a wastestream at a location within the facility before discharge to waters of the United States—"is generally not appropriate for determining compliance with water-quality based effluent limitations."[30] And where it takes the place of instream monitoring for compliance demonstrations it is backsliding.

EPD should, of course, attempt to strengthen the existing permit. That is one of the fundamental objectives of renewing a NPDES permit, and here, as noted, the permit has already missed one renewal cycle. New thermal loading limits are a welcome addition to the permit *if* based on a reasonably limited mixing zone and other appropriately conservative assumptions. But those changes should not, and may not, be coupled with revisions eliminating the ability to determine whether the new limits are *actually achieving their stated aim of meeting water quality standards downstream*. To avoid violating anti-backsliding requirements, EPD must retain the current permit limits which require a demonstration of compliance based on instream monitoring. However, EPD should also make the following improvements: (1) define a reasonable and limited mixing zone; and (2) require that the temperature baseline monitoring point be relocated away from the intake structure and at a sufficient distance upstream to give a proper indication of the temperature change caused by the heat load. EPD should, in other words, retain and improve (rather than scuttle) the existing limitations, as a necessary backstop to the new thermal limits.

4. *EPD's modeling underlying the proposed new thermal limits is flawed because it fails to rely on critical conditions.*

EPD's water quality modeling for Plant Hammond is based on the need to assign the facility a permissible "heat load." EPD has used modeling to determine for any given month, and for a variety of river flows, how much heat Plant Hammond can add to the river without violating state water quality standards for temperature. Because the Coosa River is impaired for both temperature (a pollutant) and dissolved oxygen (an effect of such pollution), EPD must allocate to Plant Hammond a wasteload that does the hard work of resolving those impairments.

Water quality modeling seeks to characterize the interaction between the effluent and the receiving water. But as a model, its validity is highly dependent on the assumptions that go into it. Generally, permit writers are advised to assume critical conditions for such inputs as effluent flow, receiving water flow, and pollutant concentrations in both the effluent and the receiving water.[31] Conservative assumptions are especially appropriate for impaired waters, where wasteload allocations "must include a margin of safety to ensure that the waterbody can be used for the purposes designated in the water quality standards, to provide for uncertainty in

[30] NPDES Permit Writers' Manual at 8-4.
[31] *Id.* at 6-16 to 6-18.

predicting how well pollutant reduction will result in meeting water quality standards, and to account for seasonal variations."[32]

A review of EPD's modeling memoranda (the initial memorandum dated September 26, 2016, as well as two subsequent addenda dated November 9, 2016 and February 9, 2017,[33] respectively) show that EPD has not used conservative assumptions. The result is the likelihood that the proposed new thermal loading limits will not resolve the Coosa River's impairments for temperature and DO in a meaningful way. Commenters recommend the following improvements to the modeling methodology:

a. Modeling should not rely on the current unlawful mixing zone.

For the reasons discussed in Section II.A.1 *supra*, the model should not treat the existing zone as a given. Sept. 2016 WLA Memo at 7. Instead, modeling should be based on a lawful reasonable and limited mixing zone, even if that means lower allowed thermal limits.

b. The model should rely on the most conservative set of flow data as well as account for the effects of climate change.

The model uses minimum flow data from the "US Army Corps of Engineers recent record of decision to modify operations within the ACT basin" —specifically, the so-called "Plan G" adopted by the Corps. Sept. 2016 WLA Memo at 4. The Corps' decision is currently under challenge by the State of Alabama and other groups as part of the long-running "water wars."[34] While the outcome of that litigation is uncertain, one possibility might be a requirement to provide additional flows to Alabama, which could result in reduced flows available to Plant Hammond for assimilating its thermal discharges. For that reason alone, the use of Plan G flow projections is neither a solid nor conservative assumption.

EPD relies on the Plan G minimum flows in place of historical data. Historical flows were the basis of EPD's 2004 load allocation for Plant Hammond. For many months, the historical low flows are lower than the projected Plan G flows, meaning that the historical low flows are the more conservative assumption for purposes of water quality modeling. This includes the critical summer months of June and July, where the historical flows are significantly lower than the projected Plan G flows. Notably, EPD has already had to re-run its analysis because "actual gaged Coosa River flows during 2016 have been significantly lower than the monthly Plan G benchmarks." WLA Addenda Memo (Nov. 9, 2016) (hereinafter, Nov. 2016 WLA Addenda"). Commenters therefore recommend that where historical flow data yield a value lower than the Plan G flow data, that EPD use the former—especially for the months of June and July.

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[32] *Id.* at 6-14.

[33] Note that this WLA is dated February 9, 2016; however, Commenters believe it to have been mis-dated because the content references the September and November 2016 WLAs.

[34] In May 2015, just three days after the Corps finalized its Record of Decision and Final Environmental Impact Statement, selecting Plan G, the State of Alabama and Alabama Power filed suit in the U.S. District Court for the District of Columbia challenging the decision. Several other groups intervened. Plan G is relevant to this decision because part of the Corps' plan addresses flows from Lake Allatoona, which flows to the Etowah River. The Etowah River becomes the Coosa River, which flows into Alabama. Plaintiffs allege that Plan G will reduce the quantity and quality of water flowing into Alabama. The FEIS acknowledges that reduced flows will result in adverse effects on downstream levels of dissolved oxygen, phosphorus, nitrogen, and chlorophyll. The case is ongoing.

In addition, EPD should revise the modeling to account for the effects of climate change. "In the coming decades, Georgia will become warmer, and the state will probably experience more severe floods and drought . . . . As temperatures rise, less water is likely to flow into the Chattahoochee and other major rivers."[35] This may "impair ecosystems, swimming, and other recreational activities, and reduce hydroelectric power generation."[36] As EPA has advised, "[m]odelers should be aware that the effects of climate change could alter historical flow patterns in rivers and streams, making . . . historical flow records less accurate in predicting current and future critical low flows. Where appropriate, water quality modelers should consider alternate approaches to establishing critical low flow conditions that account for these climatic changes."[37]

Georgia is already experiencing warmer temperatures and more frequent drought conditions that appear related to climate change. As a result neither the Plan G minimum flow projections nor the historical record provide an appropriately conservative basis for Plant Hammond's wasteload allocation. EPD should revise its minimum flow data to take climate impacts into account.

c. The modeling should use maximum cooling water flow rate rather than the average.

A key variable in the model is the cooling water flow rate, which assesses the overall volume of heated discharge that Plant Hammond may add to the river at any given time. As noted previously, the Draft Permit is premised upon a maximum daily value for the final plant discharge of 620 MGD. Draft Permit at 4. Instead of this figure the model uses the "average cooling water flowrate as specified by GPC (548 MGD) along with a temperature that varied by month." Sept. 2016 WLA Memo at 5. EPD should have instead used the maximum permitted flowrate (620 MGD), which would produce a more conservative assumption by reflecting critical, worst-case conditions.[38] Alternatively, EPD should use different numbers for each month corresponding to actual discharge averages for that month (e.g. average July flow rates in order to calculate thermal limits for July discharges). An average based on the flowrates for all months is insufficiently protective of water quality.

d. EPD must divulge the "new information and analysis" allegedly supporting its second WLA amendment.

The record shows that EPD twice revisited its WLA analysis in the months leading up to the Draft Permit's issuance. In each instance the Coosa River lost protections. Under the initial analysis, dated September 26, 2016, EPD recommended *no* thermal loading for stream flows below 1500 cfs during July or 1157 cfs for all other months. Sept. 2016 WLA Memo at 7. In other words, no heat loading under those conditions was judged necessary to meet water quality standards at the edge of the mixing zone.

Yet, less than two months later EPD modified the WLA based on "new information and analysis," specifically, the finding that actual gauged flows during 2016 had been "significantly

[35] EPA, What Climate Change Means for Georgia, EPA 430-F-16-012 (August 2016).
[36] *Id.*
[37] Permit Writers' Manual at 6-19.
[38] It is worth noting that the 2004 DO TMDL used the figure of 655 MGD for the average monthly flow from Plant Hammond. *See* TMDL DO at 13.

lower than the monthly Plan G benchmarks." Nov. 2016 WLA Addenda at 1. Thus, EPD determined that "additional modeling at flowrates below the originally-assumed low flows was appropriate." *Id.* Remarkably, rather than use this information to tighten the proposed thermal limits, EPD now changed the analysis to permit July loading below 1500 cfs and loading in all other months below 1157 cfs. In fact, the revised limits permit thermal loading in all months at flows as low as 751 cfs. *Id.* at 2. However, EPD made clear that thermal loading below that level would be prohibited. A proposed draft permit sent to Georgia Power in January 2017 included the following provision: "When stream flow is below 750 cfs thermal loading from the facility is prohibited."

Two months later, in the face of what one might presume was pushback from Georgia Power, EPD revisited its analysis for a second time. Again citing "new information and analysis" EPD now provided recommended thermal limits for flows ranging from 501 cfs to 750 cfs. WLA Addenda Memo at 1 (Feb. 9, 2017) (hereinafter, "Feb. 2017 WLA Addenda"). Presumably thermal loading at flows below 501 cfs is prohibited, but notably, the Draft Permit does not state that.

The February 9th WLA amendment contains absolutely no description of the "new information and analysis" allegedly supporting this second change to the wasteload allocation. EPD's failure to provide this information violates applicable regulations governing the issuance of draft NPDES permits and supporting documents. The fact sheet accompanying a draft NPDES permit must include "an explanation and calculation of effluent limitations and conditions." 40 C.F.R. § 124.56; Ga. Comp. R. & Regs. r. 391-3-6-.06(7) (b)(vi) ("EPD will prepare and distribute a fact sheet in accordance with Federal Regulations, 40 C.F.R. 124.8 and 124.56 and applicable State law."). Commenters respectfully ask that EPD provide the "new information and analysis" prior to issuing a final permit and allow public comment based on that information.

In the interim, EPD's ongoing revisions to the WLA and willingness to relax recommended limits in response to apparent pushback from Georgia Power do not inspire confidence. Accordingly, as set forth above, EPD should revise its modeling to include more robust and conservative assumptions. In addition to historical flowrates, EPD's model should include assessment of climate change impacts. Finally, EPD should restore the original proposed prohibition on thermal loading below 1500 cfs in July and 1157 cfs in all other months.

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. As such the Draft Permit as noticed is deficient and must be revised to comply with federal law. To remedy its 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. Further, in finalizing the permit, EPD should require closed-cycle, re-circulating cooling towers as the Best Technology Available ("BTA").

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. 48300, 48424 (Aug. 15, 2014) (signed on May 19, 2014).

The 316(b) rule requires facilities to implement BTA to reduce impingement mortality and entrainment. 79 Fed. Reg. 48300. 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 48342.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 May 2016 permit renewal application—submitted, it should be noted, two years after the rule's finalization—essentially punts this requirement. The application merely provides summary information prepared years ago, before the 316(b) rule was even issued in its current form.[39] In December 2016, two and a half years after the 316(b) rule was published, Georgia Power submitted an entrainment characterization "study" plan, not an assessment of the facility's entrainment impacts but rather a proposal for studying such impacts in the future. The application provides little to no new substantive analysis on impingement and entrainment. Notably, Georgia Power's application did not include, and it appears EPD did not consider, Georgia Power's 2006 impingement study in connection with the Draft Permit.[40]

Instead, Georgia Power seeks to delay compliance with most of the 316(b) rule requirements, including BTA selection. Georgia Power wants another 5 plus years to comply, even though more than two and half years have already elapsed since the rule's publication. EPD proposes to allow this, and in the meantime, ignores its own obligations under the rule. All the while, the Coosa River and the surrounding community will continue to bear the burden of Plant Hammond's impacts—impacts which are hardly new. Georgia Power has had decades to assess the impingement and entrainment impacts of Plant Hammond's operation. It is simply absurd to think that Georgia Power should need *more time*.

[39] The data submissions for Sections 122.21(r)(2), (3), and (5), are nearly identical to narrative descriptions provided in Georgia Power's December 14, 2011 permit renewal application and background information provided in the 2006 Impingement Study. This evidences Georgia Power's failure to take actions to comply with the rule.

[40] While it is peculiar that Georgia Power did not include its 2006 impingement study in its permit application materials, and thus, it appears EPD did not consider it, there are serious deficiencies with the 2006 study. For example, the 2006 impingement study asserts that Plant Hammond draws cooling water from Lake Weiss - this is simply untrue, as discussed in detail below, *infra* Section II.B.6.

1. *Recirculating cooling towers are the Best Technology Available for addressing impingement and entrainment at Plant Hammond.*

In renewing the Hammond NPDES permit, federal law requires EPD to reduce the harm from Hammond's cooling water system to aquatic life down to levels commensurate with the performance of the best technology available. *See* 33 U.S.C. § 1326(b) (requiring that "the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact."). A closed-cycle cooling system is the single most effective technology for reducing entrainment and impingement. Closed-cycle cooling systems "can achieve flow reductions of 97.5 and 94.9 percent or better for freshwater and saltwater sources, respectively," 79 Fed. Reg. at 48,333, as well as dramatically reduce a facility's thermal discharge. Such cooling towers are already in place on most of the coal-fired units in Georgia Power's fleet; for example, Plants Wansley, Scherer, and Bowen all use cooling towers.

According to Georgia Power's own studies, Plant Hammond may cause annual impingement mortality of "30,290 fish with a total biomass of 768 kg (1,693 lbs)." 2006 Impingement Study at 26. This figure is even higher (58,697 fish per year) when determined from conventional impingement estimates. *Id.* at 25. Given the reality that the overall mortality of aquatic life is generally orders of magnitude greater for fish larvae and eggs entrained within a cooling water system like that at Plant Hammond, the combined impact of impingement and entrainment on the Coosa River due to the facility is enormous.

Cooling towers would not only almost entirely resolve this colossal ongoing fish kill on the Coosa, but they are readily available for facilities like Hammond.[41] The Merrimack power station in New Hampshire is an instructive example. Although that facility is only half the size of Plant Hammond (roughly 440 MW, with a capacity to withdraw 287 MGD of cooling water), it is similar to Plant Hammond in that both facilities are old, inland, riverine power plants.[42] In considering renewal of the Merrimack NPDES permit, EPA (the permitting authority for Merrimack) recently concluded that the cost of retrofitting hybrid wet-dry mechanical draft cooling towers and operating in a closed-cycle mode year-round "would be significant but economically achievable for [Merrimack]" at an "after-tax cash flow cost . . . of $111.8 million, with an annual equivalent cost of $9.0 million (at 5.3 percent over 21 years) on an after-tax, nominal dollar basis (i.e., including the effects of inflation)."[43] EPA found this cost not only affordable, but reasonable in relation to the major reduction in environmental harm that would be achieved by reducing intake and thermal discharge by 95%.[44]

In fact, while EPA decided to monetize social costs at Merrimack, the agency chose to compare these costs to benefits "assessed in terms of the number of organisms saved and a qualitative assessment of the public value of the organisms saved and the aquatic habitat

[41] Not only would cooling towers be technically available at Hammond, but there is nothing in the record indicating that there would be any particular spatial or engineering hurdles to be overcome in their installation: as an overhead view of Plant Hammond confirms, there is ample room for towers at the facility.
[42] *See* Merrimack Draft Permit Attachment D at ii-iii, *available at* https://www3.epa.gov/region1/npdes/merrimackstation/pdfs/MerrimackStationAttachD.pdf.
[43] *Id*. at ix.
[44] *See id.* at x.

improved."[45] In comparison to the $110 million net present value of costs (or less than $10 million annualized cost) for closed-cycle cooling at Merrimack, EPA found that:

- Entrainment would be reduced by 95%, saving 3.6 million eggs and larvae annually.[46]
- Impingement mortality would be reduced by 47%, saving some 4,000 fish annually.[47]
- These benefits were considerably greater than the benefits offered by any other technology that would entail the continued use of once-through cooling.
- Continued entrainment at existing levels likely would impede recovery of the aquatic communities.[48]
- Closed-cycle cooling "would provide an opportunity to restore biological integrity . . . by reducing both thermal discharges and the loss of fish and forage to entrainment and impingement."[49]
- Because some of the species harmed at Merrimack were popular for recreational fishing, "entrainment and impingement losses . . . undermine the value of the water body as a resource for recreational fishing" and interfered with government attempts to restore fish populations in the river.[50]
- Segments of the waterbody affected by Merrimack, both up and downstream of the plant, though not adjacent to it, had been designated for special protection by the state of New Hampshire and reducing fish kills and thermal pollution would contribute to the state's goals.[51]
- There are no significant adverse secondary environmental effects of converting to closed-cycle cooling.[52]

On the basis of this assessment, EPA proposed requiring a closed-cycle cooling retrofit at Merrimack. Because of the similarities between Merrimack and Hammond, and the strong likelihood that the larger Hammond facility is more environmentally harmful than Merrimack (as noted above, Georgia Power's own study concluded that Hammond kills over 30,000 fish via impingement alone per year, compared to the fewer than 10,000 fish killed through impingement at Merrimack annually), the BTA determination made by EPA is an excellent point of comparison to Plant Hammond. Cooling towers are BTA for the facility, and EPD should revise the Draft Permit to require their installation.[53]

2. *EPD should not grant Georgia Power's request for an alternate 316(b) rule compliance schedule.*

Georgia Power's request for an alternate compliance schedule for most of the rule's requirements is insufficient on its face. EPD may establish an alternate schedule for submission

[45] *Id*. at xv.
[46] *See id*. at 333, Table 12-3.
[47] *See id*.
[48] *See id*. at 335.
[49] *Id*.
[50] *Id*.
[51] *See id*. at 335-36.
[52] *See id*. at 341.
[53] Such cooling towers would likely also resolve the environmental harm cause by Hammond due to thermal loading, as discussed above.

of required information only "[i]f the owner or operator of the facility demonstrates that it could not develop the required information by the applicable date for submission . . . ." 40 C.F.R. § 125.95(a)(2).[54] Georgia Power has provided no such demonstration.

In fact, statements in the record demonstrate the opposite. Georgia Power has already completed some of the work and appears to have started on the rest.[55] EPA anticipated such circumstances in its preamble to the 316(b) rule, noting that "many of the facilities over 125 mgd [actual intake flow] were subject to the Phase II rule before it was suspended . . . and likely need less time for up front planning and/or data collection." 79 Fed. Reg. at 48,359.

Therefore, EPD should deny Georgia Power's request for a full and unconditional extension of time to comply with the 316(b) rule.

3. *EPD failed to determine an alternate compliance schedule.*

Even if EPD determines that an alternate compliance schedule is appropriate, it is incumbent upon EPD 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 and Fact Sheet fail to require such an expedited schedule for submission of required materials. The Draft Permit simply states that Georgia Power is subject to the rule, and "[t]he permittee requested this extension in accordance with the Rule and issuance of this permit constitutes EPD's approval of this request." Draft Permit at 28. EPD provides no information detailing what alternate schedule will be imposed. EPD must 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 Hammond 316(b) Schedule - NPDES Permit Application 2016." If this document is intended to represent the alternate schedule, it must 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, the proposed timeline fails to address compliance with several requirements: 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));

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[54] *See also* Memorandum re Clean Water Act Section 316(b) regulations for Cooling Water Intake Structures at Existing Facilities: NPDES Permitting Process When Federally-Listed Threatened and Endangered Species and/or Designated Critical Habitat Are or May be Present (Dec. 11, 2014) ("[A] facility may request that the Director establish an alternate schedule . . . based on a showing by the owner or operator of the facility that it could not develop the information for which such an alternate schedule is requested by the time required for submission of the permit renewal application.").

[55] *See e.g.,* 2006 Impingement Study; 2013 IRP Environmental Compliance Strategy, Ga. PSC Dkt. 36498, at 29, 55, 76 (Jan. 2013) (stating that 316(b) compliance evaluation is underway; research on cooling tower and systems is underway at Southern Company's Water Research Center); 2016 IRP Environmental Compliance Strategy, at 62, Ga. PSC Dkt. 40161 (Jan. 2016) (stating that 316(b) compliance evaluation is ongoing); Georgia Power 2013 Unit Retirement Study, Ga. PSC Dkt. 36498, at 14-15 (Jan. 2013) (Georgia Power "assumed that closed cycle cooling towers with associated modifications to the intake structure will be required to address both dissolved oxygen issues as well as the new 316(b) intake structure rule.").

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)). Moreover, according to the timeline the Source Water Baseline Biological Characterization Data required under Section 122.21(r)(4) should have been completed by November 4, 2016. However, it appears that biological characterization data were not included in the permit application or other materials. Our review of the permit file and documents received in response to open records act requests in January and February 2017 revealed no documents purporting to comply with Section 122.21(r)(4).

Thus, EPD should develop and incorporate into the permit a complete alternate schedule that requires compliance as soon as practicable.

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

Georgia Power's delay in submitting the required studies does not mean it can do nothing to limit aquatic mortality at its intake structures. 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). This is true even if EPD allows for an alternate compliance schedule. Nothing in the Draft Permit or Fact Sheet 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; it simply states that Georgia Power has requested an extension and that EPD grants that extension. 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.

5. *EPD must include baseline monitoring and reporting requirements in the permit.*

EPD must include cooling water intake structure monitoring requirements in the Draft Permit. 40 C.F.R. § 125.98(b)(3). At a minimum, EPD should require weekly visual monitoring or use of remote monitoring devices when the water intake is in operation. 40 C.F.R. § 125.96(e). According to Georgia Power's proposed alternate schedule, the Company will provide EPD with monthly progress updates for its 316(b) rule compliance starting December 3, 2015. EPD should make this a permit requirement by amending the Draft Permit to require submission of these monthly progress reports.

6. *EPD should require Georgia Power to correct and supplement data submitted pursuant to Sections 122.21(r)(2) and 122.21(r)(8).*

Georgia Power purports to comply with requirements detailed in Section 122.21(r)(2) regarding source water data in its permit application. *See* Permit Application at 316(b) Addendum, at 8 (May 27, 2016) (checking box to indicate source water physical data is included with the application). However, its 316(b) rule submission addressing source water data is inaccurate and incomplete. In its application addendum addressing 316(b) rule compliance, Georgia Power includes a brief narrative paragraph to respond to source water data information requirements under Section 122.21(r)(2). According to the source water narrative, "Plant Hammond withdraws water for cooling and other purposes from Weiss Lake, a 30,200-acre

multi-purpose impoundment of the Coosa River formed by Weiss Dam located in northeast Alabama." Permit Application at 316(b) Addendum, at 1.[56] This is incorrect, and in fact, contradicts other representations made in the permit application.

Plant Hammond draws water from the Coosa River, as Georgia Power acknowledges in the EPA Form 2C included in its application. Permit Application, at 1a-1b and flow diagram. Weiss Lake begins at the Alabama-Georgia line,[57] approximately 15 miles downstream from the intake.[58] The river in the vicinity of Plant Hammond is flowing. This is evidenced throughout the permit file. For example, Georgia Power's Coosa River Survey from 2005-2006 indicates flows ranging from 770 cfs to over 26,000 cfs.[59] As such, EPD should require Georgia Power to resubmit source water data required under the 316(b) rule using the Coosa River, rather than Weiss Lake, as the source water.[60]

Other information required under Section 122.21(r)(2) appears to be absent. For example, the regulations require the narrative description to address temperature regimes. This information is particularly important for the Coosa, which has long been impaired for temperature and dissolved oxygen due to Plant Hammond's intakes and discharges. 40 C.F.R. § 122.21(r)(2). No such information is provided in Georgia Power's response. Likewise, the regulation calls for identification of methods used in conducting studies to determine the intake's zone of influence and the results of those studies. Again, no such information is provided.[61] EPD must require full compliance with the rule.

Georgia Power does not request an alternate compliance schedule for Section 122.21(r)(8) regarding the plant's operational status. Thus, this information should be included in the application. This submission should include: "descriptions of individual unit operating status including age of each unit, capacity utilization rate (or equivalent) for the previous 5 years, including any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors, . . . and any major upgrades completed within the last 15 years, included but not limited to boiler replacement condenser replacement, turbine

[56] Notably, Georgia Power similarly asserts that Plant Hammond draws cooling water from Weiss Lake in its 2006 impingement study (not included with the permit application) and 2016 entrainment characterization study plan. 2006 Impingement Study at 1; Georgia Power, Clean Water Act Section 316(b) Entrainment Characterization Study Sampling Plan for Plant Hammond (Nov. 21, 2016). Under 125.95(a)(3), EPD is permitted to waive some or all requirements under 40 CFR § 122.21(r) if the cooling water intake structure is located in a manmade lake or reservoir and the fisheries are stocked and managed by a natural resources agency or the equivalent. It does not appear that Georgia Power is currently attempting to avail itself of this waiver provision. However, if Georgia Power or EPD intend to apply this provision, we believe it is inappropriate because the intake is on a river, not a lake.

[57] *See e.g.*, Lake Weiss's informational website *available at* http://www.lakeweiss.info/; Ga. Dep't of Natural Resources Guide to Fishing the Coosa River, *available at* http://www.georgiawildlife.org/sites/default/files/uploads/wildlife/fishing/pdfs/rivers/coosa_guide.pdf.

[58] *See* Georgia Power's Clean Water Act Section 316(b) Entrainment Characterization Study Sampling Plan for Plant Hammond, at 4 (Nov. 21, 2016).

[59] *See also* 2006 Impingement Study at Table 2-1 Average Velocity and Flow Direction Results from ADCP Surveys in the Vicinity of the Plant Hammond CWIS, 13-14 May 2004 (providing data on average flows at the cooling water intake system); Draft Permit at 3-4 (thermal discharge limits are flow dependent).

[60] Georgia Power's entrainment characterization study plan and impingement study should similarly be amended to clarify that Plant Hammond draws cooling water from the Coosa River.

[61] Interestingly, Georgia Power did assess the zone of influence in its 2006 Impingement Study, but that study was not included in its application materials, nor does it appear to be included in the final permit record.

replacement, or changes to fuel type. . .” 40 C.F.R. § 122.21(r)(8). It appears this information is entirely absent from the application.

C. EPD must require Plant Hammond to meet effluent limitations for FGD wastewater and ash transport water as soon as possible.

To protect public health and the environment from the continued, unmitigated dumping of toxic wastewater from Plant Hammond’s coal-burning operations and to comply with statutory duties under the CWA, the plant must meet effluent limitations on ash transport waters and FGD wastewater as soon as possible. New technology-based ELGs set federal limits on the discharge of toxic metals and harmful pollutants from these wastestreams beginning November 1, 2018. As explained next and 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 Hammond can achieve compliance with the ELGs by April 2019 *at the latest*, even assuming no preparations had been undertaken, which Georgia Power’s admissions clearly contradicts. Ranajit Sahu, *Technical Assessment of the Feasibility of Timely Compliance with FGD Wastewater and Ash Transport Effluent Limitations Guidelines at Plant Hammond* (Apr. 2017) (hereinafter, “Sahu Report”) (appended here as, “Attachment A”). Instead, EPD proposes a compliance date of December 31, 2023 in the Draft Permit—a 61-month extension from the deadline and over 80 months from today. This timeline is wholly unsupported and fails to provide for expeditious compliance as required. Accordingly, EPD should revise the Draft Permit to require Plant Hammond to eliminate all discharges of ash transport waters and meet new effluent limits on toxic pollutants in FGD by the November 2018 compliance deadline and in no event later than April 2019.

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 Hammond, 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).

The requirement to meet the BAT standard is ongoing; it compels polluting industries to meet ever more stringent limitations on the path towards complete elimination of water pollution. *See NRDC v. EPA*, 822 F.2d 104, 123 (D.C. Cir. 1987). With each renewal of a NPDES permit, permitting agencies must reconsider whether further pollution reductions and technologies are

attainable. The objective of the law is continuous, rapid improvement:

> The BAT standard reflects the intention of Congress to use the latest scientific research and technology in setting effluent limits, pushing industries toward the goal of zero discharge as quickly as possible. In setting BAT, EPA uses not the average plant, but the optimally operating plant, the pilot plant which acts as a beacon to show what is possible.

Kennecott v. EPA, 780 F.2d 445, 448 (4th Cir. 1985) (citing 1 *Legislative History of the Federal Water Pollution Control Act of 1972*, 798 (Committee Print compiled for the Senate Committee on Public Works by the Library of Congress), Ser. No. 93-1 (1973)).

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 the absence of promulgated ELGs, or where such guidelines are inadequate, a state permitting agency must promulgate permit effluent limitations, in accordance with BAT, on a case-by-case basis using the permit writer's best professional judgment ("BPJ"). 40 C.F.R. § 125.3(c)(2) and (3); *see also Texas Oil & Gas Ass'n v. EPA*, 161 F.3d 923, 928-29 (5th Cir. 1998). In doing so, the state agency is bound by the same factors that EPA is required to apply in determining and applying BAT limits in a permit. 33 U.S.C. §§ 1311(b), 1342(b); *see also* 33 U.S.C. § 1314(b)(2)(B); *Natural Res. Def. Council v. EPA*, 859 F.2d 156, 183 (D.C. Cir. 1988).

EPA recently updated ELGs for steam electric power plants such as Plant Hammond. 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 and fly ash transport water and limits the amount of arsenic, mercury, selenium, and nitrate that may be discharged in FGD wastewater. 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.*

Plant Hammond generates and discharges significant quantities of toxic water pollutants, including arsenic, mercury, selenium, boron, cadmium, and lead, which are hazardous to humans and to aquatic life. Toxic water pollutants are absorbed by fish and other aquatic life, and by humans through fish and water consumption, swimming, boating, and other activities. These pollutants are hazardous even in very small doses, as they do not degrade over time and bioaccumulate, meaning they increase in concentration as they are passed up the food chain. EPD has repeatedly failed to do anything to limit this toxic pollution from Plant Hammond. The Draft Permit proposed by EPD continues this trend and sets no substantive limits on the discharge of these pollutants through the plant's wastestreams.

2. EPD's proposed effluent limitations compliance extensions are 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."[62]

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, saying merely that it has "reviewed the submitted information" and determined that Plant Hammond "will need an extended timeframe" to comply. Draft Permit at 20.

Yet, the "submitted information" from Georgia Power contains no meaningful support for the December 31, 2023 extension or plant-specific analysis and offers only generic statements.[63] 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 Hammond.

Georgia Power admits to having begun planning to comply with the updated ELGs "years prior to the rule's finalization" and to having undertaken "preliminary engineering work" and "initial scoping of projects."[64] 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 for far longer. Both Georgia Power and parent Southern Company submitted comments on EPA's 2013 proposed rule, including detailed compliance case studies for FGD wastewater and bottom ash transport water ELGs.[65] Thus, by its own admission, Georgia Power has had plenty of time to begin working toward compliance and a 61-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 Stipulation in part sensibly limited cost recovery from ratepayers for capital *spending* at Plant Hammond.[66] However, the Stipulation should not delay compliance, as EPD seems to

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[62] *See* U.S. EPA, Technical Development Document for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (Sept. 2015), at p. 14-11, *available at* http://goo.gl/PpzQ4F [hereinafter, "TDD"].

[63] Permit Application, "Plant Hammond Effluent Limitation Guidelines Rule Applicability Timing NPDES Permit Application 2016."

[64] *Id*.

[65] *See* Southern Company Comments re Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (Sept. 19, 2013); Georgia Power, Comments on Proposed Steam Electric Effluent Limitations Guidelines Rule (Sept. 19, 2013). Indeed, EPA's EA 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.

[66] Georgia Public Service Commission, Stipulation *in re Dockets No. 40161 and 40162* (June 23, 2016), at ¶ 15 (limiting capital spending at Hammond to $5 million annually "through July 31, 2019").

suggest.

It would be the height of hypocrisy 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, 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 Hammond has the option of complying with the effluent limitations by ceasing production, and subsequent discharge, of the regulated wastestreams through transitioning Plant Hammond off of coal, a compliance mechanism neither Georgia Power nor EPD appear to have considered;[67] as expert testimony provided by Sierra Club and PSC staff during the IRP proceedings demonstrates, continuing to operate coal-fired units at Plant Hammond is simply uneconomic.[68] 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.[69]

Nothing in the permitting record supports an extension of the ELG compliance deadlines until December 31, 2023 and the continued, unrestricted dumping of ash transport water and FGD wastewater for nearly seven more years. Indeed, based on the assumption that Georgia Power has to date failed to undertake any planning or preparation for compliance with ELGs or TBELs at Plant Hammond (which is, as discussed above, contradicted by Georgia Power's prior statements, filings with EPA, and filings with the Georgia PSC), Plant Hammond can, as detailed in Dr. Sahu's assessment, at the absolute latest, come into compliance with technology-based effluent guidelines by April 2019.

3. EPD should require Plant Hammond to comply with effluent limitations for FGD wastewater as soon as possible and by no later than April 2019.

Plant Hammond must meet new technology-based effluent limits for FGD wastewater "as soon as possible"—i.e., November 2018. 40 C.F.R. § 423.13(g)(1)(i). The revised ELGs set daily maximum and monthly average limits on concentrations of arsenic, mercury, selenium, and nitrate/nitrite in discharges of FGD wastewater. These limits represent what is achievable if FGD wastewater is treated using chemical precipitation and an anoxic/anaerobic fixed-film biological treatment system. 80 Fed. Reg. at 67,850. Currently, there are no limits on the toxic FGD wastewater pollutants that Plant Hammond dumps into the Coosa River. The accompanying analysis by Dr. Sahu shows that, even if Georgia Power started from scratch (which, as shown, is not the case), compliance with the FGD wastewater ELGs at Plant Hammond is achievable and should be met no later than April 2019.

[67] *See* 40 C.F.R. § 122.47(b)(2).
[68] *See* Sierra Club, Direct Testimony of Jeremy Fisher (May 3, 2016).
[69] Moreover, even if the Stipulation somehow allowed Georgia Power to evade compliance with the CWA, the Stipulation only precludes capital spending in excess of $5 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.

The Draft Permit proposes to adopt Georgia Power's requested compliance date of December 31, 2023 for the FGD wastewater effluent limits—*i.e.*, a period of over 80 months from today and the latest possible compliance date under the rule. Draft Permit at 23. EPD offers no analysis or independent justification in support of this determination. Georgia Power's permit application, on which the Draft Permit compliance extension is based, offers only vague, general statements that are not specific to Plant Hammond's FGD wastewater stream and compliance needs, and which are utterly incapable of supporting a determination that Hammond can continue polluting for much of the next decade, as Dr. Sahu explains in his enclosed report.

The lack of support for the proposed extension is particularly evident in light of the planning and expertise Georgia Power claims it has already developed. Far from starting from scratch, Georgia Power has apparently already done much of the groundwork necessary to comply with its TBEL obligations and the ELGs. For example, Georgia Power describes its advanced research and development wastewater treatment technology program at the Water Research Center ("WRC") at Georgia Power's Plant Bowen and focus on "evaluating EPA's chosen BAT for Flue Gas Desulfurization (FGD) wastewater, which is physical chemical treatment followed by GE's ABMet technology" as well as "several other technologies."[70] This, coupled with advancements in industry understanding of biological treatment of FGD wastewaters, demonstrates that EPD's and Georgia Power's compliance schedule is entirely without support.

This is abundantly clear in light of Georgia Power's and industry's *own assessments* as to control installation timelines. Georgia Power's parent Southern Company's comments during the ELG rulemaking, as well as those by the Utility Water Act Group ("UWAG"), state that a single physical, chemical, and biological treatment system would take four years to complete;[71] in contrast, Georgia Power now asks for 80 months to reach compliance (again, starting from today and excluding prior planning efforts) versus the 48 months cited during the ELGs rulemaking.

In particular, Georgia Power suggests that additional time is needed to evaluate advanced FGD wastewater treatment technologies. Yet, the BAT standard is based on technology that is already available and that achieves or exceeds the requisite effluent limits. Indeed, EPA promulgated the new limits for FGD wastewater based on the operational track record of this technology.[72] As Dr. Sahu's report further explains, "U.S. coal-fired power plants have been using biological treatment systems to treat selenium in FGD discharges to meet state and other obligations since at least 2009, and have been testing such systems for over a decade."[73]

As an example, Dr. Sahu offers a detailed discussion of the Mountaineer plant in West Virginia, at which American Electric Power ("AEP") proposed and installed a biological

[70] Permit Application, "Plant Hammond Effluent Limitation Guidelines Rule Applicability Timing NPDES Permit Application 2016" at 3.
[71] Southern Company Comments re Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (Sept. 19, 2013); UWAG, Comments on EPA's Proposed Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (Sept. 20, 2013).
[72] Sahu Report at 6; *see e.g.*, 80 Fed. Reg. at 67844-45 ("The biological treatment technology that serves as part of the basis for the final requirements for FGD wastewater discharged from existing sources has been tested at power plants for more than ten years and demonstrated in full- scale systems for more than seven years. As this technology has matured, new vendors have emerged to provide expertise in applying it to steam electric power plants.")
[73] Sahu Report at 6.

treatment system to remove selenium during approximately two years, between 2009 and 2011.[74] AEP accomplished this task eight years ago, at a time when there was significantly less industry experience and research upon which to draw. With more mature technology and more vendors now available, Dr. Sahu explains that the timing needed at Mountaineer was even more generous than needed for plants today.[75]

Based on this and other examples, as well as consultations with vendors, Plant Hammond can meet the ELG limits for FGD wastewater within 24 months.[76] Beginning this timeline in April 2017 (i.e., today), means that compliance could be achieved by April 2019. This timeline is conservative, as it accounts for planning that, according to Georgia Power's own statements, has already occurred.[77]

Whether or not Georgia Power's purported interest in studying more advanced technology technologies, such as zero liquid discharge ("ZLD") technologies, is laudable, this does not waive its compliance obligations.[78] Georgia Power may, however, choose to back up its soft expressions of intent with a firm commitment to more stringent limits under EPA's voluntary incentives program. EPA automatically allows plants that commit to installing advanced evaporation technology until December 31, 2023 (the latest possible date) to comply with the FGD wastewater ELGs. 80 Fed. Reg. at 67,858. In exchange, the plant's FGD wastewater must meet the more stringent effluent limits in 40 C.F.R. § 423.13(3)(i). To verify this commitment, permit requirements for regular updates on progress in designing and installing the more advanced treatment systems must be included in the permit. Absent a definitive commitment to the more stringent effluent limits and such requirements, Georgia Power's statements regarding the need for more time to evaluate advanced technologies are misleading and irrelevant.

Interestingly, and further exposing the lack of reasoning behind the proposed compliance timeline, EPD's January 2017 draft permit proposed the same deadline of December 31, 2023 for FGD wastewater, as well as ash transport water, but required the stricter effluent limits based in the voluntary incentive program.[79] Yet the current Draft Permit reverts to the baseline effluent limits and EPD retains the same, protracted compliance date. EPD offers no justification to support the limits or explain the change.

Finally, Georgia Power suggests that delays may be caused by challenges due to vendor supply and market pressures. As Dr. Sahu explains, these concerns are unfounded and vendors are available.[80] EPA, too, responded to Southern Company's concerns about vendors in its comments on the proposed rule:

> [T]he commenter states that there is 'only one process supplier' for the biological treatment system; however, because of the timing allowed in the rule, experience

[74] *Id* at 6-8.
[75] *Id.* at 9.
[76] *Id*. at 8, 16-17.
[77] *See* Permit Application, "Plant Hammond Effluent Limitation Guidelines Rule Applicability Timing NPDES Permit Application 2016" at 1-3.
[78] *Id*. at 3-4.
[79] EPD "NPDES Pre-Draft Permit" sent to Georgia Power in mid-January.
[80] Sahu Report at 6, 8, 17.

> shows that other vendors will come to market and provide alternative solutions to meet the final FGD wastewater effluent limitations and standards, and *are already doing so*. EPA also disagrees with the commenter that '[t]he availability of engineering resources, as well as construction labor, will be stretched with the abundance of projects across the Southern Company and the industry.' Here, too, engineering firms are available to perform much of the detailed engineering work and both Southern Company and the engineering firms can hire staff to meet those needs.[81]

The elongated implementation schedule in the draft permit is indefensible. EPD has failed to limit the toxic FGD wastewater pollutants regulated under the updated ELGs—arsenic, mercury, and selenium—at Plant Hammond and now continues to allow unrestricted dumping in the Draft Permit, threatening human and aquatic life. EPD should require that Plant Hammond achieve compliance with the new FGD wastewater limits by the November 2018 compliance deadline, and in no event later than April 2019. Allowing Georgia Power another 80 months to continue unrestrained pollution of the Coosa River would be unsupported, arbitrary, and contrary to law and would gratuitously putting public and environmental health at risk.

4. *EPD should require Plant Hammond to comply with a zero discharge limit for bottom ash transport water by no later than April 2019.*

EPD should revise the Draft Permit to require elimination of toxic bottom ash transport water discharges at Plant Hammond as soon as possible—i.e., November 1, 2018— or, (inaccurately) assuming Georgia Power was starting from scratch, no later than April 2019. 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 Hammond does not currently meet the BAT standards: bottom ash generated at the plant is wet sluiced to ash ponds before discharge.

Georgia Power plans to eliminate bottom ash transport water discharges at Plant Hammond by using a type of submerged flight conveyer and proposes an ELGs compliance date of December 31, 2023—once again, the latest possible date under the final ELGs rule. As with FGD wastewater, EPD adopts Georgia Power's needlessly extensive timeline in the Draft Permit without further analysis or explanation. Similar to its cursory discussion of FGD wastewater, Georgia Power offers nothing more than generic statements and provides no plant-specific details regarding compliance with effluent limits for bottom ash transport water such as, e.g., specifying the number of hoppers in each unit or explaining what it means by "the complexities of the ash scope of supply," the "retrofit difficulties" at Plant Hammond, or the "special considerations due to temperature difference."[82] Despite these deficiencies, EPD has proposed a blanket approval of Georgia Power's requested compliance schedule. EPD has neither explained why allowing additional time for compliance is appropriate nor provided a well-documented explanation of its decision to allow extra time.

[81] U.S. EPA, Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category: EPA's Response to Public Comments, Part 8 of 10 (Sept. 2015), responding to Southern Company comments at 8-45-8-46 (emphasis added).
[82] *See* Sahu Report at 17.

Conspicuously absent from consideration in the proposed timeline is any discussion of Georgia Power's plans to discontinue using of the ash ponds at Plant Hammond and other plants in its fleet: "all of the company's ash ponds will cease operations and stop receiving ash within the next three years."[83] In order to meet this timeline, barring the unthinkable scenario of sluicing ash directly into the Coosa River, Georgia Power must undertake preparations to eliminate discharges of ash transport water by 2019.

Expeditious compliance with the BAT standard by 2019 is in fact achievable for Plant Hammond. 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 finalization," including selecting the submerged flight conveyor technology as a preferred method of compliance.[84] Dr. Sahu concludes that, based on industry experience and Georgia Power's documented retrofit preparations, Hammond can comply with the bottom ash transport water ELGs by April 2019, or sooner.[85]

Dry handling and closed-loop systems for bottom ash "have been in operation at power plants for more than 20 years and are amply demonstrated by the record supporting the final rule. Recent advancements related to bottom ash handling technologies have focused on providing more flexible retrofit solutions and improving the thermal efficiency of the boiler operation. These advancements result in additional savings related to electricity use, operation and maintenance, water costs, and thermal energy recovery." 80 Fed. Reg. at 67,845.

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.[86] 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.[87] 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.[88] 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

[83] Southern Company, "Georgia Power continues to make progress on ash pond closures" (Oct. 12, 2016), *available at* https://southerncompany.mediaroom.com/2016-10-12-Georgia-Power-continues-to-make-progress-on-ash-pond-closures; *see also* Georgia Power Media Release, Georgia Power to cease operations of all coal ash ponds within 3 years (June 13, 2016).
[84] Permit Application, "Plant Hammond Effluent Limitation Guidelines Rule Applicability Timing NPDES Permit Application 2016" at 1, 4-5.
[85] Sahu Report at 17-19.
[86] UWAG, Comments on EPA's Proposed Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (Sept. 20, 2013).Attach. 11: Retrofitting Dry Bottom Ash Handling.
[87] *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.").
[88] U.S. EPA, *Final Notes from Site Visit at South Carolina Electric & Gas Company's Wateree Station on January 24, 2013*, DCN SE03779, *available at* http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OW-2009-0819-1917.

new system.[89]

Southern Company's own case studies show that conversion to dry bottom ash handling using a submerged flight conveyer, the technology cited by Georgia Power in its permit renewal application, can be completed in just 27 to 33 months.[90] Now, however, Georgia Power claims that over 80 months—that is, starting from today and ignoring all prior planning efforts—are needed to comply, an additional 32 months or approximately double Southern Company's prior timeline.

Accordingly, EPD should revise the Draft Permit to require compliance by the November 2018 deadline, and by no later than April 2019. 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.[91] Yet historically, EPD has required no limits on highly toxic metals discharged in Plant Hammond's bottom ash transport water, including arsenic, cadmium, chromium, lead, selenium, and mercury.[92] Especially since 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 Hammond complies with the zero discharge standard "as soon as possible," meaning by the November 2018 deadline and in no case later than April 2019.

5. EPD should require Plant Hammond to immediately comply with a zero discharge limit for fly ash transport water.

As with bottom ash transport water, the BAT standard for fly ash transport water is zero discharge. Specifically, BAT for fly ash is a dry vacuum system that employs a mechanical exhauster to pneumatically convey the fly ash from hoppers to a silo. 80 Fed. Reg. at 67,852. According to EPA, 80 percent of fossil fuel-fired units already operate dry fly ash handling systems. *Id*.

EPD proposes in the Draft Permit, once again following Georgia Power's suggestion, to give Plant Hammond a 61-month extension, or until December 31, 2023, to meet the zero discharge standard for fly ash transport water. This is despite the evidence demonstrating that Plant Hammond *is already capable of meeting the standard*: "Fly ash can be transported out of the plant via a dry ash collection system or by wet sluicing. When utilizing the dry ash system, the fly ash is transported to the dry ash silo where it is loaded onto trucks and hauled to Ash Pond

[89] Dennis Del Vecchio and Robert G. Walsh, *Wet to Dry Bottom Ash Disposal Conversion Project - BL England Station, Power-Gen*, December 2011, February 2008 - February 2010.

[90] Southern Company Comments re Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (Sept. 19, 2013), Appendix B.

[91] *See e.g.*, U.S. EPA, STEAM ELECTRIC POWER GENERATING POINT SOURCE CATEGORY: FINAL DETAILED STUDY REPORT, EPA 821-R-09-008, 3-19 (Oct. 2009); U.S. EPA, 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).

[92] Commenters acknowledge that for the first time in the plant's history, EPD has imposed *water quality-based effluent limits* on selenium and cadmium discharges from Outfall 10 from AP-3 in the Draft Permit. Outfall 10 does not discharge directly to the Coosa; it discharges to the much lower flowing Smith Creek Cabin Creek before flowing into the Coosa River just downstream.

4 or to the Huffaker Road facility. When the fly ash is sluiced wet, it goes to Ash Pond 2."[93]

Because Plant Hammond already has a dry ash handling system in place, there is no excuse for delay and the plant must comply with the protective zero discharge standard immediately. Alternatively, if there are factors preventing Plant Hammond from fully and immediately switching to dry ash handling, these must be included in EPD's "well-documented justification." At present, there is no specific discussion of fly ash in Georgia Power's submittal, nor in the Draft Permit.

As EPA explains, "in cases where the plant is already operating the BAT basis for a specific wastestream (*e.g.*, dry fly ash handling system) . . . it would not generally be appropriate to allow additional time beyond that date."[94] Plant Hammond already has BAT for fly ash transport water and must comply with the standard and eliminate harmful discharges immediately.

D. The Draft Permit violates the CWA because it fails to protect the Coosa River and Smith Cabin Creek from the dewatering of Plant Hammond's coal ash ponds.

Part III.C.6 of the Draft Permit improperly proposes to give Georgia Power *advance* authorization to discharge *all* of its impounded, coal ash-polluted wastewater—the accumulation of decades of on-site coal ash disposal—into the Coosa River at some unspecified future date. The provisions contemplate that the wholesale emptying of the ponds' accumulated wastewater could occur without reopening the permit. The provisions would confer this advance blanket authorization even though Georgia Power did not, in its application, identify the complete release of impounded wastewater as an *operation* giving rise to discharges, nor did the Company identify any treatment method to address such wastestreams. The Draft Permit imposes just one condition on this fundamental change to how the ponds have historically been operated: Georgia Power must first submit a "Coal Ash Pond Dewatering Plan," which EPD may evaluate and approve without undergoing public notice and comment as required by state and federal law.

These provisions are improper. First, material changes to waste disposal practices, such as the complete draining of Plant Hammond's coal ash waste ponds, require major permit modifications so that appropriate effluent limitations and other conditions can be imposed. Second, the Draft Permit's effluent limitations are not sufficient to cover future dewatering discharges, which result from a fundamentally different activity than the passive, gravity-based settling treatment contemplated by the Draft Permit and application. Finally, 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.

Accordingly, for the reasons set forth above and those presented in further detail below, Part III.C.6 of the draft Permit must be amended by striking the entire sentence appearing after subsection (g) which currently reads:

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[93] AMEC Earth & Environmental, Inc., Report of Safety Assessment Coal Combustion Surface Impoundments, Georgia Power, Plant Hammond, prepared for U.S. EPA (Dec. 2010).

[94] U.S. EPA, Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category: EPA's Response to Public Comments, Part 8 of 10 (Sept. 2015), responding to Southern Company comments at 8-139.

> 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.6 of the draft Permit should be amended by inserting the following sentence to read as follows (hereinafter, the "Dewatering Condition"):

> 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 6.

Furthermore, Part II.A.1.c of the draft Permit 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 <u>in accordance with 40 C.F.R. § 122.62 and any other applicable requirements imposed by law</u>.

Finally, Part III.C.6.e of the Draft Permit should be amended to correct a typographical error, striking internal reference to Part III.C.7.d and replacing the stricken reference with Part III.C.6.d.

1. The Draft Permit cannot authorize coal ash pond dewatering discharges without opening the permit to make a major modification.

Effluent discharges associated with complete draining of the ash ponds are not something that can be authorized *in advance*, as proposed by Part III.C.6 of the Draft Permit. Instead, material changes like those contemplated by the Draft Permit's dewatering provision require a major modification. 33 U.S.C. § 1311(b)(1)(C); Ga. Comp. R. & Regs. 391-3-6-.06(4), (12)(b); 40 C.F.R. §§ 122.62(a)(1), 125.3.

The relevant Federal regulation, which is adopted and incorporated into Georgia's water quality control regulations, provides that "substantial *alterations* or *additions* to the permitted facility or activity (*including a change or changes* in the permittee's sludge use or *disposal practice*)" are cause for a permit modification. 40 C.F.R. § 122.62(a)(1) (emphasis added).[95] Georgia law provides that EPD must determine whether a permit modification is necessary "*in accordance* with the provisions of Federal Regulations" … "including, but not limited to, the

[95] *See also* NPDES Permit Writers' Manual, at 11-18, 11-19 (Exhibit 11-10, providing that alterations or changes in the permitted facility and receipt of new information after permit issuance are causes for major permit modification). Absent the specifically delineated causes for "minor modification" that are not at issue here, any modification of a NPDES permit must undergo full draft permit, public notice and comment in accordance with 40 C.F.R. § 122.62

enumerated causes listed in Federal Regulations, 40 C.F.R. [§] 122.62…" Ga. Comp. R. & Regs. 391-3-6-.06(12)(b) (emphasis added).

Here, there is no question that draining the ponds will entail material and substantial alterations to the existing coal ash wastewater treatment system. Final closure will entail the pumping and discharge of millions of gallons of impounded wastewaters containing coal ash contaminants. EPD anticipates that the changes necessary to accomplish this feat, while protecting water quality, will be no small undertaking. Indeed, that is why EPD is requiring submission of Coal Ash Pond Dewatering Plan, which must – according to the Draft Permit – include descriptions of the "wastewater treatment system components," the "process controls being installed," and accompanying monitoring and reporting practices. Draft Permit at Part III.C.6. But for the same reason, the Draft Permit cannot treat permit modification in this instance as optional. Because such *alterations*, *additions* and *changes in disposal practices* as will be necessary to fully dewater the ponds are specifically enumerated as cause for major permit modification, Part III.C.6 of the Draft Permit cannot authorize EPD to determine unilaterally whether to "open the permit to include applicable effluent limits to protect the receiving water body." Such a provision violates 40 C.F.R. § 122.62(a)(1) and must be stricken for that reason. *See* Ga. Comp. R. & Regs. 391-3-6-.06(12)(b) (requiring that permit provisions must be "in accordance with the provisions of the Federal Regulations").

Accordingly, Part III.C.6 of the draft Permit must be amended by striking the final sentence of that Part, and inserting in its place the Dewatering Condition.

2. Georgia Power's permit application fails to identify coal ash pond dewatering as a new and distinct activity, requiring effluent characterization.

In applying for the issuance or renewal of a NPDES permit, an applicant must identify the operation contributing to the effluent for which discharge authorization is sought. Ga. Comp. R. & Regs. 391-3-6-.06(5)(a), (c); 40 C.F.R. §§ 122.21(e)(3), (f)(1), (g)(3), (g)(4), (g)(7). The applicant must additionally identify the proposed methods for treating those discharges. Ga. Comp. R. & Regs. 391-3-6-.06(5)(a), (c); 40 C.F.R. § 122.21(g)(3). Georgia Power's application does not describe the type of operation that a future "dewatering plan" would contemplate: the complete draining of those ponds. Instead, the application merely identifies the same sort of operation that has been in place for decades – the passive treatment, by settling, of coal ash waste.

Specifically, the application, including EPA Form 2C, calls for disclosure of detailed and specific information for each discharge outfall leading from the coal ash ponds including among other things (1) "Operation(s) contributing flow"; (2) "Average flow" and maximum effluent discharge; (3) wastewater "Treatment" method; and (4) anticipated waste effluent characteristics for individual pollutants via EPA Form 3510-2C. Permit Application, at 1a of 4 and V-1 (for Outfall No. 01).[96] The coal ash wastewaters are treated through a combination of physical/chemical systems, largely entailing gravity-based settling, disinfection, and

[96] The Application includes a Certification under penalty of perjury that "the information submitted is, to the best of [designated representative's] knowledge and belief, true, accurate, and *complete*." Permit Application, at 4 of 4 (emphasis added).

reuse/recycling of wastewater to assist in settling of waste solids. *See id.*[97] As disclosed in the application, this series of coal ash ponds operate to "treat" coal ash wastewaters prior to their discharge to the Coosa River via Outfall 01, or to the Coosa River or Smith Cabin Creek via emergency overflow outfalls 03, 04, and 10. *See id.* at 1a-1b of 4. Riser structures allow water from the *upper portion* of these ponds to flow into the designated discharge pipe, leaving the denser, settled waste solids to *remain* within lower level the ash ponds. *None* of these treatment methods address the wholesale pumping out of the impounded wastewaters contained within AP-1, AP-2, AP-3 or AP-4. Nor do these treatment methods address wastewater released as part of coal ash pond *closure* operations.

While no information in the NPDES permit application discusses ash pond closure plans, Georgia Power has already developed and disclosed its intent to close Plant Hammond's ash ponds. Georgia Power's posted Initial Written Closure Plans for ponds AP-1 and AP-2 indicate that impounded wastewater in those ponds will be completely pumped out as part of pond dewatering and closure operations.[98] The closure process would entail not only large scale drawdown and decanting of impounded wastewater, but also mechanical extraction of interstitial pore water out from within the ash particles, and/or other mechanical movement of the ash as part of pond closure. Similarly, disclosures published by Georgia Power indicate that closure of AP-3 would entail removal of remaining impounded wastewater.[99] Commenters expect that remaining wastewater in AP-4 will likewise be drained.

Thus, neither the dewatering wastestream, nor the treatment to be applied to that wastestream is identified on the utility's EPA Form 2C NPDES application. (*Compare* Permit Application, at 1a – 4 *with* 40 C.F.R. § 122.21(g)(3) (requiring identification of a "narrative description of each type of process, operation, or production area which contributes wastewater to the effluent for each outfall, . . . and a description of the treatment the wastewater receives, including the ultimate disposal of any solid or fluid wastes other than by discharge" in the application). The activities associated with dewatering would be fundamentally different than those reflected in Georgia Power's NPDES Application. Therefore, to be authorized by the permit, dewatering activities must be disclosed in the permit application.

EPA Region IV has addressed the material distinction between discharge of coal ash pond effluent stemming from ordinary passive, gravity-based settling wastewater treatment methods versus the large scale decanting of coal ash ponds in connection with Duke Energy's request to decant 14 ponds. EPA informed North Carolina's Department of Natural Resources ("DENR") that Duke's request was unacceptable under the Clean Water Act, absent adherence

[97] Prior to discharge to the Coosa River, ash transport wastewaters lead from AP-2 to AP-1, which are treated via sedimentation (gravity-based settling, EPA Code 1U), and reuse/recycling of treated water (EPA Code 4C) for eventual discharge to surface waters (EPA Code 4A); AP-1 discharges through Outfall 01, which identifies a physical/chemical process entailing chlorine disinfection (treatment EPA Code 2F) and discharge from the upper portion of the water column to surface water (EPA Code 4A). Permit Application at 1a of 4. Flocculation, a process by which fine particulates are caused to clump together, is an identified treatment method for ash transport blowdown from the plant's intake to discharge to AP-1. *See id.* (EPA Code 1G, corresponding to internal plant Outfall 01B).

[98] *Supra*, note 2.

[99] *Supra*, note 5.

with the applicable regulatory controls.[100] EPA reasoned that large scale decanting represents a major change in discharge activity as compared with discharges from the upper levels of these coal ash ponds. The mechanical draining of ash ponds circumvents the treatment system envisioned by the NPDES permit, including the methods of wastewater treatment identified in the Hammond NPDES Application at 1a – 4.

Based on information obtained to date, it appears that the concentrations of toxic pollutants in the dewatering effluent at other Georgia Power plants are materially higher than those disclosed on Georgia Power's NPDES permit applications for those facilities. For instance, based on dewatering discharge monitoring records reported since December 2016, concentrations of Chromium were detected in the dewatering effluent from Georgia Power's Plant McDonough at 14 ug/L, nearly three times the effluent characterization disclosed in the McDonough NPDES Form 3510-2C permit application.[101] Likewise, concentrations of Selenium were detected in the pond dewatering effluent from the McDonough ash pond at 13 ug/l and 16 ug/l, *thirteen* and *sixteen* times the concentration identified in Georgia Power's effluent characterization for Plant McDonough.[102] Importantly, these reported effluent concentrations were recorded at the outfall leading to the adjacent waterways *after* undergoing so-called "enhanced" wastewater treatment at Plant McDonough as described in a November 2016 coal ash pond "Dewatering Plan" approved by EPD (without notice or public comment). The concentration of pollutants within the effluent may only rise in the future, as water is drawn and pumped from lower levels of these ponds, and eventually from the interstitial pore water from within the saturated coal ash particles.

The instream impact of dewatering discharges at another Georgia Power plant in coastal Georgia raises similar concerns with respect to the effectiveness of the treatment measures in place at that facility. In the summer of 2016, a concerned citizen complained to EPD's Coastal Division about dewatering discharges at Georgia Power's Plant McManus. Photos submitted by the resident documented the discharge and release of visible sediments, and/or floating solids from the ash pond dewatering discharges at Plant McManus.[103] The photographs submitted to EPD depicted highly discolored effluent from the coal ash pond outfall at Plant McManus.[104] These conditions were documented over the course of months, from the summer through winter of 2016.

EPD personnel later confirmed the release of pollutants from the McManus dewatering site. A subsequent site inspection log from June 2016 confirmed "water leaving the [pond] outfall which was clear but foamy" adjacent to the ash pond outfall, where pond closure-related

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[100] *See* Sept. 16, 2014 Letter from Mark J. Nuhfer to Jeff Poupart, Attachment 2 hereto ("EPA Letter") (explaining that "higher concentrations of pollutants may be present at deeper levels in the pond which will be discharged in the decanted wastewater. Further, the drawdown of wastewater may involve a much higher discharge rate than contemplated at the time the permits were issued" compared with the passive settling contemplated by the NPDES permits, which contemplated ordinary, passive-settling as the form of treatment).

[101] (*Compare* Attachment 3 at p. V-3 *with* December 2016 pond dewatering effluent sample results, Attachment 4). The EPA Form 3510-2C toxic pollutant concentrations are expressed as a Maximum Daily Value in milligrams per liter (mg/l), and are converted to equivalent concentrations in micrograms per liter (ug/l) for purposes of comparison against the December 2016 through February 2017 effluent monitoring results at Plant McDonough's Outfall 03.

[102] *See id.*

[103] Citizen complaints re Plant McManus dewatering and EPD tracking log, Attachment 5 hereto, at 7-15, 23-25, 30.

[104] *Id.*

discharges were taking place.[105] Notwithstanding observations reported by EPD personnel on June 24, 2016, as demonstrated by the highly discolored, turbid plume depicted in photographs of the dewatering site, the effluent released from the ash ponds at Plant McManus is anything *but* "clear."[106] The discharge of floating solids or visible foam within the dewatering wastewater effluent observed from the Plant McManus dewatering operations would violate even the draft Hammond NPDES Permit effluent limitations (e.g., Part I(A.1.a. n.4) ("There shall be no discharge of floating solids, oil, scum, or visible foam other than trace amounts")). Such discharges would likewise violate Georgia Water Quality standards. Ga. Comp. R. & Regs. 391-3-6-.03(5)(a)-(e)) (all waters shall be free from materials associated with industrial waste, floating debris associated with industrial waste, other discharges which produce turbidity, color, odor, or other objectionable conditions, and free from toxic substances in harmful concentrations or combinations).

Hence, observed pollutant releases from ash pond drawdown and dewatering discharges occurring at Plant McManus illustrate that the nature of these wastestreams are fundamentally different than those attendant to ordinary plant operations. Given Georgia Power's public records concerning future, but not-yet noticed pond closure operations, the *dewatering wastewaters*, as well as the *means of treatment*, would substantially change in a dewatering operation attendant to ash pond closures at Plant Hammond, in comparison with the wastes and treatment methods identified on Georgia Power's permit application. Under these circumstances, the law requires that the Permit must first be modified so that appropriate effluent limitations and other conditions can be imposed on these distinctly different wastestreams, subject to public notice and comment. 33 U.S.C. § 1311(b)(1)(C); Ga. Comp. R. & Regs. 391-3-6-.06(5)(a), (c), (12)(b); 40 C.F.R. §§ 122.62(a)(1), (a)(2), (a)(11). Thus, Part III.C.6 of the draft Permit is improper as it purports to authorize the future, unspecified discharge of coal ash pond dewatering discharges. Because both the *operations* contributing to the effluent and the means of *treating* these wastestreams will change from those set forth in Georgia Power's NPDES permit application, the permit must be reopened and modified to address dewatering activities before they occur.

Accordingly, the final sentence of Part III.C.6 of the draft Permit should be stricken and replaced with the Dewatering Condition, as set forth above.

3. The Draft Permit fails to establish TBELs for coal ash pond dewatering discharges.

In an apparent attempt to address the future, substantially different dewatering wastestreams that would be released by the complete pumping out of the Plant Hammond coal ash ponds, Part III.C.6 of the Draft Permit calls for the permittee to submit a Coal Ash Pond Dewatering Plan outlining materially different "wastewater treatment system components" and "process controls being installed" to treat these future dewatering wastestreams. Part III.C.6.a– b. The approach envisioned by such a provision is contrary to both the letter and intent of the Clean Water Act and attendant regulations, which require imposing specific TBELs *within a permit*, and *prior* to authorizing such discharges.

[105] *See id.* at Complaint Tracking Log, at 17-18.
[106] *See, e.g., id.* at 10 (photo #13), 13 (photo #18).

As noted in Section II.C above, EPA codified a national ELG for NPDES permits that impose BAT standards for certain discharges, pollutants and activities within the steam electric power generating point source category at 40 C.F.R. § 423, but the Draft Permit's effluent limitations remain subject to the far less stringent 1982-era ELGs.

a. The 1982 ELGs do not apply to coal ash pond dewatering discharges.

The wastewater treatment systems currently in place at Plant Hammond have remained essentially unchanged for decades. As set forth in the Hammond NPDES Application, the wastewater treatment system entails sluicing wet ash to a series of ash ponds. In the ash ponds, coal ash particles are removed from the ash transport water through a combination of ash transport water recycling and passive, gravity-based settling as the predominant form of wastewater treatment, prior to discharge from the *upper portion* of the ponds via designated outfalls. Permit Application, at 1a – 1b of 4 (identifying EPA treatment codes 4A, 1U, 4C). This type of discharge meets the EPA's definition of "low-volume wastes" under the 1982 ELGs, and it is therefore appropriate that the 1982 ELGs would apply to such routine discharges. As EPA Region 1 recently explained in amending TBELs in a NPDES permit governing coal ash pond discharges, the 1982 ELGs "established effluent limitations based on the best practicable control technology currently available (BPT) standard for the 'catch-all' category of 'low-volume wastes.'"[107] Because discharges associated with draining the ponds are different in both volume and kind, they require EPD to formulate TBELs specific to that activity.

With respect to the treatment of "low volume wastes," EPA's technical report underlying the 1982 ELGs detailed two waste treatment technologies: vapor-compression evaporation; and evaporation ponding, *i.e.* waste settling ponds.[108] The latter form of treatment—passive settling of waste solids through evaporation ponding—has been the treatment and discharge practice at Plant Hammond for years, and remains the identified form of treatment in the Hammond NPDES Application. Permit Application at 1a – 1b of 4 (identifying EPA treatment Codes 4A, 1U, 4C). As the 1982 EPA Development Document explains, the "ponds use solar energy to evaporate wastewater" as the form of treatment, "and thereby concentrate dissolved solids in the wastewater" at the lower portions of the ponds, as a means of capturing and containing the waste via settling and evaporation.[109]

It is that vastly more concentrated *wastestream* – the settled, removed waste occupying the lower portions of Hammond's ash ponds – that would be released to the environment via pond closure dewatering operations at some future, unspecified date. Here, EPD erroneously proposes to authorize release of these wastestreams *in advance* via Part III.C.6 of the Draft Permit, subject only to certain disclosure requirements via a Coal Ash Pond Dewatering Plan and EPD's evaluation of that information. But because the 1982 ELGs *do not* envision the discharge of these settled and removed wastes, and therefore *do not* impose national effluent standards for

[107] Merrimack Station Revised Draft Permit 2014 Fact Sheet, NPDES No. NH001465 at 14 (Attachment 6 hereto, hereinafter "Merrimack Fact Sheet"), *available at* https://www.puc.nh.gov/Regulatory/CASEFILE/2011/11-250/TRANSCRIPTS-OFFICIAL%20EXHIBITS-CLERKS%20REPORT/11-250%202014-10-14%20EXH%2061.PDF (*accessed* April 2, 2017).
[108] *See* 1982 EPA Development Document at 438-441.
[109] 1982 EPA Development Document at 441.

such wastestreams, it is incumbent upon EPD to develop applicable TBELs either now or as part of a future permit modification.[110]

b. EPD must use its Best Professional Judgment to establish TBELs for ash pond dewatering discharges.

The law is clear that separate TBELs must be developed and imposed on proposed dewatering discharges *prior* to authorizing their release. The Clean Water Act requires that TBELs "shall be established . . . for solids, sludges, filter backwash, and other pollutants *removed in the course of treatment or control of wastewaters* in the same manner as for *other pollutants*." 40 C.F.R. § 125.3(g) (emphasis added); Ga. Comp. R. & Regs. 391-3-6-.06(4)(a)(1), (a)(10), (d). The release of removed, settled waste and accompanying wastewater occupying the lower portion of the ash ponds and within the saturated coal ash plainly meets this definition. Additionally, the 1982 ELGs do not apply to stored FGD wastes.[111] Thus, the provisions of the Draft Permit that would authorize release of these dewatering wastestreams (including FGD wastewater), subject only to certain information disclosure requirements within an yet-to-be-disclosed Coal Ash Pond Dewatering Plan is manifestly improper under 40 C.F.R. § 125.3(g) (emphasis added); Ga. Comp. R. & Regs. 391-3-6-.06(4)(a)(1), (a)(10), (d). The law requires EPD to develop and impose appropriate TBELs in a permit prior to authorizing the discharges.

As explained above, the Clean Water Act requires that NPDES permits impose TBELs reflecting the "minimum level of control that must be imposed in a permit" for each pollutant and *each wastestream* being discharged from the ash ponds. 40 C.F.R. § 125.3. For the toxic pollutants at issue here, TBELs must reflect the pollution reduction achievable by BAT for the covered discharge. 40 C.F.R. § 125.3(a)(2)(iii)-(v); Ga. Comp. R. & Regs. 391-3-6-.06(4); 33 U.S.C. §§ 1311(b)(2)(A), (C), (D), (F). The BAT requirement sets a stringent treatment standard that requires "elimination of discharges of all pollutants if . . . such elimination is technologically and economically achievable." 33 U.S.C. 1311(b)(2)(A). As shown above, the 1982 ELGs upon which the TBELs are derived in the Draft Permit do not define the treatment that is "technologically and economically achievable" for the dewatering discharges.[112]

As such, upon receipt of proper notification from Georgia Power of an anticipated change in waste disposal operations or wastewater treatment methods (as envisioned by Part II.1.a.2, 3 or Part II.1.d.2 of the Draft Permit), EPD must use its BPJ to make a case-by-case determination of the proper BAT limitations that should apply to the dewatering discharges. To do so, EPD must assess what technologies are "available", and, of the available technologies, which are "economically achievable." 33 U.S.C. § 1311(b)(2)(A). "In other words, the BAT standard requires [the issuing authority] to set effluent discharge limits corresponding to the use of the best pollution control technologies that are technologically and economically achievable and result in reasonable progress toward eliminating discharges of the pollutant(s) in question, which will include eliminating such discharges if doing so would be achievable."[113]

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[110] *Id.* at 438-441.
[111] *See, e.g.,* Merrimack Fact Sheet at 14 (citing 1982 EPA Development Document at 248); 47 Fed. Reg. 52,291 (Nov. 19, 1982) (preamble to final Rule for 1982 ELGs); 1982 EPA Development Document at 3, 7.
[112] *See, e.g.*, 1982 EPA Development Document at 438-441.
[113] Merrimack Fact Sheet, at 15.

EPD must make this determination once (and *not before*) information concerning anticipated changes to disposal practices or waste generating operations is provided.[114] This allows EPD to develop appropriate TBELs in a validly issued NPDES permit *prior* to dewatering discharges occurring based on available information, so that the appropriate technology-based standard is imposed. 40 C.F.R. §§ 122.62, 124.6, 124.10, 124.57, 125.3(a)(iii)-(v), (c)(2)-(3), (d)(3), (g); Ga. Comp. R. & Regs. 391-3-6-.06(4), (7)(b), (c), (d); 33 U.S.C. §§ 1311(b)(2)(A), (C), (D), (F); *Chemical Manufacturers Ass'n v. U.S.E.P.A.*, 870 F.2d 177, 239 (5th Cir. 1989) ("The legislative history of the CWA indicates that the [BAT] refers to the single best performing plant in an industrial field."), *decision clarified on reh'g*, 885 F.2d 253 (5th Cir. 1989); *see also Am. Paper Inst. v. Train*, 543 F.2d 328, 346 (D.C. Cir. 1976) (BAT should "at a minimum, be established with reference to the best performer in any industrial category."); *Kennecott v. U.S.E.P.A.*, 780 F.2d 445, 448 (4th Cir. 1985) ("In setting BAT, [the issuing authority] uses not the average plant, but the optimally operating plant which acts as a beacon to show what is possible.").

Furthermore, EPD's development of appropriate TBELs must occur in full compliance with the Clean Water Act's notice and public comment provisions, enabling not only interested members of the public, but EPA and citizens of the neighboring State of Alabama[115] to participate in this important agency determination. 33 U.S.C. §§ 1251(e) ("Public participation in the development, *revision*, and *enforcement* of any…standard, [or] *effluent limitation* … established by...any State under this chapter *shall be provided for*, encouraged, and assisted by the Administrator and the States.") (emphasis added), 1342(d) ("No permit shall issue . . . if the Administrator . . . objects in writing to the issuance of such permit…"); Ga. Comp. R. & Regs. § 391-3-6-.06(8)(b)(3) ("No NPDES Permit shall be issued authorizing . . . 3. Any discharge to which the Regional Administrator has objected in writing . . ."); *Arkansas v. Oklahoma*, 503 U.S. 91, 105 (1992) (examining impact of NPDES permit conditions issued to Arkansas sewage treatment plant on effluent discharges that ultimately reached Oklahoma, on challenge raised by the downstream state); *Hughey v. Gwinnett County*, 278 Ga. 740, 743 (Ga. Sup. Ct. 2004)

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[114] As noted above, the Draft Permit requires that the permittee submit advance notice of any physical alterations or additions to the facility that includes an "alteration or addition that could significantly change the nature or increase the quantity of pollutants discharged", an "alteration or addition [that] results in a significant change in the permittee's sludge use or disposal practices," and "any planned installation of new equipment or modification of existing processes that could increase the quantity of pollutants discharged" (draft Permit, Part II(A)(1)(a)(2), (3), and (d)(2). In compliance with similar provisions contained within NPDES permits issued to Georgia Power for Plant McManus and Plant McDonough, Georgia Power tendered an April 18, 2016 Notice of Change in Operations to EPD, identifying "a process modification at Plant McManus that involves the addition of treatment systems being installed for Outfall 02 (ash pond final discharge)" to "facilitate final closure of the ash pond." (Attachment 7 hereto). Georgia Power submitted a similar Notice of Change in Operations to EPD on May 16, 2016, with planned discharge via Outfall 03 (ash pond final discharge) to facilitate final closure of the ash ponds at Plant McDonough. (Attachment 8 hereto). No such Notice has been tendered to date for Plant Hammond, and, as set forth above, the Hammond NPDES Application does not identify coal ash pond dewatering as an "Operation Contributing Flow" to any effluent being discharged at any NPDES permitted Outfall at Plant Hammond. Permit Application, at 1a – 1b of 4. Part III.C.6 of the Draft Permit for Plant Hammond cannot, therefore, authorize dewatering wastewaters absent major modification of the Permit, because EPD has not undertaken the requisite determinations to develop appropriate effluent limitations on such discharges in a validly-issued, modified NPDES permit.

[115] Commenters note that oral comments seeking more stringent protections against the discharge of toxic pollutants within this Permit were submitted by Kurt Day of the County Commission for Cherokee County, at the public hearing held April 12, 2017 in Rome, Georgia, voicing concerns of adverse impacts to Weiss Lake, located approximately 15 miles downstream from Plant Hammond. Commenters concur with these concerns.

(explaining that "Agency actions . . . undergo a public notice and comment period to provide the public with the opportunity for meaningful participation in important agency decisions."); *Ohio Valley Env'l Coalition Inc. v. Apogee Coal Co.*, LLC, 555 F. Supp. 2d 640, 645-46 (S.D.W.Va. 2008) ("Public notice is not merely a formality; it ensures that the public has a meaningful opportunity to participate in the issuance of a permit.").

Georgia's NPDES permit regulations provide that "Public notice of every complete permit application will be prepared and circulated in a manner designated to inform interested and potentially interested persons of the proposed discharge and the proposed determination to issue or deny a permit for the proposed discharge." Ga. Comp. R. & Regs. § 391-3-6-.06(7)(b). The proposed discharges at issue here are only those identified in Georgia Power's NPDES permit application. The application does not identify or contemplate the complete pumping out of the coal ash ponds at Plant Hammond. Upon receipt of Notice from Georgia Power of the proposed dewatering activities (which entail a material change in the waste generation and disposal practices), EPD must "inform interested and potentially interested persons of the *proposed* [dewatering] *discharge* and the proposed determination to issue or deny a permit for the *proposed* [dewatering] *discharge*." *See id.* (emphasis added). Hence, the approach envisioned by Part III.C.6 of the draft Permit is manifestly improper, because it contemplates allowing dewatering to go forward without public notice and comment. Ga. Comp. R. & Regs. §§ 391-3-6-.06(7)(b), (12)(b); 40 C.F.R. § 122.62(a).

As the foregoing demonstrates, the current effluent limitations imposed by the draft Permit on Plant Hammond Outfalls 01, 03, 04 and 10 are derived from the 1982 ELGs, and therefore do not cover releases of ash pond dewatering discharges that "might" occur at some unspecified future date, and for which Georgia Power has not yet even applied.[116] Accordingly, while the addition of "wastewater treatment system components," "process controls", and enhanced effluent monitoring and reporting as envisioned by the disclosure requirements set forth in Part III.C.6.a–g of the Draft Permit may indeed, once approved and deployed at Plant Hammond at some future date, offer technical advances beyond the passive, gravity-based wastewater treatment methods addressed in the 1980's-era ELGs, it does not follow that these treatment methods are BAT for the *dewatering wastestreams*. Indeed, even assuming, *arguendo*, that the treatment technology described in a future Coal Ash Pond Dewatering Plan submitted as required by Part III.C.6 of the Draft Permit *would be*, at that time, the most appropriate and economically achievable means of achieving BAT, the Clean Water Act still requires that EPD develop appropriate TBELs for those discharges through a permit modification that includes public notice and comment. 40 C.F.R. § 122.62(a); Ga. Comp. R. & Regs. 391-3-6-.06(12)(b).

The Draft Permit's purported preauthorization of dewatering wastestreams circumvents statutory and regulatory safeguards designed to *prevent* the discharge of materially different wastestreams arising from substantial alterations of an industrial utility's waste handling and treatment practices. Ga. Comp. R. & Regs. 391-3-6-.06(12)(b); 40 C.F.R. §§ 122.62(a)(1), (a)(2); 125.3(g); Ga. Comp. R. & Regs. 391-3-6-.06(4)(a)(1), (a)(10), (d). Accordingly, the final

[116] See 1982 EPA Development Document at pp. 248 438-441 (treatment of low volume waste via pond settling, no national TBELs for FGD wastewaters); Merrimack Fact Sheet, p. 14; Permit Application, at 1a-1b of 4) (identifying EPA treatment Codes 4A, 1U, 4C).

sentence of Part III.C.6 of the Draft Permit should be stricken and replaced with the Dewatering Condition set forth above.

4. The Draft Permit erroneously omits the mandatory TBEL analysis from Part III.C.6 by only addressing water quality impacts stemming from Coal Ash Pond Dewatering Plan.

Under the Clean Water Act, effluent limits imposed in a NPDES permit must reflect evaluation of *both* the applicable TBELs as well as water quality based effluent limitations ("WQBELs"), applying the more stringent of the two in the permit. 33 U.S.C. § 1311(b)(1)(C); *N. Cheyenne Tribe v. Mont. Dep't of Envtl. Quality*, 234 P.3d 51, 57 (Mont. 2010) ("State water quality standards provide an additional layer of protection when pre-discharge treatment standards alone would not protect water quality.") (*citing PUD No. 1 of Jefferson Cnty. V. Wash Dep't of Ecology*, 511 U.S. 700, 704 (1994) (emphasis added)); 2010 EPA NPDES Permit Writers' Manual, p. 5-7) ("TBELs are developed independently of the potential impact of a discharge on the receiving water, which is addressed through water quality standards and [WQBELs]."). Hence, while EPD must consider the anticipated impact of the dewatering discharges on the receiving waters in any future effluent limits determination governing dewatering discharges, EPD must *also* use its BPJ to determine appropriate TBELs for the covered pollutants and wastestreams, and apply the more stringent of the two in a subsequently modified NPDES permit.[117]

Here, the final sentence within Part III.C.6 of the Draft Permit erroneously omits EPD's mandatory determination of appropriate TBELs under the BAT standard using its BPJ, focusing solely upon water quality based impacts stemming from future dewatering discharges. (*See* Draft Permit, p. 28) ("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 . . ."). The WQBEL-only inquiry envisioned by Part III.C.6 is improper, and therefore cannot authorize the discharge of pollutants stemming from the large-scale drawdown, release and dewatering of coal ash ponds at Plant Hammond at some unknown future date.

In light of the foregoing, the final sentence of Part III.C.6 of the draft Permit should be stricken and replaced with the Dewatering Condition, as set forth above.

E. <u>EPD should require Georgia Power to resubmit its effluent characterization for Outfalls 03, 04, and 10 because the data provided does not reflect the discharges</u>.

Georgia Power's permit application improperly characterizes effluent, which in turn causes EPD's reasonable potential analyses to be deficient. In August 2016, Georgia Power submitted updated versions of EPA Form 2C for Outfalls 03, 04, 05, and 10 in response to a verbal request from EPD. Addendum to Hammond NPDES Permit Application (Aug. 12, 2016) ("Permit Application Addendum"). Outfalls 03, 04, and 10 are discharge points for emergency

[117] Furthermore, as set forth above, where a permittee's waste disposal operations have subsequently changed, resulting in the discharge of materially different wastestreams, the development of appropriate effluent limitations must be made via major modification, as set forth above; such determination cannot be simply put off for a later determination, as envisioned by Part III.C(6) of the draft Permit. Ga. Comp. R. & Regs. 391-3-6-.06(12)(b); 40 C.F.R. §§ 122.62(a)(1), (a)(2).

overflows for Plant Hammond's ash ponds. The forms purport to characterize the effluent present in coal ash pond discharges. Georgia Power reports the same values for each of the outfalls.[118] On each of the three forms, Georgia Power states at the bottom of the page, "NOTE - Effluent characteristics based upon a storm water dilution factor of 2.1."[119] No other information in the permit file provides details on this note. The note appears to mean that Georgia Power applied a dilution factor to effluent samples before entering pollutant concentrations into the form submitted to EPD.

For pollutants listed on the form, which include the toxic metals arsenic, cadmium, selenium, and mercury, Georgia Power must submit quantitative data detailing the effluent characteristics. Georgia Power "must collect a sample of the effluent and analyze it for the pollutant" in accordance with methods required by federal regulations. 40 C.F.R. § 122.21(g)(7)(i). According to the instructions for EPA Form 2C, permittees are required "to collect and report data on the pollutants discharged for each of [their] outfalls."[120] The instructions detail the type of samples required and the procedure. They direct that "[s]amples should be collected from the center of the flow channel, where turbulence is at a maximum, at a site specified in your present permit, or any site adequate for the collection of a representative sample."[121] The form is intended to capture pollutant concentrations found in the actual effluent samples.

In the 2010 Permit Writer's Manual, EPA explains that a permit writer relies on effluent characterizations so provided to determine whether water quality based effluent limits are required.[122] It is the permitting agency who then determines whether and how dilution will occur.[123] By applying its own unsupported dilution factor, Georgia Power fails to disclose the true characteristics of its effluent to EPD, making it impossible for EPD to conduct its reasonable potential analysis to assess water quality impacts.[124]

Thus, EPD should require Georgia Power to resubmit Form 2C for Outfalls 03, 04, and 10, including pollutant concentrations detected in the effluent as sampled.

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[118] EPA regulations allow an applicant to test only one outfall when "an applicant has two or more outfalls with *substantially identical* effluents." 40 C.F.R. § 122.21(g)(7) (emphasis added). However, Georgia Power has not identified which outfall is being characterized (i.e., which of the three outfalls was actually tested). And, Georgia Power has not asserted that the effluent is substantially identical, nor has it explained how it came to that conclusion.

[119] Relatedly, in its effluent characterization form for Outfall 1, Georgia Power does not report the temperature of the cooling water discharge at the point of discharge. Instead, it reports it at the end of its mixing zone. The effluent itself is not characterized in the application. Georgia Power reports the temperature after its discharge has been diluted by flowing 3,000 feet down the river.

[120] EPA Application Form 2C- Wastewater Discharge Information, Application for Permit to Discharge Wastewater at 1, *available at* https://www.epa.gov/sites/production/files/documents/3510-2C.pdf.

[121] *Id.* at 2.

[122] NPDES Permit Writer's Manual, at 6-12.

[123] *Id.* at 6-15.

[124] Note that the reasonable potential analysis applies a dilution factor, too.

F. EPD should correct errors in its reasonable potential analysis to ensure water quality standards are protected.

EPD's reasonable potential analyses appear to contain several errors. In the analysis for Outfall 03, the value for cadmium is marked as zero. For other coal ash pond outfalls, EPD uses the reported effluent concentration of 1.2 µg/L. Similarly, there are measurable amounts of mercury in Outfalls 01, 03, 04, and 10. Yet, EPD appears to have entered zero into its reasonable potential analysis as the concentration of this toxin. EPD should update its analyses to reflect the concentrations of each pollutant found in Plant Hammond's discharges.

EPD conducted a reasonable potential analysis for ten metals: arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, zinc, and selenium. EPD did not conduct a reasonable potential analysis for thallium even though it was reported as present in coal ash pond effluents at a concentration of 1.2 µg/L. Thallium is listed as a toxic priority pollutant pursuant to Section 307(a)(1) of the Clean Water Act and is subject to an EPD established water quality standard.[125] EPD should conduct a reasonable potential analysis for thallium to ensure water quality standards are not jeopardized.

III. CONCLUSION

For the foregoing reasons, the draft Plant Hammond NPDES permit must be revised to address the deficiencies identified above before finalization. Given that the current Hammond NPDES permit was issued in June of 2007, nearly a full decade ago, and has been expired for nearly a full five-year permit cycle, it is imperative that EPD move swiftly to finalize the Hammond NPDES permit, and to address the ongoing environmental harm from Plant Hammond.

Commenters appreciate 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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[125] 40 C.F.R. Pt. 423, App'x A; *see also* Ga. Comp. R. & Regs. 391-3-6-.03(5)(e)(iv).

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