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BY ELECTRONIC MAIL AND OVERNIGHT COURIER

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Re: Draft Environmental Impact Statement: Update of the Water Control Manual for the Apalachicola-Chattahoochee-Flint River Basin in Alabama, Florida, and Georgia and a Water Supply Storage Assessment (Oct. 2015)

Dear Col. Chytka:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement: Update of the Water Control Manual for the Apalachicola-Chattahoochee-Flint River Basin in Alabama, Florida, and Georgia and a Water Supply Storage Assessment (Oct. 2015) (the "Draft EIS"). These comments are submitted on behalf of the water supply providers in the metropolitan Atlanta region including: the Atlanta Regional Commission; the City of Atlanta; the Atlanta-Fulton County Water Resources Commission; the Cobb County-Marietta Water Authority; DeKalb County; Forsyth County; Fulton County; Gwinnett County; and, the City of Gainesville (collectively, the "Water Supply Providers").

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Executive Summary

We commend the Army Corps of Engineers for the hard work and careful attention it has put into this Draft. In particular, we are gratified that the Army has proposed to meet all projected water supply needs from the Chattahoochee River downstream of Buford Dam. This decision is obviously correct, both because it will provide tremendous social, economic, and environmental benefits over the construction of alternative supplies, and because it will have no material impacts on downstream flows. We also appreciate the many improvements in the plan, detailed below in Section 8, that we trust will be retained. The plan is not perfect, however, and therefore the bulk of this letter is devoted to problem areas we urge you to address. Please do not hesitate to request additional information or analysis about any of these points.

Our primary concern is to ensure that Lake Lanier will be used to meet the entire projected 2050 water demand for those who withdraw water directly from the lake. This water supply is vitally important to the State of Georgia and the people and businesses who rely on Lake Lanier, and it can be provided at very little cost to other stakeholders or the environment. Given the reduced 2050 water supply demands and updated return flow projections developed by the Metropolitan North Georgia Water Planning District (“Metro District”), the net impact of meeting the region’s entire projected need will be just 3.4 million gallons per day (“mgd”) greater than the Army’s Proposed Action Alternative, which the Army has already deemed

acceptable. The incremental impact of meeting this additional demand will be negligible, and yet the cost of ***not*** meeting it—and thus forcing communities to build new reservoirs that would not be needed otherwise—would be very large indeed. Importantly, the Draft EIS also confirms what we have always known, which is that water use in metropolitan Atlanta has a negligible impact on Florida.

To maximize public benefits and minimize environmental impacts, it should be the policy of the federal government to maximize the use of existing water infrastructure. One way to do this is to encourage users to increase the yield of water supply storage by returning highly-treated, reclaimed water to the existing federal reservoirs. The State of Georgia and the Metro District have identified this strategy as an essential element of the region's long-term water supply plans. It is long past time for the Army to develop a policy expressly authorizing and incentivizing this practice. The draft is silent on this important issue, however, even though the Eleventh Circuit expressly directed the Army to address it. In Section 2 of these comments, we urge the Army to adopt a policy of crediting return flows to water supply users in accordance with the State of Georgia's allocation. In addition to promoting water efficiency and conservation and maximizing public benefits, we believe such deference is also mandated by law and by principles of federal-state comity.

In Section 3, we request that the details on the proposed "storage accounting" spreadsheet for Lake Lanier be released for public comment. It is important to get the accounting right because important property interests are at stake.

In terms of the operating plan itself, the navigation element is by far our biggest concern. As detailed in Section 4, U.S. Geological Survey gage data for the Blountstown gage show that navigation cannot be supported through reservoir releases alone. The irregularities at this gage must be investigated. If our reading of those data is correct—as presented in Section 4 and the attached memorandum—it may not be possible to support navigation until dredging and other channel maintenance activities are restored.

Even if the proposed navigation plan were feasible, such that the benefits projected in the draft could actually be realized, those benefits would pale in comparison to the damage inflicted on other purposes. If navigation is to be restored, a better plan can and must be developed. We suggest one potential alternative that may provide greater benefits to navigation than the Proposed Action Alternative at a mere fraction of the cost.

Section 5 explains that the Army selected its preferred operating rules assuming only 20 mgd of water supply withdrawals from Lake Lanier, despite the fact that current water supply withdrawals are more than 5 times that amount. It makes no sense to develop an operating rule based on false assumptions about water supply use, when a rule developed to reflect actual conditions could perform much better. Further, the Army's Proposed Action Alternative is highly sensitive to model inputs and very small changes in basin conditions, meaning that small changes can have large, unpredictable effects. A more robust rule would be less sensitive to small changes, and more predictable.

In Section 6, we identify errors in the water quality analysis and storage computations that need to be corrected. The major flaw in the water quality analysis is that ***historical*** pollutant loadings were used to project ***future*** water quality impacts; this is not valid because permits are much more stringent today than they were when the loading data were collected. The major flaw in the storage computation is that an outdated area-capacity curve was used.

Section 7 explains that the Army failed to consider reasonable alternatives that would have increased system conservation storage. These alternatives, which include raising the rule curve at Lake Lanier and limiting the winter drawdown at West Point, should be evaluated, as they could provide benefits throughout the basin.

1. Lake Lanier Should Be Used to Meet the Entire Projected 2050 Water Supply Demand for the Communities It Serves.

The Draft EIS should be revised to supply the entire projected demand for communities that draw from Lake Lanier. As it stands, the Draft proposes to meet 100% of the projected demand from the Chattahoochee River, but assumes that only 75% of the projected demand above Buford Dam would be met—225 million gallons per day ("mgd") out of a total projected need of 297 mgd. New projections by the Metro District and the State of Georgia have decreased the projected need to 242 mgd in 2050. This has narrowed the gap between the proposed supply of 225 mgd evaluated in the Draft EIS and the projected demand so that it is now just 17 mgd. That gap can and should be eliminated entirely by increasing the storage allocation in Lake Lanier.

1.1 To Meet Georgia's Projected 2050 Demand, the Allocation from Lake Lanier Must Be Increased from 185 MGD to 242 MGD.

To meet Georgia's projected 2050 demand, 379 mgd must be supplied by releasing water from Buford Dam into the Chattahoochee River, and 242 mgd must be supplied by allowing withdrawals directly from Lake Lanier. Of the 242 mgd to be withdrawn directly from Lake Lanier, 23.3 mgd will be supplied by relocation contracts for the City of Gainesville and the City of Buford, and the balance of 218.7 mgd should be supplied by a new storage contract or contracts in Lake Lanier (10 mgd under the 1956 Act for Gwinnett County, and the remaining 208.7 mgd under the Water Supply Act). The proposed Glades Farm Reservoir should not be relied upon to supply any part of this demand. These points are explained below.

a. The Total Projected Need from Lake Lanier is Now 242 mgd.

On December 4, 2015, the State of Georgia lowered its projected demand from Lake Lanier from 297 mgd to 242 mgd.[1] Projected demands from the Chattahoochee River have also been

[1] *See* Letter from Judson Turner, Director, Georgia Environmental Protection Division, to Col. Chytka, District Commander, Mobile District, U.S. Army Corps of Engineers, regarding State of Georgia's Water Supply Request (Dec. 4, 2015) (Exhibit 1). Of this amount, the State of Georgia

reduced to between 355 mgd and 379 mgd,[2] down from the prior projection of 408 mgd. At the same time, returns to Lake Lanier are now projected to be 104.6 mgd by 2050.[3, 4]

The new, lower demand projections are the fruits of an aggressive conservation program developed by the Metro District. The program has been highly successful. While the region is expected to grow by almost 3.3 million people and to add more than 1.9 million new jobs by 2050, projected water supply demands for the Metro District from the Chattahoochee-Lanier system have been reduced by as much as 116 mgd.[5]

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has allocated 8 mgd from Lake Lanier for counties that are outside of the Metropolitan North Georgia Water Planning District. The total request for Metro District jurisdictions is therefore 234 mgd. This is 21.2% less than the 297 mgd originally requested, which was originally intended to meet needs only through 2030.

[2] This range depends on the supply available to Cobb County-Marietta Water Authority from Allatoona Lake in the Alabama-Coosa-Tallapoosa (ACT) River Basin. *See id.*

[3] This includes a projected return of 99 mgd to Lake Lanier from jurisdictions in the Metro District that withdraw water directly from the project. *See* Memorandum from Katherine Zitsch, Director, Metropolitan North Georgia Water Planning District, to Jud Turner, Director, Georgia EPD, Projected Future Treated Wastewater Returns for the Chattahoochee River and Lake Lanier System (Jan. 25, 2016) (Exhibit 2). In addition, Georgia EPD projects that counties upstream of Lake Lanier will return an additional 5.6 mgd by 2050. *See* Memo from Wei Zeng to Jud Turner (Jan. 29, 2016). This is a projected return rate to Lake Lanier of 43.2% for the entire request, and 42.3% for the Metro District counties that withdraw water from Lake Lanier (which also make additional returns to the Chattahoochee River downstream of Buford Dam).

[4] In the Draft EIS, the Army projected returns to Lake Lanier of 91 mgd. This was based on the Army's assumption that future wastewater infrastructure would be designed, constructed, and operated at 58% capacity. Draft EIS at 5-7. This assumption is deeply flawed. Wastewater treatment facilities are not designed—and communities do not spend tens or even hundreds of millions of dollars to construct—facilities that exceed their needs by more than 40%. Rather, they project future wastewater needs based on projected future growth in wastewater flows many years out, and construct facilities designed to meet those needs as flows increase into the future. In any event, the new return-flow projections are far superior to those assumed by the Army in the Draft EIS because they are derived directly from actual projected water demands and the actual projected wastewater flows that will be generated accordingly.

[5] *See* Letter from Judson Turner, Director, Georgia Environmental Protection Division, to Col. Chytka, District Commander, Mobile District, U.S. Army Corps of Engineers, regarding State of Georgia's Water Supply Request (Dec. 4, 2015); Memorandum from Katherine Zitsch, to Jud Turner, Director, Metropolitan North Georgia Water Planning District, Regarding Projected Future Water Supply Demands for the Chattahoochee River and Lake Lanier System (Dec. 2, 2015) (Exhibit 3).

There is no dispute that the revised projection of 242 mgd is the best available. Indeed, the Draft EIS concludes the original projected need of 297 mgd was, if anything, too low.[6] Given the Army's determination that the water is actually needed, and having previously determined that it is authorized to reallocate storage in Lake Lanier to supply the full 297 mgd in the original water supply request,[7] none of the analysis in the Draft EIS justifies rejecting this request.

b. <u>The Proposed Glades Farm Reservoir Should Not Be Used to Meet Any Portion of the Projected 2050 Demand.</u>

The Army's proposed action alternative (Alternative 7H) states that 40 mgd of the total projected metro demand will be supplied by the proposed new Glades Farm Reservoir.[8] This water should be supplied directly from Lake Lanier instead.[9]

The Draft EIS shows that impacts to lake levels, river flows, and other measures are the same whether the 40 mgd is supplied from Glades Farm or directly from Lake Lanier.[10] Lake Lanier should be the preferred alternative because it would be far cheaper. Reallocating storage to provide an additional 40 mgd would cost approximately $11.1 million, or about $640,000 per year over 30 years. The Glades Farm Reservoir would cost much more and would also result in unnecessary environmental impacts.[11]

This is not to say that Glades Farm Reservoir could not be constructed to serve some purpose other than water supply, but it does establish that this project is not a viable ***<u>alternative</u>*** to obtaining water supply storage in Lake Lanier. The preferred alternative must be to allocate

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[6] Draft EIS, Vol. 3 Appx. B at 19 & Table 12.

[7] Memorandum from Earl Stockdale, Chief Counsel, for the Chief of Engineers Regarding Authority to Provide for Municipal and Industrial Water Supply from the Buford Dam/Lake Lanier Project, Georgia at 4 (June 25, 2012) ("In addition to downstream withdrawals for water supply under the 1946 RHA, the Corps has authority to accommodate the 190 mgd in net annual average withdrawals that Georgia has requested directly from Lake Lanier (including gross withdrawals of 297 mgd and returns of 107 mgd to Lake Lanier)….") (Exhibit 4).

[8] *E.g.*, Draft EIS at ES-30.

[9] We understand that the State of Georgia has decertified the water supply need for the proposed Glades Farm Reservoir through 2050, and that, if constructed, it will not serve as a source of water supply through 2050. Accordingly, we discuss the Army's proposal as providing 225 mgd from Lake Lanier.

[10] In the Draft EIS, Alternative 7D would provide 297 mgd from Lake Lanier, while Alternative 7E would provide 257 mgd from Lake Lanier, with 40 mgd assumed to come from the proposed Glades Farm Reservoir. The Draft EIS explains that these alternatives are "essentially the same." Draft EIS at 5-26.

[11] *See infra* Section 1.3e.ii.

storage in Lake Lanier to support 100% of the projected demand for communities above Buford Dam, or 242 mgd.

c. Relocation Contracts and the 1956 Act for Gwinnett County Will Provide a Total of 33.3 mgd.

The Draft EIS states that "[w]ithdrawals of 20 mgd from Lake Lanier are authorized under relocation agreements and the 1956 Act (Public Law 84-841)."[12] This is incorrect. The relocation contracts alone provide a total withdrawal of 23.3 mgd (21.3 mgd for Gainesville and 2 mgd for Buford), and the 1956 Act provides an additional 10 mgd for Gwinnett County. The total is thus 33.3 mgd. It is important to get these authorities and amounts right because they affect both the payments owed and the amount that can be supplied under the separate authority of the Water Supply Act of 1958.

i. The 1953 Relocation Contract and 2003 Supplement

The City of Gainesville and the City of Buford withdraw water from Lake Lanier pursuant to relocation contracts executed as compensation for properties taken when Lake Lanier was constructed. The City of Buford's agreement is for 2 mgd, while the City of Gainesville's relocation contract allows it to "remove [up to] 8,000,000 gallons of water per day from Buford Dam and Reservoir."[13] As both parties confirmed in a Supplement to the Relocation Contract the parties executed in 2003, Gainesville's relocation contract has historically been interpreted as allowing a *net* withdrawal of 8 mgd.[14]

The Draft EIS states, erroneously, that the parties' historical interpretation also included an "overall cap of 18 mgd gross withdrawals."[15] In reality, the 18 mgd limit discussed in the Draft EIS is a product of the same 2003 Supplement to the original relocation contract discussed

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[12] Draft EIS at 5-27.

[13] *See* Agreement Between the City of Gainesville and the United States, Art. 1.f (June 22, 1953) (providing that the City of Gainesville "will not … remove more than 8,000,000 gallons of water from the reservoir of Buford Dam within any 24-hour period without prior written approval") (Exhibit 5).

[14] *See* Draft EIS at 2-77 n.1 ("The term 'remove' has been interpreted as 8 mgd net withdrawal during any 24-hour period…"); Supplemental Agreement to the Relocation Contract between the United States of America and the City of Gainesville (Jan. 9, 2003) ("WHEREAS, the term 'remove' has historically been interpreted as creating a limitation on "net" as opposed to "gross" withdrawals.") ("2003 Supplement") (Exhibit 6).

[15] Draft EIS at 2-77 n.1.

above, which imposed an 18 mgd limit for the first time.[16] Because that same 2003 Supplement also provided for the 18 mgd cap to increase to 21.3 mgd upon execution of a new storage contract, the new 21.3 mgd cap will take effect when the proposed storage contract is executed.[17]

If the 2003 Supplement is deemed inoperative for any reason, the relocation contract would simply revert to its original form, which the parties always understood to authorize a net withdrawal of up to 8 mgd. Either option would be acceptable to the City of Gainesville, but a new interpretation capping the withdrawal at 18 mgd would not.[18]

ii. The 1956 Act Provides an Additional 10 mgd for Gwinnett County

Public Law 84-841 (the "1956 Act") authorizes the Army to contract with Gwinnett County "for the use of storage space in the Buford Reservoir for the purpose of providing … a regulated water supply in an amount not to exceed eleven thousand two hundred acre-feet of water annually."[19] This is equivalent to 10 mgd of withdrawal.

As the Eleventh Circuit explained, the authority provided by the 1956 Act for Gwinnett County has never been exercised and the 1956 Act remains valid today. This provides the Army "additional water supply authority" to enter a contract to provide the authorized withdrawals.[20]

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[16] 2003 Supplement § 1 ("Upon execution of this of this Supplement, the Relocation Contract shall be construed to allow User to withdraw 18 mgd from the Project on an annual average basis Withdrawals pursuant to this agreement will be measured as gross withdrawals.").

[17] 2003 Supplement § 2 ("Upon the execution of a separate water supply agreement providing the User with the right to utilize storage in Lake Lanier for a term of at least ten years, the withdrawal amount stated in Section 1 above shall be increased to 21.3 mgd."). Although not explained in the 2003 Supplement itself, the new gross limits in the 2003 Supplement were based on actual and permitted treatment capacities at Gainesville's two wastewater plants (Flat Creek and Linwood). The combined return from these plants in 2003 was estimated to be about 10 mgd, but the permitted capacity was 13.3 mgd. The phasing of the contract was a compromise between Gainesville's position that the gross limit should be based on the permitted capacity and the United States' position that it should be based on actual returns at the time.

[18] The 2003 Supplement was executed in conjunction with a larger settlement agreement that was ultimately nullified by the United States Court of Appeals for the D.C. Circuit. *See* Settlement Agreement § 3.3; *Se. Fed'l Power Customers, Inc. v. Geren*, 514 F.3d 1316 (D.C. Cir. 2008) (Exhibit 7). The Settlement Agreement expressly provided that the Supplement would survive any termination or voiding of the larger agreement, however. Settlement Agreement § 3.3. Therefore, it is the City of Gainesville's understanding that the 2003 Supplement remains in effect.

[19] Pub. L. No. 84-841, 70 Stat. 725 (July 30, 1956) (Exhibit 8).

[20] *In re MDL-1824 Tri-State Water Rights Litig.*, 644 F.3d 1160, 1197-98 & n.32 (11th Cir. 2011) (Exhibit 9).

The Draft EIS acknowledges the authority provided by the 1956 Act in one sentence but appears to ignore it in the very next, stating that "[a]ny water supply storage volumes evaluated ... will be considered for reallocation solely under the Water Supply Act of 1958."[21] We assume this is an oversight.

This oversight should be corrected because it affects the baseline for the Army's Water Supply Act analysis. As the Eleventh Circuit explained, a contract executed under authority of the 1956 Act will not require "a reallocation of storage under the [Water Supply Act] ... because it is directly authorized by Congress."[22] Further, water provided under the 1956 Act "do[es] not count against" any other perceived limit on the Army's Water Supply Act authority, and it "do[es] not affect the amount of water that the Corps is authorized to supply under the various statutory grants."[23]

d. A New Storage Contract (or Contracts) For 254,170 acre-feet Should Be Executed to Supply the Remaining 218.7 mgd.

To meet the total projected 2050 demand of 242 mgd, with 23.3 mgd being supplied by relocation contracts, 254,170 acre-feet (af) of storage should be allocated to water supply to provide 218.7 mgd. These reallocation amounts are shown below in Table 1.

Table 1. Reallocation Amounts and Costs

Scenario	Yield Based on Critical Yield (mgd)	Storage Allocated (af)	Usable Storage (%)	Total Cost of Allocated Storage	Annual Share of O&M	Annual R, R & R	Total Annual Cost
Corrected Draft EIS Without Glades	205	234,706	14.03%	$ 56,704,908	$ 199,789	—	$3,282,911
Updated Water Supply Request	218.7	254,170	15.19%	$ 61,407,405	$ 216,358	—	$3,555,160

Updated Cost of Storage (Lanier)	$404,293,000.00
Estimated O&M (Lanier)	$1,424,453.00

[21] Draft EIS, Vol. 3 Appx. B at 5. ("Public Law No. 84-841 '1956 Act.' Public Law 84-841, enacted July 30, 1956 (1956 Act), granted USACE authority to enter into an agreement with Gwinnett County, Georgia, for the allocation of 11,200 ac-ft of storage for regulated water supply. Any water supply storage volumes evaluated in this assessment will be considered for reallocation solely under the Water Supply Act of 21 1958 described below.").

[22] *In re Tri-State Water Rights Litig.*, 644 F.3d at 1198.

[23] *Id.* at 1202 n.38.

Note that the numbers provided above have been "corrected" to remove errors in the Draft EIS. As explained in Section 6.2, the storage calculations in the Water Supply Storage Assessment Report (Appendix B) were erroneously based on an outdated estimate of storage in Lake Lanier.[24] These calculations will need to be redone. The updated storage-volume curve was used in
Table 1.

1.2 <u>If the Army Determines It Cannot Grant the State's Entire Request of 242 MGD, It Must Determine the Maximum Amount that Can Be Supplied.</u>

If the Army determines that the full projected demand of 242 mgd cannot be supplied, it must determine the maximum amount that <u>*can*</u> be supplied and clearly state the basis for its determination. The duty to determine the maximum that can be granted, if less than the entire request, was imposed by the Eleventh Circuit in *In Re: MDL-1824 Tri-State Water Rights Litigation*, 644 F.3d 1160 (11th Cir. 2011)—the legal decision that the Army cites as leading directly to the present reallocation.[25]

In *Tri-State Water Rights*, Georgia challenged the Army's denial of its water supply request. The Eleventh Circuit held that the Army had a duty, not only to determine if the request could be granted in its entirety but, if not, to determine how much could be provided. The Court was explicit about this in its directions to the Army:

> As part of the final, definitive statement of the Corps' water supply analysis, if the agency ultimately concludes that it does not have the authority to grant the Georgia request, it nevertheless should indicate the scope of the authority it thinks it does have, under the RHA [Rivers and Harbors Act], the WSA [Water Supply Act], and the 1956 Act.[26]

To comply with this mandate, the Army must do the incremental analysis necessary to state exactly how much water it can supply if the Army refuses to grant the State's entire, revised water supply request.

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[24] The Draft EIS states that 189,497 acre-feet of storage in Lake Lanier should be allocated to yield 165 mgd. *See* Draft EIS at 5-8, Table 5.1-2, & Vol. 3, Appx. B at 1. This value is based on assumed conservation storage volume in Lake Lanier of 1,087,600 acre-feet and an assumed total usable storage volume of 1,686,400 acre-feet. *See* Draft EIS, Vol. 3 Appx. B at 6 & Tables 17, 20. However, according to the Army's most recent estimate, there are 1,074,600 acre-feet of conservation storage in Lake Lanier, and 1,673,400 acre-feet of usable storage in the project. Draft EIS, Vol. 3 Appx. F at B-8.

[25] Draft EIS at 1-10.

[26] *In re Tri-State Water Rights Litig*., 644 F.3d at 1201.

1.3 There Is No Rational Basis for Providing 225 MGD But Not Meeting the Entire Projected Demand of 242 MGD.

Any decision by the Army to limit the supply available from Lake Lanier to 225 mgd, instead of meeting the entire projected demand of 242 mgd, would be arbitrary and capricious. The 225 mgd limit in the Draft EIS is truly arbitrary because it has no relevance to any project purpose or to any environmental impact.

a. The Reason Given in the Draft EIS for Limiting the Supply from Lake Lanier to 225 mgd Is Arbitrary and Capricious.

The explanation provided in the Draft EIS for providing only 225 mgd is clearly inadequate. It states the decision to supply only 225 mgd—as opposed to the requested 297 mgd—was based on the Army's determination that a gross withdrawal of 225 mgd will result in a net withdrawal of 134 mgd. There is no explanation, however, of why the net withdrawal should be capped at 134 mgd. This number just happens to match the net withdrawal in the State's original request. Even if the Army correctly determined that a gross withdrawal in the requested amount would result in a larger net withdrawal than anticipated by the State (because returns will be less than projected), that still does not explain why the net withdrawal in the State's original request is the maximum that can be granted. If a rational basis for drawing the line at this point exists, that explanation should be provided.

b. Municipal and Industrial Water Supply Is the Most Valuable Water Use.

The Eleventh Circuit has held that "ensur[ing] an adequate municipal and industrial water supply for the Atlanta area" was one of the "primary" purposes for which Lake Lanier was authorized and constructed.[27] Congress specifically recognized that water supply demands would increase over time and that the value of providing an "assured supply" for municipal and industrial users would far outweigh any minimal impact to other authorized purposes.

There is no question that municipal and industrial uses are the most valuable water uses by far. Indeed, municipal and industrial water supply uses are the "most highly valued" and "inelastic" uses of water.[28] Estimates of the value of water used for this purpose are often orders of magnitude higher than other purposes—reaching as much as $17,940 per acre-foot per year—dwarfing the value of water used for hydropower, navigation, and other purposes.[29] In fact, the

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[27] *See id.* at 1190 (quoting H.R. Doc. No. 80–300, ¶ 100); *id.* at 1194 (quoting U.S. Army Corps of Eng'rs: Mobile District, Definite Project Report on Buford Dam Chattahoochee River, Georgia, ¶ 48 (1949))

[28] Brent Boehlert and Robert Unsworth, Industrial Economics, Inc., The Value of Water for Municipal and Industrial Supply and Hydroelectric Power Generation at 2 (Jan. 8, 2016) (Exhibit 10).

[29] *Id.*

study found that water supply was 14.6 times more valuable than using the same quantity of water to produce hydropower.[30]

c. Water Use in Metro Atlanta Has No Material Impact On Florida

The Draft EIS confirms that water supply withdrawals in metropolitan Atlanta have no material impact on flows at the Florida state line. Indeed, the Draft EIS could not be more clear on this point. The Army summarized the results of its analysis by explaining that the "differences in flow condition in the Apalachicola River" between the No Action Alternative and each alternative considered "would be very small."[31] The Army found that "assumptions for [the Proposed Action Alternative] regarding water supply withdrawal options and return flows associated with Lake Lanier and downstream from Buford Dam to Peachtree Creek *do not have an appreciable effect on flow conditions in the Apalachicola River*."[32] And the Army found that the Proposed Action Alternative—including the proposed levels of water supply withdrawal—"*would have no appreciable incremental effect on freshwater inflows to Apalachicola Bay*."[33]

This conclusion is both correct and unsurprising. Metro Atlanta's net water supply withdrawals in the No Action Alternative (which represent "current" levels of water supply use) are just 141 mgd, or 218 cfs. The net depletion will increase *by only 14.6 mgd or 22.6 cfs* by 2050, to a total of 240.6 cfs.[34] This is less than 1% of the average annual discharge of the Apalachicola River to Apalachicola Bay, and only 2.6% of the average discharge under the very lowest flow conditions.[35]

The statistics should not be surprising. The impact is so limited because the vast majority of the ACF Basin flows into the system below Atlanta. Buford Dam controls runoff from 5.6% of the land area and 9% of the flow of the basin. Thus, if metro Atlanta withdrew and consumed *every single drop* of water passing through Buford Dam, the flow in the Apalachicola River would be reduced by only 9%. Furthermore, there are four federal reservoirs located between

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[30] *Id*. at 6.

[31] Draft EIS at 6-71.

[32] Draft EIS at 6-75 (emphasis added).

[33] Draft EIS at 6-75 (emphasis added); *see also* Georgia Environmental Protection Division, Submission to Record of Committee Hearing on "Effects of Water Flows on Apalachicola Bay: Short and Long Term Perspectives" (Aug. 13, 2013) (Exhibit 11); Florida Fish and Wildlife Conservation Commission, Apalachicola Bay Issues—Oysters, at 6 (Dec. 5, 2012) (Exhibit 12).

[34] *See* Table 2. Net depletions under the Army's No Action Alternative (7A) are 140.9 mgd. Net depletions under the Revised 2050 Demands are 155.5 mgd.

[35] Draft EIS at 2-57 ("Mean annual discharge from the Apalachicola River to the bay is approximately 25,000 cfs, but minimum and maximum flow average 9,300 cfs and 200,000 cfs, respectively.").

metro Atlanta and the Florida line that operate to reregulate flows in the Apalachicola River. This essentially eliminates any effects of timing or seasonality of these withdrawals.

d. The Impacts of Meeting the Entire Projected Demand Would be No Greater Than Impacts the Army Has Already Deemed Acceptable.

As shown below, the marginal impact of meeting Georgia's entire projected demand, as compared to the Army's Proposed Action Alternative ("PAA"), would be negligible. This should not be surprising. One reason the marginal impact is so small is that the difference between the proposed supply and the revised projected demand is also very small. Indeed, based on the most recent updated projected demands and returns, the net withdrawal from Lake Lanier will be just 137.4 mgd, or just 3.4 mgd greater than the net withdrawal of 134 mgd the Army has already deemed to be acceptable. Given this, there is no basis no basis for the Army to refuse to meet full projected need from Lake Lanier.

The Army's ResSim model can be used to assess the marginal impact of increasing the allocation in Lake Lanier to provide this additional 3.4 mgd. The results are shown in Figure 1 through Figure 6 below. In each case the model depicts Water Management Alternative 7, with the only difference being the water supply scenarios detailed in Table 2 below.

Table 2. Water Supply Alternatives[36]

SCENARIO	ABOVE BUFORD DAM				BELOW BUFORD DAM			
	Glades Farm		Lake Lanier		Above Peachtree Creek		Below Peachtree Creek	
	Withdraw	Return	Withdraw	Return	Withdraw	Return	Withdraw	Return
Army No Action Alternative (7A)	0	0	128	37.1	277	30.3	0	196.7
Army Proposed Action Alternative (7H)	40	16	185	75 (91 Total)	408	93.7	0	289.8
Revised 2050 Demands	0	0	242	104.6	379	81.9	0	279.0

[36] HydroLogics, Inc., Technical Analysis of the ACF Water Control Manual Update Draft EIS at 3 (Jan. 29, 2016) (hereinafter, "HydroLogics Technical Analysis") (Exhibit 13). Note that the Army's modeling for the Proposed Action Alternative incorrectly projects returns to the Chattahoochee River below Buford Dam because some water withdrawn from Lake Lanier is returned to the Chattahoochee River below Buford Dam. *See* HydroLogics Technical Analysis at 3 n.5. For ease of comparison with the Draft EIS, however, all Proposed Action Alternative model runs include the Army's return assumptions as stated in the Draft EIS.

Before reviewing the results, three caveats should be noted. First, the model results appear more precise than they really are. Small differences in the effects of the various alternatives likely exceed the precision of the model. Therefore, even when the charts show that one alternative would perform slightly better than another, it is probably better to view the effects as being essentially equivalent.

Second, the point is to focus on the ***relative difference*** between different scenarios, as opposed to absolute values or thresholds. This focus is possible because all of the charts presented below use the same management alternative (Alternative 7), with the only difference being the amount provided for water supply. It is important to keep the focus on relative differences, as opposed to absolutes, because the absolute values are affected by many variables, including modeling assumptions and hard thresholds and triggers in the Army's operating rule.

Third, as discussed below, the Army's operating rule can be highly sensitive to very small changes in system storage. This can result in large releases being made (or not made) for certain purposes (e.g., navigation) simply because system storage happens to be slightly above or below a certain threshold on the first of each month, even if only by a few hundred acre-feet. Thus, when large differences are observed between alternatives, it is critical to understand ***why*** the differences appear. Often, these differences are not due to any material difference in system condition, but rather to a specific release made in the model for a specific purpose that happened to occur under the precise hydrologic conditions experienced in a single year in the hydrologic record.

With these caveats in mind, the results could not be more clear: the marginal impact of meeting Georgia's entire projected need is trivial, and the total impact is no greater than what the Army has already determined to be acceptable.

i. Negligible Impact to Lake Levels.

Across the board, lake levels would be about the same when the Revised 2050 Demand is met than under the Army's Proposed Action Alternative in the Draft EIS.[37] Results for Lake Lanier—the reservoir most likely to be affected by increased water supply demands—are shown below in Figure 1 and Figure 2. As can be seen, the difference is almost imperceptible (Figure 1). The percent of time Lake Lanier would be in Zone 1 is unchanged under the Revised Demands - 2050 scenario, compared to the Army's Proposed Action Alternative. Further, according to the Army's model, the minimum stage under the worst droughts in the hydrologic record would actually be slightly higher (Figure 2) (1050.8 for the Revised Demands – 2050 scenario, compared to 1050.2 for the Army's PAA reported in the Draft EIS).

Reservoir levels at West Point and Walter F. George are essentially equivalent under all scenarios in most conditions. It is notable, however, that both reservoirs would be higher when

[37] *See* HydroLogics Technical Analysis at 6 to 12.

the Revised 2050 Demands are met compared to the Army's baseline (Army No Action Alternative (7A)), especially under drought conditions (Figure 3, Figure 4). This is because additional water withdrawn or released upstream from Lake Lanier to meet increased future water supply needs is returned to the system and flows downstream, where it benefits storage in the lower reservoirs.

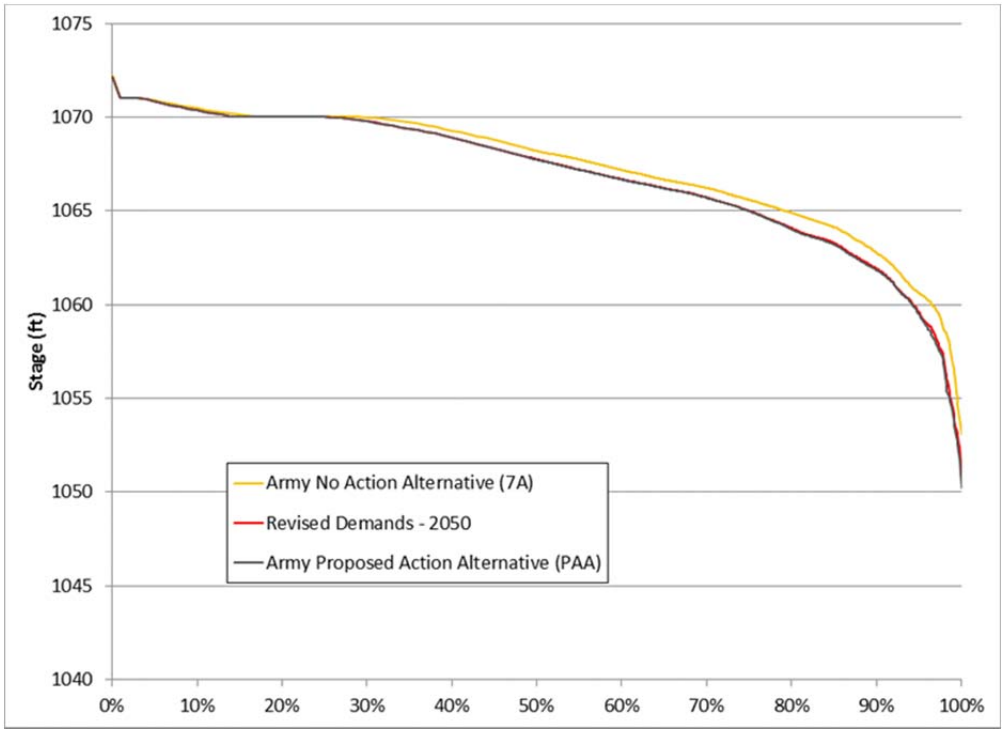

Figure 1. Lake Lanier Stage:
Revised 2050 Demands v. Army PAA

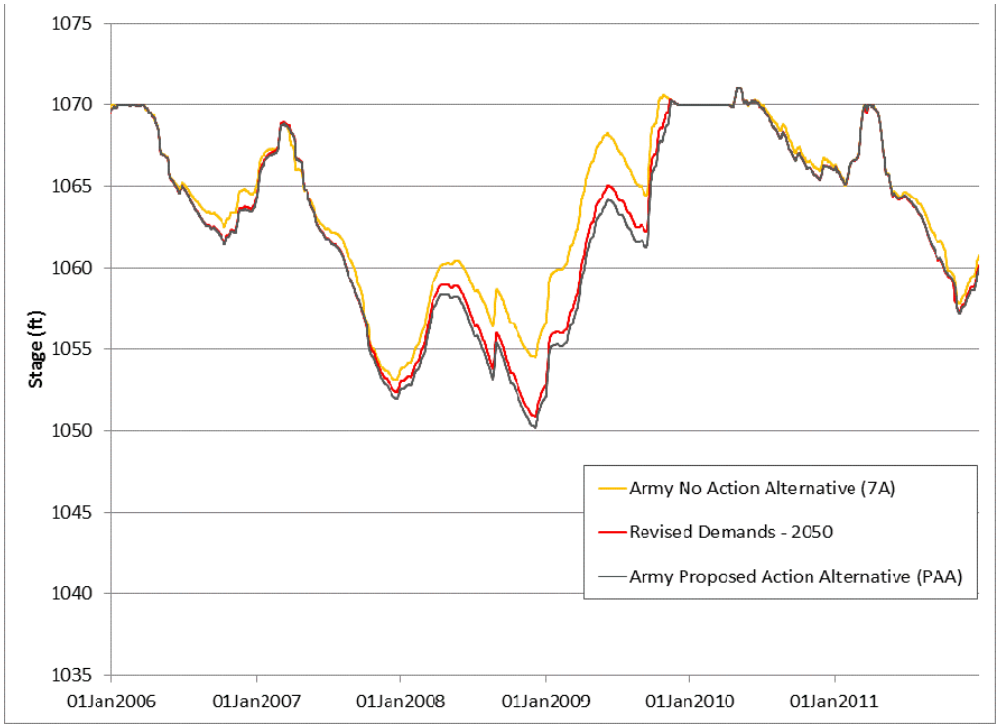

Figure 2. Lake Lanier Elevation Under Drought of Record: Revised 2050 Demands v. Army PAA

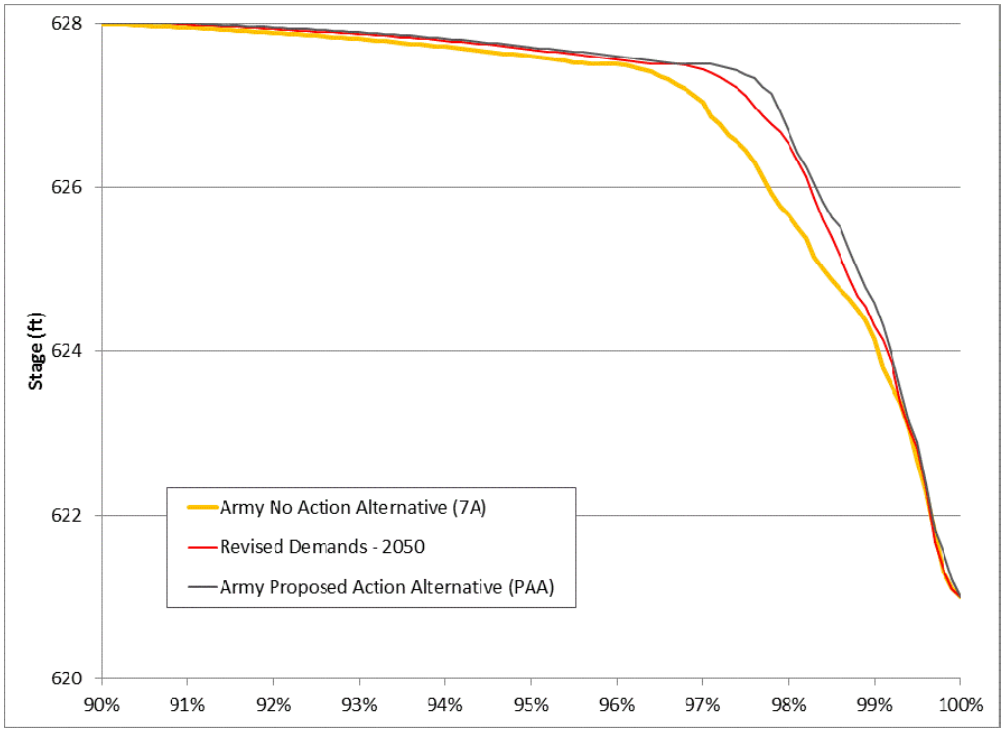

Figure 3. West Point Stage During Drought: Revised 2050 Demands vs. Army PAA

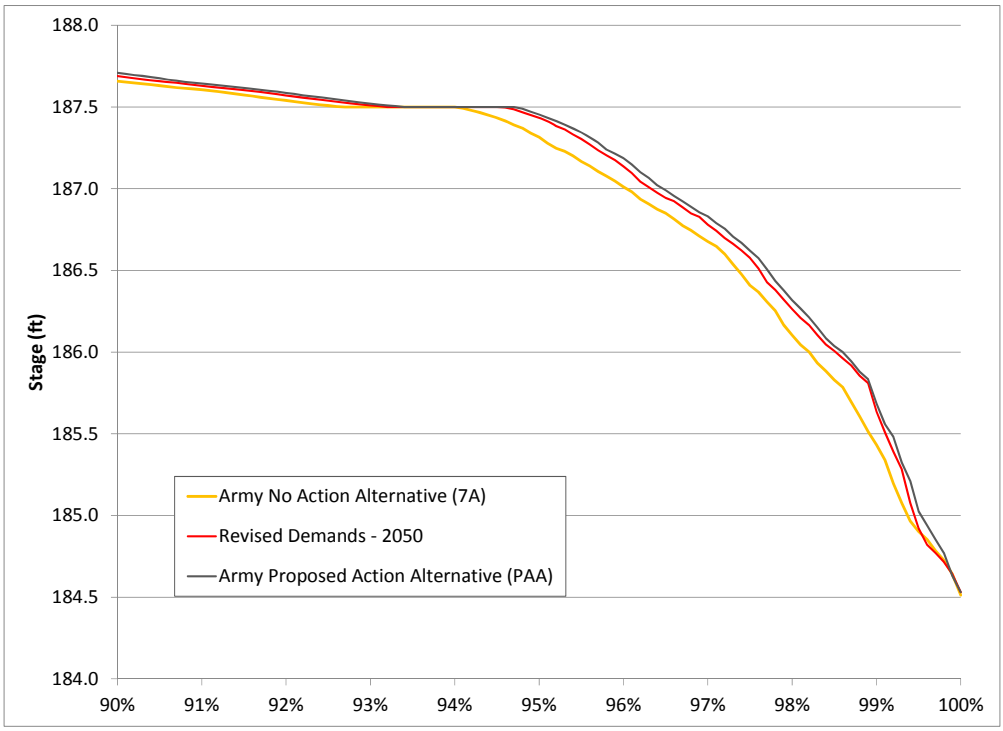

Figure 4. Walter F George Stage During Drought: Revised 2050 Demands vs. Army PAA

i. No Effect on Drought Operations Or Apalachicola River Flows.

The system would be in drought operations slightly fewer days when the Revised 2050 Demands are met than under the Army's Proposed Action Alternative in the Draft EIS.[38] The system would be in drought operations on 17.6% of days under the Revised Demands – 2050 scenario, compared to 18.1% of days under the Army's Proposed Action Alternative. Either scenario would represent only a slight increase over the Army's Baseline No Action Alternative.

Consistent with the Army's conclusion that water supply operations "do not have an appreciable effect on flow conditions in the Apalachicola River,"[39] flows at the Chattahoochee gage in Florida are virtually identical when the Revised 2050 Demands are met. As the figures below show, flows would increase slightly in the 5,000 cfs to 8,000 cfs range, while the number of days with flows less than 5,000 cfs would increase by just one tenth of one percent—0.3% of days when the Revised 2050 Demands are met, compared to 0.2% under the Army's Proposed Action Alternative (Figure 5). Even under the worst drought in history, Apalachicola River discharges at the Chattahoochee gage under each scenario are essentially equivalent when the Revised 2050 Demands are met (Figure 6).

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[38] *See* HydroLogics Technical Analysis at 12 to 13.

[39] Draft EIS at 6-75.

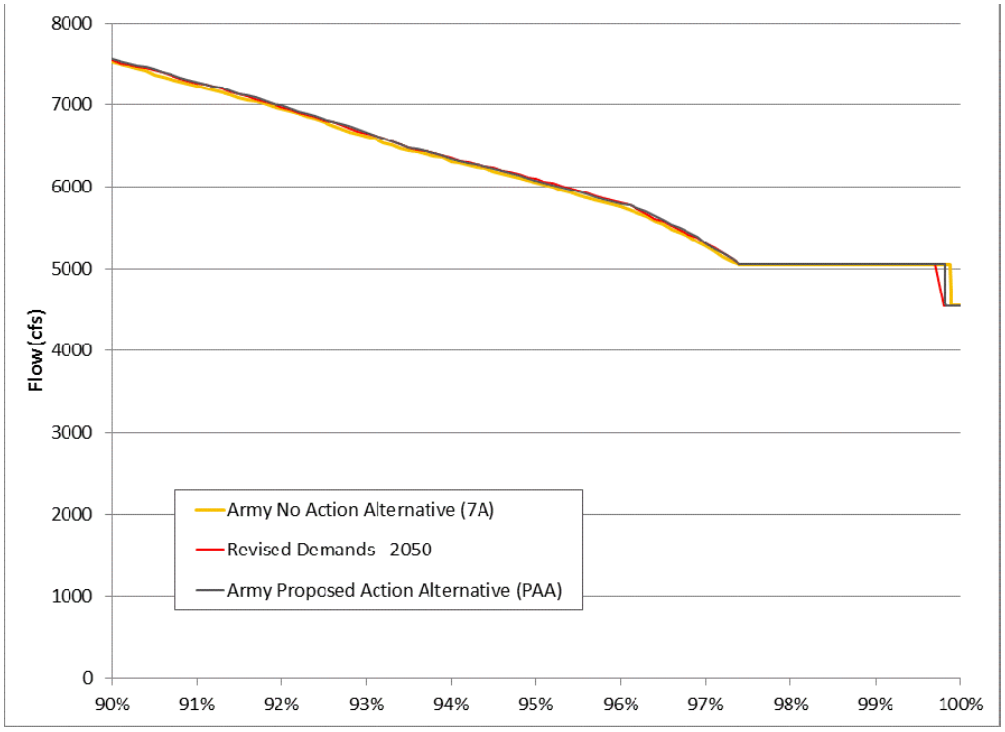

Figure 5. Chattahoochee Gage Flows:
Revised 2050 Demands vs Army PAA

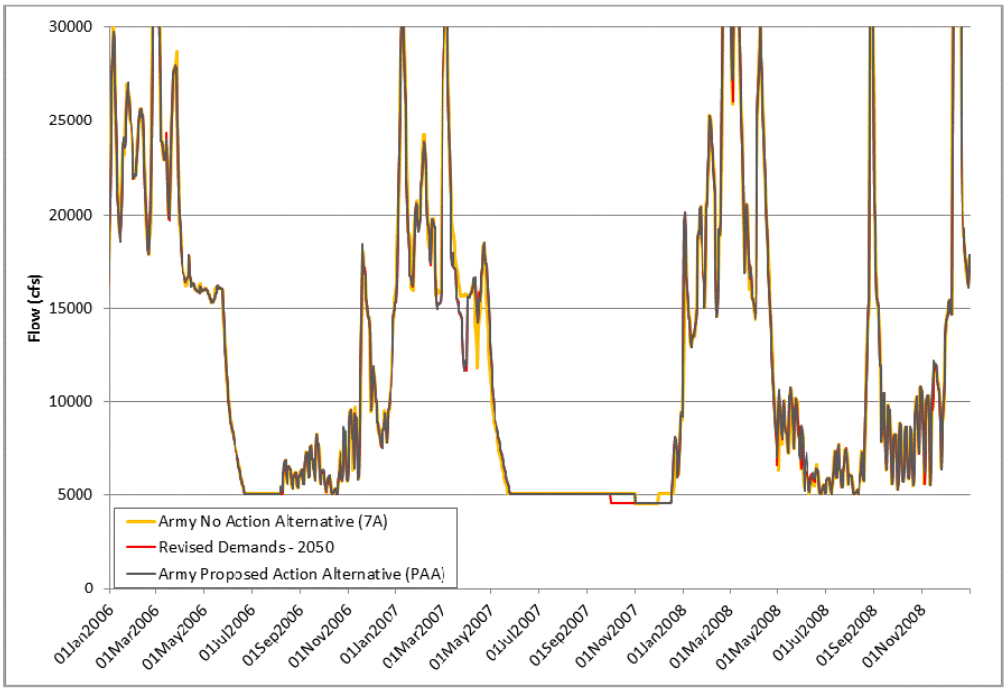

Figure 6. Apalachicola River Flows Under Drought of Record:
Revised 2050 Demands vs. Army PAA

ii. Hydropower Impacts are Minimal.

Before turning to hydropower generation under the Revised Demands – 2050 Scenario, we note that the Draft EIS appears to incorrectly report the amount of hydropower that would be generated under the Army's Proposed Action Alternative. For Alternative 7H, Table 5.2-18 projects annual generation at Buford Dam of 136,243 MWh, and annual weekday generation of 107,873 MWh. These values are identical to those reported for Alternative 7C in Table 5.2-10. This appears to be a "cut-and-paste" mistake that slightly overstates hydropower benefits.[40]

Corrected hydropower generation values for the Army's Proposed Action Alternative are provided below in

Table 3. As can be seen, hydropower generation at Buford Dam with the Revised 2050 Demands met would be 119,046 MWh, or 0.4% less than the 119,553 MWh that would be produced under the Army's Proposed Action Alternative. Across all projects, however, annual system hydropower generation would be expected to be 1,804,644 MWh, which represents a decrease of only 0.3% over the Army's Proposed Action Alternative.

Table 3. Hydropower Generation:
Water Supply Alternatives vs. Army Proposed Action Alternative

Buford Water Management Alternative	Annual Hydropower Generation MWh	Annual Weekday Hydropower Generation MWh	Difference from Army PAA MWh	Difference from Army PAA %
Army No Action Alternative (7A)	126,410	103,144	6,768	5.7%
Revised Demands – 2050	119,046	96,048	-506	-0.4%
Army Proposed Action Alternative	119,553	96,120	—	—

All Projects Water Management Alternative	Annual Hydropower Generation MWh	Annual Weekday Hydropower Generation MWh	Difference from Army PAA MWh	Difference from Army PAA %
Army No Action Alternative (7A)	1,825,729	1,368,953	15,943	0.9%
Revised Demands – 2050	1,804,644	1,350,970	-5,142	-0.3%
Army Proposed Action Alternative	1,809,786	1,354,314	—	—

[40] *See* HydroLogics Technical Analysis at 16 to 17.

e. The Benefits of Supplying Georgia's Entire Projected Demand from Lake Lanier Far Exceed the Costs.

Any justification for not meeting Georgia's projected 2050 demand would need to include a demonstration that the impact of meeting the projected need would exceed the impacts that would result if the need were not met. It is difficult to conceive such a demonstration given the negligible impacts shown above.

In fact, such a demonstration is impossible if the right baseline is used. As explained in the Guide to Constructing the Without Project Scenario (Condition) (IWR, May 2012), a common mistake is to assume that no action will be taken by anyone if there is no ***federal*** action.[41] Assuming that Georgia's entire projected demand will not be met from Lake Lanier "is not the same as assuming no action will be taken to solve the problems and attain the opportunities" identified in the State's request.[42] To the contrary, experience teaches that communities will go to great lengths and spend vast sums to eliminate water supply shortages.

As is recognized in the Draft EIS, the projected demands already assume that aggressive conservation measures will be implemented. The most likely "future without project" scenario, therefore, is that new projects will be undertaken to increase supply— which means building new reservoirs.[43] The Glades Farm Reservoir Project is just one of several likely alternatives. As shown below, however, environmental and financial impact of ***any*** new reservoir—or any other water project for that matter—would almost certainly exceed the trivial impact of allocating additional storage in Lake Lanier. Using Lake Lanier to supply Georgia's entire projected demand of 242 mgd would also avoid the substantial environmental impacts that would occur from constructing alternative water supplies.

i. Avoided Costs

The costs of constructing new reservoir storage to fill a 17 mgd gap (the difference between 225 mgd and 242 mgd) far exceed the costs of storage in Lake Lanier. This is clear from the cost allocation in the Draft EIS. The additional storage needed to supply 17 mgd would cost about

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[41] U.S. Army Corps of Engineers, Institute for Water Resources, Guide to Constructing the Without Project Scenario (Condition) at 24 (May 2012).

[42] *Id.* at 30.

[43] Draft EIS, Vol. 3 Appx. B at 23 (explaining that "several new water supply reservoirs would need to be developed upstream of Lake Lanier or on a tributary to Lake Lanier" to meet demands that the Army refused to provide from Lake Lanier).

$4.7 million, or roughly $250,000 annually.[44] In contrast, the Draft EIS projects the cost of constructing new reservoir storage to be *$8.57 million per mgd*, or a total of $145.7 million.[45]

ii. Avoided Environmental Impacts

The environmental impact of any new reservoir would also vastly exceed the impact of allocating additional storage in Lake Lanier. As EPA explained in its comments on the Army's recent update of the water control for the Alabama-Coosa-Tallapoosa (ACT) River Basin:

> Impoundments can fragment aquatic ecosystems, with impacts on many aspects of environmental integrity, particularly when the cumulative effects of multiple impoundments across a system are taken into account. Although the projects subject to the [water control manual] are already in place, the allocation and uses allowed and established through the [water control manual] revision can have a significant influence on overall [basin] health by preventing or minimizing further fragmentation. If managed to make the best use of these existing resources, further impacts of additional supply infrastructure development could be avoided or at least minimized.[46]

In light of these trade-offs, EPA specifically advised the Corps to maximize the use of existing infrastructure in the basin to meet water supply needs: "If allowing additional uses avoids impacts of new impoundments and additional infrastructure, overall impacts to the basin could be minimized with holistic management."[47]

EPA's comments on the Army's ACT water control manual apply with equal force in the ACF Basin. By declining to meet the full projected need, the Army would force water suppliers to construct new impoundments with their own inherent environmental impacts. These impacts could be avoided entirely, however, simply by maximizing the use of Lake Lanier and the infrastructure that has already been constructed.

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[44] *Supra* Section 1.1d & Table 1.

[45] Draft EIS, Vol. 3 Appx. B at 34 & Table 19.

[46] U.S. Environmental Protection Agency, EPA Comments on the Draft Environmental Impact Statement (DEIS) for the Update of the Water Control Manual for the Alabama-Coosa-Tallapoosa (ACT) River Basin; Alabama and Georgia at 2 (May 31, 2013) (Exhibit 14).

[47] *Id*.

f. Downstream Users Will Not Benefit From a Decision to Deny Any Part of Georgia's Request, Because the Water Will Still Be Withdrawn.

The Army does not allocate water between users in the basin, and it cannot control water uses outside of the federal projects. The Army recognizes this in the Draft EIS when it states that "several new water supply reservoirs would need to be developed upstream of Lake Lanier or on a tributary to Lake Lanier" to meet any demand not supplied through storage in Lake Lanier.[48] Thus, the question here is not whether Georgia will get the water it needs, but whether it will come from Lake Lanier.[49]

Consider, for example, the proposed Glades Farm Reservoir. Because it is in the same drainage basin as Lake Lanier, it will make little if any difference to downstream flow whether the water is taken from the Glades Farm Reservoir or Lake Lanier. The Draft EIS confirms this, explaining that the effects of scenarios that include supplies from the proposed Glades Farm Reservoir are "essentially the same as" those in which the full demand is met by Lake Lanier.[50] It follows that granting the State's full request for water supply storage in Lake Lanier will not result in ***any*** environmental impact in comparison to the most likely alternative. To the contrary, it is the alternative of constructing a new reservoir to supply the same demand that would have negative impacts on the environment, because in that scenario a new reservoir would be constructed.

1.4 The Army Should Defer to the State of Georgia to Balance Local Impacts.

Even if the asserted impacts of meeting the entire projected demand were real—and even if they were ***still*** real at the lower request for 242 mgd to be withdrawn from the lake—these small local impacts would not justify a decision to deny the request. The federal government should defer to the State of Georgia to balance any minor local impacts that might be implicated here. The Draft EIS states the decision to deny Georgia's request was based on impacts felt entirely within the State of Georgia including alleged adverse flow conditions in the Chattahoochee River above West Point Lake. The State of Georgia should be the one to balance these types of local impacts, not the Army.

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[48] Draft EIS, Vol. 3 Appx. B at 23.

[49] Given this, the effects of alternatives in the Draft EIS that leave demands unmet are inaccurate because they assume that water will not be taken to meet acknowledged water supply needs.

[50] Draft EIS at 5-26 (comparing Alternative 7D (providing 297 mgd from Lake Lanier) with Alternative 7E (providing 257 mgd from Lake Lanier, with 40 mgd assumed to come from the proposed Glades Farm Reservoir), explaining: "The effects of Alt7E are essentially the same as Alt 7D").

2. The Army Should Follow the State of Georgia's Allocation of Return Flows.

The Draft EIS does not say how the Army intends to account for return flows. This needs to be addressed in the Final EIS, as it has a direct bearing on the size and price of the proposed water supply storage contracts. The Army has stated its current practice is to allocate return flows to all users *pro rata* based on the percentage of storage allocated to each account. A better policy would allocate return flows and other "made inflows" to the users that make them. The Army should not mandate such accounting in all cases, because doing so would intrude on the State's authority to allocate water rights, but it should adopt a policy of deferring to States to determine how return flows and other made inflows should be allocated. Where the State has allocated return flows to a particular user, the Army should honor the allocation.

Return flows should be encouraged because they increase yield. The concept is easy to understand. The "firm yield" of a storage reservoir—the amount of water that can reliably be supplied at all times—can be increased either by increasing inflow or by increasing storage capacity. Less storage space is needed to provide the same firm yield when inflow is increased, because more of the demand can be supplied directly from inflow. In other words, less water needs to be stored to supplement inflow, and thus less storage capacity is required. This basic principle is not disputed. The only question is whether the Army's policies will help or hinder this practice.

2.1 Return Flows Should be Incentivized to Maximize Public Benefits Consistent with the Principles and Requirements Applicable to Federal Water Projects.

It has been stated that Army "policy" prohibits accounting for return flows in the manner advocated by the State. The Chief Counsel determined in 2012, however, that no such policy exists.[51] Because "the Corps has no official policy" regarding the accounting for return flows, none can be cited as a basis to deny credit for return flows at Lake Lanier.

In considering which new policy to adopt, the Army should be guided by the new Principles and Requirements[52] that apply to all federal investments in water projects. These new requirements direct federal agencies to strive to ensure federal investments in water resources

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[51] Memorandum from Earl Stockdale, Chief Counsel, for the Chief of Engineers Regarding Authority to Provide for Municipal and Industrial Water Supply from the Buford Dam/Lake Lanier Project, Georgia at 37 (June 25, 2012).

[52] *See* Principles and Requirements for Federal Investments in Water Resources (Mar. 2013) ("Principles and Requirements") (Exhibit 15). The Principles and Requirements apply to Federal investments relating to water resources, including "operational plans for existing Federal water resources infrastructure." *See* Principles and Requirements, Final Interagency Implementation Guidelines at 4 (Dec. 2014) (Exhibit 16).

"maximize public benefits, with appropriate consideration of costs."[53] Return flows should be encouraged because they maximize public benefits at no cost. In the case of Lake Lanier, return flows will increase to the total yield of the federal project by 104.6 mgd at no additional cost to the Federal government.

The Principles and Requirements also expressly recognize the need to promote water reuse and reclamation. They acknowledge that it is "critical … to promote water efficiency with all Federal investments in water resources."[54] But "when efficiency alone will not suffice"—as the Draft EIS acknowledges to be the case here—the Principles and Requirements state that "reuse and reclamation of water should be promoted."[55]

The Principles and Requirements also mandate a "watershed approach" that considers the best means to achieve multiple goals over an entire watershed, including the goal of providing water supply to the people and businesses that need it.[56] In considering how to achieve this goal while minimizing environmental impacts and protecting the functions of ecosystems, a guiding principle should be to maximize the use of existing water infrastructure and to minimize the need for state and local entities to develop new raw water supplies or to construct new reservoirs within watersheds already dominated by federal impoundments. Consistent with this objective, users should be permitted to use federal facilities to store any return flows allocated to them by the State. This is the best result from a watershed perspective, because the alternative is to cause users to construct new, single-purpose reservoirs to capture the flows that just as easily could be stored in the existing impoundment.

The policy of incentivizing return flows, rather than discouraging them, also happens to be a "non-structural alternative" of the type the Principles and Requirements mandate be given full consideration. Non-structural alternatives include "modifications to public policy, regulatory policy, and pricing policy, as well as management practices."[57] Allowing return flows to be stored in existing Federal reservoirs is a perfect example.

2.2 The Army Should Support the State's Policy of Encouraging Return Flows.

The State of Georgia has determined that return flows to Lake Lanier are a critical component of its strategy to meet long-term water demands.[58] This emphasis on return flows and

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[53] *See* Principles and Requirements at 5 ("Federal investments in water resources as a whole should strive to maximize public benefits, with appropriate consideration of costs.")

[54] Principles and Requirements at 10.

[55] Principles and Requirements at 11.

[56] Principles and Requirements at 5.

[57] Principles and Requirements at 11.

[58] *See* Metropolitan North Georgia Water Planning District Water Supply and Conservation Plan at ES-8 (2009) (Exhibit 17). The Water District is a state agency created by the Georgia General

indirect potable reuse is incorporated into the Metro District's water supply and water conservation plans.[59]

The State's water supply strategy will fail if returns are not credited according to the State's directive. Incentives are necessary because tremendous investments are required to generate return flows. It is extremely expensive to pump water upstream and then to treat it to the levels necessary to discharge it into a reservoir used for drinking water, recreation, and other purposes. If users are not allowed to store the water generated by these projects, they will not pay for them and the returns to the system will not materialize.

Metro Atlanta water suppliers have already taken extraordinary measures to return water to Lake Lanier. Gwinnett County, for example, is a national leader in water reuse. It has constructed and operates the F. Wayne Hill Water Resources Center, a state-of-the-art water reclamation facility, that is presently permitted to return up to 40 mgd of highly treated reclaimed water to Lake Lanier—an amount that is projected to increase to 60 mgd by 2050. This innovative facility has become a demonstration site for cutting edge water reclamation technologies, hosting experts and researchers from around the world and bringing first-of-its-kind wastewater treatment technologies into reality.

Gwinnett County has invested more than $1 billion to construct the F. Wayne Hill Water Resources Center to return water to Lake Lanier. However, costs and investments are not limited to construction—operating a facility to return water to Lake Lanier also carries significant day-

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Assembly. *See* O.C.G.A. § 12-5-572. The Metro District was created "to establish policy, create plans, and promote intergovernmental coordination for all water issues in the district; to facilitate multi-jurisdictional water related projects; and to enhance access to funding for water related projects among local governments in the district area." *Id.* § 12-5-572(b). The Metro District was thus charged with a specific mandate to "develop regional and watershed-specific plans for storm-water management, waste-water treatment, water supply, water conservation, and the general protection of water quality." *Id.* § 572(c); *see also id.* §§ 574, 582-584. The plans prepared by the Metro District, including in particular the Water Supply and Conservation Plans, have been accepted and approved by the Federal Energy Regulatory Commission as Comprehensive Plans entitled to deference in relicensing proceedings under Section 10(a)(2)(A) of the Federal Power Act, 16 U.S.C. § 803(a)(2)(A).

[59] The Metro District, which covers 15 counties centered on the metropolitan area, was created in 2001 to address substantial water quality and water supply issues facing the metropolitan area. The District counties are Bartow, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Paulding, and Rockdale. *See* O.C.G.A. § 12-5-573(4). Among other responsibilities, the District is responsible for creating long-term (30-year) plans for stormwater management, wastewater treatment, water supply, water conservation, and the general protection of water quality. These plans are required to be implemented by local governments in the District. O.C.G.A. § 12-5-572 (b) and (c).

to-day costs, both in terms of increased treatment costs and increased pumping costs. In Gwinnett County's case, for instance, gravity would naturally cause wastewater to flow away from Lake Lanier. Yet Gwinnett County has elected to pay to reverse this flow of water—and to pump this water back uphill—simply so it can be returned to storage in Lake Lanier for reuse. Thus, Gwinnett County continues to invest in returning water to Lake Lanier on a daily basis, even when far cheaper and far easier options might be available.

These investments to return water to Lake Lanier have been made on the assumption that return flows would be credited to the users that make them. Indeed, the strategy of promoting return flows to a federal reservoir makes sense from a water supply perspective ***only*** if the additional water is credited to the water supply purpose. The Metro District made this clear in its very first water supply plan in 2003 by invoking the credit to explain the policy: "***The water withdrawal credit is 100 percent when the reclaimed water is discharged to a lake or reservoir, assuming that these water bodies are capable of storing the discharge***."[60]

Additional water can be returned to Lake Lanier ***if, but only if***, the Army adopts policies that credit these returns. For example, water providers could in the future transfer additional flows from other water treatment facilities and pump those flows uphill to Lake Lanier so they could be returned to storage. Likewise, measures like active septic tank mining— that is intentional, directed, and expensive efforts to convert existing septic tanks to sewer service—could further increase return flows to Lake Lanier. Collectively, these and other measures could return up to an additional 75 mgd to Lake Lanier by 2050.

As the investments made to date clearly show, however, the costs of returning this additional water would be substantial. No rational water supplier would willingly absorb the costs of undertaking these efforts if the Army were able to override an allocation by the State and simply transfer the benefits of returning this water to other users.

2.3 The Water Supply Act Mandates that Return Flows Be Considered in Determining How Much Storage Users Must Buy to Supply a Given Yield.

The principle of the Water Supply Act of 1958 that water supply users are entitled to "share equitably in the benefits of multiple purpose construction."[61] The Corps has traditionally interpreted the "benefits of multipurpose construction" to mean "the savings in costs of a multiple-purpose project over the combined costs of single-purpose projects serving the same purposes."[62] It follows that water-supply users should not have to purchase more storage in a

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[60] Metropolitan North Georgia Water Planning District, Water Supply and Water Conservation Plan at 6-20 (Sept. 2003) (Exhibit 18).

[61] 43 U.S.C. § 390b(b).

[62] *See* Letter from Major General William Cassidy, Asst. Chief of Eng's for Civil Works, to Major General Albrecht, Division Commander, South Atlantic Division at 2 (Dec. 29, 1959) (Exhibit 19).

multiple purpose project than they would need to supply the same yield in a single purpose project.

The effect of this penalty at Lake Lanier is significant: given the projected return of 99 mgd to Lake Lanier by just the three Metro District counties, only 174,136 acre-feet should be needed to yield 242 mgd, while 254,170 acre-feet would be needed if nothing were returned. The cost would be reduced by $19,336,288, or $1,119,467 per year. The effect of this penalty, then, is simply to create benefits for other users that they did not pay for, creating a windfall for everyone but water supply users that create the returns.

2.4 Return Flows Must Also Be Taken Into Account in Determining How Much Water Is Stored in Each Individual Storage Account.

In addition to taking return flows into account in determining how much storage a user must buy to supply a given firm yield, return flows must ***also*** be taken into account in determining how much storage a user can withdraw from storage at any given point in time. The Draft EIS states that a "storage accounting" system will be used to administer contracts and determine the amount of water that may be withdrawn.[63]

Again, the concept is simple: an account is established for each user, and the "balance" is kept by monitoring debits (evaporation and withdrawals) and credits (inflow). In accounting for return flows, the credits—the water added to the reservoir through return flows—should be credited the users to whom the State has allocated those flows.

In 2013, the Department of Natural Resources of the State of Georgia promulgated a rule to reaffirm the authority of the State to allocate the right to store and utilize return flows:

> When a user has contracted for the right to utilize storage space within a reservoir that is owned or operated by an agency of the federal government, the Director [of the Environmental Protection Division] shall retain authority to allocate any State water rights subject to regulation under O.C.G.A § 12-5-31, including the right to withdraw State waters from the project as well as the right to impound made inflow to the reservoir. When the Director allocates to a specific user made inflows to a reservoir, pursuant to the permitting authority and procedure provided by O.C.G.A. § 12-5-31, that user will have the right to impound such flows in the

[63] Draft EIS at 5-37 ("USACE would employ a storage accounting methodology that applies a proportion of inflows and losses, as well as direct withdrawals by specific users, to each account. The amount of water that may actually be withdrawn is ultimately dependent on the amount of water available in the storage account, which will naturally change over time.").

> storage space for which it has contracted, to the extent storage space is available.[64]

The State has now exercised this authority by allocating return flows to Allatoona Lake to the Cobb County-Marietta Water Authority.[65] We anticipate a similar allocation will be made when storage contracts are executed for Lake Lanier. Any Army policy that refuses to recognize this allocation would exceed the Army's authority, render these investments wasted, and create a windfall for users that have done nothing to return water to Lake Lanier.

2.5 The Corps Should Not Intrude on the State's Authority to Allocate Water Rights, Including the Right to Store and Utilize Return Flows.

When the Army first denied a request by Cobb County-Marietta Water Authority to credit its return flows in 1989, the Chief of Engineers stated that the Army could not grant the requested credit because doing so would intrude on the State's authority to allocate water rights. We agree with that rationale, and our argument today is based on it. The difference between 1989 and today is that, today, the State of Georgia has asserted its authority to make the allocation, and the Army merely needs to recognize it. Additional historical background is provided below.

a. The Corps Has Previously Acknowledged that it Must Defer to the State to Allocate Return Flows.

On July 27, 1989, the Commander of the Mobile District wrote to the Commander of the South Atlantic Division for guidance on the accounting for "made inflows," which he defined as inflows to the Army's reservoirs originating with users of storage. He recommended that such inflows be allocated to the users that make them, reasoning as follows:

> 1. The Water Supply Act of 1958, as amended, authorized the Corps to enter into contracts with states and other local interests for water storage space.
>
> 2. The storage required to provide a certain amount of water for withdrawal is determined by the storage-yield relationship of the reservoir. The storage-yield relationship is determined in part by inflows to the reservoir.

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[64] *See* GA. COMP. R. AND REGS. R. 391-3-6-.07(16)(a) (Exhibit 20). "Made inflow to a reservoir" is defined as follows: "water that flows into a reservoir (1) after having been released from a storage project upstream of the reservoir as part of a plan approved by the Director; or (2) after having been discharged from a wastewater reclamation plant as part of a plan approved by the Director to increase flows into the reservoir." *Id.* (2)(o).

[65] *See* Georgia EPD Permit No. 008-1491-05 (Modified November 7, 2014) (Exhibit 21).

> 3. Inflows may be of two types, those occurring naturally and those that are made. Made inflows are subject to change by those controlling the source. Inflows by users primarily originate at wastewater treatment plants, thus they are made. Made inflows normally are not used in determining the storage-yield relationship of a reservoir.
>
> 4. A user has a contractual right to utilize an undivided percent of the project for the storage and water and, in effect, becomes a co-owner of the project; thus, they have a reasonable right to expect their inflows to the reservoir to be used exclusively in determining the storage-yield relationship of the reservoir as it relates to them.
>
> 5. In determining the storage-yield relationship for a user providing flows into the reservoir, the net effect of those flows would be subject to the same criteria as naturally occurring flows such as evaporation and seepage. The user would be required to meter their inflows and provide the Corps with readings at predetermined intervals in the same manner as used under water withdrawal contracts.
>
> 6. From an administrative view, it would be in the interest of the Government to use inflows originating with a user exclusively in determining the storage-yield relationship of that user. If the inflow is used in determining the storage-yield relationship for the entire project, and the inflow diminishes at some time in the future, then the contracts of all users would have to be amended. If, however, the inflow is used exclusively in determining the storage-yield relationship for the user originating the inflow, then only that contract would have to be amended should the inflow diminish.[66]

The South Atlantic Division forwarded this memorandum to Headquarters with a recommendation that it be approved.[67] Headquarters disagreed. While recognizing that return flows do indeed increase yield, the Chief of the Policy and Planning Division stated: "The Corps' authority to control water is limited to its presence within the Federal project. The Corps has no authority to grant rights to water that has been withdrawn, used, and then released. The States

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[66] *See* Memo from Mobile District Commander to South Atlantic Division Commander regarding Disposition of Inflows to Corps Reservoirs Originating with Users of Storage in Those Reservoirs (July 27, 1989) (Exhibit 22).

[67] *See* Memo from South Atlantic Division Commander to Headquarters regarding Disposition of Inflows to Corps Reservoirs Originating with Users of Storage in Those Reservoirs (Aug. 11, 1989) (Exhibit 23).

grant water rights and regulate water use…. Control over return flows would place the Corps in the position of indirectly conferring property rights which is beyond its authorities."[68]

The same logic applies today, the only difference being that the State of Georgia has now made the allocation, and we are merely asking the Army not to adopt a policy that would improperly (even if inadvertently) override it. The stated fear of interfering in the State's authority to "grant water rights and regulate water use" is thus implicated only if the Army *refuses* to recognize the State's allocation.

b. The Army Has a Long History of Deferring to States on Allocation Issues.

The policy of deferring to States on issues relating to the allocation of water rights reflects a long-standing Army policy. Indeed, the Army's policies uniformly acknowledge that the Army does not own the water stored in its reservoirs and that it defers to States to allocate and administer water rights. The Army's role, instead, is to provide a beneficial service by storing water and by regulating flows to facilitate the exercise of water rights granted by States.[69]

The Army has understood this since the earliest days of its involvement in water supply, as evidenced by a 1959 memorandum from Assistant Chief of Engineers for Civil Works discussing the Army's administration of the Water Supply Act of 1958. The memorandum emphasized that "the Corps provides only a beneficial storage service under [the Water Supply Act] and that

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[68] *See* Memo from Planning and Policy Division Chief to Commander to South Atlantic Division Commander (Oct. 17, 1989) (Exhibit 24). Notwithstanding this direction, final action was never taken. Alabama filed suit (prematurely) before either document was finalized.

[69] *See, e.g.*, USACE, Digest of Policies and Authorities, EP 1165-2-1 at 18-7 (Jul. 1999) ("The parties desiring to use the waters impounded by a reservoir must acquire the necessary water rights under the provisions of state laws, and regulations, and resolve conflicts among users at the local or state level. The Corps provides flow regulation service or storage space within the reservoir to water users as authorized and is not involved in adequacy or timing of the acquisition of water rights.") (Exhibit 25); Earl H. Stockdale & Daniel Inkelas, *Accommodation of State and Local Water Supply Needs through the Operation of Multipurpose Federal Reservoir Projects by the U.S. Army Corps of Engineers*, ABA, 31st Annual Water Law Conference, at 5 (June 6, 2013) ("In exercising its authority under [the surplus water provisions of the Flood Control Act of 1944 and the Water Supply Act of 1958], the Corps does not allocate water rights, or sell water; rather, when acting pursuant to either statute, the Corps enables non-federal entities to benefit from the Corps' regulation and impoundment of navigable waters pursuant to the congressional power to regulate interstate commerce, in order to exercise water rights that such non-federal entities may hold under state, tribal, or other law.") (Exhibit 26).

matters pertaining to the use and distribution of the additional water made available from the storage have always been and should remain responsibilities of the State concerned."[70]

Another example is provided by the Army's "Water Supply Handbook," which explains that "[w]ater supply agreements under the 1958 Water Supply Act are for storage space only," and that a storage contract merely "conveys the right to store a resource (water) in a Corps reservoir project without guaranteeing that the resource will be available."[71] "This acquisition of water rights is a responsibility of water supply users."[72]

This description of the Army's role has also been endorsed by the United States Court of Appeals for the Tenth Circuit:

> The Corps of Engineers … has no water rights and no authority to allocate water among users as this is a state function, and it has no control over the water rights of others. Thus the Corps' contract with Tulsa must be very narrow in scope. It is for money and for storage space in the lake.[73]

In short, the Army has long understood that it owns and operates the physical project but lays no claim to the water itself, which is controlled and allocated by States. Consistent with this division of responsibility, the Army should defer to the State's allocation of made inflows to the users who receive them.

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[70] *See* Letter from William Cassidy, Asst. Chief of Eng'rs for Civil Works, to Major General Albrecht, Division Commander, South Atlantic Division at 1 (Dec. 29, 1959).

[71] Institute for Water Resources, Water Supply Handbook: A Handbook on Water Supply Planning and Resource Management, at 2-5, 2-3 (Dec. 1998) (Revised IWR Report 96-PS-4) (Exhibit 27).

[72] *Id.* at 2-5.

[73] *League of Women Voters of Tulsa, Inc. v. U.S. Corps of Engineers*, 730 F.2d 579, 583 (10th Cir. 1984), overruled as to standard of review, *Village of Los Ranchos De Albuquerque v. Marsh*, 956 F.2d 970 (10th Cir. 1992). *See also* Memorandum from Earl Stockdale, Chief Counsel, for the Chief of Engineers Regarding Authority to Provide for Municipal and Industrial Water Supply from the Buford Dam/Lake Lanier Project, Georgia at 36 (June 25, 2012):

> Under the Water Supply Act, the Corps contracts for the use of storage, not for the sale of water or water rights, and because the Corps does not own or sell the water stored in its reservoirs, it cannot guarantee, and specifically disclaims, any set yield, or the availability of water at all, from the storage it grants rights to in a Water Supply Act agreement.

c. The Army is Constitutionally Required to Defer to States to Allocate Water Rights.

The Army's traditional practice deferring to States is not just good policy—it is mandated by law. As "sovereign entities," "States possess an 'absolute right to all their navigable waters and the soils under them for their own common use.'"[74] These rights are absolute, "subject only to the rights since surrendered by the constitution to the general government."[75]

It is clear the States have not surrendered their control over water to the federal government. The Supreme Court has held that State powers in areas such as water law that are traditionally occupied by the States are not preempted "'unless that was the clear and manifest purpose of Congress.'"[76] In this case, the only federal law in question is the legislation that authorized construction of Buford Dam, but that law merely authorized the Secretary of the Army to construct certain facilities to serve certain purposes. It says nothing about overriding the States' traditional authority to allocate water within their boundaries, much less that doing so was "the clear and manifest purpose of Congress."

Indeed, Congress has repeatedly expressed its intention to defer to the States in the management of the waters within their borders.[77] The Supreme Court has acknowledged that, "where Congress has expressly addressed the question of whether federal entities must abide by state water law, it has almost invariably deferred to the state law."[78] Given this general policy of deferring to States in the area of water resources, clear evidence of congressional intent to occupy this field is needed.

A statute merely authorizing construction of a dam does not rise to this level. This position is bolstered by the long history of divided federal-state authority at federal water projects and the clear Congressional understanding that the authorization of federal water projects does not override the States' traditional authority to allocate water. For example, the Reclamation Act of 1902, which established a program to construct federal reservoirs across the West, "expressly preserve[s] State's control over reclamation within their borders."[79] In passing the Act, Congress explained that the "reservoirs in which the water is stored belong to the [federal] Government,

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[74] *Tarrant Regional Water Dist. v. Hermann*, 133 S. Ct. 2120, 2132 (2013) (quoting *Martin v. Waddell's Lessee*, 41 U.S. 367, 410 (1842)).

[75] *Martin v. Waddell's Lessee*, 41 U.S. 367 (1842).

[76] *Arizona v. United States*, 132 S. Ct. 2492, 2501, 567 U.S. __ (2012) (quoting *Rice v. Santa Fe Elevator Corp.*, 331 U. S. 218, 230 (1947)).

[77] *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, 531 U.S. 159, 174 (2001); *California v. United States*, 438 U.S. 645, 667 & 669 (1978).

[78] *United States v. New Mexico*, 438 U.S. 696, 701 (1978).

[79] *California v. United States*, 438 U.S. at 662.

but the water belongs to the States and will be controlled by them."[80] Indeed, Congress explained that its express preservation of State authority was unnecessary because there could be "no doubt" of "the right of the States and Territories to regulate and control the management ... of the water."[81]

While these statements were made in the context of a different statute, they negate any presumption that Congressional authorization to construct a reservoir necessarily reveals Congressional intent to preempt State water rights. Because Congress clearly believed that federal reservoirs could be constructed *without* preempting State laws and authorities relating to water rights—and because this has always been the paradigm in the Western states—there is no basis for presuming that Congress intended to do so when it authorized construction of Lake Lanier.

In short, preemption will be found only if the water allocations made by the State "actually conflict" with federal law in the sense that it is "impossible to comply with both state and federal law" or where state law "stands as an obstacle to the accomplishment of the full purposes and objectives of Congress."[82] This requires a case-by-case analysis of the conditions "actually imposed" by the State.[83] Furthermore, in light of the States' traditional sovereign authority, preemption principles "require the United States, at a minimum, to attempt to reconcile its interests with [State] law before a court can override the state's position as conflicting with federal policy."[84]

In sum, for the State's allocation of the right to impound return flows to be preempted by federal law, there would need to be a direct conflict between the allocation and the purposes for which Lake Lanier was authorized. Given that return flows are flows that have already been removed from the project, and thus would not be available to any user absent the return, there is no possibility that any allocation by the State could actually frustrate any federal purpose.

2.6 There is No Practical Impediment to Crediting Return Flows

A policy of crediting return flows to the users to whom they have been allocated by the State would be easy to implement in practice, because State law requires that all such flows be metered and monitored and reported both to Georgia EPD and the Army. The Army has already

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[80] 29 Cong. Rec. 1952 (1897) (cited in *California v. United States*, 438 U.S. at 662).

[81] *Id.*

[82] *See Silkwood v. Kerr-McGee Corp.*, 464 U.S. 238, 248 (1984).

[83] *California v. United States*, 438 U.S. at 679*; Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 232 (1947) ("until it is known what the [State] will do, no conflict with the Federal Act can be shown").

[84] *United States v. State of Cal., State Water Resources Control Bd.*, 694 F.2d 1171, 1178 (9th Cir. 1982).

shown that this can be done by producing a draft storage accounting spreadsheet for use at Allatoona Lake with a simple switch that can be turned "on" or "off" to credit return flows, or not, depending on the policy that is applied. The Allatoona spreadsheet has many other problems that will need to be corrected before it is finalized, but it at least shows that there is no practical impediment to a policy of crediting returns.

3. The Storage Accounting Tool Must Be Released for Public Comment.

The Draft EIS states that the Army will use "storage accounting" to track the amount of water each user has in storage at any given time,[85] however, the Army has not released a draft of the storage accounting tool or provided any details. This needs to be done. It is important to get the accounting right because important property interests are at stake.

4. The Proposed Navigation Plan Is Not Feasible.

The Army has proposed to restore navigation as a purpose of the ACF reservoir system, but there are numerous problems with the proposed plan. Most fundamentally, as described below, it will not be possible to provide a reliable navigation channel through reservoir releases alone; any attempt to support navigation without routine dredging, channel maintenance, and gage calibration will be doomed to fail and will be wasteful in the extreme. But even if the proposed plan would accomplish the objective of providing a 7-foot navigation channel during the designated season, it would still not make sense. As shown below, the statement in the Draft EIS that this can be done "without an appreciable effect on other upstream water uses or project purposes" is false. The cost to system storage would be staggering, far exceeding even the most optimistic projection of benefits.

Because the costs of this plan exceed the potential benefits by so much, it is possible the navigation plan is desired—not for its navigation benefits—but because it will cause a great deal of water to be released for other purposes. Other stakeholders have suggested the Army provide navigation releases for just that reason. This would be inappropriate, however, as the Army is required to plainly state the reasons for its actions and to justify those actions on the basis it has stated.[86]

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[85] Draft EIS at 5-37.

[86] *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) ("[T]he agency must examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made.") (quotations and citations omitted); *Defs. of Wildlife v. U.S. Dep't of Navy*, 733 F.3d 1106, 1115 (11th Cir. 2013) (agency action is "arbitrary and capricious 'where the agency has ... offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency

4.1 New Gage Data Show That Navigation Cannot Be Supported If the Channel is Not Maintained.

The most fundamental problem with the navigation plan is that the State of Florida does not support dredging and has refused to grant the permits necessary to maintain the channel. As a result, the plan proposes to support navigation through reservoir releases alone. This will not work, and it should not be tried. Unless and until Florida agrees to allow channel maintenance—or the Army determines that it will dredge the channel over Florida's objection—the Army's plan to reintroduce navigation must be abandoned.

The plan assumes that a 7-foot channel will be available whenever the flow at the Blountstown gage is at least 16,200 cfs. A close look at the data from that gage reveals why the plan will not work. Figure 7 shows the cumulative flow at the Blountstown gage compared to other gages in the area.

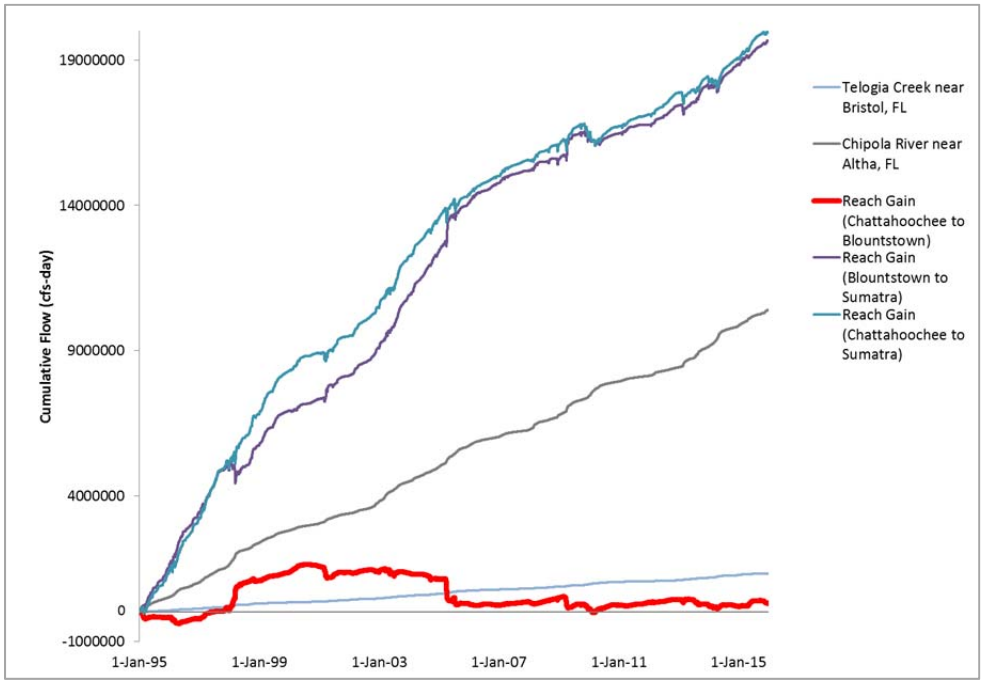

Figure 7. Cumulative Flow at the Blountstown Gage Compared to Comparable Area Gages

"Cumulative flow" is the sum total of all water flowing past a gage. So long as tributary inflow to a given stream reach exceeds withdrawals and other losses, this number should always increase over time. It should also be roughly linear, with the slope over a given period being equal to the average inflow over that same period. Other gages near Blountstown show the

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expertise.'") (quoting *Miccosukee Tribe of Indians of Fla. v. United States*, 566 F.3d 1257, 1264 (11th Cir. 2009)).

expected pattern, but the Blountstown gage (the red line) does not. Rather, cumulative flows at Blountstown oscillate between negative and positive values, hovering around zero since 2005. If believed, this would suggest there was no inflow to the Blountstown reach for several years on end, but this is almost certainly false.

The most plausible explanation for the erratic relationship between flows and gage height in the Blountstown reach is that water is bypassing the Blountstown gage outside of the gaged river channel. This might be caused by any number of conditions, including changes in river channel morphology, breaches in natural levies, and/or the silting in of bypass channels. But whatever the cause, it means that the Army cannot ensure that releases intended to provide a certain flow will be contained within the navigable channel, or that the channel depth the Army intends to provide will actually be present. This issue must be thoroughly investigated before any decision to support navigation is made.

These problems are not limited to the areas around the Blountstown gage. Rather, reach gains between the Chattahoochee and Sumatra gages—that is, the amount of water entering the Apalachicola River ***from Florida*** below the Chattahoochee gage—have been declining steadily over time.[87] This is consistent with shoaling observed in the channel, especially in the absence of channel maintenance, which gradually reduces the channel capacity and causes more and more flow to leave the channel.

This problem is particularly acute in the range of flows the Army intends to provide for navigation. For example, we have compared the period from 1977 to 1990 (when navigation and channel maintenance were occurring and the earliest period for which we have data) to the period from 2002 to 2015 (when channel maintenance was discontinued). As can be seen in Figure 8, the average reach gain between Chattahoochee and Sumatra was 9,300 cfs during the period from 1977 to 1990. During the current period, this had been reduced to less than 5,300 cfs—a decrease of about 4,400 cfs.

[87] HydroLogics Technical Analysis at 32 to 34.

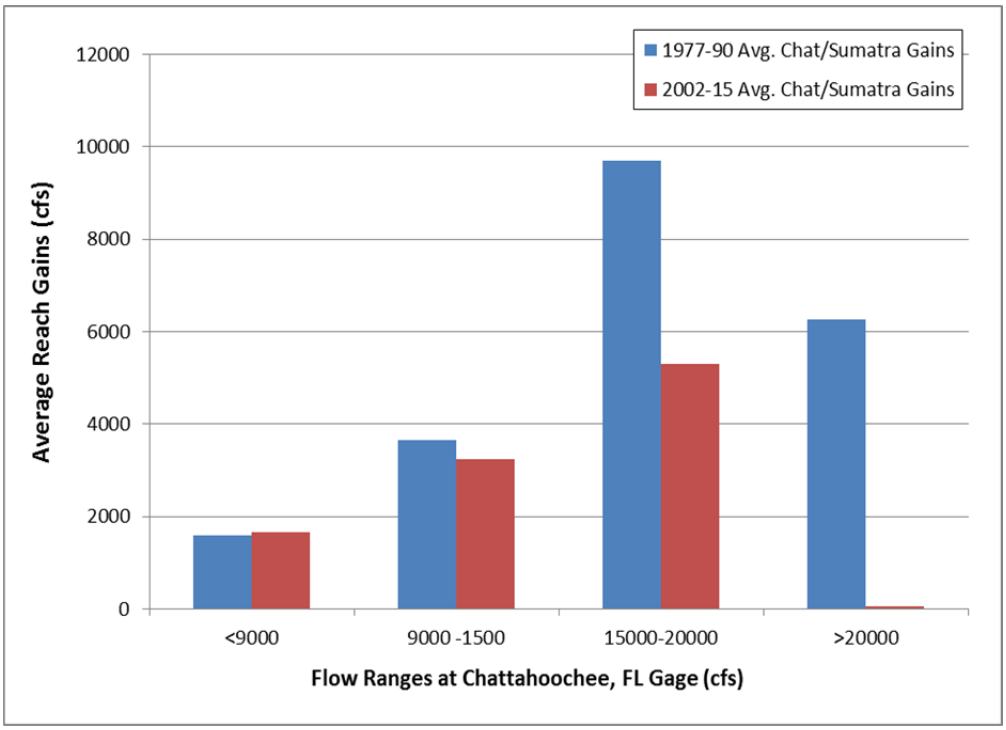

Figure 8. Chattahoochee to Sumatra Reach Gains: 1977-1990 vs. 2002-2015

All of the Army's navigation modeling assumes that historical flow patterns will be representative of future flow patterns. This is obviously a flawed assumption for these downstream reaches, where clear trends suggest that future inflows will be far lower than those experienced previously.

At a minimum, the gage data show that far more water may need to be released to support a 7-foot channel than the Draft EIS anticipates. At worst, the data show structural problems that must be fixed before navigation can be supported. Any attempt to support navigation through reservoir releases alone, without first addressing these problems, could result in the Army releasing huge volumes of water to maintain a channel that will never fill. The situation will get worse over time as the channel continues to deteriorate.

4.2 <u>The Proposed Navigation Plan Will Inflict Serious Harm For Negligible Benefit.</u>

Channel issues aside, the proposed navigation operations would cause severe impacts to upstream uses to achieve a negligible benefit.

a. The Proposed Navigation Plan Will Produce Negligible Benefits.

Based on the attached study by Industrial Economics, the maximum potential benefit of a reliable 9-foot channel would be about $10 million per year.[88] This is the ***maximum*** potential benefit of a navigation channel two feet deeper and far more reliable than is currently being proposed. There is no reason to believe the proposed plan will produce benefits anywhere near this large. But even the maximum potential benefit is far smaller than the impact to other project purposes.

The Draft EIS vastly overstates the degree to which the proposed plan will improve conditions for navigation. The Draft EIS states that the Army evaluated "[s]ystem performance of each water management alternative in providing for navigation" based on two criteria: (1) "Percent of time a 9-foot channel would be available (January-May) in the Apalachicola River based on exceeding a flow of 20,050 cfs at Blountstown," and (2) "Percent of time a 7-foot channel would be available (January-May) in the Apalachicola River based on exceeding a flow of 16,200 cfs at Blountstown."[89] The Army then calculated that its preferred alternative would provide a 7-foot and 9-foot channel on 42.5% and 2.7% of days, respectively,[90] and that it would more than double the availability of a 7-foot channel.[91] The Draft EIS also states the Proposed Action Alternative "would meet the 90-percent standard in 54 of 73 years compared 36 of 73 years for the [No Action Alternative], an improvement of 50 percent."[92]

As detailed in the attached memorandum by HydroLogics, Inc., it appears the numbers reported in the Draft EIS are wrong and substantially overstated.[93] The correct values, which have been tabulated directly from outputs from the Army's ResSim model, are presented in below in Table 4.

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[88] Brent Boehlert and Robert Unsworth, Industrial Economics, Inc., Assessment of the Potential Benefits and Costs of Changes to River Flows to Improve Navigation Conditions in the ACF River Basin at 1 (Jan. 28, 2016) (Exhibit 28).

[89] Draft EIS at 4-67.

[90] Draft EIS at 5-23.

[91] Draft EIS at 6-196 to 6-197.

[92] Draft EIS at 6-85.

[93] HydroLogics Technical Analysis at 36-38.

Table 4. Navigation Benefits Claimed in Draft EIS Compared to Actual Values from Army ResSim Model

	Percent Available	No Action Alternative		Proposed Action Alternative		Increase in Navigation Benefit	
		Draft EIS	Actual Value	Draft EIS	Actual Value	Draft EIS	Actual Increase
7-Foot Channel	100	15	15	31	16	107%	6.7%
	90	36	34	54	43	50%	26.5%

Given the limited economic benefit of even a 9-foot channel in the Apalachicola River, these very slight improvements achieved by the Proposed Action Alternative cannot possibly justify the impacts to Lake Lanier and West Point.

b. <u>The Proposed Navigation Plan Will Have Severe Impacts on Other Purposes.</u>

As shown below, the navigation plan in the Proposed Action Alternative will cause reservoirs to be significantly lower during droughts and nearly double the frequency of drought operations. The Army's own ResSim model confirms that navigation releases would be made during the most severe droughts in history, with predictable results. In 2007-2008, for example, as depicted in Figure 9 below, the ResSim model shows a 4.1-foot impact to Lake Lanier. West Point Lake would also be lowered by 1.7 feet. The impact under 2011 conditions would be even more pronounced system-wide, reducing Lake Lanier by 3.6 feet and West Point by 5.1 feet (Figure 10). The proposed navigation plan would almost double the number of times the drought operations are triggered—from 13 to 22—compared to operations when navigation support is removed.

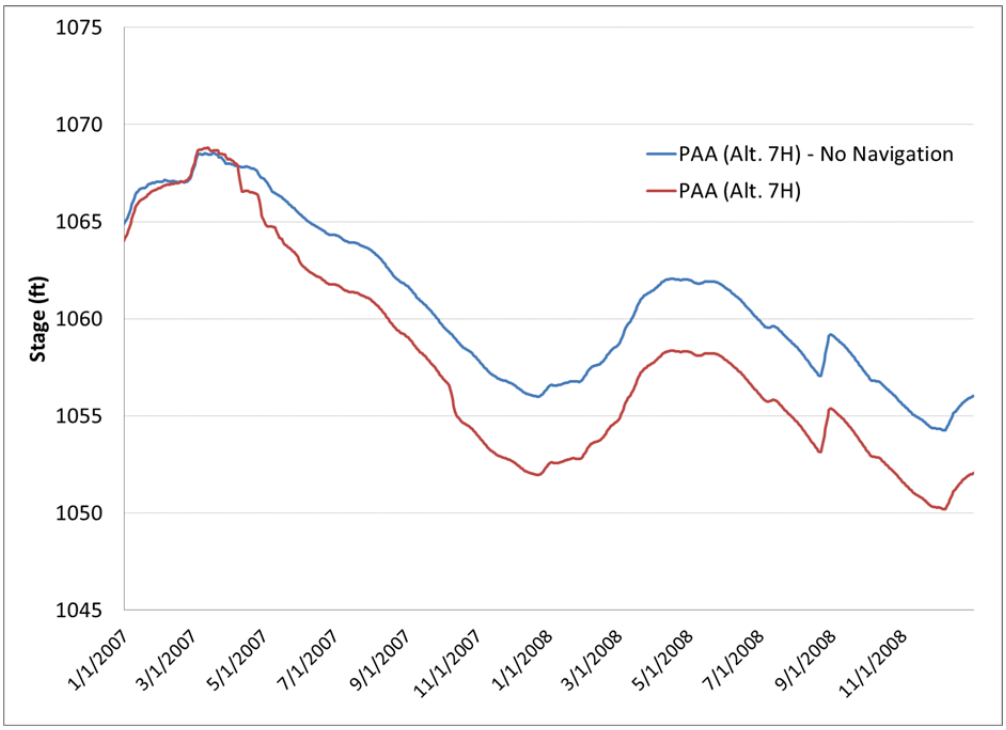

Figure 9. Impacts of Navigation Releases on Lake Lanier

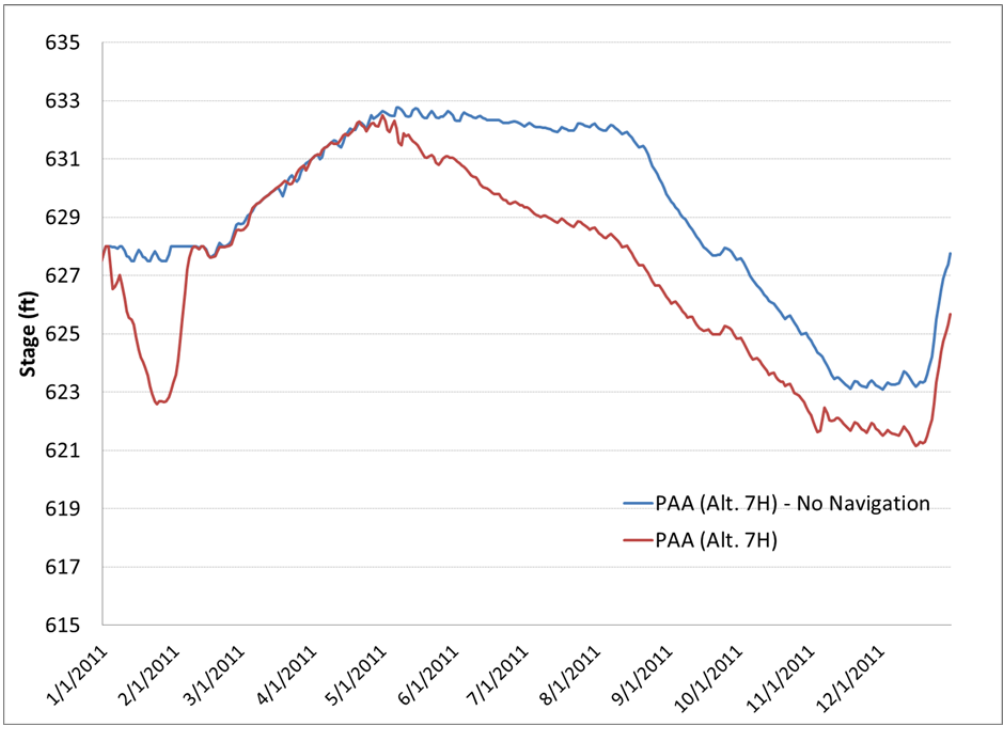

Figure 10. Impacts of Navigation Releases on West Point

c. Impacts Caused by Navigation Releases Are Far More Extreme Than Those Caused by Meeting Georgia's Projected 2050 Water Demand.

The analysis above shows that impacts attributable to the proposed navigation plan are far larger, and the benefits far smaller, than the impact of granting Georgia's entire water supply request. To show this, compare with "with and without" water supply scenarios with the "with and without" navigation scenarios. These show the impact of meeting Georgia's entire water supply demand to be trivial compared to the impact of the proposed navigation plan.

The Army's own ResSim model shows the lowest reservoir elevations in Lake Lanier are caused, not by the increased water supply withdrawals when Georgia's projected 2050 demand is met, but by navigation releases. If the navigation releases were discontinued during the 2007 drought, but Georgia's entire demand was met, Lake Lanier would remain 3.3 feet higher than the historical minimum of 1050.5 feet. The system would also enter Emergency Drought Operations less often without navigation, even under the 2050 demand scenario.

4.3 The Proposed Navigation Plan is Too Vague.

The Army may respond to our analysis by stating that it does not intend to operate in the manner shown by its own models. The manual does suggest the Army intends to retain discretion to curtail navigation releases and thus to mitigate the worst impacts shown above. If that is the Army's intent, however, the language of the Master Manual must be tightened to be absolutely clear.

Clear rules are needed to avoid disputes. Indeed, the State of Alabama in the past has cited discretionary provisions of the Alabama-Coosa-Tallapoosa Water Control Manual to insist that any releases that ***could*** be made ***had*** to be made.[94] It even sued when the Army invoked the discretion expressly retained in the manual to curtail releases to preserve storage during an extraordinary drought.[95] This controversy could have been avoided if the manual had been more clear. To avoid making this mistake again, the Army should tighten the navigation plan before adopting it to provide clear guidance about the circumstances in which navigation releases will be made.

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[94] *See, e.g.,* Letter from Governor Bob Riley, Alabama, to Secretary Pete Geren, Department of the Army (July 16, 2007) (Exhibit 29). In this letter, Alabama asserted that the releases from Allatoona Lake were less than the minimum release required by the operative manual. In reality, as Georgia Governor Perdue noted in response, the manual in effect at that time established a ***maximum*** release, not a minimum as Governor Riley claimed. It also expressly emphasized the need for flexibility to curtail releases during abnormal drought periods. *See* Letter from Governor Sonny Perdue, Georgia, to Secretary Pete Geren, Department of the Army (July 19, 2007) (Exhibit 30).

[95] *See, e.g.,* State of Alabama's Sixth Amended and Supplemented Complaint, Doc. 598, Civil Action 90-1331 ¶ 66 (N.D. Ala., filed Oct. 16, 2007) (Exhibit 31).

Clear rules are also needed to evaluate the proposed plan and to ensure discretionary decisions do not result in releases being made that cause tremendous damage to achieve trivial benefits. If the Army does not intend to make the releases under the conditions shown in the ResSim model, the model needs to be corrected to enable a reliable comparison of benefits and costs. Otherwise it will not be possible to determine the extent to which other purposes can be supported during those periods when the model currently *incorrectly* shows that reservoir storage will be depleted by navigation releases.

4.4 A More Specific Navigation Plan Should Be Developed with Stakeholder Input.

If the purpose of the proposed navigation plan is really to benefit navigation, a better plan can and should be developed. As described below, equivalent or superior navigation benefits can be achieved at a much lower cost to system storage by thinking more carefully about the specific features of a navigation plan that would make it most useful.

To be clear, we are not suggesting that this plan be adopted. There is no point in even discussing a plan until the channel is fixed, and we have keyed the alternative navigation plan to the Blountstown gage solely to allow comparisons with the Army's proposed plan. When and if the determination is made to maintain the channel and restore this purpose, however, we suggest this as a starting point that can be refined based on stakeholder feedback.

The key to the demonstration plan is to emphasize reliability and notice. A navigation channel is most useful if it is reliable. Therefore a better metric for evaluating navigation benefits would be the number of days that a 7-foot channel can be reasonably guaranteed with sufficient advance notice to ensure barge traffic can actually use it.

Like the preferred alternative, the demonstration plan would provide a 7-foot navigation channel from January 1 through May 31, but would improve on the Army's proposal by using standard forecasting tools (the Palmer Drought Index and antecedent flows) to determine when a two-week navigation season can be supported. The Army would then provide notice to navigation interests at least 30-days in advance of each such period, thus allowing barge companies to prepare and position assets to capitalize on the navigation release. For example, the Army would evaluate system conditions on December 1 to determine whether a two-week navigation window could be guaranteed commencing January 1. The Army would repeat this process every two weeks, committing to as many subsequent navigation windows as basin conditions allow. Further details about this demonstration plan are provided in the attached memorandum from HydroLogics, Inc.[96]

[96] *See* HydroLogics Technical Analysis at 42 to 50.

Compared to the Army's proposal, this alternative navigation plan would provide navigation benefits that "are essentially equivalent with regard to predictability and reliability."[97] A 7-foot channel would be available under the alternative plan approximately 80% of the time, compared to approximately 85% of the time under the Army's Proposal. But, unlike the Army's proposal, these windows would be ***guaranteed*** 30-days in advance, making them much more valuable. Barges are far more likely to utilize a channel if it is guaranteed 30-days in advance because this will give them time to put assets in place; and they will also be more inclined to use it if it is guaranteed to be available for at least two weeks, eliminating the risk that their assets will get stuck up river if conditions change, as might happen under the proposed plan.

These substantial benefits to navigation could be achieved at much ***less*** cost to system storage. Under the alternative navigation demonstration, Lake Lanier would be 4.1 feet higher than the Army's proposal under 2008 drought conditions[98], and 3.6 feet higher than the Army's proposal under 2011 drought conditions.[99] West Point and Walter F. George would be significantly higher as well.[100] And the system would go into drought operations substantially less often than under the Army's proposal—22 times under the Army's proposal compared to 13 times under the alternative navigation plan.[101] In short, the entire system would benefit.

5. The Army Should Use Its Authority to Develop Rules Based on Realistic Water Supply Assumptions.

As discussed above, the Army has failed either to evaluate or to justify its proposal to decline to meet demonstrated water supply needs from Lake Lanier. And the Army has proposed a navigation rule that would impose exorbitant demands on system storage while providing little if any real benefit. Given this, it is clear the Army must revisit the operating rules it has proposed. When it does, the Army should consider the following.

5.1 The Army Must Consider the Relative Benefits of Water Supply.

The Army's method for selecting its Proposed Action Alternative fails to account for the relative economic, social, and environmental benefits of providing the full amount of water supply from Lake Lanier compared to other objectives. When these comparisons are made — as

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[97] Memorandum from Jena Gilman, COWI Marine North America, ACF Water Control Manual (Jan. 25, 2016) (Exhibit 32).

[98] HydroLogics Technical Analysis, Figure 32.

[99] HydroLogics Technical Analysis, Figure 33.

[100] HydroLogics Technical Analysis, Figure 34 and Figure 35, respectively.

[101] HydroLogics Technical Analysis at 45-50. Note that this difference in the frequency of drought operations is identical to scenarios when navigation is not supported, because the alternative navigation demonstration avoids navigation releases during the critical droughts.

they must be — no rational plan could decline to meet demonstrated water supply needs from Lake Lanier.

For example, the Army sites hydropower and recreation impacts as a reason for rejecting Alternative 7F, which would have provided 297 mgd for water supply from Lake Lanier. The impacts of Alternative 7F (which would provide 297 mgd from Lake Lanier) compared to the Proposed Action Alternative (which would provide only 185 mgd) are estimated at $3 million for hydropower and $1.2 million for recreation. This equates to $4.25 million total, with over 95% of the recreation impact at Lake Lanier.

The water supply benefits dwarf this amount. According to the Draft EIS, the avoided costs of constructing the 112 mgd of storage that would have been required to provide the 297 mgd Alternative 7F would have provided exceed $960 million, or about 226 times the stated annual hydropower and recreation impacts. The Army never compares these relative benefits, however, because it never weighs the benefits of providing water supply against the impacts to hydropower and other objectives.

5.2 The Army Should Develop Operating Plans Based on Realistic Water Supply Assumptions.

In selecting its water management alternative, the Army conducted all modeling and analysis assuming that only 20 mgd of water would be withdrawn from Lake Lanier for water supply.[102] It did so based on the assertion that only 20 mgd of withdrawal is currently authorized. As the Draft EIS acknowledges elsewhere, however, this in no way reflects the reality of water supply withdrawals today. In other words, the Army has based its decision to select one water management alternative over another on modeling that is wholly divorced from reality.

The Army should correct this error and account for future water supply as it finalizes its operating rules for the ACF Basin. Simply put, it makes no sense to develop an operating rule assuming only 20 mgd of withdrawal when the future water supply need is 242 mgd. Any changes to water supply levels can and should be evaluated in selecting the level of water supply storage the Army intends to provide (including an evaluation of the economic, social, and environmental impacts of any reduction in water supply withdrawals from current levels).

5.3 The Proposed Operating Rule Is Highly Sensitive to Small Changes in System Condition.

The operating rules the Army has proposed in Alternative 7 are “brittle” in the sense that small changes in basin conditions can produce major changes in system storage. The navigation switch is just one example. In many cases the end result is counter-intuitive, as rules designed to save water may have the opposite effect. For example, a rule that saves water might push system

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[102] Draft EIS at 4-41 (describing the “current water supply operations” as including “20 mgd water withdrawals from Lake Lanier relocation contracts (50 percent return rate)” and “[r]eleases from Buford Dam to support current withdrawals (277 mgd) (82 percent return rate)”).

storage over the threshold that triggers a navigation season, resulting in much more storage being lost to navigation releases than is saved overall. Small changes in the assumptions used to run the model can have similar effects.

Given this, the Army must carefully examine instances where large differences between modeled alternatives occur to understand ***why*** the effects of the alternatives are different. In many instances, these differences may be due to identifiable instances where thresholds in the Army's proposed rule have been crossed by a ***very small*** amount, and not material differences in the health of the system. Where that occurs, the differences in projected effects suggest that the Army should refine its rule rather than using the results to make substantive decisions.

6. Errors in the Water Quality Analysis and Storage Computations Must be Corrected.

6.1 The Water Quality Model Uses Incorrect Assumptions that Overstate Potential Impacts.

The Draft EIS erroneously states that some water supply scenarios (including the Proposed Action Alternative) would cause "significantly adverse" water quality impacts to the Chattahoochee River in the reach above West Point Lake. This erroneous conclusion is based in part on a misunderstanding of the applicable state water quality standard and in part on flaws in the model input that significantly overstate future pollutant loadings. Because the water quality impacts were not decisive in selecting the preferred alternative, it might not be necessary to correct these modeling errors for that purpose, but the Final EIS should disclose that the projected impacts are over-stated.

The model overstates water quality impacts because it used ***historical*** pollutant loadings to project ***future*** water quality impacts. Projected future loadings should have been used. This is not just a theoretical point: based on an initiative by Georgia EPD to address assimilative capacity issues in this reach, existing pollutant loadings are already much less than those used to calibrate the model. Most dischargers in this area are already subject to a new, more stringent regime called the "Metro Chattahoochee Limits," which are set forth in Table 5 below. It is Georgia EPD's policy to include these effluent limits in NPDES permits for any new or expanded discharge within the metro area.

Table 5. Metro Chattahoochee Effluent Limits

Parameter	Location of Discharge	
	Mainstem	**Tributary**
Total Phosphorus	0.3 mg/l	0.18 mg/l
CBOD5	2.9 mg/l	2.9 mg/l
Ammonia	0.5 mg/l	0.5 mg/l
Organic Nitrogen[103]	1.5 mg/l	1.5 mg/l
Dissolved Oxygen (DO)	7.0 mg/l	7.0 mg/l

Furthermore, actual loadings are always much less than the permitted maximums—wastewater plants rarely operate at the maximum permitted effluent limit because the consequences of exceeding a limit are extremely severe. Although beyond the scope of this letter, it appears that the data used to calibrate the model in the Draft EIS could be used to establish a relationship between actual discharges and the maximum permitted limits.

Relatedly, many of the permits issued to metro-area dischargers include seasonal limits that were not used in the current model. These seasonal variations do make a difference, and therefore need to be included in the model.

Finally, even if the over-stated results could be taken at face value, the waterbody would still support its designated use under all scenarios. The statement to the contrary in the Draft EIS is based on a misinterpretation of the Georgia water quality standard for total phosphorus. The standard for "total phosphorus" entering West Point Lake is 1.4 million pounds per year, but a five-year rolling average is used to determine if the designated use is supported.[104] Even with substantially overstated loadings, the model predicts the 1.4 million pound threshold would be exceeded by a few thousand pounds in one year. The five-year average would always be substantially less than 1.4 million pounds.

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[103] Though not in NPDES Permits, it was determined that highly treated wastewater can expect an organic nitrogen concentration less than 1.5 mg/l in the discharge.

[104] *See* Georgia's 2014 305(b)/303(d) Listing Assessment Methodology, page 10, *available at* https://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/303d_Listing_Methodology_Y2014.pdf.

6.2 The Draft EIS Uses Outdated Area-Capacity Curves for Lake Lanier.

Throughout the Draft EIS and Water Control Manual, the Army reports storage volumes for Lake Lanier that are based on area-capacity curves created in 1959.[105] These same area-capacity curves and storage volumes are also used in all of the Army's ResSim modeling.[106]

Yet, as discussed above, the Draft EIS also explains that the Army conducted a sedimentation survey of Lake Lanier in 2011, which showed a minor reduction in storage at Lake Lanier.[107] Based on the results of that survey, the revised conservation storage at Lake Lanier is 1,074,600 acre-feet at elevation 1071, while total useable storage is now estimated at 1,673,400 acre-feet.[108] The Army used these revised estimates in calculating the critical yield of Lake Lanier.[109]

While the difference in storage volumes is small and unlikely to materially affect the results, it is not appropriate to use different volumes of storage in Lake Lanier for different purposes. Rather, the Army's storage calculations for its reallocation study and its analysis of impacts from changed operations and water supply alternatives should be corrected to use a single storage volume for Lake Lanier. This should reflect the best available information about the usable storage in the project, so that the Army's modeling can most closely mirror operations as they will occur in reality.

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[105] *E.g.*, Draft EIS at 2-28 ("Lake Lanier has a storage capacity (at the top of the conservation pool elevation 1,071 ft) of 1,955,200 ac-ft. Of that, 1,087,600 ac-ft is conservation storage and 867,600 ac-ft is inactive storage (Figure 2.1-21)."); Draft EIS, Vol. 2 Appx. B at 6 (same); Draft EIS, Vol. 2 Appx B (Buford Water Control Plan) at Plate 2-5 (explaining that the area-capacity curves and storage volumes in water control manual are taken from "the December 1959 Buford water control").

[106] *E.g.*, Draft EIS, Vol. 3 Appx. E (HEC ResSim Modeling Report) at 6 ("Lake Lanier (Buford) is a large federal reservoir with 1,087,600 AF of active storage, or about 65% of the total active storage in the ACF basin.").

[107] Draft EIS, Vol. 3 Appx. F at 9 & Figure E-1 (showing a 0.32% reduction in conservation storage and a 0.11% reduction in flood storage, stating: "Existing area capacity curves as shown in the current water control manuals were used for all reservoirs but Lake Sidney Lanier. In 2011, a Sedimentation and Erosion Analysis for Lake Sidney Lanier was completed and new area capacity curves were recommended. This new curve was used in the critical yield analysis model.").

[108] Draft EIS, Vol. 3 Appx. F at B-13. At elevation 1070, the revised conservation storage of Lake Lanier is 1,036,500 acre-feet. *Id.*

[109] Draft EIS, Vol. 3 Appx. F at 9.

6.3 The Army Should Release Its Analyses of Modeling Outputs.

The Draft EIS includes numerous performance measures used by the Army to evaluate various alternatives in the Draft EIS, including metrics such as recreation impacts, hydropower generation, and the availability of a navigable channel in the Apalachicola River measured at the Blountstown gage. Each of these metrics is calculated by "post-processing" the ResSim model outputs—that is, by taking the simulated flows and analyzing them separately to calculate the desired performance metrics.

We have tried to replicate the Army's calculation of the various performance metrics using the output from the ResSim model the Army provided. For many performance metrics, however, we have been unable to replicate the Army's results reported in the Draft EIS. Indeed, as is discussed elsewhere, the performance measures calculated by our experts using the Army's own model output differ dramatically from the results the Army reports.[110]

Unfortunately, the Army has not released the post-processing spreadsheets it used to calculate the various performance measures it reported in the Draft EIS. As a result, we cannot determine why the Army's reported results diverge from our own, when the measures should be identical and relatively simple to replicate.

Given these significant differences we have observed and the very real possibility that the Army's methods are flawed, the Army should make its post-processing analyses immediately available and provide an opportunity for stakeholders to comment on the Army's methods and results. The performance metrics used by the Army lie at the heart of its environmental impacts analysis and its evaluation of alternatives. It is critical that the Army's results be fully vetted and confirmed through an open and transparent process.

7. Reasonable Alternatives Should Be Considered Before the Draft Is Finalized.

Notwithstanding its legal duty to consider all reasonable alternatives to the proposed action, the Army has excluded certain alternatives for reasons that do not bear scrutiny. These alternatives should be considered and incorporated into the final version of the plan.

7.1 The Army Has Underestimated Its Authority to Consider Alternatives.

History—and the United States Court of Appeals for Eleventh Circuit—teach that the Army has more authority than it is wont to claim when confronted with difficult decisions. The scope of the Corps' authority must be accurately determined, and all reasonable alternatives within the Corps' authority must be considered. Otherwise, the Army cannot possibly meet the stated "purpose and need," which is to "determine how federal projects in the ACF Basin should

[110] *See, e.g., infra* Section 4.1; HydroLogics Technical Analysis at 25.

be operated for their authorized purposes, in light of current conditions and applicable law, and to implement those operations through updated water control plans and manuals."[111]

In view of the applicable law, the alternatives rejected in the Draft EIS like raising the conservation pool at Lake Lanier are actually well within the Army's existing authority. Numerous examples exist in which modifications of a similar scale have been approved by courts when challenged. In a case that is binding precedent in the Eleventh Circuit, for example, *United States v. 2,606.84 Acres of Land in Tarrant County, Texas*, the Fifth Circuit reversed a trial court for holding the Army lacked authority to modify a water project.[112] The controversy arose from an eminent domain proceeding in which the trial court held a taking to be invalid because "the dam as built differed significantly" from the project documents approved by Congress.[113] The Fifth Circuit reversed, explaining that "[t]he source of the trial court's misconception is found in the finality and binding effect which it gave [the project documents]."[114] The court noted the project documents "were never intended to be the final plans for the…project."[115] The Fifth Circuit further noted that the report of the Chief of Engineers, which Congress approved, recommended the project be constructed "generally in accordance" with the plans contained in the report, "as modified herein, and with such future modifications thereof as in the discretion of the Secretary of War and the Chief of Engineers may be advisable."[116] The project documents for Buford Dam contain precisely the same language.[117] Therefore the Army possesses similar discretion to modify project operations at Lake Lanier to achieve its water supply purpose.

A subsequent decision of the Fifth Circuit interpreted *United States v. 2,606.84 Acres of Land* to mean the Army can modify a project approved by Congress "unless this action is so foreign to the original purpose as to be arbitrary and capricious."[118] As the Fifth Circuit stated, "[i]t imparts both stupidity and impracticality to Congress to conclude that the statute impliedly forbids any change in a project once approved, and thus prevents the agency official . . . from accommodating newly discovered facts, or from adjusting for changes in physical or legal

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[111] Draft EIS at ES-4.

[112] 432 F.2d 1286 (5th Cir. 1970).

[113] *Id.* at 1292.

[114] *Id.*

[115] *Id.*

[116] *Id.*

[117] *See* Letter from Lt. Gen. Wheeler, Chief of Engineers, to the Secretary of War (May 13, 1946), *reprinted in* in H.R. Doc. No. 80-300 (1947) ("House Doc. 300") at 7.

[118] *See Creppel v. U.S. Army Corps of Engineers*, 670 F.2d 564, 572 (5th Cir. 1982).

conditions."[119] The only caveat noted by the Fifth Circuit in *Creppel* is that any change must "serve the original purpose of the project."[120]

In short, the alternatives discussed below should be considered and accepted or rejected on their merits—not because of any claimed lack of authority.

7.2 Top of Conservation Storage at Lake Lanier Should Be Raised.

Stakeholders throughout the basin have urged the Army to revise the rule curve at Lake Lanier, increasing the top of conservation storage by 2 feet. This would provide additional storage that could be used to benefit multiple purposes, including recreation, hydropower, water supply, and even downstream flow augmentation during drought.[121] The Army refused to even consider this alternative, however, asserting that it lacked authority to do so.

As explained elsewhere, the Army has underestimated its authority to modify project operations to meet changing needs within the basin. And the Army has failed to consider operational revisions that it could make to limit flood control impacts from increasing conservation storage at its reservoirs. This option, like the revisions to the West Point rule curve, can and should be evaluated and implemented in the final manual.

7.3 The Winter Drawdown at West Point Lake Should Be Reduced.

The Army refused to consider reducing the winter drawdown at West Point on grounds that the alternative "is not consistent with the screening criteria that any alternative considered by USACE should not increase flood risk above the current level," stating: "It is not the purpose of this EIS to investigate the feasibility of eliminating or reducing the level of flood protection afforded downstream communities by West Point Lake."[122]

The premise of the Army's decision to exclude this alternative is doubly flawed. As to the first point, work performed for the State of Georgia demonstrates that project operations can be adjusted so the winter drawdown can be reduced without increasing flood risk above current levels. As to the second, the very purpose of updating the water control plans and manual is "to determine how the federal projects in the ACF Basin should be operated for their authorized purposes, in light of current conditions and applicable law."[123] Determining how to operate West Point—and how to maximize the conservation storage available while providing flood protection

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[119] *Id.* at 572-73.

[120] *Id.* at 573.

[121] HydroLogics Technical Analysis at 51.

[122] Draft EIS at 4-7.

[123] Draft EIS at 1-3.

below the project—is entirely consistent with this objective. As such, there is no basis to exclude this alternative from consideration.

a. The Winter Draw-Down Can be Reduced Without Increasing Flood Risk Above Current Levels.

Work performed for Georgia EPD has shown that existing flood storage in West Point can be operated more effectively, allowing the Army to provide equivalent flood protection with less available flood storage.[124] This is achieved by incorporating readily available forecasts to adjust releases from the reservoir in advance of flood events. This allows the Army to anticipate inflows to the project and to release water accordingly, thereby preserving available flood storage to store flood waters when they enter the project.

Figure 11 below shows the modeled flood peaks at West Point compared to actual reservoir levels during the 2009 flood event. As can be seen, the projected flood peak is reduced in the "IFR" (or "inflow following rule") run compared to both the Army's historical operations and its modeled operations under the Revised Interim Operating Plan. This demonstrates that the flood protection provided by a given volume of flood storage can be improved with better operating rules. It follows that the winter drawdown could be reduced—thus, reducing the quantity of flood storage available—without necessarily increasing flood risks, as the Army assumed in refusing to consider this alternative.

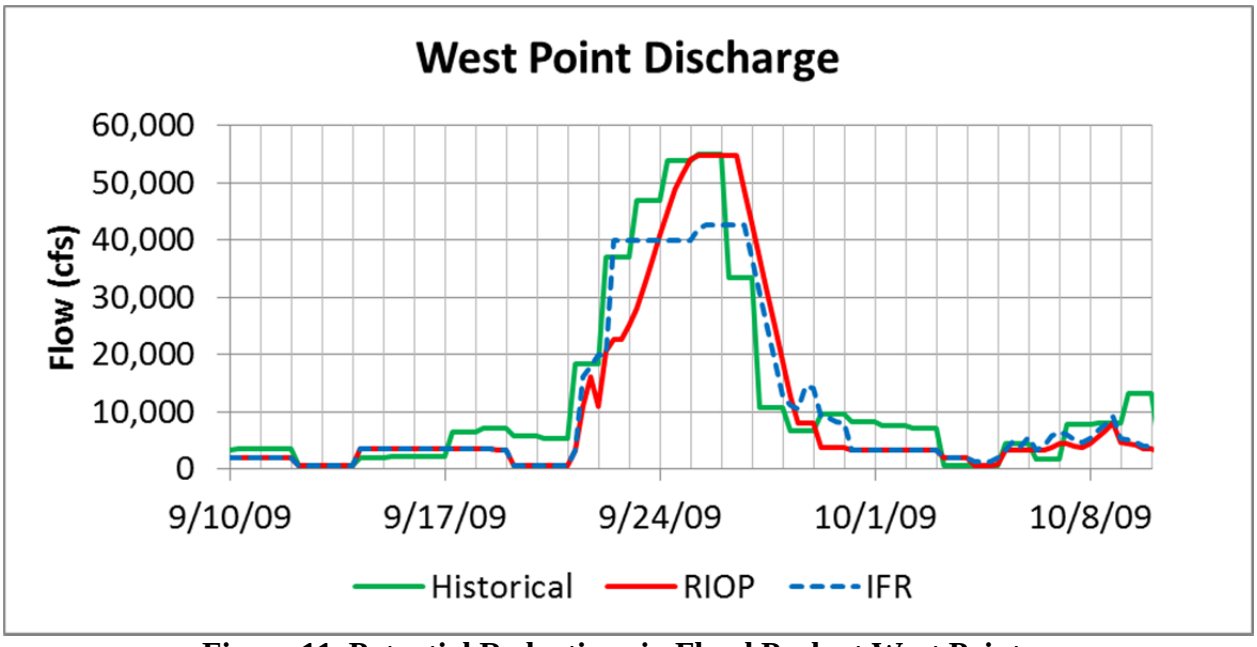

Figure 11. Potential Reductions in Flood Peak at West Point from Operational Changes

[124] *See* HydroLogics Technical Analysis at 51 to 52.

b. Reducing the Winter Draw-Down Would Increase Conservation Storage and Improve Basin Conditions with Appropriate Operating Rules.

Decreasing the West Point winter drawdown from 628 ft to 632.1 ft would provide an additional 91,000 af of conservation storage in the project. This additional storage could be used to provide benefits for the entire system, including higher lake levels, increased recreation opportunities, more hydropower generation—especially during low-flow periods—and more storage available for flow augmentation during drought.

Now is the time to consider this change. While the potential benefits are substantial, the Army's operational rules must be developed from the outset to take this storage into account. Otherwise, the potential benefits of this additional storage will either be wasted or inequitably distributed. In the case of the Proposed Action Alternative, for example, adding the extra conservation storage to the Proposed Action Alternative as currently written would simply result in the saved water being released to augment flows for only about two weeks in March 2007, for the benefit of navigation.

Further, operations must be tuned to account for this storage to prevent counterintuitive and adverse impacts. These can occur when preconceived rules formulated and tested with one set of assumptions (e.g., the amount of usable conservation storage) are implemented under different conditions. Especially when the Army revisits certain operational decision-points only once per month, thresholds can be crossed (or not crossed, as is the case with drought operations) at critical periods, causing a suite of operational decisions to be made and potential adverse impacts to result.

8. Many Parts of the Manual Are Very Good.

Although the Water Supply Providers disagree with many aspects of the Army's proposal, as explained above, there are also many positives in proposed plan and the Army's technical analysis.

8.1 The Proposed Operations Correctly Recognize the Army Cannot Drought-Proof the ACF Basin Using Lake Lanier Storage.

The Water Supply Providers support the Army's decision to continue aspects of the current operations, such as expanded opportunities for reservoir refill and storage and more conservative drought operations, that are intended to avoid the catastrophic effects experienced under earlier versions of the Army's operating rules. We all recall the devastating effects of the Army's original Interim Operations Plan, watching as the Army drained Lake Lanier in a futile attempt to drought-proof the entire basin.[125] This not only placed metropolitan Atlanta's principal source of

[125] Atlanta Regional Commission, Request for Immediate Alterations to Interim Operations Plan Releases (Oct. 25, 2007); Atlanta Regional Commission, Modifications to the Interim Operations

water supply in jeopardy, and resulted in tremendous economic harm to North Georgia, but also wasted critical reservoir storage that could have been used to support all of the various project purposes through an extended, multi-year drought.

This is not to say that system operations could not be improved. They could. The changes to West Point and Lake Lanier rule curves, flood control operations at West Point, and the alternative navigation operations proposed above are examples of improvements that could be made. We also believe further improvements could be made if the Army were willing to evaluate more flexible, forecast-based operations. Nevertheless, the drought operations included in the Proposed Action Alternative protect the system from the worst effects of extraordinary drought conditions, while meeting critical water supply needs and providing flows downstream that are both reasonable and, in many cases, more than nature would have otherwise provided.

8.2 The Army Appropriately Considered Drainage Area and Refill Capacity to Revise the Action Zones.

We support the Army's proposal to redefine the reservoir action zones based on each reservoir's drainage area. The Water Supply Providers have long explained that the current action zones disproportionately impact Lake Lanier and fail to recognize its unique character as a large headwaters reservoir with just 5.6% of the ACF Basin's drainage area. This is clear from Figure 12 below which shows recreation impacts under the current action zones (RIOP, 2011 demands).[126] As can be seen, the current action zones subject Lake Lanier to Level 2 or 3 recreation impact (below Recreation Impact Level, RIL) substantially more than either West Point or Walter F. George.

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and Exceptional Drought Operations Plans (April 14, 2008); Atlanta Regional Commission, Proposed Modifications to Interim Operations Plan for ACF Reservoirs (May 29, 2008).

[126] *See* HydroLogics Technical Analysis at 52 to 54.

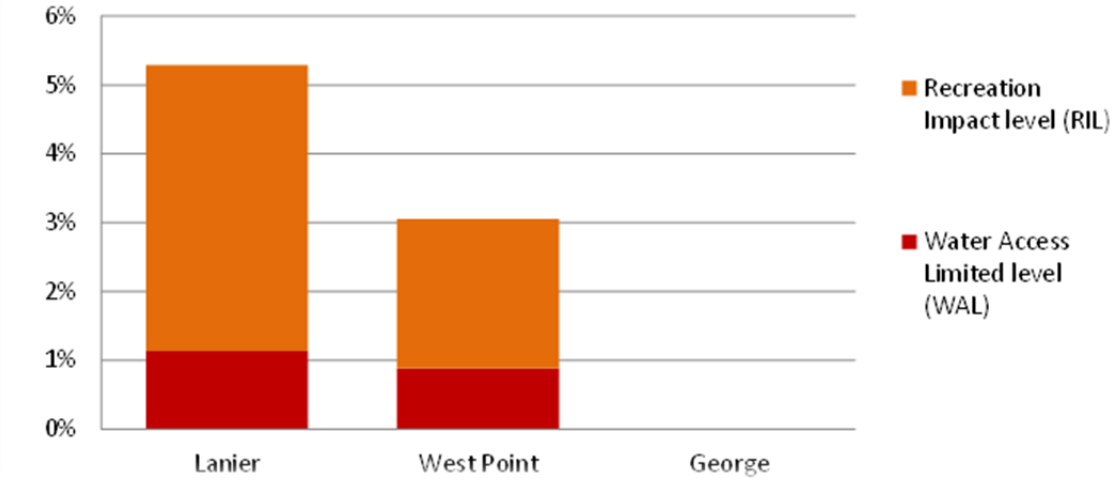

Figure 12. Disproportionate Recreation Impacts Under Current Action Zones

Further, the Army's current action zones failed to acknowledge real differences between the federal reservoirs, namely Lake Lanier's comparatively limited refill capacity relative to the lower reservoirs due to its large storage volume and small drainage area. This is clear from the 2007 drought, when the lower projects recovered almost immediately due to a rain event and their large drainage areas while Lake Lanier languished at low levels and entered the second year of the drought at very low levels.

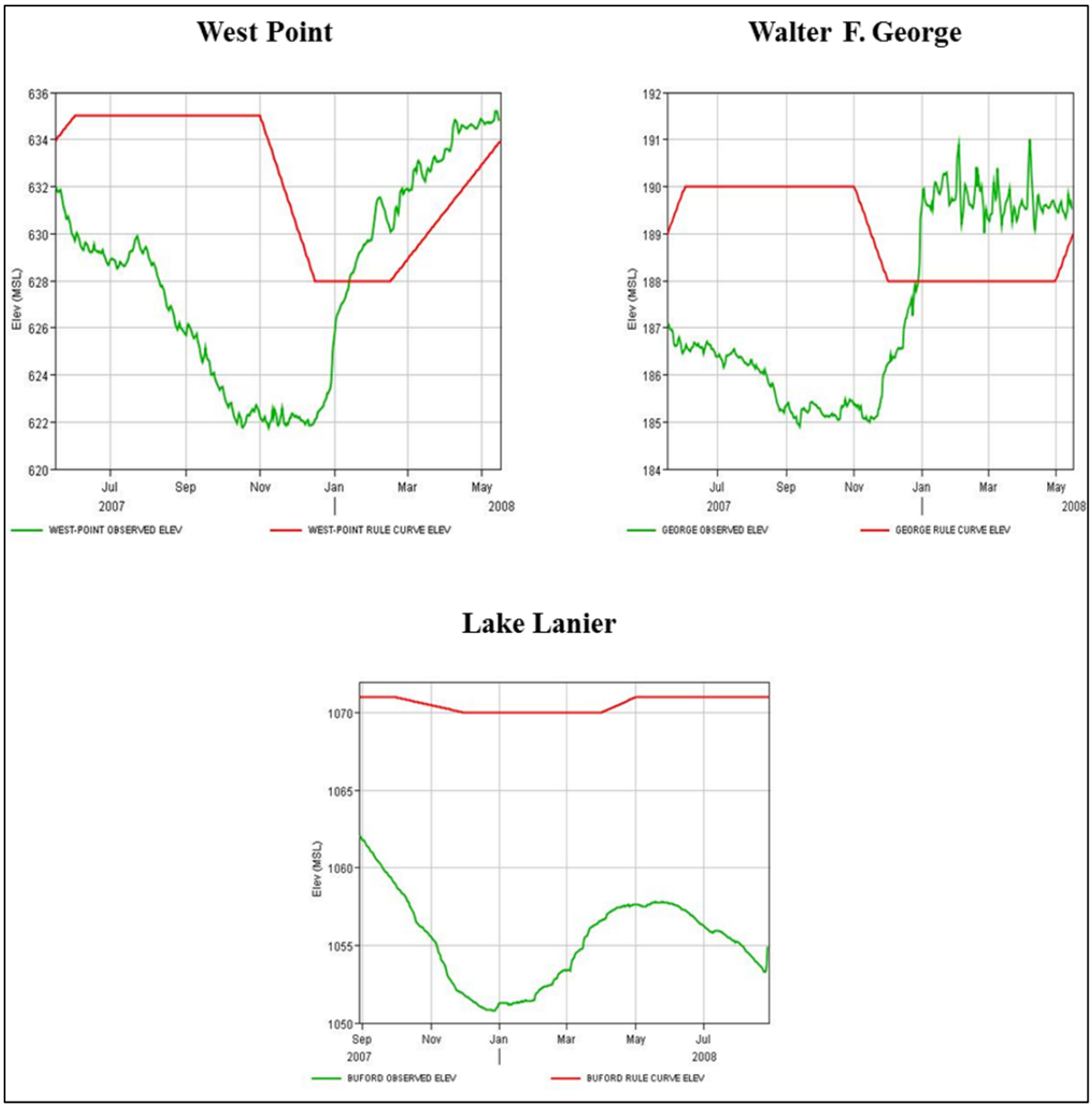

Figure 13. Refill Response of Federal Reservoirs During 2007 Drought

Lower lake levels in Lanier are not just a problem for Lanier-based interests. Because West Point and Walter F. George refill every year, the volume of storage in Lake Lanier alone determines the storage available for the second and subsequent years of a drought. The revisions to the action zones included in the Proposed Action Alternative more equitably distribute lake level impacts between the projects and preserve composite storage during multi-year drought to the benefit of all interests.

8.3 <u>The Seasonal Flow Target at Peachtree Creek Conserves System Storage.</u>

To conserve system storage, the Army has proposed to vary the flow target at Peachtree Creek seasonally, providing 750 cfs during the warmer months and 650 cfs during the cooler

months when water quality considerations are not an issue. This is possible, of course, because of the increasingly stringent discharge limits imposed by the State of Georgia and the outstanding work done by metropolitan Atlanta dischargers, who return water to the Chattahoochee River.

Although the Army has proposed to reduce the flow at Peachtree Creek to some extent, it has suggested that 650 cfs is an absolute minimum established by the Congressional authorization. While the Army is not suggesting a lower target to evaluate, this suggestion that 650 is an absolute minimum is plainly wrong, given that the 1958 Reservoir Regulation Manual established a target of 600 cfs[127]—not 650—and the Chief of Engineers also described the goal as being to provide flows at Atlanta of "about 600" cfs.[128]

More generally, the clear purpose of the minimum flow—as understood by Congress—was to release enough water to meet projected water supply and water quality needs, as calculated by General Newman.[129] That the release was never intended to be fixed, and never viewed as being fixed, is shown by the Army's decision to commission additional post-authorization studies by the Public Health Department to determine how much was really needed.[130] The Army should take the same approach today: instead of adhering to estimates produced in 1946 as if they were legally binding, the Army should make today's decision about how to operate in the future by considering the best available estimate of the minimum flow that is actually needed to meet water supply, water quality and other needs.

As discussed elsewhere, the Water Supply Providers strongly support measures to conserve system storage. This is especially true when storage can be preserved in Lake Lanier (the furthest upstream reservoir) without materially affecting downstream flows. Past modeling by Georgia EPD during the 2007 drought showed that the Peachtree Creek flow target can be reduced seasonally without impacting water quality, and the Army has implemented a seasonal reduction to conserve storage during prior droughts without adverse water quality impacts. That being so, we strongly support a balanced, seasonally variable flow target at Peachtree Creek set in consultation with Georgia EPD as a measure to preserve storage in Lake Lanier for uses up and down the basin during drought.

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[127] Apalachicola River Basin Reservoir Regulation Manual, Appendix B: Buford Reservoir at B-22 ¶ 47 (December 1959).

[128] *See* Letter from Chief of Engineers, Lt. General Wheeler, to Chairman Nelson Smith, Federal Power Commission (Feb. 6, 1947), House Doc. 300 at ix.

[129] *See* Newman Report, House Doc. 300 at 34 ¶ 79-80.

[130] *See* Definite Project Report on Buford Dam, Chattahoochee River, Georgia, at I-22 (Dec. 1, 1949) (reprinting U.S. Public Health Service, Environmental Health Center, Flow Requirements for Pollution Abatement Below Atlanta, Georgia (Feb. 1949).

8.4 Entering Drought Operations in Zone 3 Conserves Storage and Increases Operational Flexibility During Drought.

The PAA also changes the threshold at which drought contingency operations begin from Composite Storage Zone 4 to Composite Storage Zone 3. This change allows the Army to respond to drought conditions sooner, before the system reaches critical levels. The additional storage reserve early in a drought, especially in Lake Lanier, which does not refill during multi-year droughts, provides critical provisions during severe drought. Such reserves become all the more essential when accounting for possible future hydrologic conditions that may be different from those experienced in the hydrologic record.

Entering drought contingency operations sooner does not necessarily mean that flows will be lower over the long term. Additional savings early in a drought can cause the system to recover sooner, allowing flows to return to normal levels earlier. Flow frequency curves for the PAA and the PAA with drought operations triggered in Zone 4 are shown in Figure 14. Over the full period of record (1939-2011) there is no difference in the flows. Similarly, there is no appreciable difference in the timing of flows under droughts (Figure 15, Figure 16, showing flows at the Chattahoochee gage when drought operations are commenced in Zone 3).

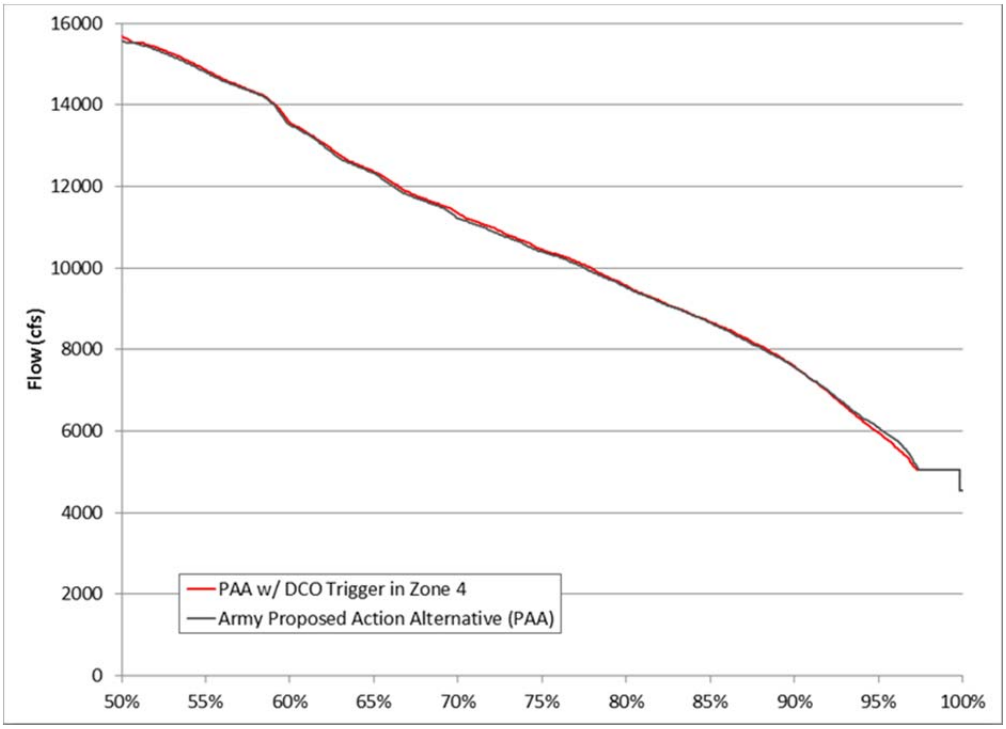

Figure 14. Chattahoochee Gage Flows:
Army PAA vs. Zone 4 Drought Contingency Operations

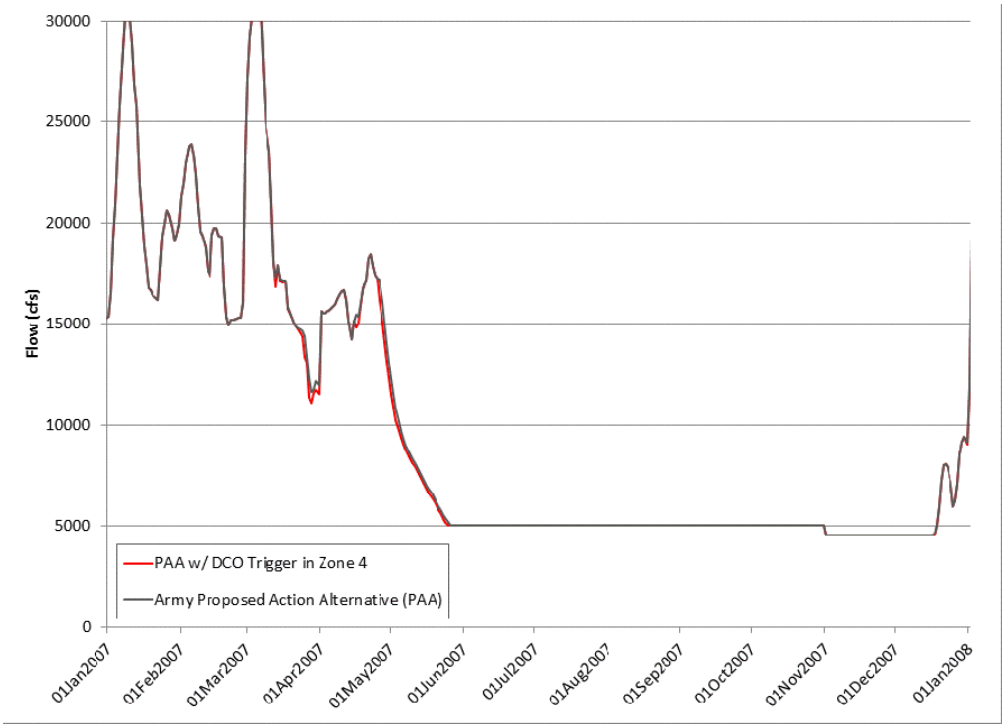

Figure 15. Chattahoochee Gage Flows — 2007 Drought: Army PAA vs. Zone 4 Drought Contingency Operations

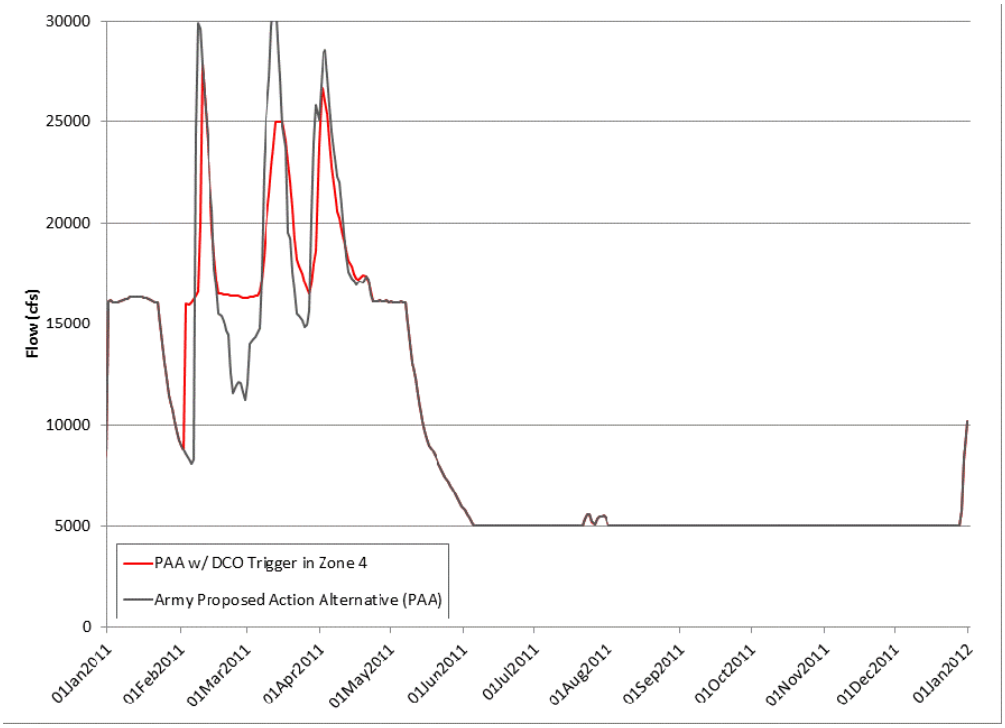

Figure 16. Chattahoochee Gage Flows — 2008 Drought: Army PAA vs. Zone 4 Drought Contingency Operations

This analysis also demonstrates that using drought operations, either the amount of time in drought operations or number of times triggered, as is done in Chapter 6 (see Table 6.1-11) can be misleading and is certainly not a good surrogate for flows. For the two scenarios shown above—the PAA and the PAA with drought operations triggered in Zone 4—the flows are not significantly different but the drought operations measures are: the PAA is in drought operations 18% of the time, compared to 10% for the PAA with Zone 4 trigger; drought operations are triggered 22 times in the PAA, compared to 8 times in the PAA with Zone 4 trigger.

9. Conclusion

In closing, water supply is the highest and best use of storage at Lake Lanier. Given the revised 2050 demand and return projections, the long-term water supply needs of the metropolitan Atlanta region can be met without causing any material impacts downstream in Florida and without any environmental effects that the Army has not already deemed acceptable in the Draft EIS. Furthermore, meeting this demonstrated water supply need will avoid the substantial economic and environmental costs that would necessarily result from developing alternative supplies. In short, meeting the long-term water supply needs in metropolitan Atlanta is the only reasonable and rational choice.

We appreciate your attention to these comments, as well as the Army's effort in developing the Draft Water Control Manual and Draft EIS. We look forward to working with the Army to bring the long-overdue process of updating the Army's operations to address water supply and other needs to a close.

Please do not hesitate to contact me if you need any additional information.

Sincerely yours,

/s/ Lewis B. Jones

Lewis B. Jones