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U.S. ARMY CORPS OF ENGINEERS
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Office of the Chief Counsel 25 June 2012

MEMORANDUM FOR THE CHIEF OF ENGINEERS

SUBJECT: Authority to Provide for Municipal and Industrial Water Supply from the Buford Dam/Lake Lanier Project, Georgia

ISSUE PRESENTED

Does the U.S. Army Corps of Engineers (Corps) have authority to operate the Lake Lanier/Buford Dam project ("Buford Project") to accommodate net withdrawals of 190 million gallons per day (mgd) annually from Lake Lanier, and to ensure flows of at least 1381 cubic feet per second (cfs) downstream at Atlanta, by the year 2030 as Georgia has requested?[1]

INTRODUCTION AND ANSWER

In 2000, the Governor of Georgia asked the Assistant Secretary of the Army (Civil Works) to adjust operations at the Buford Project to accommodate, by 2030, net, annual average withdrawals of 190 mgd from Lake Lanier (including gross withdrawals of 297 mgd and returns of 107 mgd to Lake Lanier) for water supply, and to provide flows of at least 1381 cfs at Atlanta, which would enable water supply providers (municipalities and public water authorities) to withdraw 408 mgd at Atlanta while leaving sufficient flows for water quality below the Atlanta intake points. The Acting Assistant Secretary denied that request in 2002 on the grounds that the Corps lacked the authority to make the proposed changes, based on my legal conclusions that water supply was intended as an incidental benefit, but not an expressly authorized purpose, of the Buford Project, and that reallocating storage sufficient to yield the requested withdrawal amounts would involve major operational change and serious effects upon authorized purposes, in violation of the Water Supply Act. In June 2011, the United States Court of Appeals for the Eleventh Circuit set aside the Army's decision to deny Georgia's request and ordered a remand to the Corps to reconsider whether it has the legal authority to operate the Buford Project to accommodate Georgia's request, in light of the legal authority conferred by Congress in the Rivers and Harbors Act of 1946 ("1946 RHA"), Public Law No. 84-841 (July 30, 1956) ("1956 Act"), and the Water Supply Act of 1958.[2] The court of appeals also directed the Corps to consider a number of other issues related to the legal authority to accommodate Georgia's

[1] Throughout this memorandum, the terms "millions of gallons per day" (mgd), "cubic feet per second" (cfs), and "acre-feet" are used to describe flows or volumes of water. As rates of withdrawal, 1 mgd is equivalent to 1.547 cfs, and 1121 acre-feet per year. As a volume of water, 1 acre-foot is equivalent to 325,851 gallons or 43,450 cubic feet. See U.S GEOLOGICAL SURVEY, CIRCULAR 1344, ESTIMATED USE OF WATER IN THE UNITED STATES IN 2005 at iv (2005), *available at* http://pubs.usgs.gov/circ/1344/pdf/c1344.pdf (last visited May 18, 2012).

[2] The statutes discussed in this memorandum authorize actions by the Secretary of the Army. For the sake of simplicity, these statutes are referred to throughout this memorandum as authorizing actions by the Corps, which undertakes civil works activities under the general supervision of the Assistant Secretary of the Army (Civil Works). See 10 U.S.C. § 3016.

request, including how to measure the impacts of Georgia's projected withdrawals and return flows on authorized purposes, and whether compensation to hydropower users is appropriate. For the reasons set forth below, I conclude that the Corps has the legal authority to exercise its discretion, should it ultimately choose to do so, to adjust operations to accommodate the full amount of water supply withdrawals and return flows that Georgia has requested by 2030, assuming those withdrawals and returns occur as projected.[3] Any decision to exercise that discretion would occur at a later time, and separately from the issuance of this legal opinion.[4]

A. Congressional Intent for the Buford Project

In the 1946 Rivers and Harbors Act, Congress adopted and authorized the works of improvement for the ACF basin that were proposed in reports of the Chief of Engineers and the South Atlantic Division Engineer, Brigadier General Newman (the Newman Report), in order to provide system-wide benefits for multiple purposes including flood control, hydropower, navigation, water supply, fish and wildlife conservation, and recreation. The ACF plan of development presented in those reports included a proposal for a dam and reservoir at the upstream Buford site, which was to contain a considerable amount of storage in order to increase the regulated flows throughout the ACF system. This multipurpose storage, or "conservation storage," comprising approximately 1,000,000 acre-feet between elevations 1065 and 1025 feet above mean sea level, was necessary for integrated and economical system operations for all purposes other than flood control.[5] An additional 15 feet of storage, approximately 600,000 acre-feet between elevations 1080 and 1065, was reserved above the conservation storage pool in the Buford reservoir for systemwide flood control, freeing up storage in the downstream projects for other purposes. The extent of the Corps' authority to accommodate water supply under the 1946 RHA and the 1956 Act, and the extent of the Corps' authority to modify the Buford Project under the supplemental Water Supply Act, must be considered in light of these fundamental Congressional expectations that the Buford Project would be operated as an integral part of the

[3] In 2002 and 2009, I reached different conclusions regarding the extent of the Corps' authority for water supply associated with the Buford Project, considering different facts and addressing different questions. See Earl H. Stockdale, Deputy General Counsel of the Army for Civil Works and Environment to the Acting Assistant Secretary of the Army for Civil Works and Environment, Subject: Georgia Request for Water Supply from Lake Lanier (Apr. 15, 2002) [hereinafter "2002 Memorandum"]; Earl H. Stockdale, Chief Counsel to the Chief of Engineers, Subject: Authority to Reallocate Storage for Municipal & Industrial Water Supply under the Water Supply Act of 1958 (Jan. 9, 2009) [hereinafter "2009 Memorandum"]. To the extent any statements or conclusions in my 2002 and 2009 opinions conflict with today's memorandum, today's memorandum is controlling.

[4] The conclusion that the Corps has the legal authority to operate the Buford Project to accommodate Georgia's request does not lead to the conclusion that the Corps must, should, or will exercise its discretion to operate the project in that manner. Moreover, in evaluating its authority to entertain Georgia's request, the Corps makes no representations as to the validity of the needs expressed in that request. Prior to making any final decision to reallocate storage for water supply, to implement a new operational scheme, or to implement updated water control manuals reflecting such decisions, the Corps must further evaluate the environmental effects of the proposed action and reasonable alternatives, pursuant to the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 to 4370f, with appropriate public participation. Nothing in this memorandum reflects a final decision by the Corps to exercise some or all of its discretionary authority with regard to water supply at the Buford Project.

[5] The present capacity of conservation storage in Lake Lanier varies seasonally from 1,087,600 acre-feet (between elevations 1071 to 1035) in summer to 1,049,400 acre-feet (between elevations 1070 to 1035) in winter. Flood control storage likewise ranges from 598,800 acre-feet (between elevations 1085 and 1071) in summer to 637,000 acre-feet (between elevations 1085 and 1070) in winter. See *infra* note 43.

ACF system, and that the full storage of the Buford Reservoir could be utilized to achieve the systemwide purposes that Congress authorized in approving the ACF plan of development.[6]

B. Authority to Accommodate Georgia's Requested Downstream Withdrawals

More specifically, in approving the ACF plan of development in the 1946 RHA, Congress expected the Corps to exercise technical discretion to balance the hydropower and water supply purposes in its operation of Buford Dam, trading off some systemwide hydropower benefits in order to make increased releases beyond an initial level of 600 cfs from Buford Dam to ensure an adequate water supply for the Atlanta region as the city grew. Congress did not specify what releases beyond 600 cfs should be made to accommodate downstream water supply, leaving such technical and engineering questions to the Corps' discretion, but the Division Engineer's report that Congress adopted in the 1946 RHA predicted that increased releases from Buford Dam for downstream water supply would cause only slight decreases to system hydropower value. Hydrologic modeling and economic analysis by the Corps' Mobile District and Hydropower Analysis Center confirm that the Corps could make releases from the Buford Project to meet Georgia's requested downstream water supply needs while continuing to achieve the authorized purposes of navigation, flood control, recreation, and fish and wildlife conservation systemwide, and that the effect on systemwide hydropower benefits would be minor.[7] If the Corps were to operate to assure flows of not less than 1381 cfs at Atlanta, as Georgia has requested, the annual average energy value, dependable capacity, and total hydropower generation of the ACF system would be reduced by less than 1 percent, compared to an operations set in which off-peak releases from Buford for water supply would be limited to 600 cfs to conserve storage for hydropower.[8] These operations would draw the elevation of Lake

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[6] In this memorandum and in the technical modeling that supported it, no structural changes, e.g., physical modifications, to the Buford Project or the remainder of the federal improvements in the ACF system were contemplated, because no such changes have been requested or proposed. Accordingly, the Corps has considered whether it could accommodate Georgia's request under the applicable legal authorities, given the existing federal improvements and present conditions in the system.

[7] The Corps produced two technical reports in support of this analysis, available at http://www.sam.usace.army.mil. The Mobile District used the ResSim hydrologic modeling tool to analyze a range of operations throughout the ACF system to determine its ability to accommodate Georgia's request, with alternatives to compare different outputs. This modeling was documented in the U.S. Army Corps of Engineers, Mobile District, Apalachicola-Chattahoochee-Flint (ACF) Remand Modeling Technical Report (June 2012) [hereinafter "ACF Remand Modeling Technical Report"]. Based on the ResSim model outputs generated in the ACF Remand Modeling Technical Report, the Corps' Hydropower Analysis Center conducted a comparative analysis of both federal and non-federal hydropower benefits from the ACF system under different water supply demands, return rate assumptions, and operating strategies, reflecting Georgia's request and the alternatives modeled in the aforementioned report. See U.S. Army Corps of Engineers, Hydropower Analysis Center and Mobile District, Apalachicola-Chattahoochee-Flint (ACF) Remand Hydropower Study (April 2012) [hereinafter "ACF Remand Hydropower Study"]. The ResSim modeling and the Technical Report were subjected to technical review in accordance with Corps policy. The Corps' Hydrologic Engineering Center (HEC) Center of Expertise performed quality control and quality assurance (QC/QA) for the hydrologic modeling. The Corps' Southwestern Division Planning Center of Expertise for Water Management and Reallocation Studies (WMRS) performed Agency Technical Review (ATR) to ensure the quality and credibility of the scientific information in the Remand Modeling Technical Report.

[8] See ACF Remand Hydropower Study, *supra* note 7, at 22-2, D-1, showing systemwide reduction in average annual energy value of 0.73%, from $150,169,000 to $149,079,000, systemwide reduction in average annual dependable capacity of 0.50%, from 749.26 megawatts (MW) to 745.53 MW, and systemwide reduction in total average annual generation of 0.60%, from 2,166,000 megawatt-hours (MWh) to 2,153,000 MWh, under alternative "IMPGA2030B," as compared to alternative "IMP_Power." Under both of these alternatives, water supply withdrawals from Lake Lanier would be limited to 20 mgd. The hydropower measures reflect the hydropower

Lanier to just above elevation 1051 during the most severe drought of record, before the reservoir would begin to refill, but this would be well above the minimum pool elevation of 1035; such drawdown was expressly contemplated in the Newman Report, and would be feasible from a technical standpoint.[9] These operations would be consistent with Congressional expectations as stated in the approved report for the ACF system, and are fully authorized under the 1946 RHA.

C. Authority to Accommodate Georgia's Requested Withdrawals from Lake Lanier

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), under relocation agreements deemed necessary for the construction of the reservoir in the early 1950s, and under the supplemental authorities of the 1956 Act and the Water Supply Act. The relocation agreements and the 1956 Act, in which Congress specifically modified the Buford Project to authorize withdrawals of 10 mgd from Lake Lanier, provide for a total of 20 mgd in direct reservoir withdrawals. The Water Supply Act authorizes the use of storage in Lake Lanier to accommodate the remaining withdrawals of 277 mgd, with returns of 107 mgd to Lake Lanier, because that use of storage would not exceed the Water Supply Act's limitations on modifications that would involve "major operational change" or would "seriously affect" authorized project purposes, which the Corps has interpreted to mean changes and effects that fundamentally depart from Congressional expectations for a project. The net withdrawals that Georgia has requested by 2030 would leave sufficient storage capacity in Lake Lanier to continue to operate the ACF projects together as a system to achieve the system purposes in keeping with Congressional expectations, including maintaining hydropower peaking operations and flood damage reduction, supporting greater seasonal navigation on the Apalachicola River, providing opportunities for recreation and fish and wildlife conservation, and safeguarding Atlanta's downstream water supply needs. During the most severe drought of record, accommodating Georgia's 2030 request would mean drawing the level of Lake Lanier to elevation 1040, which is 5 feet above the minimum elevation of 1035 required for efficient operations, and this would be less than the full drawdown Congress approved by adopting the Newman Report.[10] With respect to hydropower specifically, the average annual value of energy generated throughout the ACF system and the dependable capacity of the system would decrease by just 4.44% and 0.84%, respectively, compared to similar operations absent the requested reservoir withdrawals,[11] and the hydropower benefits of the Buford Project and the ACF system

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generation of the entire ACF system of projects, federal as well as non-federal, which is consistent with the methodology of the report of Brigadier General James B. Newman, Jr., that Congress adopted when it authorized the ACF plan of improvement. See discussion *infra*, note 18 and accompanying text, and parts II.A.1, II.A.2.

[9] By utilizing all available conservation storage in Lake Lanier during the most severe drought of record, drawing the pool down to its minimum elevation of 1035 before it would begin to refill, the Corps could assure minimum flows of up to 1810 cfs at Atlanta. See discussion *infra* note 172 and part III.B.3.

[10] *Id*.

[11] See ACF Remand Hydropower Study, *supra* note 7, at 22 & Tab. 8, 25 & Tab. 9, showing systemwide reduction in average annual energy value of 4.44%, from $149,079,000 to $142,463,000, and systemwide reduction in average annual dependable capacity of 0.84%, from 745.53 MW to 739.28 MW, under alternative "IMPGA2030R," as compared to "IMPGA2030B." The key difference between these operation sets is in reservoir withdrawals (20 vs. 190 mgd net withdrawals), as downstream water supply releases (to accommodate downstream withdrawals of 408 mgd) are the same under each alternative. *Id*. at 9.

would still greatly exceed Congressional expectations when the project was authorized in the 1946 RHA. These potential reductions in hydropower benefits by 2030 would not, in my legal opinion, seriously affect authorized project purposes, nor would they rise to the level of a major operational change that fundamentally departs from Congressional expectations in 1946.

D. Summary of Conclusions

In summary, this memorandum sets forth the Corps' view that it has the legal authority under the 1946 RHA to release water from Buford Dam sufficient to accommodate Georgia's requested downstream withdrawals of 408 mgd; that withdrawals of 20 mgd from Lake Lanier are authorized under relocation agreements and the 1956 Act; and that the Corps has discretion under the Water Supply Act to accommodate additional, net withdrawals of 170 mgd from Lake Lanier (including withdrawals of 277 mgd and returns of 107 mgd to the reservoir), because accommodating those withdrawals and returns would not fundamentally depart from Congressional intent for the Buford Project and the ACF system. The Corps could accommodate the downstream withdrawals without reallocating or charging for storage in Lake Lanier, because Congress expected that the downstream water supply needs of the Atlanta region would be accommodated by the use of the existing, multipurpose storage pool authorized under the 1946 RHA, and did not expect or provide for repayment of storage costs associated with the downstream water supply purpose. Withdrawals from Lake Lanier, beyond the 10 mgd already authorized under relocation agreements, would require contracts with the State of Georgia or other entities for storage pursuant to the 1956 Act and the Water Supply Act. Any operational decisions to accommodate Georgia's request, and any determinations of how much storage to reallocate for the additional Lake Lanier withdrawals, are questions outside the purview of this legal opinion. However, because operations to accommodate Georgia's projected water supply withdrawals and return flows to Lake Lanier would not significantly depart from Congressional intent for the ACF system, the Corps has the legal authority under the relevant statutes to accommodate Georgia's request.

The conclusions in this opinion have been coordinated with and concurred in by the Deputy General Counsel of the Army (Installations, Environment & Civil Works). For ease of reference, a table of contents is included on the following page.

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2. Earlier distinctions between water supply as an "incidental benefit" rather than an "authorized purpose" of the Buford Project were misplaced. 45

3. Water supply withdrawals from Lake Lanier would require a storage agreement, but downstream withdrawals accommodated under the 1946 RHA do not. 46

4. Impacts from actual or proposed operations, rather than amounts or percentages of storage reallocated, are the appropriate measure for determining the extent of the Corps' authority under the Water Supply Act. 46

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II. BACKGROUND

A. Authorization, Construction, and Operation of the ACF System

Federal improvements for water resources development in the ACF basin date as far back as 1874, when Congress authorized works to straighten, widen, and clear channels in the Apalachicola, Chattahoochee, and Flint Rivers for navigation.[12] In 1925, Congress authorized a preliminary examination and survey of an "inland waterway" to include the Apalachicola and Chattahoochee Rivers "suitable to the economical operation of self-propelled barges."[13] This led ultimately to a 1939 Report of the Chief of Engineers ("Chief's Report") that presented a "general plan . . . for the full development of the [ACF] system in the combined interest of navigation and power," which would directly benefit multiple purposes, including municipal and industrial water supply.[14] Congress approved and incorporated the 1939 Chief's Report in the Rivers and Harbors Act of 1945, authorizing the ultimate construction of twelve improvements: six multipurpose "storage-power dams" on the Chattahoochee and Flint Rivers, five "navigation-power dams" on the Chattahoochee River, and one navigation-only lock and dam on the Apalachicola River, below the junction of the Chattahoochee and Flint Rivers.[15]

1. Newman Report for the Development of the Apalachicola, Chattahoochee, and Flint River (ACF) System

In a report dated March 20, 1946 ("Newman Report"), the South Atlantic Division Engineer, Brigadier General James B. Newman, Jr., recommended a number of modifications to the plan authorized in the previous year, reducing the number of separate locks and dams and reservoirs from twelve to four: one "navigation-power" and two "storage-power" facilities with a combined hydropower capacity of 144,700 kilowatts (kW), and one lock and dam project without storage or hydropower.[16] Although the remaining four improvements would have a larger scale and "would cost considerably more" than the previously authorized improvements, General Newman estimated that the modified plan "would produce a much greater proportional increase in benefits," calculated in terms of millions of dollars worth of value annually from hydropower generation, flood control, and navigation.[17] The Newman Report anticipated that the federal hydropower installations would be operated "as units of an integrated power system" with the existing, non-federal projects in the ACF basin, adding 97,800 kW of dependable

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[12] See H.R. DOC. NO. 76-342, at 25-26 (June 16, 1939), Report of the District Engineer, Colonel R. Park ¶¶ 65, 67, 73 (Dec. 6, 1938) [hereinafter "Park Report"].

[13] River and Harbor Act of 1925, Pub. L. No. 68-585, 43 Stat. 1186, 1194; Park Report, *supra* note 12, ¶¶ 78-79.

[14] *Tri-State Water Rights Litigation*, 644 F.3d 1160, 1167 (11th Cir. 2011); H.R. DOC. NO. 76-342, at 1 (June 16, 1939), Letter, Chief of Engineers to Chairman, Committee on Rivers and Harbors (April 20, 1939); Park Report, *supra* note 12, ¶¶ 242-260 (noting that "the storage capacity of a large reservoir [upstream of Atlanta] might be of benefit for an assured continuous water supply").

[15] Park Report, *supra* note 12, ¶ 171, Tabs. 1-4; H.R. DOC. NO. 80-300, at 21-22 (June 6, 1947), Report of the South Atlantic Division Engineer, Mar. 20, 1946, ¶ 47 [hereinafter "Newman Report"]. Cf. *Tri-State Water Rights Litigation*, 644 F.3d at 1167 (citing the Park Report, ¶ 196, and stating that the District Engineer's report "analyzed eleven [sic] projects at various stages of development in the ACF basin"). Although the Rivers and Harbors Act of 1945 authorized the ultimate development of the "full plan" with its twelve improvements, the Chief of Engineers in 1939 had proposed the initial development of just two locks and dams, supplemented by dredging and channel maintenance. H.R. DOC. NO. 76-342, at 1.

[16] Newman Report, *supra* note 15, ¶¶ 47, 53.

[17] *Id*., ¶¶ 98-99 & Tab. 10; H.R. DOC. NO. 80-300, at 1, 6 (June 6, 1947), Report of the Chief of Engineers, May 13, 1946, ¶ 13 [hereinafter "Chief's Report"]; *Tri-State Water Rights Litigation*, 644 F.3d at 1167-68.

capacity to the system and contributing system power benefits estimated at $3,377,000 annually.[18] Under the terms of Section 5 of the Flood Control Act of 1944, electricity generated at the Corps projects, "and in the opinion of the Secretary of the Army not required in the operation of such projects," was to be delivered to the regional federal power marketing agency for distribution,[19] and this energy was expected to "be used to supply the growing demand in the region designated by the Federal Power Commission . . . consist[ing] mainly of the States of Alabama, Georgia, and Florida."[20] The system of projects was also expected to provide a navigation channel 9 feet deep upstream to Columbus, Georgia, valued at $983,000 annually, and to afford an estimated $100,000 in annual flood control value, largely due to 15 feet of dedicated flood control storage at the Buford Project.[21] Finally, the Newman Report identified a number of other benefits that would be afforded by the federal improvements, including a reliable domestic and industrial water supply for the Atlanta region downstream of Buford Dam, opportunities for recreation,[22] and fish and wildlife conservation, but did not quantify those benefits.[23] The Newman Report did not propose any allocation of storage—apart from the ordinarily empty flood control storage—among the various authorized purposes.[24]

Congress approved this plan, as set forth in the Chief's Report and the Newman Report, and authorized it for construction by enacting section 1 of the Rivers and Harbors Act of 1946:

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[18] Chief's Report, *supra* note 17, ¶ 13; Newman Report, *supra* note 15, ¶¶ 75, 98 & Tabs. 7, 10.

[19] Flood Control Act of 1944, § 5, Pub. L. No. 78-534, 58 Stat. 890 (codified at 16 U.S.C. § 825s).

[20] Newman Report, *supra* note 15, ¶ 77.

[21] Chief's Report, *supra* note 17, ¶ 13; Newman Report, *supra* note 15, ¶¶ 81-84, 95. 99.

[22] The Newman Report, *supra* note 15, ¶ 96, observed that with more than 500 miles of shoreline, the reservoir at the Buford site "would present many attractive sites for recreational facilities." This assessment of recreational benefits was consistent with the recently-enacted Flood Control Act of 1944, in which Congress authorized the Corps "to construct, maintain, and operate," or to permit local interests to construct, maintain and operate, "public park and recreational facilities at water resource development projects under the control of the Department of the Army," and provided that "[t]he water areas of all such projects shall be open to public use generally for boating, swimming, bathing, fishing, and other recreational purposes," with "ready access to and exit from such areas along the shores of such projects. . . when such use is determined by the Secretary of the Army not to be contrary to the public interest." Flood Control Act of 1944, § 4, Pub. L. No. 78-534, 58 Stat. 889 (codified at 16 U.S.C. § 460d). See also U.S. Army Corps of Engineers, Mobile District, Cost Allocation Studies, Apalachicola, Chattahoochee and Flint Rivers Project: Basis of All Allocations of Costs for Buford and Jim Woodruff Projects Adopted by the Chief of Engineers (27 October 1960) at 4 [hereinafter "1960 Cost Allocation Study"] (noting that "[p]ursuant to this authority certain [recreational] facilities are to be provided and maintained at Buford, Walter F. George, Columbia, and Jim Woodruff projects.").

[23] Newman Report, *supra* note 15, ¶¶ 96, 100. A document submitted to Congress after enactment of the Rivers and Harbors Act of 1946 and published in House Document 80-300 indicated that improved "sanitation," i.e., water quality, at Atlanta was another notable benefit afforded by the Buford Project. See H.R. DOC. NO. 80-300, at viii, xii (June 6, 1947), Letter, Chief of Engineers to Chairman, Federal Power Commission (Feb. 6, 1947) ("The requirements of water supply *and sanitation* at Atlanta over week ends, and a greater degree of flexibility in plant operation, can best be secured by the installation of one small and one larger unit at the time of construction of the dam.") (emphasis added). Since that time, water quality considerations have gained prominence, and the Corps currently operates the ACF system in a manner that maintains minimum flows for water quality at Atlanta (750 cfs) and below West Point Dam (670 cfs). See ACF Remand Modeling Technical Report, *supra* note 7, at 8, 30. West Point Dam was authorized separately from the other federal ACF projects, in the Flood Control Act of 1962, Pub. L. 87-874, § 203, 76 Stat. 1182 (Oct. 23, 1962).

[24] Chief's Report, *supra* note 17, ¶ 11(d); Newman Report, *supra* note 15, ¶¶ 68, 70, 100 and *passim*; *Tri-State Water Rights Litigation*, 644 F.3d at 1169, 1191.

> [T]he following works of improvement of rivers, harbors, and other waterways are hereby adopted and authorized to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans and subject to the conditions recommended by the Chief of Engineers in the respective reports hereinafter designated . . . .
>
> . . . .
>
> Apalachicola, Chattahoochee and Flint Rivers, Georgia and Florida; in accordance with the report of the Chief of Engineers, dated May 13, 1946 . . . .[25]

Because Congress "adopted" the Chief's Report, which in turn incorporated the Newman Report, both reports became part of the authorizing legislation, and the project purposes proposed in the Corps' reports became the "authorized purposes" of the ACF system.[26]

2. Anticipated Benefits from Operation of the Buford Project

The construction of a large, multipurpose storage reservoir at the Buford site was crucial to achieving the anticipated benefits for all purposes, throughout the ACF system. According to the Division Engineer, "a multiple-purpose storage reservoir at the Buford site," nearly 30 miles north of the uppermost dam proposed in the 1945 plan, "will best combine with existing downstream plants and those proposed [in the 1946 Newman Report], as well as with other plants required for complete development of the river, to create an integrated and economical system."[27] Without "considerable storage" at the Buford site "to increase the minimum regulated flow" throughout the ACF system, the anticipated benefits from this plan of development "cannot be secured," and the remaining "developments would not be economically justified."[28] The Buford reservoir was to contain 1,033,000 acre-feet of conservation storage that could be drawn down 40 feet, from an upper pool elevation of 1065 to a minimum elevation of 1025, in order to generate hydropower and provide flow regulation necessary to the economic viability of the federal hydropower facilities downstream, obviating the need for several of the previously-authorized locks and dams to foster navigation, and "reinforcing and safeguarding the water supply of the metropolitan [Atlanta] area."[29] In addition, the Newman Report included 15 feet of

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[25] Rivers and Harbors Act of 1946 § 1, Pub. L. No. 79-525, 60 Stat. 634, 635 (July 24, 1946) [hereinafter "1946 RHA"]. See also Chief's Report, *supra* note 17, ¶ ¶ 11, 16 (recommending "that the approved general plan for the Apalachicola, Chattahoochee, and Flint River system be modified to include the improvements now proposed by the division engineer, with such changes as in the discretion of the Secretary of War and the Chief of Engineers may be advisable," and that "the existing project for Apalachicola, Chattahoochee, and Flint Rivers, Ga. and Fla., be modified . . . in accordance with the plans of the division engineer and with such changes therein as in the discretion of the Secretary of War and the Chief of Engineers may be advisable"); Newman Report, *supra* note 15, ¶¶ 98, 100 & Plate 1 (listing estimated annual benefits of $3,377,000 from hydropower, $983,000 from navigation, and $100,000 from flood control, and noting that the Buford Reservoir "would ensure an adequate municipal and industrial water supply for the Atlanta area, [and] would produce large benefits in the way of recreation, fish and wildlife conservation, and similar matters").

[26] *Tri-State Water Rights Litigation*, 644 F.3d at 1168.

[27] Newman Report, *supra* note 15, ¶ 69.

[28] *Id*. ¶ 100.

[29] *Id*. ¶¶ 68, 70, 72, 100; *Tri-State Water Rights Litigation*, 644 F.3d at 1167-68, 1189. The Newman Report used varying terminology ("usable storage," "power pool") to describe that portion of the reservoir, estimated at 1,033,000 acre-feet, that was designed to store water for multiple purposes, other than flood control. See Newman Report, *supra* note 15, ¶¶ 70, 72, 95; *Tri-State Water Rights Litigation*, 644 F.3d at 1170. In the Corps' modern usage—which is employed throughout this memorandum unless otherwise indicated—this 1,033,000 multiple-

flood control storage space above the top of the multipurpose storage pool, between elevations 1085 and 1070, capable of storing 578,000 acre-feet of floodwaters to mitigate flood damages throughout the ACF basin and "reduce the amount [of storage] that may have to be provided" at downstream projects, "so that more of the total storage available at those reservoirs could be devoted to power without detriment to flood control."[30] Other than this dedicated flood control storage, which under normal conditions was to remain empty, the Newman Report did not specifically allocate the Buford Project's remaining conservation storage, which was to be used for all other purposes besides flood control.[31] Finally, General Newman noted that with more than 500 miles of shoreline, the resulting reservoir "would present many attractive sites for recreational facilities, and might benefit the development and conservation of fish and wildlife resources."[32]

In terms of hydropower benefits, the Newman Report proposed that Buford Dam should operate, in conjunction with the other improvements in the ACF system, as a "peaking plant" with an average "load factor" of 60 percent—i.e., a plant that would generate hydropower by releasing water through turbines during periods of peak energy demand, drawing down conservation storage during peaking operation.[33] With two large turbines having a combined capacity of 28,900 kW, this peaking operation was estimated to generate 126,100,000 kWh of "prime energy" annually and would contribute to the flows needed for downstream hydropower generation, navigation, water supply, and other purposes.[34] However, General Newman recognized that during weekends and off-peak periods, flows at Atlanta could diminish below the minimum necessary to meet downstream water supply needs. To ensure that these needs would be met during off-peak periods, the Newman Report stated that "varying flows up to a maximum of 600 second-feet should be released from Buford so as to insure at all times a flow at Atlanta not less than 650 second-feet."[35] It further noted that these minimum, necessary off-peak releases "could be used to operate a small generator to generate off-peak power as secondary

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purpose storage pool is called "conservation storage." The term "usable storage" now refers to the sum of the multipurpose, or "conservation," pool and the flood control pool, if any, but does not include "inactive" or "dead" storage, which maintains design integrity and accumulates sediment. The "total capacity" of a reservoir includes the combined capacities of flood storage, conservation storage, and inactive storage. See Remand Modeling Technical Report, *supra* note 7, at 3; ENGINEER MANUAL (EM) 1110-2-1420, HYDROLOGIC ENGINEERING REQUIREMENTS FOR RESERVOIRS (31 October 1997); and discussion *infra* note 43.

[30] Newman Report, *supra* note 15, ¶¶ 95, 100; *Tri-State Water Rights Litigation*, 644 F.3d at 1167-68.

[31] See *Tri-State Water Rights Litigation*, 644 F.3d at 1191.

[32] Newman Report, *supra* note 15, ¶¶ 70, 72, 96.

[33] *Id*. ¶ 77 & Tab. 7. "Load factor" is a ratio obtained by dividing kilowatt-hours over a given period of time by the product of the peak load and the number of hours in that period. A plant that is operated at peak load during the entire period would have a load factor of 100 percent. One federal project, the Junction (Jim Woodruff) Dam at the bottom of the ACF system, was contemplated with a load factor of 100 percent, because it operates essentially as a run-of-river plant, without significant storage drawdown. See *id*. and ACF Remand Modeling Technical Report, *supra* note 7, at 2, 5. Peak demand periods vary seasonally and over time, as they are a function of overall energy demand. See ACF Remand Hydropower Study, *supra* note 7, at 9-10; ACF Remand Modeling Technical Report, *supra* note 7, at 23. The load factor of the Buford Project changed as the project design evolved after authorization. See *infra* note 41 and accompanying text.

[34] Newman Report, *supra* note 15, ¶¶ 72, 77, 100 & Tab. 7. The Newman Report referred in paragraph 72 to "two units, each 16,000 kilovolt-amperes" (kva), at the Buford Dam, and listed their combined capacity in Table 7 as 28,900 kilowatts (kW). Thus, the Newman Report evidently employed a kva to kW conversion factor of 0.903 (16,000 kva x 0.903 = 14,448 kW).

[35] *Id*. ¶ 80.

energy," but it contained no other references to or descriptions of that small generator or the energy that it could produce.[36] In addition, the Newman Report expressly anticipated growth in Atlanta's water supply demand, projecting a need for flows of 800 cfs at Atlanta by 1960 (fourteen years hence), without specifying precisely how those additional flows would be provided from an operational standpoint.[37] The Newman Report acknowledged that this increase would be achieved at the expense of some hydropower value:

> This minimum release may have to be increased somewhat as the area develops. This release at Buford would not materially reduce the power returns from the plant, and would not affect the power benefits from plants downstream; the benefits to the Atlanta area from an assured water supply for the city and the Georgia Power Co.'s steam plant would outweigh any slight decrease in system power value.[38]

3. Construction of the ACF System and Buford Project

After passage of the 1946 RHA, the Corps continued to refine the design of the ACF system to better accomplish the Congressionally-authorized purposes, including changes to increase the hydropower capacity, in consultation with the Federal Power Commissioner.[39] Of

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[36] The Corps considered varying sizes for this small unit, ranging as high as a 13,000 kW unit—almost the same capacity as originally proposed for each of the two larger units in the Newman Report—before settling on a 6,000 kW unit releasing approximately 600 cfs. See U.S. Army Corps of Engineers, Mobile District, Definite Project Report on Buford Dam app. I, at 1-9 to 1-10 (Dec. 1, 1949) (discussing selection of 6,000 vs. 13,000 kW turbine) [hereinafter "Definite Project Report"]; Memorandum, C.P. Lindner, Chief, Engineering Division, South Atlantic Division to Mobile District Engineer, Subject: Power Operations at Buford Dam, ¶¶ 1, 7-9 (Apr. 17, 1953); COL Harry L. Fox, District Engineer, to Division Engineer, Subject: Power Operations at Buford Dam (Apr. 10, 1953) (recommending against expenditures to study larger 10,000 kW unit, because with 6,000 kW unit, "the average daily flow would normally be in excess of 1,000 cfs except during week-end and shut-down periods which would provide approximately 650,000,000 gallons per day [650 mgd] which is deemed sufficient to meet the requirements of Atlanta in the near future").

[37] Newman Report, *supra* note 15, ¶ 79.

[38] *Id*. ¶ 80; see also *Tri-State Water Rights Litigation*, 644 F.3d at 1187-88, 1200.

[39] The project modifications discussed in this paragraph were of the nature indicated in a 1951 Report to Congress, one of the clearest statements of the discretion that Congress delegates to the Corps when it authorizes a project:

> The Corps classes such permissible modifications in two categories:
>
> a. Those necessary for engineering or construction reasons to produce the full usefulness of the improvement envisioned by Congress, such as shifting a dam from one site to a more adequate nearby site; changes in storage capacity or allocation of a reservoir to ensure its optimum performance for all interests . . . or change from a concrete to an earth dam, or vice versa . . . .
>
> b. Moderate extensions of authorized project limits, such as levee extensions to protect developing urban areas or increasing the size of locks to meet changing requirements of navigation . . . .

U.S. ARMY, REPORT ON THE FEDERAL CIVIL WORKS PROGRAM AS ADMINISTERED BY THE CORPS OF ENGINEERS pt. I, vol. 3 at 27 (1951). Such changes were expressly contemplated in the authorizing documents for the ACF system, Congress was apprised after authorization that such changes would be made, and Congress ultimately appropriated the funds necessary to implement the changes. See Chief's Report, *supra* note 17, ¶ 16; H.R. DOC. NO. 80-300, at vii, Nelson Lee Smith, Chairman, Federal Power Commission to Lt. Gen. R.A. Wheeler, Chief of Engineers (Feb. 19, 1947) ("The Commission expects to have its staff continue to cooperate with your engineers in the further investigations of these projects during the preparation of the definite project reports and to assist in arriving at

the four improvements authorized in the 1946 legislation, only three were actually built in the proposed locations, each was modified from its original design, and their total hydropower capacity increased markedly from the plan set forth in the Newman Report. Hydropower facilities were added to the Fort Gaines (Walter F. George) dam, in lieu of the never-constructed Fort Benning project, and hydropower units were stricken from the design for the Columbia (George W. Andrews) dam.[40] The Buford design was changed from a concrete dam with 28,900 kW installed capacity and a load factor of 60 percent to an earthen dam with installed capacity of 86,000 kW, with a load factor of approximately 25 percent.[41] The Chief of Engineers recommended this change after "[t]aking into account the relatively large amount of developed and potential hydro power in the southeastern region."[42] The size of the reservoir increased slightly as well, from 1,033,000 to 1,049,400 acre-feet of conservation storage—with a slightly reduced drawdown range of 35 feet, between elevations 1070 and 1035—and from 578,000 to 637,000 acre-feet of flood control storage, between elevations 1085 and 1070.[43] A small generating unit with 6,000 kW capacity, designed to operate during off-peak periods to release up to 600 cfs, was installed in Buford Dam to assist with meeting the water supply needs of the Atlanta region.[44] During the construction of the Buford Project, two municipal entities, the City of Buford and the City of Gainesville, were required to relocate their existing water supply facilities at the project site. As part of the Fifth Amendment compensation for those relocations, the Corps entered into agreements authorizing those entities to withdraw 2 mgd and 8 mgd,

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decisions with respect to installations and other power details."); 1960 Cost Allocation Study, *supra* note 22, at 2-3 (stating that "the present plan was approved on 19 May 1953 by the House Committee on Public Works").

[40] See Pub. L. 85-363, 72 Stat. 73 (March 28, 1958); S. REP. NO. 85-1353, at 1 (March 7, 1958); U.S. Army Corps of Engineers, Apalachicola River Basin Reservoir Regulation Manual, Appendix C, Walter F. George Reservoir at C-5 (April 1965) [hereinafter "Walter F. George Manual"].

[41] See H.R. DOC. NO. 80-300, at xiii-xv, Letter of Federal Power Commission to Chief of Engineers (Sept. 19, 1946); H.R. DOC. NO. 80-300, at ix, xii, Letter of Chief of Engineers to Federal Power Commission (Feb. 6, 1947) (concurring in Federal Power Commissioner's suggestion that "an increase in the provision for power should be made at Buford," with a "total installation of 77,000 kilowatts, equal to 25-percent load factor"). Definite Project Report, *supra* note 36, app. I, at 1-11 (describing load factor of 20.5); U.S. Army Corps of Engineers, Mobile District, Apalachicola River Basin Reservoir Regulation Manual, App. B, Buford Reservoir at B-3, B-6 (Dec. 1959) [hereinafter "1959 Buford Manual"]. The Chief of Engineers noted in his February 6, 1947 letter that an installation "with a draw-down of 40 feet, and 25-percent load factor…should carry about 60,000 kilowatts at minimum head" (i.e., at the bottom of conservation storage), about 77,000 kilowatts at "rated head," and about 88,600 kilowatts "at near full power pool." H.R. DOC. NO. 80-300, at ix. The 1959 Buford Manual cited a dependable capacity of 73,000 kW, and described the rated or installed capacity as 86,000 kW. 1959 Buford Manual at B-3, B-6. The 1959 Buford Manual did not cite a load factor, but estimated annual "primary energy" of 127,000 kWh, which was likely based on 29 hours of peak generation per week, i.e., approximately 6 hours' generation on weekdays, and a 25 percent weekday load factor.

[42] H.R. DOC. NO. 80-300, at ix (Letter of Chief of Engineers to Federal Power Commission, Feb. 6, 1947).

[43] Presently, Lake Lanier has a total storage capacity of 2,554,000 acre-feet, comprised of flood control storage (between elevations 1085 and 1070/1071), multipurpose or "conservation storage" (between elevations 1070/1071 and 1035), and inactive storage (below elevation 1035). The Corps adjusts the flood control pool seasonally, raising the top of conservation storage by one foot during the summer months when flood risk is reduced. This results in seasonal variations in the capacity of conservation and flood control storage, from 1,049,400 to 1,087,600 acre-feet, and from 637,000 to 598,800 acre-feet, respectively. The combined storage in the flood control and conservation storage pools, 1,686,400 acre-feet at all times, is referred to as "usable storage." Inactive storage comprises the remainder of the reservoir, 867,600 acre-feet, below elevation 1035. See Remand Modeling Technical Report, *supra* note 7, at 2-3 & Tab. 1.

[44] See discussion *supra* note 36 and accompanying text.

respectively, directly from Lake Lanier, without reallocating storage or charging for those withdrawals.[45]

As a result of these various modifications to the ACF plan of development, the three hydropower projects authorized by the 1946 RHA, when ultimately completed between 1957 and 1963, possessed an installed capacity of 246,000 kW—70 percent more capacity than the three federal hydropower projects proposed in the Newman Report (144,700 kW), and nearly equal to the total federal and non-federal system capacity of 249,300 kW estimated in the Newman Report.[46] Peaking operation at the power-storage reservoirs in the ACF system, including Buford Dam, was modified from the 60 percent load proposed in the Newman Report to a 25 percent load in the final design.[47]

4. Operation of the Buford Project within the ACF System

In keeping with the ACF design concept, the Corps operates the Buford Project for multiple purposes, as an integrated part of the ACF system of federal projects. Storage at Buford and system-wide is managed according to system needs and hydrologic variation, by means of "action zones" in which operations are adjusted based on available storage.[48] This ensures that project purposes are achieved in a balanced manner, and that the effects of seasonal and longer-term droughts and floods are mitigated to the extent possible. Hydropower is generated at Buford Dam through a peaking operation, in which the two large units—possessing a combined installed capacity of 125,000 kW[49]—typically generate for 2-3 hours per weekday, and 1-2 hours on Saturday or Sunday, depending on hydrologic conditions, pool elevations, and other factors, drawing upon the conservation storage pool between elevations 1071 (1070 in winter) and 1035.[50] The small generating unit, with a capacity of 7,000 kW, operates continuously to release approximately 600-680 cfs downstream from Buford Dam during peak and non-peak

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[45] See Agreement Between the City of Gainesville and the United States, art. 1.f (June 22, 1953) (providing that City of Gainesville, GA "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"); Contract No. DA-01-076-CIVENG-56419, art. 1.f (Dec. 19, 1955) (providing that City of Buford, GA "will not at any time remove more than 2,000,000 gallons of water from the reservoir…within any 24-hour period without prior written approval"); *Tri-State Water Rights Litigation*, 644 F.3d at 1169 & nn. 5-6.

[46] See U.S. Army Corps of Engineers, Mobile District, Apalachicola River Basin Reservoir Regulation Manual, ¶¶ 81, 84-86 (Feb. 1958) (describing installed capacity at Jim Woodruff Dam, completed in 1957, of 30,000 kW; installed capacity at the nearly-completed Buford Project of 86,000 kw; and expected capacity at the Walter F. George Project of 130,000 kw upon completion in 1962); 1959 Buford Manual, *supra* note 41, at B-3; Walter F. George Manual, *supra* note 40, at C-4. Later, by separate legislation in 1962, Pub. L. 87-874, § 203, a fifth project was authorized and constructed at West Point, adding still more hydropower capacity to the ACF system. The West Point reservoir was conceived as "the next logical step in the development of the Chattahoochee River," involved evaluation of sites previously considered in the 1945 and 1946 Corps reports for the ACF system: "The project thus modified is the existing project for the Apalachicola, Chattahoochee, and Flint River system and includes Buford Dam…and the Walter F. George, Columbia and Jim Woodruff Locks and Dams below Columbus, Georgia." H.R. DOC. NO. 87-570 at 11-13 (Sept. 24, 1962), Report of the District Engineer, Syllabus & paras. 1, 3 (Nov. 30, 1961).

[47] See *supra* note 41.

[48] ACF Remand Modeling Technical Report, *supra* note 7, at 19-22.

[49] ACF Remand Hydropower Study, *supra* note 7, at 3-4 & Tab. 1. A 2004-2005 rehabilitation increased the units' nameplate capacity.

[50] ACF Remand Modeling Technical Report, *supra* note 7, at 23 & Tab. 3, 35 & Tab. 8. During extreme low-flow conditions when system storage is within Action Zone 4, hydropower operations may be curtailed to minimal levels, and reliable peaking operations may not be possible. *Id*. at 33, 39.

operations.[51] This mode of operation generates peak power for several hours daily when it is most in demand, enabling the Southeastern Power Administration (SEPA) to market 105 megawatts (MW) of dependable capacity from Buford Dam as part of its overall marketing of hydropower from the ACF system.[52] Under current operations, the Corps estimates the annual average dependable capacity of the ACF system as 739.98 MW, with an annual average energy value of $145,946,000.[53] Through the operation of Buford Dam, the Corps also maintains flows sufficient to accommodate current downstream water supply needs at Atlanta, amounting to approximately 277 mgd, and ensuring flows of at least 750 cfs (485 mgd) below the Atlanta water supply intakes for water quality.[54] These operations also further other authorized purposes of Buford Dam and the ACF system.

Simultaneous with the Corps' releases through Buford Dam for hydropower, water supply, and other purposes, several Georgia water supply providers make withdrawals from, and return treated wastewater to, Lake Lanier. Two of these entities, the City of Buford and the City of Gainesville, are authorized to withdraw up to 2 mgd and 8 mgd, respectively, under the aforementioned relocation agreements.[55] Additional withdrawals by municipalities and public water authorities, bringing the total withdrawals from Lake Lanier up to approximately 136 mgd as an annual average in recent years,[56] have been made since the 1970s, at one time under contracts that have since expired, and since 1990 pursuant to understandings and agreements among the parties to ongoing litigation.[57] Simultaneously, water supply providers return from 7 to 30 percent of these withdrawals to Lake Lanier in the form of treated wastewater.[58]

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[51] ACF Remand Hydropower Study, *supra* note 7, at 3-4 & Tab. 1. The capacity of this smaller unit, which increased due to recent rehabilitation from 6,000 to 7,000 kW, is not included within the 125,000 kW installed capacity of the Buford Project.

[52] *Id*. The marketable capacity of a project such as Buford is determined by taking into account the amount of capacity available during the heavy load periods of summer months during drought.

[53] *Id*. at 22 & Tab. 8, 25 & Tab. 9.

[54] ACF Remand Modeling Technical Report, *supra* note 7, at 30-32. The Corps makes releases that enable Atlanta water supply providers to withdraw 277 mgd at Atlanta and also comply with a state water quality standard specifying flows of at least 750 cfs (485 mgd) below the Atlanta water supply intakes in order to assimilate wastewater returns. See discussion *infra*, part II.B.

[55] See *supra* note 45.

[56] See ACF Remand Modeling Technical Report, *supra* note 7, at A1-5, Tab. 3 (listing 2007 withdrawal amounts). It is important to note that withdrawal figures cited throughout this memorandum are presented as annual average values, for ease of understanding; in fact, daily withdrawals vary throughout the year. See *id*. at A1-12 & Tables A-7 to A-8. Buford Dam releases, which are reregulated by the Georgia Power Company reservoir at Morgan Falls, to accommodate downstream withdrawals also vary depending on demand and hydrology; during the winter and spring, when inflows are higher, specific Buford releases for water supply are required less often than during summer and fall, and may not be necessary at all if tributary inflows provide sufficient flows at Atlanta. See *id*. at A-6.

[57] For a detailed recounting of this history, see *Tri-State Water Rights Litigation*, 644 F.3d at 1169-78; 2009 Memorandum, *supra* note 3, at 17-22.

[58] See ACF Remand Modeling Technical Report, *supra* note 7, at A1-17 to A1-18. When the Corps established the modeling parameters for this analysis, insufficient data were available to include the Gwinnett County Wayne Hill Treatment Plant's return flows; therefore, the Corps assumed a current return rate of 7 percent, reflecting recent years' return data. With the recent addition of the Gwinnett County Wayne Hill Water Treatment Plant, the return rates to the reservoir have apparently increased to approximately 30 percent of withdrawals. *Id*. at A1-18. The Corps also modeled other return rates, including the full lake returns Georgia projected to 2030. *Id*.

5. Summary of the Buford Project within the Authorized ACF System

In summary, the Buford Project, as initially envisioned in the Newman Report, was an essential component of an authorized system of federal improvements that would contribute dependable, peaking hydropower capacity to the southeastern electricity system, while also ensuring an adequate water supply for the Atlanta area by releases from Buford Dam, and serving other system purposes. The considerable upstream storage at the Buford Project was designed to increase the regulated flows throughout the ACF system, enabling integrated and economical system operations. Congress expected the Corps to operate the authorized improvements together, as a system, to achieve multiple, interconnected and compatible purposes, but did not dictate to the Corps how specifically to accomplish those purposes; rather, Congress delegated to the Corps the responsibility for applying its technical, engineering, and water management expertise to the design, construction, and operation of that system, for the purposes Congress approved in the 1946 RHA.[59] The Corps exercised discretion in modifying the design of the ACF system, increasing the hydropower capacity of the projects when they were constructed in the 1950s and 1960s, but the Corps did not alter the fundamental plan that Congress approved for an integrated system of projects, to be operated in conjunction with each other, for the purposes set forth in the Newman Report. Today, the Corps operates the projects in the ACF system together, in a balanced manner that is intended to meet all authorized purposes and conserve storage for use during critical drought periods, while adhering to the basic objectives established by Congress when it enacted the 1946 RHA.[60]

B. Georgia's 2000 Request for Additional Water Supply from the Buford Project

On May 16, 2000, the Governor of the State of Georgia submitted a formal request to the Assistant Secretary of the Army (Civil Works) to adjust the operation of Lake Lanier, and to enter into contracts with the State or water supply providers, to accommodate increases in water supply withdrawals from Lake Lanier and downstream at Atlanta over the next thirty years, culminating in total, gross withdrawals of 297 mgd from Lake Lanier and 408 mgd downstream by the year 2030.[61] Georgia's request included a projected increase in the proportion of withdrawals returned by water supply providers to Lake Lanier, in the form of treated wastewater, from a rate of 7 percent in 1999 to a rate of 36 percent in 2030, or 107 mgd to Lake Lanier, so that the maximum net withdrawals from Lake Lanier would be 190 mgd in 2030.[62] According to then-Governor Barnes, these returns would offset withdrawals and should be accounted for in any fees charged for water supply use.[63] With regard to the downstream

[59] See 1946 RHA, *supra* note 25, § 1 (authorizing "the following works of improvement . . . to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans and subject to the conditions recommended by the Chief of Engineers in the respective reports hereinafter designated"); Chief's Report, *supra* note 17, ¶ 11(d), recommending approval of the ACF plan "with such changes as in the discretion of the Secretary of War and the Chief of Engineers may be advisable.").
[60] See ACF Remand Modeling Technical Report, *supra* note 7, at 19.
[61] Hon. Roy E. Barnes to Hon. Joseph W. Westphal, Subject: Lake Lanier: Request for Final Agency Action (May 16, 2000).
[62] Affidavit of Harold F. Reheis, Director, Georgia Environmental Protection Division, Georgia Department of Natural Resources (12 May 2000), Appendix 4, Projected Chattahoochee River and Lake Lanier Water Withdrawals and Returns (Annual Average).
[63] Hon. Roy E. Barnes to Hon. Joseph W. Westphal, Subject: Lake Lanier: Request for Final Agency Action (May 16, 2000).

withdrawals, Georgia requested that the Corps make releases to assure flows sufficient to allow withdrawals of 408 mgd (631 cfs) at Atlanta, while also ensuring flows of at least 750 cfs at all times in the Chattahoochee River below the Atlanta withdrawal point. In effect, this would require the Corps to operate to provide flows of not less than 1381 cfs (the sum of 631 cfs and 750 cfs) at Atlanta. Georgia contended that the proposed usage of storage for water supply was authorized under the 1946 RHA, and that no reallocation of storage under the Water Supply Act was necessary in order to grant the request, either for reservoir or downstream withdrawals.[64]

The Assistant Secretary of the Army (Civil Works) denied Georgia's request, based upon a memorandum that I prepared in my capacity as Deputy Army General Counsel (Civil Works & Environment), concluding that a reallocation of 370,930 acre-feet of conservation storage in Lake Lanier to accommodate the requested withdrawals would exceed the Secretary's authority under either the 1946 RHA or the Water Supply Act.[65] In that memorandum, I interpreted language in the Newman Report to reflect Congressional intent for water supply to be provided as an incidental benefit, rather than an expressly authorized purpose of the Buford Project, as Georgia contended; and since I concluded that no storage space was allocated for water supply under the 1946 RHA, I determined that the Corps could accommodate Georgia's request only under the authority of the Water Supply Act, if at all.[66] Technical analysis prepared by the Corps' Mobile District and Headquarters Planning and Policy Division indicated that the requested withdrawals of 297 mgd from Lake Lanier and 408 mgd downstream would require a reallocation of 370,930 acre-feet of storage in Lake Lanier—the amount of storage calculated to yield the gross withdrawals of 705 mgd—substantially affecting hydropower generation at Buford Dam by shifting generation away from peak periods, reducing annual hydropower benefits by 30 percent (from approximately $10 million to approximately $7 million), and materially affecting recreation.[67] Thus, I concluded, a reallocation of storage necessary to accommodate Georgia's request would involve a major operational change and seriously affect project purposes, exceeding the authority of the Secretary of the Army under the Water Supply Act.[68]

As an alternate theory, assuming that Georgia was correct that water supply was an authorized purpose and that the Water Supply Act was not applicable to the Buford Project, I

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[64] Charles T. DuMars to Hon. Joseph W. Westphal and Earl H. Stockdale, Esq., Subject: Whether an Act of Congress is Required to Provide Additional Municipal Water Supply to the Atlanta Region from Lake Lanier at 30, 36 (Apr. 6, 2000).

[65] 2002 Memorandum, *supra* note 3, at 12-13.

[66] *Id*. at 6-7 & n.1.

[67] *Id*. at 7 & n.1, 8 & n.2, 10-13. The memorandum also concluded that the reallocation would have "a material effect" on recreation benefits at Lake Lanier in terms of lowered pool elevation and reduced access, but did not ascribe a monetary value to that impact. *Id*. at 9, app. at 1. In fact, the potential fluctuations in pool elevations described in the technical appendix to the 2002 memorandum are less than either the 35-foot drawdown envisioned in the final design documents or the 40-foot drawdown expressly contemplated in the Newman Report, which served as the basis for any Congressional expectations with regard to recreation benefits from the Buford Project. See discussion *supra* surrounding notes 22, 43; Buford Manual, *supra* note 41, app. B, B-8 & chart 4. To the extent that the 2002 memorandum might be taken to suggest that such changes in pool elevation amount to a major operational change or seriously affect a project purpose, I reject that conclusion today, because Congress plainly contemplated and approved such operations in enacting the 1946 RHA. See discussion *infra* at note 173.

[68] 2002 Memorandum, *supra* note 3. These conclusions pertained to the Buford Project alone, without reference to impacts to the broader ACF system.

concluded that the Secretary still lacked authority to grant Georgia's request, because this use of storage would have reordered project purposes beyond the scope of the discretionary authority traditionally recognized by Congress and the federal courts.[69] The opinion I wrote responded to the particular request submitted by Georgia. I did not consider the possibilities that Congress had already authorized or approved, under the 1946 RHA, the relocation agreements, and the 1956 Act, some use of storage for water supply beyond the amount already being utilized in 2002, or that such authority could be supplemented by an additional reallocation of storage, amounting to less than 370,930 acre-feet, under the Water Supply Act.[70] Nor did the technical summary provided with the 2002 Memorandum identify how much of Georgia's requested water supply could be accommodated as an incidental benefit under the 1946 RHA, address the extent to which the full amount of Georgia's projected return flows to Lake Lanier in 2030 might mitigate the impacts to hydropower and recreation from greater withdrawals from Lake Lanier, or consider any effects upon the ACF system beyond Lake Lanier.[71] Without the benefit of information on the projected return flows or systemwide impacts to hydropower and other purposes, I concluded that the total withdrawals requested by Georgia could not be accommodated under the sole authority of either the RHA or the Water Supply Act, in light of the projected impacts of the gross withdrawals at Lake Lanier, in isolation.

C. *Tri-State Water Rights Litigation*

1. Prior Proceedings

Georgia filed suit challenging the Assistant Secretary's denial of its water supply request, and the new case, *Georgia v. U.S. Army Corps of Engineers*, joined a growing series of lawsuits by Alabama, Florida, the Southeastern Federal Power Customers (SeFPC), and others challenging the Corps' alleged actions or inactions in operating the ACF system. In 2002, Georgia, SeFPC, and the Corps negotiated a partial settlement agreement in which the parties agreed to a process that could have led to a reallocation of 240,858 acre-feet, or 22 percent of conservation storage, in Lake Lanier for future water supply needs. In February 2008, the U.S. Court of Appeals for the District of Columbia Circuit invalidated the settlement agreement, concluding that a reallocation of "more than twenty-two percent (22%) percent of the total storage space in Lake Lanier" constituted a "major operational change" under the Water Supply

[69] *Id*. at 2, 10-13.

[70] See *id*. at 10; *Tri-State Water Rights Litigation*, 644 F.3d at 1195. I did note, in passing, that existing withdrawals, utilizing the equivalent of 145,460 acre-feet of storage, were presumed to be within the Corps' discretionary authority, and that "the Army is now in discussions with municipalities to establish contracts" for those withdrawals. 2002 Memorandum, *supra* note 3, at 11 n.3. However, the 2002 memorandum did not address the statutory basis for that existing use, or consider whether it could be expanded in any manner other than by reallocating 370,930 acre-feet of storage under the Water Supply Act.

[71] While the Mobile District analysis in 2002 did factor some return flows to Lake Lanier into its analysis, it did not include the full returns Georgia projected to 2030 in its determination of the storage required or in its estimates of the impacts to authorized purposes. Instead of the 107 mgd in returns to Lake Lanier by 2030 that Georgia stated in its request, the Mobile District's 2002 analysis factored in returns of 38 mgd to Lake Lanier in 2030, along with the requested withdrawals of 297 mgd from Lake Lanier. The technical reports prepared for today's memorandum modeled a range of different return rates, including Georgia's projected 107 mgd returns to Lake Lanier in 2030, and therefore provide a more complete picture of the actual impacts of accommodating Georgia's request than was developed in the 2002 analysis. See *infra* note172 and accompanying text.

Act of 1958, requiring Congressional approval.[72] The D.C. Circuit did not examine the underlying authority for the Corps to operate the Buford Project under the 1946 RHA, or the effects of a reallocation of storage upon project purposes—effects which, the district court had concluded in approving the settlement agreement, were not "serious," and thus did not exceed the Corps' authority under the Water Supply Act, in the district court's view.[73] The D.C. Circuit expressly declined to opine on the Corps' authority to utilize 145,460 acre-feet for then-occurring water supply withdrawals,[74] but the court's focus on reallocation percentage as probative of operating authority raised questions as to the extent of the Corps' authority to allow the use of storage in Lake Lanier under the Water Supply Act.

In response to the D.C. Circuit's decision, I prepared a legal opinion in my present capacity as Chief Counsel of the Corps of Engineers, analyzing the Corps' authority to accommodate then-occurring withdrawals from the Buford Project, by now estimated to amount to 407 mgd, requiring a reallocation of 122,924 acre-feet of storage (approximately one third of the amount of storage requested by Georgia and considered in my 2002 opinion). This 2009 memorandum served two objectives: it clarified the Corps' interpretation of the Water Supply Act generally, and applied that interpretation to the particular facts at Lake Lanier. Addressing the first objective, I examined the text and legislative history of the Water Supply Act and interpreted its key statutory terms "seriously affect . . . [project] purposes" and "major . . . operational changes" to refer to modifications that fundamentally depart from Congressional expectations for the purposes and operation of a particular project, as reflected in the project authorization.[75] Thus, I concluded, in order to determine authority to modify a reservoir project

[72] *Southeastern Federal Power Customers, Inc. v. Geren*, 514 F.3d 1316, 1324 (2008). The D.C. Circuit opinion contained inconsistent terminology and percentages of storage, alternately describing the 240,878 figure as comprising 22 percent of "total storage," 22 percent of "Lake Lanier's storage capacity," 22 percent of "Lake Lanier's storage space"), or *22.9* [i.e., 23 percent] of "total capacity." *Id*. at 1320, 1324-25. In a concurring opinion, Judge Silberman referred to the same 240,878 acre-feet as 22.9 percent of conservation storage (apparently based on the small, winter conservation pool of 1,049,400 acre-feet). *Id*. at 1328 (Silberman, J., concurring). In fact, the "total storage" of Lake Lanier, including flood control, conservation, and inactive storage, is 2,554,000 acre-feet, of which the 240,858 acre-feet at issue in *Geren* comprises 12.6 percent, not 22 or 22.9 percent. See ACF Remand Modeling Technical Report, *supra* note 7, at 2; *Tri-State Water Rights Litigation*, 644 F.3d at 1170. Excluding 867,000 acre-feet of "inactive" storage, the "total usable storage" is 1,686,400 acre-feet, of which the reallocation amount in *Geren* comprised 14.3 percent. Even the "conservation storage" of Lake Lanier varies seasonally, from 1,049,400 to 1,089,800 acre-feet, of which 240,858 acre-feet comprises 22.95 and 22.1 percent, respectively. These various percentages, depending on what reference point is used, highlight both the confusion and ambiguity inherent within the question presented in *Geren*. More broadly, they demonstrate the futility of citing percentages as a meaningful measure of what constitutes major operational change or serious effects on authorized purposes. See discussion *infra*, part III.D.2.

[73] *Southeastern Federal Power Customers, Inc. v. Caldera*, 301 F. Supp. 2d 26, 32 (D.D.C. 2004).

[74] *Geren*, 514 F.3d at 1324 n.4; *id.* at 1328 (Silberman, J., concurring); see also *Tri-State Water Rights Litig.*, 644 F.3d at 1179. The D.C. Circuit derived the 145,460 acre-foot figure from a footnote in my 2002 legal opinion, which referred to withdrawals thought to be occurring at that time. *Geren*, 514 F.3d at 1320 (citing 2002 Memorandum, *supra* note 3, at 8); *Geren*, 514 F.3d at 1328 (Silberman, J., concurring). As explained in my 2009 Memorandum, *supra* note 3, at 5 n.6, more recent calculations of "current" storage utilization have used different inputs and assumptions. Moreover, it should be noted, any determination of how much storage is being utilized at a particular moment in time is inherently variable, as storage use changes over time, there are different methodologies for determining how much storage should be allocated in order to accommodate water supply needs, and not all water supply use necessarily requires an allocation of storage at all. See discussion *infra*, part III.D.2.

[75] 2009 Memorandum, *supra* note 3, at 11-12.

to include storage for water supply, the Corps must first determine the Congressional understanding of the purposes and operation of that project at the time of authorization.

Turning to the Buford Project specifically, I reaffirmed my earlier conclusion that water supply was an incidental benefit, rather than an expressly authorized purpose, of the Buford Project, but elaborated on the Corps' long-held view that Congress had intended for some amount of downstream water supply needs to be accommodated by operation of the Buford Project. I noted that Congress had expected, at a minimum, that the Corps would make releases of 600 cfs from Buford Dam to ensure dependable flows at Atlanta, and that the Mobile District had previously determined that such releases could be increased beyond 600 cfs to accommodate withdrawals of 327 mgd at Atlanta, without significantly impacting any authorized purposes of the project.[76] Thus, I concluded that the majority of the existing water supply withdrawals—291 mgd downstream, out of 407 mgd total—were accommodated incidentally as a result of operations for other authorized purposes under the 1946 RHA, without requiring any reallocation of storage under the supplemental authority of the Water Supply Act.[77] I also noted that withdrawals of up to 10 mgd from Lake Lanier have been made since the project was constructed pursuant to relocation agreements, without requiring any reallocation of storage. Finally, I evaluated the 1946 RHA and the Water Supply Act as complementary, rather than mutually exclusive authorities (as Georgia had contended in its 2000 request), and I considered whether a reallocation of storage to accommodate the remaining withdrawals of 106 mgd from Lake Lanier would fundamentally depart from Congressional understandings when the project was authorized. The Mobile District's technical analysis indicated that a reallocation of 122,714 acre-feet of conservation storage under the Water Supply Act would suffice to accommodate those withdrawals.[78] Considering the Congressional intent expressed in the Buford project's authorizing documents, which specifically anticipated an increase in the downstream water supply benefit over time, at the expense of some system-wide hydropower benefits, and technical analysis indicating that the additional withdrawals could be accommodated within the operational scheme that Congress endorsed, with only negligible reductions to system-wide hydropower generation and to benefits for other purposes, I concluded that the necessary reallocation of storage would not fundamentally depart from Congressional intent for the Buford Project.[79] Therefore, I concluded that the Corps could accommodate all then-current withdrawals under the combined authority of the RHA and the Water Supply Act, without requiring additional authorization.[80]

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[76] *Id*. at 20, 24-25.

[77] *Id*. at 24-25, 27. The Corps acknowledged in the 2009 Memorandum that the 327 mgd figure required further validation prior to any reallocation of storage under the Water Supply Act, but noted that if a lower figure were substituted for the "incidental" downstream withdrawals, the amount of storage required would not increase significantly. If the figure 266 mgd were used instead, storage requirements would increase from 122,924 acre-feet to 126,184 acre-feet, i.e., by less than 3 percent. *Id*. at 25 n.28.

[78] *Id*. at 25. Technical analysis prepared for the 2009 Memorandum indicated that a small amount of storage, 210 acre-feet, would also need to be reallocated to accommodate occasional downstream withdrawals in excess of the overall annual average, resulting in the overall amount of 122,924 acre-feet of storage. *Id*.

[79] *Id*. at 26-31. The 2009 Memorandum also acknowledged impacts to recreation at Lake Lanier, but concluded these impacts would be "minor," without stating whether recreation was an expressly authorized purpose, or whether greater impacts to recreation would call into question the extent of the Corps' discretionary authority under the Water Supply Act. See discussion *infra* note 173.

[80] I did not consider the 1956 Act in either my 2002 or 2009 opinion, as Georgia did not cite that authority in its 2000 request, and Gwinnett County had not sought to execute an agreement pursuant to it at the time of my 2009

In the litigation that resumed following the D.C. Circuit's vacatur of the settlement in *Geren*, the Corps' position that it had authority to operate and reallocate storage for present withdrawals, but not for the additional withdrawals requested by Georgia, once again placed the Corps squarely in the middle of two diametrically opposing viewpoints. While the Georgia parties maintained their contention that the Corps' denial of Georgia's request misconstrued Congressional intent to operate the Buford Project for water supply, Alabama, Florida, and SeFPC argued that the Corps lacked authority to accommodate even current withdrawals, and had made "de facto" reallocations in violation of applicable law and regulation. On July 17, 2009, the U.S. District Court for the Middle District of Florida sided with the latter parties. The district court declined to consider my 2009 opinion, which it dismissed as "a document prepared for litigation purposes only" that "[did] not shed any light on the Corps' decisionmaking" or "explain any complex facts."[81] Rejecting both the Corps' technical determination that a reallocation of 122,924 acre-feet of storage could accommodate present withdrawals, and the Corps' legal conclusion that this reallocation would not involve a major operational change or seriously affect authorized purposes, the district court performed its own calculation of storage utilization and concluded that the Corps had made "de facto" reallocations of at least 22 percent of conservation storage, a major operational change in violation of the Water Supply Act under the D.C. Circuit's reasoning in *Geren*.[82] The district court held that the Corps lacked authority to continue to accommodate most water supply withdrawals, apart from 10 mgd from Lake Lanier under the Buford and Gainesville relocation agreements, and imposed a 600 cfs limit on off-peak releases from Buford Dam for water supply by July 2012.[83]

The United States appealed the district court decision to the Eleventh Circuit, arguing that the district court had clearly erred in rejecting both the Corps' legal interpretations of its authority under the 1946 RHA and the Water Supply Act, and the Corps' technical judgment as to the storage required to accommodate different amounts of water supply withdrawals from Lake Lanier and downstream. Moreover, the Corps argued that the district court had lacked jurisdiction over the "de facto" reallocation claims, because decades of litigation had prevented the Corps from taking any reviewable, final agency action to reallocate storage in Lake Lanier for water supply. Finally, the United States urged the Eleventh Circuit to reverse and remand the matter to the Corps to make a final determination as to its authority, in light of the apparent confusion demonstrated by the vastly different figures submitted by all parties regarding water supply withdrawals and storage utilization in Lake Lanier, as well as the previously disregarded 1956 Act cited by Gwinnett County, and the need to address potentially significant issues such as the relevance of return flows for Water Supply Act purposes.

2. Eleventh Circuit Ruling

In June 2011, a three-judge panel of the Eleventh Circuit reversed the 2009 district court decision, and directed that the case be remanded to the Corps to reconsider and make a final

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opinion. Because the Eleventh Circuit has held that this statutory authority remains valid, it is clearly relevant, and must now be included in any analysis of water supply authority at the Buford Project. See *Tri-State Water Rights Litigation*, 644 F.3d at 1198, 1202 n.38; see also discussion *infra*, part III.C.

[81] *In re Tri-State Water Rights Litigation*, 639 F. Supp. 2d 1308, 1347 (M.D. Fla. 2009).

[82] *Id* at 1348-50.

[83] *Id.* at 1355-56.

determination as to its legal authority to operate the Buford Project to accommodate Georgia's water supply request. First, the court of appeals held that the Corps had never taken final action to reallocate storage in Lake Lanier. The Eleventh Circuit acknowledged the Corps' position that, as a consequence of the decades-long litigation, the Corps had been unable either to take the final action alleged by the plaintiffs to reallocate storage for water supply, or to "come to a final, determinative decision regarding the issues underlying this authority."[84] Because the Corps had never taken any final agency action to reallocate storage, the court of appeals held that the district court had lacked jurisdiction to hear the claims raised by Alabama, Florida, SeFPC, and other parties regarding "de facto" reallocations, and vacated the district court rulings as to those claims.[85]

With regard to Georgia's challenge to the Corps' denial of its 2000 request for additional water supply, the Eleventh Circuit held that the Corps had erred in concluding that water supply was not an authorized purpose under the RHA. Noting the fact that the Buford site was chosen because of its convenience to Atlanta's downstream water supply intakes, the Newman Report's references to "safeguarding" and "ensuring" a dependable downstream water supply, and the specific proposal in the Newman Report to make and increase off-peak releases from Buford Dam, at the expense of some hydropower value, for downstream water supply, the Eleventh Circuit held that water supply was an originally authorized purpose of the Buford Project, and not merely a subordinate purpose or incidental benefit.[86] In contrast to the district court, however, the Eleventh Circuit did not attempt to determine the amount of storage necessary to accommodate a particular level of water supply, the proper methodology for doing so, or the impacts of that use of storage on other authorized purposes.[87] Instead, the Eleventh Circuit directed that the case be remanded to the Corps to make those determinations in the first instance. The court of appeals also held that the 1956 Act remains valid, and that this authority to contract with Gwinnett County to withdraw up to 11,200 acre-feet per year (10 mgd) should be factored into the Corps' analysis, along with the 10 mgd authorized to the cities of Buford and Gainesville under relocation agreements.[88] The panel noted that its holdings potentially changed the legal framework, requiring a reassessment of the Corps' authority under the 1946 RHA and all supplemental authorities:

> Our holding—that water supply is an authorized purpose under the RHA, that the Corps does have some authority under the RHA to balance as among the authorized uses and increase the water supply purpose at the expense of the power purpose and to reallocate storage therefor, and that the Corps' authority under the WSA is in addition to its authority under the RHA—constitutes a clarification of

[84] *Id.* at 1184-85, 1196.
[85] *Id.* at 1184-85.
[86] *Id.* at 1189-92.
[87] The Eleventh Circuit also noted that the district court's "numerous errors" of fact and "overarching error in conducting *de novo* fact-finding of issues that must be considered by the Corps in the first instance" would have required vacatur and remand had the district court had jurisdiction to hear the underlying claims in the first place. *Id.* at 1185 n.16.
[88] *Id.* at 1198, 1202 n.38. The 1956 Act was not cited in the Corps' two prior legal opinions, nor was it highlighted by Georgia in its 2000 water supply request. The Eleventh Circuit dismissed additional claims by Gwinnett County that Gwinnett is entitled to withdraw water from Lake Lanier under other theories, apart from any contract that might be executed pursuant to the 1956 statute. *Id.* at 1197-99.

> the legal environment which will aid the Corps in its analysis on remand. For these reasons, we conclude that the Corps must reexamine the request in light of its combined authority under the RHA and WSA.[89]

Accordingly, the Eleventh Circuit directed a remand of the decision on Georgia's 2000 request, with specific instructions for the Corps to consider in its revised analysis. The court instructed the Corps to "complete its analysis of its water supply authority and release its conclusions" within one year, considering a range of "overlapping issues" common to all four cases.[90] Fundamentally, the Eleventh Circuit directed the Corps on remand to determine:

1. The extent of the Corps' authority under the 1946 RHA to balance the water supply and hydropower purposes; and

2. The extent of the Corps' supplemental authority to accommodate water supply pursuant to the Water Supply Act.[91]

The Eleventh Circuit also directed the Corps, in making these determinations, to consider a host of issues, including the following:

- whether the 1946 RHA authorizes the allocation of storage for lake withdrawals, in addition to downstream withdrawals;
- how many mgd can be provided for Atlanta's water supply needs "as a mere incident to, or byproduct of, power generation";
- whether, and to what extent, storage reallocation would be necessary for RHA-authorized releases from the dam primarily for water supply purposes (and how to factor in the fact that these releases will still generate some power);
- "the appropriate measure for determining under the RHA[92] what the impact of increased water supply use on hydropower is," such as percentage reallocation of storage, system-wide power decreases, and compensation to power customers;
- the appropriate measure for determining under the Water Supply Act what constitutes a "major operational change"; and
- whether and how to account for return flows.[93]

Finally, with regard to the question of applying the D.C. Circuit's decision in *Geren*, which held that a potential 240,858 acre-feet reallocation of storage in Lake Lanier constituted a major operational change in violation of the Water Supply Act, the Eleventh Circuit concluded that "the Corps is not bound by collateral estoppel in making the aforementioned determinations

[89] *Id*. at 1197.
[90] *Id.* at 1197, 1205.
[91] *Id.* at 1200-01.
[92] Although the Eleventh Circuit referred to the 1946 RHA in this context, *id.* at 1201, this question is also relevant to the Water Supply Act, and is addressed *infra*.
[93] *Tri-State Water Rights Litigation*, 644 F.3d at 1200-1202.

and should make its decisions on remand on the basis of its own reasoned analysis."[94] The court reasoned that the D.C. Circuit's decision in *Geren* addressed one narrow issue, distinct from the set of issues involved in the *Tri-State Water Rights Litigation*, in several respects. The sole question presented in the *Geren* decision was whether the 22 percent reallocation of storage proposed in the settlement agreement amounted to a major operational change in violation of the Water Supply Act.[95] Although the *Geren* court concluded that it did, the *Geren* court did not decide "the question of whether percent reallocation of storage is the correct or sole measure of operational change," or whether other measures, such as impacts or compensation to hydropower, may be probative.[96] Nor did the D.C. Circuit in *Geren* consider, because the litigants did not raise, the question of what degree of water supply operations may have been authorized under the RHA (or the 1956 Act or the relocation agreements)—a question with the potential to change the analysis under both the RHA and the Water Supply Act, because at least some operations for water supply "arguably do not actually constitute a 'change' of operations at all."[97] Further, the issues of the appropriate baseline for determining a storage reallocation under the Water Supply Act, and the pool or pools of storage that may be considered in that analysis, were not litigated in *Geren*, leaving those questions up to the Corps to consider on remand.[98] While the Eleventh Circuit did not ultimately decide whether the 22 percent holding of *Geren* might be binding in some future proceeding, the panel did "conclude that the D.C. Circuit's *Geren* opinion does not foreclose the Corps from fully exploring this issue" in the present remand analysis.[99]

III. DISCUSSION

The Corps' authority to provide for water supply withdrawals through operation of the Buford Project is a function of both legal interpretation and technical judgment, and is governed principally by three separate statutory enactments: the 1946 RHA, the 1956 Act, which referenced and modified the RHA, and the Water Supply Act, which provided further authority supplemental to these earlier Acts.[100] Thus, the Corps must make a technical determination as to the mechanics and operational effects of accommodating the requested water supply withdrawals and projected returns, given the existing, authorized improvements at Buford Dam and the ACF system. The Corps must also make a legal determination as to the extent of its authority to provide for water supply under the RHA, and then determine the extent of the additional

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[94] *Id.* at 1196 n.31, 1201-1206.
[95] *Id.* at 1202. Notably, the D.C. Circuit did not address the question of whether that reallocation would seriously affect any authorized purpose. *Geren*, 514 F.3d at 1318, 1322 & n.2; *id*. at 1326-27 (Silberman, J., concurring).
[96] *Tri-State Water Rights Litigation*, 644 F.3d at 1203-04 & n.41. This finding is supported by the D.C. Circuit's acknowledgment that "[i]n other circumstances it is conceivable that the difference between a minor and a major operational change might be an ambiguous matter of degree," *Geren*, 514 F.3d at 1325.
[97] *Tri-State Water Rights Litigation*, 644 F.3d at 1179, 1202-03 & nn. 37-39.
[98] *Id*. at 1204.
[99] *Id.* at 1196. The Eleventh Circuit deferred its decision as to the 22 percent holding because "it is not clear that the *Geren* court's 22% limit will be reached in this case." *Tri-State Water Rights Litigation*, 644 F.3d at 1202-03. However, even if the 22 percent limit were at issue, the Eleventh Circuit noted that "percent reallocation of conservation storage may not be the correct or sole measure of operational change," suggesting that the Corps would not be estopped by the D.C. Circuit's holding on that issue. *Id*. at 1202 n.39. In fact, the Corps's technical analysis demonstrates that the percentage of storage reallocated does not necessarily correlate *at all* with the degree of operational change or of impacts to project purposes from a proposed action. See discussion *infra*, part III.D.
[100] *Tri-State Water Rights Litigation*, 644 F.3d at 1171, 1197 n.2, 1200-01.

authority conferred by the 1956 Act and the Water Supply Act, giving effect to Congressional intent, as expressed by the plain text of the law and the relevant legislative history.[101] Finally, having established the legal framework for applying these statutory authorities and determined the operational changes necessary to accommodate Georgia's request, the Corps must apply its legal interpretation to those technical, factual findings, evaluating the reported impacts against the Congressional expectations set forth in the relevant statutes. This combined legal and technical analysis follows below.

A. Technical Modeling and Analysis of Operations to Accommodate Georgia's Request

The Corps produced two technical reports to support the analysis of its authority to accommodate Georgia's water supply request. First, in order to determine and evaluate the impacts of accommodating Georgia's water supply request, the Corps used the ResSim modeling tool to develop a set of simulated operations for the ACF system, in which multiple water supply alternatives could be modeled and compared. The model incorporated hydrologic data, storage capacity, and operational constraints in the ACF system, including releases from Jim Woodruff Dam that currently must be made pursuant to Endangered Species Act consultation; maintenance of a seasonal navigation channel to the extent it is practical to do so; and operations to promote fish and wildlife conservation, including operations to accommodate fish spawning and passage.[102] The model also assumed withdrawals of 20 mgd from Lake Lanier, since those withdrawals were determined to be authorized regardless of impacts or operational changes.[103] This ResSim model enabled the Corps to evaluate a range of 18 alternatives, including each of the scenarios for withdrawals and returns described in Georgia's request (i.e., increasing withdrawals and returns in 10-year intervals between 2010 and 2030), up to and including the 297 mgd in withdrawals from Lake Lanier, 107 mgd in returns to Lake Lanier, and 408 mgd in withdrawals downstream that Georgia projected for 2030.[104]

The Mobile District described the outputs from this modeling exercise in a technical report, and both the model and the report were subjected to technical review, in accordance with

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[101] *Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842-43 (1984) (holding that courts "must give effect to the unambiguously expressed intent of Congress," but defer to a permissible agency interpretation of a statute it is charged with administering, where the statute "'is silent or ambiguous with respect to the specific issue'"); *Christensen v. Harris County*, 529 U.S. 576, 587 (2000); *Tri-State Water Rights Litigation*, 644 F.3d at 1193 & nn. 27, 29.

[102] ACF Remand Modeling Technical Report, *supra* note 7, at 19-31, 32-42. Navigation opportunities have been reduced since the 1980s due to a variety of factors. Each of the alternatives modeled in the Mobile District's analysis, with the exception of current operations, involves improved reliability for navigation in the form of a 5-month navigation season, with little variation among the alternatives in that respect. See *id*. at 24, 35-37, & app. B.

[103] *Id*. at 17, 31-32, 42 & Tabs. 11, 12. The 20 mgd figure combines withdrawals that are authorized under the relocation agreements with the Cities of Buford and Gainesville, *supra*, and the 10 mgd that Congress specifically authorized under the 1956 Act, see *infra*, part III.C.

[104] ACF Remand Modeling Technical Report, *supra* note 7 at 43-44 & app. B. The model sets assume that Atlanta water utilities would return approximately 76 percent of downstream withdrawals to the river in the form of treated wastewater, based on present and projected treatment capacity; this return figure is less than the return rates Georgia projected downstream in its 2000 request, because the Corps was unable to validate returns of that magnitude without interbasin transfers that are not presently foreseeable. *Id*. at A1-15 to A1-17. The difference between the Georgia-projected and the modeled downstream return rates would have little effect on system operations or on the use of storage in Lake Lanier, as those downstream returns (in contrast to returns directly to the reservoir) would not affect storage in Lake Lanier.

Corps policy. The Corps' Hydrologic Engineering Center (HEC) Center of Expertise in Davis, California, performed quality control and quality assurance (QC/QA) for the hydrologic modeling, and the Corps' Southwestern Division Planning Center of Expertise for Water Management and Reallocation Studies (WMRS) performed Agency Technical Review (ATR) to ensure the quality and credibility of the scientific information in the modeling and technical report. In addition, the Mobile District submitted the model outputs for analysis by the Corps' Hydropower Analysis Center, which conducted a comparative analysis focusing on both federal and non-federal hydropower benefits from the ACF system under different water supply demands, return rate assumptions, and operating strategies, reflecting Georgia's request and the alternatives modeled in the aforementioned report. This report provided detailed estimates of the hydropower generation, capacity, and energy value that could result from the full range of alternative operations. These measures of hydropower impacts correspond to the hydropower analysis that was included in the Newman Report, which provided estimates of the capacity, generation, and value of that generation for the entire, projected ACF system of federal and non-federal projects.[105]

Thus, before reaching conclusions about the legal authority to accommodate Georgia's water supply request, the Corps modeled a set of alternatives that allowed for comparison of operations and impacts. The technical modeling report and the hydropower study impact reports provided information on a broad range of water supply operations, including different combinations of downstream and reservoir withdrawals and varying amounts of return flows, as well as information regarding the impacts to authorized purposes that would result from each of the operational alternatives. However, the reports reached no conclusions as to the legal authority for any of the modeled operations. Before reaching such conclusions, the legal interpretation of the governing authorities had to be developed and applied to the technical information.

B. The Rivers and Harbors Act of 1946

The starting point for analyzing the Corps' authority to operate any reservoir project is the Congressional act that authorized the Corps to construct and authorize that project. The text of the authorizing statute, the Rivers and Harbors Act of 1946, did not specifically mention Buford Dam at all, but rather, authorized the Corps to proceed with an overall plan for the development of the ACF system, "in accordance with the plans and subject to the conditions recommended by the Chief of Engineers" in the May 1946 Chief's Report that incorporated the Newman Report.[106] Those reports proposed an initial plan of multipurpose improvement, and established Congressional intent in terms of an overall, systemwide plan of improvements and associated, authorized purposes, but the details of this plan were not fully articulated at that time, and the reports were presented as subject to "such changes as in the discretion of the Secretary of War and the Chief of Engineers may be advisable."[107] Thus, in enacting the 1946 RHA, Congress expressed its clear intent that the ACF system of projects should be constructed and operated for the general purposes set forth in the Corps reports adopted in that act, and that the Buford Project would serve as the primary storage reservoir to regulate flows throughout the

[105] See discussion *infra*, notes 8 and 18 and accompanying text, and parts II.A.1, II.A.2, *passim*.
[106] 1946 RHA, *supra* note 25, § 1. The same provision authorized at least 60 unrelated projects or systems of projects, in addition to the ACF system.
[107] Chief's Report, *supra* note 17, ¶ 16.

ACF system necessary for integrated system operations for multiple purposes. Congress delegated to the Corps the task of applying its technical, engineering and water management expertise to the design, construction, and operation of the ACF system of projects, for the purposes set forth in the Newman Report.[108]

1. Congress Authorized the Corps to Provide for Downstream Water Supply Needs by Operation of the Buford Project

The systemwide plan of development for the ACF basin was intended to provide benefits for the purposes of hydropower, navigation, and flood control, estimated in annual average dollar values, and also to provide benefits for the purposes of municipal and industrial water supply, recreation, and fish and wildlife conservation, which were not quantified in the same manner. In my previous legal opinions, I distinguished water supply from other, "expressly authorized purposes," based on the facts that water supply was not generally a purpose of Corps projects at the time of the 1946 RHA, that water supply was described as something that would "incidentally" accrue from operation of the Buford Project, and that the Newman Report did not assign water supply a monetary benefit that would have justified Congressional expenditures in constructing the Buford Project.[109] At the same time, the Corps has always understood that some level of downstream water supply benefits were authorized under the 1946 RHA, and the Corps' operation of the Buford Project since its construction has continually provided those benefits.[110] What has been less clear is the degree to which the Corps is authorized under the 1946 RHA to increase off-peak releases for downstream water supply, and the precise rationale for defining that legal threshold. I now conclude and clarify that the question of the Corps' legal authority to make releases from Buford Dam to accommodate downstream water supply needs at Atlanta is a function of how much water is available in storage in Lake Lanier to make those releases, while continuing to operate for the other authorized purposes of the ACF system, in keeping with Congress expectations. This inquiry is determinative of the Corps' authority, regardless of whether downstream water supply is characterized as an "incidental benefit" or an "authorized purpose."

It has always been apparent from the plain text of the Newman Report that the Corps proposed, and Congress authorized, a system that was expressly intended to "ensure an adequate water supply for the rapidly growing Atlanta metropolitan area" downstream, and the Corps designed, and has always operated, the Buford Project with that goal in mind.[111] As I acknowledged in my 2009 opinion, Congress clearly intended that some downstream water supply would be provided through the operation of the Buford Project, and the Corps has discretion to adjust operations for all purposes in a manner that could provide greater downstream water supply.[112] Moreover, it is clear from the Newman Report, which Congress

[108] See 1946 RHA, *supra* note 3, § 1 (authorizing "the following works of improvement . . . to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans and subject to the conditions recommended by the Chief of Engineers in the respective reports hereinafter designated"); Chief's Report, *supra* note 17, ¶ 11(d) (recommending approval of the ACF plan "with such changes as in the discretion of the Secretary of War and the Chief of Engineers may be advisable.").
[109] 2002 Memorandum, *supra* note 3, at 6-7; 2009 Memorandum, *supra* note 3, at 18.
[110] 2009 Memorandum, *supra* note 3, at 16-19.
[111] Newman Report, *supra* note 15, ¶ 73; 2009 Memorandum, *supra* note 3, at 16-22.
[112] 2009 Memorandum, *supra* note 3, at 18.

adopted in the 1946 RHA, that water supply was not inherently subordinate to hydropower, as Congress entrusted the Corps with the discretion to make some tradeoffs between the hydropower and downstream water supply purposes in its subsequent operation of the Buford Project.[113] Thus, with regard to downstream water supply from the Buford Project, the earlier distinction between an "expressly authorized purpose" and an "incidental benefit" was misplaced. By approving the Newman Report, Congress specifically approved the use of storage in Lake Lanier for downstream water supply, and no specific "reallocation" of storage is necessary to use that storage for downstream water supply purposes.[114]

In accordance with the comprehensive plan of development that Congress approved in the 1946 RHA, and with the concept of multipurpose reservoirs that was becoming predominant at that time,[115] the Corps designed the Buford reservoir with substantial storage to contain floodwaters in the upper reaches of the ACF basin, and with additional storage to be used to serve all systemwide purposes, including hydropower and water supply. In multipurpose Corps reservoirs such as Buford Dam, conservation storage is used for all purposes, other than flood control, and "applying specific storage allocations or reservations for competing conservation purposes should be kept to a minimum because it reduces operational flexibility."[116] This multipurpose storage is maintained, or "conserved," as "commingled or joint-use conservation storage for all conservation purposes with operational criteria to maximize the complementary effects and minimize the competitive effects"; this joint-use concept "is far easier to manage and, if carefully designed, will provide better service for all purposes" than specific allocations among the various purposes.[117] In the absence of strict allocations of multipurpose storage, the Corps must design operations that balance all authorized purposes, in a manner that respects Congressional intentions and expectations when authorizing the project for construction.[118] At the Buford Project, this means using storage to support operations for all authorized purposes

[113] *Tri-State Water Rights Litigation*, 644 F.3d at 1188-90 & n. 20, 1192-93, 1200 (water supply not "subordinate" to hydropower or other purposes); *id*. at 1197 (holding "that the Corps does have some authority under the RHA to balance among the authorized uses and increase the water supply purpose at the expense of the power purpose").

[114] Previously, I interpreted the 1946 RHA to authorize the Corps to provide some incidental water supply benefits from the Buford Project, but not to allocate storage specifically for the purpose of water supply. See 2002 Memorandum, *supra* note 3, at 7 & 1; 2009 Memorandum, *supra* note 3, at 2, 13, 16, 19-21. For the reasons explained in today's memorandum, I am clarifying my view that the Corps is authorized under the 1946 RHA to use conservation storage in Lake Lanier (i.e., storage between elevations 1070/1071 and 1035) to make releases for downstream water supply at Atlanta, provided that storage remains available to operate for all other authorized purposes of the ACF system.

[115] See discussion *supra* notes 12-15. The Corps recognized the virtues of multipurpose design during the era when the ACF system was first conceived, and Congress understood and approved this concept when authorizing basin-wide plans for development projects like the ACF project. DAVID P. BILLINGTON, ET AL., THE HISTORY OF LARGE FEDERAL DAMS: PLANNING, DESIGN AND CONSTRUCTION 121, 453 (2005). The history of the Corps' works in the ACF basin exemplifies this historic trend, as federal water resource development activities in the basin evolved from purely navigational works in the 1870s, to navigation, hydropower and flood control studies after 1925, to a full-scale plan of development in 1939. See *supra*, part II.A.

[116] EM 1110-2-1420, HYDROLOGIC ENGINEERING REQUIREMENTS FOR RESERVOIRS at 2-2, 3-2.

[117] *Id.*

[118] See *South Dakota v. Ubbelohde*, 330 F.3d 1014, 1018, 1027-28 (8th Cir. 2003) (in carrying out statutory charge to manage Missouri River reservoirs, "the Corps must strike a balance among many interests, including flood control, navigation, and recreation"); ACF Remand Modeling Technical Report, *supra* note 7, at 19 ("The multiple water demands in the basin require that the Corps operate the system in a balanced manner in an attempt to meet all authorized purposes, while continuously monitoring the total system water availability to ensure that project purposes can at least be minimally satisfied during drought periods.").

throughout the ACF system, in accordance with the plans set forth in the Newman Report and approved by Congress when it enacted the 1946 RHA.

2. Delegation of Discretion to the Corps to Balance the Hydropower and Water Supply Purposes in Operating the Buford Project and the ACF System

By adopting the Newman Report, Congress expressed its intent for the Corps to operate the project for peaking hydropower generation, as part of a system to contribute to energy development in the Southeast. The Newman Report contained estimates of these hydropower benefits, but expressed those benefits in terms of *system* power value, as the plan that was authorized involved a series of improvements that were to be operated together, as a system, to achieve multiple, interconnected and compatible purposes.[119] Congress did not envision or ensure any fixed entitlement to hydropower yields from the Buford Project, and expected that the hydropower value of the ACF system would be variable, with reductions possible over time.[120] The hydropower generated at Buford Dam and the other improvements in the ACF system was intended to supplement the existing electricity system in the southeast, and the Corps was required to deliver such electricity as was not needed for the operation of the Corps projects to the regional federal power marketing agency in accordance with Section 5 of the Flood Control Act of 1944, which provides as follows:

> Electric power and energy generated at reservoir projects under the control of the Department of the Army and in the opinion of the Secretary of the Army not required in the operation of such projects shall be delivered to the Secretary of Energy, who shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles, the rate schedules to become effective upon confirmation and approval by the Secretary of Energy.[121]

Thus, Congress left to the Corps the responsibility for determining what power should be produced from its ACF projects, and the federal power marketing agency, not the Corps, was (and is) responsible for distributing this power to customers and establishing rates for its sale.[122]

More specifically, in authorizing the ACF system, Congress expected that the Corps would adjust hydropower operations at the Buford Project over time, shifting the initial balance between the hydropower and water supply purposes in order to accommodate the water supply needs of the "rapidly growing Atlanta metropolitan area.[123] The Newman Report recognized that releases of 600 cfs from Buford Dam to provide flows of 650 cfs downstream at Atlanta, sufficient for the water supply needs identified in 1946, would be insufficient by 1960, and expected that the Corps would increase releases from Buford Dam to ensure flows of 800 cfs just

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[119] Newman Report, *supra* note 15, ¶¶ 69-70, 80, 100.
[120] *Id*. ¶¶ 77, 80. In fact, the hydropower capacities of the federal ACF projects were increased considerably after authorization, while their load factor was decreased. See *supra* notes 33, 41.
[121] 16 U.S.C. § 825s; ENGINEER REGULATION (ER) 1105-2-100, PLANNING GUIDANCE NOTEBOOK at 3-27 (22 April 2000).
[122] *Id*.; see also *Tri-State Water Rights Litigation*, 644 F.3d at 1169.
[123] Newman Report, *supra* note 15, ¶¶ 73, 80; *Tri-State Water Rights Litigation*, 644 F.3d at 1169.

14 years into the future.[124] General Newman recognized that increasing releases from Buford Dam for downstream water supply could cause a "slight decrease in system power value," but found that this decrease would be "outweigh[ed]" by the benefits to Atlanta's water supply.[125]

How those 800 cfs flows were to be ensured, the extent to which Atlanta's water supply needs might grow, and the extent to which the Corps could continue to accommodate those needs by trading off hydropower for water supply benefits, were not specified in the 1946 RHA or in the Chief's Report; instead, Congress left those matters to the Corps' engineering and water management expertise.[126] Congress expected that the Corps would increase the releases from Buford Dam over time to accommodate growing downstream water supply needs, and this change in operations over time is authorized under the 1946 RHA.[127] Storage in Lake Lanier may therefore be used for downstream water supply needs without a specific "reallocation" of storage for operational purposes, because the storage needed to make releases for water supply is already available for that purpose in the conservation storage pool at Lake Lanier.[128] The limit of the Corps' legal authority to accommodate downstream water supply withdrawals therefore becomes a question of how much conservation storage is available to make releases for downstream water supply, while continuing to operate for all authorized system purposes, in keeping with Congressional expectations.[129]

3. Technical Limits of Authority to Accommodate Downstream Water Supply Withdrawals under the 1946 RHA

In order to determine the extent of downstream water supply withdrawals that can be accommodated from existing conservation storage at Lake Lanier, consistent with the principles of multipurpose reservoir design and Congressional intent in the 1946 RHA, the Mobile District modeled a set of operations in which the reservoir would be drawn down to, but not below, its minimum elevation of 1035 during the most severe drought of record, in order to maintain the highest possible downstream flows, while also maintaining operations for all other authorized purposes.[130] This corresponds to the design concept presented in the Newman Report, in which the Buford Reservoir was described as "provid[ing] a usable [conservation] storage of 1,033,000 acre-feet with a draw-down of 40 feet, with this storage capacity designed to serve all purposes other than flood control."[131] By using the available conservation storage within the reservoir—and without any changes to flood control storage or operations—the Corps could make releases from Buford Dam to ensure dependable flows during the worst drought on record of up to 1810 cfs at Atlanta. A flow of 1810 cfs would enable water supply providers to withdraw up to an

[124] Newman Report, *supra* note 15, ¶¶ 79-80.
[125] *Id*. ¶ 80; see also *Tri-State Water Rights Litigation*, 644 F.3d at 1187-88, 1200.
[126] See *Tri-State Water Rights Litigation*, 644 F.3d at 1188 & n.19.
[127] Put differently, as the Eleventh Circuit noted, increasing releases as Congress expected may "not actually constitute a 'change' of operations at all." *Id*. at 1202.
[128] See discussion *supra* note 114 and accompanying text.
[129] As explained *supra* note 4, the conclusion that a particular mode of operation is both legally permissible and technically feasible does not mean that it is the only operation that could be considered, that the Corps is obligated to select that mode of operation, or even that it would be reasonable, in view of all appropriate considerations, to do so.
[130] ACF Remand Modeling Technical Report, *supra* note 7, at 44 (alternative labeled "IMPMAXRHA").
[131] Newman Report, *supra* note 15, ¶ 72. As discussed *supra* notes 41-43 and accompanying text, the drawdown decreased from 40 to 35 feet in the final design, but the conservation storage pool increased from 1,0330,000 to 1,049,400 acre-feet, due to the different configuration of the final dam and reservoir design.

annual average of 685 mgd (1060 cfs) downstream at Atlanta, while maintaining the minimum flow of 750 cfs after withdrawals that Georgia specified in its 2000 request for water quality. The model results demonstrate that increasing releases from Buford Dam to amounts greater than 600 cfs would result in only a "slight decrease in system power value," precisely as General Newman predicted in the report that Congress adopted when authorizing the ACF plan of development.[132] Flows of 1810 cfs at Atlanta would be nearly three times the minimum flow that was required in 1946 (650 cfs), and considerably more than the 1381 cfs flows that Georgia has requested for 2030, but such flows would cause average annual energy value from the ACF system to decrease by just 1.25 percent, from $150,169,000 to $148,299,000, compared to a mode of operations in which only 600 cfs would be released from Buford Dam.[133] The dependable capacity of Buford Dam would decrease only minimally, from 114.24 megawatts to 113.04 megawatts, and system-wide dependable capacity would actually *increase*, from 749.26 megawatts to 751.52 megawatts.[134] Similarly slight impacts, with reductions of less than 1 percent in hydropower value and dependable capacity, would be anticipated if the Corps were to operate to ensure flows of 1381 cfs at Atlanta by 2030, as Georgia has requested.[135] All other authorized purposes of the ACF system would continue to be achieved under this mode of operation, including no changes in flood control, greater navigation potential than currently exists, continued operations for fish and wildlife conservation, and recreational opportunities at Lake Lanier and throughout the system, in keeping with Congressional expectations.[136]

In summary, increasing releases from Buford Dam to ensure flows of up to 1381 cfs, or even 1810 cfs, at Atlanta would "not actually constitute a 'change' of operations at all" from the range of operations that Congress envisioned when it adopted the Newman Report for the ACF project.[137] To the contrary, the Newman Report expressly proposed making increased releases from Buford Dam to accommodate growing downstream water supply needs at Atlanta, and the minimal reductions to hydropower would not exceed the "slight decrease in system value" that Congress approved.[138] The modeling results confirm that the storage in Lake Lanier would be sufficient to generate peaking hydropower at the project and assure a dependable water supply for Atlanta downstream, while allowing the Corps to continue to operate the ACF system for all authorized purposes, as Congress expected. Thus, the Corps is authorized under the 1946 RHA to make releases for downstream withdrawals up to and beyond the amount requested by Georgia, and no reallocation of storage for those withdrawals is necessary.[139]

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[132] Newman Report, *supra* note 15, ¶ 80.

[133] ACF Remand Modeling Hydropower Study *supra* note 7, at 35, Tab. 15 (comparing "IMP_Power" to "IMPMaxRHA"). The basis for comparison, a mode of operations involving off-peak releases of no more than 600 cfs from Buford Dam ("IMP_Power"), reflects operations to which the Corps would have been constrained under the vacated 2009 district court order. *In re Tri-State Water Rights Litigation*, 639 F. Supp. 2d at 1355.

[134] ACF Remand Hydropower Study, *supra* note 7, at 22 & Tab. 8, 25 & Tab. 9, 43 & Tab. 15 (comparing "IMP_Power" to "IMPMaxRHA").

[135] *Id*. at 22-2, D-1, showing systemwide reduction in average annual energy value of 0.73%, from $150,169,000 to $149,079,000, systemwide reduction in average annual dependable capacity of 0.50%, from 749.26 MW to 745.53 MW, and systemwide reduction in total average annual generation of 0.60%, from 2,166,000 MWh to 2,153,000 MWh, under alternative "IMPGA2030B," as compared to alternative "IMP_Power."

[136] See ACF Remand Modeling Technical Report, *supra* note 7, app. B, Modeling Output Spreadsheet.

[137] *Tri-State Water Rights Litigation*, 644 F.3d at 1202.

[138] Newman Report, *supra* note 15, ¶ 80.

[139] To the extent that it would be appropriate to revise the 1959 ACF system cost allocation study, upon adopting a revised mode of operations that increased downstream flows for water supply, this could result in a revised

4. Authority for Direct Reservoir Withdrawals under the 1946 RHA

In adopting the Chief's Report and the Newman Report, Congress expressly authorized the use of storage in Lake Lanier to make releases to accommodate water supply withdrawals from the Chattahoochee River downstream at Atlanta. The use of the reservoir for direct water supply withdrawals, on the other hand, was not discussed in the Chief's Report or Newman Report, and was therefore not specifically authorized in the 1946 RHA. At the time the 1946 RHA was enacted, the Corps had no programmatic authority to include water supply at its reservoirs as a project purpose, and became involved in water supply only on a limited basis, either under a specific project authorization (such as the delivery of downstream releases to Atlanta from the Buford Project) or under the authority of a 1937 statute, codified at 33 U.S.C. § 701h. That statutory provision authorizes the Corps to modify "the plans for any reservoir project . . . to include additional storage capacity for domestic water supply," but only "on condition that the cost of such increased storage capacity is contributed by local agencies and that the local agencies agree to utilize such additional storage capacity in a manner consistent with Federal uses and purposes."[140] The Corps did not invoke § 701h in connection with the Buford Project, Corps officials and local interests testified to Congress that they did not need to pay for the cost of increasing storage capacity in Buford Dam for water supply, and no such payments were ever made.[141] Rather, the contemplation of Congress in authorizing the ACF system was that Atlanta's downstream water supply needs would be satisfied by multipurpose releases from Buford Dam, without specifically allocating storage for that purpose, and without charging water supply users for that operation.

Certain, limited withdrawals directly from Lake Lanier were allowed at the time the Buford Project was constructed. As previously noted, the Corps entered into contractual agreements to compensate two local entities for the relocation of their preexisting water supply facilities at the reservoir site, expressly allowing continued withdrawals of up to 10 mgd from Lake Lanier by the Cities of Buford and Gainesville, Georgia.[142] These relocation agreements, necessary in order to complete the authorized construction of the Buford Project, were based on Constitutional principles rather than statutory water supply authority, and did not require any

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accounting for the costs and benefits of the Buford Project. Such accounting may, in turn, lead the Southeastern Federal Power Administration (SEPA) to adjust the rates it charges for electricity generated from the federal ACF projects, ultimately affecting the rates paid by hydropower customers who purchase that electricity. However, apart from any such adjustments that SEPA, at its discretion, might make, and any adjustments that may be appropriate under agreements between SEPA and third parties, no compensation would be owed to the hydropower purpose or to hydropower customers as a result of the Corps' discretionary change in operations for authorized purposes. Neither the 1946 RHA, the Flood Control Act of 1944, nor any other applicable law contemplates or authorizes such compensation from the Corps. See *infra* part III.F.

[140] War Department Civil Appropriations Act of 1938 § 1, ch. 511, 50 Stat. 518 (July 19, 1937), codified at 33 U.S.C. § 701h. See also 2002 Memorandum, *supra* note 3, at 7 n.1 ("As a general matter, the Army did not have authority to expend federal appropriations for water supply storage in its projects until [enactment of] the Water Supply Act of 1958.")

[141] *Tri-State Water Rights Litigation*, 644 F.3d at 1168-69 ("Congress debated whether Atlanta should be asked to contribute part of the cost of building the Buford Dam . . . . Ultimately, Atlanta was never asked to, and did not, contribute to the construction costs."); see also *id*. at 1191 n.25 ("1937 Flood Control Act" [*sic*], i.e., 33 U.S.C. § 701h, does not apply to Buford Project).

[142] See *supra* note 45.

allocation of or nonfederal payment for storage. Otherwise, diversions of water from Lake Lanier, upstream of Buford Dam, for water supply were *not* authorized under the 1946 RHA as originally enacted, and would require supplemental Congressional authorization.[143]

C. Public Law No. 84-841, Ch. 785, 60 Stat. 634 (July 30, 1956) ("1956 Act")

Just ten years after enactment of the 1946 RHA, Gwinnett County, located to the northeast of Atlanta in proximity to Lake Lanier, requested the ability to make withdrawals directly from the reservoir, and the Corps responded that Congressional authorization would be required. Accordingly, in Public Law No. 84-841 (July 30, 1956), Congress expressly modified the Buford Project by authorizing the Secretary of the Army to contract with Gwinnett County, for up to 50 years upon terms that the Secretary deems reasonable, "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" (i.e., 10 mgd).[144] The Eleventh Circuit has held that this statutory authority did not expire 50 years after enactment, and remains valid, and would allow the Corps "to contract with [Gwinnett County] for 10 mgd for water supply" from Lake Lanier.[145]

By its plain terms, the statute contemplated withdrawals directly from the reservoir, instead of downstream, as it authorized the granting of "an easement over Government lands at Buford Reservoir for the sole purpose of constructing . . . necessary pipelines and pumping station [*sic*] to *remove such water from said reservoir*."[146] Both the House and Senate reports expressly noted that "[t]he use of storage space in the reservoir for furnishing water to Gwinnett County would not interfere substantially with the primary purposes of the project," and that the legislation authorizing such use "would not result in any increased costs nor in any losses to the United States."[147] Despite these minimal impacts to project purposes and the federal purse, and notwithstanding that Congress expected the Corps to accommodate downstream water supply needs when it authorized the Buford Project in the 1946 RHA, supplemental authority was

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[143] See Civil Functions, Dep't of the Army Appropriations for 1952: Hearings Before the Subcomm. of the H. Comm. on Appropriations, 82d Cong. 120 (1951) (statement of Colonel Potter that plan for Buford Dam "is not a problem of furnishing water directly or furnishing storage for that purpose; it is the regulation of the river that gives them a constant supply . . . . With this dam letting out a constant supply of water every day their water-supply problem is reduced immensely"); *id*. at 121 (distinguishing delivery of flows from Buford Dam to Atlanta from dam near Dallas where additional storage capacity was added for water supply, and local interests contributed $3,000,000); *id*. at 122 (observing that Congressional authorization would be required if water "would have to be diverted" for water supply); see also *Tri-State Water Rights Litigation*, 644 F.3d at 1168-69 (citing statement of Colonel Potter in 1951 that "the Corps would have to obtain additional water supply authorization" if Atlanta requested greater water supply than could be delivered downstream by releases from Buford Dam).

[144] Pub. L. No. 84-841, ch. 785, 70 Stat. 725 (July 30, 1956). 11,200 acre-feet divided by 365 days equals 30.68 acre-feet/day; 30.68 acre-feet divided by 3.07 (the conversion factor of acre-feet to mgd) equals 9.995 mgd, or 10 mgd.

[145] *Tri-State Water Rights Litigation*, 644 F.3d at 1197-98. As noted *supra*, I did not address this statute in my previous opinions regarding the Corps' authority for water supply associated with the Buford Project. The district court found that the 1956 Act had expired in 2006, *In re Tri-State Water Rights Litigation*, 639 F. Supp. 2d at 1350 n.24, but the Eleventh Circuit confirmed that it remains valid, should the Corps choose to exercise it. *Tri-State Water Rights Litigation*, 644 F.3d at 1198.

[146] Public Law 84-841 (emphasis added).

[147] H. REP. NO. 84-2672, at 2 (July 10, 1956); S. REP. NO. 84-2689, at 2 (July 20, 1956).

necessary in order for the Corps to provide for direct withdrawals from the reservoir.[148] The 1956 Act conferred this authority, authorizing the Corps to contract with the County for withdrawals of up to 11,200 acre-feet annually from Lake Lanier.

The 1956 Act also provided that the Secretary of the Army should determine a "reasonable" charge for the Gwinnett County withdrawals, and directed that proceeds should be deposited as miscellaneous receipts in the U.S. Treasury. Unlike the downstream withdrawals that could be accommodated by releasing water from conservation storage to achieve multiple purposes, including hydropower, the withdrawals authorized in the 1956 Act for Gwinnett County served only the single purpose of water supply. Although the legislative history indicated that the withdrawals would neither affect project purposes nor involve any costs to or revenues foregone by the United States, Congress nonetheless directed the Corps to charge some amount for the benefit that Gwinnett County would receive from the use of that storage. Nothing in the statute indicates, however, that the hydropower purpose or entities benefitting from hydropower operations should be compensated.

D. Water Supply Act of 1958

1. Purposes and Limitations

Two years after the 1956 Gwinnett Act, Congress further expanded the Army's authority with regard to water supply by creating a general discretionary authority applicable to all Corps reservoirs. The Water Supply Act of 1958, 43 U.S.C. § 390b, authorizes the Secretary of the Army to include storage in any Corps reservoir for the purpose of municipal and industrial water supply:

> [I]t is hereby provided that storage may be included in any reservoir project surveyed, planned, constructed or to be planned, surveyed and/or constructed by the Corps . . . to impound water for present or anticipated future demand or need for municipal or industrial water, and the reasonable value thereof may be taken into account in estimating the economic value of the entire project: *Provided*, That before construction or modification…is initiated, State or local interests shall agree to pay the cost of such provisions on the bases that all authorized purposes served by the project shall share equitably in the benefits of multiple purpose construction as determined by the Secretary of the Army . . . .[149]

Congress intended for the Corps to use this authority to assume an active role, in conjunction with State and local interests, "in developing [municipal and industrial] water supplies in connection with the construction, maintenance, and operation of Federal navigation, flood control . . . or multiple purpose projects," i.e., by including storage for water supply in the

[148] *Id*. The House and Senate Reports accompanying the 1956 Act explained that only one general authority, Section 6 of the Flood Control Act of 1944 (codified at 3 U.S.C. § 708), enabled the Secretary of the Army at that time (two years prior to enactment of the Water Supply Act of 1958) to enter into contracts for water supply withdrawals from Corps reservoirs. That authority was unavailable at Lake Lanier, because Section 6 "applies only to surplus water, whereas there actually will be no surplus water in the reservoir." Thus, the House and Senate Reports concluded, "the Department of the Army cannot legally enter into a contract with the county pursuant to section 6."

[149] Water Supply Act of 1958 § 301(b), 43 U.S.C. § 390b(b).

planning for new Corps projects, or by allowing the use storage in existing Corps projects for water supply, to the extent it could not already be used for that purpose.[150] This "more comprehensive authority" [151] for the inclusion of water supply storage exceeded the more limited scope of earlier statutes that authorized the Corps to contract for the provisional, municipal and industrial "uses" of "surplus water" available in its reservoirs, or to include storage in the initial planning of projects, if that use would be consistent with federal purposes and if local sponsors paid for such storage in advance.[152] The Water Supply Act thus "establishe[d] a sort of new field on water supply,"[153] qualified, however, by certain limitations on the Corps' ability to modify projects without further Congressional approval, in section 301(d) of the Act:

> Modifications of a reservoir project heretofore authorized, surveyed, planned, or constructed to include storage . . . which would seriously affect the purposes for which the project was authorized, surveyed, planned, or constructed, or which would involve major structural or operational changes shall be made only upon the approval of Congress as now provided by law.[154]

The key terms applicable to these limitations, "seriously" and "major," are not defined in the Water Supply Act, and must be given their ordinary meaning, in light of the purpose and text of the Water Supply Act as a whole.[155] In ordinary usage, these terms connote changes that are fundamental in scope, but without context, they lack meaning.[156] In the context of the Water Supply Act, what is relevant is the Congressional intent for the purposes and operation of the particular project where water supply storage is under consideration. The language of section 301(d) of the Water Supply Act reflects Congress's recognition of what "including" storage would entail: it would involve changes to the physical structure or the operation of an authorized project, and such changes could affect the purposes for which that project had previously been authorized. Section 301(b) specifically authorizes the Corps to make structural or operational changes to include water supply, and to affect project purposes in so doing; but § 301(d) requires the Corps to consider whether the *degree* of those changes fundamentally conflict with what Congress intended when it authorized the project for construction (or with any other applicable law). Modifications that cross that threshold would interfere with legislative prerogatives, and require Congressional approval. Therefore, the statutory terms "major" and "seriously" in § 301(d) refer to changes and impacts that fundamentally depart from Congressional intent for a project, as expressed through the authorizing legislation relevant to that project.[157] If a project

[150] Water Supply Act § 301(a), 43 U.S.C. § 390b(a).
[151] H. REP. NO. 85-1122, at 77 (1957); see also H. REP. NO. 85-1894, at 134-35, S. REP. NO. 85-1710, at 133.
[152] See Flood Control Act of 1944, § 6, Pub. L. No. 78-534, 58 Stat. 890 (codified at 33 U.S.C. § 708) (surplus water); War Department Civil Appropriations Act of 1938 § 1, ch. 511, 50 Stat. 518 (July 19, 1937), codified at 33 U.S.C. § 701h (storage in reservoir planning).
[153] 104 Cong. Rec. S11497 (daily ed. June 17, 1958) (statement of Mr. Case).
[154] Water Supply Act of 1958 § 301(d), 43 U.S.C. § 390b(d).
[155] *United States v. Boisdore's Heirs*, 49 U.S. 113, 122 (1850); 2A SUTHERLAND STATUTORY CONSTRUCTION § 46:5 (7th ed. 2011).
[156] See, e.g., WEBSTER'S THIRD NEW INT'L DICTIONARY (1971) (defining "major" as, *inter alia*, "notable or conspicuous in effect or scope," "involving grave risk," "serious"; defining "seriously" as, *inter alia*, "to a serious extent," "earnestly, severely").
[157] See 2009 Memorandum, *supra* note 3, at 11-12.

was authorized as part of a system, to achieve multiple purposes throughout that system, Congressional intent for the project must be interpreted in this light.[158]

2. Analyzing the Authority to Accommodate a Water Supply Request under the Water Supply Act

In evaluating a request for water supply from a Corps reservoir under the Water Supply Act, the Corps must determine whether the request, in its totality, is technically feasible, and if so, whether operations to accommodate the request are within the Corps' legal authority. First, the Corps must determine whether there is sufficient capacity in the reservoir to accommodate the water supply withdrawals, and the return flows, if any, that are projected in the water supply request. To make this determination, the Corps models operations that would accommodate the request, taking into account the total withdrawals and returns projected in the request. This modeling enables the Corps to identify the impacts to operations and authorized purposes that would result from accommodating the request. By evaluating these impacts in light of the Congressional intent for the project, the Corps can determine whether it has the legal authority under the Water Supply Act to grant the request, or whether the operational changes and impacts to authorized purposes would fundamentally depart from Congressional intent for the project. These technical and legal determinations are ultimately dependent on the actual withdrawals from the reservoir and returns to the reservoir that are projected in the request, because storage capacity and actual operations are a function of how much water flows into and out of the reservoir. Thus, to evaluate its legal authority to accommodate a water supply request, the Corps must evaluate the request in its totality, including all projected withdrawals from the reservoir and return flows to the reservoir.

Having concluded that a water supply request is both technically feasible and within the Corps' legal authority under the Water Supply Act, the Corps must next, in order to exercise that authority, determine how much storage to contract for to meet the request, and on what terms. The text of the Water Supply Act itself does not dictate how this amount of storage should be determined. 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.[159] The Corps' general practice when contracting for storage under the Water Supply Act is to sell rights to an amount of storage that is expected to provide, during the critical period (i.e., during the worst drought on record), a yield equal to the water supply withdrawals that are requested.[160] With

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[158] Note that Congress did not authorize the Buford Project, or any other specific ACF project, independently in the 1946 RHA, but rather, authorized the prosecution of the collective "works of improvement . . . in accordance with the plans and subject to the conditions recommended by the Chief of Engineers" in the report for the "Apalachicola, Chattahoochee and Flint Rivers." 1946 RHA, *supra* note 25, § 1. See discussion *infra* note 167.

[159] See Model Format for Reallocated Water Supply Storage Agreements (Aug. 30, 2007), *available at* http://www.usace.army.mil/Missions/CivilWorks/ProjectPartnershipAgreements/model_other.aspx (last visited May 14, 2012), arts. 1.b, 1.d ("The User recognizes that this agreement provides storage space for raw water only. The Government makes no representations with respect to the quality or availability of water and assumes no responsibility therefor"), *id*. 2 ("The User has the full responsibility to acquire in accordance with State laws and regulations . . . any and all water rights needed for utilization of the storage provided under this agreement.").

[160] ER 1105-2-100 at E-225, Table E-31 n.2. This yield, or "critical yield," is determined based on historic inflows and losses from all sources, excluding the proposed withdrawals and returns, that are expected to occur during the

regard to return flows that water supply providers may release back into the reservoir, I am informed that—although there is no legal requirement or written Corps policy governing return flow accounting—the Corps' general practice has been to recognize water supply providers' return flows in the same manner as all inflows to the reservoir, meaning that whatever flows are returned to the reservoir by any user are credited proportionately to all storage accounts in the reservoir.[161] Other accounting methods, such as direct crediting of return flows to the specific account of the water supply storage user who has provided the return flows, or taking return flows into account when calculating the amount of storage to contract for to accommodate a particular water supply request, may also be legally permissible, given the broad discretion conferred under the Water Supply Act to "include" storage "to impound water" for water supply.[162] Again, the Corps has no official policy in this regard; promulgation of such a policy is within the purview of the Secretary of the Army, and beyond the scope of the legal analysis provided in this opinion.

Regardless of how the amount of storage is calculated, the amount or percent of storage contracted for under the Water Supply Act is not determinative of whether a proposed action will result in major structural or operational change or seriously affect authorized purposes.[163]

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critical period. For Lake Lanier, the critical yield—accounting for diversions in the ACF system, but excluding water supply withdrawals from and returns to Lake Lanier—has recently been determined to be 1460 cfs (944 mgd). See U.S. Army Corps of Engineers, Mobile District, Federal Storage Reservoir Critical Yield Analysis, Alabama-Coosa-Tallapoosa (ACT) and Apalachicola-Chattahoochee-Flint (ACF) River Basins at 2-3, 9 (February 2010), *available at* http://www.sam.usace.army.mil/pa/acf-wcm/docs.htm#analyses (last visited June 3, 2012).

[161] I am aware that Corps officials have stated on certain occasions that the Corps "policy," i.e., general practice, has been to contract for storage based on the amount of storage necessary to yield the maximum requested withdrawals during the critical drought period, and to treat "return flows" as general inflows, rather than crediting them to the storage users who provide those return flows to the reservoir. See, e.g., Jimmy F. Bates, Chief, Policy and Planning Division to Commander, South Atlantic Division, Subject: Disposition of Inflows to Corps Reservoirs Originating with Users' [] Storage in Those Reservoirs (27 July 1989). However, those statements are not reflected in current policy guidance or draft water supply agreements, and I am aware of no legally binding policy, law or regulation that would mandate this approach.

[162] Water Supply Act § 301(b), 43 U.S.C. § 390b(b) (emphasis added). Notably, the Water Supply Act authority differs from the other primary source of the Corps' authority to provide for municipal and industrial water supply, Section 6 of the Flood Control Act of 1944, which authorizes the Secretary of the Army to "make contracts . . . for domestic and industrial uses for surplus water that may be available at any [Corps] reservoir." Under Section 6, the Corps does not grant rights to storage, but only to the provisional use, i.e., withdrawal, of surplus water from a Corps reservoir.

[163] 2009 Memorandum, *supra* note 3, at 11 & n.12. In section 301(d) of the Water Supply Act, the provision in which Congress set forth limitations on the Corps' authority under the Water Supply Act, Congress chose not to specify any number in connection with those limits. Percentages of costs and benefits associated with Corps reservoir projects are relevant under certain statutory and regulatory provisions, but these provisions are different from, and may not be correlated with, the percent of storage needed to accommodate a particular water supply request. For example, section 301(b) of the Water Supply Act provides that "not to exceed 30 percent of the total estimated cost of any project may be allocated to anticipated *future* demands." 43 U.S.C. § 390b(b) (emphasis added). This provision limits the share of construction costs that can be deferred for future recovery, and the statute provides no indication that the 30 percent figure relates to a percent of storage, for current water supply needs or at all. (To the extent such percentages may coincide, there could be no question that Congress contemplated that the Corps could allocate more than 22 percent of storage without involving major structural or operational change or seriously affecting any authorized purpose). See also ER 1105-2-100 at 3-32 to 3-33 (if water supply benefits exceed 80 percent of total benefits in a multipurpose project without separable storage for flood control, navigation, or water supply, or 90 percent of total benefits in a project with such separable storage, the proposed project "is considered single purpose M&I water supply and thus not eligible for Federal participation").

Rather, it is the actual operational changes and impacts to project purposes that would result from accommodating the projected withdrawals and returns that determine whether accommodating the request would fundamentally depart from Congressional intent for the project in question. Nonetheless, the courts and other parties have at times focused too narrowly upon the amount of acre-feet or the percentage of storage proposed for "reallocation" under the Water Supply Act, without considering the actual operational changes and impacts to project purposes that would result from the proposed action to include storage for water supply.[164] This focus is misplaced, relying on a term, "reallocate," that does not appear in the Water Supply Act at all, and applying a numerical threshold that lacks support in the text of the Water Supply Act. The fact that the same amount of storage "reallocated" to accommodate a given water supply need necessarily constitutes different percentages of "total storage," "total usable storage," and "conservation storage," and could vary further depending on the accounting methodology employed, demonstrates that the amount or percentage of storage involved is not an appropriate criterion for determining the Corps' legal authority to include storage for water supply under the Water Supply Act.[165] It is the actual, net removal of water from the Corps reservoir—any withdrawals, as well as any returns—that actually affects operations for other authorized purposes, and not the amount or percent of storage to which the Corps grants rights in a Water Supply Act contract.[166]

3. Extent of Authority to Accommodate Georgia's Requested Withdrawals from Lake Lanier under the Water Supply Act

Applying these principles regarding the Corps' authority under the Water Supply Act to Georgia's request, the remaining question to address is whether the Corps has authority under the Water Supply Act to accommodate those withdrawals not already accommodated under other authorities. Under the Water Supply Act, operational changes to include additional water supply withdrawals from Lake Lanier are authorized, so long as the system operations contemplated under the 1946 RHA can be maintained, and so long as the system purposes authorized in the 1946 RHA continue to be achieved, in keeping with Congressional expectations. In this case, Congress expected that the Buford Project would be operated as an integral part of the ACF system, to achieve the purposes Congress authorized for that system when it approved the ACF

[164] For example, the D.C. Circuit determined that a reallocation of 22 percent of "total storage" at Lake Lanier—which was actually a reallocation of 22 or 22.9 percent of *conservation* storage, 14.3 percent of *usable* storage, and 12.6 percent of *total* storage, see *supra*, note 72—amounted to "major operational change," without any discussion of the actual operations necessary to implement that reallocation. The D.C. Circuit declined to address whether such action would "seriously affect" any authorized purpose, while noting that the district court had found that it would not. *Geren*, 514 F.3d at 1318; *Southeastern Federal Power Customers, Inc. v. Caldera*, 301 F. Supp. 2d at 32.

[165] See *Tri-State Water Rights Litigation*, 644 F.3d at 1202 n.39, and discussion *supra*, notes 72, 74.

[166] Corps and Army policies have at times referred to amounts and percentages of usable storage as thresholds for internal approval authority under the Act. The Assistant Secretary of the Army (Civil Works) has delegated authority to the Chief of Engineers to make reallocations of up to 50,000 acre-feet or 15 percent of the "total storage capacity allotted to all authorized purposes" (e.g., "usable storage"), with the Assistant Secretary retaining authority for greater amounts. ER 1105-2-100 at E-215 to E-216. Although Corps guidance at one time indicated that reallocations of less than 50,000 acre-feet or 15 percent of storage "are considered insignificant" and do not require Congressional authorization, no Army policy has ever indicated that reallocations exceeding those thresholds necessarily require Congressional authorization. See 2009 Memorandum, *supra* note 3, at 7 (citing former EM 1165-2-105, Water Supply Storage in Corps of Engineers' Projects (18 Sept. 1961), Change 15, para. 11.e (1 Mar 77)).

plan of development in the 1946 RHA. Focusing on operations or impacts at Lake Lanier alone, without regard to the overall plan of development that Congress approved, would not comport with Congressional intent.[167]

Of the total water supply withdrawals of 705 mgd that Georgia has requested, withdrawals of 408 mgd downstream at Atlanta may be accommodated from releases from conservation storage in Lake Lanier, without a reallocation of storage, under the authority of the 1946 RHA, and 20 mgd in direct withdrawals from Lake Lanier may be accommodated under relocation agreements and the authority of the 1956 Act. Thus, the remaining question the Corps must answer is whether it would have authority under the Water Supply Act to accommodate the remaining 277 mgd in withdrawals from Lake Lanier by 2030.[168] In addressing this question, the Corps must also consider Georgia's projected return flows of 107 mgd to Lake Lanier, because those projected returns were included in Georgia's request, and would affect system operations. The Mobile District's modeling of operations accounts for the impacts of the 277 mgd withdrawals and the 107 mgd in returns on system operations and authorized purposes, and demonstrates that these impacts would not cause any fundamental departure from Congressional intent as expressed in the 1946 RHA.

a) Operational Changes as a Result of Accommodating Georgia's Requested Withdrawals from Lake Lanier under the Water Supply Act

Incorporating Georgia's 2030 water supply request into ACF system operations would not involve any major operational change, because the Mobile District's modeling shows that the requested withdrawals of 277 mgd and returns of 107 mgd to Lake Lanier could be accommodated using the existing conservation storage in Lake Lanier, while maintaining system operations for all other authorized purposes, in keeping with Congressional expectations.[169] At

[167] I note that the Water Supply Act refers to "a reservoir project," rather than to a system of projects. However, the Act also refers to "the purposes for which the project was authorized, surveyed, planned, or constructed." 43 U.S.C. § 390b(d). As discussed *supra*, the Buford Project cannot be understood in isolation, because the Buford Project was proposed and approved as one component in a system of projects, and Congress intended that storage in the Buford Project would be used to regulate flows throughout the system, in order to enable efficient operation of the downstream projects and to accomplish the authorized purposes of the ACF system. Moreover, the tradeoff between water supply and hydropower that Congress endorsed in approving the Newman Report cited "*system* power value," not Buford power value. See Newman Report, *supra* note 15, ¶ 80 (emphasis added); see also *Tri-State Water Rights Litigation*, 644 F.3d at 1187-88, 1200. The technical reports prepared in support of this memorandum evaluated impacts to both "project"-specific and systemwide operations and purposes from Georgia's requested water supply withdrawals and returns, in contrast to the technical analysis for my 2002 memorandum, which focused on Buford alone. See discussion *supra* note 68 and accompanying text.

[168] See ACF Remand Modeling Technical Report, *supra* note 7, at 43-45. As discussed *infra*, part III.B.3, the Corps in theory has the authority to make downstream releases sufficient to accommodate withdrawals of 685 mgd at Atlanta, if direct reservoir withdrawals were limited to 20 mgd. However, that mode of operation would fully utilize all available conservation storage during the most severe drought of record, and there would be no additional storage to accommodate withdrawals from Lake Lanier beyond 20 mgd. Conversely, if the Corps were to reallocate storage to accommodate lake withdrawals greater than 20 mgd, less storage would be available for downstream releases, and the Corps could not accommodate withdrawals of 685 mgd downstream.

[169] The fact that direct water supply withdrawals from Lake Lanier were not specifically authorized under the 1946 RHA does not mean that authorizing such withdrawals would fundamentally depart from Congressional intent for the operation of the ACF system, for several reasons. First, some withdrawals were authorized under relocation agreements that were deemed necessary in order to effectuate Congressional intent by constructing the Buford Project. Second, Congress itself specifically authorized some direct water supply withdrawals when it enacted the

Buford Dam specifically, conservation storage would be used in the manner described in the Newman Report: the 1,087,600 acre-feet of conservation storage between elevations 1071 and 1035 would be drawn down as necessary to provide flows for authorized purposes throughout the system, without fully exhausting available storage during the drought of record. This would be consistent with the approved concept in the Newman Report that the full conservation storage in Lake Lanier, consisting of approximately 1,000,000 acre-feet with 40 feet of drawdown, would be available to serve all system purposes other than flood control. During periods of high flows in the ACF system, lake levels would be maintained in the upper elevations of conservation storage, and storage would be available for all purposes, including Georgia's projected reservoir withdrawals and returns; because water supply withdrawals and returns would be accommodated from the multipurpose conservation storage pool, flood control operations would be unaffected. During periods of low flow in the system, the reservoir elevation would be gradually drawn down, as contemplated in the Newman Report, but sufficient storage would still remain, if Georgia's projected withdrawals and returns occur, to achieve all authorized system purposes. The model shows that during the most severe drought on record, taking into account Georgia's projected 2030 water supply withdrawals from and releases to Lake Lanier, operations for other authorized purposes would involve drawing down the conservation pool in Lake Lanier by approximately 30 feet, to just above elevation 1040, which is 5 feet above the minimum pool elevation that is required for efficient hydropower operations.[170] This would mean drawing the level of Lake Lanier lower than at any point since Buford Dam was completed in 1959, but that pool level would still be above the minimum elevation of 1035, it is feasible from a technical standpoint, and such drawdown was expressly contemplated in the Newman Report (which described a full 40-foot drawdown of conservation storage).[171] Thus, accommodating Georgia's additional withdrawals of 277 mgd from Lake Lanier, along with increased return flows of 107 mgd, would not, in my opinion, involve any operational change departing fundamentally from Congressional intent.[172]

1956 Act, on the understanding that those withdrawals were not inconsistent with system operations or authorized purposes. Third, as a matter of statutory interpretation and common sense, interpreting the restriction on "major operational changes" in Water Supply Act to preclude any operations that were not previously authorized would effectively substitute the term "any" for the term "major," and would defeat the purpose of the Water Supply Act. See discussion *supra*, parts III.B , III.C, III.D.1.

[170] ACF Remand Modeling Technical Report, *supra* note 7, at 31 (noting that Buford Dam is not designed to operate for peaking hydropower generation at pool elevations of less than 1035).

[171] See discussion *supra* parts II.A, III.B. The historic low elevation of Lake Lanier is 1050.79 feet above mean sea level, recorded on December 26, 2007. See http://water.sam.usace.army.mil/gage/bufelev.htm (last visited June 24, 2012).

[172] While drawing the reservoir level down to the bottom of conservation storage is consistent with the design approved in the Newman Report, operations designed to draw the level below the minimum elevation during an anticipated drought of record would not be consistent with that design or prudent reservoir operations. See ACF Remand Modeling Technical Report, *supra* note 7, at 30 (noting that Buford Dam is not designed to operate for peaking hydropower generation at pool elevations of less than 1035). The Mobile District modeling has shown that if Georgia were to make the total withdrawals of 297 mgd from Lake Lanier that it projects for 2030, but did not return the full 107 mgd to Lake Lanier that Georgia has also projected, then conservation storage would be fully exhausted during the critical period (drought of record), and the reservoir level would drop below the 1035 foot minimum that is required for efficient hydropower operations. *Id*., app. B (worksheet "Buford Output Matrix," alternative labeled "IMPGA2030C," showing minimum pool elevation of 1034.77). The legal conclusions in this memorandum are based on the technical assumptions built into the modeling results, including hydrologic forecasting and the assumption that the full withdrawals and return flows to Lake Lanier that Georgia has projected would actually occur; if they do occur as projected, they could be accommodated within the existing conservation

b) Effects on Authorized Purposes as a Result of Accommodating Georgia's Requested Withdrawals from Lake Lanier under the Water Supply Act

If the Corps were to operate the Buford Project to accommodate the 277 mgd in withdrawals from, and 107 mgd in returns to, Lake Lanier that Georgia has projected, the Buford Project would continue to perform the role that Congress expected as the primary storage reservoir for all system purposes, without seriously affecting any of those purposes. The Mobile District's modeling shows that the flood damage reduction capability of the ACF system would be unchanged, navigation benefits would increase from current levels, and opportunities for fish and wildlife conservation and recreation would continue to be provided, in keeping with Congressional expectations. With regard to recreation, lake levels would be expected to fluctuate, and be lower overall, than those experienced in past years' operation of Lake Lanier, and consequently, the quality of surface recreation on the reservoir would be affected. However, the fluctuation would be within the range of draw-down expressly contemplated by the Corps and Congress in the Newman Report, and recreational facilities and water access would continue to be available, at Lake Lanier and throughout the ACF system, as Congress expected.[173] If Georgia's projected withdrawals and returns to Lake Lanier were to occur, then Georgia's projected downstream needs by 2030, for flows of 1381 cfs to enable withdrawals of 408 mgd at Atlanta, could be fully satisfied, although storage may not be available to provide for subsequent increases in downstream water supply withdrawals.

Finally, impacts to the hydropower purpose would be consistent with Congressional expectations and would not rise to the level of "serious." If Georgia's projected withdrawals from and returns to Lake Lanier were to occur, the Corps would continue to achieve the hydropower purpose that Congress intended by generating peaking hydropower throughout the

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storage. Notably, the technical analysis that supported my 2002 legal opinion addressing Georgia's request did not factor in the full returns that Georgia projected. See *supra* note 71 and accompanying text.

[173] Recreation benefits at the Buford Project are afforded pursuant to Section 4 of the Flood Control Act of 1944, 16 U.S.C. § 460d, which authorizes the Corps "to construct, maintain, and operate," or to permit the construction, operation, and maintenance of, recreation facilities at Corps reservoirs, and to provide public access to water areas for recreational purposes. Consistent with Section 4 of the Flood Control Act, the Newman Report discussed recreation benefits at the Buford Site in terms of a shoreline and reservoir that "would present many attractive sites for recreational facilities," without further details. See Newman Report, *supra* note 15, ¶ 96, and discussion *supra* note 22. Such recreational opportunities would necessarily have been consistent with the operations for the Buford Reservoir described in the Newman Report, which contemplated drawing the conservation storage pool down a full 40 feet to generate hydropower and fulfill other authorized system purposes. In deciding whether and how to adjust operations at the Buford Project, the Corps would surely give careful consideration to impacts to recreation benefits from a proposed federal action, focusing on the continued use of recreational facilities adjacent to Lake Lanier and access to water for recreational purposes; however, it is clear that the Corps is authorized as a legal matter to utilize the entire conservation storage pool that Congress authorized the Corps to construct and operate. Similarly, the Division Engineer's Report for West Point Dam, which Congress approved when it authorized the West Point project in 1962, noted that the West Point reservoir would provide "many access points for public recreational facilities" and offer "extensive new opportunities for boating and water sports," both as a 23,500-acre lake at maximum elevation, and as a 17,100 acre lake at minimum elevation. H.R. DOC. NO. 87-570 at 38 (Sept. 24, 1962), Report of the District Engineer ¶ 90 (Nov. 30, 1961); Flood Control Act of 1962, Pub. L. 87-874, § 203. Congressional expectations in terms of the benefits to fish and wildlife conservation from the federal ACF improvements must also have been premised on the operation of the reservoirs within the range of their design elevations, as described in the Newman Report.

ACF system, and delivering that power to the regional federal power marketing agency for distribution. The dependable capacity throughout the system would be reduced by less than 1 percent (from 745.53 to 739.28 MW), and the overall system hydropower value would decrease by just 4.44 percent (from $149,079,000 to $142,463,000), on an annual average basis.[174] These figures for system capacity and value greatly exceed the actual figures presented to Congress in the Newman Report, which estimated system capacity of 187 MW, and annual average system hydropower benefits of $3,377,000 (or approximately $40,000,000 in 2012 dollars).[175] Thus, the systemwide hydropower impacts do not fundamentally depart from Congressional expectations.[176]

In summary, if the Corps were to change its operations of the ACF system to accommodate Georgia's 2030 water supply request, the changes would not be major, and they would not result in serious effects to project purposes systemwide. In fact, the system would be operated in the manner that Congress expected, to achieve all authorized purposes, and the overall hydropower benefits afforded by those operations would exceed the benefits that Congress anticipated when it authorized the ACF plan of development more than 65 years ago.

E. Combined Authority under the 1946 RHA, 1956 Act, and Water Supply Act to Accommodate Current Water Supply Withdrawals

The foregoing discussion has demonstrated that the Corps has the authority to accommodate Georgia's 2030 water supply request under the combined authority of the 1946 RHA (by ensuring downstream flows of at least 1381 cfs at Atlanta), the relocation agreements

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[174] ACF Remand Hydropower Study, *supra* note 7, at 41 (comparing "IMPGA2030B," with reservoir withdrawals limited to 20 mgd, to "IMPGA2030R," including 2030 requested reservoir withdrawals of 297 mgd and return flows of 107 mgd to Lake Lanier).

[175] See Newman Report, *supra* note 15, Tab. 7, and discussion *supra*. To be sure, a variety of factors, including expanded federal hydropower facilities, additional, non-federal facilities, and the changing value of the dollar make direct comparisons to the estimates in the Newman Report difficult, and such an effort is beyond the scope of this memorandum. Nonetheless, as a general point of reference, looking at hydropower value alone, the Newman Report estimated "total system power benefits" of $3,377,000 annually. *Id*. ¶ 98 & Tab. 10. Using one measure of inflation since 1946, $3,377,000 in 1946 would be equivalent to $39,799,244 in 2012. See http://www.bls.gov/data/inflation_calculator.htm (last visited June 18, 2012). The annual power values of the alternatives modeled by the Corps in support of this analysis (including those with the greatest impact to hydropower value) range from $139,516,000 to $150,169,000, in present dollars, and would be $142,463,000 under the Georgia 2030 alternative. ACF Remand Hydropower Study, *supra* note 7, at 22, Tab. 8.

[176] ACF Remand Hydropower Study, *supra* note 7**,** at 4 & Tab. 1, 44 & Tabs. 25, 26. It is appropriate to consider systemwide hydropower benefits, rather than generation at Buford Dam in isolation, for purposes of both the Water Supply Act and the 1946 Act, because the Buford Project was authorized as part of a system, and its storage capacity was intended to produce systemwide benefits, including systemwide hydropower peaking generation. Only the systemwide hydropower figures are relevant to Congressional expectations under these Acts. Nonetheless, considering Buford alone, according to the Mobile District's modeling, the average annual energy value from the Buford Project would decrease by 21 percent (from $10,377,000 to $8,158,000). That decrease in value would be attenuated by hydropower generation throughout the system, as system value would decrease by just 4.44 percent. Similarly, dependable capacity at the Buford Project would be reduced by 6 percent (from 113.62 to 106.76 MW), but systemwide dependable capacity would be reduced by less than 1 percent. The dependable capacity for Buford Dam (106.76 MW) would still greatly exceed the estimate provided in the Newman Report (24 MW), and would also exceed the 105 MW figure that SEPA currently accounts for from the Buford Project for its power marketing purposes. Finally, any decreased revenues flowing to the Treasury from the marketing of hydropower generated at the Buford Project would likely be offset, at least in part, by new revenues from contracts for the use of storage for water supply withdrawals from Lake Lanier.

(authorizing withdrawals of 10 mgd from Lake Lanier), the 1956 Act (authorizing a further 10 mgd in withdrawals from Lake Lanier), and the Water Supply Act (authorizing net withdrawals of 190 mgd from Lake Lanier, including withdrawals of 277 mgd and returns of 107 mgd to Lake Lanier). Currently, Georgia withdraws lesser amounts both downstream and from Lake Lanier, and the Corps has modeled current operations in the technical modeling report and hydropower study. The results demonstrate that current withdrawals from Lake Lanier and downstream are also within the Corps' legal authority to accommodate, because the scope of operational changes necessary to accommodate current levels of water supply, and the effects on authorized purposes, would be less than those analyzed under Georgia's 2030 request.

Current operations accommodate withdrawals of approximately 134 mgd from Lake Lanier, along with return flows of 9 mgd, and withdrawals of approximately 277 mgd downstream at Atlanta, which require minimum flows of 1179 cfs at all times at Atlanta. Releases from Buford Dam sufficient to ensure flows of at least 1179 cfs at Atlanta would be less than those required to maintain flows of 1381 (for Georgia's 2030 request) or 1810 cfs (the maximum sustainable flow at Atlanta during the critical period), which have already determined to be within the operational range authorized by the 1946 RHA.[177] Of the 134 mgd currently withdrawn from Lake Lanier, 20 mgd are authorized under relocation agreements and the 1956 Act. The remaining 114 mgd from Lake Lanier could be accommodated under the Water Supply Act with lesser impacts to operations and authorized purposes than accommodating the greater net withdrawals by 2030 already determined to be within the Corps' authority. Compared to an operations set in which withdrawals would not exceed 20 mgd from Lake Lanier, and releases from Buford Dam for downstream water supply would be limited to 600 cfs—in other words, an operations set assuming the minimum level of water supply envisioned from the Buford Project, without exercising any supplemental Water Supply Act authority—the effect of accommodating the additional, current withdrawals from Lake Lanier under the Water Supply Act is a reduction in systemwide hydropower capacity of just over 1 percent, and a reduction in systemwide energy value of less than 3 percent.[178] For the reasons explained above, these effects on authorized purposes would not be serious within the meaning of the Water Supply Act, and major operational changes are not required to accommodate current withdrawals.

Although the Corps clearly has the authority to accommodate current water supply withdrawals under the combined authority of the 1946 RHA, the 1956 Act, and the Water Supply Act, the Corps has made no final decision to continue current operations, or to adopt some other mode of operations for the ACF system, and any final decision regarding system operations will

[177] See *supra* part III.B.3.

[178] Current operations provide a systemwide, average annual energy value of $145,946,000, with an average annual dependable capacity of 739.98 MW. Under a hypothetical operations set ("IMP_Power") involving just 20 mgd in water supply withdrawals from Lake Lanier, no return flows to Lake Lanier, and releases of no more than 600 cfs from Buford Dam for downstream water supply, along with certain other possible improvements to system operations, the average annual energy value systemwide would be $150,169,000, and the average annual dependable capacity would be 749.26 MW, for differences of 2.81 percent and 1.24 percent, respectively, compared to current operations. The Mobile District has also modeled a set of operations ("IMProved") using the "improved" operations employed in the "IMP_Power" alternative, but also accommodating current water supply withdrawals and returns. The hydropower benefits under that hypothetical, "improved" mode of operations would include an average annual systemwide energy value of $145,682,000 and an annual average dependable capacity of 738.76 MW systemwide, for differences of 2.99 percent and 1.40 percent, respectively, compared to the "IMP_Power" alternative. See ACF Remand Hydropower Study, *supra* note 7, at 22, 25 & Tabs. 8, 9.

be made at the conclusion of the ongoing manual update process and National Environmental Policy Act (NEPA) analysis.

F. "Compensation" to Hydropower Users

When the Corps modifies a reservoir project to include storage for water supply, the Water Supply Act requires that the Corps determine and recover the cost of providing that storage, "on the basis that all authorized purposes served by the project shall share equitably in the benefits of multiple purpose construction as determined by the Secretary of the Army."[179] Any payments received in connection with water supply storage contracts must be deposited with the U.S. Treasury as miscellaneous receipts in accordance with 31 U.S.C. § 3302. A cost accounting may result in "crediting" the hydropower account at a Corps project, i.e., reducing the costs allocated to the hydropower purpose to the extent that hydropower benefits are reduced.[180] However, there is no provision in law that authorizes the Corps to provide direct "financial compensation to power customers."[181] Congress expected the Corps to generate electricity from the federal ACF hydropower projects, and to deliver from this operation such power as was deemed excess to Corps project needs to the regional federal power marketing agency for distribution.[182] The power marketing agency, in this case, SEPA, establishes contracts with power users and determines what rates should be paid. But Congress did not mandate any precise hydropower outputs from any of the ACF projects, Congress did not vest private hydropower customers with any right to power generated by any particular ACF project, and the Corps has not contracted with any private entity for power generated at its ACF projects. Thus, hydropower customers have no vested property right to power generated at the Buford Project for which they would be entitled to compensation.[183] To the extent that a change in operations associated with the use of storage for water supply might alter the benefits afforded from a particular Corps project, this could lead to adjustments in the cost accounting for that project, which could in turn lead the federal power marketing agency to adjust the rates that it charges for delivering hydropower to customers. However, any credit that might be afforded to the hydropower purpose for accounting purposes would be a function of operations that the Corps may, in its discretion, choose to adopt, and of electricity rates that the federal power marketing agency may, in its discretion, choose to establish.[184]

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[179] Water Supply Act § 301(b), 43 U.S.C. § 390b(b). The Water Supply Act of 1958 required that costs allocated to water supply storage be repaid within 50 years, which term has been reduced by subsequent amendment to 30 years. See Pub. L. No. 99-662, Title IX, § 932(a), 100 Stat. 4196 (1986).

[180] *Id*. at 3-33, E-220.

[181] Cf. *Tri-State Water Rights Litigation*, 644 F.3d at 1201 n.36, 1203 n.41; see also *id*. at 1196 n.31.

[182] Flood Control Act of 1944, § 5 (codified at 16 U.S.C. § 825s); Newman Report, *supra* note 15, ¶ 77.

[183] See *Georgia v. U.S. Army Corps of Engineers*, 302 F.3d 1242, 1258 (11th Cir. 2002).

[184] The settlement agreement that the United States entered into with the Southeastern Federal Power Customers, in order to resolve that litigation, did provide for "credit" to hydropower rates paid by SeFPC members in conjunction with prospective reallocations of storage, However, the agreement clearly spelled out that SEPA, not the Corps, "would be responsible for determining the amount of credit to be reflected in hydropower rates," and that "[t]he Army [would] defer to SEPA's determination of credits." Settlement Agreement, Southeastern Federal Power Customers, Inc., U.S. Army Corps of Engineers, Water Supply Providers, the State of Georgia, and the Southeastern Power Administration art. 4.1 (9 January 2003). That settlement agreement was rendered null and void by the D.C. Circuit's ruling in *Geren*.

IV. CONCLUSIONS

A. Key Principles and Findings

The following key principles and findings support the conclusions in this opinion, and respond to specific questions posed by the Eleventh Circuit in its June 2011 remand order:

1. Congressional intent for the Buford Project must be understood in the context of the overall ACF system, because that is what Congress authorized in the 1946 RHA, rather than the Buford Project in isolation.

Under the RHA, Congress authorized the construction and operation of a system of improvements, including the Buford Project, to be operated conjunctively for multiple, systemwide purposes. Considerable storage was included in the Buford Project to store floodwaters (approximately 600,000 acre-feet between elevations 1085 and 1070/1071), and to conserve storage (approximately 1,000,000 acre-feet between elevations 1070/1071 and 1035) for flow regulation throughout the system to achieve all other purposes, including ensuring a downstream water supply at Atlanta, which was expected to increase over time, at the expense of some systemwide hydropower value. Operations that utilize conservation storage between elevations 1035 and 1070/1071 in the present Lake Lanier reservoir, to accomplish the purposes set forth in the Newman Report, including increased releases for downstream water supply, are consistent with Congressional expectations and are authorized under the 1946 RHA. Under the 1956 Act, Congress authorized additional lake withdrawals from Lake Lanier, acknowledging that such withdrawals would not disturb the operations or purposes of the ACF system. Under the Water Supply Act, operational changes to include additional water supply withdrawals from Lake Lanier under the Water Supply Act are authorized, so long as the system operations contemplated under the 1946 RHA can be maintained, and so long as the system purposes authorized in the 1946 RHA continue to be achieved, in keeping with Congressional expectations. Under any mode of operations, a narrow focus on the Buford Project alone, without considering systemwide operations and purposes, would not comport with Congressional understanding when it authorized the ACF system in the 1946 RHA.

2. Earlier distinctions between water supply as an "incidental benefit" rather than an "authorized purpose" of the Buford Project were misplaced.

The Corps' authority under the 1946 RHA to make releases from Buford Dam to accommodate downstream water supply withdrawals from Atlanta is not limited to an "incidental benefit" that might accrue from releases for other purposes. Rather, the 1946 RHA authorizes the Corps to utilize all available conservation storage to accommodate downstream withdrawals, along with the other authorized purposes of the ACF system (other than flood control). Whether water is withdrawn downstream from a flow released for hydropower generation, for navigation, or for water supply is immaterial, as those purposes are interrelated in the multipurpose design of the Buford Project and the ACF system, and it is not necessary under the 1946 RHA to "allocate" a share of the conservation storage in order to make releases to accommodate downstream water supply withdrawals. The Corps' technical modeling shows that the maximum downstream withdrawals at Atlanta that can be accommodated from the multipurpose operation of the existing system are approximately 685 mgd, and this figure is a function of hydrology and available storage.

3. Water supply withdrawals from Lake Lanier would require a storage agreement, but downstream withdrawals accommodated under the 1946 RHA do not.

Because the Corps is not authorized to charge water supply providers for the beneficial use of storage space in Lake Lanier from which water may be released to accommodate downstream withdrawals from the river pursuant to the authority provided by the 1946 RHA, only the use of storage space pursuant to the 1956 Act and the Water Supply Act to make direct withdrawals from Lake Lanier would be subject to charge, and the Corps must determine the cost of any storage made available for water supply pursuant to those statutes.

4. Impacts from actual or proposed operations, rather than amounts or percentages of storage reallocated, are the appropriate measure for determining the extent of the Corps' authority under the Water Supply Act.

The appropriate measures for determining the Corps' authority to include storage for water supply pursuant to the Water Supply Act, that is, whether the proposed action would involve major structural or operational change or seriously affect authorized purposes, are dependent on technical and legal analysis of the particular circumstances involved, in light of Congressional intent as expressed in the original authorizing legislation and subsequent statutory enactments. The amount or percent of storage reallocated to accommodate a water supply need is not a determinative measure in this inquiry, as Congress deliberately chose not to establish bright-line, numerical standards to define the parameters of the Corps' authority under the Water Supply Act. Instead, what is relevant is the Corps' technical assessment of what structural and operational changes would actually be involved, how these changes would affect authorized purposes, and the extent to which these changes and their effects depart from Congressional understanding when authorizing the project.

5. Return flows to a reservoir affect operations and must be considered, along with withdrawals from a reservoir, to determine the impact of accommodating a water supply request under the Water Supply Act; determining the amount of storage to contract for is a separate question, involving policy considerations.

In order to accurately evaluate Georgia's 2030 water supply request, the Corps must consider both the withdrawals from and the return flows to Lake Lanier that Georgia included in its request. Those actual withdrawals and returns—as distinct from the accounting mechanism that the Corps might employ to calculate the amount of storage for contract purposes—govern the impacts to the authorized purposes, which is the touchstone for determining the Corps authority under both the 1946 RHA and the Water Supply Act. The Corps' technical modeling demonstrates that Georgia's projected return flows to Lake Lanier would reduce the impacts on operations, and the effects on authorized purposes, that would otherwise result from the withdrawals that Georgia has requested. Regardless of the methodology for determining the storage amount for contract purposes, the Corps has the legal authority, should it choose to exercise that authority, to grant Georgia's request for withdrawals and return flows at Lake Lanier and downstream by 2030, because adjusting operations to accommodate those

withdrawals and returns would not result in major operational changes or seriously affect any authorized purpose.

6. "Compensation to power customers"[185] is not a proper inquiry with regard to the Corps' operation of the ACF system.

Individual users were not guaranteed specific hydropower yields in the authorizing legislation for the ACF system, and the Corps has no authority to compensate them for any reductions that may occur in the amount of electricity that is made available to them within any given timeframe. The Corps' responsibility is to generate hydropower and accomplish other authorized purposes in accordance with Congressional expectations, and to deliver power not required in operation of its projects to SEPA for further distribution. A change in operations that alters the benefits afforded from Corps projects could lead to adjustments in the cost accounting for those projects, which could lead to adjustments in rates paid for hydropower. However, any credit that might be afforded to the hydropower purpose for accounting purposes would be a function of operations that the Corps may choose to adopt, and electricity rates that the federal power marketing agency in its discretion may establish.

B. Summary of Statutory Authority to Accommodate Georgia's Requested Withdrawals

In summary, there are three separate statutory enactments that authorize the Corps to accommodate Georgia's request for net, annual average withdrawals of 190 mgd from Lake Lanier (including gross withdrawals of 297 mgd and returns of 107 mgd), and to make releases from Buford Dam to accommodate Georgia's requested flows of at least 1381 cfs downstream to allow withdrawals of 408 mgd at Atlanta. Each of these statutes must be considered in light of Congress's expectations that the Buford Project would be operated as an integral part of the ACF system, for the purposes Congress authorized for that system when Congress approved the ACF plan of development.

Under the 1946 RHA, the Corps is authorized to utilize the approximately 1,000,000 acre-feet of conservation storage in Lake Lanier, between elevations 1070/1071 and 1035, to regulate flows throughout the ACF system in order to achieve the authorized purposes (other than flood control) for that system set forth in the Newman Report. Congress expected the Corps to exercise technical discretion to increase the releases from Buford Dam to ensure minimum flows at Atlanta, trading off some systemwide hydropower value in order to secure a dependable downstream water supply at Atlanta as the city developed. Operations to ensure flows of at least 1381 cfs at Atlanta by 2030, to enable withdrawals of 408 mgd downstream as Georgia has requested, would utilize the conservation storage in Lake Lanier in the manner that Congress envisioned when it adopted the Newman Report, with minimal reductions of less than 1 percent in systemwide hydropower value, and no significant effect on other authorized purposes. Such operations would be fully consistent with Congressional intent under the 1946 RHA.

In the 1956 Act, Congress expressly authorized withdrawals of 10 mgd by Gwinnett County under the 1956 Act, and the legislative history demonstrates Congress's conclusion that

[185] See *Tri-State Water Rights Litigation*, 644 F3d at 1201 n.36.

such withdrawals would not interfere with operations for other authorized purposes. A further 10 mgd in withdrawals from Lake Lanier have been authorized since before the project was completed, under relocation agreements executed in the 1950s with the Cities of Buford and Gainesville, Georgia.

Finally, the Corps has authority under the Water Supply Act of 1958 to accommodate the remaining, net withdrawals of 170 mgd from Lake Lanier (including withdrawals of 277 mgd and returns of 107 mgd) that Georgia has requested, provided that Georgia's projected return flows of 107 mgd actually occur. The resulting operations, and the benefits afforded for all purposes, would not fundamentally depart from what Congress expected when it authorized the Buford Project as part of the ACF plan of development in 1946. After accounting for Georgia's withdrawals from and returns to Lake Lanier, the Corps would continue to operate Buford Dam and the ACF system in the manner that Congress expected, by using the available conservation storage in Lake Lanier to maintain a peaking hydropower operation throughout the system, and conserving storage during periods of high flows to make releases for authorized purposes during periods of low flows. The benefits for the authorized purposes of the ACF system would continue to afforded in the manner that Congress expected, with only slight reductions in systemwide hydropower capacity and value, no lessening of flood damage risk reduction, greater navigation opportunities than are presently afforded, continued opportunities for recreation and fish and wildlife conservation, and an assured downstream water supply for Atlanta, up to the level that Georgia has projected for 2030. In short, the Corps could accommodate Georgia's requested net withdrawals from Lake Lanier under the Water Supply without major structural operational changes and without seriously affecting authorized purposes, as the resulting system operations and benefits would not fundamentally depart from Congressional expectations set forth in the 1946 RHA.

C. Conclusion

The Corps has the legal authority to accommodate Georgia's request to withdraw 297 mgd from Lake Lanier, if return flows of 107 mgd are provided, and to make releases from Buford Dam to ensure minimum flows of 1381 cfs downstream at Atlanta, enabling downstream withdrawals of 408 mgd, by the year 2030. Further study, including environmental analysis and consideration of public comments, would be required prior to any decision to actually exercise some or all of this authority. I understand that the Mobile District is presently engaged in an effort to update the water control plans and manuals for the ACF Basin, and that the District will take into account the conclusions set forth in this memorandum as it continues with that necessary and important process.

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