INTEGRATED LETTER REPORT AND TIERED ENVIRONMENTAL ASSESSMENT

OF THE

OPERATIONAL ANALYSIS AND TARGETED WATER CONTROL PLAN UPDATES FOR THE APALACHICOLA-CHATTAHOOCHEE-FLINT RIVER BASIN IN ALABAMA, FLORIDA, AND GEORGIA

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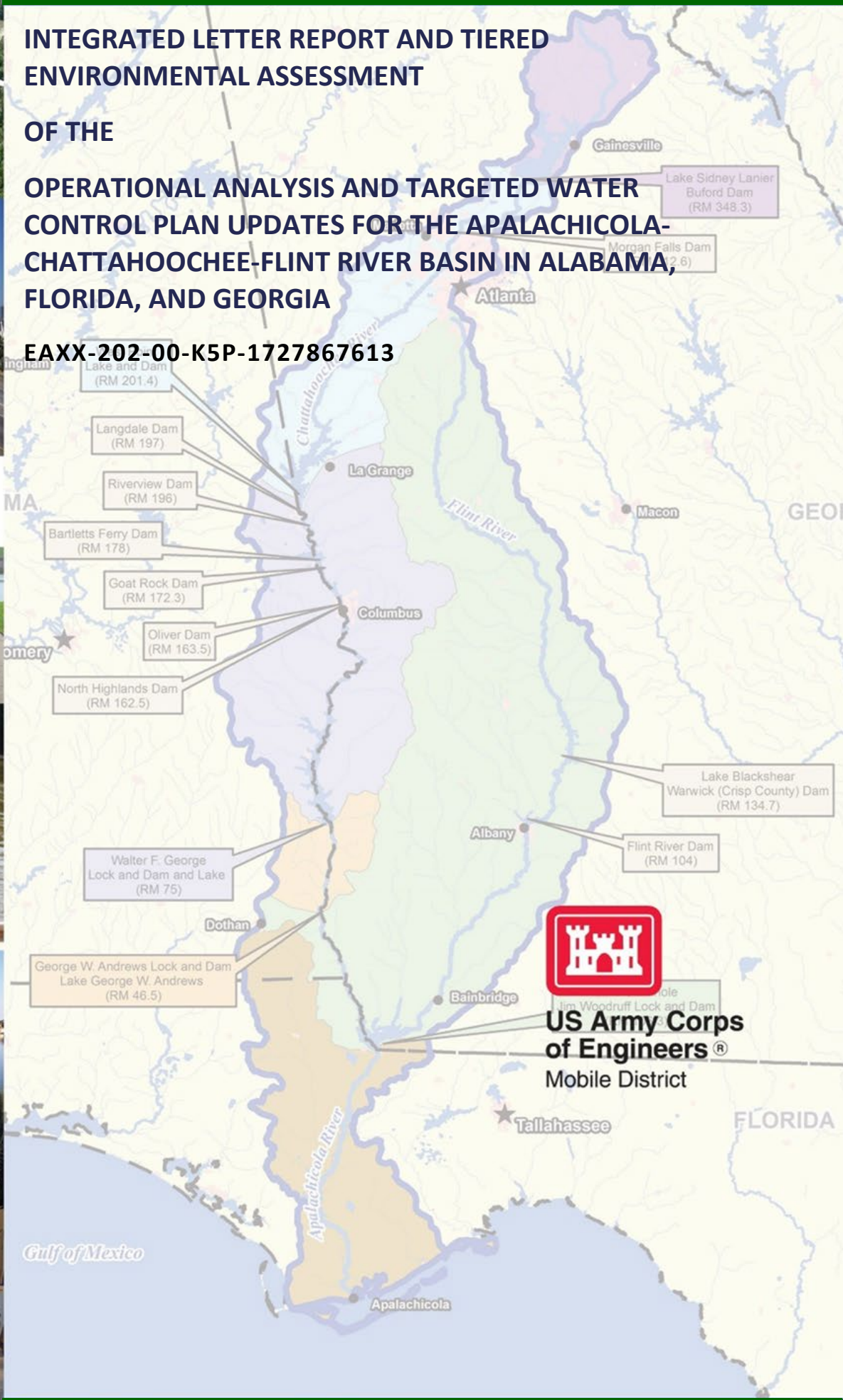

Appendix D

West Point Water Control Plan

The enclosed document contains chapters 3, 7, and Exhibit C: Standing Instructions to the Damtenders for Water Control from each of the West Point, Walter F. George, George W. Andrews, and Master Water Control Manuals. These chapters have been selected out of the complete 2017 Water Control Manuals due to their direct relation to implementation of the 4 Flow Objectives analyzed in the ILR/TEA pursuant to the Stay Agreement Alternative. The Stay Agreement itself can be found in Appendix A. All added language within is indicated by red text.

US Army Corps
of Engineers®
Mobile District

WATER CONTROL MANUAL

APPENDIX E

WEST POINT DAM AND LAKE

CHATTAHOOCHEE RIVER
GEORGIA AND ALABAMA

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
MOBILE, ALABAMA

JUNE 1975

Revised August 1984, March 2017, and December 2024

West Point Dam and Lake

III - HISTORY OF PROJECT

3-01. Authorization. The first examination and survey of the ACF River System was made in 1872. Since then, Congress authorized a number of reports contemplating improvement of the river system. From those reports and surveys evolved a plan of improvement prepared by the Mobile District in response to a resolution by the Committee of Rivers and Harbors, House of Representatives, dated 28 April 1936, which called for a review of the reports with a view to determining if the existing projects should be modified in any way. That report is printed in House Document No. 342, 76th Congress, First Session. A general plan for future development presented in that document included a power storage project at a site known as Lanier, which is above West Point, Georgia, in the same general location as the West Point Dam site. A survey report of the Chattahoochee River at and in the vicinity of West Point, Georgia, was authorized in resolutions by the Committee on Public Works of the House of Representatives adopted 29 July 1955, and 31 July 1957, with a view to determine whether it was advisable to authorize construction of a multiple-purpose reservoir on the Chattahoochee River at and in the vicinity of West Point, Georgia. That report was published as House Document No. 570, 87th Congress, Second Session. Construction of the West Point Reservoir Project was authorized by the Flood Control Act of 23 October 1962.

3-02. Planning and Design. In view of the unbalanced civil works load between districts, the SAD Division Engineer assigned responsibility for design, construction, and real estate acquisition of the West Point Project to the Savannah District by letter dated 16 November 1962. Design Memorandum No. 1, Hydrology and Hydraulic Analysis was prepared by the district and submitted on 20 March 1964. Since then, 36 additional Design Memoranda have been submitted and approved by the Chief of Engineers. These memoranda are listed in Table 3-1.

Table 3-1. Design Memoranda

DM No. 1 - Hydrology and Hydraulic Analysis	March 1964
DM No. 2 - Hydropower Capacity	April 1964
DM No. 3 - Site Selection and Geology	September 1964
DM No. 4 - Preliminary Master Plan	November 1964
DM No. 5 - General Design Memorandum	February 1965
No. 6 - Construction Facilities	March 1965
No. 7 - Real Estate Area, 1	March 1965
DM No. 7 A- Real Estate Area, 2	March 1965
DM No. 7 B- Real Estate Area, 3	March 1965
DM No. 8 - Main Turbine and Governors	May 1965
DM No. 9 - Construction Materials	May 1965
DM No. 10 - West Earth Embankment	June 1965
DM No. 11 - Small Turbine Governor	June 1965
DM No. 12 - Necessity and Plan for Relocation of the Chambers County Roads	July 1965
DM No. 13 - Concrete Dam and Diversion Works	August 1965
DM No. 14 - Cemetery Relocations	November 1965
DM No. 15 - Necessity and Plan for Relocation of Georgia State Routes 109, 238, 244	December 1965
DM No. 16 - Necessity and Plan for Relocation of Power lines	April 1966
DM No. 17 - East Earth Embankment	April 1966
DM No. 18 - Necessity and Plan for the Relocation of Troup and Heard Counties Roads	May 1966
DM No. 19 - Necessity and Plan for Relocation of Telephone Lines	May 1966
DM No. 20 - Reservoir Clearing and Mosquito Control	August 1966
DM No. 21 - Preliminary Design Report, Power Plant	October 1966
DM No. 22 - Necessity and Plan for the Relocation of Georgia State Routes 109 and 219	September 1966
DM No. 23 - Necessity and Plan for the Relocation of the City of Lagrange Raw Water Intake Pumping Station and Appurtenances	March 1967
DM No. 24 - Necessity and Plan for the Relocation of the Atlantic Coast Line Railroad	September 1966
DM No. 25 - Jackson Creek Outfall Sewer	March 1967
DM No. 26 - Necessity and Plan for Relocation of Callaway Mills Raw Water Intake Pumping Station and Appurtenances	March 1967
DM No. 27 - Necessity and Plan for Relocation of U.S. Route 27	November 1966
DM No. 28 - Water Quality Monitoring System	May 1967
DM No. 29 - Intake Gate Hoists, Hydraulic System, and Controls	February 1968
DM No. 30 - Microwave Facilities	February 1970
DM No. 31 - Public Use and Administrative Facilities	Sep 1968 - April 1969
DM No. 32 - Powerhouse Design Analysis	October 1969
DM No. 33 - Necessity and Plan for Relocation of the Plantation Pipeline	September 1971
DM No. 34 - Hydrology Data Collection System	October 1973
DM No. 35 - Supplement No. 1 - Downstream Floodway Erosion Studies	October 1973
DM No. 36 - Necessity and Plan for Corrective Measures at the West Point Pepperell, Inc. Lanett Filter Plant Raw Water Pumping Station	October 1977
DM No. 37 - Master Plan	April 1981

3-03. Construction. Construction was started in 1965. The west earth embankment and an access road to the powerhouse area were completed in 1966. Construction of the concrete dam was started in May 1968 and was completed in August 1970. The contract for constructing the powerhouse was let in 1971. The total estimated cost of the project was more than $105 million.

Closure of the main channel was accomplished in May 1967, and the flow of the river was diverted through a channel that had been cut on the east bank of the river. The second stage closure was made on 21 June 1973, and the flow of the river was passed through the waterway opening that had been provided in the powerhouse intake structure for adding a future main generating unit.

Completion of the first main turbogenerator unit (unit No. 2) was accomplished in late May 1974; however, problems with the east bank earth dike prevented the start of the filling of the reservoir until 16 October 1974, delaying testing of the unit. Because of improper compacting during construction, the material in the east earth dike had to be removed and the embankment backfilled. The reservoir level reached elevation 617 feet NGVD29 on 15 November 1974. The No. 3 unit was made commercially available on 10 March 1975. The pool was held at elevation 617 feet NGVD29 until 30 April 1975, because of construction restrictions. On 1 May 1975, filling was resumed, and the reservoir reached full power pool, elevation 635 feet NGVD29, on 25 May 1975. The second large unit (No. 2) and the small unit (No. 1) were made commercially available on 10 April 1975.

3-04. Related Projects. West Point Dam and Lake is one of five government reservoir projects within the ACF Basin. In addition, seven privately owned dams are on the Chattahoochee River between Walter F. George and Buford Dam. The government reservoirs on the Chattahoochee River are operated as a system to accomplish authorized functions as described in the *ACF Basin Master Water Control Manual (with Appendices)*. Outflows from West Point Dam are influenced by the Master Manual and requirements at other Corps projects. The privately owned reservoirs on the Chattahoochee River do not alter flows longer than a few days.

3-05. Modifications to Regulations. From the time the West Point Project became operational in 1975, changes in needs and conditions in the ACF Basin have influenced certain modifications to the regulation of releases from the dam. The following describe the modifications to regulations that have occurred at the West Point Project.

a. Hydropower. The Southeastern Power Administration (SEPA) negotiates contracts for the sale of power from the West Point Hydropower Project in accordance with the Flood Control Act of 1944. Under the provisions of the Act, the Corps determines the amount of energy available at West Point each week and advises SEPA of the amount available, and SEPA arranges the sale. West Point Dam is within SEPA's Georgia-Alabama-South Carolina system, which also contains Buford Dam and Walter F. George Dam on the Chattahoochee River, four projects in the ACT Basin, and three projects on the Savannah River. SEPA began dispatching (scheduling) power in 1996. Before that, Southern Company scheduled peaking generation from Corps projects. SEPA's scheduling provided more flexibility to meet customer needs. Hydropower generation in the 1970s was a driving force in releases from West Point Dam, and days of six to eight hours of generation were common. During the 1980s, several droughts occurred and resulted in a philosophical change to more conservative hydropower operations. SEPA values the capacity at each project and supports conservative use of the resource (water). As a result, power generation demands have been balanced between the projects weekly to enhance long-term generating capability of the entire system and to provide for the needs of other project purposes in the system.

b. Navigation. A major factor influencing reservoir regulation was the additional flow required to maintain the authorized 9.0-foot navigation depth on the Apalachicola River. At the time the ACF system of projects was constructed, a discharge from Jim Woodruff Dam of 9,300 cfs, together with dredging, provided a 9.0-foot deep navigation channel in the Apalachicola River. A discharge of 20,600 cfs from Jim Woodruff Dam is currently required for a 9.0-foot channel without dredging. The increase of 11,300 cfs to support a 9.0-foot channel is equivalent to 4.1 feet of storage at Lanier, 5.6 feet of storage from West Point, or 3.6 feet of storage from Walter F. George over a one week period. In practice any use of storage to support navigation would be distributed between the three ACF storage projects with consideration to the current action zone of each reservoir. The increasing flow requirements to achieve suitable navigation channel depth in the Apalachicola River are attributable to (1) channel degradation and (2) escalating flow diversion through Chipola Cutoff. In response to those changing conditions, it became necessary to periodically schedule the release of increased flows from Jim Woodruff Dam for periods of a few days to as long as two weeks to accommodate commercial river traffic. Those periods were known as navigation windows. During navigation windows, water was released in varying amounts from the upstream reservoirs, stored in the downstream reservoirs, and then released through Jim Woodruff Lock and Dam to provide sufficient flow in the Apalachicola River to achieve suitable navigation depths. In preparation for navigation windows, releases were made from West Point Dam to help supply sufficient water in storage downstream to successfully implement the navigation window. A discharge of 20,600 cfs from Jim Woodruff Dam is currently required for a 9.0-foot channel without dredging.

Increasing flow requirements plus the loss of water quality certification from Florida, which prevents the Corps from dredging the Apalachicola River, effectively closed commercial navigation on the Apalachicola River. Coordination with waterway users identified the need for changes in the Corps' water control operations to provide a more reliable flow regime, without dredging, to support at least a 7.0-foot navigation channel in the Apalachicola River. Through an iterative hydrologic modeling process, it was determined that a 5-month navigation season, January through May each year, can be provided that will improve navigation reliability without significantly affecting other project purposes. The 5-month navigation season included in the current Water Control Plan can, in the absence of maintenance dredging, improve the total reliability of a 7.0-foot navigation channel in the Apalachicola River from 21 percent to as much as 42 percent. Releases made from West Point Dam during hydropower operations contribute to the needed downstream navigation flows.

c. Revised Water Control Plan. The initial regulation plan for West Point Lake proposed in the General Design Memorandum included a seasonally varying top of conservation (power) pool that calls for the annual filling from elevation 625 to 635 feet NGVD29 to be accomplished during May. That plan did not contain the requirements for filling downstream Walter F. George Lake at the same time and maintaining navigation flows in the Apalachicola River below Jim Woodruff Dam. Subsequent studies showed that an average discharge of 3,000 cfs is needed from Walter F. George Dam during May to maintain minimum navigation flows below Jim Woodruff Dam. Maintaining such a discharge from Walter F. George Dam would mean that both lakes, West Point and Walter F. George, could not be filled during May in 26 of the 42 years studied. Other plans were studied including staggered filling times for the two lakes. The plan that appeared to be most satisfactory is to begin filling both West Point and Walter F. George Lakes on 15 April with the objective of having both Lakes full by the end of May. Such a plan does not depreciate the flood risk management effectiveness of West Point Dam. All floods that have occurred during the period of record after 15 April would be controlled to the same outflow as would have occurred under the original plan. Peak pool elevations for the floods would be somewhat higher, but in all cases, less than elevation 635 feet NGVD29. The

slightly higher pool level at Walter F. George during the last half of April and early May does not result in any violation of flood easements in the lake or in excessive releases downstream. That plan was adopted during preparation of the initial water control manual for the West Point Project.

d. Revised Flood Risk Management Operations. Early flood risk management operations specified observing the water elevation of downstream gages and restricting the outflow from West Point Dam accordingly to prevent exceeding certain stages. However, this methodology proved problematic due to the relatively small drainage area between the dam and the control gages and the limited flood storage within the reservoir. Operating experience revealed that inflows to the project and the amount of remaining storage in the reservoir were more critical to flood risk management and that limiting the outflow throughout the flood event deemed more beneficial.

e. Changed Winter Conservation Pool Elevation. As part of a draft 1989 ACF water control manual update, raising the top of the winter conservation pool from 625.0 feet to 628.0 feet NGVD29 was evaluated. The original winter conservation pool elevation of 625.0 feet NGVD29 was based on an earlier determination that the channel capacity downstream of the project was limited to a bankfull flow of 25,000 cfs. Subsequent channel surveys revealed that the channel capacity would support a significantly greater bankfull flow of 40,000 cfs. With the ability to release greater volumes of water from the lake early in a flood event, the higher winter pool does not reduce the flood protection capability of West Point Dam. As a result of the analysis done for the draft 1989 manual update, the West Point Project began operating for a winter conservation pool elevation of 628 feet NGVD29 that year.

f. Revised Interim Operating Plan. The Revised Interim Operating Plan (RIOP) was implemented in June 2008 and modified in May 2012. The purpose of the RIOP was to support compliance with the Endangered Species Act of 1973 for Federally listed threatened and endangered species and their Federally designated critical habitat in the Apalachicola River and to avoid or minimize potential adverse effects associated with discretionary operations at Jim Woodruff Lock and Dam. The RIOP directly affected flows and fall rates in the Apalachicola River and prescribed the minimum flow releases to be made from Jim Woodruff Dam under specific hydrologic conditions. However, the releases made from Jim Woodruff Dam in accordance with the RIOP used the composite conservation storage of all the upstream reservoirs in the ACF System. The Corps operates five Federal reservoirs on the ACF as a system, and releases made from Jim Woodruff Dam under the RIOP reflected the downstream end-result for system wide operations measured by daily releases from Jim Woodruff Dam into the Apalachicola River. The RIOP did not describe operational specifics at any of the four Federal reservoirs upstream of Jim Woodruff Lock and Dam or other operational parameters at those reservoirs. Instead, the RIOP described the use of the composite conservation storage of the system and releases from the upstream reservoirs as necessary to assure that the releases made from Jim Woodruff Dam would comply with the Endangered Species Act of 1973 by minimizing effects on Federally listed threatened and endangered species and Federally designated critical habitat.

g. Settlement Flow Objectives. Settlement negotiations in the lawsuit challenging the 2017 updates to ACF Water Control Manuals resulted, after completion of the Integrated Letter Report and Tiered Environmental Assessment (ILR/TEA) for the Operational Analysis and Targeted Water Control Plan Updates for the Apalachicola Chattahoochee Flint River Basin in Alabama, Florida, and Georgia , in dismissal of the state of Alabama's lawsuit against USACE and option of the following Flow Objectives:

1. An objective to maintain a minimum average daily flow of 1,350 cfs over any 7- day period at the gage located on the Chattahoochee River at 14th, Street at Columbus,

Georgia (Gage No. 02341460) when the ACF Basin is not in "Drought Zone Operations" as that term is defined in the 2017 ACF Master Manual.

2. An objective to maintain a minimum average weekday flow of 2,000 cfs at the gage located on the Chattahoochee River near Columbia, Alabama (Gage No. 02343801) when the ACF Basin is not in "Drought Zone Operations" as that term is defined in the 2017 ACF Master Manual.

3. An objective to maintain the minimum average flows at Columbus, Georgia and Columbia, Alabama, described in items (1) and (2) above, on two days each calendar week starting each Monday, when the ACF Basin is in "Drought Zone Operations" as that term is defined in the 2017 ACF Master Manual; and

4. An objective to maintain Lake Seminole at or above an elevation of 76 feet NVGD in the same manner and to the same extent as provided in the 2017 ACF Master Manual, and in particular the following paragraphs from Appendix A, the Water Control Manual for Jim Woodruff Lock and Dam and Lake Seminole: Chapter III, paragraph 3-03; Chapter VII, paragraphs 7-03, 7-0S(a), 7-10, and 7-11; and Chapter VIII, Paragraph 8-11 b.

In order to meet the Flow Objectives at West Point, the discharges necessary to support maintaining a daily average flow of 1,350 cfs over any 7-day period (7-day forward moving average) at 14th, Street at Columbus, Georgia (Gage No. 02341460) and a minimum average weekday flow of 2,000 cfs on the Chattahoochee River near Columbia, AL (Gage No. 02313801) under normal conditions will be made. When Drought operations have been triggered, the flow target shifts to maintain the minimum average Flows of 1,350 cfs for at least two calendar days at Columbus, Georgia and 2,000 cfs for at least two calendar days at Columbia, Alabama, on two days each calendar week starting each Monday.

3-06. Principal Regulation Problems. There are no regulation problems that affect the West Point Dam water control operations.

VII - WATER CONTROL PLAN

7-01. General Objectives. The original congressionally authorized purposes for the West Point Dam and Lake are flood risk management, hydroelectric power, fish and wildlife conservation, navigation, and recreation. Since its initial authorization, several other project purposes have been authorized at West Point through subsequent nationwide authorizing legislation. Those purposes include water quality, water supply, and conservation of threatened and endangered species. The water control plan seeks to balance the needs of all project purposes at the West Point Project.

7-02. Constraints. Physical constraints of the project are generally limited to available powerhouse capacity and downstream channel capacity. West Point Dam has an authorized minimum flow requirement of 670 cfs immediately downstream of the dam. That flow is met with the small hydropower unit that is operated 24 hours a day. If the small unit is out of service, a spillway gate will be opened to meet that flow.

7-03. Overall Plan for Water Control

a. General Regulation. The water control operations of the West Point Project are in accordance with the regulation schedule as outlined in the following paragraphs. The Corps operates the West Point Project to provide for the authorized purposes of the project. All authorized project purposes are considered when making water control regulation decisions, and those decisions affect how water is stored and released from the project. Deviations from the prescribed instructions, which can occur due to planned or unplanned events as described in Section 7-15, will be at the direction of the Mobile District. Additionally, if communication between the District Office and the dam is interrupted, the operator will follow the emergency operation schedule found at Exhibit D, Instructions to the Damtenders for Water Control.

b. Conservation Pool. The West Point Lake conservation storage pool was designed to provide the necessary capacity to store water for subsequent use to meet the multiple conservation purposes for which the project was constructed. The top of conservation pool elevation is the reservoir's normal maximum operating level for conservation storage purposes. If the elevation is higher than the conservation limit, the reservoir level is in the flood pool. The pool at West Point is regulated between a minimum elevation of 620 and a top of conservation between 628 and 635 feet NGVD29. The top-of-conservation pool guide curve and minimum conservation pool are shown in Figure 7-1 with other operating zones.

c. Guide Curves and Action Zones. The Corps operates the ACF system of reservoirs to provide for all the authorized project purposes. Each of the authorized project purposes is considered when making operational decisions, and those decisions affect how water is stored and released from the projects. The multiple water demands in the basin require that the Corps operate the system in a balanced manner in an attempt to meet all authorized purposes, while continuously monitoring the total system water availability to ensure that project purposes can at least be minimally satisfied during critical drought periods. The balanced water management strategy for the Corps reservoirs in the ACF Basin does not prioritize any project function but seeks to balance all project authorized purposes. Flow support may be required from West Point to support downstream requirements.

The *ACF Master Water Control Manual* and project appendices (to include this manual) prescribe guide curves to facilitate the water control regulation of the three major storage projects in the ACF Basin, Buford Dam/Lake Sidney Lanier, West Point, and Walter F. George. Figure 7-1 and Plate 7-1 depict the guide curve and action zones for West Point Lake in

graphical form. The reservoir storage zones' elevation and volume associated with each guide curve are shown on Plates 7-2 and 7-3 respectively. Table 7-1 depicts the action zones for the West Point Project in tabular form. The guide curve defines the top of conservation storage water surface elevation associated with the storage limits, which guide the regulation for authorized purposes. The water control plan also establishes action zones within the conservation storage for each project. The zones are used to manage the lakes at the highest level possible while balancing the needs of all the authorized purposes. Zone 1, the highest zone, defines a reservoir condition where all authorized project purposes should be met. As lake levels decline, Zones 2 through 4 define increasingly critical system status where purposes can no longer be fully met. The action zones also provide guidance on meeting minimum hydroelectric power needs at each project. Table 7-2 below shows the typical hydropower by action zone that can be expected at West Point.

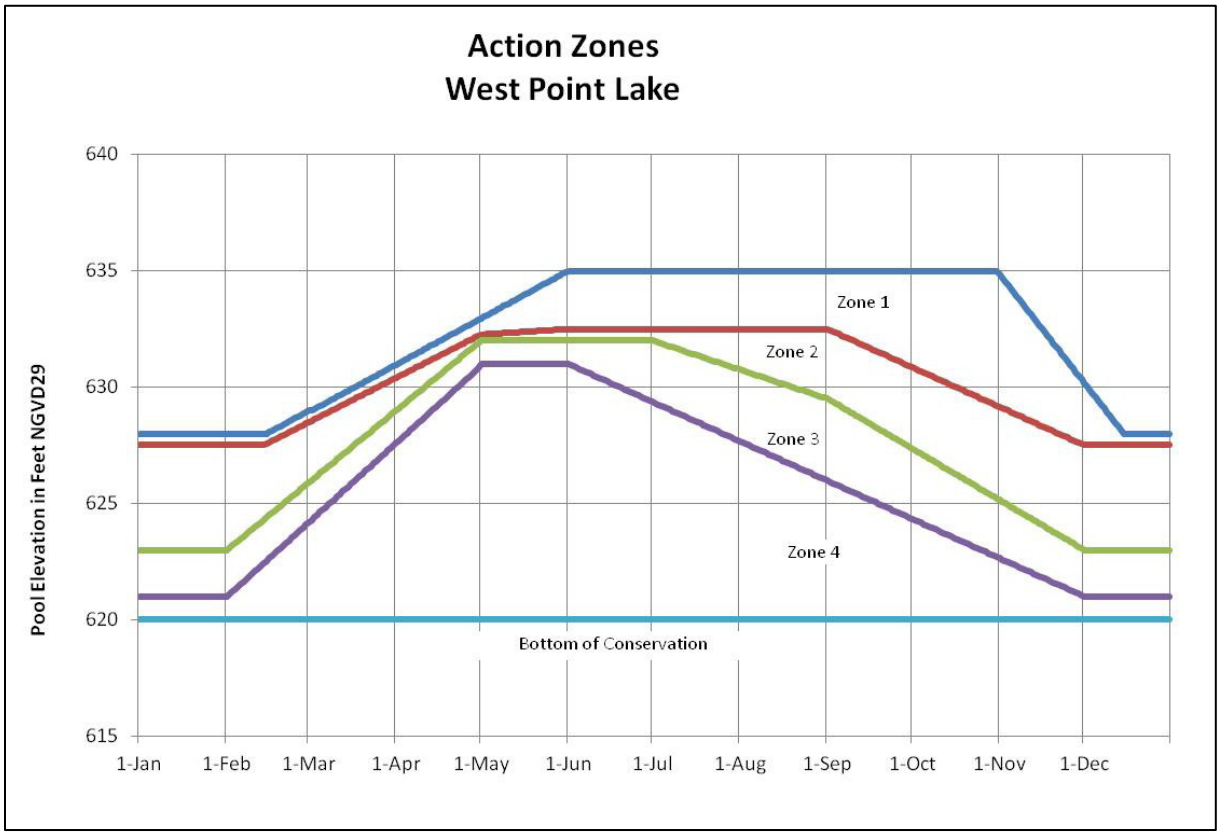

Figure 7-1. Action Zones for West Point Lake

Table 7-1. Top of Conservation and Action Zone Elevations, West Point Lake

Date	Elevation (feet NGVD29)			
	Top of Zone 1	Top of Zone 2	Top of Zone 3	Top of Zone 4
1 Jan	628.00	627.50	623.00	621.00
1 Feb	628.00	627.50	623.00	621.00
15 Feb	628.00	627.50	624.40	622.54
1 May	632.95	632.26	632.00	631.00
1 Jun	635.00	632.50	632.00	631.00
1 Jul	635.00	632.50	632.00	629.36
1 Sep	635.00	632.50	629.50	625.97
1 Nov	635.00	629.15	625.14	622.64
1 Dec	630.18	627.50	623.00	621.00
15 Dec	628.00	627.50	623.00	621.00
31 Dec	628.00	627.50	623.00	621.00

Table 7-2. Typical Hours of Peaking Hydroelectric Power Generation at West Point

Action zone	West Point (hours of operation)
Zone 1	4
Zone 2	2
Zone 3	2
Zone 4	0

While hydropower would still be generated in Zone 4, it could not be generated on a regular peaking schedule under severe drought conditions.

The zones were derived on the ability of the reservoirs to refill (considering hydrology, watershed size, and physical constraints of each reservoir), recreation effects and hazard levels, and the proportionality of zone drawdown between projects. Other factors or activities might cause the lakes to operate differently than the action zones described. Examples of the factors or activities include exceptional flood damage reduction measures, fish spawn

operations, approved deviations, maintenance and repair of turbines, emergency situations such as a drowning and chemical spills, draw-downs because of shoreline maintenance, releases made to free grounded barges, and other circumstances.

The storage projects are operated to maintain their lake level in the same zones concurrently. However, because of the hydrologic and physical characteristics of the river system and other factors that can influence lake levels, there might be periods when one lake is in a higher or lower zone than another. When that occurs, the Corps makes an effort to bring the lakes back into balance with each other as soon as conditions allow. By doing so, effects on the river basin are shared equitably among the projects.

The action zones are integral to the system-wide regulation of the ACF Basin through the concept of composite conservation storage. Composite conservation storage is calculated by combining the conservation storage of Lake Sidney Lanier, West Point Lake, and Walter F. George Lake. Composite conservation storage is shown in Figure 7-2. Each of the individual storage reservoirs consists of four action zones. The composite conservation storage uses the four zone concepts as well; i.e., Zone 1 of the composite conservation storage represents the combined storage available in Zone 1 for each of the three storage reservoirs. When composite conservation storage is in Zones 1 and 2, a less conservative operation is in place. When composite conservation storage is in Zone 3, hydropower is supported at a reduced level, water supply and water quality releases are met, and drought contingency operations are triggered. When composite conservation storage is in Zone 4, severe drought conditions exist and hydropower is likely generated only during concurrent uses. Navigation is not supported.

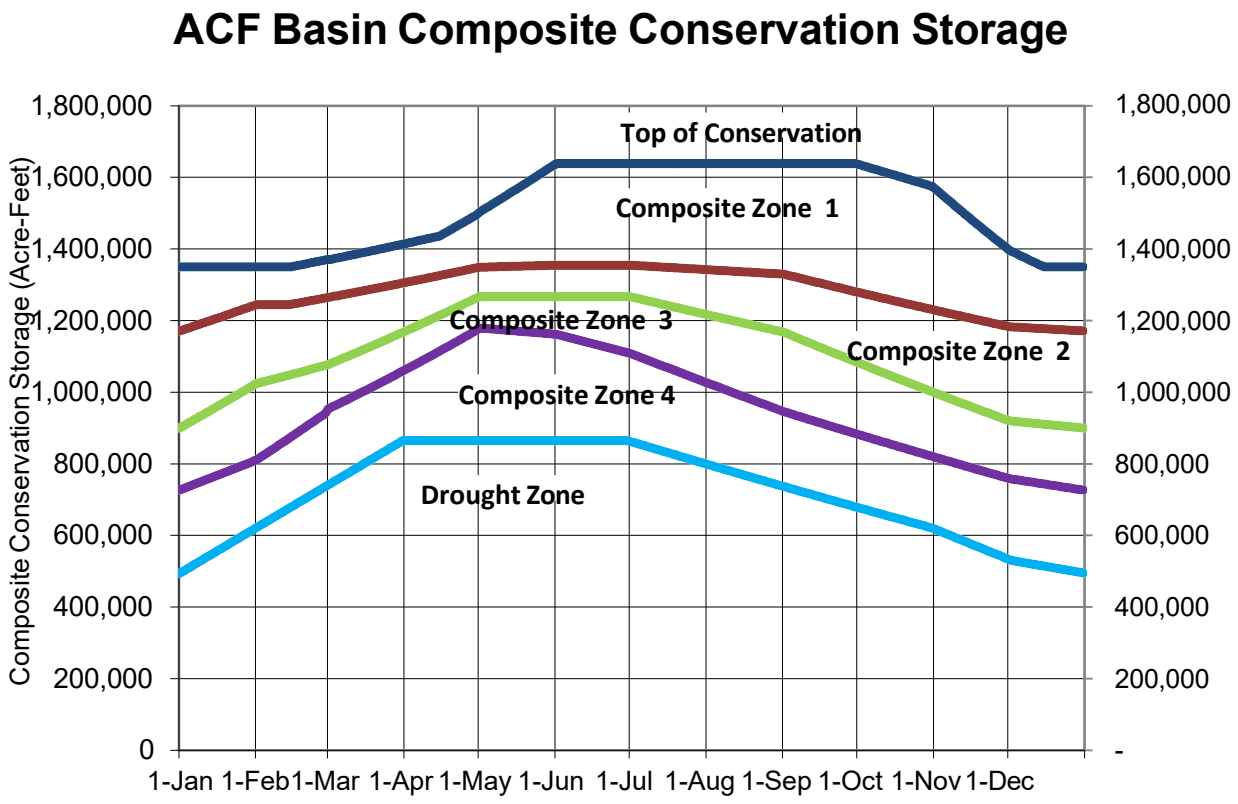

Figure 7-2. ACF Basin Composite Conservation Storage

The following definitions apply to the composite action zones:

Zone 1: If all the lakes are in Zone 1 or above, the river system would operate in a fairly normal manner. Releases can be made for hydroelectric power, water supply, and water quality. If system composite conservation storage is in Zone 1, releases can be made in support of a navigation season (January to April or May). Drought contingency operations cease when levels return to composite action Zone 1.

Zone 2: Hydroelectric power generation is supported at the same or a reduced level. Water supply and water quality releases are met. Minimum flow targets are met. If system composite conservation storage is in Zone 2, releases can be made in support of a navigation season (January to April or May).

Zone 3: Hydroelectric power generation is supported at a reduced level. Water supply and water quality releases are met. Minimum flow targets are met. If system composite conservation storage is in Zone 3, navigation is not supported. Drought contingency operations are triggered when levels drop to Zone 3.

Zone 4: Hydroelectric power demands will be met at a minimum level and might occur for concurrent uses only. Water supply and water quality releases are met. Minimum flow targets are met. If system composite conservation storage is in Zone 4, navigation is not supported.

Drought Zone: Hydroelectric power will only be met as a result of meeting other project purposes. Water supply and water quality releases are met. Minimum flow targets are met but are reduced to their lowest level. If system composite conservation storage is in the Drought Zone, navigation is not supported and the emergency drought operations are triggered. This reduces the minimum discharge from Jim Woodruff Dam to 4,500 cfs.

7-04. Standing Instructions to Damtenders. During normal operations, the powerhouse operators will operate the West Point Project in accordance with the daily hydropower schedule. Any deviation from the schedule must come through the Mobile District. Normally, flood risk management instructions are issued by the Water Management Section in the MDO. However, if a storm of flood-producing magnitude occurs and all communications are disrupted between the Mobile District and the powerhouse operators, the operators will follow instructions in Exhibit C Standing Instructions to the Damtender for Water Control (West Point is operated remotely from Walter F. George powerhouse).

7-05. Flood Risk Management. Operation of the West Point Project for flood risk management is in accordance with instructions issued by the MDO, and releases depend on the West Point pool level and expected conditions. The prime objective of flood risk management operations at the West Point Project is to reduce peak flows at West Point, Georgia, based on the downstream USGS gage “Chattahoochee River at West Point, GA” gage (# 02339500). This objective is met by regulating releases to maintain the West Point, GA USGS gage within the non-damaging bankfull flow of 40,000 cfs until such time as the induced surcharge schedule calls for greater release. This incidentally, also reduces the flood peak downstream in the Columbus, Georgia area. During the early stages of a flood event, the outflow from West Point Dam is planned to control, or limit, the peak outflow as the flood develops. However, water is not evacuated from the conservation storage to make room for an expected flood event. The decision to make releases up to 25,000 cfs is at the discretion of the Mobile District. Releases above 25,000 cfs exceed the flood easement; however, damaging out-of-bank flow does not occur until releases reach 40,000 cfs. Releases up to 40,000 cfs may be made if inflow exceeds 25,000 cfs and the reservoir rises above 635 feet NGVD29, unless induced surcharge

operation has been triggered. Releases are then made to maintain flows within bankfull capacity of 40,000 cfs until such time as the induced surcharge schedule calls for an increase in the releases. The inflow and reservoir level are monitored continuously and compared to outflow requirements prescribed by the induced surcharge schedule.

a. Induced Surcharge Schedule. If current pool levels and inflow rates indicate that runoff from a storm will appreciably exceed storage capacity below 638.0 feet NGVD29 (which is the top of gates in the closed position) flood risk management operations will be directed/governed by the induced surcharge curves shown on Plate 7-4. As gates are open to meet the induced surcharge release, the available storage in the reservoir above 635 feet NGVD29, referred to as the induced surcharge pool, increases to a maximum elevation of 641 feet NGVD29. Table 7-3 describes the induced surcharge operating procedures. This schedule follows the objectives set forth in EM 1110-2-3600 as follows:

1) Peak rate of reservoir release during damaging floods should not exceed peak rates of the corresponding floods that would have occurred under runoff conditions prevailing before construction of the reservoir.

2) The rate of increase in reservoir releases during significant increment of time should be limited to values that would not constitute a major hazard to downstream interests.

Table 7-3. Guidelines for Induced Surcharge Operations and Emptying Instructions

Induced Surcharge Operations

Note: At all elevations, follow regular flood risk management regulation schedule until larger releases are required by this schedule based on 3-hour inflow and pool elevation (induced surcharge). When pool rises above 635.0 feet NGVD29, pass the inflow up to 40,000 cfs (channel capacity), unless larger releases are required by the surcharge schedule on plate 7-4.

I. Pool Rising. Adjust the outflow each hour on the basis of the average inflow for the preceding 3 hours and the current reservoir elevations indicated by the curves. The 3-hour inflow may be increased if the forecasted inflows increase appreciably and would cause a flood wave downstream due to much higher releases in the next hour. Do not decrease gate settings as long as pool is rising.

II. Pool at Crest. When the pool appears to have crested, maintain the current gate opening for 6 hours to ensure that the inflow has peaked. After the reservoir elevation starts to fall, maintain the current gate opening until the pool level recedes to elevation 636.5 feet NGVD29.

III. Pool Falling.

A. Observe pool elevation and compute 3-hour average inflow every 3 hours (midnight, 3a.m., 6 a.m. etc.)

B. If following conditions exist:

1. Pool between 636.5 and 635.0 **AND** inflow is 10,000 cfs less than outflow

OR

2. Pool is less than 635.0 **AND** inflow is 3,000 cfs less than outflow

THEN

Reduce spillway discharge by 3,000 cfs an hour.

C. Once the capacity can be maintained within the normal capacity of the turbines, begin following the guidelines set forth in Table-7-5 and Plate-7-3 for flood risk management zones if the pool is still above the top of conservation. Otherwise, resume normal operations set forth by the water control plan.

An example of induced surcharge operations is the operation that occurred in the September 2009 flood. This is shown on Plate 8-8. The maximum pool elevation is 639.22 feet NGVD29. In this flood, the induced surcharge operations caused a release that only slightly exceeded bankfull capacity but reduced the peak flood wave that would have occurred by nearly 15,000 cfs. Other examples of induced surcharge operations are the floods of February 1990 and May 2003, shown on Plates 8-6 and 8-7, respectively.

Due to the limited flood storage at West Point Lake, the induced surcharge operation is used on average, about once every two years. The induced surcharge operation can cause a

damage inducing release, but is designed to maximize the flood benefit as much as possible, while giving consideration to the integrity of the dam. There should never be an induced surcharge release greater than the current 3-hour average inflow. The West Point Project was designed to provide protection from small to moderate size floods. In the event of an extreme flood, West Point Lake would exhaust its flood storage and pass all inflows as prescribed in the induced surcharge schedule. Under current induced surcharge operations, the last gate openings are maintained until pool levels recede to 636.5 feet NGVD29. Then, the emptying instructions listed in Table 7-3 are followed.

b. Gate Operating Schedule. The gate opening schedule and the approximate discharge at each opening for varying pool elevations are shown in Plates 2-5 through 2-8. All gate operations, except for special operations, will be operated in the order and at the increments specified on those plates. The six spillway gates are numbered in sequence beginning at the right or west bank, adjacent to the powerhouse. The gates will normally be operated only during floods or at times when the required release cannot be discharged through the powerhouse.

c. Flood Risk Management Zones. Plate 7-5 and Table 7-4 delineates the flood risk management zones in West Point Lake. Instructions for operations within each zone are also included on Plate 7-5 and listed in Table 7-5. The Mobile District will use the instructions as a guide in formulating planned reservoir regulation activities. The flood risk management zones shown are above the top of conservation pool and provide guidance when the lake is at those elevations. When the lake is at or below the top of conservation pool, the guidance provided in Paragraph 7-03, Overall Plan for Water Control, will be followed. Instructions on Plate 7-5 will be followed to evacuate stored floodwater in a timely manner, while allowing a flexible scheduling for hydropower production.

Table 7-4. West Point Lake Flood Zones

Date	Elevation (feet NGVD29)		
	Top of Zone A	Top of Zone B	Top of Zone C*
1 Jan	631.0	635	641
15 Feb	631	635	641
15 Apr	634.65	635	641
15 May	636.5	636.5	641
1 Nov	636.5	636.5	641
1 Dec	632.75	635	641
15 Dec	631	635	641
31Dec	631	635	641

* Zone C extends to top of flood control pool.

Table 7-5. Instructions for Operation Within Flood Zones

Flood Regulations Above Top of Conservation Pool

Flood Zone C (highest) – If the pool elevation and 3 hour average inflow call for an induced surcharge release, follow the induced surcharge schedule depicted in Plate 7-2 and described in Table 7-3. Otherwise, maintain discharge below the bankfull capacity of 40,000 cfs or the 3-hour average inflow, whichever is less. Once the pool begin to fall, follow the emptying instructions listed in Table 7-3.

When releases are within the normal turbine capacity of 17,500 cfs, schedule sufficient releases of 16 to 24 hours of full generation with all units each day until the pool elevation enters Zone B. If significant rain is forecasted the spillway may be used up to a total discharge of 25,000 cfs to return the pool to zone B.

Flood Zone B - If the pool elevation and 3-hour average inflow call for an induced surcharge release, follow the induced surcharge schedule depicted in Plate 7-2 and described in Table 7-3. Otherwise, maintain discharge below the bankfull capacity of 40,000 cfs or the 3-hour average inflow, whichever is less. Once the pool begin to fall, follow the emptying instructions listed in Table 7-3.

When releases are within the normal turbine capacity schedule sufficient releases to lower pool elevation 2 feet or into Zone A within 5 days. Releases may be limited to the equivalent of 16 hours of full generation with all units each day. If significant rain is forecasted, schedule 24 hours of continuous generation until the pool reaches Zone A. The spillway may also be used up to a total discharge of 25,000 cfs to return the pool to Zone A.

Flood Zone A (lowest) - If the pool elevation and 3-hour average inflow call for an induced surcharge release, follow the induced surcharge schedule depicted in Plate 7-2. Otherwise, maintain discharge below the bankfull capacity of 40,000 cfs or the 3-hour average inflow, whichever is less.

Schedule sufficient releases to lower pool elevation one-half distance to bottom of Zone A within one week. In the event of forecasted drought conditions, water may be stored in Zone A indefinitely.

The flood risk management pool at West Point Lake is designed to reduce the flood wave from small and moderate sized floods. It does not have enough storage capacity to provide any beneficial flood damage reduction for very large floods. The top of the flood risk management pool is elevation 641 feet NGVD29; however, the elevation of the top of the spillway gates is only 638 feet NGVD29. This means an elevation of 641 feet NGVD29 can only be achieved if the gates are partially opened, creating more storage by increasing the top of gate elevation as they are raised. As the elevation approaches 641 feet NGVD29, the gates are raised higher and higher increasing the release until such time that inflow matches discharge and no flow reduction is provided downstream.

The project is designed to pass the Standard Project Flood without exceeding the elevation of 641 feet NGVD29. For this flood, inflow would equal discharge as the pool approached 641 feet NGVD29 and no reduction in flows downstream would be provided by the project. The Spillway Design Flood has an expected elevation of 646.4 feet NGVD29. For this flood, the spillway gates would be fully opened at elevation 641 feet NGVD29 and the pool would continue to rise above the top of the flood control pool. As of 2013, the flood storage at West Point has

never been fully exhausted. The peak pool elevation of 639.89 feet NGVD29 occurred on 8 May 2003, as a result of a very intense rain event that occurred directly over the Lake. This storm is shown on Plate 8-7.

d. Notification of Potential Flood Conditions. Flooding can often occur with little warning and without an indication of potential flooding from forecasted weather conditions. Therefore, it is the responsibility of the powerhouse operators to notify the Mobile District of any conditions that may initiate flood risk management operations at West Point. Instructions for the responsibility of the project operator are included in Exhibit C; "Standing Instructions to the Damtenders for Water Control". Exhibit C includes a table with conditions for which the operators should contact Water Management if exceeded as well as procedures to follow in the event the operator is unable to reach the Mobile District.

e. Constraints. West Point Dam is operated as part of the ACF River Basin, and during high-flow events, conditions at the other ACF projects and how increased releases from West Point will affect them should be considered when practicable. The channel capacity below West Point is 40,000 cfs. Releases from the dam should be below 40,000 cfs at all times until the induced surcharge schedule dictates otherwise.

7-06. Recreation. Recreational activities are best served by maintaining a full conservation pool at lake elevation 635.0 feet NGVD29. When the lake recedes several feet below the top of conservation pool, access to the water and beaches becomes progressively limited. Conversely, lake levels above top of conservation pool begin to flood certain public use areas and facilities. Water management personnel are aware of recreational effects caused by reservoir fluctuations at West Point Lake and attempt to maintain reasonable lake levels during the peak recreational use periods; however, other authorized purposes are also served by the project which often conflict with the ability to maintain a stable pool. To classify recreation effects associated with conservation storage usage at West Point Lake, various impact levels have been identified. They are briefly described below.

The effects of the West Point Dam water control operations on recreation facilities and use at West Point Lake are described as impact levels - Initial Impact Level, Recreation Impact Level, and Water Access Limited Level. The impact levels are defined as pool elevations with associated effects on recreation facilities and exposure to hazards within the lake. The following are general descriptions of each impact level:

a. Initial Impact Level - The Initial Impact Level is defined at lake elevation 632.5 feet NGVD29. The swim areas are only marginally usable when the pool level falls below the impact level. Docks must be shifted to deeper water, if allowable. Unmarked recreational navigation hazards begin to appear. Approximately 35 percent of private docks become marginally usable with only two feet of water beneath them. Lanes of boat ramps can become partially silted in at some areas.

b. Recreation Impact Level - The lake elevation of 629.0 feet NGVD29 is defined as the Recreation Impact Level. At this level all swim areas become unusable. Public docks will need to be moved to deeper water if possible. Approximately 40 to 50 percent of private docks become unusable. Unmarked navigation hazards continue to emerge. Activities such as water skiing and wakeboarding become unsafe in some areas. Approximately 10 percent of project boat launch ramps are affected with less than six feet of water at the end of the slab. Other ramps continue to have silt buildup. Approximately 30 percent of courtesy ramps become unusable.

c. Water Access Limited Level - The lake elevation of 627.0 feet NGVD29 is defined as the Water Access Limited Level. At this level, the most severe effects on recreation begin to occur. At this level, water is 50 to 100 feet from the normal shoreline and access to water is limited by extensive mud flats. Recreational navigation hazards continue to emerge and waterborne activities such as boating and water skiing are limited to the main bodies of the lake. The boat ramp at Highland Marina becomes unusable. Over 50 percent of courtesy docks at the boat ramps become unusable. Silt buildup and dropoffs continue to increase at boat ramps. Approximately 70 percent of private boat docks are unusable at this level.

The Water Control Plan takes the effects on recreation facilities into account in developing action zones for West Point Lake. In dry periods, the lake will often drop to or below the impact levels and Water Management personnel will keep the Operations Project Manager informed of projected pool levels through the district's weekly water management meetings. The Operations Project Manager is responsible for contacting various lakeshore interests and keeping the public informed of lake conditions during drawdown periods. The Operations Project Manager closes beaches and boat ramps as necessary, patrols the lake, marks hazards and performs other necessary tasks to mitigate the effects of low lake levels.

Many facilities, both public and private, have been developed around the lakeshore. Much of the development cannot function at the full range possible between elevations 635 feet NGVD29 and 628 feet NGVD29. Many of the boat ramps become unusable as the lake level recedes. Table 7-6 lists end of ramp elevations for all boat ramps. Some work to extend and improve boat ramps has occurred when pool levels have been lowered during droughts, but much more work remains both by the Corps and local interests to retain lake access during periods of extreme drawdown.

Table 7-6. Elevation Where Boat Ramps Become Unusable

Location of ramp	Bottom Elevation	Location of ramp	Bottom Elevation
R. Shaefer Heard Day Use Area	622.5	Horace King Park (south)	617
R. Shaefer Heard Campground	621.5	Horace King Park (north)	622
Long Cane Park	622	Whitetail Ridge Campground	623.5
Potts Road Access	622.5	Holiday Campground (west)	621.5
Earl Cook Recreation Area	622	Holiday Campground (east)	621
Glass Bridge Park	622.5	Wehadkee Park	621
McGee Bridge Park	622	Evansville Park	621
Yellowjacket Rec. Area (west)	617	Dewberry Park (south)	617
Yellowjacket Rec. Area (east)	621	Dewberry Park (north)	621
Georgia Park	619.5	Stateline Campground	622.5
Sunny Point Park (south)	617	Veasey Creek Park	621
Sunny Point Park (north)	621.5	Rocky Point Rec. Area (west)	617
Clark Day Use Park	621.5	Rocky Point Rec. Area (east)	621.5
Ringer Park (south)	617	Alligator Creek Park	623
Ringer Park (north)	621	Amity Campground (south)	624
Snake Creek Park	622	Amity Campground (north)	620.5
Liberty Hill Park	621	Anderson Park	621.5
Whitewater Creek Park	621.5		

7-07. Water Quality. Water control regulation of the ACF projects is not performed to meet specific water quality standards. However, the objective of water quality sustainability of the rivers is a goal the Corps attempts to meet through specific continuous minimum releases and other incidental releases that provide benefits to water quality in the basin. Analysis of water quality and quantity needs for the West Point, Georgia, area was conducted by the U.S. Public Health Service in 1964, and its report was used as the basis for the water quality and quantity design for West Point Dam. The studies substantiated the need for a continuous discharge of 670 cfs with an initial dissolved oxygen concentration of not less than 4.0 parts per million. Thus, the small generating unit was designed to provide a minimum, continuous, off-peak flow of 675 cfs. If the small unit is unavailable at any time when the large units are not generating, the authorized minimum flow requirement of 670 cfs would be released over the spillway. There is an adjustable intake gate for the small generating unit and a dike in the west bank area upstream of the power intake, both of which are intended to prevent water from the lower reservoir depths from entering the turbine intakes.

7-08. Fish and Wildlife. During the reproduction period for bass and crappie, the fluctuation of the pool will be limited to no more than one-half foot when practicable. The beginning and ending of the spawning and nesting seasons will be determined by Mobile District fishery biologists in cooperation with fish and game personnel from the states concerned and the U.S. Fish and Wildlife Service (USFWS).

The expected timing for fish spawning at West Point Lake is 1 April to 1 June. The length of the spawning period depends on how rapidly temperatures increase after spawning begins, but in general, it varies from one to three weeks. During that period, the pool level should not be lowered more than six inches from the benchmark elevation established at the start of fish spawning. Fish spawning operations are described in Division Regulation 1130-2-16, *Lake Regulation and Coordination for Fish Management Purpose*, dated 31 May 2010, and Mobile District's draft Standard Operating Procedure 1130-2-9, *Lake Reservoir Regulation and Coordination for Fish Management Purposes*, dated February 2005.

Operations for fish and wildlife do not supersede the normal operating procedure of maintaining the pool within the top of conservation. During a high-flow event, it might be necessary to decrease the pool by more than six inches to return the pool to within normal operating levels. Additionally, during periods of high flows or drought conditions, it may be necessary to reduce lake levels more than the six inches.

7-09. Water Supply. Originally two entities in West Point Lake were authorized by relocation contracts to withdraw M&I water supply directly from the lake; LaGrange, Georgia (8.35 mgd) and the now defunct Milliken Carpet Company (12.96 mgd). Milliken Carpet Company assigned its relocation agreement to the city of LaGrange. The relocation contracts were issued because of the relocation of the respective water supply intakes and treatment facilities during project construction. LaGrange's intakes are at elevation 600, 620, 623, and 628 feet NGVD29. For the purpose of managing water supply storage, the Mobile District has employed a storage accounting methodology that applies a proportion of inflows and losses, as well as direct withdrawals by specific users, to each account. The amount of water that may actually be withdrawn is ultimately dependent on the amount of water available in storage, which will naturally change over time.

Withdrawals also occur directly from the Chattahoochee, Flint, and the Apalachicola Rivers for water supply at a number of other downstream M&I water supply intakes including the Cities of LaGrange, West Point, Columbus, and a number of industries; however, the Corps does not make specific water supply releases for these withdrawals. Reservoir operations may be

influenced by agricultural water withdrawals on the Flint River. Agricultural demands vary depending on the climatic conditions but are generally 1.5 to 2 times the withdrawals by M&I entities (USFWS 2006). Water withdrawals in Georgia are made pursuant to water withdrawal permits issued by GADNR.

7-10. Hydroelectric Power. The West Point Project is operated as a peaking plant for producing hydroelectric power, and, during off-peak periods, it maintains a continuous flow of approximately 675 cfs.

Reservoir releases required for conservation or flood risk management operations in Sections 7-03 through 7-09 will normally be used to produce hydropower. Such production is scheduled during peak energy demand hours throughout the week. The level of hydropower support is determined by the reservoir's condition as well as its zone in relation to the other two Federal storage projects in the ACF Basin. Typically, the West Point Project provides generation five days a week at plant capacity throughout the year, as long as their respective lake levels are in Zone 1 and drought operations have not been triggered. The minimum hours represent releases that normally meet water system demands and provide the capacity specified in marketing arrangements. During dry periods, generation could be eliminated or limited to conjunctive releases. The typical, but not required, hours of operation by action zone are presented in Table 7-2. Historical hydropower production is shown in Plates 2-13 and 2-14. Actual monthly and annual production are tabulated. The average annual production from 1976 through 2015 is 183,273 megawatt (MW) hours.

In addition to hydroelectric power generation being governed by action zone, there are also physical limitations that factor into the power generation decisions. During high flow conditions, the reduction in the difference in headwater and tailwater may cause the hydropower units at West Point Dam to become inoperable due to loss of head. A reduction in the generation capacity of a unit can also occur as a result of extremely low lake levels during droughts. Scheduled and unscheduled unit outages can also occur throughout the year affecting the ability to release flow through some or all the turbines.

SEPA markets the energy generated at West Point Dam to the government's preference customers, and enters into and administers the contracts with those entities to deliver that energy. The generation (and water release) is based on a weekly declaration of energy and capacity forecasted to be available that is updated daily by the Mobile District on the basis of the overall ACF water control plan and changing basin conditions. The declarations, which are designed to keep the ACF reservoir elevations balanced by zone, where practicable, are prepared by the Mobile District and furnished to the SAD Office for coordination of the hydropower projects within the Alabama-Georgia-South Carolina Power Marketing System. Actual daily and hourly scheduling of generation is coordinated by the Mobile District, SEPA, and the hydropower customers. Local restraints can dictate generation during certain hours.

In addition to the weekly declaration, the Mobile District periodically prepares extended forecasts for all the hydropower plants in the Mobile District. Interactive weekly forecasting is often done to project operations for the coming weeks to determine generation and downstream flow support that is consistent with the ACF water control plan. The extended forecast is usually prepared weekly and is intended for use as a guide to determine where and when any problem might be developing in the system and to assist in making the weekly power declaration.

7-11. Navigation. The existing project authorizes a 9-foot deep by 100-foot wide waterway from Apalachicola, Florida, to Columbus, Georgia, on the Chattahoochee River, and to Bainbridge, Georgia, on the Flint River. Conditions on the Apalachicola River have been such

in recent years that a 9-foot deep channel has not been available for much of the year. Dredging on the Apalachicola River has been reduced since the 1980s because of a lack of adequate disposal area capacity in certain reaches of the river. No dredging has been conducted on the Apalachicola River since 2001 for a variety of reasons related to flow or funding levels and has been indefinitely deferred because of denial of a Section 401 Water Quality Certificate from the State of Florida. Also, the Apalachicola River was designated as a low use navigation project in FY2005 which greatly reduces the likelihood of receiving funding for maintenance dredging. The lack of dredging and routine maintenance has led to inadequate depths in the Apalachicola River navigation channel.

When supported by ACF Basin hydrologic conditions, the Corps will provide a reliable navigation season. The water management objective is to ensure a predictable minimum navigable channel in the Apalachicola River for a continuous period that is sufficient for navigation use.

Assuming basin hydrologic conditions allow, a typical navigation season would begin in January of each year and continue for 4 to 5 consecutive months (January through April or May). Figure 7-3 graphically represents the navigation season and its relationship to composite conservation storage. During the navigation season, the flows at the Blountstown, Florida, gage (USGS # 02358700) should be adequate to provide a minimum channel depth of 7 feet. The most recent channel survey and discharge-stage rating was used to determine the flow required to sustain a minimum navigation depth during the navigation season. Flows of 16,200 cfs provide a channel depth of 7 feet. Flows of 20,600 cfs provide a channel depth of 9 feet. The Corps' capacity to support a navigation season will be dependent on actual and projected system-wide conditions in the ACF Basin before and during January, February, March, April and May. Those conditions include the following:

- A navigation season can be supported only when ACF Basin composite conservation storage is in Zone 1 or Zone 2.
- A navigation season will not be supported when the ACF Basin composite conservation storage is in Zone 3 and below. Navigation support will resume when basin composite conservation storage level recovers to Zone 1.
- A navigation season will not be supported when drought operations are in effect. Navigation will not be supported until the ACF Basin composite conservation storage recovers to Zone 1.
- The determination to extend the navigation season beyond April will depend on ACF Basin inflows, recent climatic and hydrologic conditions, meteorological forecasts, and basin-wide model forecasts. On the basis of an analysis of those factors, the Corps will determine if the navigation season will continue through part or all of May.
- Down-ramping of flow releases will adhere to the Jim Woodruff Dam fall rate schedule for Federally listed species during the navigation season.
- Releases that augment the flows to provide a minimum 7-foot navigation depth will also be dependent on navigation channel conditions that ensure safe navigation.

When it becomes apparent that downstream flows and depths must be reduced due to diminishing inflows, navigation bulletins will be issued to project users. The notices will be issued as expeditiously as possible to give barge owners, and other waterway users, sufficient

time to make arrangements to light load or remove their vessels before action is taken at Jim Woodruff Lock and Dam to reduce releases.

Although special releases will not be standard practice, they could occur for a short duration to assist navigation during the navigation season. For instance, releases can be requested to achieve up to a 9-foot channel. The Corps will evaluate such request on a case by case basis, subject to applicable laws and regulations and the conditions above.

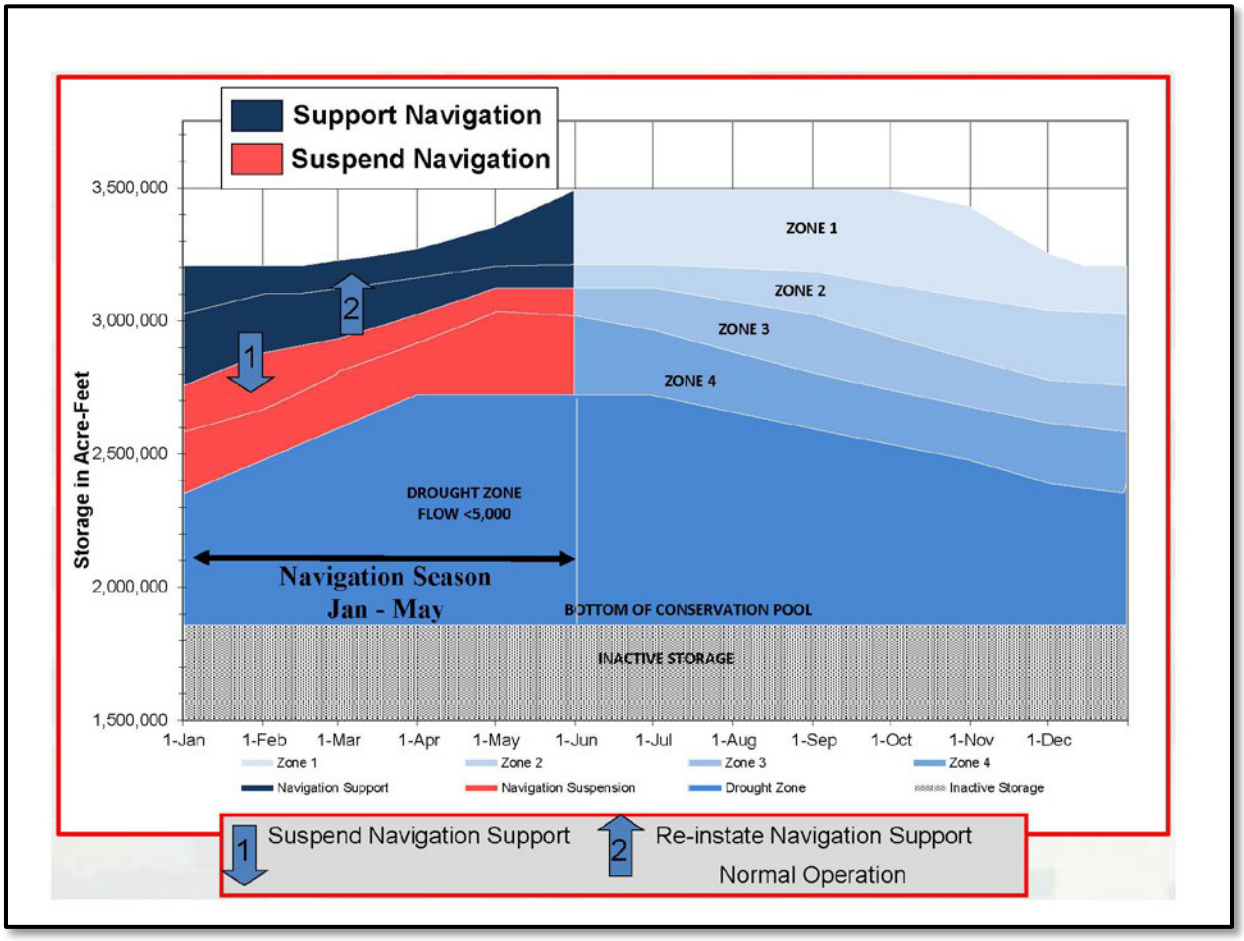

Figure 7-3. Composite Conservation Storage for Navigation

7-12. Drought Contingency Plan. ER 1110-2-1941, *Drought Contingency Plans*, dated 15 September 1981, called for developing drought contingency plans for Corps' reservoirs. For the West Point Project, the Corps will coordinate water management during drought with other Federal, state and local agencies, private power companies, navigations interests, and other interested stakeholders. Drought operations will be in compliance with the plan for the entire ACF Basin as outlined in Exhibit D, and summarized below.

Drought operations are triggered on the first day of the month following the day that ACF composite conservation storage enters Zone 3, from Zone 2 (Figure 7-4). At that time, all the composite conservation storage Zone 1-3 provisions (seasonal storage limitations, maximum fall rate schedule, and minimum flow thresholds) are suspended and management decisions are based on the provisions of the drought plan. Under the drought plan, the minimum discharge is determined in relation to composite conservation storage only. The drought plan for the ACF

Basin specifies a minimum release from Jim Woodruff Dam and temporarily suspends the other minimum release and maximum fall rate provisions until composite conservation storage in the basin is replenished to a level that can support the minimum releases and maximum fall rates. The drought plan also includes a temporary waiver from the water control plan to allow temporary storage above the winter pool guide curve at the West Point Project if the opportunity presents itself. There is also an opportunity to begin spring refill operations at an earlier date to provide additional conservation storage for future needs.

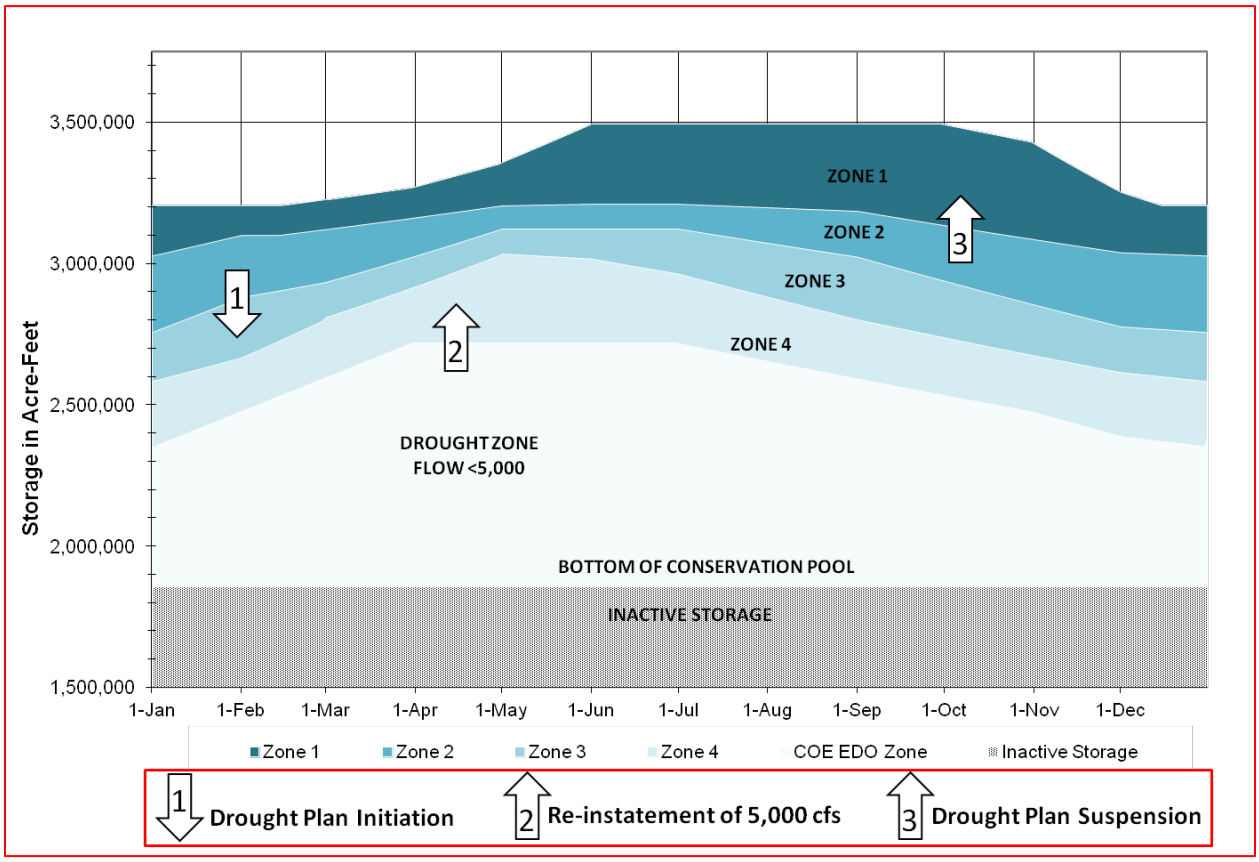

Figure 7-4. Drought Operation Triggers

The drought plan prescribes two minimum releases based on composite conservation storage in Zones 3 and 4 and an additional zone referred to as the Drought Zone. The Drought Zone delineates a volume of water roughly equivalent to the inactive storage in Buford, West Point and Walter F. George reservoirs plus Zone 4 storage in Buford. The Drought Zone line has been adjusted to include a smaller volume of water at the beginning and end of the calendar year. When the composite storage is within Zone 4 and above the Drought Zone, the minimum release from Jim Woodruff Dam is 5,000 cfs, and all basin inflow above 5,000 cfs that is capable of being stored may be stored. Once the composite conservation storage falls into the Drought Zone, the minimum release from Jim Woodruff Dam is 4,500 cfs and all basin inflow above 4,500 cfs that is capable of being stored may be stored. When transitioning from a minimum release of 5,000 to 4,500 cfs, fall rates will be limited to a 0.25-ft/day drop. The 4,500 cfs minimum release is maintained until composite conservation storage returns to a level above the top of the Drought Zone, at which time the 5,000-cfs minimum release is reinstated.

The drought plan provisions remain in place until conditions improve such that the composite conservation storage reaches Zone 1. At that time, the temporary drought plan provisions are suspended, and all the other provisions are reinstated. During the drought contingency operations, a monthly monitoring plan will be implemented that tracks composite conservation storage to determine the water management operations (the first day of each month will represent a decision point) that will be implemented and to determine which operational triggers, if any, should be applied. There is a special provision for the month of March under drought operation. If recovery conditions are achieved in February (after the 1st), drought plan provisions will not be suspended until 1 April, unless the level of composite conservation storage reaches the top of zone 1 (i.e. all Federal reservoirs are full) prior to 1 March. The month of March usually provides the highest inflows into the reservoirs, but also has some of the highest flow requirements for release from Jim Woodruff Lock and Dam. This extension of drought operations allows for the full recovery of the Federal storage projects in preparation for the spawning and spring refill period that occur from April through June.

7-13. Flood Emergency Action Plans. The Corps is responsible for developing Flood Emergency Action Plans for the ACF System, in accordance with ER 1110-2-1156, *Engineering and Design Safety of Dams – Policy and Procedures*, 31 March 2014. The West Point Project Emergency Action Plan, dated April 2013 is a stand-alone document retained on site and in the MDO. Example data available are emergency contact information, flood inundation information, management responsibilities, and procedures for use of the plan.

7-14. Other. Other considerations, in addition to the authorized project purposes, may be accommodated on an as needed basis. Adjustments are made to system regulation at times for downstream construction, to aid in rescue or recovery from drowning accidents, environmental studies, or cultural resource investigations.

a. Extraordinary Drawdown of West Point Lake. Droughts experienced in late 1980s and in the 2000s were extreme throughout the ACF Basin and caused water managers to consider what plans could be followed if the basin's total conservation storage, about 1.7 million acre-feet, were to be depleted or seriously threatened with depletion. Such an occurrence could be contemplated in the second or later year of a severe drought. Fortunately, the three storage reservoirs on the Chattahoochee River contain a significant volume of storage below the minimum conservation pool. West Point Lake contains 229,903 acre-feet of water below the conservation pool between elevations 620 and 597 feet NGVD29, which is the crest of the spillway. Use of that available, but normally inactive, storage would be a serious decision requiring higher headquarters approval. The prerequisites for the Mobile District Commander to recommend such an action would be as follows:

- Other reservoirs are nearly depleted.
- There is a clear public interest such as a water supply, water quality, or public safety need, for a release from West Point Lake, which would draw it below elevation 620 feet NGVD29.
- The need for release of water outweighs the adverse impact caused by the drawdown. Alternatives to the proposed release will be investigated.

To help ensure that those requirements are fulfilled, the District Commander will have performed the following tasks:

- A public notice will be issued describing as best as possible the expected drawdown and the circumstances that could make such a drawdown necessary.

- Congressional interests are notified.
- One or more public meetings will be held to explain the necessity for the drawdown.
- In-lake interests are given adequate time to prepare for the effects of the drawdown.

b. Correlation with Other Projects. In scheduling releases from West Point Dam, downstream navigation requirements will be considered. Releases for West Point must pass through Walter F. George and George W. Andrews projects, so initial releases for navigation are scheduled from Walter F. George. Andrews Lock and Dam acts as a reregulation dam to reregulate the effects of the Walter F. George peak power release entering the Lake Seminole. West Point Dam releases are also monitored by GPC to schedule releases from their six hydropower projects located downstream of the West Point Project.

c. High Water Action Plan. During periods of high inflow when the pool is expected to exceed its top of conservation, certain actions are taken by the project staff to prepare areas around the project for rising pool levels and to ensure public safety. In the event abnormally high releases (usually exceeding turbine capacity) are forecast to be made from the project, the project staff will also notify the downstream interests of potential flooding as a result of operations at the dam. Critical elevations and releases are discussed in detail in the High Water Action Plan provided in Exhibit E.

When a flood inducing storm is forecast, Water Management will contact the project site office and provide a forecast of daily peak pool elevations and releases from the project based on the best data available for the extent of the potential high inflow event. Anytime a change is made to this forecast, Water Management will inform the project site office as promptly as possible to allow project staff the time to make any additional preparations dictated by the High Water Action Plan. Details on communication with the project are discussed in more detail in Paragraph 5-06.

d. Settlement Flow Objectives. For the purpose of meeting the requirements of the Settlement Flow Objectives, discharges from West Point will be made to support maintaining a daily average flow of 1,350 cfs over any 7-day period (7-day forward moving average) at the gage located on the Chattahoochee River in Columbus, Georgia (Gage No. 02341460) and a minimum average weekday flow of 2,000 cfs on the Chattahoochee River near Columbia, Georgia (Gage No. 02343801) when the ACF basin is not in Drought Zone Operations. When the ACF basin enters Drought Zone Operations, two days each calendar week starting each Monday, releases from West Point will be made to maintain the 1,350 cfs daily average flow as measured by the Columbus, Georgia (Gage No. 02341460) and the 2,000 cfs daily average flow as measured by the downstream gage at Columbia, Alabama (Gage No. 02343801).

7-15. Deviation from Normal Regulation. Water management inherently involves adapting to unforeseen conditions. The development of water control criteria for the management of water resource systems is carried out throughout all phases of a water control project. The water control criteria are based on sound engineering practice utilizing the latest approved models and techniques for all foreseeable conditions. There may be further refinements or enhancements of the water control procedures, in order to account for changed conditions resulting from unforeseen conditions, new requirements, additional data, changed social or economic goals, or to meet national security requirements. However, it is necessary to define the water control plan in precise terms at a particular time in order to assure carrying out the intended functional commitments in accordance with the authorizing documents (EM 1110-2-3600 Management of Water Control Systems). Adverse impacts of the water control plan may occur due to unforeseen conditions. When this occurs, actions will be taken within applicable authority, policies, and coordination to address these conditions when they occur through the

implementation of temporary deviations to the water control plan, such as interim operation plans. Such deviations may require additional environmental compliance prior to implementation.

The Corps is occasionally requested to deviate from the water control plan. Prior approval for a deviation is required from the Division Commander except as noted in subparagraph a. Deviation requests usually fall into the following categories:

a. Emergencies. Examples of some emergencies that can be expected at a project are drowning and other accidents, failure of the operation facilities, failure of another ACF project,

chemical spills, treatment plant failures, and other temporary pollution problems. Water control actions necessary to abate the problem are taken immediately unless such action would reasonably be expected to create equal or worse conditions. The Mobile District will notify the Division Office as soon as practicable.

b. Declared System Emergency. A Declared System Emergency can occur when there is a sudden loss of power within the electrical grid and there is an immediate need of additional power generation capability to meet the load on the system. In the Mobile District, a system emergency can be declared by the Southern Company or the Southeastern Power Administration's Operation Center. Once a system emergency has been declared, the requester will contact the project operator and request generation support. The project operator will then lend immediate assistance within the projects operating capabilities. Once support has been given, the project operator should inform the MDO immediately. The responsibilities and procedures for a Declared System Emergency are discussed in more detail in Division Regulation Number 1130-13-1, *Hydropower Operations and Maintenance Policies*. It is the responsibility of the District Hydropower Section and the Water Management Section to notify South Atlantic Division Operations Branch of the declared emergency. The Division Operations Branch should then coordinate with SEPA, District Water Management, and the District Hydropower section on any further actions needed to meet the needs of the declared emergency.

c. Unplanned Deviations. Unplanned instances can create a temporary need for deviations from the normal regulation plan. Unplanned deviations may be classified as either major or minor but do not fall into the category of emergency deviations. Construction accounts for many of the minor deviations and typical examples include utility stream crossings, bridge work, and major construction contracts. Minor deviations can also be necessary to carry out maintenance and inspection of facilities. The possibility of the need for a major deviation mostly occurs during extreme flood events. Requests for changes in release rates generally involve periods ranging from a few hours to a few days, with each request being analyzed on its own merits. In evaluating the proposed deviation, consideration must be given to impacts on project and system purposes, upstream watershed conditions, potential flood threat, project condition, and alternative measures that can be taken. Approval for unplanned deviations, either major or minor, will be obtained from the Division Office by telephone or electronic mail prior to implementation.

d. Planned Deviations. Each condition should be analyzed on its merits. Sufficient data on flood potential, lake and watershed conditions, possible alternative measures, benefits to be expected, and probable effects on other authorized and useful purposes, together with the district recommendation, will be presented by letter or electronic mail to the Division Office for review and approval.

7-16. Rate of Release Change. Gradual changes are important when releases are being decreased and downstream conditions are very wet, resulting in saturated riverbank conditions. The Corps acknowledges that a significant reduction in basin releases over a short period can result in some bank sloughing, and release changes are scheduled accordingly when a slower rate of change does not significantly affect downstream flood risk. Overall, streambank erosion has been reduced by capturing peak basin runoff in the reservoirs and metering the flows out more slowly than what would have occurred under natural conditions.

STANDING INSTRUCTIONS TO THE DAMTENDER FOR WATER CONTROL WEST POINT DAM AND LAKE

1. BACKGROUND AND RESPONSIBILITIES

a. General Information. These "Standing Instructions to the Project Operator for Water Control" are written in compliance with Paragraph 9-2 of EM-1110-2-3600 (Engineering and Design, *Management of Water Control Systems*, 30 November 1987) and with ER-1110-2-240 (Engineering and Design, *Water Control Management*, 30 May 2016). A copy of these Standing Instructions must be kept on hand at the project site at all times. Any deviation from the Standing Instructions will require approval of the District Commander.

(1) **Project Purposes**. The West Point Dam and Lake project is operated for flood risk management, navigation, hydropower, recreation, fish and wildlife conservation, water quality, and water supply. Water Control actions are in support of these project purposes and for purposes of the ACF River system.

(2) **Chain of Command**. The Project Operator is responsible to the Water Control Manager for all water control actions.

(3) **Structure**. West Point Dam is located at river mile 201.4 on the Chattahoochee River approximately 3.2 miles north of the town of West Point, Georgia. It is 146.9 miles below Buford Dam and 126.2 miles above Walter F. George Dam with a total drainage area of 3,440 square miles.

(4) **Operation and Maintenance (O&M)**. All O&M activities are the responsibility of the U. S. Army Corps of Engineers under the supervision of the Mobile District, Operations Division, and the direction of the West Point Dam Operations Project Manager.

b. Role of the Project Operator. The term Project Operator refers to both the Walter F. George powerhouse operator and to the West Point powerhouse personnel. Operation of the hydropower units and data reporting is the responsibility of the Walter F. George powerhouse operator. Operation of the spillway is the responsibility of the Walter F. George powerhouse operator in conjunction with personnel at the West Point powerhouse.

(1) **Normal Conditions (dependent on day-to-day instruction)**. The Water Control Manager will coordinate the daily water control actions regarding hydropower releases with the Southeastern Power Administration (SEPA), and will notify the Project Operator of these changes. The Project Operator will then receive instructions from SEPA via generation schedule updates. This communication will be increased to an hourly basis if the need develops. Daily generation schedules and updates are provided to the Mobile District. In the event that water cannot be passed through the hydropower units or if additional releases in excess of hydropower capacity are needed, the Water Control Manager will coordinate releases through the spillway with the powerhouse operator at the Walter F. George powerhouse.

(2) **Emergency Conditions (flood, drought, or special operations)**. During emergency conditions, the Project Operator will be instructed by the Water Control Manager on a daily or hourly basis for all water control actions. In the event that flooding occurs and communications with Mobile District are cut off, the Project Operator will use the following chart as a guide until communications with the Mobile District are restored. If communication is lost after some instructions are issued, follow those instructions as long as they are applicable.

In the event that the pool elevation and inflow call for an induced surcharge release, refer to the guidance for induced surcharge releases on Plate 7-4. If fewer than 16 hours remain in the day when the above conditions are present (anytime after 8 a.m.), full-turbine capacity will be released until midnight.

	Initial conditions are: Flood producing rainfall occurred has or is occurring in the basin (two inches or more of rainfall).		
If pool elevation is…	**And…**	**Then**	**If Contact is Impossible Then**
Above 632	3-hour average inflow is 15,000 to 25,000 cfs	Contact Water Management	*Release turbine capacity 16 hours per day. (If turbines unavailable, spill 10,000 cfs around the clock.)
Above 632	3-hour average inflow is greater than 25,000 cfs	Contact Water Management	*Release turbine capacity 16 hours per day. (If turbines unavailable, spill 16,000 cfs around the clock.)
Below 632	3-hour average inflow is greater than 25,000 cfs	Contact Water Management	*Release turbine capacity 16 hours per day.
Below 632	3-hour average inflow is less than 25,000 cfs	Contact Water Management	Continue any prior scheduled release

2. DATA COLLECTION AND REPORTING

a. General. Report hourly the pool elevation, tailwater elevation, turbine discharge, spillway discharge, capacity, and general project status on the computer and have it accessible to the Water Control Manager by computer network.

b. Daily Reporting. The Project Operator will record the following items daily and will report them by 6:30 AM (0630) Central Time to the Mobile District either by computer network, by fax machine (251-694-4058), or by telephone conversation (690-690-2737):

(1) Pool and tailwater elevations in feet above mean sea level at 6 am and 12 midnight (0600 and 2400) for the period since the last report.

(2) Precipitation in hundredths of an inch.

(3) Average plant discharge in cubic feet per second for the first 4 hours of each day and for the 24 hours of the previous day.

(4) Average turbine discharge for the 24 hours of the previous day.

(5) Inflow to the lake in cubic feet per second for the first 4 hours of each day and for the 24 hours of the previous day.

(6) Current day's generation schedule and previous day's actual generation in megawatt-hours. Include the schedule for the current day's generation.

(7) Total current generating capacity of the plant in megawatts.

(8) The spillway gate step at 6:00 a.m.

c. Gage Verification

In accordance with the USACE Guidance Memorandum for Critical Gage Instrumentation dated 15-Dec 2006, the West Point and Walter F. George powerhouse personnel will perform gage reading verifications by providing the pool level automated instrumentation gage reading and staff gage readings. In the event that the automated gage equipment malfunctions or if the difference in stage readings is greater than 0.1 feet, the Project Operator will report readings from the staff gage until the automated gage is rectified.

d. Regional Hydro-meteorological Conditions. The Project Operator will be informed by the Water Control Manager of any regional hydro-meteorological conditions that may impact water control actions.

3. WATER CONTROL ACTION AND REPORTING

a. Normal Conditions. During normal conditions, all releases will be made through the turbine units. The Project Operator will follow the West Point Dam and Lake Water Control Manual for normal water control actions and will report directly to the Water Control Manager.

b. Emergency Conditions. During high flows, the Project Operator will follow the instructions from the Water Control Manager and SEPA generation schedule updates regarding the suspension of releases during flood events and for resuming releases. If needed, the Project Operator will follow the instructions for spillway gate settings to achieve the desired release rate.

c. Inquiries. All significant inquiries received by the Project Operator from citizens, constituents, or interest groups regarding water control procedures or actions must be referred directly to the Water Control Manager.

Water Control Problems. The Project Operator must immediately notify the Water Control Manager, by the most rapid means available, in the event that an operational malfunction, erosion, or other incident occurs that could impact project integrity in general or water control capability in particular.