

No. 142, Original

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In The  
Supreme Court of the United States

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STATE OF FLORIDA,

*Plaintiff,*

v.

STATE OF GEORGIA,

*Defendant.*

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DIRECT TESTIMONY OF  
JUDSON TURNER

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October 26, 2016

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## TABLE OF CONTENTS

I.	INTRODUCTION & OVERVIEW .....	1
A.	Director of the Environmental Protection Division .....	1
B.	Director of the Governor's Office for Interagency Coordination and Management of Water Resources .....	3
C.	Positions Prior to Director of EPD.....	4
II.	GEORGIA'S MUNICIPAL & INDUSTRIAL WATER SUPPLY.....	5
A.	Tri-State Water Rights Litigation .....	5
1.	Background on the Tri-State Water Rights Litigation.....	5
B.	Florida Blamed the Corps for Its Purported Ecological Injuries .....	6
1.	Phase I Allegations of Harm Caused by the Corps.....	7
2.	Phase II Allegations of Harm Caused by the Corps .....	9
C.	Georgia's Water Supply Requests to the Corps (2000-2012).....	12
D.	2013 Water Supply Request.....	13
E.	Georgia's Modified Water Supply Request And Comment On The Corps' Draft EIS .....	15
1.	December 2015 Modified Water Supply Request .....	15
2.	January 2016 Comments on the Corps' Draft EIS.....	17
F.	Municipal & Industrial Water Management and Conservation .....	19
1.	Metro Water District Planning & Conservation .....	20
2.	Georgia Stewardship Act (2010) .....	22
3.	2015 Efficiency Rules.....	23
4.	Drought Management Rules in the M&I Sector .....	24
III.	THE FRDPA, DROUGHT DECLARATION, AND AGRICULTURAL WATER USE & STEWARDSHIP .....	25
A.	No Drought Declaration in 2011 or 2012 .....	26

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B.	Moratorium On New Groundwater and Surface Water Permits in the Lower Flint Basin .....	28
C.	During Recent Multi-Year Droughts the Corps Operated the Reservoir System to Benefit Florida .....	30
D.	Flint River Drought Protection And Management Rules .....	32
IV.	PRELIMINARY ANALYSIS OF OTHER POTENTIAL MANAGEMENT TOOLS.....	33
A.	Transferring Users to Deeper Aquifers.....	34
B.	Aquifer Storage & Recovery. ....	34
C.	Agricultural or Conservation Easements. ....	35
V.	ADDITIONAL STATEWIDE WATER PLANNING AND MANAGEMENT EFFORTS .....	36

1. I, Judson Turner, offer the following as my Direct Testimony.
2. I served as Director of Georgia's Environmental Protection Division ("EPD") from January 1, 2013 through June 1, 2016. My testimony focuses primarily on two areas. First, I address Georgia's municipal and industrial ("M&I") water supply and consumption in the Apalachicola-Chattahoochee-Flint River Basin ("ACF Basin"), including Georgia's water conservation and efficiency policies and measures; Georgia's modified water supply requests to the United States Army Corps of Engineers; and the State's formal comments and suggested operational alternatives to the Corps' proposed revisions to its Draft Environmental Impact Statement ("EIS").
3. Second, my testimony addresses Georgia's agricultural water use initiatives, including our response to the severe drought that began in 2011; administration of and amendments to the Flint River Drought Protection Act ("FRDPA"); and several potential management tools currently under investigation as possible alternatives to existing water supply sources in the Flint River Basin.

## **I. INTRODUCTION & OVERVIEW**

4. I have worked on Georgia's water policy and interstate water-related issues concerning the Apalachicola-Chattahoochee-Flint River Basin for nearly ten years, focusing in particular on drought-related management issues in the State of Georgia as well as issues related to the U.S. Army Corps of Engineers (the "Corps") and its operation of the federal reservoirs in the ACF Basin pursuant to the Water Control Manual and interim operating plans.

### **A. Director of the Environmental Protection Division**

5. On January 1, 2012, I became Director of the Georgia Environmental Protection Division and served in that role until June 1, 2016.

6. Georgia EPD is the state agency charged with protecting Georgia's air, land and water resources through the authority of various state and federal environmental statutes. These laws regulate public and private facilities in the areas of air quality, water quality, hazardous waste, water supply, solid waste, surface mining, underground storage tanks and others. Georgia EPD issues and enforces all state permits in these areas.

7. The EPD Director is appointed by the Board of Natural Resources with the approval of the Governor. Under Georgia law, I had broad policy development and regulatory responsibilities over the State’s land, air, and water resources. In particular, I had final decision-making authority in approving all state permits. I also had responsibility for managing each of the state environmental programs, enforcing the regulations covering the above-mentioned areas of air quality, hazardous and solid waste, water quality and water supply, and other programs, and maintaining the state’s delegated authority under a myriad of federal environmental statutes.

8. Specifically with regard to water, my work focused on a number of areas relating to the issues in this case. Chief among them was leading the effort to develop Georgia’s water supply requests to the Army Corps following a decision of the Eleventh Circuit Court of Appeals holding that the Corps had the statutory authority to allocate storage from Lake Lanier for the Atlanta metro region for municipal and industrial (“M&I”) water supply. *In re MDL-1824 Tri-State Water Rights Litigation*, 644 F.3d 1160 (11th Cir. 2011) (per curiam), cert. denied 133 S. Ct. 25 (2012). Florida and Alabama had persuaded a federal district court that the initial authorizing legislation (the River and Harbor Act of 1946 (“RHA”), Pub. L. No. 79-525) failed to authorize the Corps to provide releases from Lake Lanier for water supply to metro Atlanta. The district court’s initial ruling left the Corps with only the supplemental authority of the Water Supply Act of 1958 (“WSA”), 43 U.S.C. § 390b, to meet metropolitan Atlanta’s water supply needs and whatever other water supply that could be provided via withdrawal from the Chattahoochee incidental to the releases made for other federal purposes.

9. This ruling imperiled a city of five million million and threatened to deprive all its citizens and businesses from accessing this foundational and historic source of regional water supply. Fortunately, the Eleventh Circuit reversed that decision, finding that the Corps had not properly understood its authority under both the RHA and WSA. Furthermore, the Corps was directed to review its previous denial of Georgia’s 2000 water supply request for storage in Lanier and releases through Buford Dam sufficient to support metro Atlanta’s water supply needs through 2030. The Corps undertook that review and informed the Eleventh Circuit that it had the legal authority to grant Georgia’s 2000 water supply request between the combined authority granted in the RHA for management of releases sufficient to support the region’s water supply withdrawals from the river and the WSA, which would provide ample authority to grant Georgia’s request for storage from Lake Lanier.

10. Given the twelve years that had passed between the 2000 request and the Corps' response to the Eleventh Circuit, the Corps requested that Georgia update certain information from its 2000 request. As EPD Director I led the effort to update Georgia's request and work with the Corps to ensure that Atlanta's water supply remained intact and met the region's needs.

11. Another major focus early in my service as Director was to address the drought that had impacted Southwest Georgia beginning in early 2011 continuing through the winter months of 2011 and through most of 2012. When I took over as Director, immediately I had to determine whether to declare a drought under the Flint River Drought Protection Act (FRDPA) before a March 1, 2012 statutory deadline, and, if so, to administer an auction whereby farmers may voluntarily agree not to irrigate in return for monetary payments.

12. As explained in greater detail below in Section III of my testimony, I ultimately determined that it was not appropriate to declare a drought and trigger an auction to remove acreage from irrigation during the oncoming growing season because it would not have generated any meaningful or measurable streamflow benefits. Instead of launching an expensive and ineffective auction, I declared a moratorium on the issuance of any further agricultural permits in a significant portion of the Lower Flint River Basin and began an effort to revise the FRDPA to make it more effective.

13. I also devoted considerable time developing an initiative to update the FRDPA and strengthen it as a regulatory and water management tool to be utilized during future droughts. The amended Act produced, among other things, new efficiency requirements for irrigation systems in the Lower Flint River Basin and gave EPD the authority to protect from consumption stream flows generated by certain groundwater augmentation projects. It also eliminated the requirement to reach a drought determination by March 1 of every year, which proved to be administratively difficult and forced prior directors to make a definitive call before the information concerning the likelihood of a drought during the growing season was clear.

**B. Director of the Governor's Office for Interagency Coordination and Management of Water Resources**

14. In addition to my duties as EPD Director, I served as the Director of the Governor's Office for Interagency Coordination and Management of Water Resources beginning in December of 2014. I was appointed to this position by Governor Nathan Deal to oversee the

coordination and management of Georgia's response to the original action filed by the State of Florida among the various state agencies, local governments, and constituencies.

15. In addition to my litigation coordination and support responsibilities, I was also responsible for the oversight and management of the State's multipronged efforts to increase water supply while also developing and implementing policies for the sustainable and reasonable use of the state's water resources.

16. I continued in my role as the Governor's Water Resources Coordinator until September 1, 2016, at which time I returned to private law practice and was appointed a Special Assistant Attorney General for Water Litigation to the Georgia Department of Law. I am also scheduled to teach a Water Law class as a guest professor at the University of Georgia School of Law beginning in early 2017.

### **C. Positions Prior to Director of EPD**

17. Prior to my service at EPD, from 2005 to 2008, I served first as Deputy Counsel and then Executive Counsel to Georgia Governor Sonny Perdue. During this time, the historic drought of 2007-2008 struck the Southeast. As all three states (Georgia, Florida, and Alabama) sought certain operational changes from the Corps to help alleviate the impacts of drought, I served as the then-governor's legal representative in negotiations with the Corps and the U.S. Fish & Wildlife Service regarding drought operations at the federal reservoirs of the ACF and the Alabama-Coosa-Tallapoosa ("ACT") river basins.

18. I also served both Governors Perdue and Nathan Deal as Special Executive Counsel from June 2008 until January 1, 2012 in negotiations between the states of Alabama, Georgia, and Florida related to the ACF and ACT basins and on matters involving Georgia's other shared river basins.

19. Aside from my work on water-related issues at EPD and for the Governor's office, I have also served as the General Counsel for the Georgia Department of Education; was a founding partner of Georgia360 LLC, a multi-disciplinary public affairs firm and the law firm Turner, Bachman & Garrett LLC; and began my law practice in general commercial litigation at Bradley Arant Rose & White LLP in Birmingham, Alabama.

20. I earned a Bachelor of Arts degree in Political Science and Economics from the University of Georgia in 1997 and a law degree from the University of Virginia in 2000.

## **II. GEORGIA'S MUNICIPAL & INDUSTRIAL WATER SUPPLY**

### **A. Tri-State Water Rights Litigation**

21. As I mentioned, during my tenure in the Governor's office, I was involved in the Tri-State Water Rights litigation and negotiations between the states of Alabama, Florida, and Georgia related to the ACF and ACT basins. Through that work, I became aware of Florida's positions in the litigation against the Army Corps. In that litigation and up until the point of bringing this original action against Georgia, Florida blamed Corps operations and the anthropogenic and geomorphologic effects of dam construction as a principal cause of their purported ecological harms in the Apalachicola River and Bay.

#### **1. Background on the Tri-State Water Rights Litigation**

22. The ACF Basin has been at the center of more than two decades of litigation between the three states. The "Tri-State Water Rights Litigation" officially began in 1990 when Alabama sued the Corps to challenge the Corps' plan to allocate water in Lake Lanier and Allatoona Lake in the ACT Basin for water supply in Atlanta. Georgia and Florida joined the litigation, and it was stayed several months later to give the states and the Corps time to negotiate. In 1992, Alabama, Florida, Georgia and the Corps entered into a Memorandum of Understanding, agreeing to suspend the litigation while conducting a "comprehensive study" of the water resources in the two basins. The three states and the Corps also agreed that metro Atlanta communities could continue to withdraw what water they needed, and even increase withdrawals, to meet reasonable increases in demand, while the study was in progress.

23. The comprehensive study was never completed, but it led to the ratification of interstate water compacts for each basin in 1997. In reality, these compacts were agreements to negotiate in that they established a framework to negotiate a formula to determine each state's fair share of the water, but they did not actually divide water among the three states.

24. Litigation resumed with the termination of the compacts. It quickly grew from the single case filed by Alabama in 1990 to eight separate cases in six different federal courts in Alabama, Georgia, Florida, and Washington, D.C., all challenging various aspects of the Corps' operation of its reservoirs. Some of these cases focused on the Corps' operations of the dams and withdrawals by metro Atlanta for drinking water supplies. Others challenged the Corps'

compliance with environmental laws, such as the Endangered Species Act and the National Environmental Policy Act. The ACF cases were consolidated in federal court in Jacksonville, Florida.

25. Although there were several steps along the way, the cases were ultimately resolved by 2012. In 2010, a Florida district court issued a decision that rejected claims by Florida that the Corps' operations violated the Endangered Species Act, which Florida did not appeal (the "Phase II Litigation"). This was followed in 2011 by a decision of a three-judge panel of the Eleventh Circuit that overturned a ruling by district court Judge Magnuson declaring that water supply is not an authorized purpose of Lake Lanier (the "Phase I Litigation").

26. The ruling by Judge Magnuson had imposed, in his words, a "draconian" injunction that required cutting metropolitan Atlanta's water supply in half. That decision, had it stood, would have created a water supply crisis for Georgia.

27. In overturning that ruling, the Eleventh Circuit held that Congress had specifically authorized the Corps to provide water from Lake Lanier to meet metro Atlanta's water supply needs when it initially authorized the Corps to construct Lake Lanier. The Eleventh Circuit directed the Corps to evaluate how much water it could provide to metro Atlanta under this clarified authority, and to make a final decision regarding its water supply operations at Lake Lanier.

28. In response to the Eleventh Circuit in the summer of 2012, the Army released a legal opinion finding that it could supply up to 705 million gallons per day to metro Atlanta. GX-829 (Jan. 29, 2016 Comments of the State of Georgia: ACF Water Control Manual and Draft EIS with Exhibits A-K at GA02451882). The 705 mgd requested in 2012 actually is greater than Georgia's 2015 modified water supply request — a request that, if granted, anticipates meeting Georgia's water supply needs, explained below.

#### **B. Florida Blamed the Corps for Its Purported Ecological Injuries**

29. As Executive Counsel and Special Executive Counsel to Governors Perdue and Deal, I was involved in various aspects of the Phase I and II litigation, including in my role as the legal representative for the Governor in negotiations with Florida and Alabama.

30. Significantly, throughout the Phase I and Phase II litigation, Florida repeatedly represented in its federal court filings and supporting affidavits that the Corps was to blame for

degradation to the river channel and floodplain of the Apalachicola, as well as its purported ecological injuries—including harm to oysters, mussels, sturgeon and other river species, commercial fisheries, and floodplain species. Florida argued that those injuries would be fully redressed by a ruling against the Corps and in its favor.

### **1. Phase I Allegations of Harm Caused by the Corps**

31. The Phase I litigation concerned whether the Corps had the legal authority for its operations in the basin, including whether it could lawfully make releases to meet Georgia's water-supply needs in Metro Atlanta. Throughout Phase I, Florida argued that Corps operations were the root cause of their injuries.

32. For example, in a January 23, 2009 summary judgment motion on all Phase I claims, Florida stated that: “As detailed in the Factual Appendix, there is less water flowing out of Buford Dam as a result of the illegal reallocation of storage to water supply [by the Corps] and the resulting operational changes” and that its “injury will be redressed if Alabama and Florida prevail in this case.”<sup>1</sup> In a section of that Factual Appendix entitled “Specific Impacts to Florida[:] The Corps Operations,” Florida identified the following harms caused by the Corps:<sup>2</sup>

- “Reductions in river stage, which is **due in at least significant part to storage for water supply in Lake Lanier and alteration of the flow regime**, have further adversely affected at least four species (the Gulf sturgeon and three species of mussels – the fat threeridge, the purple bankclimber, and the Chipola slabshell)....”
- “[I]n the summer of 2006, when the Corps made operating decisions to discharge water from Jim Woodruff Lock and Dam at a rate of between 5,400 and 5,600 cubic feet per second (cfs), numerous dead and dying mussels were located at various locations on the Apalachicola River. At Navigation Mile ~44 on both river banks, mussels, including fat threeridge and purple bankclimber, were stranded and many were dead...**The foregoing dieoff has been caused, at least in significant part, by storage of water for water**

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<sup>1</sup> *In re Tri-State Water Rights Litigation (Phase I)*, No. 3 :07-md-00001-PAM-JR, State of Alabama’s and State of Florida’s Joint Mot. and Mem. in Supp. of Partial Summ. J. on All Phase I Claims [Dkt. 191] at 71.

<sup>2</sup> *In re Tri-State Water Rights Litigation (Phase I)*, No. 3 :07-md-00001-PAM-JR, Factual App. in Supp. of the State of Alabama’s and State of Florida’s Joint Mot. for Partial Summ. J. on All Phase I Claims [Dkt. 192], at 340-354.

**supply in Lake Lanier and application of the Corps' draft Water Control Plan and its action zones.”**

- “**Prolonged low flows which are, in significant part caused by the actions of the Corps** storing water for water supply in Lake Lanier and operating under the draft Water Control Plan, translate to a significant loss of riverine fishes, a number of which are hosts to Federally listed threatened and endangered freshwater mussels.”
- “Documented impacts of water-level declines on swamp forests in the last 30 years have been extensive. In riverine swamps, tree density has declined 37%, and there has been an estimated loss of more than 3 million trees. Drier conditions in swamps have been especially damaging to species that must have wet conditions to survive, such as water tupelo and Ogeechee tupelo....Flow declines, **caused in significant part by the actions of the Corps** in storing water for water supply in Lake Lanier and the Corps’ application of the draft Water Supply Plan, operations in the spring of dry years since the 1970s have been the primary cause of drier conditions in swamps.”
- “Reduction of fresh water flow, **due, at least in significant part, to the Corps’ actions** storing water for water supply and application of the draft Water Control Plan including the action zones, has increased the salinity of the Bay and thereby damaged such commercial fisheries.”
- “The more frequent and prolonged periods of low flow that have occurred in recent years **due, in significant part to the actions of the Corps** storing water for water supply in Lake Lanier and applying the draft Water Control Plan, have been a significant factor in the increase in salinity in Apalachicola Bay and disease and death of the oyster population, to the direct damage of the Florida’s economy.”

33. In a Reply brief in support of summary judgment, Florida further highlighted harms to ACF species caused by Corps operations: “Alabama and Florida’s Joint Motion pointed to numerous facts which demonstrate that less water flowing out of Buford Dam as a result of the Corps’ operations has caused injury to Florida by impacting flows at the Florida border which,

among other things, has adversely affected ACF Species, flood plain species, and commercial fisheries.”<sup>3</sup>

34. Similarly, in its Supreme Court appeal following the Eleventh Circuit’s decision in the Phase I litigation, Florida argued that: “When the Corps structures its operations to retain water in Lake Lanier and release it for local water supply instead of for hydropower, that affects how much water flows downstream, and at what intervals. The resulting low-flow conditions lead to devastating consequences for the ecology and species of the Apalachicola River and Bay. Among other things, they eliminate those water bodies’ hydrologic connections to stream and marshland habitats—thus cutting many species of fish off from habitats they must access to survive—and increase salinity in the Bay and portions of the River.”<sup>4</sup>

## **2. Phase II Allegations of Harm Caused by the Corps**

35. The Phase II litigation concerned environmental claims, such as claims that the Corps’ operations in the ACF river basin violated the Endangered Species Act (“ESA”), 16 U.S.C. § 1531 *et seq.*, and other environmental laws and regulations.

36. As was the case during the initial phase of the lawsuit, throughout the Phase II litigation Florida directly attributed its alleged harms to the Corps. In its motion for summary judgment, Florida argued that:<sup>5</sup>

- “[T]he Corps stores water in Lake Lanier for municipal and industrial purposes and to support recreation. The result is an unnecessary and materially adverse impact on the Species”;
- “Since the implementation of operations under the [Corps’] 1989 [Water Control Plan] (“WCP”), the Apalachicola River has experienced lower flows during drought periods and these lower flows have had profound impacts on flows and aquatic habitats”;

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<sup>3</sup> *In re Tri-State Water Rights Litigation (Phase I)*, No. 3 :07-md-00001-PAM-JR, State of Alabama’s and State of Florida’s Joint Reply to Georgia Parties’ Opp. to Joint Mot. for Partial Summ. J. on All Phase I Claims [Dkt. 234], at 35.

<sup>4</sup> *In re: MDL-1824 Tri-State Water Rights Litigation*, Petition for Writ of Certiorari, GX-402 at 29.

<sup>5</sup> *In re Tri-State Water Rights Litigation (Phase II)*, 3:07-md-00001-PAM-JRK, State of Florida’s and City of Apalachicola’s Joint Mem. in Supp. of Joint Mot. for Summ. J. on All Phase II Claims [Dkt. 309].

- “The Apalachicola River has experienced substantial reduction of floodplain habitat inundation in the non-tidal reach during drought conditions following the Corps’ implementation of its WCP”;
- “The post-WCP flow regime also has impacted the critical habitat of the Gulf sturgeon, including its spawning grounds in the River and foraging areas in Apalachicola Bay”;
- “[T]he Service concedes the elements of standing necessary to challenge the actions of the Corps and the Service—actions which, by the agencies’ own admission, result in adverse impacts to the Apalachicola Species that can be redressed only through an order of this Court requiring a lawful biological opinion.”

37. In its Factual Appendix supporting the summary judgment motion, Florida listed myriad ways in which dam construction and Corps operations had harmed the ecology of the Apalachicola River and Bay:<sup>6</sup>

- “The Apalachicola River ecosystem has experienced dramatic changes as a result of anthropogenic activities in the ACF Basin...The River channel has widened and deepened significantly, a problem that is particularly acute in the upper Apalachicola River below Jim Woodruff Dam. Navigation channel ‘improvements’ also have destroyed essential channel habitat”;
- “The net effect of these changes in River morphology and hydrology in the ACF Basin has been to reduce dramatically the area of available fish and wildlife habitat inundated at various flows”;
- “On June 9, 2008, Ted Hoehn of [Florida Fish and Wildlife Conservation Commission] wrote the [US Fish and Wildlife Service] advising them that on a recent survey of the shoals below [Jim Woodruff Dam], FWCC personnel had found evidence that more mussels were dying as a result of the Corps’ implementation of [its Revised Interim Operational Plan (“RIOP”) for reservoirs in the ACF Basin];

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<sup>6</sup> *In re Tri-State Water Rights Litigation (Phase II)*, 3:07-md-00001-PAM-JRK, Factual App. in Supp. of State of Florida’s and City of Apalachicola’s Joint Mot. for Summ. J. on All Phase II Claims [Dkt. 310].

- “Corps operations continue to jeopardize the threatened Gulf sturgeon, endangered fat threeridge and threatened purple bankclimber...Those operations also result in unlawful take of individual members of the Apalachicola River Species and destruction and adverse modification of the species’ designated critical habitat”;
- “Corps operations to ensure water supply have had a direct impact on the average annual flows at the Florida border...The amount and timing of water flowing into the Apalachicola River is directly affected by the Corps’ operation of its reservoirs on the Chattahoochee River”;
- “Reductions in river stage, which is due in at least significant part to storage for water supply and alteration of the flow regime, have further adversely affected at least four species (the Gulf sturgeon and three species of mussels - the fat threeridge, the purple bankclimber, and the Chipola slabshell) which are listed as threatened or endangered under the ESA”;
- “The Corps operations under the RIOP (and its predecessors) as a ‘definition of ACF operations that is within the limits established by the existing ACF WCP’ ... have caused a substantial decrease in flows in the Apalachicola River, and consequently, caused damage to the designated critical habitat of the mussel species and the Gulf sturgeon”;
- “The foregoing die off has been caused, at least in significant part, by storage of water for water supply in Lake Lanier and application of the Corps’ draft Water Control Plan and its action zones”;
- “Prolonged low flows, caused in significant part by the Corps’ operations, adversely affect Apalachicola Bay and its salinity levels, particularly at times of extended serious drought. When the amount of fresh water flowing out of the Apalachicola River is reduced for an extended period during droughts, oysters experience higher salinity levels than they are able to tolerate and become more susceptible to disease and predation.”

38. Prior to this Original Action, Florida's claims always attributed its injuries to the Corps' construction and operation of the federal reservoirs in the ACF Basin, particularly Woodruff Dam. Accordingly, Florida sought a court-imposed remedy requiring the Corps to make additional releases of water to increase streamflows into Florida.

39. In all of our negotiations with Florida during the prior litigation, the options on the table focused on Corps involvement and Corps operational changes to deliver more water to Florida. In those negotiations, the difficulty we had was that Florida never explained what volume of water they wanted from the Corps beyond the guaranteed flows of 5,000 cfs into the Apalachicola River. In fact, during negotiations in 2012 in which I participated, Georgia presented Florida with a proposal that involved changes in Corps operations that would have guaranteed minimum state-line flows of at least 6,000 cfs phased in over time, with Georgia bearing the risk of lower reservoir levels. Florida never responded to that offer. The mediated negotiations in this case are confidential and not the subject of my testimony, but I can say that prior to this litigation, the parties never discussed a solution that excluded Corps involvement. To the contrary, Florida always seemed to understand that Corps involvement was absolutely necessary for Florida to receive a reliable and predictable increase in the minimum flows across the state line. I cannot remember a single occasion where Florida or Georgia made a proposal in negotiations to settle the prior litigation where the Corps did not play a significant, if not the most significant, role in delivering additional water to Florida.

40. Florida was ultimately unsuccessful in achieving additional flows from the Corps through litigation, and many, if not all, of the above harms that Florida blamed on the Corps and dam construction in the *In re Tri State Water Rights Litigation* are the very same injuries Florida now attributes entirely to Georgia in this case.

### **C. Georgia's Water Supply Requests to the Corps (2000-2012)**

41. Following the Eleventh Circuit's resolution of the *Tri-State* litigation and the Corps' determination that it had the legal authority to allocate storage in Lake Lanier to meet Georgia's water supply needs, I turned my attention to examining Georgia's water supply needs in light of changes in population and per capita water consumption since Georgia had last submitted a water supply request to the Corps.

42. During my time as Director of EPD, I devoted a significant amount of my time working on submissions to the Corps concerning a variety of M&I water-supply related issues. An important part of my job was to provide the Corps with information concerning the current and future projected water supply needs of the State of Georgia, as well as other information to assist the Corps in its regulatory efforts. These regulatory efforts included both Section 404 permitting under the Clean Water Act, required in order to construct additional water supply reservoirs in the State, and those responsibilities related to the operation of the federal multi-purpose reservoirs within several of the State's river basins.

43. In May 2000, the State of Georgia submitted to the Corps a request for allocation of storage in Lake Lanier to provide sufficient water supplies to meet future M&I water supply withdrawal needs of 705 million gallons per day (MGD). In support of that request, Georgia also submitted an affidavit from then-Director of EPD Harold Reheis detailing metro Atlanta's then-existing and projected water supply needs. The May 2000 water supply request had been denied by the Corps based on an incorrect interpretation of its authority under federal law—an interpretation that the Eleventh Circuit corrected through its ruling. By late 2012, in the wake of the Eleventh Circuit ruling, Georgia's demographics had changed. For example, from 2000 to 2010, the Atlanta Metropolitan Statistical Area ("MSA") grew by 24%, a growth rate exceeded by only two other MSAs in the country over the same period.

#### **D. 2013 Water Supply Request**

44. Against this backdrop, on January 11, 2013, Governor Nathan Deal submitted an updated water supply request to the Corps. I devoted significant time and resources in preparing Georgia's 2013 water supply request. In particular, I leveraged the analysis and expertise of a number of groups within and outside of EPD, including: Wei Zeng and members of his team in EPD's Hydrology Unit; members of the water quality team within the Water Branch who assess, among other things, the potential water quality impacts of future wastewater returns and the assimilative capacity of Lake Lanier and the Chattahoochee River that receive those returns; and regional planning councils to assist in the preparation of Georgia's population projections.

45. In support of the 2013 request, I submitted an affidavit that included certain technical and factual information the Corps needed to evaluate Georgia's request. In particular, my affidavit included the latest published population statistics of the Georgia Office of Planning

and Budget (“OPB”), the latest data and statistics concerning water withdrawals by permit holders relying on the Lake Lanier/Chattahoochee River system, updated projections of the State’s future population growth and water demand needs, an analysis of the effects of granting Georgia’s request, and information requested by the Corps on the plans for a proposed water supply reservoir at Glades Farm upstream of Lake Lanier. JX-086 is a true and correct copy of Georgia’s 2013 water supply request and my supporting affidavit.

46. Based on this new information, Georgia projected in its request that its water supply needs from Lake Lanier and the Chattahoochee River would approach or equal 705 mgd by 2040, and accordingly Georgia asked the Corps to accommodate that amount by allowing 297 mgd in direct withdrawals from Lake Lanier and 408 mgd in withdrawals from the Chattahoochee River.

47. It is worth noting that the total requested withdrawal of 705 mgd was unchanged from the State’s prior water supply request in 2000, notwithstanding the later increase in population and updated water-demand information discussed above. There are two principal reasons why the total volume of requested withdrawals remained the same: (1) the original planning horizon for the 2000 request only extended to 2030 (not 2040), and (2) per capita water use in the metro Atlanta region had fallen considerably in recent years due to a series of highly effective measures EPD and the legislature adopted to promote conservation in the metropolitan Atlanta region and throughout the State. Georgia projected that demand in the region would continue to fall in future years as a result of the implementation of aggressive state and local water conservation policies, explained in greater detail in Section II below.

48. In support of Georgia’s 2013 request, EPD’s Hydrology Unit performed a technical analysis of the the Corps’ reservoir operations and the specific water withdrawals contemplated in the request. The analysis modeled the effects of those operations and withdrawals on Lake Lanier and the Chattahoochee River. JX-086 (Georgia’s 2013 Water Supply Request at Exhibit A). Specifically, the Hydrology Unit analyzed the impact of Georgia’s requested withdrawals of 705 mgd to hydropower generation, recreation, and river flows at the Georgia-Florida state line utilizing the Corps’ own HEC-ResSim model that reflected the Corps’ then-current ACF Basin reservoir operating plan, known as the Revised Interim Operational Plan (“RIOP”). Notably, EPD’s modeling analysis demonstrated that the M&I consumptive use contemplated in Georgia’s water supply request would not result in any significant change in the

flow of the Apalachicola River at the state line. JX-086 (Georgia's 2013 Water Supply Request at Exhibit A).

#### **E. Georgia's Modified Water Supply Request And Comment On The Corps' Draft EIS**

49. On August 26, 2015, the Metropolitan North Georgia Water Planning District ("Metro Water District")—which covers Atlanta and surrounding counties—issued updated water demand projections for the Atlanta metro area. These projections were created in connection with the District's effort to meet its 2017 deadline for releasing an updated water supply and water conservation plan for the District. As part of those efforts, the District developed water demand forecasts for its planning area out to 2050, extending the planning horizon beyond 2040 as reflected in Georgia's 2013 water supply request to the Corps. The District's new estimates projected a 25% *decrease* in 2050 water demands compared to the District's 2009 Plan. These changes reflected both an expectation of a reduced growth rate of the population in the Metro District and continued improvements in efficiency leading to a further reduction in per capita water usage in the District.

50. On October 2, 2015, the Corps released its 2015 Draft EIS, which evaluated an array of potential water management alternatives to its existing operations in the ACF Basin and presented the results of its preferred alternative. The Draft EIS was based in part on Georgia's 2013 demographic and water demand data. In an October 2015 notice published in the Federal Register, the Corps informed the public of the release of the Draft EIS and the deadline for submitting comments for the Corps' consideration before it published a Final EIS and master water control manual.

##### **1. December 2015 Modified Water Supply Request**

51. Because the Metro District had reduced its population projections and overall water supply request, I decided that Georgia needed to update the Corps and advise the agency of Georgia's reduced water supply need from Lake Lanier.

52. Specifically, based on Georgia's review of updated information made available by the Metro District, I requested that the Corps allocate storage in Lake Lanier sufficient to supply 242 mgd (instead of the prior request of 297 mgd) — a **reduction of 55 mgd** — and to accommodate withdrawals from the Chattahoochee River via releases from Buford Dam in the

range of 355 to 379 mgd (instead of the prior request of 408 mgd) — a **reduction of between 53 and 29 mgd**. This modified request is expected to meet Georgia's water supply needs through approximately 2050. JX-126 is a true and correct copy of Georgia's 2015 Updated Water Supply Request to the Corps. (Dec. 4, 2015 State of Georgia's Updated Water Supply Request at GA02337385 - GA02337506)

53. In general, the revised water demand projections for the Metro Water District are a function of two variables: (1) a reduction in future per capita water use by residents and employees and (2) a reduction in growth of future population and employment. The first category includes specific projections of future per capita water use; future per employee water use; the impacts of water conservation measures, including municipal codes and requirements of the 2010 Georgia Water Stewardship Act, discussed below; and an adjustment to total demand to account for potential uncertainty in future projections.

54. In a memorandum to me dated December 2, 2015, which is attached to Georgia's updated water supply request in JX-126, the Director of the Metro Water District, Katherine Zitsch, explained the methodology for calculating the future water demands through 2050. As explained in the memorandum, baseline current and projected future demand for each county in the District was calculated using several factors. These included demographic data from the U.S. census, metered water withdrawal data from Georgia EPD, water audit information supplied by Georgia EPD, customer billing data and water loss audit information from District utilities, and data from the District regarding plumbing fixture stock. The baseline water demands were then paired with the latest county-level population forecasts from Georgia OPB and forecasts of future employment provided by the Atlanta Regional Commission's Research and Analytics Division, and analyzed using the Decision Support System (DSS) Water Demand and Conservation Model to produce projected future water demand through 2050 for each county.

55. Decreased demand not only impacted our water supply request, but it also affected Georgia's water supply planning activities. For example, at the time EPD submitted its updated water supply request in 2013, Hall County was developing a plan to build a yet-to-be-permitted reservoir upstream of Lake Lanier called the "Glades Reservoir." We believed that the reservoir could fulfill a portion of the State's 2013 water supply request through 2050. However, in light of significantly reduced population projections and new per capita water use estimates for Hall County, the Glades Reservoir is no longer cost-justified as a source of water for Hall

county. Accordingly, on January 22, 2016, I sent a letter to the Corps rescinding the Hall County's certificate of need that I had previously issued for the Glades Reservoir project. GX-829 (Jan. 29, 2016 Comments of the State of Georgia: ACF Water Control Manual and Draft EIS with Exhibits A-K at GA02451929).

56. Although the Glades Reservoir is not being pursued as a water supply project serving Hall County, EPD is examining the possibility of developing new reservoirs (including Glades) to supplement storage in Lake Lanier. Prior to leaving EPD, I began working with the Savannah District of the Corps to repurpose the Clean Water Act Section 404 permit for the Glades Reservoir to supplement existing storage in Lake Lanier (instead of the earlier purpose of providing water supply for Hall County), and that could in turn further augment streamflow for downstream uses during drought. As part of this process, I negotiated a revised Partnership Agreement with the Corps to explore permitting reservoir projects for the purpose of streamflow augmentation, which has not traditionally been a basis for under Section 404 within Georgia.

## **2. January 2016 Comments on the Corps' Draft EIS**

57. The demand quantities from Georgia's modified water supply request were nearly identical to those the Corps has deemed acceptable in its Draft EIS released in October 2015. In fact, Georgia's projected demand of 621 mgd ended up being less water than the amounts provided for in the Draft EIS under the Corps' proposed alternative to the existing operational plan.

58. On January 29, 2016, I submitted Georgia's comments on the Corps' Draft EIS. These comments analyzed a number of issues relevant to the Corps' proposal, including the impact of Georgia's December 4, 2015 modified water-supply request. In the Comment, I also addressed several specific areas of the Corps' proposed water management operations that I believed the Corps should address in its Final EIS, including the need to: (i) fully assess the collective costs of failing to meet Georgia's full water supply needs as stated in its 2015 request, (ii) consider the totality of Georgia's wastewater returns to the ACF system, and (iii) evaluate the effect of conservation measures. GX-829 is a true and correct copy of Georgia's 2016 Comment to the Corps. (Jan. 29, 2016 Georgia Comment on Draft EIS for the Corps' Water Control Manual at GA02451830- GA02452437).

59. *First*, with respect to evaluating the economic, environmental, and social impacts of failing to supply withdrawals of between 355 and 379 mgd from the Chattahoochee River and 242 mgd by direct withdrawal from Lake Lanier, I encouraged the Corps to consider a number of key data points bearing on these issues, including that:

- Roughly 74% of the drainage area of the ACF Basin is in Georgia, while only 15% is in Alabama and 11% is in Florida;
- The ACF Basin covers 50 counties in Georgia but only eight in Florida and ten in Alabama;
- Approximately 72% of the Basin's population resides in Georgia;
- The nearly 5.5 million people residing in Metro Atlanta derive approximately 73% of their water supply from Lake Lanier and the Chattahoochee River;
- The Atlanta Metropolitan Statistical Area is the ninth largest MSA by population in the United States according to the U.S. Census Bureau;
- From 2000 to 2010, the Atlanta MSA grew by 24%, a growth rate exceeded by only two other MSA's in the United States; and
- Georgia's statewide economic output exceeds \$400 billion, with metro Atlanta accounting for \$270 billion of that amount.<sup>7</sup>

60. Given these factors, as I noted in Georgia's Comment letter, a failure to fully meet Georgia's water supply needs from Lake Lanier would have real and substantial adverse consequences within the State. These include the loss of jobs, industry, and limitations on economic growth, on the one hand, and the economic and environmental costs associated with procuring alternative water supplies, on the other.

61. *Second*, with respect to return flows, I noted that Georgia returns a substantial amount of its withdrawals to storage and described how return flows increase the yield of the reservoir by reducing the net withdrawals. Return flows to reservoirs are a form of water reuse that Georgia's state-wide water plan favors.

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<sup>7</sup> *Id.* at GA02451834- GA02452437.

62. The Metro District has made substantial investments in increasing return flows to the system. For example, Gwinnett County spent more than \$1 billion to construct the F. Wayne Hill Water Resources Center. That Center is a state-of-the-art water reclamation facility that is capable of returning 20 mgd of highly treated wastewater back to the Chattahoochee River and 40 mgd to Lake Lanier for indirect potable reuse. I explained in the Comment letter that the “Corps cannot expect billions of dollars to be spent developing infrastructure to generate these return flows if the Corps declines to credit them to the storage account of the entity responsible for the return of that wastewater, and instead simply transfers the benefits they provide to other users.”

63. It is because of tremendous capital expenditures like these that Georgia today generates return flows to Lake Lanier and the Chattahoochee River of more than 70% of its total M&I withdrawals, even in drought years. For example, during the severe drought in 2011, Georgia returned 264.48 mgd or 71.5% of the total withdrawals of 369.44 mgd to the ACF Basin. GX-829 at GA02451996 - GA02451998. Due to continued investment and ongoing conservation and efficiency programs, return rates are projected to exceed 75% of the water withdrawn for M&I purposes by 2050. GX-829 at GA02451996 - GA02451998.

64. *Third*, in requesting that the Final EIS actually grant Georgia *less storage for water supply* than requested in the 2013 water supply request, I explained that per capita use in the Metro Water District had declined dramatically by more than 30% since 2000 as a result of the water conservation and efficiency measures adopted by the Metro Water District and the State of Georgia. Similarly, I noted that total water withdrawals had decreased by over 10%, despite a 20% increase in total population. GX-829 at GA02451860.

65. As I explain in the section that follows, these accomplishments were the result of the aggressive water management and conservation measures put in place in the Metro Water District and the initial effects of implementing the Georgia Water Stewardship Act.

## **F. Municipal & Industrial Water Management and Conservation**

66. As EPD Director, I was responsible for ensuring that Georgia was a good steward of its natural resources, including water resources, while also allowing for responsible water use that supports Georgia’s robust economic activity and strong communities. The steady decline in

per capita use since 2000 is the outcome of a robust set of water conservation and management policies and programs implemented over the years in Georgia.

67. During my tenure as Director of EPD, Georgia made significant progress in managing M&I water use. To meet the needs of a growing population, and in recognition of the need to protect Georgia's valuable water resources, the State and the Metro Water District implemented a broad array of proactive water demand management and conservation policies and measures.

### **1. Metro Water District Planning & Conservation**

68. In 2001, Georgia enacted legislation establishing the Metro Water District, which today covers 15 counties and 93 separate municipalities in the Metro Atlanta area. Under the Act, the Metro Water District is responsible for preserving and protecting water resources in the Chattahoochee, Coosa, Flint, Ocmulgee, Oconee and Tallapoosa River Basins. The Metro Water District develops comprehensive regional and watershed specific water resource plans to be implemented by local governments. These plans include an array of required and recommended water planning and water conservation actions to be implemented by local jurisdictions and state officials. Georgia EPD audits each permitted entity in the District to ensure plan requirements have been met.

69. Since its creation, the Metro Water District has implemented a suite of innovative, comprehensive, and nationally recognized conservation measures that have resulted in significant and growing savings in water use. As described in JX-086, these mandatory water conservation and efficiency measures, contained in the 2003 and 2009 Water Supply plans adopted by the Metro Water District, included: residential and commercials water audits; replacement of older, inefficient plumbing fixtures; award-winning education and customer outreach programs; pre-rinse spray valve retrofit education; rain sensor shut-offs on new irrigation systems; sub-unit meters in new multifamily buildings; low-flow retrofit kits for residential; high-efficiency toilets and urinals in government buildings; water recycling for new car washes; multi-family high-efficiency toilet rebates; meters with point of use leak detection; and high-efficiency plumbing fixtures in new construction. JX-086 (Jan. 11, 2013 Georgia Updated Water Supply Request at 3-4); *see also* JX-121 (Amendments to the Water Supply and Water Conservation Management Plan); JX-37 (2009 Water Supply and Water Conservation

Management Plan at Section 5); GX-52 (2003 Metro District Water Supply and Conservation Plan at GA00893191).

70. The Metro Water District is currently preparing an update to its 2009 water supply, conservation, and wastewater management plans. In connection with the plan update, the District is taking a holistic look at changed conditions since 2009. As part of that effort, the District is currently evaluating, among other factors, population forecasts and trends, water conservation program performance, and an assessment of the need for enhancements to the conservation program. The Metro Water District has already completed new estimates of the total population served by the water resources of the Chattahoochee and Flint River basins in the Georgia portion of the ACF Basin, as well as historical estimates of population and employment for the ACF Basin in Georgia. I am familiar with and reviewed and relied on this document as part of my duties as Director of EPD. GX-863 is a true and correct copy of a memorandum I received from the Metro Water District summarizing this data. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.

71. The updated Metro District Plan will also include, at my instruction, new measures to minimize interbasin transfers. Interbasin transfers are indirect transfers of water from a public-supply user located in the Georgia ACF through the sewer system to a wastewater treatment facility in another basin. On March 18, 2015, I issued new guidance governing the Metro Water District's 2017 plan update that directed the District to include these measures. GX-1089 (Mar. 18, 2015 EPD Guidance at 2). That guidance specifically stated that "the integrated plan shall include measures to minimize, where feasible, net losses from interbasin transfers from each of the six river basins that lie within the District area," including the Chattahoochee and Flint Basins. GX-1089 at 2. Any proposals for new interbasin transfers are also subject to existing EPD regulations adopted in 2011 that require the Director to evaluate a comprehensive list of factors before approval can be granted. GX-1232 (2011 Interbasin Transfer Rules). Together, the new measures and the existing regulations will ensure that any new permit applications including an inter-basin transfer will receive close and comprehensive scrutiny.

72. Georgia EPD enforces the provisions of the Metro Water Districts plans through an auditing and permitting process. For example, local jurisdictions must demonstrate compliance with these measures in order to obtain permits for new or expanded water

withdrawals or wastewater discharges and renewal of other permits. Further, consistency with these requirements is necessary to obtain Georgia Environmental Finance Authority grant or loan funding for water resource projects.

## **2. Georgia Stewardship Act (2010)**

73. Shortly after the release of the Metro District's 2009 Water Supply Plan, former Governor Perdue introduced a comprehensive piece of legislation in 2010 mandating a range of new and comprehensive water conservation measures and best management practices that targeted public water systems and consumers alike. The bill (S.B. 370), known as the Water Stewardship Act, passed both houses by a wide margin and was signed into law on the shore of Lake Lanier on June 1, 2010.

74. The Stewardship Act was a major step forward in achieving increased water use efficiency and lowering demand across the Metro Water District. Importantly, the provisions of the Act addressed both indoor and outdoor water use, and required all users to actively conserve. Its major components include:

- Requiring local governments to adopt ordinances uniformly restricting outdoor landscape irrigation and imposing permanent outdoor watering restrictions to limit urban irrigation to between the hours of 4 p.m. and 10 a.m. daily, regardless of whether Georgia is in a drought;
- Requiring local governments to adopt and enforce updated plumbing codes mandating (i) high-efficiency flow plumbing fixtures, including toilets, urinals and showerheads; (ii) the installation of sub-meters on all new multi-unit buildings, including residential, commercial and light industrial facilities; and mandating the installation of high-efficiency cooling towers in all new construction;
- Requiring all public water systems serving more than 3,000 people to audit their water systems for water loss on an annual basis using the standardized methods and best practices of the American Water Works Association discussed above, and to submit the results of the completed audits to Georgia EPD within 60 days;

- Mandating that state agencies (i) collaborate to enhance programs and incentives for water conservation; (ii) submit annual reports to the General Assembly summarizing programmatic changes implemented to encourage conservation and enhance water supplies; and (iii) review and revise state water-related policies, procedures, regulations and programs; and
- Directing Georgia EPD to inventory and categorize agricultural water use permits, and authorizing the Director of EPD to revoke unused water permits.

75. Many of the Act’s provisions are based on recommendations from the Governor’s Water Contingency Task Force, which met in the fall and winter of 2009 and featured more than 80 businesses, government, and environmental leaders from around Georgia.

76. Together, the provisions of the Stewardship Act are a multifaceted approach to water conservation, reducing wasteful usage, and incentivizing innovation to both increase water supply and lower demand. Today, the Act stands as one of the most significant and comprehensive pieces of water efficiency and conservation legislation ever implemented in Georgia.

### **3. 2015 Efficiency Rules**

77. Following the passage of the Stewardship Act, Georgia built on its commitment to reduce system water loss and to promote increased efficiency with the adoption of new water use efficiency regulations. GX-1090 is a true and correct copy of the 2015 Water Use Efficiency Rules (O.C.G.A. 391-3-33 et seq.) (“Efficiency Rules”) as adopted by Georgia EPD.

78. The Efficiency Rules, adopted by Georgia EPD in June 2015, represent the next phase of Georgia’s comprehensive water loss initiative kicked off in the Water Stewardship Act. The Efficiency Rules require public water systems to develop and implement a water loss control program to investigate, assess, and implement efforts to improve water supply efficiency and to demonstrate progress toward improving water supply efficiency over time. If public water systems fail to show progress in water loss control, their application to renew or modify an existing withdrawal permit may be denied, and those systems may be stopped from adding new service connections. GX-1090 at 391-3-33-05(3)(b). Moreover, under the new drought management rules, systems with the low efficiency ratings may be required by EPD to conserve

more water than other systems during Drought Response Level 3. GX-935 at 391-3-30-.07(4)(e).

79. These rules are important because they demonstrate Georgia's commitment to even greater water conservation and building upon the substantial water savings that have already been achieved.

#### **4. Drought Management Rules in the M&I Sector**

80. Georgia has also implemented drought-management rules designed to reduce outdoor water use in the M&I sector during periods of severe drought. Those rules, initially adopted in 2004, established pre-drought mitigation strategies for M&I water use intended to minimize the potential effect of drought, and set forth graduated increases in restrictions based upon the level of severity of a drought. GX-1037 (May 26, 2004 Drought Management Rules at GA00081536). Georgia has implemented those measures during prior drought periods, including implementing an almost total outdoor watering ban in 61 Counties from 2007-2009 and requiring metropolitan Atlanta water suppliers to reduce water withdrawals by 10 percent. JX-025 (Oct. 23, 2007 Georgia DNR Press Release at GA01210159)

81. During my tenure at EPD, Georgia continued to take a deliberate and proactive approach to preparing for future droughts through the adoption of even stronger drought management rules and policies. In 2015, Georgia issued more aggressive drought management rules and policies that replaced the former rule provisions. These new rules implemented pre-drought mitigation strategies aimed at maximizing M&I water use efficiency in advance of the next drought, and established specific drought response strategies that provide for a full ban on outdoor water use if warranted by drought conditions. GX-935 is a true and correct copy of the 2015 Drought Management Rules (O.C.G.A. 391-3-30-.01 *et seq.*) as adopted by Georgia EPD. These specific drought response strategies included:

- A **drought response committee** to advise Georgia EPD on the development and implementation of drought strategies;
- **Drought indicators and triggers** that require Georgia EPD to monitor certain climatic indicators and water supply conditions to assess drought occurrence, severity, and impact on public water systems' ability to provide adequate water supply and avoid

local water shortages. Georgia EPD must publish the drought indicator assessments on a monthly or semi-annual basis;

- A dynamic ***drought declaration process*** that provides for different drought response levels depending on severity and allows for a targeted declaration based on geography, type of water source, climatic indicators, and condition of water supplies;
- ***Pre-drought mitigation strategies*** designed to minimize the potential effects of a drought; and
- ***Drought response strategies*** tailored to the severity of a particular drought. The rule sets forth an array of drought responses from which public water systems can choose based on their unique circumstances and needs. (*Id.*)

82. The drought management tools are in place and working today. In September of this year, Georgia EPD Declared a Level 1 Drought Response, which required all water providers in 53 counties in North and Central Georgia to implement a public information campaign to help citizens better understand drought, its impact on water supplies, and the need for additional water conservation.

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83. As a result of the water planning and conservation efforts discussed above, in the M&I space Georgia has achieved (and continues to achieve) significant reductions in municipal per capita water use, even as the population that relies on the waters of the ACF Basin dramatically increased. Because of these savings, projections of future need, developed as part of Georgia's water supply requests that I submitted to the Corps, were reduced. It is my expectation that as these mandatory conservation measures continue to mature, together with implementation of the new 2015 efficiency and drought management rules, per capita water use and overall consumptive use will result in demand consistent with the reduced projection provided in Georgia's 2015 Water Supply Request.

### **III. THE FRDPA, DROUGHT DECLARATION, AND AGRICULTURAL WATER USE & STEWARDSHIP**

84. In addition to promoting enhanced conservation measures in M&I water use, I also spent significant time in my tenure as EPD Director addressing numerous initiatives involving agricultural water use. These primarily focused on drought related impacts,

administration of the Flint River Drought Protection Act (“FRDPA”), analyzing ways to improve and amend the FRDPA, developing stronger water-use efficiency rules for agriculture, and exploring alternatives for water supply in Southwest Georgia.

#### **A. No Drought Declaration in 2011 or 2012**

85. As mentioned above, one of the first things I had to confront as the EPD Director was a severe drought in 2012. The 2011-2012 drought, unlike the prior drought of 2007-2008 that primarily affected the northern half of the State, including metro-Atlanta, was centered in the Southwestern agricultural part of the State. When I assumed the Director position on January 1, 2012, the region was in the middle of a multi-year drought, and there were stream-flow impacts to some of the tributaries of the Flint River that concerned me. As soon as I took over as Director of EPD in January 2012, I immediately faced the decision of whether to declare a drought under the FRDPA.

86. The FRDPA, which was enacted in 2000, required the EPD Director to predict, by March 1st of each year, whether the Flint River would experience “severe drought conditions.” If EPD declared a severe drought, the Act contemplated that EPD would administer a voluntary irrigation reduction auction. At such an auction, farmers voluntarily agree not to irrigate during the entire calendar year following the auction in return for a given sum of money per acre. Generally, the determination as to whether to declare a severe drought is based on a diverse set of scientific indicators and data and consultations. In particular, EPD analyzes historical, mathematical, and meteorological indicators, as well as other scientific considerations that include data on streamflow, rainfall and groundwater levels. The EPD Director also consults with the State Climatologist, who has input and provides experience and judgment that the quantitative studies may not provide.

87. In 2011, there were indications early in the year that conditions were going to be dry for the coming growing season. Hydrologic conditions, however, improved in the weeks immediately preceding the March 1, 2011 deadline for predicting a drought, and based on these improving conditions, then-EPD Director Allen Barnes chose not to declare a drought under the FRDPA provisions. These improving conditions did not hold and 2011 ultimately turned out to be one of the driest years on record for Southwest Georgia.

88. This was in essence the exact opposite of what Georgia experienced in 2009. After dry years in 2007 and 2008, conditions remained troubling in January and February of 2009. Nevertheless, then-Director Carol Couch elected not to declare a drought under the FRDPA. That decision proved correct as 2009 was ultimately one of the wettest years on record in the State of Georgia. Had a drought been declared in that scenario, many farmers would have been compensated unnecessarily for agreeing not to irrigate. But unlike 2009, hydrologic conditions deteriorated in 2011 and dry conditions persisted.

89. Given the nature and timing of the drought declaration, the determination of whether to declare a drought and conduct an auction is difficult and complex. The contrast between Georgia's experience in 2009 and 2011 highlights the difficulty in accurately predicting climatic conditions and the difficulty of having to make such a declaration by March 1st of every year. To be effective, the timing of the drought declaration must be early enough for farmers to not have already placed their fields into production or made contractual arrangements to do so such that they can participate in the auction. Thus, it is preferable that the drought declaration and follow-on auction be initiated before the growing season, which is why the Act initially chose March 1st as the deadline. This time of year, however, is historically a wet period that experiences relatively wetter conditions than much of the growing season, making it difficult to accurately predict climactic conditions for the remaining nine months of the year.

90. Notwithstanding the general complexities associated with the drought declaration process, by early 2012 it was apparent to me that Southwest Georgia was in the midst of an historic multi-year drought. Not only had the growing season and the typically drier periods of summer and fall been historically dry, but the winter of 2011 to 2012 had also been unusually dry.

91. In the first two months of my tenure as EPD Director, as I was preparing to make the drought declaration determination, my team and I examined streamflows, well levels, and weather conditions across the Lower Flint Basin. As part of this analysis, I consulted the head of EPD's Hydrology Unit, the State Climatologist, the State Geologist, and other subject matter experts. Based on these consultations and an analysis of the relevant data—which showed that streamflows in the Lower Flint Basin were already quite low—I concluded that “a reduction in irrigation that might be achievable through operation of the Flint River Drought Protection Act

would have a negligible impact on surface water flows this year.” JX-69 (March 1, 2012 EPD Press Release at GA00208715).

92. Streamflow and aquifer levels were so low that many farmers were not even irrigating from surface water at this point in 2012, and thus any cutbacks that would have resulted from an auction would not have meaningfully affected streamflow. Moreover, because there had been so little rain during the winter recharge period in 2011, the Floridan Aquifer was reduced. In fact, the aquifer’s interaction with and support of baseflow in the streams and rivers of the Lower Flint Basin had already been reduced to the point that any modest reduction in agricultural withdrawals was not going to improve baseflow in the streams of the basin.

93. Given these circumstances, I concluded after consulting with the subject matter experts at EPD that no measurable benefit to streamflow would result from a drought declaration and resulting auction. That was the consensus conclusion among staff even assuming that an auction in 2012 could successfully remove 40,000 acres from the basin, a likely unachievable result given commodity prices at the time. In early 2012, commodity prices were at historically high levels for most of the principal row crops grown in the Flint River Basin.

94. In addition to the limited benefit that might be achieved with an auction, there were other challenges to implementing the FRDPA’s auction provisions. For example, the FRDPA did not allow the auction acreage to be sufficiently targeted for impact on streamflow. In prior auctions the acreage that was retired for the year was spread throughout the basin and was not limited to acreage that was closely connected to streamflow. As a result, I had doubts that the then-existing auction process could provide meaningful benefits to streamflow.

95. In short, because an auction would require significant expenditures with minimal impact on streamflow, I decided not to declare a severe drought pursuant to the Act. Instead I began to examine other potential options for managing the drought and a comprehensive overhaul of the FRDPA given the challenges and limitations experienced in its application.

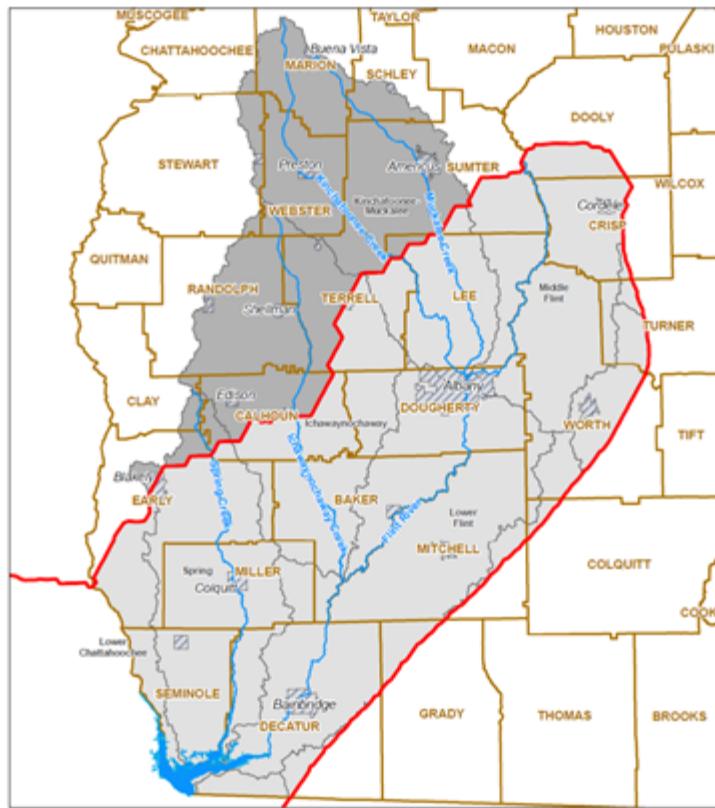
## **B. Moratorium On New Groundwater and Surface Water Permits in the Lower Flint Basin**

96. One step I took was to ensure that new applications for agricultural permits would not be accepted in the lower Flint River Basin. Effective July 30, 2012, I suspended the acceptance of agricultural withdrawal permit applications from groundwater and surface water sources in portions of the Flint River Basin, including new permits for withdrawals from the

Floridan aquifer. Former EPD Director Harold Reheis had first issued a moratorium on issuing new irrigation permits in June 1998. Although that moratorium was lifted in 2006, EPD still maintained strict limitations on the issuance of new permits in areas with high connectivity between the Floridan aquifer and the Flint River and its tributaries. But in light of the severe drought in 2012, I decided to reinstitute the moratorium on agricultural permits, expanding it slightly to cover additional acreage wetted by surface water withdrawals in the Kinchifoonie-Muckalee Creek area. JX-73 is a true and correct copy of my July 30, 2012 Permit Suspension Announcement.

97. That moratorium is still in effect today. It applies to applications for new farm-use permits and farm-use permit modifications that would increase pump capacity or irrigated acreage associated with groundwater withdrawals from the Floridan aquifer. JX-76 at 1. The moratorium also applies to applications for new farm-use permits and farm-use permit modifications associated with withdrawals from surface water sources, including surface water withdrawals from the sub-basins in the Spring Creek, Ichawaynochaway Creek, and Kinchafoonee-Muckalee Creek in the Flint River Basin (Turner Demo. 1):

## Demonstrative 1: 2012 Agricultural Permit Moratorium



98. This moratorium protects existing resources by limiting growth in agricultural withdrawals from these sources, effectively capping irrigated acreage and the number of permittees in this portion of the Flint River Basin.

99. In addition to the moratorium, I also considered whether to impose an outdoor watering ban in Northern Georgia as had been done during the 2007-2009 drought. I decided that such a ban was not necessary because the 2011-2012 drought was largely concentrated in Southwest Georgia and did not extend to the metropolitan Atlanta area.

### C. During Recent Multi-Year Droughts the Corps Operated the Reservoir System to Benefit Florida

100. The past 15 years of record have seen a number of severe, multi-year droughts, including droughts in 1999-2001, 2006-2008, and 2010-2012. These multi-year droughts were

longer and more severe than any we have seen before. Of these, the multi-year drought of 2012, the epicenter of which settled over Southwest Georgia, was, by some measures, the most severe drought the region had ever experienced. The streamflow impacts of the 2012 drought and the multi-year droughts that came before, however, would have been much worse for Florida in the absence of the Corps' operations to manage the system during these periods. In those droughts, Corps operations helped (not hurt) Florida.

101. For example, during the last two multi-year drought cycles, natural inflow to the ACF Basin fell to approximately 50 percent of normal levels. GX-1250 (July 22, 2013 J. Turner Testimony at GA01457633). At the same time, the Corps provided a great deal of augmentation to river flows from storage to mitigate the effect on downstream users, including Florida. Importantly, the Corps operated the federal reservoirs in Georgia to achieve a state-line flow target at Jim Woodruff Dam that was far above the amount of water entering the entire basin.

102. The Corps augmentation numbers for recent drought years in particular (2006, 2007, 2011 and 2012) are staggering. From 2006 to 2007, the Corps used 850,000 acre feet of water drawn from storage to meet a state-line flow target at Woodruff Dam that was generally 5000 cfs when natural inflow was only 3000 cfs for extended periods, and sometimes below 2000 cfs. GX-1250 at GA01457633 - GA01457634. Thus, more than 2000 cfs of augmentation was supplied by these federal reservoirs hour after hour, day after day, during these droughts. In 2011, the Corps drew approximately 700,000 acre feet of water from storage. And in 2012, about 570,000 acre feet of water was drawn down by the Corps to augment streamflows in the Apalachicola River. GX-1250 at GA01457634. As these numbers indicate, the full effects of these multi-year droughts on Florida would actually have been far greater without the intervention of the Corps.

103. In the same way the effects of drought were mitigated by releases from the Corps, so too were any possible effects from Georgia's consumptive use. For example, Metro Atlanta's total consumption of water from Lake Lanier and the Chattahoochee River in 2011 was 171 cfs. That is less than 1% of the average flow in the Apalachicola River at the state line in a normal year, and less than 2% of the flow in a drought year. GX-1250 at GA01457632. Because the Corps operated the federal reservoirs to meet a guaranteed flow target that far exceeded inflow into the ACF and that dwarfed any losses from consumptive use upstream, Florida received

considerably more water than it otherwise would have received in the absence of Corps operations.

104. Thus, in reality, Florida has greatly benefited from the existence of the federal reservoirs in the ACF and Corps operations during drought periods when Florida purports to need the water most. Flows in the Apalachicola River were higher during recent droughts than they would have been had the Corps not released large amounts of water stored in reservoirs in Georgia to augment the flow in the Apalachicola River.

#### **D. Flint River Drought Protection And Management Rules**

105. Georgia has been proactive in addressing many of the new management challenges posed by the recent multi-year droughts through policy changes, amendments to drought management plans and regulations, the imposition of new conservation measures, and the examination of potentially innovative drought management tools for the future.

106. As I mentioned earlier, implementing and improving the FRDPA was one of the most significant issues I tackled during my tenure as EPD Director. I was familiar with the FRDPA through my work at the Governor's office in 2005-2008. The FRDPA was a well-intentioned, early effort to address water use during periods of drought. As discussed above, I came to learn over time that the FRDPA was difficult to implement in its original form and needed to be overhauled to be effective.

107. In 2001 and 2002, EPD conducted auctions pursuant to the FRDPA. In the 2001 auction, more than 33,000 acres were taken out of irrigation for a total cost of approximately \$4.5 million. In the 2002 auction, more than 41,000 acres were removed from irrigation at a cost of \$5.3 million. GX-21 (Mar. 1, 2001 EPD Press Release at GA00143927); GX-27 (Mar. 1, 2002 EPD Press Release at GA00143930); GX-1196 (Summary of 2000 and 2001 Flint River Drought Protection Act Auctions at GA00201026).

108. Ultimately, we learned that these auctions may not have been as effective at reducing water use as Georgia desired, in significant part because the auction process did not guarantee with any sufficient level of confidence that reductions in irrigated acreage would result in a corresponding increase in stream flow, and it proved difficult for EPD to determine before March 1st whether severe drought conditions would be present that growing season.

109. Against this backdrop, and in the wake of the 2012 drought experience, I concluded that the FRDPA needed to be strengthened in a number of ways. In early 2013, before it was clear that the drought had fully abated, I proposed amendments to the FRDPA which the Legislature began considering that session. In the 2014 Session of the Georgia General Assembly, the Legislature enacted a set of amendments to the FRDPA that established additional conservation mandates and enhanced Georgia's ability to manage water use within the Flint River Basin. The amendments clarified the original FRDPA language to provide EPD additional flexibility regarding auction implementation following a severe drought declaration, and gave EPD the express authority to increase the effectiveness of flow augmentation projects.

110. The FRDPA amendments also established a set of conservation efficiency mandates for all permitted agricultural withdrawals in the Flint Basin, including the requirement that all permitted irrigation systems achieve a minimum of 80% irrigation efficiency by January 1, 2020. JX-105 is a true and correct copy of the April 17, 2014 Amendments to the Flint River Drought Protection Act (GA00305431), and GX-765 is a true and correct copy of a Memorandum I submitted to the Board of the Department of Natural Resources summarizing the Proposed Amendments to the FRDPA and requesting their adoption (GA01861018).

111. I viewed these amendments to the FRDPA as initial steps in building on our prior efforts to address water management issues in the Flint Basin. Specifically, the FRDPA amendments were a series of management tools focused on the lower Flint Basin that would provide short-term benefits while the State examined more comprehensive water management options for the Lower Flint Basin. Those additional items are currently under consideration by the State of Georgia. JX-155 is a true and accurate copy of a series of talking points describing the FRDPA amendments. It was made as part of EPD's regular practice and was maintained in the course of its regularly conducted business. JX-155 (Dec. 19, 2013 Talking Points re: FRDPA Amendments at GA00309257).

#### **IV. PRELIMINARY ANALYSIS OF OTHER POTENTIAL MANAGEMENT TOOLS**

112. Another initiative I led while at EPD was to investigate potential options to enhance or protect stream flows in the Flint River Basin in drought. In 2012, Georgia EPD teamed up with the Georgia Environmental Finance Authority ("GEFA") and a number of external contractors to study these potential management tools. Although these technical studies

began around the time I took over as EPD Director, many of the studies involve complex hydrological processes and a trial-and-error process. As a result, the studies are still ongoing. Georgia continues to analyze the potential costs and what stream-flow benefits, if any, these initiatives might yield. It is still too early in the process to conclude which of the proposals would be justified from a cost-benefit perspective since the benefits are still unknown.

#### **A. Transferring Users to Deeper Aquifers.**

113. One management tool that EPD is currently examining is moving water users who withdraw from surface waters in the Flint River Basin or portions of the Floridan aquifer to deeper aquifers like the Clayton or Claiborne aquifers. In 2012, EPD began its preliminary analysis of the well replacement costs and potential streamflow benefits of moving Floridan users and certain surface water users in targeted areas along the Spring Creek, Ichawaynochaway Creek, and the Lower Flint River to the Claiborne aquifer. Because we had little information at the time, this preliminary analysis would determine whether further study was even worthwhile.

114. FX-56 is a true and correct copy of a memorandum discussing the results of EPD's preliminary analysis. The cost of well replacement was significant, estimated to cost between \$85,000 and \$414,000 per individual well with total well construction estimated to range from \$60 to \$110 million, depending on the number and location of the users being moved. FX-56 at GA01643093. The estimated streamflow benefits in June were between 72 cfs and 149 cfs, again depending on the number and location of users being moved to the Claiborne aquifer. FX-56 at GA01643089 - GA01643091.

115. Much of this and other analysis is ongoing. EPD and its team of consultants have not yet reached any conclusions about the sustainability of the Claiborne or in general the propriety of moving users to deeper aquifers given the significant costs of developing and operating these new wells. If the deeper aquifers are determined to be a suitable water supply source for users in the Flint River Basin and the benefits outweigh the costs, it is possible that users will be moved to deeper aquifers in future years.

#### **B. Aquifer Storage & Recovery.**

116. EPD is also studying the potential for supplementing streamflows or creating water reserves for dry periods using a technique called aquifer storage and recovery, or "ASR."

At a high level, ASR is a process that involves drawing water from one source and storing that water underground during times of plenty for later use during times of drought or low flows. In other words, ASR is like storing water in an underground reservoir.

117. ASR has been used with some success in other states, but it is an extremely complex, expensive, and technical water management tool. Additionally, the effectiveness of ASR storage is highly dependent on its specific location. To determine the feasibility of ASR in the Flint River Basin, EPD again partnered with GEFA and several contractors to conduct an ASR demonstration project at the Elmodel Wildlife Management Area, located in Baker County, Georgia (the “ASR Demonstration”).

118. In connection with the ASR Demonstration, the team installed a well in the Floridan aquifer to supply water to ASR wells in the Claiborne or Clayton Aquifers. The water from the ASR wells would in turn be used to supplement stream flow in the Chickasawhatchee Creek or as an alternative source for irrigation withdrawals. From 2014 to 2015, EPD worked with GEFA to construct the Claiborne and Clayton monitoring wells and the Floridan aquifer supply well at a cost of more than \$1.3 million.

119. Data from the monitoring wells was analyzed by EPD and peer reviewed. In July of 2015, GEFA announced the results, which showed that the dual aquifer ASR well at the Elmodel WMA was unlikely to produce enough water for streamflow augmentation at this site. Separately, GEFA and EPD had constructed a lower aquifer well at Stripling Irrigation Park in Mitchell County (some twelve miles from the Elmodel site) to test and study irrigation from these lower aquifers with different productivity than the typical Floridan well. Surprisingly, the well at Stripling had twice the productivity of the Elmodel site, suggesting either well construction issues at the Elmodel site or great variability in productivity based on geographic location. Consequently, GEFA determined not to complete the demonstration project at the Elmodel site and is now looking at other potential sites and further evaluation of ASR is ongoing. As a result, Georgia and GEFA have not yet determined a suitable location for another ASR demonstration project.

### **C. Agricultural or Conservation Easements.**

120. A third potential management tool examined by EPD is the potential for incentivizing agricultural water users to either voluntarily remove productive irrigated land from

production and repurpose the land, or replace irrigation on productive irrigated land with dry-land farming or non-agricultural uses. These options would likely require that participating users receive tax benefits or some form of a buyout in return for eliminating irrigation or agricultural uses on their property. EPD has held a number of internal discussions and met with non-governmental organizations to discuss the potential for these options, but EPD has not yet initiated formal discussions with agricultural users to gauge their willingness to participate or begun to analyze the costs or potential streamflow benefits associated with the concept.

## **V. ADDITIONAL STATEWIDE WATER PLANNING AND MANAGEMENT EFFORTS**

121. The amended FRDPA is not the only tool in place to help manage and conserve water for agricultural uses. In 2004, the Georgia Legislature passed the Comprehensive Statewide Water Management Planning Act (the “2004 Act”), which replaced the earlier River Basin Management Planning Act. GX-64 (State Water Plan Act at GA00099189). This Act mandated that EPD develop and submit to the General Assembly a comprehensive statewide water management plan. EPD assembled and coordinated with basin advisory committees, a statewide advisory committee and technical advisory committees to consider and vet water policy options and management practices. EPD also led an extensive public involvement process which involved hundreds of individuals representing agricultural and business interests, local governments, trade associations, and non-profit agencies, among others. GX-210 (State Water Plan at GA00008912). The General Assembly adopted the first State Water Plan and the Governor signed it in February 2008, making Georgia one of the first states at the time to adopt a statewide water plan. JX-94 (July 22, 2013 Statement of Judson H. Turner at GA00066852).

122. As a result of the State Water Plan, ten new regional Water Planning councils were established and were required to develop Regional Water Plans. The regional plans include regional forecasts of water supply and capacity demands for each water source in the planning region. EPD adopted each of the ten Regional Water Plans in September 2011. To date, Georgia has invested over \$30 million in technical work and activities to support regional water planning.

123. Since adoption of these regional plans, and under my leadership, EPD engaged in a second round of regional water planning to refine and improve our collective knowledge of water issues facing the state of Georgia. In connection with that process, EPD has provided technical assistance to the regional councils and performed water resource assessments. In

addition, I have also been directly involved in seeking appropriations to fund the second round of statewide planning for the ten regional water councils and for the Metro Water District's integrated plan update.

124. The second round of regional water planning is ongoing and expected to be completed in 2017.

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125. Following the deposition of Georgia expert Dr. Suat Irmak in early August 2016, it came to my attention that Florida had identified what it believed to be irrigated acres in ACF Georgia that were not properly permitted. As explained in their pre-trial brief, Florida performed a comparison of the irrigated acreage information contained in Georgia's Wetted Acreage Database to information concerning permitted acreage reflected in Georgia's Agricultural Permitting Database. Florida identified "roughly 90,000 irrigated acres" that it believes are not properly permitted.

126. While EPD does not agree that a planning database such as the Wetted Acreage Database should be used for this purpose, the comparison between the two databases does raise a potential compliance issue that Georgia has considered since Florida raised the issue. Furthermore, even if it turns out that one or more individuals are irrigating without a permit, the irrigated acreage is still accounted for in Georgia's Wetted Acreage Database and included in the State's agricultural water demand estimates.

127. In October 2016, the Governor of Georgia appointed a special task force to investigate this issue and take appropriate action. The task force includes officials from Georgia EPD. EPD is approaching this enforcement effort in stages. The initial stages will focus on those acres that have the greatest impact on streamflows. Thus, in its initial enforcement efforts, EPD will focus on those permit holders (i) in high-priority compliance areas, including the Capacity Use and Restricted Use Areas of the 2006 Basin; and (ii) suspected non-compliant irrigation activity affecting the largest amount of acreage. On October 21st, EPD issued 30 Notices of Violation to permit holders suspected of irrigating acreage that is not properly permitted. Pursuant to Georgia law, these individuals will be given an opportunity to respond to the notices, and EPD will follow-up with site visits to confirm that these individual are indeed out of compliance.

128. EPD will continue its enforcement efforts going forward. In the next few weeks, EPD anticipates issuing another set of notices to additional permit holder in the ACF Basin. EPD will continue to focus its compliance effort on high priority areas in which those irrigators withdrawing from surface water sources and groundwater sources in the Flint Basin.

## **ATTACHMENT 1 - DOCUMENTS REFERENCED IN THIS TESTIMONY**

- GX-021: This is a true and accurate copy of a March 1, 2001 Georgia EPD Press Release. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. This document is part of the official records of Georgia. It was made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business.
- GX-027: This is a true and accurate copy of a March 1, 2002 Georgia EPD Press Release. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. This document is part of the official records of Georgia. It was made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business.
- GX-1196: This is a true and accurate copy of a Georgia EPD memorandum summarizing the 2000 and 2001 Flint River Drought Protection Act auctions. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. This document is part of the official records of Georgia. It was made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business.
- GX-52: This is a true and accurate copy of the September 2003 Metro Water District Metro District Water Supply and Conservation Plan. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.
- GX-064: This is a true and accurate copy of Georgia's 2004 Comprehensive Statewide Water Management Planning Act. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- GX-210: This is a true and accurate copy of February 2008 Georgia State Water Plan. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- GX-1037: This is a true and accurate copy of the May 26, 2004 Drought Management Rules as adopted by Georgia EPD. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- JX-025: This is a true and accurate copy of a October 23, 2007 Georgia DNR Press Release. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. This document is part of the official records of Georgia. It was made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business.
- JX-37: This is a true and accurate copy of the May 2009 Metro Water District's Water Supply and Water Conservation Management Plan. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. It was made as part

of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.

- JX-121: This is a true and accurate copy of the December 2010 Amendments to the May 2009 Metro Water District's Water Supply and Water Conservation Management Plan. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.
- GX-1232: This is a true and accurate copy of the EPD regulations adopted in 2011 related to interbasin transfers. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- JX-069: This is a true and accurate copy of a March 1, 2012 Georgia EPD memorandum regarding the suspension of consideration of agricultural withdrawal permits in portions of the Lower Flint and Chattahoochee River Basins that I prepared. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. This document is part of the official records of Georgia. It was made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business.
- JX-073: This is a true and accurate copy of a July 30, 2012 Georgia EPD Press Release. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. This document is part of the official records of Georgia. It was made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business.
- JX-076: This is a true and accurate copy of a September 2012 Technical Memorandum on the Assessment of Sustainable Yield of the Claiborne and Cretaceous Aquifers prepared by CDM Smith on behalf of Georgia EPD. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- JX-086: This is a true and accurate copy of the January 11, 2013 State of Georgia's Water Supply Request. This document was made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business. The document is part of the official records of Georgia. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- GX-1250: This is a true and accurate copy of my July 22, 2013 Written Testimony to the U.S. Senate Committee on Environment and Public Works. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. This document was made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business.
- JX-94: This is a true and accurate copy of my July 22, 2013 Oral Testimony to the U.S. Senate Committee on Environment and Public Works. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. This document was

made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business.

- JX-105: This is a true and accurate copy of the April 17, 2014 Amendments to the Flint River Drought Protection Act. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- JX-155: This is a true and accurate copy of a series of talking points describing the FRDPA amendments. It was made as part of EPD's regular practice and was maintained in the course of its regularly conducted business. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- GX-1090: This is a true and accurate copy of the 2015 Water Use Efficiency Rules (O.C.G.A. 391-3-33 et seq.) as adopted by Georgia EPD. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- GX-935: This is a true and accurate copy of the 2015 Drought Management Rules (O.C.G.A. 391-3-30-01 *et seq.*) as adopted by Georgia EPD. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- GX-1089: This is a true and accurate copy of the March 2015 EPD Guidance regarding local and regional management of water supply, water conservation, wastewater, and watershed impacts for the Metro Water District's Plan Updates. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. This document is part of the official records of Georgia. It was made as part of Georgia EPD's regular practice and was maintained in the course of its regularly conducted business.
- GX-786: This is a true and accurate copy of the December 2015 Metro Water District's Activities & Progress Report. I am familiar with and reviewed and relied on this document. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.
- GX-765: This is a true and accurate copy of a Memorandum I submitted to the Board of the Department of Natural Resources summarizing the Proposed Amendments to the FRDPA and requesting their adoption. This document was prepared in the regular practice of Georgia EPD and was maintained in the course of its regularly conducted business. The document is part of the official records of Georgia. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- JX-126: This is a true and accurate copy of the December 2015 State of Georgia's Water Supply Request that I prepared and submitted to the Army Corps. This document was prepared in the regular practice of Georgia EPD and was maintained in the course of its regularly conducted business. The document is part of the official records of Georgia. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.

- GX-829: This is a true and accurate copy of the January 2016 Georgia Comments on the Corps' Draft EIS that I prepared and submitted to the Army Corps. This document was prepared in the regular practice of Georgia EPD and was maintained in the course of its regularly conducted business. The document is part of the official records of Georgia. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD.
- GX-863: This is a true and accurate copy of the April 2016 Metro Water District memorandum and attachments describing the latest population and employment statistics for the Metro Water District. I am familiar with and reviewed and relied on this document as part of my duties as Director of Georgia EPD. It was made as part of the Metro Water District's regular practice and was maintained in the course of its regularly conducted business.