

From: [Atkins, Brian](#)
To: [ACT-WCM](#)
Subject: Alabama Office of Water Resources" Comments regarding USACE Draft ACT EIS and Water Control Manual
Date: Friday, May 31, 2013 4:16:22 PM
Attachments: [20130531 - OWR Comments re USACE Draft ACT EIS and WCM.pdf](#)

Dear Colonel Roemhildt,

On behalf of the Alabama Office of Water Resources and the State of Alabama, I submit the attached comments on the Draft Environmental Impact Statement (EIS) issued in connection with the update of the Alabama-Coosa-Tallapoosa (ACT) River Basin Water Control Manual. A signed copy of this letter as well accompanying exhibits will be transmitted to you by overnight delivery.

If you need more information about our comments or wish to discuss them, please let me know.

Sincerely,

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May 31, 2013

Via Electronic Mail and Overnight Delivery

Colonel Steven J. Roemhildt
U.S. Army Corps of Engineers, Mobile District
P.O. Box 2288
Mobile, AL 36628

Re: Draft Environmental Impact Statement
Update of the Alabama-Coosa-Tallapoosa River Basin Water Control Manual

Dear Colonel Roemhildt:

On behalf of the Alabama Office of Water Resources and the State of Alabama, I submit the following comments on the Draft Environmental Impact Statement (EIS) issued in connection with the update of the Alabama-Coosa-Tallapoosa (ACT) River Basin Water Control Manual. The draft EIS and the draft master manual contain serious procedural, technical, and substantive flaws.

I. Baseline for NEPA Analysis

An essential part of the process required by the National Environmental Policy Act (NEPA) is determination of a "No Action Alternative" against which the environmental impacts of the proposed federal action can be evaluated. In the draft EIS, the Corps claims that the "No Action Alternative represents no change from the current management direction or level of management intensity" and "represents the continuation of the current water control operations at each of the federal projects in the ACT Basin." Draft EIS at 4-35.

The No Action Alternative is fatally flawed because it relies upon the draft 1993 manual for Lake Allatoona, which was never subjected to the review mandated by NEPA. At section 5.1.2 of the draft EIS, the Corps highlights the significance of action zones at Lake Allatoona to the No Action Alternative. Those action zones at Lake Allatoona were defined by the 1993 draft manual.

It is beyond dispute that the 1993 draft manual was illegally promulgated. NEPA requires federal agencies to analyze the environmental impacts of a proposed action before proceeding

with that action. *See* 42 U.S.C. § 4332(2)(C). Even though the Corps has relied on the 1993 draft manual for two decades in the operation of Lake Allatoona, the draft manual was never subjected to NEPA review, let alone before the Corps adopted it as its operational guide for Lake Allatoona.

Because the 1993 draft manual was illegally promulgated, it cannot form any part of the No Action Alternative, even if the agency has based its operations on the illegal plan. *See, e.g., Friends of Yosemite Valley v. Kempthorne*, 520 F.3d 1024, 1038 (9th Cir. 2008). To allow the Corps to utilize the 1993 draft manual and its novel action zones as part of the No Action Alternative would mean that the major shift in operations represented by that draft plan would never be subjected to the required NEPA analysis. The Corps seeks to minimize its improper use of an illegal manual in the No Action Alternative by suggesting that only “incremental changes” have occurred since the last EIS in the 1970s, but the Corps cannot dodge its NEPA obligations by characterizing the major change in the operational regime at Lake Allatoona reflected in the 1993 draft manual as merely incremental. Allowing the 1993 draft manual to form the basis of the Lake Allatoona portion of the No Action Alternative would create a perverse incentive for federal agencies to disregard their NEPA obligations. Instead of using the 1993 draft manual as the basis for the Lake Allatoona operations, the Corps must instead use the operations that existed at the time of the last EIS conducted in connection with Lake Allatoona operations in the 1970s.

Even if the use of the 1993 draft manual as part of the No Action Alternative were not a problem, the No Action Alternative is still flawed because, contrary to the Corps’ assertions, it does not reflect the current water control operations in the Basin. The No Action Alternative fails to reflect the current water control operations in several respects:

- A. The No Action Alternative does not reflect current water-supply operations at Lake Allatoona. The Corps has contracts with the Cobb County Marietta Water Authority (CCMWA) and the City of Cartersville allocating specific amounts of storage space at Lake Allatoona for water supply use. For purposes of modeling the No Action Alternative, the Corps assumed that the allocated storage amounts would yield a total of 79.3 cfs, and the Corps used that figure to reflect water-supply operations at Lake Allatoona. The use of that figure is flawed for two reasons.

First, the Corps should have utilized data based upon actual historical water-supply usage, not on an estimate of what allocated storage would yield. The Corps claims in section 1.5 of the draft EIS that it is using 2009 conditions as the baseline, but it offers no explanation as to why 2009 operations were not used for water-supply withdrawals at Lake Allatoona. The failure to utilize the actual figures for water-supply usage at Lake Allatoona in the No Action Alternative stands in stark contrast to the usage of the actual numbers for water-supply usage at Carters Lake and all other withdrawal points in the No Action Alternative.¹ In fact, the only time that the

¹ Although the Corps claims that it bases the No Action Alternative on 2009 operations, the Corps used 2006 data for water-supply usage at all withdrawal points except Lake Allatoona.

Corps has deviated from use of actual, historical data concerning water supply in modeling the No Action Alternative is in making the calculations for Lake Allatoona. When an Alabama representative asked Corps officials from the Mobile District at one of the public meetings concerning the draft EIS why the actual historical numbers were not being utilized, the Corps officials responded that the decision to ignore the actual water-supply data had been made by their superiors. This suggests that a political, rather than a scientific, decision was made to mask the actual water-supply usage and the Corps' actual operations at Lake Allatoona.

Second, even if it were appropriate to use an estimate as opposed to historical data, the 79.3 cfs figure is grossly inaccurate. It was derived from an outdated critical-yield calculation for Lake Allatoona. When the current critical-yield calculation is applied to the contractual storage allocations, then the correct estimate for the yield falls to 50.0 cfs. (See Exhibit 1.²) That means that the Corps has overstated the yield of the contractual storage allocations at Lake Allatoona in the No Action Alternative by 59%.

- B. In modeling the hydropower generation at Lake Allatoona in the No Action Alternative, the Corps assumes a strict and regular schedule for generation of hydropower. But that is not how the Corps operated historically. Information maintained by the Corps on the amount of dam discharges at Lake Allatoona plainly shows that the Corps' generation was highly variable. See Exhibit 2.³ Indeed, in the midst of the 2007 drought, the Governor of Alabama sent a letter highlighting the Corps' failure to adhere to the hydropower generation schedule that the Corps claimed to be following. (A copy of the letter is attached as Exhibit 3.) Simply put, the No Action Alternative does not reflect the current hydropower operations at Lake Allatoona.
- C. The No Action Alternative also fails to reflect the fact that the Corps has systematically overfilled Lake Allatoona in the months corresponding to the rising arm of the rule curve. The graphs attached as Exhibit 4 show that this has repeatedly occurred in the last ten years, yet the Corps' modeling of the No Action Alternative does not take account of it.
- D. The No Action Alternative does not reflect the Corps' actual operations at Carters Lake, particularly during drought periods. During the critical 2007 drought, the Corps utilized more storage at Carters Lake than what the modeling of the No Action Alternative reflects. (See Exhibit 5.)

² All of the exhibits to this letter are contained on a disk that is being submitted with the copy of this letter being transmitted to you by overnight delivery. We include on the disk Exhibit 19, which is an affidavit related to preparation of the technical exhibits referenced in this letter.

³ The information provided by the Corps reflects dam discharges. The exhibit shows how to relate dam discharges to hours of hydropower generation.

- E. The modeling of the No Action Alternative also presents a distorted picture of the river flows at Rome. As shown in Exhibit 6, the baseline condition in the model reflects substantially lower flows during the 2007 drought than actually occurred.
- F. The No Action Alternative does not reflect how Alabama Power Company has actually operated its projects such as Lake Weiss, Lake H. Neely Henry, and Lake Martin. During drought years, Alabama Power received variances that allowed it to fill above the rule curve at some of its projects and received permission to cutback the flow that it was required to deliver below its projects. The modeling of the No Action Alternative, however, does not take account of that operational history. (See Exhibit 7.)

Because the No Action Alternative is supposed to reflect current operations, the model results for it should conform closely to historical data for the affected projects. Based upon the multiple flaws in constructing the No Action Alternative, it is hardly surprising that the model outputs for the No Action Alternative deviate materially and substantially from historical results. With such serious problems with the No Action Alternative, the Corps' assessment of environmental impacts is fatally deficient. Unless and until the Corps utilizes an appropriate baseline, no valid assessment of environmental effects can occur.

II. Cumulative Effects for NEPA Analysis

In the draft EIS, the Corps acknowledges that it must assess cumulative effects, which is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." See Draft EIS at § 6.9. The Corps' consideration of reasonably foreseeable future actions in the draft EIS is deficient and, thus, its assessment of cumulative effects is insufficient.

"To consider cumulative effects some quantified or detailed information is required. Without such information, neither the courts nor the public in reviewing the [agency's] decisions, can be assured that the [agency] provided the hard look that it is required to provide." *Neighbors of Cuddy Mtn. v. U.S. Forest Serv.*, 127 F.3d 1372, 1379-80 (9th Cir. 1998). "General statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." *Id.* at 1380. "The impacts analysis must also contain some quantified or detailed information." *Sierra Club v. Bosworth*, 510 F.3d 1016, 1030 (9th Cir. 2007). "A simple declaration that a project's cumulative impacts are insignificant, without a convincing explanation, fails [the hard look] test." *Mountaineers v. U.S. Forest Serv.*, 445 F. Supp. 2d 1235, 1247 (W.D. Wash, 2006).

There are glaring omissions in the Corps' consideration of reasonably foreseeable future actions. Entities in Georgia have been discussing the need for substantial increases in water-supply withdrawals in the Georgia portion of the ACT Basin for many years. On January 24, 2013, the State of Georgia submitted a request for multiple actions to be taken to increase its water-supply usage in the ACT Basin. (A copy of that request is attached as Exhibit 8.) At Lake Allatoona,

Georgia requests that water-supply withdrawals be increased from the current authorization pursuant to the contracts with CCMWA and Cartersville of an annual average of 32.3 mgd⁴ to 123.9 mgd, an increase of 284%. In addition, Georgia asks that the storage accounting for the authorized contract amounts be changed from a gross basis to a net basis. If allowed, such a change would drive the proposed water-supply withdrawals even higher.

In that same letter, Georgia requests that an additional 27 mgd be allowed to be withdrawn by CCMWA in connection with releases from Hickory Log Creek Reservoir. Taken together with its other requests related to Lake Allatoona, that would amount to an aggregate increase of 367% over current water-supply authorizations.

Georgia also notes in the letter that its additional 2040 water-supply demands will have to be met either out of the proposed Richland Creek Reservoir or out of Lake Allatoona. According to the letter, those additional demands will amount to an additional 24 mgd if met out of Lake Allatoona. Thus, when considered in the aggregate, that involves an increase of 441% over current water-supply authorizations.

Even though Georgia contends that this massive increase in demand is needed to meet its population growth in the basin, the Corps does not consider the Georgia request, either as to the specific requested increases or as to the claimed massive needs of a growing population generally, in its cumulative effects analysis. In addition, the cumulative effects analysis takes no account of the water-supply impacts of either the onset of operations at the already-constructed Hickory Log Creek Reservoir (44 mgd yield)⁵ or the proposed Richland Creek Reservoir (35 mgd yield). Nor does the cumulative effects analysis take any account of the fact, conceded by Georgia in the materials submitted with its letter, that the annual average withdrawals at Lake Allatoona already are 49.5 mgd and have been as high as 64.3 mgd (which is a clear violation of the contracts into which the Corps has entered).

In order to undertake an appropriate evaluation of cumulative effects for purposes of the EIS, the Corps must take these reasonably foreseeable future uses and model their effects when considered in conjunction with the proposed action. Alabama anticipates that such modeling would show serious adverse environmental effects downstream from Lake Allatoona because the

⁴ The 32.3 mgd figure is derived from applying the current critical-yield calculation for Lake Allatoona to the contractual storage allocations to CCMWA and Cartersville. (See Exhibit 1.)

⁵ In fact, the Corps in the draft EIS (at page 1-40) expressly disavows giving any consideration to Hickory Log Creek Reservoir other than its 2009 operations.

The draft EIS also describes Hickory Log Creek Reservoir as follows at page 2-62: "As planned and designed by the CCMWA and city of Canton, water will be pumped from the Etowah River to fill the reservoir during high-flow periods and released during low-flow periods to supplement Etowah River flows and Allatoona Lake inflows to enable water supply withdrawals from existing water intake facilities (CCMWA 2010)." To the extent that the description suggests that the reservoir was designed with the intent for increased water supply withdrawals from existing intake facilities in Lake Allatoona, that is incorrect. The only withdrawal point contemplated by the license issued in connection with the reservoir was the City of Canton's intake facility on the Etowah River.

massive increase in water-supply withdrawals that Georgia projects over the next 27 years will radically diminish downstream flows, especially in times of drought.

The actual cumulative-effects analysis contained in the draft EIS is superficial and conclusory. Occupying less than four pages in the draft EIS, the section on cumulative effects contains no detailed consideration of expected increases in water-supply usage. Instead, the Corps resorts to general assertions such as “demands for public water supply . . . are expected to continue to increase in the future.” Even worse, the Corps does not make any effort whatsoever to evaluate how the increases in water-supply usage, when considered in conjunction with the proposed alternative, will impact the environment. For example, the Corps appears to have done no modeling of how increased water-supply withdrawals along with the proposed action would affect the downstream environment. These deficiencies in the cumulative effects analysis must be corrected before the EIS becomes final.

III. Additional Model and Data Errors

In addition to the fatal problems with the No Action Alternative and the failure to properly consider cumulative effects, there are additional problems with the Corps’ modeling, the data it employed in connection with the modeling, and the interpretation of the results of the modeling that must be corrected before the EIS is issued.

- A. In modeling the Proposed Action Alternative, the Corps assumed more hydropower generation at Lake Allatoona than is required by the draft manual for that project. In particular, the draft manual gives the Corps the option to generate zero hydropower in all action zones at Lake Allatoona, and provides a range of generation levels for Zone 1, 2 and 3. The modeling of the Proposed Action Alternative, however, assumed that the Corps would generate the maximum amount of hydropower in Zones 1 and 2 during nine months of the year and would generate 50% of the maximum for those zones in the other three months. Those assumptions are not realistic. Historical operations by the Corps at Lake Allatoona under the 1993 draft manual have frequently seen the Corps generate less than 100% of the authorized hydropower amount during the nine-month period of the year and less than 50% of the authorized hydropower amount during the other three months. (See Exhibit 2.) In fact, the Corps has frequently generated less than the minimum amount defined by the draft 1993 manual for Zone 1. In the draft manual for Lake Allatoona (at page 7-2), the Corps stated that it intends to use the action zones “to manage the lake at the highest level possible within the conservation storage pool while balancing the needs of all authorized purposes with water conservation as a national priority used as a guideline.” In light of that statement, it does not seem realistic to assume in the modeling that the Corps will generate the maximum amount of hydropower allowed in Zone 1 and 2. The Corps offers no explanation as to why the assumptions employed in its modeling are reasonable.

In order to perform a valid EIS, the Corps should, at a minimum, also model a low-flow scenario in which the Corps generates at the bottom of each range for each action zone. We have modeled how the flows at Rome would have differed in 2007 between Plan G and an operational regime in which no hydropower is generated (which the manual permits), and we have calculated what effect the difference in flows would have had on the conservation storage pool at Lake Allatoona. (See Exhibit 9.) In the likely event that serious environmental impacts would result from that low-flow scenario, the Corps should perform additional modeling to determine where in the range the adverse environmental impacts are diminished.

We note that this sort of bracketed approach to modeling environmental impacts was employed by the Corps in preparing its 1998 EIS in connection with potential allocation formulas in the ACT Basin.

- B. Just as with the Corps' modeling of the No Action Alternative, the Corps' modeling of the Proposed Action Alternative assumes a water-supply number for Lake Allatoona that reflects neither the contractually authorized water-supply allocations nor historical water-supply amounts. Until this erroneous input is corrected, any results of the modeling are invalid.
- C. The Corps is also knowingly using erroneous inputs with its DSS data. We became aware of the data error when we ran the ResSim model to match the observed USGS flow data below Allatoona. The model inflow data set did not allow us to replicate the historically observed elevation and outflow readings. What the Corps' data shows as project outflow (the Allatoona Discharge from the ACTHEC_8.dss file with the "F pathname" of "COE_ADJ") does not match what the USGS data shows (taken from the USGS website for station number USGS 02394000 ETOWAH RIVER AT ALLATOONA DAM). For the period of 1980-2008, the Corps data shows the Allatoona outflow as 1,593 cfs compared to 1,726 cfs from the USGS.

Over one year ago, we alerted the Corps' Mobile District to these problems with the models. In the past few months, representatives of the Mobile District acknowledged the problems that we identified. They explained that the COE_ADJ outflow was used to create the input "incremental" inflow data contained in the DSS file (ACTCUM_8.dss). They further admitted that the inflow data needs to be recalculated.

This flaw in the data affects every model run and the critical-yield calculations that have been performed, thereby making it impossible to draw any valid conclusions until the flaw in the data is fixed.

- D. The Corps has also modeled operations for Carters Lake that do not match the proposed guide curve contained in the draft EIS. (See Exhibit 10.) In fact, the guide curves for Carters Lake in the Executive Summary of the draft EIS, the draft Carters Manual, and the ResSim Modeling Report are all different from each other, and the modeled guide curve for Carters Lake is different from each of them. Needless to

say, the draft EIS cannot be valid if the models underlying it do not conform to the proposed action.

- E. In addition to the flaws with the model inputs, the Corps has also committed a serious error in its method of interpreting the model outputs. The Corps has evaluated the model outputs by looking to effects on an annual average basis and by looking to an average of a specific calendar day over many years. Use of long-term averages virtually guarantees that any adverse environmental impact will be masked. Instead of using these types of long-term averages to evaluate environmental impacts, the Corps should be looking at effects during more limited periods, especially during critical dry periods during droughts.

Given the nature of varying hydrological conditions throughout a year and over several years, long-term averages are inappropriate to evaluate the environmental impacts of the proposed action. For example, if one compares the actual observed average flow at Rome for the 2007 water year (October 2006-September 2007) with the flow for the same period under Plan G, the flow under Plan G is less than 1% different from the historical flow, which would lead one to conclude that there is little environmental impact compared to history. However, if one limits the comparison to the June-September 2007 period, the Plan G flows are 300 cfs, or 21% lower, than the historical flows. (See Exhibit 11.) In the summer months of the most extreme drought recorded in the Basin, a reduction in flow of 300 cfs at Rome almost certainly would have a material detrimental environmental impact at Lake Weiss and downstream from Lake Weiss. Yet that significant impact is lost through the use of full-year averaging.

In Exhibit 11, we also provide an additional example as a further indicator as to why full-year averaging is not appropriate. It shows for the 2007 water year how substantial the deviations from the annual average were throughout the year. Just a few high spikes (that only occur for 1 or 2 days in a year) can mask several months of low flows if one only looks at an annual average. An appropriate analysis must focus on the critical periods of a drought year when flows are lowest. A fair assessment of the environmental impacts of the proposed action during a severe drought, such as the one that occurred in 2007, simply cannot be made through use of annual averages.

In light of all of the problems with the modeling and the data on which it is based, the results of the modeling are neither valid nor reliable, and any assessment of environmental impacts cannot be legitimately made until the problems are fixed.

IV. Water Quality Impacts

In the Draft EIS, the Corps ignores its own regulations as to how it must address the adverse downstream water quality impacts caused by its operations.

The Corps admits in the draft EIS that the Proposed Action Alternative will cause detrimental environmental impacts downstream from Lake Allatoona. *See, e.g.*, Draft EIS at 6-112 (“State agencies would continue to apply adaptive management techniques to more precisely define the ACT system’s assimilative capacity. Water management activities may affect water quality under low flow conditions such that the state regulatory agency may consider reevaluation of NPDES permits to confirm the system’s assimilative capacity.”). The draft EIS, however, indicates that the Corps deems the downstream environmental consequences of its Proposed Action Alternative to be outside its concern. Instead, the Corps appears to conclude that the burden for addressing those consequences must be shouldered by others.

The draft EIS takes a much-too-narrow view of the Corps’ obligations relative to the downstream consequences of its actions. The Corps’ own regulations clearly mandate that “Corps management responsibilities extend throughout the area influenced by and influencing the water [the Corps] manage[s].” *See Water Quality and Environmental Management for Corps Civil Works Projects*, ER 1110-2-8154, at page 2 (May 31, 1995) ER 1110-2-8154, at page 2. Those same regulations (at page 3) require the Corps to implement water quality management plans that are “scoped to include all areas influencing and influenced by the project.”

The Corps has committed in ER 1110-2-8154 to a “policy to develop and implement a holistic, environmentally sound water quality management strategy for each project.” In furtherance of that commitment, Corps regulations dictate that the Corps implement a water quality management program that, among other things:

Ensure[s] that water quality, as affected by the project and its operation, is suitable for project purposes, existing water uses, and public health and safety and is in compliance with applicable Federal and state water quality standards.

....

Ensure[s] that the project and its operation offer the lowest stress possible on the aquatic environment.

ER 1110-2-8154 at pages 3-4.

The draft EIS plainly demonstrates that the Corps is violating its own regulations. Rather than assessing measures that the Corps can take to alleviate the downstream environmental consequences of its Proposed Action Alternative, the draft EIS simply identifies adverse consequences and then suggests that downstream parties will have to deal with them. *See* draft EIS at 6-112 — 6-118. Not only does that approach fail to recognize the fact that “Corps management responsibilities extend throughout the area influenced by” the Corps’ operations of Lake Allatoona, but it further violates the Corps’ obligation to maintain “the existing instream water uses and the water quality necessary to protect them.” *See* ER 1110-2-8154, at page 2.

The Draft EIS details a number of adverse environmental consequences that would arise downstream of Lake Allatoona under the Proposed Action Alternative, and in each instance, the Corps’ solution for addressing these consequences is for downstream parties to take steps to deal

with them. For example, the Corps concedes that its proposed operational changes would result in increased temperatures in the Alabama River at the confluence of the Coosa and Tallapoosa Rivers and that median water temperatures during low-flow periods are predicted to increase by as much as 1.8° F. Draft EIS at 6-112. The Corps acknowledges that such an increase “would be expected to affect allowable discharges along the reach and aquatic species.” *Id.* The Corps offers no suggestion that it would take any action to address the issue, but instead states that permits for existing discharges “could be restricted during conditions similar to what occurred in 2007.” *Id.*

Likewise, the Corps acknowledges the Proposed Action Alternative would adversely impact downstream levels of dissolved oxygen, *id.* at 6-112, phosphorous, *id.* at 6-115, nitrogen, *id.* at 6-116, and chlorophyll a, *id.* at 6-117. Again, the Corps’ solution for addressing the consequences of its actions involves no action on the part of the Corps, but instead would impose the burden of dealing with the consequences on others. *See, e.g.*, Draft EIS at 6-117 (“In periods of dry weather, with low inflows, the Proposed Action Alternative would be expected to increase algal growth in Weiss Lake, and resulting potential updates to discharge permits may have an adverse impact on upstream dischargers.”); *id.* at 6-115 (acknowledging that the Proposed Action Alternative would have adverse effects on total phosphorous concentrations in the upper Coosa River and stating that “point source permits might need to be revisited to ensure that water quality standards would be met”).

The draft EIS’s “solution” of restricting dischargers’ permit limits or otherwise shifting the burden of dealing with the acknowledged environmental consequences of the Corps’ Proposed Action Alternative to other parties is in direct conflict with the Corps’ obligation “to protect all existing and future uses including assimilative capacity, aquatic life, water supply, recreation, industrial use, hydropower, etc.” *See* ER 1110-2-8154, at 2.

Corps regulations clearly recognize that the Corps must “at least, manage its projects in accordance with all applicable Federal and state environmental laws, criteria, and standards.” *Id.* And, the Corps has committed to a policy of giving the environment “equal standing not simply consideration in all aspects of project management and the operational decision-making process. *Id.* at 3. By proposing an action that includes admitted environmental consequences that will adversely impact downstream uses, the Corps is clearly not meeting these obligations.

Moreover, as the comments and accompanying materials submitted by the Alabama Department of Environmental Management (“ADEM”) demonstrate, the Corps’ Proposed Action Alternative will result in water quality violations and other adverse environmental impacts downstream from Lake Allatoona. As such, the Corps’ Proposed Action Alternative fails to satisfy the Corps’ obligation to comply with Federal, state, interstate, and local environmental laws, criteria, and standards.

V. Proposed Action Alternative Reflects a Substantial and Inappropriate Reordering of Lake Allatoona's Project Purposes

The Corps' Proposed Action Alternative represents a substantial reordering of project purposes at Lake Allatoona that will cause enormous harm to downstream interests, especially during drought periods. The substantial and ill-considered shifts in Lake Allatoona's project purposes include the following:

- A. The Proposed Action Alternative includes what is described as a modified drawdown at Lake Allatoona in the fall months, and this represents an inappropriate elevation of recreation as the dominant project purpose during the critical dry months of the year. Specifically, the Corps proposes that the drawdown of the conservation storage pool at Lake Allatoona be suspended from October 1 until mid-November each year. This results in a novel plateau in the rule curve at elevation 835 for that 45-day period.

Neither the draft EIS nor the proposed manual for Lake Allatoona offers any explanation why this action is being proposed. At one of the public meetings in connection with the draft EIS, an Alabama representative asked representatives of the Corps' Mobile District as to why the modified drawdown, which will significantly curtail downstream flows during the driest months of the year, was being proposed. The Corps officials responded that the action was designed to benefit recreation at Lake Allatoona.

This decision runs counter to the basic rationale for reservoir management expressed by the Corps in the draft EIS. The Corps stated in § 2.1.1 of the draft EIS, "An important function of the many reservoirs in the ACT Basin is to store water when there is an abundance of rain and to release water when there is less rain, ensuring that all water needs are met throughout the year." With the modified drawdown under the Proposed Action Alternative, the Corps is abandoning this fundamental principle. Instead of releasing water in the driest months of the year when the water needs are great (see Exhibit 12), the Corps intends to hold water at Lake Allatoona until the critical period is over. The water will be released later in the year when it is of much diminished use to the system.

The decision to take this action to elevate the importance of recreation at Lake Allatoona is inconsistent with the Corps manual upon which the Corps purports to base the draft EIS. In Engineering Manual EM 1110-2-3600, *Management of Water Control Systems* (November 30, 1987) at page 2-29, the Corps states, "The Federal interest in the provision of recreation opportunities at Corps of Engineers projects is limited; that is, other project purposes, such as flood control or navigation, are needed to establish Corps interest. Many projects, including those for which recreation facilities may have been included under general provisions of the Flood Control Act of 1944, as amended, do not have separable storage costs for recreation. While under these circumstances recreation is an authorized purpose, it is secondary to project

functions for which the storage was formulated.” The draft EIS confirms at page 2-66 that recreation at Lake Allatoona is authorized only under general legislation. The economic justification for the project was based on hydropower and flood control. Yet rather than making recreation secondary as the Corps’ manual requires, the Proposed Action Alternative makes recreation the dominant purpose.

The Corps’ decision to embrace the modified-drawdown concept is also inconsistent with the Corps’ statement at page 2-70 of the draft EIS that the Corps “considers recreational needs at the Allatoona Lake project in making water management decisions” “[d]uring the peak recreation season, generally Memorial Day through Labor Day.” With the modified drawdown, the Corps is making recreation the driving factor for operation of the project after the peak recreation season has ended.

The Corps clearly recognizes the effects of this drastic change in its operating regime during the fall months of the year. The Corps stated that its objective was to “sustain higher water levels [at Lake Allatoona] after Labor Day,” (Draft EIS at page 4-23), and it will succeed in that goal if the Proposed Action Alternative is implemented. The Corps forecasts that Lake Allatoona will be 1-5 feet higher during the period of October-December as a result of this change. The Corps acknowledges at page 6-14 of the draft EIS that the modified-drawdown plan will be “likely to maintain notably higher monthly lake elevations from October through December, particularly under drought conditions.”

The downstream environmental and economic effects of this plan to operate Lake Allatoona in the dry months to enhance recreation will be severe. The Corps predicts that the flows at Rome will be 200-500 cfs lower in the fall. (See Draft EIS at 6-57.) Especially during droughts, that will have substantial adverse consequences for water quality at Lake Weiss and throughout the ACT Basin. During the drought of 2007, historic low flows were observed at the Alabama-Georgia state line during the fall months of the year, yet the Proposed Action Alternative would drive those flows hundreds of cfs lower. Moreover, system hydropower alone will decrease significantly in the fall months with a loss of nearly 6% in October. (See Draft EIS at 6-178.)

The Corps has no justification whatsoever for holding water in Lake Allatoona to promote recreational interests after the peak recreation season has ended when the adverse effects to hydropower, water quality, and the other authorized project purposes are so substantial. Accordingly, Alabama demands that the Corps abandon the modified-drawdown concept in the Proposed Action Alternative.

- B. The Proposed Action Alternative also represents a significant diminution in the importance of hydropower as an operating purpose at Lake Allatoona. Under the new action zones, the Corps will have the ability to generate zero hydropower in all action zones at all times. Coupled with the Corps’ stated goal of keeping Lake Allatoona as full as possible, this is a significant shift in the operational regime at the project.

Under the prior regime according to which the Corps has operated Lake Allatoona, the Corps was required to generate hydropower when Lake Allatoona is in the upper portion of the conservation storage pool. This was consistent with congressional intent because the economic justification for Lake Allatoona's construction was primarily hydropower generation. Under the new Allatoona manual, the Corps will even have the ability to generate zero hydropower when the conservation storage pool is in Zone 1 in the summer and fall months. That alone is an unjustified and substantial change in the relative importance of the project's operating purposes.

Even though the Proposed Action Alternative nominally has four action zones, Zone 1 does not exist between January 1 and June 15, and Zone 2 does not exist between January 1 and April 15. Zone 3 is defined in the proposed Allatoona manual as indicating "drier than normal conditions or impending drought conditions." It is nonsensical to suggest that conditions are drier than normal or indicative of impending drought when the conservation storage pool is full on or before April 15. Furthermore, the Corps offers no explanation as to why Zone 1 does not come into existence until June 15, two full months after the full pool level is reached on the guide curve.

In addition, the diminution in the importance of hydropower as an operating purpose is shown by the fact that there is no hydropower generation whatsoever in Zone 4. The Corps has defined Zone 4 to include a majority of the conservation storage pool for most of the year. (See Exhibit 13.) In fact, on June 1, Zone 4 includes 84% of the conservation storage pool. It is a major shift for the Corps to make so much of the project's conservation storage pool unavailable for hydropower generation.⁶

Although the Corps seeks to diminish the significance of these changes by assuming that it will generate the maximum amount of hydropower during most of the year and by assessing hydropower effects on a systemic basis, the Corps cannot hide from the fact that the Proposed Action Alternative represents a substantial change in the relative importance of hydropower in operating Lake Allatoona.

- C. In addition to elevating the importance of recreation and diminishing the importance of hydropower as operating purposes at Lake Allatoona, the Proposed Action Alternative also places much greater importance on water supply than the last properly promulgated manual. The Corps admits in the draft EIS at page 2-66 that "[d]uring extreme drought conditions, water supply and water quality requirements have been the major operating concerns." Similarly, in the draft Allatoona manual at

⁶ Similarly, at Carters Lake, the Corps has created two actions zones. Zone 2 is described as reflecting "hydrologic conditions . . . likely to indicate severe drought conditions." Carters Lake's conservation storage pool contains 52 feet of storage, but Zone 2 begins at a level within as little as 1.5 feet of the top of the conservation storage pool. In Zone 2, the Carters Manual mandates that only minimum flows be released. The notion that a severe drought is indicated when the project's elevation is so close to the top of the conservation storage pool is absurd.

page 8-5, the Corps states, "During droughts there is serious concern about protecting water supplies."

The inclusion of water supply as one of the two major operating concerns during droughts represents a major shift in emphasis from the last approved manual. This shift has been heightened by the Corps' allowance of water-supply usage of Lake Allatoona by entities far in excess of their contractually authorized amounts.

In deciding to hold water in Lake Allatoona to protect water supply, especially in illegal amounts, the Corps has lost sight of the original expectation that the conservation storage pool would be used to make releases during dry times.

- D. Even though the Corps concedes in the draft Allatoona manual (at page 2-1) that Lake Allatoona was "originally authorized for hydropower, flood risk management and navigation," the Corps has completely abandoned navigation as an operating purpose for the project. At page 7-12 of the draft Allatoona manual, the Corps admits, "There are no specific reservoir regulation requirements to support navigation at Allatoona Dam."

In the draft Allatoona manual at p. 3-3, the Corps claims that "Corps reservoirs are operated as a system to accomplish the authorized purposes of the projects." At page ES-27 of the draft EIS, the Corps acknowledges that inflow above the Alabama Power Company projects in the Coosa River is critical for navigation. Yet, the Corps has ignored any systemic focus on navigation and ignored the impact that releases from Allatoona and Carters have on downstream navigation when it failed to include any operations at Lake Allatoona whatsoever for navigation under the Proposed Action Alternative. At page 2-69 of the draft EIS, the Corps justifies its abandonment of navigation as one of Lake Allatoona's operating purposes by noting that Lake Allatoona and Carters Lake, "while originally authorized to support downstream navigation, are not regulated for navigation because they are distant from the navigation channel, and any releases for that purpose would be captured and reregulated by APC reservoirs downstream." But that explanation cannot be reconciled with the Corps' insistence that the ACT Basin is operated as a system. Of course flows will be captured and reregulated in a multi-project system. Indeed, Congress envisioned that navigation would be possible in the basin through construction of a series of projects, not just one.

The Corps has no authority to override Congress's determination that navigation is one of Lake Allatoona's authorized purposes.

To the extent that the Corps adopts its Proposed Action Alternative, the Corps cannot undertake the substantial shifts in the relative sizes of the project purposes at Lake Allatoona that the Proposed Action Alternative entails or the abandonment of one of the operating purposes without congressional approval. For decades, the Corps has acknowledged that its discretion to alter the operational balance among purposes at an existing project is strictly circumscribed: "It is the view of this office [of the Army General Counsel] that the discretionary authority given the

Chief of Engineers to make post-authorization changes in projects . . . is not considered to include matters which materially alter the nature of the project, such as the addition or deletion of project purposes where not otherwise authorized by law, or substantial changes in the relative sizes of project purposes.” (See Exhibit 14.) The Corps’ recognition of its inability to undertake a reallocation that substantially changes the relative sizes of project purposes was confirmed in *EDF v. Alexander*, 467 F. Supp. 885 (N.D. Miss. 1979), *aff’d on other grounds*, 614 F.2d 474 (5th Cir. 1980).

The Corps recognized this requirement of congressional approval at page 1-2 of the draft EIS: “Any proposed changes to the ACT Basin water control operations that would significantly affect other project purposes . . . would require feasibility-level studies and congressional authorization.” Notwithstanding that recognition that the requirement exists, the Corps has given no indication that it intends to adhere to it. A failure to obtain congressional approval, however, would render illegal the implementation of the Proposed Action Alternative.

VI. Proposed Action Alternative Will Make Drought Operations More Frequent and Drought Effects More Severe in Alabama

The Corps’ Proposed Action Alternative will make drought operations in Alabama more frequent and drought effects more severe. The draft EIS includes a new drought plan for the ACT Basin in Alabama. Under the Corps’ No Action Alternative, the state-line flow trigger for the drought plan would have been triggered 14.1% of the time. Under the Proposed Action Alternative, however, the state-line flow trigger would be triggered 16.4% of the time. That represents a 16% increase in the number of days that Alabama would be under drought conditions as defined by the plan. As mentioned above, the Corps’ modeling of the Proposed Action Alternative assumes that the Corps will generate the maximum amount of hydropower at Lake Allatoona for nine months of the year and 50% of the maximum during the other three months. Those assumptions, however, come nowhere close to how the Corps actually operated during the 2007 drought. If one assumes that the Corps generates no hydropower at Allatoona (which is clearly allowed under the draft Allatoona manual), then the state-line flow trigger would be triggered in Alabama 20.9% of the time, which would be a 48% increase in the number of days that the drought plan would be operative compared to when the drought plan would have been triggered under the No Action Alternative. (See Exhibit 15.)

There also is no question that the effects of droughts will be more severe under the Proposed Action Alternative compared to comparable conditions historically. As discussed above, the Corps concedes that flows at Rome will be 200-500 cfs lower in the fall months of the year under the Proposed Action Alternative and that lake levels at Lake Allatoona will be “notably higher” in the fall months under drought conditions. During the drought of 2007, Alabama experienced major water quality and other environmental problems in the ACT Basin during the fall months. Indeed, many Alabama industries were on the verge of having to shut down operations and lay off employees because they were close to being unable to meet permit limits with their discharges. A reduction in flow in the Coosa River at the Alabama state line by 200-500 cfs will

almost certainly cause far graver environmental and economic consequences than have been experienced during prior similar droughts.

In light of the substantial increase in drought operations caused by the Proposed Action Alternative even under the Corps' rosy assumptions and the inevitable increase in drought severity, there is no justification whatsoever for the changes.

VII. Inadequate Information Relating to Water Storage Accounting for Lake Allatoona

At page 8-5 of the draft manual for Lake Allatoona, the Corps describes a water accounting system that will be used to account for usage of Lake Allatoona's storage by parties with a contractual right to use part of the conservation storage pool. The description of the accounting system is vague, and key terms are not defined. After receiving the draft manual, we requested during a meeting with the Corps on April 2, 2013, that documents reflecting the storage accounting system be provided to us so that we could better understand it and provide any comments on it. A Corps representative responded that the Corps could not provide that information to Alabama without permission from the Corps' counsel. The information should be provided immediately so that Alabama can perform an evaluation of it and comment on it as necessary.

Alabama representatives also asked the Corps about the accounting storage system at the public meeting in Gadsden on March 27, 2013. Representatives of the Corps' Mobile District told our representatives that the Mobile District does not actually perform the storage accounting for Lake Allatoona in the manner described in the manual. Instead of following the manual's description, the Mobile District uses an inflow number that is already the net result of evaporation and other losses. Needless to say, the description of the storage accounting system in the manual should conform to the manner in which the storage accounting is actually performed.

The Corps should revise the draft Allatoona Manual so that ambiguity concerning the storage accounting system is eliminated. For example, the formula in the manual refers to subtraction of "Loss Share," but that critical term is not defined. How it is defined will have a significant impact on the results of the calculation.

Although the Corps gives a general discussion of the storage accounting system in the draft manual, it does not include it in its modeling or supporting analysis. Including the storage accounting system in the model would not be difficult, and would represent a necessary correction of the Corps' use of a water-supply withdrawal amount for Lake Allatoona in the modeling that neither represents the actual historical withdrawals or the contractually authorized amounts.

The Corps also states at page 8-5 of the draft Allatoona Manual that "[t]he use of contracted water supply storage space will be carefully monitored to ensure contracted storage volumes are not exhausted." As discussed in detail below, CCMWA has repeatedly exhausted its contracted

storage, yet the Corps has failed to take any action in response. The draft manual should spell out specifically what progression of steps that the Corps will take to enforce the limits of the water-supply storage contracts into which it enters.

VIII. Failure to Address Decades-Old Water-Supply Issues

Finally, Alabama expresses its dismay at the Corps' failure as part of the manual-update process to address CCMWA's violation of the terms of its contract for storage for water supply at Lake Allatoona.

In 1963, the Corps contracted with CCMWA for 13,140 acre-feet of storage at Lake Allatoona. Even though the Corps estimated at the time it entered into that contract that 13,140 acre-feet would yield 34.5 mgd, a more recent critical yield analysis performed by the Corps established that the allocated storage would only yield approximately 22 mgd. The Corps also determined in or around 1990 that CCMWA would receive no credit for its return flows in calculating its usage of the allocated storage. (See Exhibit 16.)

In 2007, the Corps wrote to CCMWA stating that its calculations indicated that CCMWA was exceeding its allocated storage amount. (See Exhibit 17.) Indeed, the Corps' calculations showed that CCMWA's excess usage had been as high as 197% of the allocated storage amount. In response to that letter, CCMWA admitted in a letter to the Corps dated November 19, 2007, that its gross withdrawals under the contract had exceeded 34.5 mgd "for decades." (See Exhibit 18.)

Alabama contended in the lawsuit it filed against the Corps in the United States District Court for the Northern District of Alabama that the Corps failure to enforce the contractual limit over the course of decades was a *de facto* reallocation of additional storage to CCMWA. The Corps successfully moved to dismiss that case on the ground that the Corps had not yet taken a final agency action. As one of its arguments in support of the dismissal in 2012, the Corps suggested to the district court that the Corps could address the CCMWA exceedance level as part of the ACT Manual update.

That suggestion to the district court appears to have been, at best, misleading. The draft EIS makes clear that the Corps never intended to address the issue of CCMWA's contract violation as part of the manual-update process. Neither the draft manual for Lake Allatoona nor any other document associated with the draft EIS contains any indication that the Corps has taken any steps to enforce the contract limits or contemplates taking any such steps. Indeed, as described above, the Corps resorts to fiction in the draft EIS in describing current water-supply operations at Lake Allatoona. Simply put, the Corps pretends that the contract exceedance does not exist.

The Corps' failure to enforce its contract with CCMWA cannot be reconciled with its Engineering Manual EM 1110-2-3600, which it claims in the draft EIS to be following. At page 2-19 of that manual, it states, "Regulation of reservoirs for M&I water supply is performed in accordance with contractual arrangements." At Lake Allatoona, the Corps has operated, and

continues to operate, the dam to accommodate CCMWA's use of water that far exceeds the contractual arrangement.

Alabama cannot understand why the Corps will not subject CCMWA to the same procedures and requirements as any other party desiring an allocation of storage for water-supply. CCMWA has brazenly commandeered storage to which it is not entitled, and the Corps has tacitly given permission for this usurpation through its inaction. Particularly in light of the new operating regime proposed for Lake Allatoona, CCMWA's contract violation will only make worse the adverse downstream environmental effects caused by the illegal water-supply usage.

The failure of the Corps to acknowledge the decades-long exceedance, let alone to analyze it as part of the draft EIS, renders the environmental assessment that has been performed entirely legitimate.

IX. Conclusion

Should you need more information on our comments or wish to discuss them, please let me know.

Sincerely,



J. Brian Atkins, P.E.
Division Director
Alabama Office of Water Resources

cc: Governor Robert Bentley
Senator Richard Shelby
Senator Jeff Sessions

Enclosures

Exhibit 1

The following is an analysis of the corrected expected yield associated with the water supply storage allocations for Cartersville and Cobb County-Marietta Water Authority.

Facts:

1. Table ES-2 from page ES-6 of the draft EIS states that the total conservation storage of Lake Allatoona is 284,580 acre-feet. (See figure 1 below)
2. The Water Supply Reallocation Report for Lake Allatoona prepared by the Corps of Engineers in 1998 states that the expected yield of the previous contracts at Lake Allatoona was set based on a yield of 1159 cfs. This is from a 1950's yield calculation for Lake Allatoona. (See figure 2 below)
3. The 2010 Critical Yield Analysis performed by the Corps of Engineers establishes that the current critical yield (based on the 2007 drought) for Allatoona is 729 cfs. (See figure 3 below)
4. 1 mgd = 1.547 cfs
5. The Cartersville storage allocation is 6,371 acre-feet. Based upon an outdated critical-yield calculation for the project, that amount of storage was expected to yield 16.76 mgd (see figure 4 below).
6. The Cobb County-Marietta Water Authority storage allocation is 13,140 acre-feet. Based upon an outdated critical-yield calculation, that amount of storage was expected to yield 34.5 mgd (see figure 4 below).

Outdated expected yield used in the models:

1. The 79.3 cfs expected yield value was based on outdated expected yield calculations derived using an old Allatoona critical yield of 1,159 cfs (see figure 2)
2. The 79.3 cfs value was calculated as follows:
 - a. $(CCMWA \text{ Outdated Expected Yield (mgd)} + \text{Cartersville Outdated Expected Yield (mgd)}) \times \frac{1.547 \text{ cfs}}{1 \text{ mgd}}$
 - b. $(34.5 \text{ mgd} + 16.76 \text{ mgd}) \times \frac{1.547 \text{ cfs}}{1 \text{ mgd}} = 79.3 \text{ cfs}$

Corrected expected Yield Calculation Methodology:

1. To determine the expected yield of a specific storage amount from a reservoir, one simply multiplies the percentage of total storage and the critical yield associated with the entire storage.
2. The formula to calculate the expected yield is:
 - a. $\frac{\text{Allocated Storage (acre-feet)}}{\text{Total Conservation Storage (acre-feet)}} = \% \text{ of Conservation Storage}$
 - b. $\% \text{ of Conservation Storage} \times \text{Critical Yield (cfs)} = \text{Expected Yield (cfs)}$
 - c. $\text{Expected Yield (cfs)} \times \frac{1 \text{ mgd}}{1.547 \text{ cfs}} = \text{Expected Yield (mgd)}$

Calculations for updated expected yield (based on the 2007 critical yield of 729 cfs):

1. Using the above formula for Cartersville:

$$\text{a. } \frac{\text{Allocated Storage (acre-feet)}}{\text{Total Conservation Storage (acre-feet)}} = \% \text{ of Conservation Storage}$$
$$\frac{6,371 \text{ (acre - feet)}}{284,580 \text{ (acre - feet)}} = 2.24\%$$

$$\text{b. } \% \text{ of Conservation Storage} \times \text{Critical Yield (cfs)} = \text{Expected Yield (cfs)}$$
$$2.24\% \times 729 \text{ (cfs)} = 16.3 \text{ (cfs)}$$

$$\text{c. } \text{Expected Yield (cfs)} \times \frac{1 \text{ mgd}}{1.547 \text{ cfs}} = \text{Expected Yield (mgd)}$$
$$16.3 \text{ (cfs)} \times \frac{1 \text{ mgd}}{1.547 \text{ cfs}} = 10.5 \text{ (mgd)}$$

2. Using the above formula for Cobb County-Marietta Water Authority:

$$\text{a. } \frac{\text{Allocated Storage (acre-feet)}}{\text{Total Conservation Storage (acre-feet)}} = \% \text{ of Conservation Storage}$$
$$\frac{13,140 \text{ (acre - feet)}}{284,580 \text{ (acre - feet)}} = 4.62\%$$

$$\text{b. } \% \text{ of Conservation Storage} \times \text{Critical Yield (cfs)} = \text{Expected Yield (cfs)}$$
$$4.62\% \times 729 \text{ (cfs)} = 33.7 \text{ (cfs)}$$

$$\text{c. } \text{Expected Yield (cfs)} \times \frac{1 \text{ mgd}}{1.547 \text{ cfs}} = \text{Expected Yield (mgd)}$$
$$33.7 \text{ (cfs)} \times \frac{1 \text{ mgd}}{1.547 \text{ cfs}} = 21.8 \text{ (mgd)}$$

3. Combined Cartersville and CCMWA Expected Yield based on updated critical yield:

$$\text{a. } \text{Combined Expected Yield (cfs)} = \text{Cartersville Expected Yield (cfs)} + \text{CCMWA Expected Yield (cfs)}$$

$$\text{Combined Expected Yield (cfs)} = 16.3 \text{ (cfs)} + 33.7 \text{ (cfs)} = 50.0 \text{ cfs}$$

$$\text{b. } \text{Combined Expected Yield (mgd)} = \text{Cartersville Expected Yield (mgd)} + \text{CCMWA Expected Yield (mgd)}$$

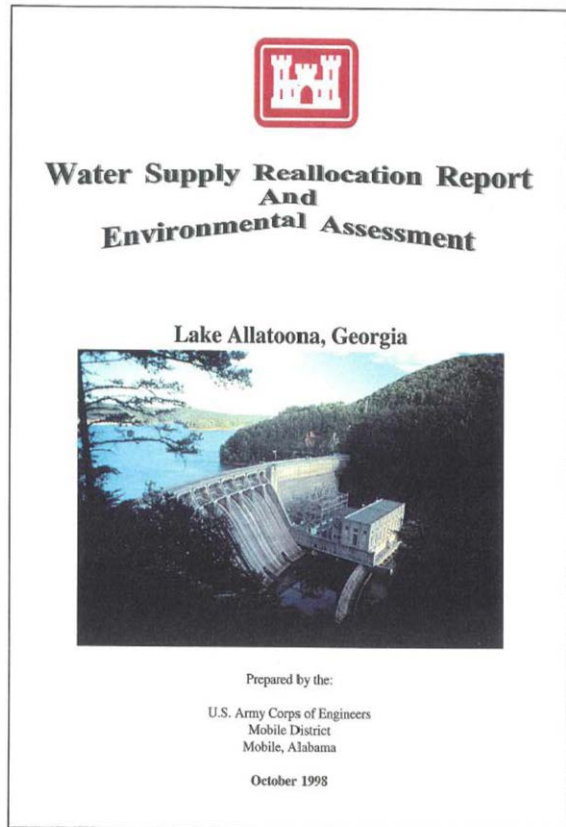
$$\text{Combined Expected Yield (mgd)} = 10.5 \text{ (mgd)} + 21.8 \text{ (mgd)} = 32.3 \text{ mgd}$$

**Table ES-2.
Major projects on the mainstem rivers in the ACT Basin**

Basin/river/ project name	Owner/state/ year initially completed	Drainage area (sq mi) ^f	Reservoir size at normal pool (acre [ac]) ^g	Total storage at normal pool (ac-ft)	Conservation storage ^h (ac-ft)	Power capacity (megawatt [MW]) ⁱ	Normal (summer) lake elev (ft) ^j	Authorized purposes for Corps-owned projects ^k
Coosawattee River		875						
Carters Lake	Corps/GA/1974	374	3,275	383,565	141,402	600	1,074	FRM, HP, REC, NAV, WS, WQ, FW
Carters Reregulation Dam	Corps/GA/1974	521	884	19,300	NA	None	896	
Etowah River		1,860						
Allatoona Lake	Corps/GA/1949	1,122	11,862	367,471	284,580 ^l	82.2	840	FRM, HP, NAV, REC, WQ, WS, FW
Coosa River		10,270						
Weiss Lake	APC/AL/1961	5,273	30,200	306,651 ^d	237,448	87.75 ^e	564	
H. Neely Henry Lake	APC/AL/1966	6,600	11,200	121,860 ^d	43,205	72.9 ^e	508	
Logan Martin Lake	APC/AL/1964	7,700	15,263	273,500 ^d	108,262	135 ^e	465	
Lay Lake	APC/AL/1914	9,087	12,000	262,306 ^d	77,478	177 ^e	396	
Mitchell Lake	APC/AL/1923	9,830	5,850	170,422 ^d	28,048	170 ^e	312	
Jordan Dam and Lake	APC/AL/1929	10,165	6,800	235,780 ^d	15,969	100 ^e	252	
Bouldin Dam	APC/AL/1967	10,165	6,800	235,780 ^d	NA	225 ^e	252	
Tallapoosa River		4,660						
R.L. Harris Lake	APC/AL/1982	1,453	10,660	425,503	191,129	132	793	
Lake Martin	APC/AL/1927	3,000	40,000	1,623,000	1,183,356	182	491	
Yates Lake	APC/AL/1928	3,250	1,980	53,770	5,976	47	344	
Thurlow Lake	APC/AL/1930	3,325	585	18,461	NA	81	288	
Alabama River		22,800						
Robert F. Henry Lock and Dam and R.E. "Bob" Woodruff Lake	Corps/AL/1972	16,233	12,510	247,210	36,450	82	125	NAV, REC, HP
Millers Ferry Lock and Dam and William "Bill" Dannelly Lake	Corps/AL/1969	20,637	18,528	346,254	46,704	90	80.8	NAV, REC, HP
Claiborne Lock and Dam and Lake	Corps/AL/1969	21,473	6,290	102,408	NA	None	36	NAV, REC, WQ

a. As used in this table, the term *authorized purposes* includes purposes expressly identified in the project authorizing documents; incidental benefits recognized in project authorizations; and objectives that result from other authorities, such as general authorities contained in congressional legislation, for which the Corps operates each listed project as of 2009. FRM = flood risk management; HP = hydropower; NAV = navigation; REC = recreation; WQ = water quality; WS = water supply; FW = fish and wildlife conservation.

Figure 1 – Table ES-2 from Page ES-6 of the Draft EIS (Volume 1) Executive Summary



Storage-Yield Determination

There have been several estimates of the yield of Allatoona Reservoir. The earliest firm yield estimate from the Definite Project Report, dated December 1941, was 1220 cfs. A later estimate based upon a project conservation pool elevation of 835 feet to 800 feet was that the firm flow was 1060 cfs. Both these estimates of yield or firm flow were most probably derived from the historic critical period that existed in the hydrologic record at the time of the analysis. A historic flow sequence begins in 1897, so analyses performed prior to project construction were based upon about 40 years of data.

Since economic and population growth in the vicinity of the project is expected to produce significant new demand for water supply, the yield of the project was recomputed. A period of record from 1897 to 1987 was analyzed to determine the yield available during dry periods of the record. The four most severe droughts with yields that could be sustained are shown in Table II-1.

II-2

**TABLE II-1
RESERVOIR YIELD**

YIELD	
Year	cfs
1942	1,186
1956	1,156
1981	1,103
1986	748

A flow-volume frequency analysis was performed to determine the 50-year (two percent chance of occurrence) inflow volume which, when combined with the water in storage, would provide the critical yield. The result of this analysis was that the 50-year drought was found to be 1104 cfs in the case of a drought beginning with the pool at summer level. The previous contracts at Lake Allatoona have used the critical yield of 1159 cfs. This yield is very close to that determined to be the 50-year drought yield that, for consistency, it was decided to develop the proposed reallocations based upon the yield of 1159 cfs.

Figure 2 – Screenshots from the 1998 Corps of Engineers Lake Allatoona Water Supply Reallocation Report



US Army Corps
of Engineers
Mobile District

FEDERAL STORAGE RESERVOIR CRITICAL YIELD ANALYSES

ALABAMA-COOSA-TALLAPOOSA (ACT) AND
APALACHICOLA-CHATTAHOOCHEE-FLINT (A
RIVER BASINS



February 2010

Table 5. Method A, ACT Project Critical Yield (Without Diversions)

Project	Critical Yield (cfs)	Critical Drought
Allatoona Dam	729	2007
Carters Dam	390	2007

The ACT River System diversions are municipal, industrial and agricultural withdrawals and returns from the Coosawattee River and its tributaries upstream of Carters Lake and from the Etowah River and its tributaries upstream of Allatoona Lake. Maximum diversions occurred in 2006 and are reflected in the critical yield calculation for each drought period.

Figure 3 – Screenshots from the 2010 Corps of Engineers Critical Yield Analysis Report

18 **7-09. Water Supply.** The Water Supply Act of 1958 authorizes the Corps to allocate water
 19 supply storage contracts from Allatoona for water supply. There are two entities that withdraw
 20 water from Allatoona Lake; the city of Cartersville under contracts DACW01-67-RE-002 (dated
 21 12 July 1966) and DACW01-9-91-120 (dated 18 October 1991) and the Cobb County-Marietta
 22 Water Authority (CCMWA) under contract DA-01-076-CIVENG-64-116 (dated 10 October
 23 1963). Below are the state permitted withdrawals and contracted amounts.

24	Entity	State Permit	Contract Amount/Expected Yield
25	Cartersville	18 mgd	6,371 acre-feet/16.76 mgd
26	CCMWA	78 mgd	13,140 acre-feet/34.5 mgd

27 **7-10. Hydroelectric Power.** The Allatoona Project is operated as a peaking plant for
 28 producing hydroelectric power, and, during off-peak periods, maintains a continuous flow of 240
 29 cfs. The starting and stopping of hydropower turbines at Allatoona Dam is controlled remotely
 30 from the Carters Powerhouse. The Allatoona Project is manned with minimum personnel
 31 needed for maintenance and emergency operations. Provisions are made to operate the
 32 project on site should control or communications equipment be inoperative.

33 a. Reservoir releases required for conservation, or flood risk management operations in
 34 sections 7-03 through 7-09 will normally be used to produce hydropower. Such production is
 35 scheduled during peak energy demand hours throughout the week. Additional hydropower can
 36 be supplied according to the reservoir's zone. Table 7-2 describes the minimum number of
 37 hours for hydropower production. If releases for other purposes do not equal the minimum
 38 number of hours, additional releases can be scheduled. Historical hydropower production is
 39 shown in Plates 2-12 and 2-13. Actual monthly and annual production is tabulated. The
 40 average annual production from 1961 through 2010 is approximately 157,000 megawatt hours
 41 (MWH).

42 b. The powerhouse at Allatoona Dam is operated to furnish peak energy. The energy is
 43 marketed to the government's preference customers under terms of contracts negotiated and
 44 administered by the Southeastern Power Administration (SEPA). The generation (and water
 45 release) is based on a declaration of energy and capacity available that is prepared weekly by
 46 the Mobile District on the basis of the *ACT Water Control Plan*. The declarations, which are

Figure 4 - Excerpt from page 7-11 of the Draft EIS (Volume 2) Appendix A of the Draft Water Control Manual