US Army Corps of Engineers ®

Mobile District

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN WATER CONTROL MANUAL

APPENDIX B

WEISS DAM AND LAKE

(Alabama Power Company)

COOSA RIVER ALABAMA

OCTOBER 1964

ADMINISTRATIVE UPDATE 2004

REVISED APRIL 2022

WATER CONTROL MANUAL

APPENDIX B
WEISS DAM AND LAKE
ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

ALABAMA POWER COMPANY

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT/SOUTH ATLANTIC DIVISION
MOBILE, ALABAMA

October 1964
Administrative Update 2004
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Weiss Dam and Lake

NOTICE TO USERS OF THIS MANUAL

Regulations specify that this Water Control Manual be published in a hard copy binder with loose-leaf form, and only those sections, or parts thereof; requiring changes will be revised and printed. Therefore, this copy should be preserved in good condition so that inserts can be made to keep the manual current. Changes to individual pages must carry the date of revision, which is the South Atlantic Division's approval date.

Regulations specify that this Water Control Manual be published in digital form in the central repository located at the following link:

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The Water Control Manual at the central repository will be considered the official manual and will be kept current at all times. Instructions and information to upload or document the review status of the Water Control Manual, as per ER 1110-2-240, in the central repository portal can be found under the help tab in the portal.

It is not unexpected that USACE Corporate Information may move the central repository link to a new location. This information will be shared with all offices if a situation occurs by the HQUSACE.

REGULATION ASSISTANCE PROCEDURES

In the event unusual conditions arise during non-duty hours, communication can be achieved by contacting appropriate water management personnel at the Water Management Section, Mobile District Office by telephoning (251) 509-5368 during non-duty hours. The Water Management Section can be telephoned at (251) 690-2737 during regular duty hours. The Alabama Power Company (APC) Alabama Control Center Hydro Desk can be reached at (205) 257-4010 during regular duty hours.

METRIC CONVERSION

Although values presented in the text are shown in English units only, a conversion table is listed in Exhibit B for your convenience.

MEMORANDUM OF UNDERSTANDING

The Weiss Dam and Lake Project will be operated during floods and in support of navigation downstream in accordance with regulations prescribed by the Secretary of the Army and published in the Code of Federal Regulations, Title 33, Chapter II, Part 208, Section 208. A Memorandum of Understanding (MOU) concerning the design, construction, and operation of the Weiss development for flood control (now termed flood risk management) was adopted by the APC and the U.S. Army Corps of Engineers (herein referred to as the Corps of Engineers or Corps) on 27 September 1972 and later revised on 11 October 1990. This MOU is also intended to memorialize the functions and procedures for both the Corps and APC for implementing these plans and meeting their responsibilities with regard to the orderly exchange of hydrologic data. A copy of the MOU will be included in this manual as Exhibit C.

U.S. Army Corps of Engineers, Mobile District, South Atlantic Division

April 2022

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DRAINAGE AREA ABOVE THE DAM SITE

Drainage area above Carters Dam - square miles	374
Drainage area above Allatoona Dam - square miles	1,122
Drainage area below Carters and Allatoona Dam – square miles	3,786
Total drainage area above Weiss Dam - square miles	5,270

STREAM FLOW

Average for period of record – cubic feet per second (cfs)	8,161
June 1937 to September 1958)	1,130
Maximum daily of record (1941) – cfs	72,500
Minimum annual of record (1941) – cfs	4,460
Maximum annual of record (1946) – cfs	12,970
Spillway design flood peak discharge – cfs	344,000
(13.61 inches of surface run—off)	
Bankfull capacity below dam – cfs	24,300
Bankfull capacity below powerhouse – cfs	23,000
Prime flow	3,300

DAM

Total length including dikes, feet (ft)	23,300
Length of non-overflow section, ft	22,250
Maximum height, roadway to foundation, ft	90
Elevation, top of dam, feet, mean sea level (msl)	590
Main Spillway (at dam site),	
Net length, ft	216
Crest elevation, feet, msl	
5 gates, 40 feet wide by 38 ft high	532
1 gate, 16 feet wide by 22 ft high	550
Elevation of Top of Tainter Gates, closed,	
5 gates, 40 feet wide by 38 ft high	570
1 gate, 16 feet wide by 22 ft high	572
Spillway at powerhouse,	
Net length, ft	16
Crest elevation, ft, msl	
1 gate, 16 feet wide by 22 ft high	550
Elevation, top of tainter gates, closed, ft, msl	
1 gate, 16 feet wide by 22 ft high	572
Discharge capacity (pool elevation 585.5), Spillway at dam site, cfs	
Spillway at dam site	284,700
Spillway at powerhouse	12,800
Total	297,500

RESERVOIR

Pool elevation, ft, msl	
Maximum pool, spillway design flood (initial pool 564)	585.50
Full flood risk management (surcharge) pool	572.00
Top of conservation pool (summer)	564.00
Top of conservation pool (winter)	561.00
Storage volumes (including forebay pondage), acre-feet (ac-ft)	
Total storage, elevation 585.5	1,436,764
Flood risk management (surcharge) storage (summer), elevation 572 to 564 (1.42 inches of run-off)	301,986
Flood risk management (surcharge) storage (winter), elevation 572 to 561 (0.52 inches of run-off)	382,200
Seasonal storage, elevation 564 to 561	82,014
Total Storage below top of conservation pool (summer), elevation 564	306,655
Total Storage below top of conservation pool (winter), elevation 561	224,641
Available conservation storage (summer), elevation 564 to 549	263,417
Inactive storage, below elevation 549	43,238
Reservoir area, (including forebay pondage), acres	
Full flood risk management pool, elevation 572	45,749
Top of conservation pool (summer), elevation 564	30,027
Top of conservation pool (winter), elevation 561	24,692

Note: The following change in terminology for Full Power pool, Minimum Power pool, Power storage, and Dead storage has been made from previous versions of Water Control Manual.

a. Full Power pool – Top of Conservation (Summer)
b. Minimum Power pool - Top of Conservation (Winter)
c. Power storage – Seasonal Storage
d. Dead storage – Inactive storage

TAILWATER ELEVATIONS

Tailwater elevations below dam - feet, msl	
Bankfull capacity, (24,300 cfs)	534.60
Maximum spillway design flood (297,500 cfs)	572.60
Controlled discharge for flood risk management (16,000 cfs)	533.00
(with flow of 40,000 second-feet in river below power plant)	
Tailwater elevations below power plant - feet, msl	
Bankfull capacity (23,000 cfs)	518.80
Full-gate turbine discharge (l00% Load Factor)	
1 unit operating, (8,820 cfs)	510.80
2 units operating, (17,030 cfs)	515.30
3 units operating, (24,650 cfs)	519.70
Minimum (plant shutdown)	505.00
Controlled spillway and power plant discharge for flood risk management (40,000 cfs)	530.00
Maximum spillway design flood discharge (297,500 cfs)	562.50

POWER PLANT AND DATA

Installation

3 units, each consisting of a 32,500 kilovolt amperes (kVA) generator driven by a fixed-blade vertical turbine, rated 39,100 horsepower at design head of 49 ft.

Operating data

Gross static head—ft (at summer pool of 564.0 ft)	56.0
Minimum head (full gate discharge of 3 units, including forebay	
Drawdown for 100% Load Factor and canal loss) - ft	36.50
Average head (3 units operating at full gate at 13.67% Load Factor (including canal loss) - ft	46.00

1 - INTRODUCTION

1-01. Authorization for Manual. Public Law 436-83 provides for the private development of the Coosa River, Alabama and Georgia, and directs the Secretary of the Army to prescribe rules and regulations for project operation in the interest of flood control (now termed flood risk management) and navigation. Therefore, this water control manual (WCM) has been prepared as directed in the U.S. Army Corps of Engineers' (herein referred to as USACE or Corps) Water Management Regulations, specifically Engineering Regulation (ER) 1110-2-240, Water Control Management (date enacted 30 May 2016). That regulation prescribes the policies and procedures to be followed in carrying out water management activities, including establishment and updating of water control plans for Corps and non-Corps projects, as required by Federal laws and directives. This manual is also prepared in accordance with pertinent sections of the Corps' Engineering Manual (EM) 1110-2-3600, Management of Water Control Systems (date enacted 10 October 2017); under the format and recommendations described in ER 1110-2-8156, Preparation of Water Control Manuals (date enacted 30 September 2018); and ER 1110-2-1941, Drought Contingency Plans (date enacted 02 February 2018). Revisions to this manual are to be processed in accordance with ER 1110-2-240.

1-02. Purpose and Scope. Weiss is a multi-purpose project which constitutes one unit in the proposed total development of the power potential and other water resources of the Coosa River below Rome, Georgia. It was built by the Alabama Power Company (APC) principally for the production of hydro-electric power and to provide flood risk management benefits as required by Public Law 436-83. It was designed and constructed for the future installation of locks and appurtenances to facilitate development of the river for navigation when such development becomes economically feasible. The reservoir is a source of water supply for domestic, agricultural, and municipal and industrial (M&I) uses. The lake creates a large recreational area providing opportunities for fishing, boating and other water sports.

1-03. Related Manuals and Reports. Other manuals related to the Weiss Project water control regulation activities include the Operation and Maintenance manual for the project, and the ACT Master WCM for the entire basin.

One master WCM and nine individual project manuals, which are incorporated as appendices, compose the complete set of WCM's for the ACT Basin:

Appendix A - Allatoona Dam and Lake

Appendix B - Weiss Dam and Lake (Alabama Power Company)

Appendix C - Logan Martin Dam and Lake (Alabama Power Company)

Appendix D - H. Neely Henry Dam and Lake (Alabama Power Company)

Appendix E - Millers Ferry Lock and Dam and William "Bill" Dannelly Lake

Appendix F - Claiborne Lock and Dam and Lake

Appendix G - Robert F. Henry Lock and Dam and R. E. "Bob" Woodruff Lake

Appendix H - Carters Dam and Lake and Carters Reregulation Dam

Appendix I - Harris Dam and Lake (Alabama Power Company)

Other pertinent information regarding the ACT River Basin development is in operation and maintenance manuals and emergency action plans for each project. Historical, definite project reports and design memoranda also have useful information.

1-04. Project Owner. The Weiss project was built and is owned by the APC, under provisions of licensing through the Federal Energy Regulatory Commission (FERC).

1-05. Operating Agency. The Weiss Dam and Lake project is operated for flood risk management and navigation support in accordance with regulations prescribed by the Secretary of the Army, which are published in the Code of Federal Regulations, Title 33, Chapter II, Part 208, Section 208.65. Day-to-day operation of the facility is assigned to the APC's Alabama Control Center Hydro Desk in Birmingham, Alabama, which is part of the Transmission Department under the direction of the Reservoir Operations Coordinator. Long-range water planning and flood risk management operation is assigned to the APC Reservoir Management in Birmingham, Alabama, which is part of Southern Company Hydro Services, under the direction of the Reservoir Management Supervisor. Operation of the project is in accordance with the FERC license and this WCM.

1-06. Regulating Agency. Regulating authority is shared between the Corps, the FERC, and the APC. A Memorandum of Understanding (MOU) has been adopted by the APC and the Corps concerning the operation of the project. The purpose of the MOU was to clarify the responsibilities of the Corps and the APC with regard to the operation of the project for flood risk management and other purposes and to provide direction for the orderly exchange of hydrologic data. Those modifications agreed upon by both parties are contained in the regulation plan as presented in this manual. The MOU and this manual will be used to provide direction to implement the prescribed flood risk management operations at the project. A copy of the MOU is included in this manual as Exhibit C.

1-07. Vertical Datum. All vertical data presented in this manual are referenced to the project's historical vertical datum, National Geodetic Vertical Datum of 1929 (NGVD29). It is the Corps' policy that the designed, constructed, and maintained elevation grades of projects be reliably and accurately referenced to a consistent nationwide framework, or vertical datum – i.e., the National Spatial Reference System (NSRS) or the National Water Level Observation Network (NWLON) maintained by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA). The current orthometric vertical reference datum within the NSRS in the continental United States is the North American Vertical Datum of 1988 (NAVD88). The current NWLON National Tidal Datum Epoch is 1983–2001. The relationships among existing, constructed, or maintained project grades that are referenced to local or superseded datums (e.g., NGVD29, mean sea level [MSL]), the current NSRS, and/or hydraulic/tidal datums, have been established per the requirements of ER 1110-2-8160 and in accordance with the standards and procedures as outlined in EM 1110-2-6056. A datum conversion survey has not been performed at this location. The NGS Coordinate Conversion and Transformation Tool (NCAT) program shows that +0.12 can be used to convert NGVD29 to NAVD88 at Weiss Dam.

2 - DESCRIPTION OF PROJECT

2-01. Location. The Weiss Dam is located on the Coosa River at River Mile 226, about 50 miles upstream from Gadsden, Alabama, and about one mile southeast of the town of Leesburg, Alabama. The reservoir, extending from the dam about 52 miles upstream to Mayo's Bar, Georgia, is located in Cherokee County, Alabama, and Floyd County, Georgia. The power plant, situated on the right bank of the river, is about three miles from the dam below a forebay lake and diversion canal constructed across a 20-mile bend of the river. The dam is shown in Figure 2-1. The location of the project is shown on the maps on Plates 2-1 and 2-2 and on the profile of the Coosa River on Plates 2-3 and 2-4.

Figure 2-1 Weiss Dam and Lake

2-02. Purpose. Weiss is a multi-purpose project which constitutes one unit in the proposed total development of the power potential and other water resources of the Coosa River below Rome, Georgia. It was built by the APC principally for the production of hydroelectric power and to provide flood risk management benefits as required by Public Law 436. It was designed and constructed for the future installation of locks and appurtenances to facilitate development of the river for navigation when such development becomes economically feasible. The reservoir is a source of water supply for domestic, agricultural, and M&I uses. The lake creates a large recreational area providing opportunities for fishing, boating and other water sports.

2-03. Physical Components. The Weiss development consists of a dam having a concrete gated spillway section with compacted earth abutment dikes; a reservoir including forebay lake, with full summer level power pool at elevation 564 feet MSL having a surface area of approximately 30,027 acres, extending about 52 miles upstream to Mayo's Bar Lock and Dam; a diversion canal from the reservoir to a forebay created by dikes; an 87,750-kilowatt (KW) power plant located at the lower end of the forebay; a substation; and appurtenant electrical and mechanical facilities. The principal features of the project are described in detail in subsequent paragraphs. Sections and plan of the dam, powerhouse, and appurtenant works are shown on Plate 2-5.

a. Dam. The main dam crossing the Coosa River valley consists of a concrete spillway section about 275 feet long situated in the main river channel with earth-fill non-overflow sections on either side of the spillway. The earth-fill sections have a maximum height of about 90 feet and a top elevation of 590.0 feet MSL. The left bank section is about 7,000 feet long, and the right bank section is about 5,250 feet long paralleling the river side of the power intake canal. There are about 18,000 feet of earth dike across the lower portion of the powerhouse forebay. These dikes also have a top elevation of 590.0 feet MSL.

b. Spillway. The spillway section of the dam has a total length of about 275 feet and a net length of 216 feet. It is equipped with five tainter gates 38 feet high by 40 feet long with overflow crest at elevation 532.0, and one tainter gate 22 feet high by 16 feet long with overflow crest at elevation 550.0. Top of the 16 foot gate in closed position is at elevation 572.0, and top of the five large gates in closed position is elevation 570.0. A gate control house is located on the right bank at the end of the concrete abutment section. The spillway tailrace, shown in Figure 2-2, has a discharge capacity of 182,000 cubic feet per second (cfs) at elevation 572, the upper limit of induced surcharge storage. The bottom elevation of the gates in the full open position is 532.0. The spillway plan, elevation, and section are shown on Plate 2-6. The gate operating schedule for the spillway is presented on Plates 2-7 and 2-8. The spillway rating is shown on Plates 2-9 through 2-43. Plate 2-44 shows the rating for the smaller trash gate adjacent to the powerhouse. Plate 2-45 shows the rating for the trash gate adjacent to the spillway. Figure 2-3 shows the Weiss powerhouse tailrace looking downstream.

Figure 2-2 Weiss Spillway Tailrace

Figure 2-3 Weiss Powerhouse Tailrace Looking Downstream

c. Reservoir. The total storage capacity of the reservoir at elevation 572, the upper limit of the induced surcharge storage is 608,641 acre-feet including 59,500 acre-feet in the powerhouse forebay. The total reservoir area at this level is 45,749 acres of which 3,300 acres are forebay area. The combined total storage capacity of the reservoir and forebay pondage at full summer level power pool, elevation 564.0, amounts to 306,655 acre-feet, and at winter level power pool, elevation 561.0, the total capacity is 224,641 acre-feet. Surface areas at full summer-level power pool and winter-level power pool are 30,027 acres and 24,692 acres, respectively. Area capacity curves and values for the reservoir are shown on Plate 2-46.

d. Power and Navigation Canal. A canal approximately 7,000 feet long carries water from the main reservoir to the powerhouse forebay. It is designed to function with a nominal loss of head during normal peak-load operations. The canal was also designed to accommodate barge traffic if navigation had ever been developed on the Coosa River.

e. Powerhouse. The powerhouse, shown in Figure 2-4, is situated below the forebay lake about three miles from the dam and main reservoir, and is about 1,300 feet from the right bank of the Coosa River. It contains three 32,500 kilovolt amperes (kVA) generators connected to vertical fixed-blade turbines rated at 39,100 horsepower at a 49-foot head. Adjoining the right end of the powerhouse is an overflow section, with crest at elevation 550.0, equipped with a 16-foot wide by 22-foot high tainter gate. This serves as a trash gate and also supplements the turbine discharge during floods. Performance curves for the turbines are shown on Plate 2-47.

Figure 2-4 Weiss Powerhouse

2-04. Related Control Facilities. The power plant at Weiss Dam is operated by remote control from the Alabama Control Center located in Birmingham, Alabama. Personnel are available but not always on duty at the plant. Direct communication between these two points is provided by APC's SoLinc network telephone and email. The operation of Weiss is closely coordinated with the operation of the other developments in the Coosa Basin, including the Allatoona and Carters projects upstream and the H. Neely Henry, Logan Martin, Lay, Mitchell, Jordan, and Bouldin projects downstream.

2-05. Real Estate Acquisition. It is APC's responsibility to ensure all appropriate real estate requirements are existing or obtained. FERC may have the authority to require said easements in a license; however, the content and requirements of a FERC license under the Coosa Power Act are within FERC's discretion. Figure 2-5 illustrates easement profiles for Weiss Dam and Lake. Table 2-1 describes APC's Coosa River easement and fee lands.

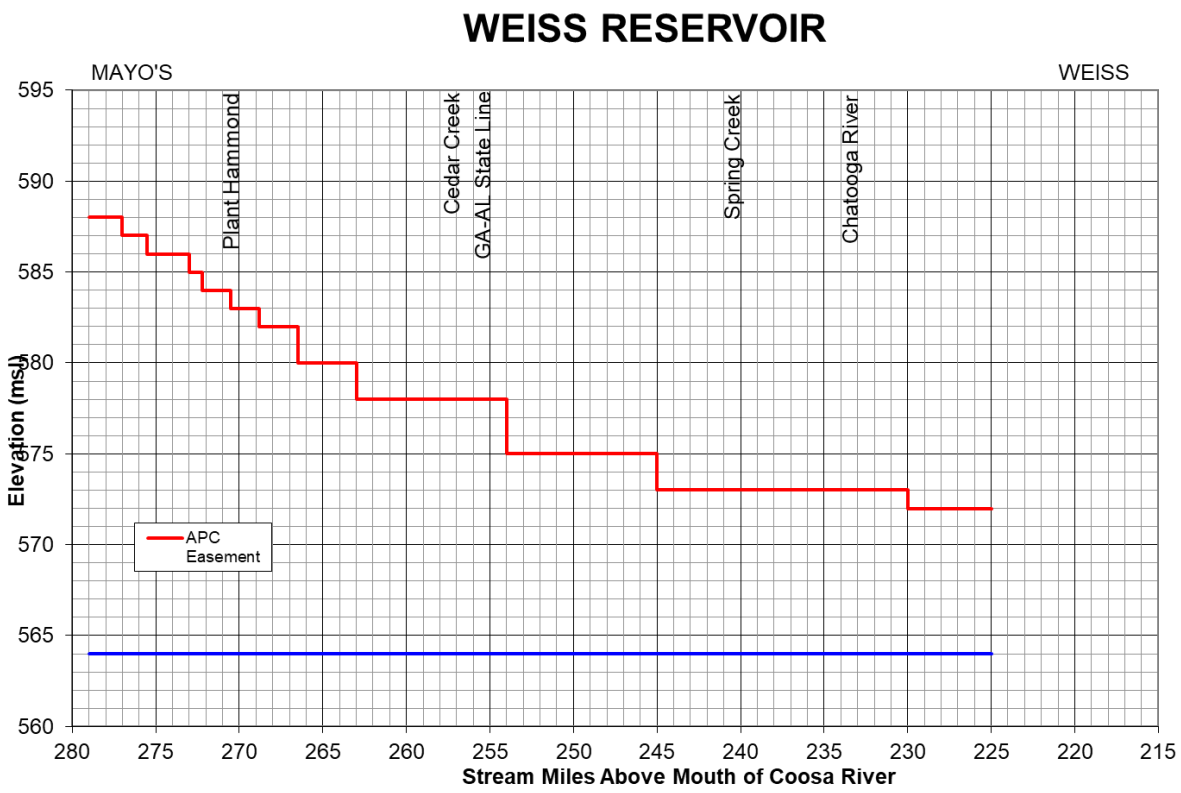

Figure 2-5 Weiss Lake, APC Easements Profile

Table 2-1 Weiss Lake and Coosa River, ACO Easements and Fee Lands

WEISS LAKE AND COOSA RIVER			
APC EASEMENT		APC FEE	
RIVER MILE (mile)	ELEVATION (feet)	RIVER MILE (mile)	ELEVATION (feet)
279	588	279	564
277	588	277	564
277	587	277	564
275.5	587	275.5	564
275.5	586	275.5	564
273	586	273	564
273	585	273	564
272.2	585	272.2	564
272.2	584	272.2	564
270.5	584	270.5	564
270.5	583	270.5	564
268.8	583	268.8	564
268.8	582	268.8	564
266.5	582	266.5	564
266.5	580	266.5	564

WEISS LAKE AND COOSA RIVER			
APC EASEMENT		**APC FEE**	
RIVER MILE (mile)	**ELEVATION (feet)**	**RIVER MILE (mile)**	**ELEVATION (feet)**
263	580	263	564
263	578	263	564
254	578	254	564
254	575	254	564
245	575	245	564
245	573	245	564
230	573	230	564
230	572	230	564
225	572	225	564

2-06. Public Facilities. Development for purely recreational purposes is not included among the project features. However, many recreational advantages are inherent in an impoundment of this nature, and special attention has been given to the encouragement of recreational aspects where they do not conflict with major purposes. It is an APC policy to allow the public free access, to a reasonable extent, to project lands and waters for navigation and recreational purposes, including fishing and hunting. Provision for free access is also included in the project license in article 18 of Form L-6. Special consideration has been given to recreational possibilities through coordination with various State and Federal agencies.

3 - GENERAL HISTORY OF PROJECT

3-01. Authorization for Project. In 1934, the Corps, under the provisions of House Document No. 308, 69th Congress, first session, developed a general plan for the overall development of the Alabama-Coosa River system. That plan which was submitted to Congress and published as House Document No. 66, 74th Congress, first session, included a dam on the Coosa River near Leesburg, Alabama, with a cutoff navigation canal 4.1 miles in length containing two navigation locks, and provisions for future power development by construction of a powerhouse at the dam. This was apparently the earliest record of Federal interest in a navigation dam at the site of the present Weiss project high enough to warrant installation of a power plant. Although there is no information available concerning possible consideration of the site by private power interests, it is not likely that any serious consideration existed since the Corps' report indicated that the power market at the time did not justify the construction of any additional hydroelectric plants in the area.

Further studies were directed by Congress in resolutions adopted by the Committee on Rivers and Harbors, House of Representatives, on 1 April 1936 and 28 April 1936, and by the Committee on Commerce, United States Senate, on 18 January 1939. In response to those resolutions, an interim report was submitted to Congress in October 1941. That report, published as House Document No. 414, 77th Congress, first session, recommended development of the Alabama-Coosa River and tributaries for navigation, flood risk management, power development, and other purposes in accordance with plans being proposed by the Chief of Engineers. The improvement outlined in House Document No. 414, which included the Leesburg development, was authorized by Congress in Section 2 of the River and Harbor Act of 2 March 1945, Public Law 14, 79th Congress, first session.

On 28 June 1954, the 83rd Congress, second session, enacted Public Law 436, which suspended the authorization under the River and Harbor Act of 2 March 1945 insofar as it concerned Federal development of the Coosa River for the development of electric power, to permit development by private interests under a license to be issued by the Federal Power Commission (FPC). The law stipulates that the license shall require the provision of flood risk management storage and further states that the projects shall be operated for flood risk management and navigation in accordance with reasonable rules and regulations of the Secretary of the Army. The complete text of Public Law 436 is contained in Exhibit D.

3-02. Planning and Design. On 2 December 1955, the APC applied to the FPC for a license for development of the Coosa River in accordance with the provisions of Public Law 436. The development proposed by the APC, designated in the application as FPC Project No. 2146, included the Leesburg Dam (later named Weiss Dam) with a four-mile long cutoff canal and a powerhouse at the lower end of the canal. Except for the location of the powerhouse, this plan was about the same as had been originally proposed by the Corps.

3-03. Construction. The FPC issued a license to the APC on 4 September 1957 for the construction, operation, and maintenance of Project No. 2146. The license directed that construction of the Weiss development commence within one year from 1 August 1957 and be completed within five years from that date. Portions of the license pertinent to flood risk management, navigation, and water use and reservoir regulation are contained in Exhibit E.

Construction started on 31 July 1958 and the spillway section was completed in late September 1960. Filling of the reservoir to operating level commenced late in March 1961. The pool reached elevation 563.3 on 23 April 1961 and was then lowered to elevation 562 by 1 May

1961. Because of construction activities in the reservoir area it was held at about that level, approximately two feet below full power pool, until the normal fall drawdown period.

Two generating units were placed in commercial operation on 5 June 1961. The third unit was placed in commercial operation on 5 July 1962.

3-04. Related Projects. Weiss Dam and Lake is one of 11 privately owned dams located in Alabama on the Coosa and Tallapoosa Rivers and operate mainly for the production of hydropower. USACE has flood risk management authority over four of these 11 privately owned dams: Weiss, H. Neely Henry, and Logan Martin Dams on the Coosa River (which are a part of the APC Coosa Project FERC license), and R.L. Harris Dam on the Tallapoosa River. The other seven are Lay, Mitchell, Jordan, Martin, Yates, Thurlow, and Bouldin dams. USACE operates five reservoir projects in the basin: Allatoona Lake and Dam on the Etowah River; Carters Dam and Lake (with Reregulation Dam) on the Coosawattee River; and Robert F. Henry (formerly known as Jones Bluff), Millers Ferry, and Claiborne Lock and Dam Projects are located on the Alabama River downstream. The Corps reservoirs are operated as a system to accomplish the authorized purposes of the projects.

3-05. Dam Safety History/Issues. Dam safety oversight of APC projects is covered under the FERC license.

3-06. Principal Regulation Issues. There have been no significant regulation problems, such as erosion, boils, severe leakage, etc., at the Weiss project.

3-07. Modifications to Regulations. The original 1966 Water Control Plans for Weiss and Logan Martin require APC to surcharge water outside their reservoir flowage easement during a large flood event (1 percent, 1/100 of occurring in any given year or higher). This was highlighted during 1977 and 1979 floods when Logan Martin went above easement. Since the early 1980s, APC has worked with Mobile District Water Management to obtain deviations, primarily at the beginning of flood events, at Logan Martin. The deviations are to release more water earlier in large events. Additionally, APC has gotten deviations to cut back storage in projects during smaller flood events to store more water and further alleviate flooding issues downstream. APC has been able to efficiently manage flood events while staying within their reservoir flowage easements, due largely in part to timely deviations at both Weiss and Logan Martin. APC and USACE were preparing to address possible changes to Coosa River flood operations during the Coosa Navigation Study (Coosa River between Montgomery and Gadsden). The study funding was suspended and deauthorized before discussions could begin.

The Weiss WCM was administratively revised in June 2004. No changes to operation occurred.

On 20 June 2014, FERC issued a new license for Weiss Dam as part of the Coosa River Project No. 2146. This new license combined the projects Coosa Project No. 2146 (Weiss, H Neely Henry and Logan Martin), the Mitchell Dam Project No. 82, and the Jordan Dam Project No. 618 as one project, the Coosa River Project No. 2146. As a component of the license the following environmental measures were adopted:

> "To protect and enhance aquatic habitat and water quality in the 20-mile-long Weiss bypassed reach, Alabama Power proposes to implement the Weiss Bypass Flow Adaptive Management Plan 43 to determine minimum flow requirements. Initially, Alabama Power will release a variable continuous minimum flow ranging from 4 to 9 percent of the flows occurring

> at the upstream Mayo's Bar USGS gage no. 02397000 (i.e., approximately 135 to 1,053 cfs), depending on the month of the year. Alabama Power will monitor biotic responses to the minimum flows through 2020 and, in consultation with resource agencies, adjust the minimum flow requirements, as needed."
>
> "To enhance water quality in the Coosa River, Alabama Power proposes to meet state water quality standards of 4 mg/L of [dissolved oxygen] DO in the turbine discharges of each development."

In summary, the new license required continuous seasonal minimum flows releases in the Weiss bypassed reach and improved DO levels below each development and monitoring of DO levels and biological responses to improved DO levels.

On 6 July 2018, the United States Court of Appeals for the District of Columbia Circuit court vacated the Coosa River Project No. 2146 licensing decision and remanded it for further proceedings consistent with the court's opinion. Consequently, Weiss is operating under the original FERC license issued in September 1957. APC voluntarily provides a seasonal varying minimum flow through the Weiss bypassed reach. APC has completed substantial modifications with the construction of an aeration system to improve DO levels below the powerhouse (details provided in Section 7-07). Essentially, oxygen is mixed with turbine discharge through a series of holes in the draft tube wall. The system is automatically controlled as DO levels are monitored in the tailrace.

Prior to the update of ACT Basin WCMs in 2015, APC proposed to increase the project guide curve level during the winter months (December–February) at Weiss Dam and Lake from elevation 558 feet to elevation 561 feet, and to reduce the maximum surcharge elevation (top of flood pool) from elevation 574 feet to elevation 572 feet (2005 Coosa license application). In addition, APC proposed to extend the summer guide curve elevation of 564 feet from September 1 to October 1. The request was to bring the maximum surcharge elevation, which was to 2 feet higher than the APC flowage easement elevation of 572 feet for Weiss Lake, in line with the flowage easement elevation. USACE did not include updates to the WCMs for the APC Weiss and Logan Martin reservoir projects in the 2015 ACT River Basin Master Manual update effort because changes to flood operations proposed by APC required further detailed study of flood risk at both projects. In conjunction with these elevation changes, APC proposed to modify the current Flood Regulation Schedule for Weiss Dam in order to operate with no appreciable increase in flood risk.

In addition to the action discussed above, USACE also deferred consideration of a pending request from the State of Georgia to reallocate multipurpose reservoir storage in Allatoona Lake to water supply to meet future demands in the region, which involved USACE modifying its reservoir storage accounting procedures. As a result of U.S. District Court ruling on the Allatoona issue in 2018 that directed the Corps to evaluate Georgia's request, the Corps prepared a Feasibility Report and Integrated Supplemental Environmental Impact Statement (FR/SEIS) to address those two deferred actions. The impacts of the ACT Master WCM and its Appendices, including this WCM, have been fully evaluated in the FR/SEIS that was published in November 2020. A Record of Decision (ROD) for the action was signed in August 2021.

The changes at Weiss resulted in a 30 percent reduction in flood storage during the winter months and a 24 percent reduction in flood storage in the summer months. The maximum surcharge elevation is now the same elevation as the APC flowage easement elevation of 572 feet. The modified flood operations are detailed in Sections 7-04 and 7-05.

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4 - WATERSHED CHARACTERISTICS

4-01. General Characteristics.

a. ACT River Basin. The ACT River Basin, made up of the Coosa, Tallapoosa, and Alabama Rivers and their tributaries, drains northeastern and east-central Alabama, northwestern Georgia, and a small portion of Tennessee. The drainage basin has a maximum length of about 330 miles, an average width of approximately 70 miles, and a maximum width of about 125 miles. The ACT Basin drains an area totaling approximately 22,739 square miles: 17,254 square miles in Alabama; 5,385 square miles in Georgia; and 100 square miles in Tennessee. The head of the Coosa River is at Rome, Georgia at the confluence of the Etowah and Oostanaula Rivers. It flows west to the Alabama State line, then in a southwesterly then southerly direction for about 286 miles to join the Tallapoosa River near Wetumpka, Alabama to form the Alabama River. The Alabama River flows in a southwesterly direction about 310 miles where it joins the Tombigbee River to form the Mobile River. The Mobile River flows southerly about 45 miles where it empties into Mobile Bay at Mobile, Alabama, an estuary of the Gulf of Mexico. The entire ACT Basin with the Coosa River Basin highlighted, and some of the other ACT projects are shown on Plate 2-2. The river mile and size of the drainage area above selected sites in the ACT Basin are shown on Table 4-1.

Table 4-1 River Mile and Drainage Area for Selected Sites in ACT Basin

River Mile and Drainage Area for Important Sites in the ACT Basin				
River Mile above mouth of ACT system	**River**	**Location**	**Drainage Area (sq mi)**	**Owner**
693	Etowah	Allatoona Dam	1,122	Corps
645.2	Etowah	Mouth	1,860	
672	Coosawattee	Carters Dam	374	Corps
645.2	Oostanaula	Mouth	2,150	
638.1	Coosa	Mayo's Bar	4,040	
585.1	Coosa	Weiss Dam	5,270	APC
506.2	Coosa	H Neely Henry Dam	6,596	APC
457.4	Coosa	Logan Martin Dam	7,743	APC
410.2	Coosa	Lay Dam	9,053	APC
396.2	Coosa	Mitchell Dam	9,778	APC
378.3	Coosa	Jordan Dam	10,102	APC
305.0	Coosa	Mouth	10,156	
497.4	Tallapoosa	R. L. Harris Dam	1,454	APC
420	Tallapoosa	Martin Dam	2,984	APC
412.1	Tallapoosa	Yates Dam	3,293	APC
409.1	Tallapoosa	Thurlow Dam	3,308	APC
281.2	Alabama	Robert F Henry Dam*	16,233	Corps
178	Alabama	Millers Ferry Dam*	20,637	Corps
117.5	Alabama	Claiborne Dam*	21,473	Corps

* Navigation Lock at Project

b. Coosa Basin. The Coosa Basin drains a total of 10,156 square miles of which 2,986 square miles are in Georgia and 7,170 square miles are in Alabama. The main river width varies from about 250 to over 1,000 feet with banks generally about 20 feet above the riverbed. The total fall of the river is 450 feet in 286 miles, giving an average fall of about 1.6 feet per mile. The entire ACT Basin with the Coosa River Basin highlighted, and other ACT projects are shown on Plate 2-2. The river mile and size of the drainage area above selected sites in the ACT Basin are shown on Table 4-1.

c. Coosa Basin above Weiss Dam. The basin above Weiss drains approximately 5,270 square miles. The Coosa River area extends 60 miles upstream to Rome, Georgia, and contains 2,590 square miles. The 4,160 square miles of drainage area above Weiss Dam not controlled by Allatoona Dam are divided as follows: remainder in Etowah basin, 750 square miles; Oostanaula basin, 2,150 square miles; and Coosa River basin below Rome, 1,260 square miles. The Etowah River has a drainage area of 1,861 square miles of which 1,122 square miles is above the Allatoona Dam and Lake Allatoona Project, located 48 miles upstream from Rome, Georgia. The Oostanaula River total drainage area is 2,150 square miles. The Carters Dam and Lake Project on the Coosawattee River, a main tributary of the Oostanaula River, has a drainage area of 374 square miles.

4-02. Topography. The Weiss Project is located in the Alabama Valley and Ridge physiographic province of the southern Appalachian Mountains (see Figure 4-1). It occurs as a roughly northeast-trending rectangular area in central and east-central Alabama and continues northeast into Georgia and Tennessee. This region is comprised of sandstone ridges and fertile limestone valleys. The Valley and Ridge borders the Cumberland Plateau section to the north and west, the Piedmont Upland section to the southeast, and the East Gulf Coastal Plain section to the southwest. The landscape developed on tightly folded and thrust-faulted rock layers and thus consists of numerous uniquely zigzagging ridges separated by deep steep-sided valleys.

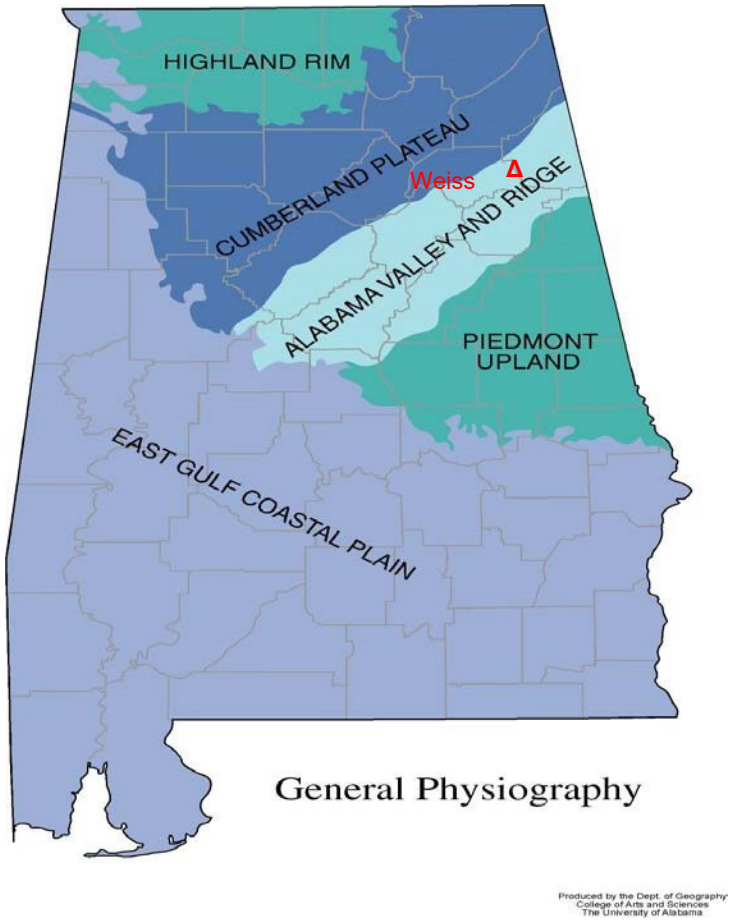

Figure 4-1 Topographic Regions in Alabama

4-03. Geology and Soils. Valley and Ridge soils are typically shallow and well drained, and water moves rapidly toward streams during precipitation events. The Weiss Project area soils are dominantly Ultisols. This soil order, which covers the majority of the State of Alabama, has developed in forested, humid/high rainfall, subtropical conditions on old landscapes (e.g., not glaciated or recently flooded). These soils are characterized by a surface soil that is often acidic and low in plant nutrients. The surface has a low base status (a measure of fertility) due to high rainfall weathering that has occurred over long time periods and parent materials low in base forming minerals. Although Ultisols are not as fertile as many other soil orders, they do support abundant forest growth and respond well to management for agriculture.

4-04. Sediment. Significant sources of sediment within the basin are agricultural land erosion, dredging and mining activities, unpaved roads, silviculture, and variation in land uses that result in conversion of forests to lawns or pastures. In general, the quantity and size of sediment transported by rivers is influenced by the presence of dams. Impoundments behind dams serve as sediment traps where particles settle in the lake headwaters because of slower flows. Large impoundments typically trap coarser particles plus some of the silt and clay. Often releases from dams scour or erode the streambed downstream. Ultisols dominate the Valley and Ridge ecoregion. They generally lack the original topsoil because of erosion during intensive cotton farming beginning in the 18th century.

4-05. Climate. Chief factors that control the climate of the ACT Basin are its geographical position in the southern end of the temperate zone and its proximity to the Gulf of Mexico and South Atlantic Ocean. Another factor is the range in altitude from almost sea level at the southern end to higher than 3,000 feet in the Blue Ridge Mountains to the north. Frontal systems influence conditions throughout the year. During the warmer months, thunderstorms are a major producer of rainfall. Tropical disturbances and hurricanes also affect the region.

a. Temperature. The average annual temperature in the vicinity of Weiss Reservoir is about 61 degrees Fahrenheit (°F). This figure is based on normal annual temperatures at four stations: Rome, Georgia, with 78 years of record; Albertville, Alabama, 36 years; Gadsden Gas Plant, Alabama, 78 years; and Valley Head, Alabama, 77 years. Extreme temperatures recorded at these stations are a maximum of 108 °F at Gadsden Gas Plant, Alabama, and a minimum of -18 °F at Valley Head, Alabama. The summer average is about 78 °F and the winter average about 44 °F. Table 4-2 provides average, maximum, and minimum monthly normal temperature data for several locations in or around the project. The climatic table has been compiled from online records at the NOAA National Centers for Environmental Information (https://www.ncdc.noaa.gov/cdo-web/datatools/normals) and the Southeast Regional Climate Center. A map showing the location of the temperature and precipitation stations is found on Plate 4-1.

Table 4-2 Average Monthly Temperature (°F) for Northern ACT Basin (Max, Min & Avg)

AVERAGE MONTHLY TEMPERATURE FOR NORTHERN ACT BASIN (MAX, MIN AND AVG) PERIOD OF RECORD 1991 - 2020														
		Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**
Allatoona Dam 2, GA	Max	50.90	55.30	63.40	72.20	78.80	84.90	88.00	87.40	82.20	72.60	61.60	53.60	70.90
	Min	29.00	31.60	38.60	46.40	56.00	63.90	67.30	67.00	61.00	49.10	37.90	32.40	48.40
	Avg	39.90	43.40	51.00	59.30	67.40	74.40	77.70	77.20	71.60	60.90	49.80	43.00	59.60
Cartersville, GA	Max	53.70	58.10	66.80	75.00	81.40	88.20	90.90	90.40	85.00	76.40	64.70	55.90	73.90
	Min	27.50	30.60	36.60	44.60	54.10	61.90	65.40	65.00	59.60	46.00	35.70	30.50	46.50
	Avg	40.60	44.40	51.70	59.80	67.80	75.00	78.10	77.70	72.30	61.20	50.20	43.20	60.20
Rome, GA	Max	52.00	56.10	64.80	73.70	80.60	86.50	89.70	88.90	83.80	73.80	63.00	54.30	72.30
	Min	30.20	32.80	39.00	46.40	55.30	64.10	67.90	67.00	60.50	48.40	37.70	33.10	48.50
	Avg	41.10	44.40	51.90	60.00	68.00	75.30	78.80	77.90	72.20	61.10	50.30	43.70	60.40
Fort Payne, AL	Max	52.20	56.70	65.10	73.50	81.00	87.70	90.80	90.20	85.80	76.10	64.10	55.40	73.20
	Min	31.50	35.60	42.40	49.50	58.40	66.60	70.00	69.20	63.70	51.80	41.20	34.90	51.20
	Avg	41.80	46.20	53.70	61.50	69.70	77.10	80.40	79.70	74.70	63.90	52.60	45.10	62.20
Centre, AL	Max	50.70	55.30	64.20	73.20	80.10	86.40	89.80	89.00	84.10	74.20	62.70	53.40	71.90
	Min	28.70	31.30	38.20	45.10	54.10	63.20	66.50	65.90	59.80	47.80	36.50	31.90	47.40
	Avg	39.70	43.30	51.20	59.10	67.10	74.80	78.10	77.50	71.90	61.00	49.60	42.70	59.70
Gadsden, AL	Max	52.80	57.30	66.00	74.90	82.00	87.80	90.90	90.30	85.30	75.40	64.00	55.60	73.50
	Min	32.80	36.20	43.30	50.40	59.40	67.90	71.20	70.40	64.30	52.50	41.30	35.70	52.10
	Avg	42.80	46.70	54.70	62.70	70.70	77.90	81.00	80.40	74.80	64.00	52.70	45.60	62.80
ACT Northern Basin	Max	52.05	56.47	65.05	73.75	80.65	86.92	90.02	89.37	84.37	74.75	63.35	54.70	72.62
	Min	29.95	33.02	39.68	47.07	56.22	64.60	68.05	67.42	61.48	49.27	38.38	33.08	49.02
	Avg	40.98	44.73	52.37	60.40	68.45	75.75	79.02	78.40	72.92	62.02	50.87	43.88	60.82

Source: NOAA, National Weather Service

Table 4-3 shows the extreme temperatures for four stations within the middle ACT Basin. The maximum and minimum recorded temperatures for each month are shown. These stations are Gadsden, Childersburg, and Valley Head in Alabama, and Calhoun Experiment Station in Georgia. All the middle Coosa Basin temperature stations are shown on Plate 4-1.

Table 4-3 Extreme Temperatures within the ACT

Extreme Temperatures (ºF) Within Middle ACT Basin								
Month	Station:(013151) GADSDEN		Station:(011620) CHILDERSBURG WATER PLAN		Station:(018469) VALLEY HEAD		Station:(091474) CALHOUN EXPERIMENT STN	
	High	Low	High	Low	High	Low	High	Low
Period	1893 To 1968		1957 To 2009		1893 To 2009		1953 To 1997	
January	80	-4	81	-4	79	-15	76	-10
February	91	-13	85	4	80	-18	80	-7
March	93	6	89	7	90	2	86	4
April	94	24	93	23	92	19	91	22
May	101	34	97	33	100	29	97	33
June	108	44	102	41	104	35	103	40
July	108	50	105	51	106	45	105	50
August	106	49	104	49	105	45	104	47
September	108	34	100	34	104	29	102	32
October	99	25	93	22	98	19	95	20
November	87	4	88	14	90	-2	85	12
December	82	5	83	2	85	-8	77	-2

Source: NOAA, National Weather Service

b. Precipitation. The normal monthly and annual precipitation over the basin above Weiss Dam is shown on Table 4-4. This is based on the arithmetical mean of the normals at 35 stations or data from the entire period of record at each station. The maximum, minimum, and normal annual precipitation at four of these stations for their period of record is shown in Table 4-5. About 41 percent of the normal annual precipitation occurs from December through March, 41 percent occurs from April through August, while only about 18 percent occurs during the dry period September through November. The average annual snowfall is 3 to 4 inches (unmelted), with the greatest amount occurring in January and February. Snowfall is a relatively unimportant factor in producing floods. A map showing the locations of the precipitation stations is shown on Plate 4-1.

The Coosa River basin lies in a region which is subject to intense local storms, as well as general storms of heavy rainfall extending over several days. The latter, which may occur at any time during the year but are more numerous and severe between the late fall and early spring, have been responsible for the major floods in the basin.

Table 4-4 Normal Monthly and Annual Precipitation

	Coosa River Above Weiss Dam				
	Basin				
	Etowah River				
Period	Above Allatoona Dam	Allatoona Dam to mouth	Oostanaula River	Coosa River Rome to Weiss Dam	Entire basin above Weiss Dam
No of Stations	6	2	23	4	35
January	5.03	4.78	5.72	5.54	5.52
February	5.12	4.95	5.85	5.60	5.66
March	6.64	6.24	6.13	6.39	6.25
April	4.52	4.83	4.72	4.69	4.70
May	3.60	3.47	4.02	3.79	3.90
June	3.87	3.91	4.22	4.35	4.16
July	5.19	4.82	5.27	5.15	5.24
August	4.31	4.30	4.22	4.32	4.26
September	3.19	3.16	3.49	3.32	3.42
October	2.62	2.58	2.83	2.89	2.78
November	3.52	3.20	4.02	3.67	3.87
December	4.96	4.70	5.30	5.46	5.21
Annual	52.57	50.94	55.78	55.17	54.97

Source: NOAA, National Weather Service

Table 4-5 Maximum, Minimum and Normal Annual Precipitation for Selected Stations in Upper Coosa River Basin

Station	Normal Annual Precipitation (inches) 1991-2020	Maximum Annual Precipitation		Minimum Annual Precipitation	
		Inches	Year (Period of Record)	Inches	Year (Period of Record)
Cartersville #2, GA	51.89	69.15	1989 (1937-2021)	28.14	2007 (1937-2021)
Gadsden, AL	57.64	69.71	1979 (1953-2021)	36.56	1954 (1953-2021)
Dahlonega 4W4S, GA	63.68	87.32	2020 (1893-2021)	38.82	1904 (1893-2021)
Rome, GA	55.09	77.65	1932 (1893-2021)	28.71	2007 (1893-2021)

Source: NOAA, National Weather Services

4-06. Storms and Floods. Flood producing storms may occur over the Coosa Basin at any time but are more frequent during the winter and spring. Major storms in the winter are usually of the frontal type, which persist for several days and cover large areas. Summer storms are usually tropical in origin and are normally short and intense, and usually cover small areas. Records at U.S. Geological Survey (USGS) gage 02400500 at Gadsden, Alabama, 53.02 miles downstream of the Weiss Dam spillway and 32.15 miles downstream from the Weiss Dam powerhouse outlet canal, are available from October 1926 to the present.

The largest storms recorded at Gadsden, Alabama, prior to dam construction were the floods of 1886 (115,000 cfs), April 1936 (76,900 cfs), February 1961 (74,100 cfs), and January 1933 (72,500). The largest post-construction discharges recorded at H. Neely Henry, 27 miles downstream of the Gadsden gage, were the floods of November 2004 (89,130 cfs), April 1979 (88,620 cfs), and April 1977 (84,350 cfs).

Inflow, discharge, and pool elevation records from January 1964 to December 2019 are shown on Plates 4-2 to 4-12.

4-07. Runoff Characteristics. In the ACT Basin, rainfall occurs throughout the year but is less abundant from August to November. The amount (or percentage) of the rainfall that actually contributes to streamflow varies on a seasonal basis. Several factors, such as plant growth and the seasonal rainfall patterns, contribute to the volume of runoff. During extreme droughts, runoff from a 2 to 3-inch rainfall event can be as low as 10 percent. Figure 4-2 presents the average monthly runoff for the Oostanaula and Etowah river basins in the Upper Coosa basin. Figure 4-3 presents the same information for the runoff in the Coosa basin area at Mayo's Bar, and Figure 4-4 represents the runoff information for the local basin for Weiss Dam. This information was computed by comparing flows with rainfall over the basin using the unimpaired flow dataset from 1939 to 2011. The percent of rainfall appearing as stream runoff is presented for each month. Plates 4-2 through 4-12 show the annual inflow frequencies for Weiss Dam.

While commonly referred to as observed data, reservoir inflows are actually calculated from pool elevations and project discharges. A reservoir elevation-storage relationship results in an inflow calculated for a given pool level change and outflow (total discharge) by using the continuity relationship. The reservoir continuity equation described below maintained the flow volume:

$$\text{INFLOW} = \text{OUTFLOW} + \text{CHANGE IN STORAGE}$$

where: INFLOW is in units of cfs/day
OUTFLOW is in units of cfs/day
CHANGE OF STORAGE is in units of cfs/day

The reservoir discharge value, OUTFLOW, is the total discharge from turbines, sluice gates, or spillway gates. Its associated value comes from rating tables for these structures. The CHANGE IN STORAGE comes from subtracting the daily storage on day two from day one as seen below.

$$\text{CHANGE IN STORAGE} = \text{STORAGE}_i - \text{STORAGE}_{i-1}$$

where: STORAGE_i = storage at midnight of the current day in units of cfs/day
STORAGE_{i-1} = storage at midnight of the previous day in units of cfs/day

The daily storage value comes from the storage-elevation tables using the adjusted midnight pool elevation for each day. Negative inflow calculations can occur when there is a decrease in storage which exceeds the project's outflow. Evaporative losses, direct reservoir withdrawals, wind affecting the lake level reading, and losses to groundwater are several causes of negative inflow calculations.

Records at USGS gage 02400500 at Gadsden, Alabama, 52.82 miles downstream of the dam and 32.15 miles downstream from the outlet canal, are available.

Stream flow has been measured at the Gadsden gage below 52.8 miles below the Weiss Dam spillway, from October 1926 to the present. The USGS gaging station is called the Coosa River at Gadsden, Alabama (02400500). APC works in conjunction with the USGS Montgomery Field office to maintain the Gadsden gage. The stage-discharge rating curves for the Mayo's Bar, Cartersville, Etowah River near Rome, Etowah River Near Kingston, and Resaca, gages are shown on Plates 4-13 to 4-17 respectively. Average daily inflows and outflows at the dam for 1964 through 2019 are shown on Plates 4-2 through 4-12. Since beginning of operations at Weiss Dam, the outflow has been regulated through the turbines or the spillway.

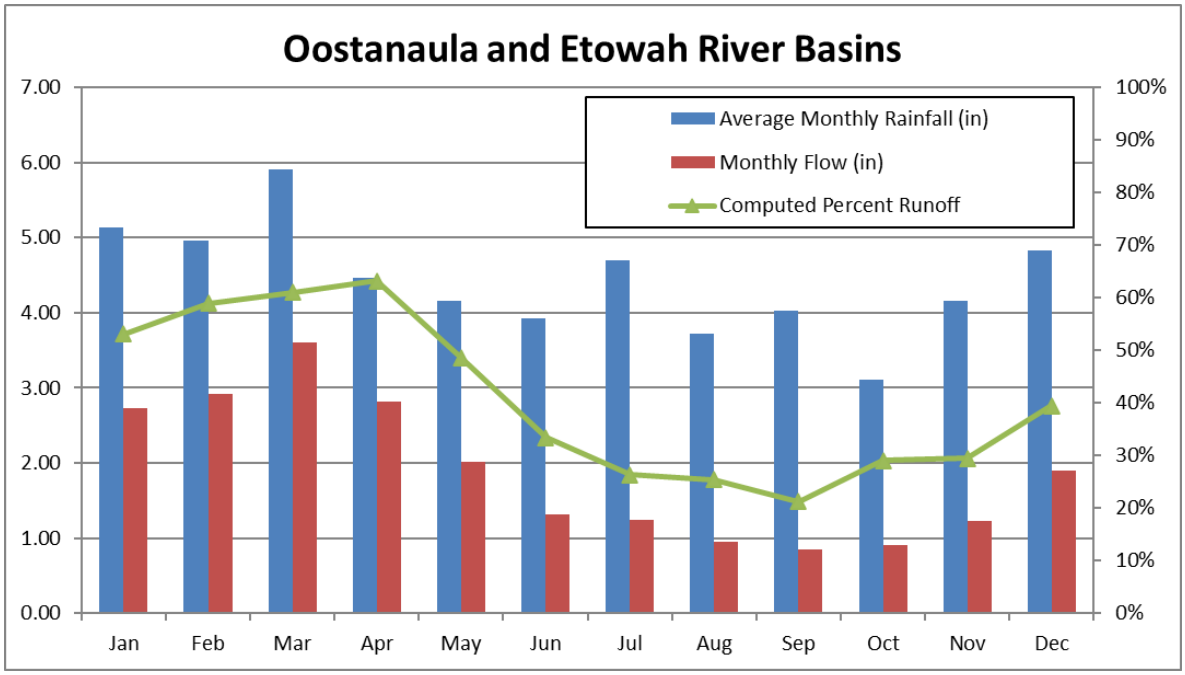

Figure 4-2 Basin Rainfall land Runoff for the Oostanaula and Etowah Rivers

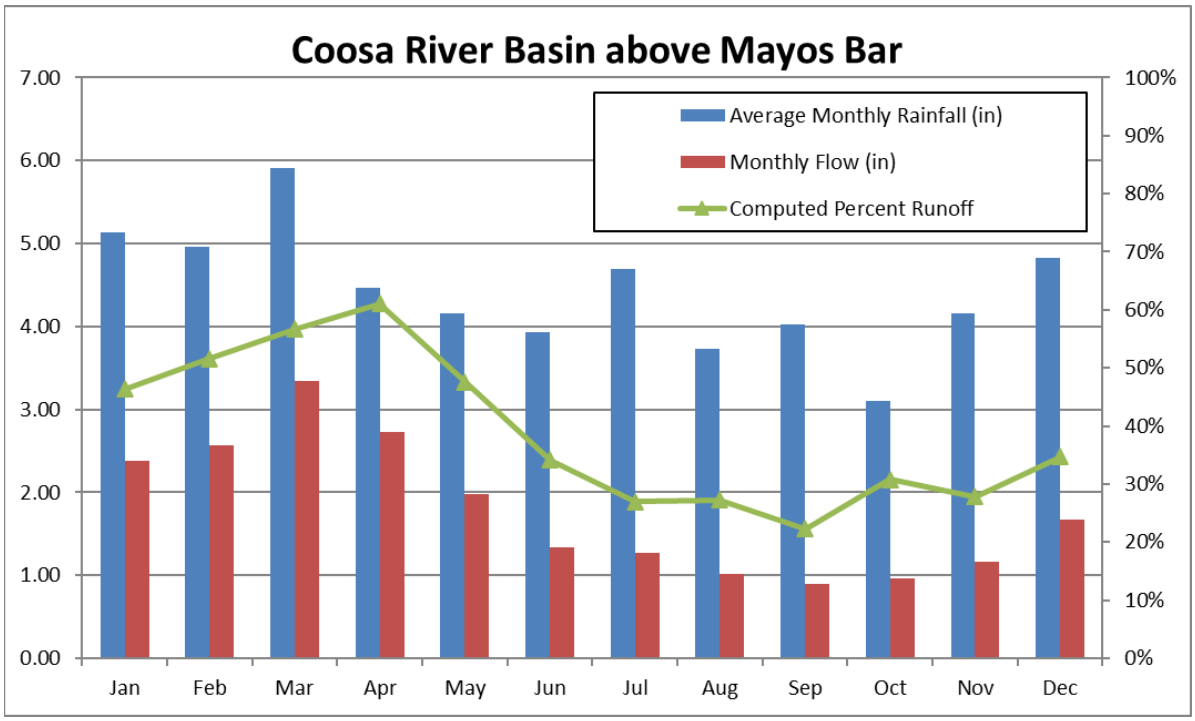

Figure 4-3 Basin Rainfall and Runoff for the Coosa River Basin above Mayo's Bar

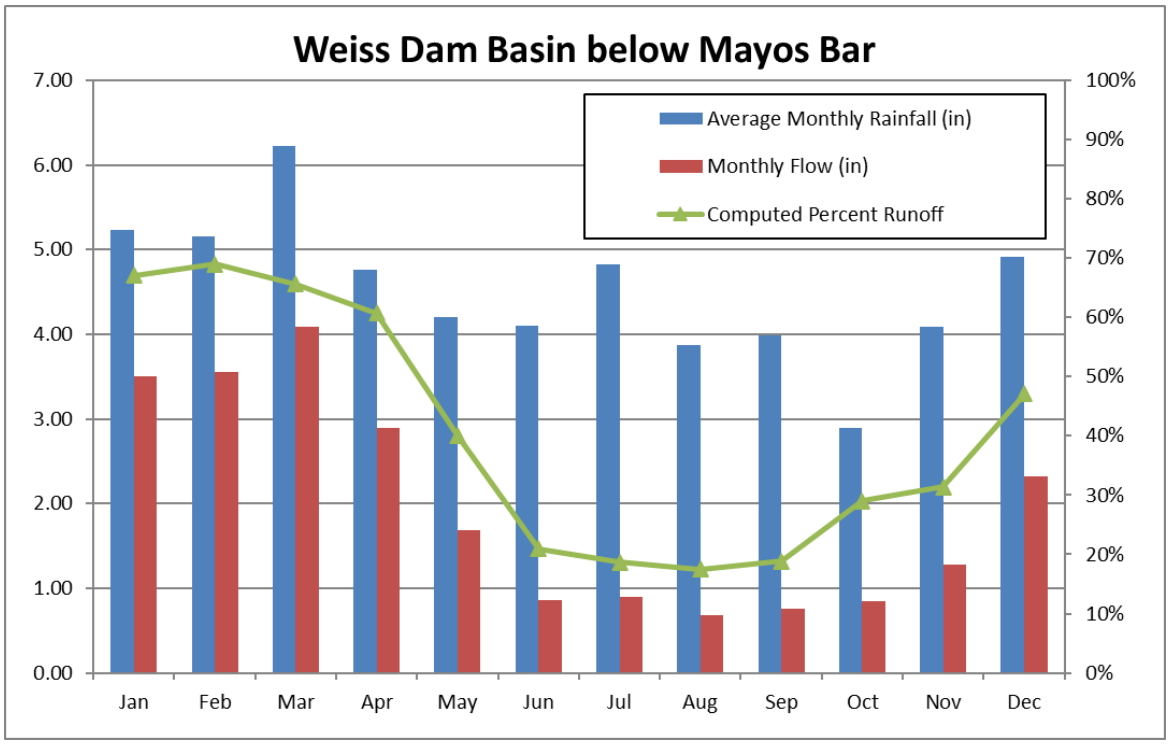

Figure 4-4 Basin Rainfall and Runoff for Weiss Dam Basin

4-08. Water Quality. Weiss Lake's designated use classifications are swimming, and fish and wildlife per the Alabama Department of Environmental Management's (ADEM) 2020 Integrated Water Quality Monitoring and Assessment Report, Water Quality in Alabama 2018-2020 (AL 303(d), 2020). The Coosa River below Weiss Dam has swimming and fish and wildlife as designated uses throughout the river. Areas within Logan Martin Lake, Lay Lake, and some tributaries are also classified as public water supply.

Weiss Lake waters, depending upon the location of supporting data, are categorized as 1 (attaining all applicable water quality standards), 2a (not satisfying minimum data requirements but with a high potential for classified use impairment based on the limited data); 4a (waters in which one or more applicable water quality standards are not met, for which all total maximum daily loads [TMDLs] needed to result in attainment of all applicable water quality standards have been approved or established by U.S. Environmental Protection Agency), and 5 (waters wherein a pollutant has caused or is suspected of causing impairment). Pathogens (E. coli) are cited as the source of impairment.

ADEM approved a TMDL for Weiss Lake nutrient enrichment in 2004 and revised the TMDL for nutrient impairment in 2008. The TMDL for Priority Organics (Polychlorinated Biphenyls [PCBs]) in Weiss Lake, Coosa River Basin (HUC 03150105), Cherokee County, Alabama From Georgia-Alabama State Line to Weiss Dam in Alabama was finalized in 2004.

Water Quality Needs. ADEM's classified use Weiss Lake is swimming. The principal specific criteria related to Swimming and Other Whole Body Water-Contact Sports are:

Bacteria:

(i) Waters in the immediate vicinity of discharges of sewage or other wastes likely to contain bacteria harmful to humans, regardless of the degree of treatment afforded these wastes, are not acceptable for swimming or other whole body water-contact sports.

(ii) In all other areas, the bacterial quality of water is acceptable when a sanitary survey by the controlling health authorities reveals no source of dangerous pollution and when the geometric mean E. coli organism density does not exceed 126 colonies/100 milliliter (mL) nor exceed a maximum of 235 colonies/100 mL in any sample in non-coastal water. The geometric mean shall be calculated from no less than five samples collected at a given station over a 30-day period at intervals not less than 24 hours. When the geometric mean bacterial organism density exceeds these levels, the bacterial water quality shall be considered acceptable only if a second detailed sanitary survey and evaluation discloses no significant public health risk in the use of the waters.

a. Nutrients. Weiss Lake was eutrophic, having waters with minerals and organic nutrients that promote a proliferation of plant life, especially algae, reducing the DO content throughout the lake. ADEM no longer considers Weiss Lake to be impaired due to nutrients. Weiss Lake water quality meets the numeric and narrative criteria ensuring adequate protection of designated uses for surface waters of the State under ADEM's Water Quality Standards Program.

Narrative criteria are qualitative statements that establish desired conditions for all State waters. The narrative criteria are commonly referred to as "free from" criteria that provide the State a regulatory avenue to address pollutants or problems that may be causing or contributing to use impairment that otherwise cannot be evaluated against any numeric criteria. Typical pollutants that fall under this category are nutrients and sediment. ADEM's narrative criteria are shown in ADEM's Administrative Code 335-6-10-.06 are:

The following minimum conditions are applicable to all State waters, at all places and at all times, regardless of their uses:

(1) State waters shall be free from substances attributable to sewage, industrial wastes, or other wastes that settle in forming bottom deposits which are unsightly, putrescent, or interfere directly or indirectly with any classified water use.

(2) State waters shall be free from floating debris, oil, scum, and other floating materials attributable to sewage, industrial wastes, or other wastes in amounts sufficient to be unsightly, or which interfere directly or indirectly with any classified water use.

(3) State waters shall be free from substances attributable to sewage, industrial wastes, or other wastes in concentrations or combinations, which are toxic or harmful to human, animal, or aquatic life to the extent commensurate with the designated usage of such waters.

b. PCBs. In order for Weiss Lake to meet the water quality standard for PCBs, the concentration of total PCBs in water column should be below 0.000097 micrograms per liter (µg/L). Therefore, the TMDL expressed as an annual average load is computed as the product of the annual average flow and the water quality standard. The 10-year average flow, obtained using 1991–2000 daily flow measured on the Coosa River at the Alabama-Georgia state line, is 232 cubic meters per second (m3/sec). Therefore:

TMDL = 232 m3 /sec x 0.000097 µg/L x1000 L/m3 x 86400 sec/day x 365 days/year x 10-9 kilograms (kg)/µg = 0.71 kg/year.

The total PCB loading into Weiss Lake must be limited to 0.71 kg/year. In other words, the State of Georgia TMDL for PCBs should allow an average of 0.71 kg/year or less to enter Weiss Lake at the Alabama-Georgia state line for the Lake to achieve and maintain its designated uses in Alabama. Since the sources are “out-of-state” in Georgia, this TMDL allocates an aggregate allowable PCB load of 0.71 kg/year, which includes both point and nonpoint source contributions from Georgia.

4-09. Channel and Floodway Characteristics.

a. General. Weiss Dam is located on the Coosa River at mile 226, approximately 50 miles upstream from Gadsden, Alabama, and one mile southeast of Leesburg, Alabama. The reservoir, extending upstream from Weiss Dam about 52 miles to Mayo’s Bar, Georgia, is located in Cherokee County, Alabama, and Floyd County, Georgia. Land use downstream of Weiss Dam to H. Neely Henry Lake on the Coosa River is a mix of agricultural and forested, with a few small, low-density communities such as Owens and Turkeytown, Alabama, until reaching Hokes Bluff, Alabama, a suburb of Gadsden, Alabama. Gadsden is the largest city in the area and borders the northern end of H. Neely Henry Lake.

Bankfull capacity below the Weiss spillway is 24,300 cfs and below the powerhouse is 23,000 cfs. The channel downstream of the Weiss powerhouse to Gadsden is approximately 30 miles long, low gradient with an average slope of 0.00008 (0.008 percent), and typical bank height ranges from 20 to 35 feet. Normal flow travel time from Weiss to the Gadsden steam plant gage is six hours.

Construction of Weiss Dam and Lake began in 1958, and the project was placed into operation in 1961. Tailwater degradation was evaluated using low-flow tailwater stage and discharge data from 2000 to 2018. To minimize the influence of the H. Neely Henry Lake pool level on the analysis, flows only from the month of January, when H. Neely Henry Lake is fully drawn down, were included. All flows of 800 +/- 10 cfs were plotted and compared for changes

in tailwater elevation over time (Figure 4-5). The upward sloping trendline indicates that either the tailwater channel has narrowed or the bed has come up. The broad range in elevations from 512 feet to 518 feet indicates other factors might be involved.

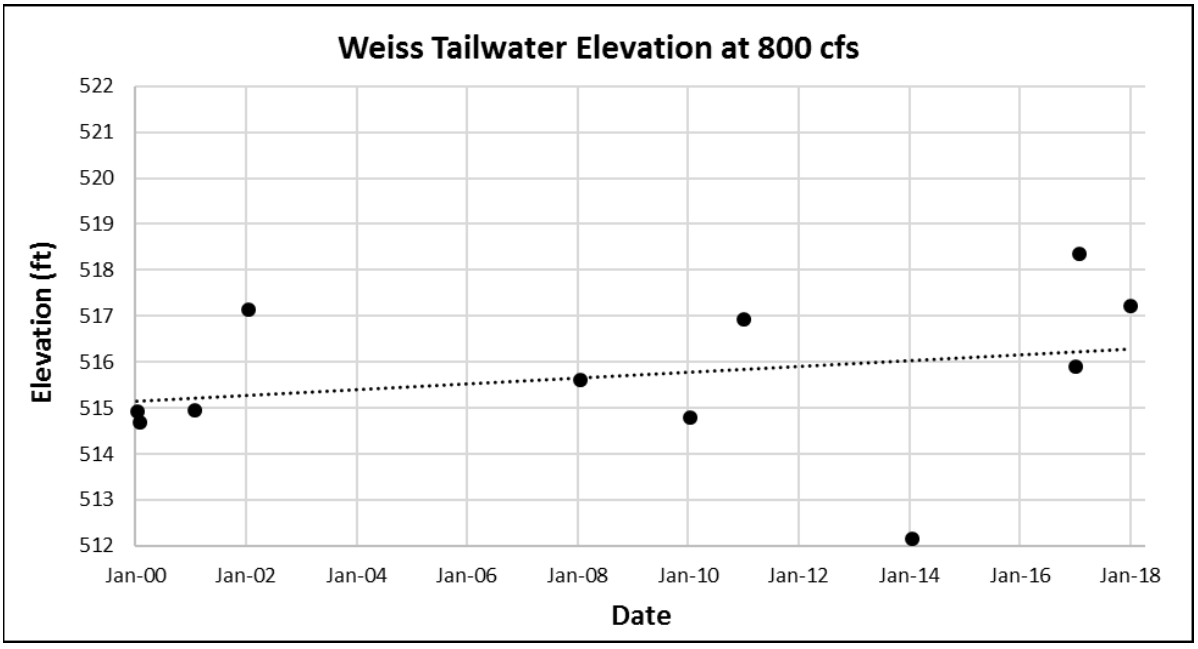

Figure 4-5 Low-Flow Elevation Trend of the Weiss Dam Tailwater

Areas which may be appreciably affected by flood risk management operations include the 50-mile reach of the Coosa River flood plain between the Weiss Dam and Gadsden, and the City of Gadsden. Flooding impacts in the Gadsden, Alabama area are described in Table 4-6. The operation of Weiss Dam will afford some reduction in flood heights below Gadsden. However, a large portion of the flood plain below Gadsden, which may be affected by flood risk management operations at Weiss Dam is within the reservoir areas of H. Neely Henry and Logan Martin Dams. Historical flood crests near Gadsden, Alabama are described in Table 4-7.

APC has obtained flowage easement in the Gadsden area to elevation 512 feet MSL (NGVD29).

The locations of the USGS stream gages in the Coosa River basin are shown on Plate 5-1. There are four real-time USGS stream gages that collect data between the Weiss spillway and H. Neely Henry Dam. These are stage only locations because each is impacted by backwater effects. Coosa River at Gadsden Steam plant near Gadsden, Alabama (02400496) gage is a Southeast River Forecast Center (SERFC) forecast location.

Table 4-6 Flood Impacts at Gadsden, Alabama – Coosa River

Downstream of Weiss Dam (USGS #02400496)	
Stage (feet)	**Impacts**
520	Widespread, severe residential flooding in Gadsden and adjacent areas along the Coosa River occurs.
517	Low elevations of Highway 411 begin to flood. Considerable residential flooding also occurs at the level.
514	Considerable residential flooding occurs in Gadsden and adjacent areas long the Coosa River.
512	Some residential flooding begins in the Gadsden area.
511	Low lying farmlands in the Gadsden area begin to flood.

Table 4-7 Historical Crests for Coosa River at Gadsden Steam Plant near Gadsden, Alabama

Gage Datum 0.0 ft NAVD88 (USGS #02400496)	
(1) 525.10 ft on 04/06/1886	(15) 512.44 ft on 03/04/2019
(2) 519.90 ft on 07/15/1916	(16) 511.77 ft on 11/24/2005
(3) 518.70 ft on 04/11/1936	(17) 511.48 ft on 10/27/1997
(4) 517.80 ft on 02/26/1961	(18) 511.38 ft on 05/08/2003
(5) 517.50 ft on 01/02/1933	(19) 511.33 ft on 05/19/2003
(6) 517.20 ft on 02/16/1946	(20) 511.33 ft on 05/06/2013
(7) 516.10 ft on 03/31/1951	(21) 511.26 ft on 06/21/1989
(8) 515.43 ft on 02/17/1990	(22) 511.03 ft on 10/26/1998
(9) 515.00 ft on 01/07/1949	(23) 511.00 ft on 02/24/2016
(10) 514.65 ft on 04/14/1979	(24) 510.71 ft on 03/31/2002
(11) 514.40 ft on 04/05/1977	(25) 510.60 ft on 03/08/1996
(12) 513.30 ft on 03/28/1980	(26) 509.16 ft on 09/17/2004
(13) 512.69 ft on 03/21/1990	(27) 509.16 ft on 01/26/2004
(14) 512.68 ft on 10/04/1995	(28) 508.09 ft on 01/24/2006
Low Water Record	
(1) 486.00 ft on 10/20/1904	

4-10. Upstream Structures. The Corps' Allatoona Dam and Lake Allatoona Project and the Carters Dam and Lake and Reregulation Dam are located on the Etowah and Coosawattee Rivers, respectively, in Georgia. Other dams upstream from Weiss include Hickory Log Creek Dam Reservoir above Allatoona Dam and Richland Creek Dam and Reservoir located on a tributary below Allatoona Dam.

4-11. Downstream Structures. The APC projects downstream of the Weiss Dam Project on the Coosa River Project include H. Neely Henry, Logan Martin, Lay, Mitchell, Bouldin, and Jordan. Corps projects downstream of the Weiss Project include Robert F. Henry, Millers Ferry, and Claiborne Locks and Dams on the Alabama River. The Alabama River is navigable to Montgomery, Alabama, near river mile 342.0. Locations of these projects are shown on Plates

2-1 and 2-2. The existing upstream and downstream federal and APC projects and the drainage areas above them are shown on Table 4-1.

4-12. Economic Data. The general economics of the region are represented by the two counties in Table 4-8. One of the counties is located in Alabama and one is in Georgia. The watershed includes both developed urban and residential land uses and more rural land uses within the watershed.

a. Population. The 2020 population for the two counties composing the Weiss project watershed and basin below was 123,555 persons. Table 4-8 shows the 2020 population and per capita income in the past 12 months (in 2020 dollars), from 2016–2020.

Table 4-8 Population and Per Capita Income

	2020	
County	**Population**	**Per Capita Income**
Cherokee County, Alabama	24971	26,231
Floyd County, Georgia	98,584	27,418

Source: US Census Bureau, 2020

b. Agriculture. The watershed and basin consist of approximately 1,077 farms averaging 183 acres per farm. In 2017, the area produced $205.5 million in farm products sold and total farm earnings of more than $59.8 million. Agriculture in the Weiss Project watershed and basin consists primarily of livestock, which accounts for a little less than 82 percent of the value of farm products sold. Livestock production consists primarily of poultry and beef cattle. The principal crops are cotton, hay, corn, soybeans, wheat, and Christmas trees. Agricultural production information and farm earnings for each of the counties in the Weiss Project watershed and basin are shown in Table 4-9.

Table 4-9 Farm Earnings and Agricultural Production

County	Farm Earnings ($1,000)	Number of Farms	Total Farm Acres	Acres Per Farm	Value of Farm Products Sold ($1,000)	Percent Crops	From Livestock
Alabama							
Cherokee	47,635	530	121,371	229	152,078	26	74
Georgia							
Floyd	12,169	547	74,861	137	53,441	10	90

*U.S. Department of Agriculture, Census of Agriculture, 2017 State and County Profile

c. Industry. The leading sectors in Floyd County, Georgia that provide non-farm employment are manufacturing, retail, and health care and social assistance. In 2019–2020, the Weiss Dam Project area counties contained more than 117 manufacturing establishments employing 7,220 individuals earning over $442 million. Table 4-10 contains information on the manufacturing activity for each of the counties in the Weiss Dam Project Watershed and Basin.

Table 4-10 Manufacturing Activity

	Total Manufacturing Employees	Total Earnings ($1,000)
Cherokee County, AL	932	39,340
Floyd County, GA	6,288	402,834

Source: Alabama Department of Labor, Labor Market Information Division, Covered Employment and Wages 2019 Annual (www2.labor.alabama.gov/CEW/2019/annual/AreabyIndustry.aspx); Cherokee County Industry Sectors; Georgia Area Labor Profile, Floyd County, Labor Force Activity – 2020

d. Flood Damages. Not available for APC projects.

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5 - DATA COLLECTION AND COMMUNICATION NETWORKS

5-01. Hydrometeorologic Stations. Management of water resources requires continuous, real-time knowledge of hydrologic conditions. Both the APC and the Corps collect and maintain records of hydrologic data and other information in connection with the operation of projects in the Coosa River Basin. Since the data collected by the APC are needed by the Corps in carrying out its responsibility of monitoring the flood risk management operations of the Weiss Project, and the data collected by the Corps supplements those being collected by the APC and are of value to them in planning their project operations, it is important that each agency furnish the other with its agency's hydrologic and operating data as may be needed or found beneficial in its operational decision making. This requires that communications facilities be available between the Mobile District Office of the Corps and APC Reservoir Management. The USGS and National Weather Service (NWS), in cooperation with the APC, the Corps, and other Federal and State agencies, maintain a network of real-time gaging stations throughout the ACT Basin.

a. Facilities. APC's Hydrologic Data Acquisition System (HDAS) is a combination of over 100 rain, stage, and evaporation gages located in the river basins where APC dams and reservoirs are located. The largest majority of these gages are owned and operated by APC. APC also utilizes data from relevant USGS gages. The rainfall gages and river gages are equipped with Data Collection Platforms that store data on site and transmit to orbiting satellites. The stations continuously collect various types of data including stage, flow, and precipitation. All the rainfall, reservoir, and river stage reporting gages regularly used by the Corps and APC in the ACT Basin, including the Coosa River Basin above Weiss Dam, are shown on Plate 5-1. Figure 5-1 shows a typical encoder with wheel tape housed in a stilling well used for measuring river stage or lake elevation. Figure 5-2 shows a typical precipitation station, with rain gage, solar panel, and Geostationary Operational Environmental Satellite (GOES) antenna for transmission of data.

Figure 5-1 Encoder with Wheel Tape for Measuring the River Stage or Lake Elevation in the Stilling Well

Figure 5-2 Typical Field Installation of a Precipitation Gage

All rainfall gages equipped as Data Collection Platforms are capable of being part of the reporting network. Data are available from many stations in and adjacent to the ACT Basin. For operation of the Weiss Project, APC operates the HDAS that delivers real time rainfall and river stage data through SouthernLINC packet data radios and dedicated network connections. The rainfall stations APC uses to operate the facility are listed in Table 5-1. The sites in the vicinity of Weiss are shown on Plate 5-1, along with other gage locations.

Table 5-1 Rainfall Reporting Network

Basin	Station
Etowah River (Below Allatoona Dam)	Dallas, GA
Oostanaula River	Dalton, GA
	Adairsville, GA
Coosa River (Above Weiss Dam)	LaFayette, GA
	Mt. Alto, GA
	Cedartown, GA
	Menlo, AL
	Gaylesville, AL
	Fort Payne, AL
	Blue Pond, AL
	Weiss Dam, AL
Coosa River Weiss Dam to Gadsden	Collinsville, AL
	Rock Run, AL
	Ellisville, AL
	Colvin Gap, AL
	Gadsden, AL
	Gadsden SP., AL

All river stage gages equipped as Data Collection Platforms are also capable of being part of the reporting network. Data are available from many stations in and adjacent to the ACT Basin. The river stage reporting network gages used for operation of the Weiss Dam are shown in the Table 5-2. The locations of river stage stations are shown on Plate 5-1.

Table 5-2 River Gage Reporting Network

Stream	Station	River Miles Above Mouth	Drainage Area (sq mi)
Etowah River Basin Below Allatoona Dam			
Etowah River	Allatoona	47.00	1110
Etowah River	Cartersville (Nr)	38.22	1330
Etowah River	Cartersville (Nr)	38.22	1330
Etowah River	Kingston (Nr)	21.51	1630
Etowah River	Rome (So RR)	1.80	1810
Etowah River	Rome (2nd Ave)	0.90	1816
Oostanaula River Basin			
Talking Rock Cr	Talking Rock		119
Coosawattee River	Ellijay	1.00	90
Coosawattee River	Carters	26.60	376
Coosawattee River	Carters	24.91	531
Coosawattee River	Pine Chapel	6.60	856
Conasauga River	Eton	42.67	252
Conasauga River	Tilton	12.14	682
Oostanaula River	Resaca	43.16	1610
Oostanaula River	Calhoun	36.37	1624
Oostanaula River	Rome	4.50	2120
Oostanaula River	ROME (5th Ave.)	0.35	2150
Coosa River Basin Above Weiss Powerhouse			
Coosa Basin	Mayo's Bar	278.8	4040
Chattooga River	Summerville	(3)	193
Chattooga River	Gaylesville	7.31	368
Little River	Blue Pond	2.24	194
Terrapin Creek	Ellisville	8.15	258
Coosa River Basin Gadsden to Weiss Powerhouse			
Coosa River	Gadsden	174.6	5800
Coosa River	Gadsden SP	174.6	5800

Data are collected at sites throughout the ACT Basin through a variety of sources and integrated into one verified and validated central database. The basis for automated data collection at a gage location is the Data Collection Platform. The Data Collection Platform is a computer microprocessor at the gage site. A Data Collection Platform has the capability to interrogate sensors at regular intervals to obtain real-time information (e.g., river stage, reservoir elevation, water and air temperature, precipitation). The Data Collection Platform then saves the information, performs simple analysis of it, and transmits the information to a fixed geostationary satellite. Data Collection Platforms transmit real-time data at regular intervals to the GOES System operated by NOAA. The GOES Satellite's Data Collection System sends the data directly down to the NOAA Satellite and Information Service in Wallops Island, Virginia. The data are then rebroadcast over a domestic communications satellite (DOMSAT). The

Mobile District Water Management Section operates and maintains a Local Readout Ground System (LRGS) that collects the Data Collection Platform-transmitted, real-time data from the DOMSAT. Figure 5-3 depicts a typical schematic of how the system operates.

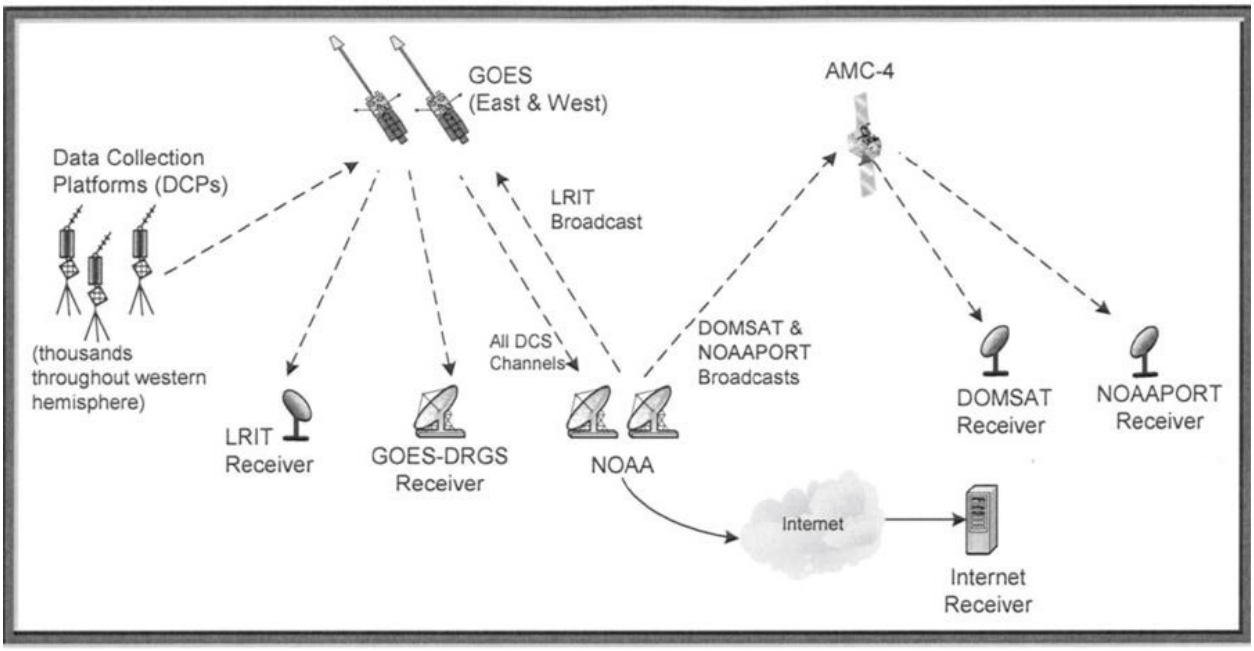

Figure 5-3 Typical Configuration of the GOES System

b. Reporting. Central to APC hydro operations, monitoring, and reporting network is the Hydro Optimization Management System (HOMS). HOMS is a complex and dynamic system of data collection, analysis, and management tools, and includes an arrangement of hydrologic and flow monitoring systems and tools as well. HOMS exists for the purpose of real time monitoring, and as a decision tool and support for computer applications related to the operation of APC's 14 hydroelectric facilities located within the Coosa, Tallapoosa, and Black Warrior River Basins.

The Corps operates and maintains a Water Control Data System (WCDS) for the Mobile District that integrates large volumes of hydrometeorological and project data so the basin can be regulated to meet the operational objectives of the system. The WCDS, in combination with the Corps Water Management System (CWMS), together automate and integrate data acquisition, data management, and data dissemination.

c. Maintenance. Maintenance of data reporting equipment in the Coosa River Basin near Weiss Dam is a cooperative effort among the USGS, NWS, Corps, and APC.

If gages appear to be out of service, the following agencies can be contacted for repair:

APC – Alabama, P.O. Box 2641, Birmingham, Alabama 35291, Phone: (205) 257-2599Web: https://apcshorelines.com

USGS South Atlantic Water Science Center - Georgia, 1770 Corporate Dr., Suite 500, Norcross, Georgia 30093, Phone: (678) 924-6700 Web: http://ga.water.usgs.gov

USGS Lower Mississippi-Gulf Water Science Center - Alabama, 75 TechnaCenter Drive, Montgomery, Alabama 36117 Phone: (334) 395-4120 Web: http://al.water.usgs.gov

NWS Southern Region, 819 Taylor Street, Room 10E09, Fort Worth, TX 76102 Phone: (817) 978-1100 Web: https://www.weather.gov/srh/

USACE, Mobile District, 109 Saint Joseph Street, Mobile, AL 36602-3630, Phone: (251) 690-2730 Web: https://www.sam.usace.army.mil/Missions/Civil-Works/Water-Management/

5-02. Water Quality Stations. Water quality measurements are made at 29 USGS gaging stations (Table 5-3)within the ACT River Basin. The data for these stations can be obtained from the USGS yearly publication, Water Resources Data Alabama and Water Resources Data Georgia.

Table 5-3 USGS Water Quality Gaging Stations, ACT Basin

Station Number	Station name
03130004 Lower Chattahoochee	
023432415	CHATTAHOOCHEE R .36 MI DS WFG DAM NR FT GAINES, GA
03150101 Conasauga	
02385800	HOLLY CREEK NEAR CHATSWORTH, GA
03150102 Coosawattee	
02382500	COOSAWATTEE RIVER AT CARTERS, GA
03150104 Etowah	
02388975	ETOWAH RIVER AT GA 136, NEAR LANDDRUM, GA
02388985	RUSSELL CRK 0.3 MI DS HEAD LAKE NR DAWSONVILLE, GA
02389150	ETOWAH RIVER AT GA 9, NEAR DAWSONVILLE, GA
02394000	ETOWAH RIVER AT ALLATOONA DAM, ABV CARTERSVILLE, GA
02394682	RICHLAND CREEK AT OLD DALLAS RD, NEAR DALLAS, GA
03150105 Upper Coosa	
02397000	COOSA RIVER (MAYO'S BAR) NEAR ROME, GA
02397530	COOSA RIVER AT STATE LINE, AL/GA
03150108 Upper Tallapoosa	
02413210	LITTLE TALLAPOOSA R AT GA 100, NEAR BOWDON, GA
03150105 Upper Coosa	
02397530	COOSA RIVER AT STATE LINE, AL/GA
02400100	TERRAPIN CREEK AT ELLISVILLE AL
03150106 Middle Coosa	
02405500	KELLY CREEK NEAR VINCENT AL
03150107 Lower Coosa	
02407514	YELLOWLEAF CREEK NEAR WESTOVER, AL
02408540	HATCHET CREEK BELOW ROCKFORD AL
03150109 Middle Tallapoosa	
02414715	TALLAPOOSA RIVER NR NEW SITE, AL. (HORSESHOE BEND)
03150110 Lower Tallapoosa	
02419890	TALLAPOOSA RIVER NEAR MONT.-MONT. WATER WORKS

Station Number	Station name
03150201 Upper Alabama	
02423110	CAHABA RIVER NEAR TRUSSVILLE, AL
03150202 Cahaba	
02423130	CAHABA RIVER AT TRUSSVILLE, AL.
02423160	CAHABA RIVER NEAR WHITES CHAPEL AL
02423380	CAHABA RIVER NEAR MOUNTAIN BROOK AL
02423397	LITTLE CAHABA RIVER BELOW LEEDS, AL.
02423496	CAHABA RIVER NEAR HOOVER, AL
0242354650	CAHABA VALLEY CR AT INDIAN TRAIL RD NR INDIAN SPRS
02423555	CAHABA RIVER NEAR HELENA AL
02423571	SHADES CREEK AT ELDER ST NEAR SPRINGDALE AL
02423586	SHADES CREEK NR HOMEWOOD, ALA
02423647	CAHABA RIVER NEAR WEST BLOCTON AL

5-03. Sediment Stations. APC has made provision for such surveys, if required in the future, by identifying 17 silt ranges in the Weiss Reservoir. These ranges were surveyed on the ground prior to impoundment and were surveyed with an echo sounder immediately after impoundment. These data are intended to be background data for any subsequent surveys when made.

5-04. Recording Hydrologic Data. At Weiss Dam, the plant control system is equipped with one or more programmable logic controllers (PLC). The PLC receives data from various inputs from the dam, then a server located at the APC's corporate headquarters polls the plant PLC for data. Additional data essential to HOMS is collected through HDAS, a combination of over 100 rain, stage, and evaporation gages located in the river basins where APC dams and reservoirs are located. The largest majority of these gages are owned and operated by APC. Where physically practical, APC pulls data from adjacent USGS rain and stage gages to enhance the viability of the overall HDAS. All data collected in the field is transmitted either via APC's dedicated network connections, where available, or the SouthernLINC Wireless radio network. Data are stored on servers located at the APC facilities.

Data collected from the various sources are then rendered into web and desktop applications to monitor operations and activities at the APC hydro facilities. These applications are provided to the Power System Coordinator (PSC) at the Alabama Control Center Hydro Desk (ACC or Hydro Desk) to monitor the operations and activities at hydropower facilities 24 hours per day, seven days per week.

Most reservoir data are transmitted in hourly increments for inclusion in daily log sheets that are retained indefinitely. Gage data are transmitted in increments of 15 minutes, one hour, or other intervals. Reservoir data are examined and recorded in water control models every morning (or other times when needed). Reservoir data are examined and recorded as needed. The data may be used in forecast models.

Automated timed processes also provide provisional real-time data needed for support of real-time operational decisions. Interagency data exchange has been implemented with the USGS and NWS SERFC. A direct link to SERFC is maintained to provide real-time products generated by NWS offices. Information includes weather and flood forecasts and warnings, tropical storm information, Next Generation Weather Radar (NEXRAD) rainfall, graphical

weather maps, and more. Likewise, a direct link to USGS gages in the field allows for direct downloading of USGS data to Corps databases.

5-05. Communication Network. APC communicates with its projects via SouthernLINC Wireless radios and dedicated network connections that interfaces with its Alabama Control Center Hydro Desk located in Birmingham, Alabama. Data are stored on servers located at the APC facilities.

5-06. Communication with Project.

a. Between Regulating Office and Project Office. Direct communication between the APC and Weiss Dam is provided by APC's SouthernLINC network telephone and email. The power plant at Weiss Dam is operated by remote control from the Alabama Control Center Hydro Desk located in Birmingham, Alabama. Personnel are available but not always on duty at the dam.

b. Between Regulating/Project Office and Others. The Water Management Section communicates daily with the NWS and APC Reservoir Management to exchange data and forecasting information. Data exchange is normally accomplished by electronic transmission to the Mobile District server and is supplemented by telephone and facsimile when necessary. The Water Management Section also has a computer link with the NWS's Advanced Weather Interactive Processing System (AWIPS) communication system via the River Forecast Center in Atlanta, Georgia. The Water Management Section uses a telephone auto-answer recorded message to provide daily information to the public. Water resources information for the Weiss Project is available to the public at the Corps' website https://www.sam.usace.army.mil/Missions/Civil-Works/Water-Management/. The site contains real-time information, historical data, and general information. Information for the Weiss Lake is also provided by the APC at https://apcshorelines.com/our-lakes/.

Emergency communication for the Corps and APC personnel during non-duty hours is available at the numbers found on the emergency contact information list located in Exhibit G.

The USGS operates numerous stage and rain gages in the Coosa River basin near Weiss Dam, which are funded by both the Corps and APC. These measurements are reported through the GOES system and are available to both APC and the Corps on the USGS website.

5-07. Project Reporting Instructions. Communications for exchange of data between the Corps Water Management Section and APC Reservoir Management and ACC Hydro Desk will normally be accomplished by electronic transmission to the Corps' WCDS server. The APC provides the Corps with hourly and daily reservoir data for all of their ACT projects. This includes reservoir pool and tailwater elevations, inflows, discharges, and precipitation. APC also provides seven-day discharge forecasts for each project. The hourly data are transmitted and stored in the Corps database once every hour, 24 hours a day. Daily data, including the seven-day forecast for each project, is provided once a day around 0800 hours, and includes both midnight and 0600 hours data for the APC projects.

In addition to automated data, project operators maintain record logs of gate position, water elevation, and other relevant hydrological information including inflow and discharge. This information is stored by the APC and the Corps Water Management Section. Unforeseen or emergency conditions at the project that require unscheduled manipulations of the reservoir should be reported to the Corps Water Management Section as soon as possible.

If the automatic data collection and transfer are not working, operators will, upon request, fax or email daily or hourly project data to the Water Management Section for manual input into the database.

5-08. Warnings. During floods, dangerous flow conditions, or other emergencies, the proper authorities and the public must be informed. In general, flood warnings are coupled with river forecasting. The NWS has the legal responsibility for issuing flood forecast to the public and will have the lead role for disseminating the information. For emergencies involving the Weiss Project, notifications to designated county emergency agency warning points (e.g., local law enforcement, E-911 operations centers, and county emergency management agencies), as well as NWS and the statewide Alabama Emergency Management Agency, will be made in accordance with APC's Emergency Action Plan for Weiss Dam.

6 - HYDROLOGIC FORECASTS

6-01. General. Obtaining forecasts for the operation of the Weiss Dam is the responsibility of the APC. The APC, the NWS, and the Corps exchange data daily to provide quality forecasts on inflows, headwater elevations, tailwater elevations and river stages.

a. Role of USACE. The Corps Water Management Section obtains flow estimates for the APC projects on a daily basis. Sub-daily updates are obtained as necessary. The Water Management Section considers these inflows, local flows, current pool levels, and discharge requirements in scheduling releases from downstream federal projects on the Alabama River. The Water Management Section maintains records of precipitation, river stages, reservoir elevations, and general streamflow conditions throughout the Mobile District, with special emphasis on the areas affecting or affected by reservoir operation. The Water Management Section performs the following duties in connection with the operation of the Weiss project:

1) Maintains liaison with personnel of APC Reservoir Management for the daily exchange of hydrologic data.

2) Maintains records of rainfall and river stages for the Coosa River Basin, and records of pool level, inflow, and outflow at Weiss Dam and other impoundments in the basin.

3) Monitors operation of the power plant and spillway at Weiss Dam for compliance with the regulation schedule for flood risk management operation.

4) Transmits to APC Reservoir Management any instructions for special operations which may be required due to unusual flood conditions. Except in emergencies where time does not permit, these instructions will first be cleared with the Water Management Section.

5) Evaluate special water control deviation requests submitted by APC Reservoir Management and transmit the approval or disapproval of the Division Commander or their delegated representative.

The Water Management Section maintains close liaison with the NWS's River Forecast Center in Peachtree City, Georgia, and their Birmingham, Alabama, offices at all times to receive forecast and other data as needed. A mutual exchange of information increases the forecasting capability of the NWS at NWS river stations which may be affected by operations at Corps projects.

b. Role of APC. The flood risk management regulation schedule that has been adopted is based on current reservoir level and inflows or forecasts of inflow. The APC has developed a computer model of the river system that utilizes rainfall and river gage stations located strategically throughout the basin. The APC is continually evaluating the results, and as experience is gained, improvements will be incorporated into the model.

c. Role of Other Agencies. The NWS is responsible for preparing and publicly disseminating forecasts relating to precipitation, temperatures, and other meteorological elements related to weather and weather-related forecasting in the ACT Basin. For the Coosa River Basin, forecasts are prepared by the NWS's SERFC located in Peachtree City, Georgia, and are issued through their office in Birmingham, Alabama. The Water Management Section uses the NWS as a key source of information for weather forecasts. The meteorological forecasting provided by the NWS is considered critical to the Corps' water resources management mission. The 24- and 48-hour Quantitative Precipitation Forecasts (QPFs) are invaluable in providing

guidance for basin release determinations during normal operations. Using precipitation forecasts and subsequent runoff directly relates to project release decisions.

1) The NWS is the federal agency responsible for preparing and issuing streamflow and river-stage forecasts for public dissemination. The SERFC routinely prepares and distributes five-day streamflow and river-stage forecasts at key gaging stations along the Alabama, Coosa, and Tallapoosa Rivers. Streamflow forecasts are available at additional forecast points during periods above normal rainfall. In addition, SERFC provides a revised regional QPF on the basis of local expertise beyond the NWS Hydrologic Prediction Center QPF. SERFC also provides the Water Management Section with flow forecasts for selected locations on request.

2) The Corps, APC, and SERFC have a cyclical procedure for providing forecast data between agencies. As soon as reservoir release decisions have been planned and scheduled for the proceeding days, the release decision data are sent to SERFC. Taking release decision data, coupled with local inflow forecasts at forecast points along the ACT, SERFC can provide inflow forecasts into Corps and APC projects. Having revised inflow forecasts from SERFC, the Corps and APC have up-to-date forecast data to make the following days' release decisions.

6-02. Flood Condition Forecasts. During flood conditions, quantifiable flow forecasts are prepared based on rainfall that has already fallen. Operational decisions are made on the basis of actual streamflow and/or stage data. Streamflow and/or stage forecasts resulting from rainfall that has already occurred are considered in the planning process of potential future operations including any deviations that may need to be obtained. APC prepares flow and stage forecasts on an as needed basis for internal use and decision support, where applicable. The NWS SERFC produces official forecasts that are made publicly available on their website.

a. Requirements. Accurate flood forecasting requires a knowledge of antecedent conditions, rainfall, and runoff that has occurred, and tables or unit hydrographs to apply the runoff to existing flow conditions. Predictive QPF data are needed for what if scenario.

b. Methods. The Corps provides a link to the NWS website so that the Water Management Section, the affected county emergency management officials, and the public can obtain this vital information in a timely fashion. When hydrologic conditions exist so that all or portions of the ACT Basin are considered to be flooding, existing Corps streamflow and short- and long-range forecasting runoff models are run on a more frequent, as-needed basis. Experience demonstrates that the sooner a significant flood event can be recognized, and the appropriate release of flows scheduled, an improvement in overall flood risk management can be achieved. Stored storm water that has accumulated from significant rainfall events must be evacuated following the event and as downstream conditions permit to provide effective flood risk management. Flood risk management carries the highest priority during significant runoff events that pose a threat to human health and safety. The accumulation and evacuation of storage for the authorized purpose of flood risk management is accomplished in a manner that will prevent, insofar as possible, flows exceeding those which will cause flood damage downstream. During periods of significant basin flooding, the frequency of contacts between the Water Management Section and SERFC staff are increased to allow a complete interchange of available data upon which the most reliable forecasts and subsequent project regulation can be based. Table 6-1 provides SERFC forecast locations in the Alabama River Basin.

Table 6-1 SERFC Forecast Locations for the Alabama River Basin

Daily Stage/Elevation Forecasts				
River/Creek	**Station**	**Station ID**	**Action Stage**	**Flood Stage**
Alabama	Montgomery	MGMA1	26	35
Alabama	R. F. Henry TW	TYLA1	122	122
Alabama	Millers Ferry TW	MRFA1	61	66
Alabama	Claiborne TW	CLBA1	35	42
Daily 24-hour Inflow in 1000 CFS Forecast				
Reservoir		**Station ID**		
R. F. Henry		TYLA1		
Millers Ferry		MRFA1		
Additional Stage Forecasts Only for Significant Rises				
River/Creek	**Station**	**Station ID**	**Action Stage**	**Flood Stage**
Coosa	Weiss Dam	CREA1	564.5	567
Coosa	Gadsden	GAPA1	511	511
Coosa	Logan Martin Dam	CCSA1	465.5	467
Coosa	Childersburg	CHLA1	402	402
Coosa	Wetumpka	WETA1	35	45
Tallapoosa	Wadley	WDLA1	13	13
Tallapoosa	Milstead	MILA1	15	40
Tallapoosa	Tallapoosa Water Plant	MGYA1	15	25
Catoma Creek	Montgomery	CATA1	17	20
Alabama	Selma	SELA1	30	45
Cahaba	Cahaba Heights	CHGA1	14	14
Cahaba	Centreville	CKLA1	23	23
Cahaba	Suttle	SUTA1	28	32
Cahaba	Marion Junction	MNJA1	15	36

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7 - WATER CONTROL PLAN

7-01. General Objectives. The Weiss Project will normally operate to produce peaking power. During periods of low streamflow, hydropower generation will also augment the flow of the river downstream down to the black start level shown in the Weiss WCM Plate 7-1 and Figure 6 of the Drought Contingency Plan. The storage within the range of power-pool drawdown between elevations 564.0 and 561.0, amounting to 82,014 acre-feet (0.52 inch), will be available seasonally for flood risk management. Above the top of power pool and extending to elevation 572.0, there is available for control of floods surcharge storage totaling 301,986 acre-feet (1.42 inches), within which reservoir releases will be scheduled as dictated by an induced surcharge schedule which will achieve significant improvement in downstream flow resulting from high to moderate frequency floods. Reservoir operations during large floods resulting from major storms will require special consideration and may deviate from the induced surcharge schedule when firm forecasts of reservoir inflows and hydrographs of flows into the Coosa River from sub-basins downstream from Weiss Dam show that the flood risk management operation can be improved. Deviations from normal operations are discussed in more detail in Section 7-15.

7-02. Constraints. APC releases water from Weiss project in conjunction with other reservoirs to provide a weekly volume of flow to the Alabama River for navigation.

7-03. Overall Plan for Water Control Management. The water control operations of Weiss Dam are in accordance with the regulation schedule as outlined in the following paragraphs. Any deviation from the prescribed instructions during flood operations, which can occur due to planned or unplanned events as described in Section 7-15, will be at the direction of the Water Management Section Mobile District, Corps after approval by the South Atlantic Division (SAD) Commander or delegated authority in accordance with Section 7-15. Under normal and/or flood operation deviations will follow the process described in Section 7-15; however, the process will be driven by the urgency of conditions. Deviations during normal operations will be coordinated with the APC Reservoir Management. Any departure from the regulation schedule will require approval by the Division Commander or delegated authority which is coordinated by the Water Management Section Chief.

The conservation storage pool at Weiss 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, also known as the top of power 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 conservation pool is regulated between a minimum elevation of 549 feet NGVD29 and a seasonal variable top-of-conservation pool ranging between elevations 561 to 564 feet NGVD29. The Weiss guide curves are shown on Plate 7-1.

7-04. Standing Instructions to Project Operator.

a. Power Operations. Power operations at Weiss are scheduled as outlined in Section 7-10. The seasonally varying top-of-power-pool curve is shown on Plate 7-1.

b. Flood Regulation Schedule. Table 7-1 contains the basic regulation schedule for flood risk management showing required operations and reservoir outflows for the various pool elevations and inflow rates. This schedule, in a modified form which includes detailed operating

instructions, is used by APC operating personnel in carrying out the flood risk management operations. The induced surcharge schedule is shown on Plate 7-2.

Table 7-1 Weiss Flood Regulation Schedule

Rule	Condition	Outflow	Operation
1	Below project guide curve	Ranging up to full discharge capacity of power plant	Operate power plant as required to satisfy normal system requirements.
2	At project guide curve and below elevation 564.0 feet	Ranging up to full discharge capacity of power plant	Releases shall be made through power plant at rates up to continuous operation at plant capacity (3 units at full gate) as required to keep reservoir stage at or below project guide curve, as long as this level is below elevation 564.0 feet.
3	Above project guide curve and below elevation 564.0 feet	Full discharge capacity of power plant	Releases shall be made through power plant operating continuously at plant capacity (3 units at full gate) until reservoir stage: Recedes to project guide curve after which rule 2 applies, or Reaches elevation 564.0 ft, after which rule 4 applies.
4	At elevation 564.0 feet	Ranging up to 40,000 cfs	Maintain reservoir stage at elevation 564.0 feet by passing the inflow up to 40,000 cfs. Releases will be made through the power plant operating continuously at plant capacity (3 units at full gate) supplemented by spillway discharge as required.
5	Rising above elevation 564.0 feet	40,000 cfs unless higher rate is specified by induced surcharge schedule	Maintain total discharge of 40,000 cfs by discharging through the power plant operating continuously at plant capacity (3 units at full gate) supplemented by spillway discharge as required. Continue this operation until: Reservoir stage recedes to elev. 564.0 feet after which rule 4 applies, or, Reservoir stage and rate of inflow are such that higher rate of outflow is required by induced surcharge schedule, in which case rule 6 applies.
6	Rising above elevation 564.0 ft with releases above 40,000 cfs specified by induced surcharge schedule	As specified by induced surcharge schedule	Operate according to induced surcharge schedule, passing the required outflow through the power plant and spillway.
7	Stages downstream of Weiss exceed or are expected to exceed flood stage as a result of local inflows	Reduce up to 50% of surcharge schedule	Temporarily reduce the release prescribed by the plan, provided that the release will not be reduced below 50 percent of the amount required by the surcharge schedule and that the total addition of floodwaters stored in Weiss will not exceed a volume of 22,500 cfs-days.
8	Above elevation 564.0 ft and falling	As specified by induced surcharge schedule	When the reservoir level begins to fall maintain the gate openings in effect at time of peak reservoir stage and continue power plant discharge in effect at that time until reservoir level recedes to elevation 564.0 feet. When pool recedes to elevation 564.0 feet rule 4 applies.

c. Reduce to 50 Percent of Surcharge Schedule. When the stage at Gadsden is rising over the easement of 512 feet MSL (NGVD29) due to a combination of discharges from Weiss and local inflow, the Weiss Rule #7 (Table 7-1) allows for a reduction of up to 50 percent of the surcharge release to minimize impacts downstream of the dam. When the rating curve at Gadsden indicates that a combination of local inflow and surcharge values from Weiss will

cause the stage at Gadsden to rise over elevation 512 feet MSL, surcharge releases can be cut up to 50 percent to provide time for the local inflows to recede. The total volume of the cutback cannot exceed 22,500 cfs-days (44,625 acre-feet) per event. The total cutback volume does not have to be used consecutively but can be implemented as multiple cutback periods during an event. Once this volume has been utilized, the project will return to the normal surcharge release schedule. The cutback volume will be tracked and reported to Mobile Water Management Section during each implementation. This option is suspended at elevation 571 feet.

d. Operating Instructions for Spillway Gates at Dam and Powerhouse. The flood regulation schedule is satisfied by deducting the full gate discharge of the power plant from the scheduled release rate and passing the difference through the spillway. By reference to Plates 2-9 to 2-43 the gate positions required to achieve the desired spillway release for reported headwater and tailwater levels are determined. The use of Plates 2-7 to 2-8 ensures the proper sequence of opening and closing gates and limits the range in opening as between individual gates. Plates 2-44 and 2-45 pertain to the discharge of trash bays. For the trash bay at the powerhouse the headwater elevation applies to the forebay level, rather than reservoir stage.

Plate 2-44 relates discharge through the trash bay at the powerhouse, to gate opening for a forebay stage ranging from elevation 558.0 to elevation 572.0. This structure will operate whenever the power plant is partially or entirely inoperative during flood periods. Also, this trash bay will operate to discharge, insofar as possible, any scheduled flood risk management release in excess of 51,000 cfs. Plate 2-45 is applicable to the trash bay at the spillway. The capacity discharge is shown for a range in headwater level from elevation 558.0 to elevation 573.0.

7-05. Flood Risk Management. Insofar as possible, within the limits of the discharge capacity of the power plant, the reservoir level will be maintained on the guide curve. Whenever the inflow causes the reservoir to rise above the level designated by the guide curve with the power plant operating at full gate capacity, the plant will continue to operate around the clock at full gate capacity until the reservoir recedes to the limiting level designated by the guide curve.

When the reservoir level is at elevation 564.0, all inflow will be passed through the power plant until its discharge capacity is exceeded. Thereafter, the excess will be passed through the spillway with gate positions adjusted at the end of each six-hour period as required to maintain the reservoir at elevation 564.0, until the total release rate (spillway plus powerhouse) reaches 40,000 cfs. Thereafter, as long as the inflow continues to equal or exceed 40,000 cfs, the release rate will be limited to 40,000 cfs until the reservoir rises and/or the inflow increases to a point where a higher release rate is dictated by the induced surcharge curve shown on Plate 7-2. Every six hours thereafter, the release rate will be adjusted to conform to the induced surcharge schedule. At all times when release rates greater than 51,000 cfs are scheduled, the excess must be discharged continually through the gated overflow section adjacent to the powerhouse to the extent of its capacity until the rate of reservoir release reduces to 51,000 cfs. During this time the powerhouse overflow section operates as a control works to improve flow conditions in the river reach between the dam and the powerhouse.

When the rate of reservoir inflow becomes equal to the reservoir release rate, the positions of the spillway gates at that time are maintained during the evacuation of flood storage above elevation 564.0, until the reservoir level recedes to elevation 564.0. In the event a second flood enters the reservoir prior to completion of evacuation to elevation 564.0, the rate of reservoir release will be as dictated by the induced surcharge schedule. When the reservoir level has receded to elevation 564.0, the power plant will continue to operate at capacity around-the-clock until the reservoir coincides with the level shown on the guide curve, after which the power plant

is operated as required to maintain the reservoir on or below the limits shown on the guide curve. Table 7-1 shows a summary of the flood regulation for Weiss Dam as discussed above.

The regulation plan described above and in Table 7-1 will achieve significant improvement in downstream flow conditions resulting from minor to moderate frequency floods. A moderate flood can be expected to occur on average once in two to three years (natural peak flow of 50,000 cfs to 60,000 cfs). A major flood has an annual chance exceedance (ACE) of 10 percent (1/10) of occurring in any given year. During the real-time operation of the project, a major storm event will be characterized by hourly, firm forecasted surcharge release exceeding 40,000 cfs.

Normally flood risk management operations will be in accordance with the regulation plan described above. However, in the event of a major storm over the Coosa River basin, APC and the District Engineer, USACE Mobile District will collaborate in the prompt analysis of all available information and in the formation of special operating procedures appropriate to the circumstances as they relate to the most effective utilization of flood risk management capacities. The collaboration includes, but is not limited to, exchange of forecasted releases of upstream USACE Projects, projected APC pool elevations, inflows and discharges, joint communication with SERFC staff, sharing forecast modeling results, and relevant ground observations.

Any departure from the regulation schedule will require approval by the Division Commander or their delegated authority and is coordinated by the Water Management Section Chief as outlined in Section 7-15. Details of the forecasting procedures, which will be developed by APC with the concurrence of the District Engineer, USACE Mobile District and which will be revised from time to time as experience dictates, are contained in Section 6-02.

7-06. Recreation. The lake at Weiss Dam creates a large recreational area providing opportunities for fishing, boating, and other water sports. Recreational activities are best served by maintaining a full conservation pool. Lake levels above top of conservation pool invade the camping and park sites. When the lake recedes several feet below the top of conservation pool, access to the water and beaches may become limited. Water management personnel are aware of recreational impacts resulting from reservoir fluctuations and attempt to maintain reasonable lake levels, especially during the peak recreational use periods, but there are no specific requirements relative to maintaining recreational levels. Other project functions usually determine releases from the dam and the resulting lake levels.

7-07. Water Quality. Weiss Dam is an integral project in the overall basin development for use of water resources. Water quality within the ACT basin requires a system analysis and response plan. The reservoir developments must be coordinated to ensure compliance with statuary requirements. During late summer, DO levels are often less than 4 mg/L in the deeper portions of the lake, while the upper portions of the water column will have DO levels above 4 mg/L. DO levels in the releases from the dam can result in tailwater DO levels that are at times less than State DO criteria.

a. Aeration System. Aeration at Weiss Dam is provided using a forced air system. Air is delivered from two centrifugal blowers that are installed on the transformer deck at Weiss Dam. Each blower, driven by a 2,250-horsepower electrical motor, can produce airflow up to 24,000 standard cubic feet per minute. Discharge air from the blower passes through a heat exchanger to reduce the compressed air temperature to ambient. Both blowers are connected to a common header at the blower pad, which is routed through the plant and down to the draft tube access level. The header splits into three independently controlled branches. Each branch connects to a peripheral aerating ring that is imbedded in the draft tube wall under the runner.

Air is permitted into the ring through two electrically operated valves. Air from the embedded ring enters the draft tube to mix with turbine discharge through a series of holes in the draft tube wall. The peripheral aerating ring is flush with the draft tube wall so that no protrusions into the draft tube exist.

The aeration system is automatically controlled by the PLC using real-time data from a DO monitor in the tailrace. Set points in the PLC are manually set so that the blowers automatically turn on when the DO drops to the low set point. The blowers run continually until the high set point is reached. The system piping is designed such that each blower can serve either of the three generating units. Only one blower will operate for one-unit generation. A second blower will operate simultaneously with the first blower only if a second or third unit is generating. Blowers are set in lead-lag configuration to equalize their runtimes. The Weiss Dam blowers are in automatic operation from May 1 through September 30.

7-08. Fish and Wildlife. APC implements a variable minimum flow in the bypassed section of the Coosa River from the Weiss Dam spillway during normal (non-flood) operations. APC's flow target of 4,640 cfs (minimum seven-day average from Jordan, Bouldin, and Thurlow Projects), while principally intended to support downstream navigation and water quality needs, also provides sustained flows for fish and wildlife.

7-09. Water Conservation/Water Supply. In its FERC licenses, APC has management responsibilities for project lands and waters, including water withdrawals from its FERC-licensed reservoirs. Consistent with these license responsibilities, APC has developed a water withdrawal policy to manage water withdrawals from its reservoirs. The policy encourages responsible management and resource planning by water withdrawers. A party interested in withdrawing water from APC's reservoirs may do so only after applying for and receiving permission from APC. All water withdrawals from APC reservoirs require APC approval after some level of consultation with certain state and federal agencies. Through the Standard Land Use article in the FERC licenses, APC has the delegated authority from FERC to permit water withdrawals up to 1 million gallons per day (mgd) without prior FERC authorization. Before granting permission for withdrawals in excess of 1 mgd, APC must obtain approval from FERC for the prospective withdrawer's joint use of project lands and waters.

7-10. Hydroelectric Power. The guide curve delineating the storage in Weiss Reservoir allocated to power generation and to flood risk management throughout the year is shown on Plate 7-1. This seasonally varying top-of-power-pool curve is a division between the power and flood risk management pools and normally the reservoir level will be maintained at or below the curve except when storing flood water. The compulsory drawdown each winter is to elevation 561 to allow for higher flows during that time of year.

Normally, the plant will operate on a weekly cycle and the power generated will be available for use in daily peak load periods Monday through Friday. At such times as the reservoir level is below that shown on the guide curve (top-of-power-pool), the power plant will be operated in accordance with this and system requirements. Whenever the reservoir reaches the elevation shown on the guide curve (top-of-power-pool), the power plant will be operated as necessary up to full-gate capacity to discharge the amount of water required to keep the reservoir level from exceeding that shown on the guide curve (top-of-power-pool).

7-11. Navigation. Navigation is an important use of water resources in the ACT Basin. The Alabama River, from Montgomery downstream to the Mobile area, provides a navigation route for commercial barge traffic, serving as a regional economic resource. A minimum flow is required to ensure usable water depths to support navigation. APC releases water from their storage projects in conjunction with other reservoirs to provide a weekly volume of flow to the Alabama River. Congress has authorized continuous navigation on the river when sufficient water is available. The three Corps locks and dams on the Alabama River and a combination of dredging, river training works, and flow augmentation together support navigation depths on the river. The lack of regular dredging and routine maintenance has led to inadequate depths at times in the Alabama River navigation channel.

When supported by maintenance dredging, ACT Basin reservoir storage, and hydrologic conditions, adequate flows will provide a reliable navigation channel. In so doing, the goal of the water control plan is to ensure a predictable minimum navigable channel in the Alabama River for a continuous period that is sufficient for navigation use. Figure 7-1 shows the effect of dredging on flow requirements for different navigation channel depths using 2004–2010 survey data. As shown on Figure 7-1, pre-dredging conditions exist between November and April; dredging occurs between May and August; and post-dredging conditions exist from September through October, until November rainfall causes shoaling to occur somewhere along the navigation channel.

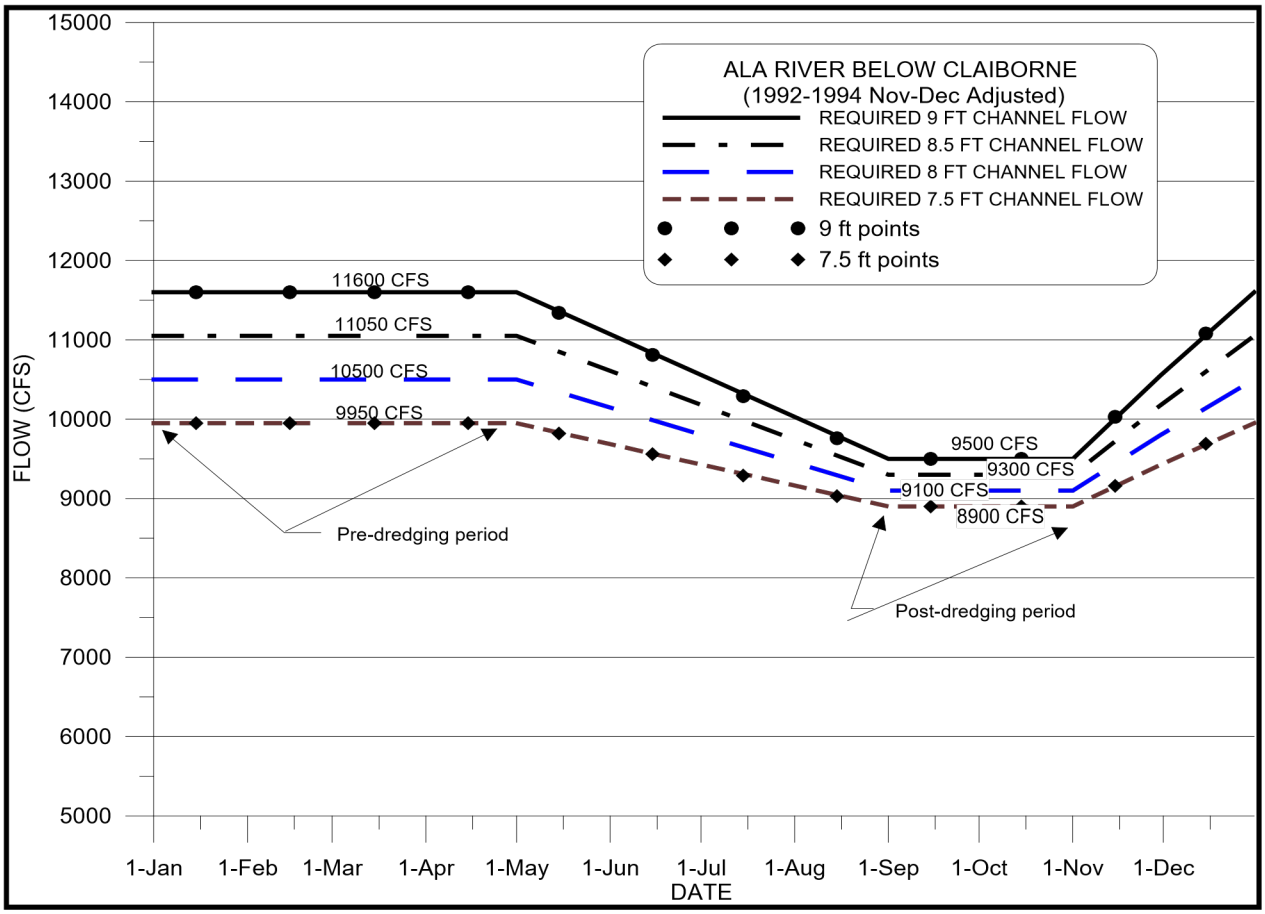

Figure 7-1 Flow-Depth Pattern (Navigation Template) Using 2004–2010 Survey Data

A 9.0-foot-deep by 200-foot-wide navigation channel is authorized on the Alabama River to Montgomery, Alabama. When a 9.0-foot channel cannot be met, a shallower 7.5-foot channel would still allow for light loaded barges moving through the navigation system. A minimum depth of 7.5 feet can provide a limited amount of navigation. Under low flow conditions, even the 7.5-foot depth has not been available at all times.

Flow releases from upstream APC projects have a direct influence on flows needed to support navigation depths on the lower Alabama River. Flows for navigation are most needed in the unregulated part of the lower Alabama River below Claiborne Lock and Dam. When flows are available, R. F. Henry, Millers Ferry, and Claiborne are regulated to maintain stable pool levels, coupled with the necessary channel maintenance dredging, to support sustained use of the authorized navigation channel and to provide the full navigation depth of 9.0 feet. When river conditions or funding available for dredging of the river indicates that project conditions (9.0-foot channel) will probably not be attainable in the low water season, the three Alabama River projects are operated to provide flows for a reduced project channel depth as determined by surveys of the river. APC operates its reservoirs on the Coosa and Tallapoosa Rivers (specifically flows from their Jordan, Bouldin, and Thurlow [JBT] Projects) to provide a minimum navigation flow target in the Alabama River at Montgomery, Alabama. The monthly minimum navigation flow targets are shown in Table 7-2.

Table 7-2 Monthly Navigation Flow Target in CFS

Month	9.0-ft target below Claiborne Lake (from Navigation Template) (cfs)	9.0-ft Jordan, Bouldin, Thurlow goal (cfs)	7.5-ft target below Claiborne Lake (from Navigation Template) (cfs)	7.5-ft Jordan, Bouldin, Thurlow goal (cfs)
January	11,600	9,280	9,950	7,960
February	11,600	9,280	9,950	7,960
March	11,600	9,280	9,950	7,960
April	11,600	9,280	9,950	7,960
Ma	11,340	9,072	9,820	7,856
June	10,810	8,648	9,560	7,648
July	10,290	8,232	9,290	7,432
August	9,760	7,808	9,030	7,224
September	9,500	7,600	8,900	7,120
October	9,500	7,600	8,900	7,120
November	10,030	8,024	9,160	7,328
December	11,080	8,864	9,690	7,752

However, flows may be reduced if conditions warrant. Additional intervening flow or drawdown discharge from the R. F. Henry and Millers Ferry Projects must be used to provide a usable depth for navigation and/or meet the lowest flow over a seven-day period that would occur once in 10 years (7Q10) of 6,600 cfs below Claiborne Dam. However, the limited storage afforded in both the R. E. "Bob" Woodruff and William "Bill" Dannelly Lakes can only help meet the 6,600 cfs level at Claiborne Lake for a short period. As local inflows diminish or storage is exhausted, a lesser amount would be released depending on the volume of local inflows. Table 7-3 and Figure 7-2 show the required basin inflow for a 9.0-foot channel. Table 7-4 and Figure 7-3 show the required basin inflow for a 7.5-foot channel.

During low-flow periods, it is not always possible to provide the authorized 9.0-foot deep by 200-foot-wide channel dimensions. In recent years, funding for dredging has been reduced resulting in higher flows being required to provide the design navigation depth. In addition, recent droughts in 2000 and 2007 had a severe impact on the availability of navigation depths in the Alabama River.

Historically, navigation has been supported by releases from storage in the ACT Basin. Therefore, another critical component in the water control plan for navigation involves using an amount of storage from APC storage projects similar to that which has historically been used, but in a more efficient manner.

Table 7-3 Basin inflow above APC Projects Required to Meet a 9.0-Foot Navigation Channel

Month	APC navigation Target (cfs)	Monthly historic storage usage (cfs)	Required basin inflow (cfs)
January	9,280	–994	10,274
February	9,280	–1,894	11,174
March	9,280	–3,028	12,308
April	9,280	–3,786	13,066
Ma	9,072	–499	9,571
June	8,648	412	8,236
July	8,232	749	7,483
August	7,808	1,441	6,367
September	7,600	1,025	6,575
October	7,600	2,118	5,482
November	8,024	2,263	5,761
December	8,864	1,789	7,075

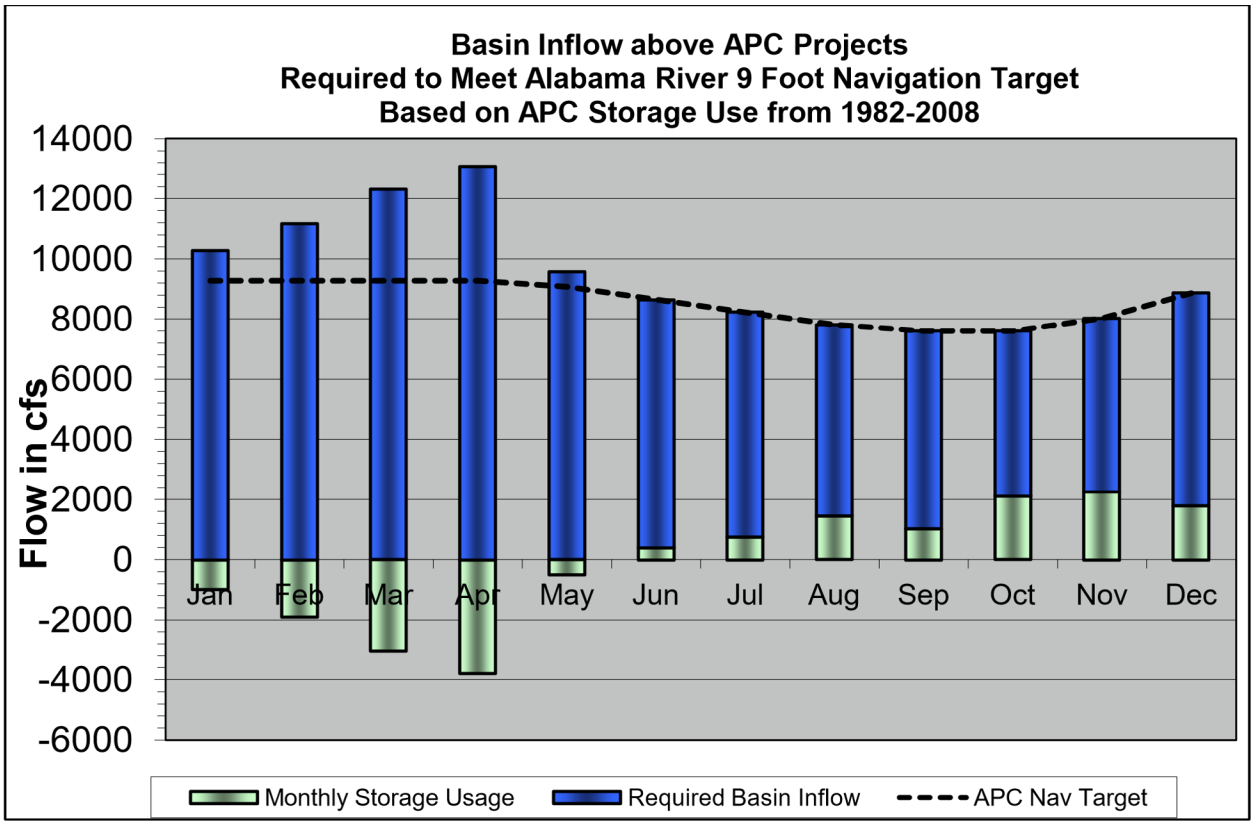

Figure 7-2 Flow Requirements from Rainfall (or Natural Sources) and Reservoir Storage to Achieve the JBT Goal for Navigation Flows for a 9-foot Channel

Table 7-4 Basin inflow above APC Projects required to meet a 7.5-Foot Navigation Channel

Month	APC navigation Target (cfs)	Monthly historic storage usage (cfs)	Required basin inflow (cfs)
January	7,960	–994	8,954
February	7,960	–1,894	9,854
March	7,960	–3,028	10,988
April	7,960	–3,786	11,746
Ma	7,856	–499	8,355
June	7,648	412	7,236
July	7,432	749	6,683
August	7,224	1,441	5,783
September	7,120	1,025	6,095
October	7,120	2,118	5,002
November	7,328	2,263	5,065
December	7,752	1,789	5,963

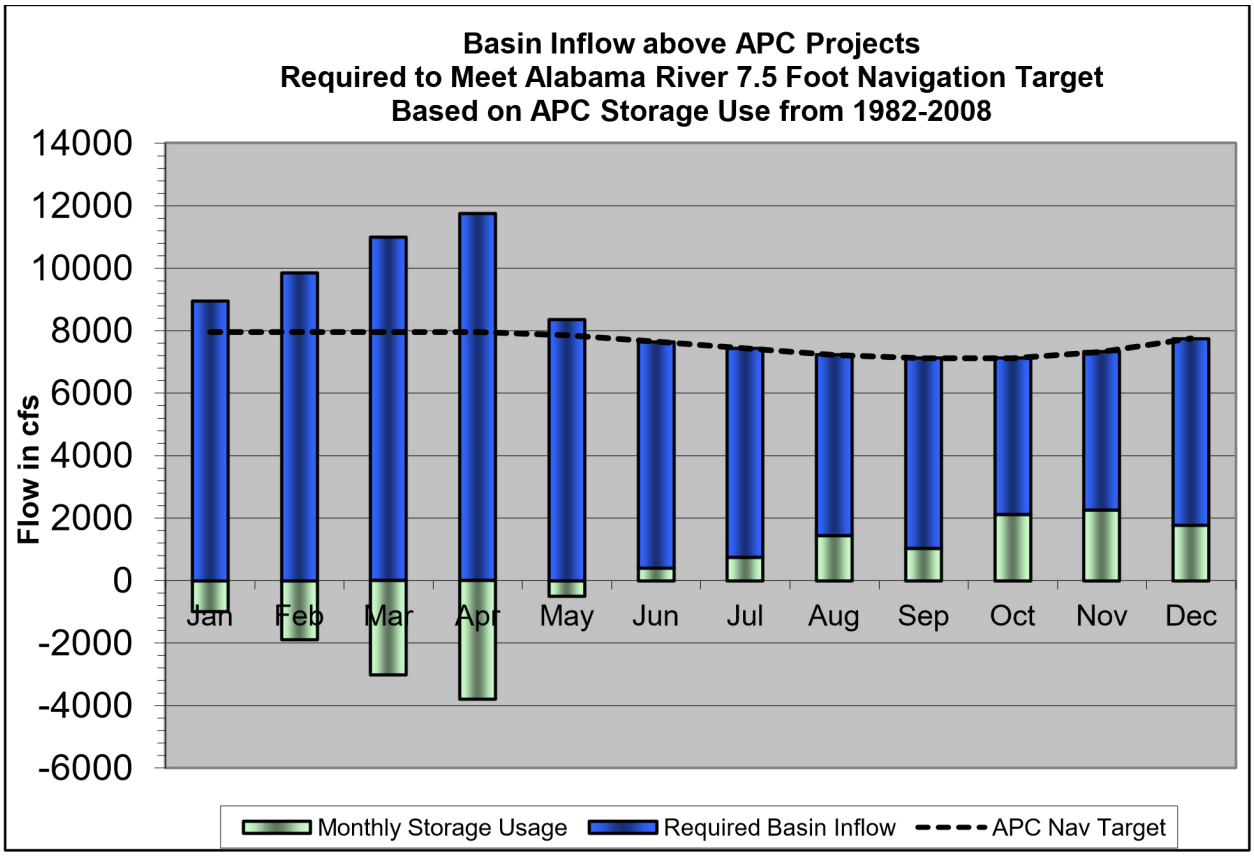

Figure 7-3 Flow Requirements from Rainfall (or Natural Sources) and Reservoir Storage to Achieve the JBT Goal for Navigation Flows for a 7.5-foot Channel

The ACT Basin navigation regulation plan is based on storage and flow/stage/channel depth analyses using basin inflows and average storage usage by APC (e.g., navigation operations would not be predicated on use of additional storage) during normal hydrologic conditions. Under that concept, the Corps and APC make releases that support navigation when basin inflows meet or exceed seasonal targets for either the 9.0-foot or 7.5-foot channel templates. Triggers are also identified (e.g., when basin inflow are less than required natural flows) to change operational goals between the 9.0-foot and 7.5-foot channels. Similarly, basin inflow triggers are identified when releases for navigation are suspended and only 4,640 cfs releases would occur. During drought operations, releases to support navigation are suspended until system recovery occurs as defined in the ACT Basin Drought Contingency Plan found in Exhibit F.

During normal flow periods, no special water control procedures are required for navigation at the R. F. Henry Project other than maintaining the proper pool level. The normal maximum allowable drawdown at elevation 123.0 feet NGVD29 provides a clearance of 13.0 feet over the upper lock sill and should provide minimum depths for a 9-foot navigation channel at Montgomery and up to Bouldin Dam. Navigable depth is normally available downstream of the project if Millers Ferry is within its normal operating level. However, shoaling between Selma and R. F. Henry may result in the need to make water releases to increase the depth over any shoals. This will be accomplished by regular or specially scheduled hydropower releases when possible.

During high flow periods, navigation will be discontinued through the R. F. Henry Lock during flood periods when the headwater reaches elevation 131.0 feet NGVD29. At this elevation the discharge will be 156,000 cfs, which is expected to occur on an average of once every three years and the freeboard will be 1-foot on the guide and lock walls.

In the event that the Mobile District Water Management Section determines upcoming reductions in water releases may impact the available navigation channel depth, they shall contact the Black Warrior/Tombigbee – Alabama/Coosa Project Office, and the Mobile District Navigation Section, to coordinate the impact. The Water Management Section shall provide the Claiborne tailwater gage forecast to the project office and the Navigation Section. Using this forecast and the latest available project channel surveys, the project office and the Navigation Section will evaluate the potential impact to available navigation depths. Should this evaluation determine that the available channel depth is adversely impacted, the project office and the Navigation Section will work together, providing the Water Management Section with their determination of the controlling depth. Thereafter, the project office and the Navigation Section will coordinate the issuance of a navigation bulletin. 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 upstream projects to reduce flows. The bulletin will be posted to the Mobile District Navigation web site at https://www.sam.usace.army.mil/Missions/Civil-Works/Navigation/Navigation-Notices/.

Although special releases will not be standard practice, they could occur for a short duration to assist maintenance dredging and commercial navigation for special shipments if basin hydrologic conditions are adequate. The Corps will evaluate such requests on a case by case basis, subject to applicable laws and regulations and the basin conditions.

7-12. Drought Contingency Plans. An ACT Basin Drought Contingency Plan (DCP) has been developed to implement water control regulation drought management actions. The plan includes operating guidelines for drought conditions and normal conditions. The Weiss Project operates in concert with other APC projects to meet the provisions of the DCP related to flow requirements from the Coosa and Tallapoosa River Basins. APC and the Corps will coordinate water management during drought with other federal agencies, navigation interests, the states, and other interested parties as necessary. The following information provides a summary of the DCP water control actions for the ACT Basin projects. The drought plan is described in detail in Exhibit F Drought Contingency Plan.

The ACT Basin Drought Plan matrix defines monthly minimum flow requirements except where noted for the Coosa, Tallapoosa, and Alabama Rivers as a function of a Drought Intensity Level (DIL) and time of year. Such flow requirements are daily averages. The ACT Basin drought plan is activated when one or more of the following drought triggers is exceeded:

1. Low basin inflow
2. Low state line flow
3. Low composite conservation storage

Drought management actions would become increasingly more austere when two triggers are exceeded (Drought Level 2) or all three are exceeded (Drought Level 3). The combined occurrences of the drought triggers determine the DIL. Table 7-5 lists the three drought operation intensity levels applicable to APC projects.

Table 7-5 ACT Basin Drought Intensity Levels

Drought Intensity Level (DIL)	Drought Level	No. of Triggers Exceeded
-	Normal Regulation	0
DIL 1	Moderate Drought	1
DIL 2	Severe Drought	2
DIL 3	Exceptional Drought	3

Drought management measures for ACT Basin-wide drought regulation consists of three major components:

- Headwater regulation at Allatoona Lake and Carters Lake in Georgia
- Regulation at APC projects on the Coosa and Tallapoosa Rivers
- Regulation at Corps projects downstream of Montgomery on the Alabama River

The headwater regulation component includes water control actions in accordance with established action zones, minimum releases, and hydropower generation releases in accordance with project water control plans. Regulation of APC projects will be in accordance with Table 7-6, ACT Drought Management Plan, in which the drought response will be triggered by one or more of the three indicators – state line flows, basin inflow, or composite conservation storage. Corps operation of its Alabama River projects downstream of Montgomery will respond to drought operations of the APC projects upstream.

Table 7-6 ACT Drought Management Plan

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drought Level Response[a]	DIL 0 - Normal Operations											
	DIL 1: Low Basin Inflows or Low Composite or Low State Line Flow											
	DIL 2: DIL 1 criteria + (Low Basin Inflows or Low Composite or Low State Line Flow)											
	DIL 3: Low Basin Inflows + Low Composite + Low State Line Flow											
Coosa River Flow[b]	Normal Operation: 2,000 cfs			4,000 (8,000)		4,000 – 2,000	Normal Operation: 2,000 cfs					
	Jordan 2,000 +/-cfs			4,000 +/- cfs		6/15 Linear Ramp down	Jordan 2,000 +/-cfs			Jordan 2,000 +/-cfs		
	Jordan 1,600 to 2,000 +/-cfs			2,500 +/- cfs		6/15 Linear Ramp down	Jordan 2,000 +/-cfs			Jordan 1,600 to 2,000 +/-cfs		
	Jordan 1,600 +/-cfs			Jordan 1,600 to 2,000 +/-cfs			Jordan 2,000 +/-cfs			Jordan 1,600 to 2,000 +/-cfs		Jordan 1,600 +/cfs
Tallapoosa River Flow[c]	Normal Operations: 1200 cfs											
	Greater of 1/2 Yates Inflow or 2 x Heflin Gage (Thurlow Lake releases > 350 cfs)					1/2 Yates Inflow				1/2 Yates Inflow		
	Thurlow Lake 350 cfs					1/2 Yates Inflow				Thurlow Lake 350 cfs		
	Maintain 400 cfs at Montgomery WTP (Thurlow Lake release 350 cfs)						Thurlow Lake 350 cfs			Maintain 400 cfs at Montgomery WTP (Thurlow Lake release 350 cfs)		
Alabama River Flow[d]	Normal Operation: Navigation or 4,640 cfs flow											
	4,200 cfs (10% Cut) - Montgomery					4,640 cfs - Montgomery				Reduce: Full – 4,200 cfs		
	3,700 cfs (20% Cut) - Montgomery					4,200 cfs (10% Cut) - Montgomery				Reduce: 4,200 cfs-> 3,700 cfs Montgomery (1 week ramp)		
	2,000 cfs Montgomery				3,700 cfs Montgomery		4,200 cfs (10% Cut) - Montgomery			Reduce: 4,200 cfs -> 2,000 cfs Montgomery (1 month ramp)		
Guide Curve Elevation	Normal Operations: Elevations follow Guide Curves as prescribed in License (Measured in Feet)											
	Corps Deviations: As Needed; FERC Deviation for Lake Martin											
	Corps Deviations: As Needed; FERC Deviation for Lake Martin											
	Corps Deviations: As Needed; FERC Deviation for Lake Martin											

Note these are base flows that will be exceeded when possible.

Jordan flows are based on a continuous +/- 5% of target flow.

Thurlow Lake flows are based on continuous +/- 5% of target flow: flows are reset on noon each Tuesday based on the prior day's daily average at Heflin or Yates.

Alabama River flows are 7-Day Average Flow.

7-13. Flood Emergency Action Plans. APC maintains the Flood Emergency Action Plan for the Weiss Project. The plan was developed and is updated in accordance with FERC guidelines. APC is responsible for notifying the appropriate agencies/organizations in the unlikely event of an emergency at the Weiss Dam. The Flood Emergency Action Plan is updated at least once a year, with a full reprint every five years. Inundation maps, developed by APC and updated as necessary, are also provided in the Weiss Project Flood Emergency Action Plan.

7-14. Other. Other considerations than just serving the authorized project purposes must be served from the basin as needed. 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 investigation.

7-15. Deviation from Normal Regulation. Advance approval by USACE is required prior to any deviation from the plan of regulation prescribed or approved by USACE in the interest of flood control or navigation, except in emergency situations. Requests for deviation from the approved water control plan shall comply with the requirements described in subparagraphs below. Any departure from the regulation schedule will require approval by the Division Commander or delegated authority which is coordinated by the Water Management Section Chief. Prior approval for a deviation is required except as noted in subparagraph a below.

a. Emergencies. Examples of some emergencies that can be expected to occur at a project are drowning and other accidents, failure of the operation facilities, 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 create equal or worse conditions. APC will notify the Mobile District and SAD office as soon as practicable.

b. 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 SAD through the Mobile District Water Management Section by telephone or electronic mail prior to implementation.

c. 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 SAD for review and approval. Components of APC deviation request will include a statement of current and forecasted weather conditions; rainfall or drought status; charts indicating forecast of pool elevations, inflows, and discharge with and without deviation; indication of the benefits or impacts to the downstream reach(es); statement of benefit of deviation; rationale for request; expected duration of the request; conditions of communication/updates; conditions of suspension of request; and contact information to discuss details.

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, the effect of basin regulation on streambank erosion has been reduced by the regulation of the basin because higher peak-runoff flows into the basin are captured and metered out more slowly.

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8 - EFFECT OF WATER CONTROL PLAN

8-01. General. There are 5,270 square miles of drainage area above Weiss Dam. Allatoona Reservoir controls the runoff from 1,122 square miles of this area in the upper Etowah River basin. From Allatoona Dam, the Etowah River flows 48 miles down to Rome, Georgia, where it joins the Oostanaula River to form the Coosa River. Weiss Dam is located about 60 miles downstream from Rome. The 4,148 square miles of drainage area above Weiss Dam not controlled by Allatoona Dam are divided as follows: remainder in Etowah basin, 739 square miles; Oostanaula basin, 2,150 square miles; and Coosa River basin below Rome, 1,259 square miles.

The areas which may be appreciably affected by flood risk management operations include the 52.8-mile reach of the Coosa River flood plain between the Weiss Dam spillway and Gadsden and the City of Gadsden itself. The operation of Weiss Dam will also afford some reduction in flood heights below Gadsden. However, a large portion of the flood plain below Gadsden is within the reservoir areas of H. Neely Henry Dam and Logan Martin Dam. Logan Martin Dam is also operated for flood risk management and its effectiveness will be enhanced by proper coordination of its operation with that of Weiss Dam. Approximately 68 percent of the 7,750-square mile drainage area above Logan Martin Dam is situated above Weiss Dam. Drainage areas at principal points and tributary junctions in the area influenced by the Weiss project are listed in Table 8-1.

The impacts of the ACT Master WCM and its Appendices, including this WCM, were fully evaluated in the FR/SEIS that was published in November 2020. A ROD for the action was signed in August 2021. During the preparation of the FR/SEIS, a review of all direct, secondary and cumulative impacts was made. As detailed in the FR/SEIS, the decision to prepare the WCM and the potential impacts was coordinated with Federal and State agencies, environmental organizations, Native American tribes, and other stakeholder groups and individuals having an interest in the basin. The ROD and FR/SEIS are public documents and references to their accessible locations are available upon request.

8-02. Flood Risk Management. The Weiss Dam project contains 10 percent of the conservation storage in the ACT Basin. The flood regulation plan for Weiss Reservoir will provide substantial reductions in downstream flood peaks during minor and moderate floods. The limited amount of storage allocated to flood risk management will generally not affect any appreciable reduction in major flood peaks, but the available storage will be utilized through an induced surcharge schedule so that the peak discharge for major floods will not be any greater than would have occurred under natural conditions. Since the amount of flood risk management storage varies seasonally, the degree of control that Weiss Dam can exercise on floods of the same magnitude will vary with the time of the year.

A number of floods of different magnitudes were routed through Weiss Reservoir, following the regulation plan discussed in Section 7. The results of those routings showed that floods with natural peak flows of 50,000 cfs to 60,000 cfs can be controlled to a maximum outflow of 40,000 cfs. A flood of this magnitude can be expected to occur on an average of once in two to three years. Reservoir routings made by the APC included a flood designated “Maximum Flood of Record.” This is a synthetic flood with peak discharge equal to that estimated for the flood of April 1886, which is the maximum known in the Coosa River basin. The routing shows the peak reservoir outflow equal to the natural peak discharge of 107,000 cfs, indicating that the allocated flood risk management storage and regulation plan adequately compensate for the effect of valley storage displaced by the reservoir.

Table 8-1 Drainage Areas of Coosa River Basin above Childersburg, Alabama

COOSA RIVER				
River Miles above Mouth	Point on River	Tributary	Drainage Area in square miles	
			Tributary	Coosa
86.29	USGS gage, Childersburg, AL	-	-	8390
99.50	Logan Martin Dam	-	-	7743
148.00	Henry Dam	-	-	6620
174.76	USGS gage, Gadsden, AL	-	-	5800
206.25	Weiss Powerhouse	-	-	5610
220.20	Below junction, Terrapin Creek	Terrapin Creek	289	5571
8.15	(USGS gage at Ellisville, AL)	Terrapin Creek	258	-
225.65	Weiss Dam	-	-	5270
232.98	Below junction, Chattooga River	Chattooga River	675	5208
7.31	(USGS gage above Gaylesville, AL)	Chattooga River	368	-
278.65	Mayo's Bar	-	-	4040
285.78	Confluence Etowah & Oostanaula, Rome, GA	-	-	4010
ETOWAH RIVER				
River Miles above Mouth	Point on River	Drainage Area in square miles		
0.00	Junction, Oostanaula River, Rome, GA	1860		
47.86	Allatoona Dam	1110		
OOSTANAULA RIVER				
River Miles above Mouth	Point on River	Drainage Area in square miles		
0.00	Junction, Etowah River, Rome, GA	2150		
0.35	USGS gage, Rome 5th Ave, GA	2150		
43.16	USGS gage, Resaca, GA	1610		
46.95	Confluence Conasauga & Coosawattee Rivers	1596		
COOSAWATEE RIVER				
River Miles above Mouth	Point on River	Drainage Area in square miles		
0.00	Junction, Conasauga River	859		
24.90	USGS gage, Carters, GA	531		
26.80	Carters Dam	376		

a. Spillway Design Flood. Regulation of the spillway design flood is shown on Plate 8-1. The initial pool for the spillway design flood was assumed to be maximum summer-level power pool, elevation 564.0.

b. Other Floods. Significant floods occurred in March and April of 1944, November and December of 1948, and March and April of 1951. Effects of flood risk management operations for three of these floods are on Plates 8-2 to 8-4.

8-03. Recreation. Weiss Lake is an important recreational resource, providing significant economic and social benefits for the region and the nation. The project contains 30,027 acres of water at the summer power pool elevation of 564.0 feet NGVD29. A wide variety of recreational opportunities are provided at the lake including boating, fishing, camping, picnicking, water skiing, hunting, and sightseeing. The effects of the Weiss water control operations on recreation opportunities are minimal between the summer top of conservation pool elevations of 564 feet NGVD29 and the winter top of conservation level of 561 feet NGVD29.

8-04. Water Quality. One of the water quality requirements in the ACT River basin is maintenance of a minimum flow in the lower river reaches. The natural low flow, seven-day-duration, that has a 10 percent (1/10) chance of occurring in any given year is the focus of regulation for water quality. This flow requirement is measured at Claiborne on the Alabama River.

8-05. Fish and Wildlife. The Coosa River consists of 255 river miles between its beginning at the confluence of the Etowah and Oostanaula Rivers to its confluence with the Tallapoosa River forming the Alabama River. Of these 255 river miles, 238 miles are impounded through a series of six APC dams. These six impoundments have a total of 81,300 acres of water. The Weiss Lake comprises 52 of the 238 lake impounded river miles (22 percent) and 30,027 of the 81,300 acres of water (37 percent) within the Coosa River Basin. There are 147 species of fish, 53 species of freshwater mussels, and 91 species of aquatic snails within the Coosa River Basin.

Operational flow changes affect habitat for reservoir fisheries and other aquatic resources mainly through changes in water levels, changes in reservoir flushing rates (retention times), and associated changes in water quality parameters, such as primary productivity, nutrient loading, DO concentrations, and vertical stratification. Seasonal water level fluctuations can substantially influence littoral (shallow-water) habitats, decreasing woody debris deposition, restricting access to backwaters and wetlands, and limiting seed banks and stable water levels necessary for native aquatic vegetation. Those limitations, in turn, significantly influence the reproductive success of resident fish populations. High water levels inundating shoreline vegetation during spawning periods frequently have been associated with enhanced reproductive success and strong year class development for largemouth bass, spotted bass, bluegill, crappie, and other littoral species. Conversely, low or declining water levels can adversely affect reproductive success by reducing the area of available littoral spawning and rearing habitats.

In reservoirs like Weiss with relatively stable water levels and short hydraulic retention, longer post-winter retention is associated with greater crappie production, possibly related to reduced flushing of young-of-year fish in the discharge from the impoundment and more stable feeding conditions.

8-06. Water Conservation/Water Supply. In its FERC licenses, APC has management responsibilities for project lands and waters including water withdrawals from its FERC-licensed reservoirs. Consistent with these license responsibilities, APC has developed a water withdrawal policy to manage water withdrawals from its reservoirs. The policy encourages responsible management and resource planning by water withdrawers. A party interested in withdrawing water from APC's reservoirs may do so only after applying for and receiving permission from APC. All water withdrawals from APC reservoirs require APC approval after some level of consultation with certain State and Federal Agencies. Through the Standard Land Use article in the FERC licenses, APC has the delegated authority from FERC to permit water withdrawals up to 1 mgd without prior FERC authorization. Before granting permission for withdrawals in excess of 1 mgd, APC must obtain approval from FERC for the prospective withdrawer's joint use of project lands and waters.

8-07. Hydroelectric Power. The Weiss Dam hydropower Project, along with 13 other hydroelectric facilities throughout the State of Alabama, provides approximately 6 percent of the APC's power generation. The State of Alabama depends on these facilities as a source of dependable and stable electricity. Hydroelectric power is also one of the cheaper forms of electrical energy, and it can be generated and supplied quickly as needed in response to changing demand.

Hydropower is typically produced as peak energy at Weiss Dam, i.e., power is generated during the hours that the demand for electrical power is highest, causing significant variations in downstream flows. Daily hydropower releases from the dam vary from zero during off-peak periods to as much as 24,650 cfs, which is approximately turbine capacity. Often, the weekend releases are lower than those during the weekdays. Lake elevations can vary on average about 0.65 feet during a 24-hour period as a result of hydropower releases. Tailwater levels can also vary significantly daily because of peaking hydropower operations at H. Neely Henry Dam, characterized by a rapid rise in downstream water levels immediately after generation is initiated and a rapid fall in stage as generation is ceased. Except during high flow conditions when hydropower may be generated for more extended periods of time, this peaking power generation scenario with daily fluctuating stages downstream is repeated nearly every weekday (not generally on weekends). The project generates an estimated 215,500 megawatt hours of energy annually.

Hydropower generation by the Weiss Dam Hydropower Plant, in combination with the other hydropower power projects in the ACT Basin, helps to provide direct benefits to a large segment of the basin's population in the form of dependable, stable, and relatively low-cost power. Hydropower plays an important role in meeting the electrical power demands of the region.

8-08. Navigation. APC releases water from Weiss Dam Project in conjunction with their other storage projects in the ACT Basin to provide flows to support navigation. The navigation plan provides the flexibility to support flow targets when the system experiences normal flow conditions, reduced support as basin hydrology trends to drier conditions, and suspension of navigation support during sustained low flow conditions.

8-09. Drought Contingency Plans. The importance of DCPs has become increasingly obvious as more demands are placed on the water resources of the basin. During low flow conditions, the reservoirs within the basin may not be able to fully support all project purposes. Several drought periods have occurred since construction of the Weiss Project in 1961. The duration of low flows can be seasonal, or they can last for several years. Some of the more extreme droughts occurred in the early and mid-1980s, and most of the time period between late-1998 to mid-2009. There were periods of high flows during these droughts but the lower than normal rainfall trend continued.

The purpose of drought planning is to minimize the effect of drought, to develop methods for identifying drought conditions, and to develop both long- and short-term measures to be used to respond to and mitigate the effects of drought conditions. During droughts, reservoir regulation techniques are planned to preserve and ensure the more critical needs.

For the Weiss Project, the APC and the Corps will coordinate water management activities during the drought with other private power companies and federal agencies, navigation interests, the states, and other interested state and local parties as necessary. Drought operations will be in accordance with Table 7-6, ACT Drought Management Plan.

8-10. Flood Emergency Action Plans. Normally, all flood risk management operations are directed by APC Reservoir Management following the flood risk management procedures outlined in this manual with data sharing and communication between APC and the Water Management Section of the Corps. If, however, a storm of flood-producing magnitude occurs and all communications are disrupted between APC and the Corps, flood risk management measures, as previously described in Section 7 of this appendix, will begin and/or continue.

An emergency contact information list is shown in Exhibit G.

8-11. Frequencies.

a. Discharge Frequency. The discharge frequency curve at the dam site for the period 1964–2019 is shown on Plate 8-5.

b. Pool Elevation and Discharge Duration. The Annual Pool Elevation Duration curve is shown on Plate 8-6. The Annual Discharge Duration curve is shown on Plate 8-7.

8-12. Other Studies.

a. Examples of Regulation. Pool elevation, inflow, and outflow for the period of record are plotted on Plates 4-2 through 4-12. This demonstrates the actual reservoir regulation activity for the full period of record.

b. Channel and Floodway Improvement.

c. Miscellaneous Studies. APC has studies underway to develop forecasting procedures for reservoir inflow and for flood hydrographs on the Coosa River between Weiss and Gadsden. Once these procedures are developed, studies will be continually in progress to improve them as operating experience is gained. Also, project operations are continually reviewed and analyzed by both the APC and the Mobile District for possible improvements in the regulation plan or operating technique that would result in additional project benefits without violating any authorized project functions.

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9 - WATER CONTROL MANAGEMENT

9-01. Responsibilities and Organization.

a. USACE. It is the responsibility of the Secretary of the Army to prescribe the aforementioned rules and regulations for the proper operation of the Weiss development in the interest of flood risk management and navigation. This responsibility is administered through the District Engineer, USACE Mobile District who will monitor the operation of the Weiss project for compliance with the established rules and regulations. The Hydrology and Hydraulics Section maintains daily records of precipitation, river stages, reservoir elevations, and general stream-flow conditions throughout the Mobile District, with special emphasis on the areas affecting or affected by reservoir operation. This section will perform the following duties in connection with the operation of the Weiss development:

a. Maintain liaison with personnel of Reservoir Management for the daily exchange of hydrologic data.

b. Maintain records of rainfall and river stages for the Coosa River Basin, and records of pool level and outflow at Weiss Dam and other impoundments in the basin.

c. Monitor operations of the power plant and spillway at Weiss Dam for compliance with the regulation schedule for flood risk management operation.

d. Transmit to Reservoir Management any instructions for special operations which may be required due to unusual flood conditions. Except in emergencies where time does not permit, these instructions will first be cleared with the Chief of Engineering Division.

b. Other Federal Agencies. Other federal agencies work closely with APC and the Corps to provide their agency support for the various project purposes of Weiss and to meet the federal requirements for which they might be responsible. The responsibilities and interagency coordination between the Corps and the federal agencies are discussed in Paragraph 9-02.

c. State, County, and Local Agencies. The Alabama Office of Water Resources (OWR) administers programs for river basin management, river assessment, water supply assistance, water conservation, flood mapping, the National Flood Insurance Program, and water resources development. Further, OWR serves as the state liaison with federal agencies on major water resources related projects, conducts any special studies on instream flow needs, and administers environmental education and outreach programs to increase awareness of Alabama's water resources.

1). The Alabama Department of Environmental Management Drinking Water Branch works closely with the more than 700 water systems in Alabama that provide safe drinking water to four million citizens.

2). The Alabama Chapter of the Soil and Water Conservation Society fosters the science and the art of soil, water, and related natural resource management to achieve sustainability.

d. APC. As stated in Public Law 436, 83rd Congress, and in the FPC's license for the construction, operation and maintenance of Project No. 2146, it is the responsibility of the APC to operate and maintain the Weiss development in accordance with such reasonable rules and regulations as may be prescribed by the Secretary of the Army in the interest of flood risk management and navigation. The license further specifies certain terms and conditions to be

met by the licensee in operating and maintaining the project in the interest of navigation. Day to day operation of the plant is assigned to the ACC in Birmingham as part of the Power Delivery System under the direction of Reservoir Operations Coordinator. Long-range water planning and flood risk management operation is assigned to Reservoir Management in Birmingham as part of Southern Company Services (SCS) GEM-Hydro under the direction of System Operations Supervisor.

e. Stakeholders. Many non-federal stakeholder interest groups are active in the ACT Basin. The groups include lake associations, M&I water users, navigation interests, environmental organizations, and other basin-wide interests groups. Coordinating water management activities with the interest groups, state and federal agencies, and others is accomplished as required on an ad-hoc basis and on regularly scheduled water management teleconferences when needed to share information regarding water control regulation actions and gather stakeholder feedback.

9-02. Interagency Coordination.

a. Local Press and USACE Bulletins. The local press includes any periodic publications in or near the Weiss watershed and the ACT Basin. Montgomery, Alabama has some of the largest daily papers. These papers often publish articles related to the rivers and streams. Their representatives have direct contact with the Corps and APC through their respective Public Affairs offices. In addition, the local press and the public can access current project information on the Corps and APC web pages.

b. NWS. NWS is the federal agency in NOAA that is responsible for weather and weather forecasts. The NWS along with its River Forecast Center maintains a network of reporting stations throughout the nation. It continuously provides current weather conditions and forecasts. It prepares river forecasts for many locations including the ACT Basin. Often, it prepares predictions on the basis of what if scenarios. Those include rainfall that is possible but has not occurred. In addition, the NWS provides information on hurricane tracts and other severe weather conditions. It monitors drought conditions and provides the information. Information is available through the Internet, the news, and the Mobile District's direct access.

c. USGS. The USGS is an unbiased, multidisciplinary science organization that focuses on biology, geography, geology, geospatial information, and water. The agency is responsible for the timely, relevant, and impartial study of the landscape, natural resources, and natural hazards. Through the APC-USGS partnership and the Corps-USGS Cooperative Gaging Program, the USGS maintains a comprehensive network of gages in the ACT Basin. The USGS Water Science Centers in Georgia and Alabama publish real-time reservoir levels, river and tributary stages, and flow data through the USGS National Water Information Service (NWIS) website.

d. U.S. Fish and Wildlife Service (USFWS). The USFWS is an agency of the Department of the Interior whose mission is working with others to conserve, protect and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. The USFWS is the responsible agency for the protection of federally listed threatened and endangered species and federally designated critical habitat in accordance with the Endangered Species Act of 1973. The USFWS also coordinates with other federal agencies under the auspices of the Fish and Wildlife Coordination Act. APC and the Corps, Mobile District, with support from the Water Management Section, coordinate water control actions and management with USFWS in accordance with both laws.

9-03. Interagency Agreements. Refer to the Section 9-03. Interagency Agreements and Exhibit C of the Master Water Control Manual of the ACT River Basin for discussion of interagency agreements for the ACT basin projects.

9-04. Commissions, River Authorities, Compacts, and Committees. Refer to Section 9-04. Commissions, River Authorities, Compacts, and Committees of the Master Water Control Manual of the ACT River Basin for discussion of these subjects.

9-05. Non-Federal Hydropower. Refer to Section 9-05. Non-Federal Hydropower of the Master Water Control Manual of the ACT River Basin for discussion of non-federal hydropower in the ACT basin.

9-06. Reports.

a. As early as possible every day (preferably between 4:00 and 6:00 a.m.), and at other times upon request, the Project Operator operating agency shall provide to the CESAM Water Management Section the Operational Data Requirements. Data shall be distributed via automatic electronic transmittal. The operational data may include midnight pool elevation, 24-hour average inflow and discharge, 4-hour (midnight to 4:00 a.m.) inflow and discharge, 4:00 a.m. pool elevation, gross and estimated generation.

b. An After-Action Report will be generated after each flood event. These reports will be archived, utilized to provide narrative for annual flood damage reports and made available upon request to SAD.

c. Automated reports are generated daily/weekly/monthly and made available through the Corps server; ACT Basin Daily Report, ACT 10-day Forecast, River Bulletin, ACT-ACT Report Summary, Lake Level 4-Week Forecast and Average Daily Inflow to Lakes by Month.

d. The District River System Status – Weekly summary of activities on the Mobile District river systems is updated weekly and published to the webpage.

e. The hourly power generation schedule is generated and posted to by 4:00 p.m. Central Time. Available for viewing are tomorrow's schedule, plus the previous 5 days.

f. Any Corps-requested information, such as monthly charts, short-term hydrologic reports, emergency regulation reports, graphical and tabular summaries, and flood situation reports, shall be provided in a timely manner.

9-07. Framework for Water Management Changes. Special interest groups often request modifications of the basin water control plan or project specific water control plan. The Weiss Project and other ACT Basin projects were constructed to meet specific, authorized purposes, and major changes in the water control plans would require modifying, either the project itself or the purposes for which the projects were built. However, continued increases in the use of water resources demand constant monitoring and evaluating reservoir regulations and reservoir systems to ensure their most efficient use. Within the constraints of Congressional authorizations and engineering regulations, the water control plan and operating techniques are often reviewed to see if improvements are possible without violating authorized project functions. When deemed appropriate, temporary deviations to the water control plan approved by SAD can be implemented to provide the most efficient regulation while balancing the multiple purposes of the ACT Basin-wide System.

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EXHIBIT A

SUPPLEMENTARY PERTINENT DATA

GENERAL INFORMATION

FERC License Number	2146
License Issued	September 4, 1957
License Expiration Date	July 28, 2007
Licensed Capacity, KW	87,750
Project Location	Near Town of Leesburg; County of Cherokee; Coosa River; 566 river miles above Mobile
Total Area Encompassed by Existing Project Boundary (land and water), acres	81,980.5
Acres of Water within Existing Project Boundary	30,200
Acres of Mainland within Existing Project Boundary	51,780.5
Weiss Dam Drainage Basin, square miles	5,270
Length of River from Weiss Dam to Allatoona Dam, miles	108
Length of River from Weiss Dam to H. Neely Henry Dam, miles	78

DAM

Date of Construction	July 31, 1958
In-service Date	June 5, 1961
Construction Type	Gravity concrete and earth-fill
Elevation Top of Abutments, NGVD29	590
Gross Head at Normal Pool Elevation (564 NGVD29), feet	56
Spillway Elevation (to top of 16-ft gate), NGVD29	572
Spillway Elevation (to top of 40-ft gates), NGVD29	570
Total Length of Water Retaining Structures, feet	31,679

DAM (cont'd)

Length of Earth Dikes	
East diversion earth embankment, feet	Approx. 5,280
West diversion earth embankment, feet	7,128
East powerhouse earth embankment, feet	9,504
West powerhouse earth embankment, feet	8,976
Saddle dike "A", feet	3,700
Saddle dike "B", feet	2,500
Saddle dike "C", feet	3,300
Length of Powerhouse (substructure), feet	256
Length of concrete spillway, feet	275
Length of Spillway (gated), feet	216
Spillway Gates	7 total
Gates, Width by Height, feet	5 - 40 x 38
Trash gates	2 total
Trash gate at Spillway, Width by Height, feet	1 - 16 x 22
Trash gate at Powerhouse, Width by Height, feet	1 - 16 x 22
Hazard Classification	High
Spillway Capacity at 585.5 ft NGVD29, cfs	296,800
At dam site, cfs	284,000
At powerhouse, cfs	12,800

RESERVOIR - WEISS LAKE

Length of Impoundment, mile	52
Pool Elevations: Normal, feet NGVD29	564
Gross Storage:	
Normal Pool @ Elevation 564 ft, acre-feet	306,655
Minimum Pool @ Elevation 549 ft, acre-feet	43,238
Usable Storage Capacity (between 564 and 549 NGVD29), acre-feet	263,417
Surface Area (at 564 NGVD29), acres	30,027
Miles Shoreline (including tributaries) at 564 NGVD29	447
Water Residence Time, days	18
Existing Classification	PWS/F/S

POWERHOUSE

Length (Superstructure), feet	256
Width (Superstructure), feet	67
Height, feet	58
Construction Type (Superstructure)	Reinforced Concrete Gravity
Draft Tube Invert Elevation, feet NGVD29	461.1
Operating Floor Elevation, feet NGVD29	560.0
Normal Tailwater Elevation, feet NGVD29	between 508 & 518
High Tailwater Elevation, feet NGVD29 (three units generating)	519.7
Discharge Capacity, cfs	26,128
Intake Invert Elevation, feet NGVD29	554
Outdoor Gantry Crane Capacity, tons	150

TURBINES (3)

Rated Net Head (Gross Static), feet	49
Manufacturer	Allis Chalmers
Type	Propeller
Rated Discharge Capacity: Maximum, cfs	8,600 each
Speed, rpm	90
Rated Output at 49 ft head, hp	39,100 each

GENERATORS (3)

Manufacturer	Westinghouse
Nameplate Rating, KW	29,250 each
Rated Output, kVA	32,500
Power Factor	0.9
Voltage, volts	11,500
Number of Phases	3
Frequency	60 cycle
Estimated average annual generation, kilowatt hour (kW-h)	215,500,000

TRANSFORMERS

Transmission Voltage	
Low side, volts	11,500
High side, volts	115,000
Rating, kilovolt amp	105,000

FLOOD FLOWS – WEISS DAM

Probable Maximum Flood	
Inflow, cfs	496,500
Outflow. cfs	315,000
Maximum Elevation, feet NGVD29	586.8
Top of Embankment and Spillway, feet NGVD29	590.0

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EXHIBIT B

UNIT CONVERSIONS

AREA CONVERSION

UNIT	m^2	km^2	Ha	in^2	ft^2	yd^2	mi^2	ac
1 m^2	1	10^{-6}	10^{-4}	1550	10.76	1.196	3.86×10^{-7}	2.47×10^{-4}
1 km^2	10^6	1	100	1.55×10^9	1.076×10^7	1.196×10^6	0.3861	247.1
1 ha	10^4	0.01	1	1.55×10^7	1.076×10^7	1.196×10^4	3.86×10^{-3}	2,471
1 in^2	6.45×10^{-4}	6.45×10^{10}	6.45×10^{-8}	1	6.94×10^{-3}	7.7×10^{-4}	2.49×10^{-10}	1.57×10^7
1 ft^2	.0929	9.29×10^{-8}	9.29×10^{-6}	144	1	0.111	3.59×10^{-8}	2.3×10^{-5}
1 yd^2	0.8361	8.36×10^{-7}	8.36×10^{-5}	1296	9	1	3.23×10^{-7}	2.07×10^{-4}
1 mi^2	2.59×10^6	2.59	259	4.01×10^9	2.79×10^7	3.098×10^6	1	640
1 ac	4047	0.004047	0.4047	6.27×10^6	43560	4840	1.56×10^{-3}	1

LENGTH CONVERSION

UNIT	cm	M	km	in.	ft	yd	mi
cm	1	0.01	0.0001	0.3937	0.0328	0.0109	6.21×10^{-6}
m	100	1	0.001	39.37	3.281	1.094	6.21×10^{-4}
km	10^5	1000	1	39,370	3281	1093.6	0.621
in.	2.54	0.0254	2.54×10^{-5}	1	0.0833	0.0278	1.58×10^{-5}
ft	30.48	0.3048	3.05×10^{-4}	12	1	0.33	1.89×10^{-4}
yd	91.44	0.9144	9.14×10^{-4}	36	3	1	5.68×10^{-4}
mi	1.01×10^5	1.61×10^3	1.6093	63,360	5280	1760	1

FLOW CONVERSION

UNIT	m^3/s	m^3/day	l/s	ft^3/s	ft^3/day	ac-ft/day	gal/min	gal/day	mgd
m^3/s	1	86,400	1000	35.31	3.05×10^6	70.05	1.58×10^4	2.28×10^7	22.824
m^3/day	1.16×10^{-5}	1	0.0116	4.09×10^{-4}	35.31	8.1×10^{-4}	0.1835	264.17	2.64×10^{-4}
l/s	0.001	86.4	1	0.0353	3051.2	0.070	15.85	2.28×10^4	2.28×10^{-2}
ft^3/s	0.0283	2446.6	28.32	1	8.64×10^4	1.984	448.8	6.46×10^5	0.646
ft^3/day	3.28×10^{-7}	1233.5	3.28×10^{-4}	1.16×10^{-5}	1	2.3×10^{-5}	5.19×10^{-3}	7.48	7.48×10^{-6}
ac-ft/day	0.0143	5.451	14.276	0.5042	43,560	1	226.28	3.26×10^5	0.3258
gal/min	6.3×10^{-5}	0.00379	0.0631	2.23×10^{-3}	192.5	4.42×10^{-3}	1	1440	1.44×10^{-3}
gal/day	4.3×10^{-8}	3785	4.38×10^{-4}	1.55×10^{-6}	11,337	3.07×10^{-6}	6.94×10^{-4}	1	10^{-6}
mgd	0.0438		43.82	1.55	1.34×10^5	3.07	694	10^6	1

VOLUME CONVERSION

UNIT	liters	m^3	in^3	ft^3	gal	ac-ft	million gal
liters	1	0.001	61.02	0.0353	0.264	8.1×10^{-7}	2.64×10^{-7}
m^3	1000	1	61,023	35.31	264.17	8.1×10^{-4}	2.64×10^{-4}
in^3	1.64×10^{-2}	1.64×10^{-5}	1	5.79×10^{-4}	4.33×10^{-3}	1.218×10^{-8}	4.33×10^{-9}
ft^3	28.317	0.02832	1728	1	7.48	2.296×10^{-5}	7.48×10^{6}
gal	3.785	3.78×10^{-3}	231	0.134	1	3.07×10^{-6}	10^{6}
ac-ft	1.23×10^{6}	1233.5	75.3×10^{6}	43,560	3.26×10^{5}	1	0.3260
million gallons	3.785×10^{6}	3785	2.31×10^{8}	1.34×10^{5}	10^{6}	3.0684	1

COMMON CONVERSIONS

1 million gallons per day (mgd) = 1.55 cfs

1 day-second-ft (dsf) = 1.984 acre-ft = 1 cfs for 24 hours

1 cubic foot per second of water falling 8.81 feet = 1 horsepower

1 cubic foot per second of water falling 11.0 feet at 80% efficiency = 1 horsepower

1 inch of depth over one square mile = 2,323,200 cubic feet

1 inch of depth over one square mile = 0.0737 cubic feet per second for one year

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EXHIBIT C

MEMORANDUM OF UNDERSTANDING

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EXHIBIT D

PUBLIC LAW 436

83RD CONGRESS, 2ND SESSION

EXHIBIT D PUBLIC LAW 436

83RD CONGRESS, 2ND SESSION

Public Law 436 - 83d Congress
Chapter 408 - 2d Session
H. R. 8923

AN ACT

To provide for the development of the Coosa River, Alabama and Georgia

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in connection with the comprehensive program for the development of the water resources of the Alabama-Coosa River and tributaries, authorized by the Rivers and Harbors Act, approved March 2, 1945 (59 Stat. 10), it is hereby declared to be the policy of the Congress, where private interests are considering applying for authority to undertake the development of resources covered by such authorization, that the power from such development shall be considered primarily for the benefit of the people of the section as a whole and shall be sold to assure the widest possible use, particularly by domestic and rural consumers, and at the lowest possible cost.

Sec. 2. The authorization of the comprehensive plan for the Alabama-Coosa River and tributaries, as provided in the Rivers and Harbors Act, approved March 2, 1945, insofar as it provides for the development of the Coosa River for the development of electric power, is hereby suspended to permit the development of the Coosa River, Alabama and Georgia, by a series of dams in accordance with the conditions of a license, if issued, pursuant to the Federal Power Act and in accordance with the provisions and requirements of this Act.

Sec. 3. The series of dams, together with the existing hydroelectric power dams on the Coosa River, shall, in the judgment of the Federal Power Commission, be best adapted to the comprehensive plan for the development of the Coosa River for the use or benefit of interstate commerce, for the improvement and utilization of waterpower development, and for other beneficial public uses, including recreational purposes.

Sec 4. The dams constructed by the licensee shall provide a substantially continuous series of pools and shall include basic provisions for the future economical construction of navigation facilities.

Sec. 5. The license relating to such development shall require the maximum flood control storage which is economically feasible with respect to past floods. of record but in no event shall flood control storage be less than that required to compensate for the effects of valley storage displaced by the proposed reservoirs of the licensee, or less in quantity and effectiveness than the amount of flood control storage which could feasibly be provided by the currently authorized federal multiple purpose project at Howell Mills Shoals constructed to elevation 490, with surcharge storage to elevation 495.

Sec. 6. Before a license is issued, the applicant for the license shall submit a report on the details of its plan of development to the Federal Power Commission.

Sec 7. The Chief of Engineers shall review any plan of development submitted to the Federal Power Commission for the purpose of acquiring a license and shall make recommendations with respect to such plan to such Commission with particular regard to flood control and navigation, and its adaptability to the comprehensive plan for the entire basin development.

Sec. 8. The license may provide for the construction of the series of dams in sequence on the condition that the dam or dams providing the maximum flood control benefits shall be constructed first unless a different order of construction is approved by the Secretary of the Army.

Sec. 9. The operation and maintenance of the dams shall be subject to reasonable rules and regulations of the Secretary of the Army in the interest of flood control and navigation.

Sec. 10. An allocation of cost of flood control provided in addition to that required to compensate for displaced valley storage and of cost of navigation shall be approved by the Federal Power Commission, taking into consideration recommendations of the Chief of Engineers based upon flood control and navigation benefits estimated by the Chief of Engineers.

Sec 11. If the Federal Power Commission shall issue a license under this Act, the Commission shall simultaneously make a full report to the Public Works Committees of the Senate and House of Representatives of the Congress, setting out the major provisions and conditions inserted in such license, and a copy of the Commission's report shall forthwith be submitted to the Chief of Engineers who shall review the same and promptly submit to said committees his views as to whether the major provisions and conditions in such license are adaptable to the comprehensive plan. In the event the Congress by legislative enactment adopts a policy of compensating such licensees for navigation and flood control costs, any such allocated navigation and flood control costs are hereby authorized to be compensated through annual contributions by the United States.

Sec 12. Unless it is beyond the reasonable control of a licensee acting in good faith and exercising due diligence: (1) an application for a preliminary permit under the Federal Power Act relating to the development of the Coosa River shall be prosecuted with reasonable diligence before the Federal Power Commission; (2) an application for a license to construct such dams shall be filed with such Commission within two years after the date of the enactment of this Act; (3) construction of one such dam shall be commenced within a period of one year subsequent to the date of the issuance of a license by such Commission, (4) at least one such dam and its power plant shall be completed and in operation in accordance with the terms of the license within five years from the date of the issuance of such license by such Commission; and (5) the remaining dams included in the license issued by such Commission shall be completed within ten years from the date of the commencement of construction of the first dam, subject to the provisions of Section 13 of the Federal Power Act: "Provided," That if any such conditions are not fulfilled, or if the Commission denies the application for a license, the authorization relating to the Alabama-Coosa River provided for in the Act, approved March 2, 1945, shall have the same status as it would have had if this Act had not been enacted, so far as the uncompleted project works are concerned; in which event the outstanding license may be terminated or revoked and the uncompleted and completed project may be sold or acquired by the United States as provided in Sections 13 and 26 of the Federal Power Act.

Sec. 13. Nothing in this Act shall be deemed to affect in any way the authorization of the development of the Alabama-Coosa River and tributaries other than that portion of the development involving projects on the Coosa River or the authority of the Federal Power Commission to issue a license for the complete development of the Coosa River by States or municipalities under section 7 (a) of the Federal Power Act or to find under section 7 (b) of said Act that the development should be under taken by the United States itself.

Approved June 28, 1954

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EXHIBIT E

EXTRACTS FROM PROJECT LICENSE

EXTRACTS FROM PROJECT LICENSE

FERC Project License for major project No. 2146-111, Issued 20 June 2013, authorizes the continued operation and maintenance by the Alabama Power Company of the H. Neely Henry Project, an existing development on the Coosa River near Gadsden, Alabama. Extracts from the project license especially pertinent to flood risk management, navigation, water use and reservoir regulation concerning the H. Neely Henry Project are quoted below for guidance and reference purposes.

"**Article 8.** The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission and shall make return of such records annually at such time and in such form as the Commission may prescribe."

"**Article 11.** Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United states, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act."

Article 12. The United States specifically retains and safeguards the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and the operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Secretary of the Army may prescribe in the interest of navigation, and as the Commission my prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Secretary of the Army may prescribe in the interest of

navigation, or as the Commission may prescribe for the other purposes hereinbefore mentioned."

Article 13. On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters."

"**Article 15.** The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing."

"Article 16. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license."

"**Article 18.** So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

"Article 19. In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to

take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing."

"Article 21. Material may be dredged or excavated from, or placed as fill in, project lands and/or waters only in the prosecution of work specifically authorized under the license; in the maintenance of the project; or after obtaining Commission approval, as appropriate. Any such material shall be removed and/or deposited in such manner as to reasonably preserve the environmental values of the project and so as not to interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the District Engineer, Department of the Army, in charge of the locality."

"Article 22. Whenever the United States shall desire to construct, complete, or improve navigation facilities in connection with the project, the Licensee shall convey to the United States, free of cost, such of its lands and rights-of-way and such rights of passage through its dams or other structures, and shall permit such control of its pools, as may be required to complete and maintain such navigation facilities."

"Article 23. The operation of any navigation facilities which may be constructed as a part of, or in connection with, any dam or diversion structure constituting a part of the project works shall at all times be controlled by such reasonable rules and regulations in the interest of navigation, including control of the level of the pool caused by such dam or diversion structure, as may be made from time to time by the Secretary of the Army."

"Article 24. The Licensee shall furnish power free of cost to the United States for the operation and maintenance of navigation facilities in the vicinity of the project at the voltage and frequency required by such facilities and at a point adjacent thereto, whether said facilities are constructed by the Licensee or by the United States."

"Article 25. The Licensee shall construct, maintain, and operate at its own expense such lights and other signals for the protection of navigation as may be directed by the Secretary of the Department in which the Coast Guard is operating."

"**Article 28.** The Licensee shall interpose no objection to, and shall in no way prevent, the use by the agency of the United States having jurisdiction over the lands of the United States affected, or by persons or corporations occupying lands of the United States under permit, of water for fire suppression from any stream, conduit, or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license, or the use by said parties of water for sanitary and domestic purposes from any stream, conduit, or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license.

EXHIBIT F

ALABAMA-COOSA-TALLAPOOSA (ACT) RIVER BASIN

DROUGHT CONTINGENCY PLAN

DROUGHT CONTINGENCY PLAN

FOR

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

ALLATOONA DAM AND LAKE

CARTERS DAM AND LAKE

ALABAMA POWER COMPANY COOSA RIVER PROJECTS

ALABAMA POWER COMPANY TALLAPOOSA RIVER PROJECTS

ALABAMA RIVER PROJECTS

US Army Corps of Engineers ®

South Atlantic Division

Mobile District

April 2022

DROUGHT CONTINGENCY PLAN

FOR THE

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

I – INTRODUCTION

1-01. Purpose of Document. The purpose of this Drought Contingency Plan (DCP) is to provide a basic reference for water management decisions and responses to water shortage in the Alabama-Coosa-Tallapoosa (ACT) River Basin induced by climatological droughts. As a water management document, it is limited to those drought concerns relating to water control management actions for Federal U.S. Army Corps of Engineers (Corps) and Alabama Power Company (APC) dams. This DCP does not prescribe all possible actions that might be taken in a drought situation due to the long-term nature of droughts and unique issues that may arise. The primary value of this DCP is in documenting the overall ACT Basin Drought Management Plan for the system of Corps and APC projects; in documenting the data needed to support water management decisions related to drought regulation; and in defining the coordination needed to manage the ACT project's water resources to ensure that they are used in a manner consistent with the needs which develop during a drought. This DCP addresses the water control regulation of the five Corps impoundments and the APC Coosa and Tallapoosa projects (Table 1) in regard to water control regulation during droughts. Details of the drought management plan as it relates to each project and its water control regulation during droughts are provided in the WCM within the respective project appendix to the ACT Basin Master WCM.

II – AUTHORITIES

2-01. Authorities. The following list provides the policies and guidance that are pertinent to the development of drought contingency plans and actions directed therein.

A. ER 1110-2-1941, "Drought Contingency Plans", dated 02 Feb 2018. This regulation provides policy and guidance for the preparation of drought contingency plans as part of the Corps of Engineers' overall water management activities.

B. ER 1110-2-8156, "Preparation of Water Control Manuals", dated 30 Sep 2018. This document provides a guide for preparing water control manuals for individual water resource projects and for overall river basins to include drought contingency plans.

C. ER 1110-2-240, "Water Control Management", dated 30 May 2016. This regulation prescribes the policies and procedures to be followed in water management activities including special regulations to be conducted during droughts. It also sets the responsibility and approval authority in development of water control plans.

D. EM 1110-2-3600, "Management of Water Control Systems", dated 10 Oct 2017. This guidance memorandum requires that the drought management plan be incorporated into the project water control manuals and master water control manuals. It also provides guidance in formulating strategies for project regulation during droughts.

Table 1. Reservoir impoundments within the ACT River Basin

River/Project Name	Owner/State/ Year Initially Completed	Total storage at Full Pool (acre-feet)	Conservation Storage (acre-feet)	Percentage of ACT Basin Conservation Storage (%)
Coosawattee River				
Carters Dam and Lake	Corps/GA/1974	383,565	141,402	5.4
Carters Reregulation Dam	Corps/GA/1974	17,380	16,571	0.6
Etowah River				
Allatoona Dam and Lake	Corps/GA/1949	338,253	270,247	10.3
Hickory Log Creek Dam	CCMWA/Canton/2007	17,702	NA	NA
Coosa River				
Weiss Dam and Lake	APC/AL/1961	306,655	263,417	10.0
H. Neely Henry Dam and Lake	APC/AL/1966	120,853	118,210	4.5
Logan Martin Dam and Lake	APC/AL/1964	273,467	141,897	5.5
Lay Dam and Lake	APC/AL/1914	262,887	92,352	3.5
Mitchell Dam and Lake	APC/AL/1923	170,783	51,577	1.9
Jordan Dam and Lake	APC/AL/1928	236,130	19,057	0.7
Walter Bouldin Dam	APC/AL/1967	236,130	NA	--
Tallapoosa River				
Harris Dam and Lake	APC/AL/1982	425,721	207,318	7.9
Martin Dam and Lake	APC/AL/1926	1,628,303	1,202,340	45.7
Yates Dam and Lake	APC/AL/1928	53,908	6,928	0.3
Thurlow Dam and Lake	APC/AL/1930	17,976	NA	--
Alabama River				
Robert F. Henry Lock and Dam/R.E. “Bob” Woodruff Lake	Corps/AL/1972	247,210	36,450	1.4
Millers Ferry Lock and Dam/ William “Bill” Dannelly Lake	Corps/AL/1969	346,254	46,704	1.8
Claiborne Lock and Dam and Lake	Corps/AL/1969	102,480	NA	--

III – DROUGHT IDENTIFICATION

3-01. Definition. Drought can be defined in different ways - meteorological, hydrological, agricultural, and socioeconomic. In this DCP, the definition of drought used in the *National Study of Water Management During Drought* is used:

> "Droughts are periods of time when natural or managed water systems do not provide enough water to meet established human and environmental uses because of natural shortfalls in precipitation or streamflow."

That definition defines drought in terms of its impact on water control regulation, reservoir levels, and associated conservation storage. Water management actions during droughts are intended to balance the water use and water availability to meet water use needs. Because of hydrologic variability, there cannot be 100 percent reliability that all water demands are met. Droughts occasionally will be declared, and mitigation or emergency actions initiated to lessen the stresses placed on the water resources within a river basin. Those responses are tactical measures to conserve the available water resources (USACE 2009).

3-02. Drought Identification. There is no known method of predicting how severe or when a drought will occur. There are, however, indicators that are useful in determining when conditions are favorable: below normal rainfall; lower than average inflows; and low reservoir levels, especially immediately after the spring season when rainfall and runoff conditions are normally the highest. When conditions indicate that a drought is imminent, the Corps Water Management Section (WMS) and APC will increase the monitoring of the conditions and evaluate the impacts on reservoir projects if drought conditions continue or become worse for 30-, 60-, or 90-day periods. Additionally, WMS and APC will determine if a change in operating criteria would aid in the total regulation of the river system and if so, what changes would provide the maximum benefits from any available water.

Various products are used to detect and monitor the extent and severity of basin drought conditions. One key indicator is the U.S. Drought Monitor available through the U.S. Drought Portal, www.drought.gov. The National Weather Service (NWS) Climate Prediction Center (CPC) also develops short-term (6- to 10-day and 8- to 14-day) and long-term (1-month and 3-month) precipitation and temperature outlooks and a U.S. Seasonal Drought Outlook, which are useful products for monitoring dry conditions. The Palmer Drought Severity Index is also used as a drought reference. The Palmer index assesses total moisture by using temperature and precipitation to compute water supply and demand and soil moisture. It is considered most relevant for non-irrigated cropland and primarily reflects long-term drought. However, the index requires detailed data and cannot reflect an operation of a reservoir system. The Alabama Office of the State Climatologist also produces a Lawn and Garden Moisture Index for Alabama, Florida, Georgia, and South Carolina, which gives a basin-wide ability to determine the extent and severity of drought conditions. The runoff forecasts developed for both short- and long-range periods reflect drought conditions when appropriate. There is also a heavy reliance on the latest El Niño Southern Oscillation (ENSO) forecast modeling to represent the potential effects of La Niña on drought conditions and spring inflows. Long-range models are used with greater frequency during drought conditions to forecast potential effects on reservoir elevations, ability to meet minimum flows, and water supply availability. A long-term, numerical model, Extended Streamflow Prediction, developed by the NWS, provides probabilistic forecasts of streamflow and reservoir stages on the basis of climatic conditions, streamflow, and soil moisture. Extended Streamflow Prediction results are used in projecting possible future drought conditions. Other parameters and models can indicate a lack of rainfall and runoff and the degree of severity and continuance of a drought. For example, models using data of previous

droughts or a percent of current to mean monthly flows with several operational schemes have proven helpful in forecasting reservoir levels for water management planning purposes. Other parameters considered during drought management are the ability of the various lakes to meet the demands placed on storage, the probability that lake elevations will return to normal seasonal levels, basin streamflows, basin groundwater table levels, and the total available storage to meet hydropower marketing system demands.

3-03. Historical Droughts. Drought events have occurred in the ACT Basin with varying degrees of severity and duration. Five of the most significant historical basin wide droughts occurred in 1940-1941, 1954-1958, 1984-1989, 1999-2003, and 2006-2009. The 1984 to 1989 drought caused water shortages across the basin in 1986. This resulted in the need for the Corps to make adjustments in the water management practices. Water shortages occurred again from 1999 through 2002 and during 2007 through 2008. The 2006 to 2009 drought was the most devastating recorded in Alabama and western Georgia. Precipitation declines began in December 2005. These shortfalls continued through winter 2006-07 and spring 2007, exhibiting the driest winter and spring in the recorded period of record. The Corps and APC had water levels that were among the lowest recorded since the impoundments were constructed. North Georgia received less than 75 percent of normal precipitation (30-year average). The drought reached peak intensity in 2007, resulting in a D-4 Exceptional Drought Intensity (the worst measured) throughout the summer of 2007.

3-04. Severity. Water shortage problems experienced during droughts are not uniform throughout the ACT River Basin. Even during normal, or average, hydrologic conditions, various portions of the basin experience water supply problems. The severity of the problems is primarily attributed to the pattern of human habitation within the basin; the source of water utilized (surface water vs. ground water); and the characteristics of the water resources available for use. During droughts, these problems can be intensified. A severe drought in the basin develops when a deficiency of rainfall occurs over a long time period and has a typical duration of 18 to 24 months. The number of months of below normal rainfall is more significant in determining the magnitude of a drought in the basin than the severity of the deficiency in specific months. However, the severity of the rainfall deficiency during the normal spring wet season has a significant impact on the ability to refill reservoirs after the fall/winter drawdown period. Another confounding factor which influences droughts in the basin is the variability of rainfall over the basin, both temporarily and spatially.

IV – BASIN AND PROJECT DESCRIPTION

4-01. Basin Description. The headwater streams of the Alabama-Coosa-Tallapoosa (ACT) River Basin rise in the Blue Ridge Mountains of Georgia and Tennessee and flow southwest, combining at Rome, Georgia, to form the Coosa River. The confluence of the Coosa and Tallapoosa Rivers in central Alabama forms the Alabama River near Wetumpka, Alabama. The Alabama River flows through Montgomery and Selma and joins with the Tombigbee River at the mouth of the ACT Basin to form the Mobile River about 45 miles above Mobile, Alabama. The Mobile River flows into Mobile Bay at an estuary of the Gulf of Mexico. The total drainage area of the ACT Basin is approximately 22,739 square miles: 17,254 square miles in Alabama; 5,385 square miles in Georgia; and 100 square miles in Tennessee. A detailed description of the ACT River Basin is provided in the ACT Master Water Control Manual, Chapter 4 – Watershed Characteristics.

4-02. <u>Project Description</u>. The Corps operates five projects in the ACT Basin: Allatoona Dam and Lake on the Etowah River; Carters Dam and Lake and Reregulation Dam on the Coosawattee River; and Robert F. Henry Lock and Dam, Millers Ferry Lock and Dam, and Claiborne Lock and Dam on the Alabama River. Claiborne is a lock and dam without any appreciable water storage behind it. Robert F. Henry and Millers Ferry are operated as run-of-river projects and only very limited pondage is available to support hydropower peaking and other project purposes. APC owns and operates eleven hydropower dams in the ACT Basin: seven dams on the Coosa River and four dams on the Tallapoosa River. Figure 1 depicts the reservoir conservation storage and the percentage of conservation storage of each project in the ACT Basin. Figure 2 shows the project locations within the basin. Figure 3 provides a profile of the basin and each project.

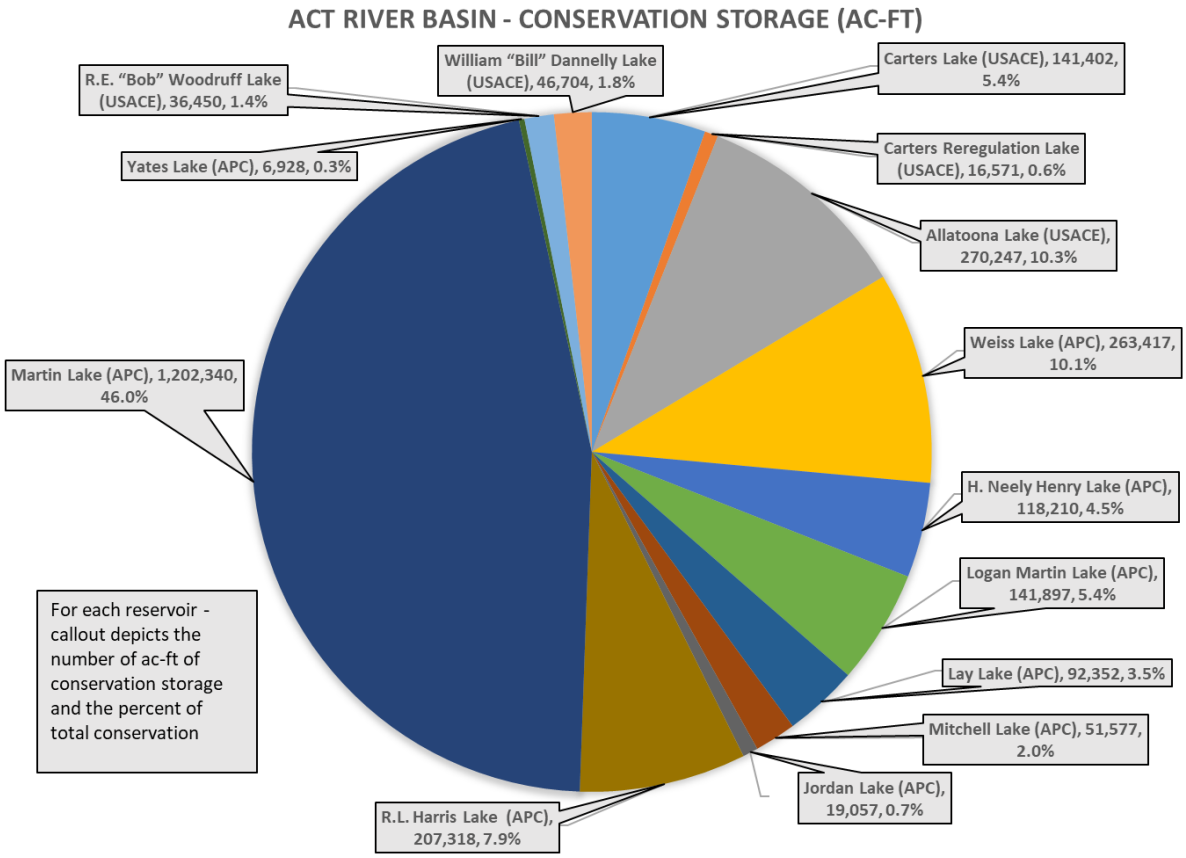

Figure 1. ACT Basin Reservoir Conservation Storage

A. **General.** Of the 16 reservoirs (considering Jordan Dam and Lake and Bouldin Dam as one reservoir and Carters Lake and Carters Reregulation Dam as one reservoir), Lake Martin on the Tallapoosa River has the greatest amount of storage, containing 45.9 percent of the conservation storage in the ACT Basin. Allatoona Lake, R.L. Harris Lake, Weiss Lake, and Carters Lake are the next four largest reservoirs in terms of storage. APC controls approximately 80 percent of the available conservation storage; Corps projects (Robert F. Henry Lock and Dam, Millers Ferry Lock and Dam, Allatoona Lake, and Carters Lake) control approximately 20 percent. The two most upstream Corps reservoirs, Allatoona Lake and Carters Lake, account for 16.3 percent of the total basin conservation storage.

Figure 2. Alabama-Coosa-Tallapoosa River Basin Project Location Map

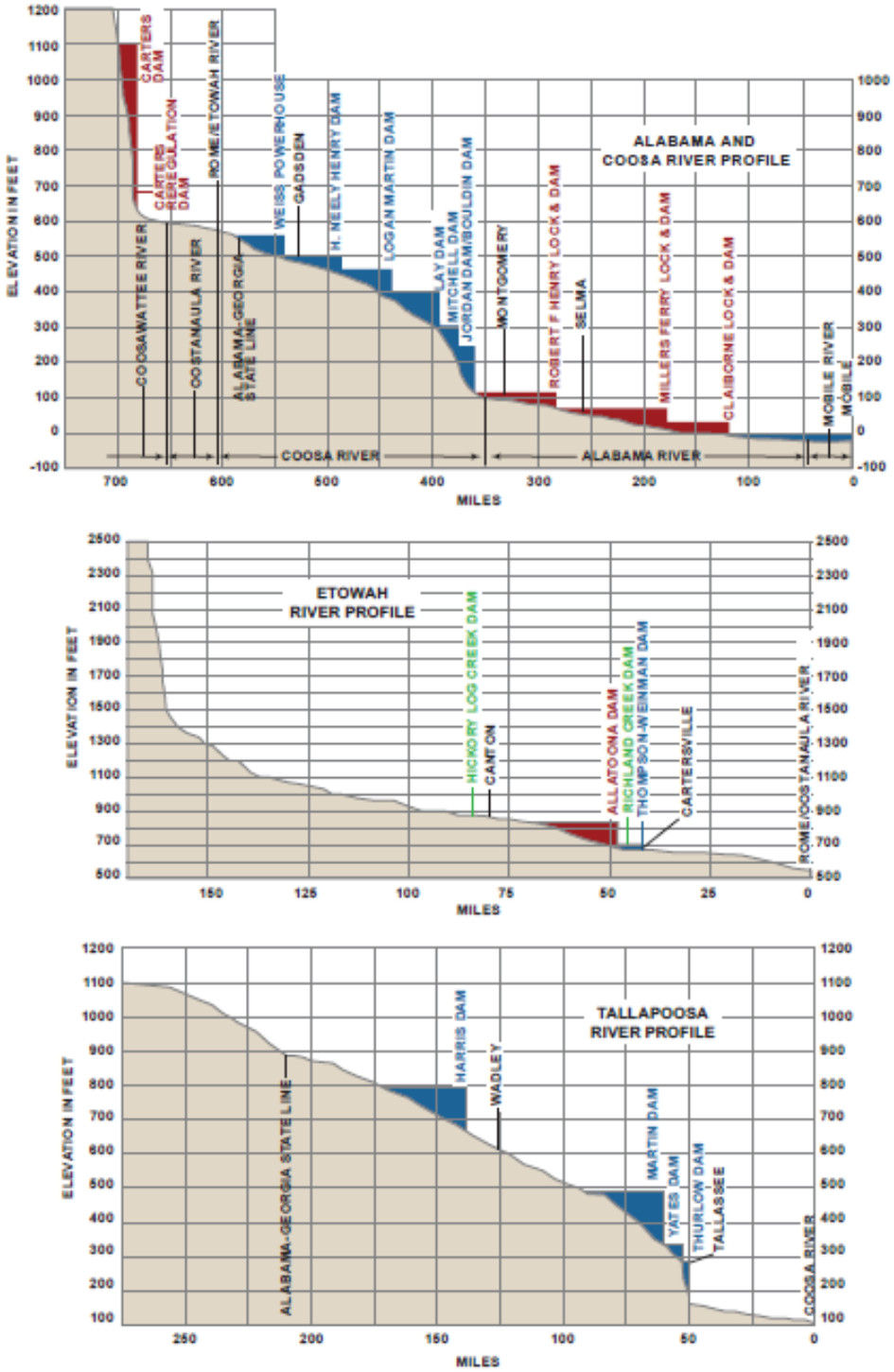

Figure 3. Alabama-Coosa-Tallapoosa River Basin Profile Map

B. **Allatoona Dam and Lake**. The Corps' Allatoona Dam on the Etowah River creates the 11,164 acres Allatoona Lake. The project's authorization, general features, and purposes are described in the Allatoona Dam and Lake Water Control Manual. The Allatoona Lake top of conservation pool is elevation 840 feet NGVD29 during the late spring and summer months (May through August); transitions to elevation 835 feet NGVD29 in the fall (October through mid-November); transitions to a winter drawdown to elevation 823 feet NGVD29 (1-15 January); and refills back to elevation 840 feet NGVD29 during the winter and spring wet season as shown in the water control plan guide curve (Figure 4). However, the lake level may fluctuate significantly from the guide curve over time, dependent primarily upon basin inflows but also influenced by project operations, evaporation, withdrawals, and return flows. A minimum flow of about 240 cfs is continuously released through a small unit, which generates power while providing a constant flow to the Etowah River downstream. Under drier conditions when basin inflows are reduced, project operations are adjusted to conserve storage in Allatoona Lake while continuing to meet project purposes in accordance with four action zones as shown on Figure 4.

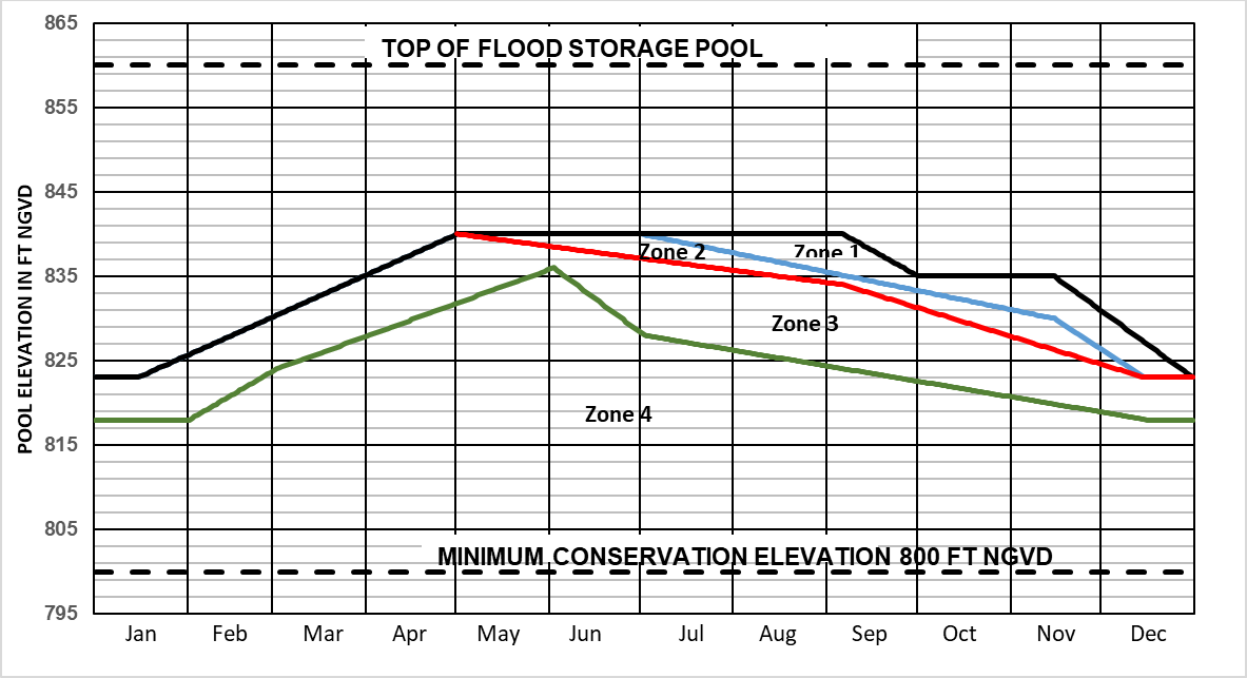

Figure 4. Allatoona Lake Guide Curve and Action Zones

C. **Carters Dam and Lake and Reregulation Dam**. Carters Lake is formed by Carters Dam, a Corps' reservoir on the Coosawattee River in northwest Georgia upstream of Rome, Georgia. The Carters project is a pumped-storage peaking facility that utilizes a Reregulation Dam and storage pool in conjunction with the main dam and lake. The project's authorization, general features, and purposes are described in the Carters Dam and Lake and Regulation Dam Water Control Manual. The Carters Lake top of conservation pool is elevation 1,074 feet NGVD29 from 1 May to 1 November; transitioning to elevation 1,072 feet NGVD29 between 1 November and 1 December; remains at elevation 1,072 feet NGVD 29 from 1 December to April; then transitioning back to 1,074 feet NGVD29 between 1 April and 1 May. This is shown in the water control plan guide curve (Figure 5). As expected with a peaking/pumped storage operation, both Carters Lake and the reregulation pool experience frequent elevation changes. Typically, water levels in Carters Lake vary no more than 1 to 2 feet per day. The reregulation pool will routinely fluctuate by several feet (variable) daily as the pool receives peak hydropower

discharges from Carters Lake and serves as the source for pumpback operations into Carters Lake during non-peak hours. The reregulation pool will likely reach both its normal maximum elevation of 696 feet NGVD29 and minimum elevation of 677 feet NGVD29 at least once each week. However, the general trend of the lake level may fluctuate significantly from the guide curve over time, dependent primarily upon basin inflows but also influenced by project operations and evaporation. Carters Regulation Dam provides a seasonal varying minimum release to the Coosawattee River for downstream fish and wildlife conservation. Under drier conditions when basin inflows are reduced, project operations are adjusted to conserve storage in Carters Lake while continuing to meet project purposes in accordance with action zones as shown on Figure 5. In Zone 2, Carters Regulations Dam releases are reduced to 240 cfs.

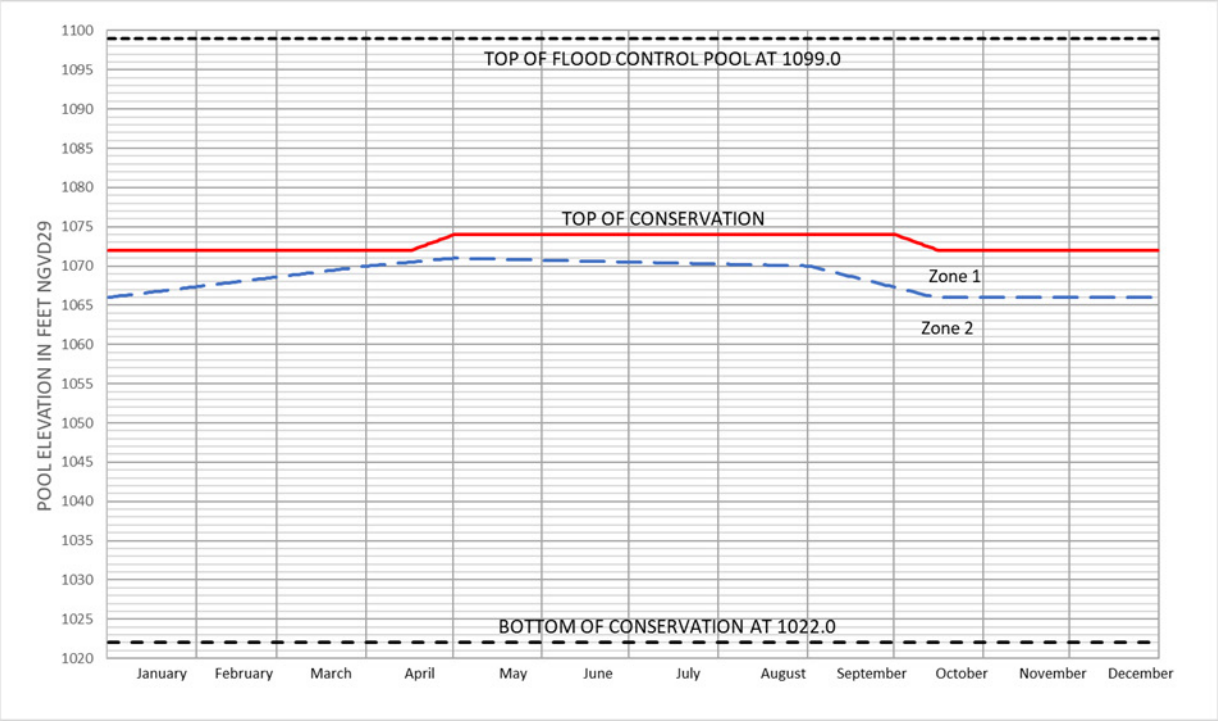

Figure 5. Carters Lake Guide Curve and Action Zones

D. **APC Coosa River Projects**. APC owns and operates the Coosa Hydro system of projects at Weiss Lake, H. Neely Henry Lake, Logan Martin Lake, Lay Lake, Mitchell Lake, and Jordan/Bouldin Dam and Lake on the Coosa River in the ACT Basin. APC Coosa River projects function mainly to generate electricity by hydropower. In addition, the upper three projects (Weiss, H. Neely Henry, and Logan Martin) operate pursuant to Public Law 83-436 regarding the requirement for the projects to be operated for flood risk management and navigation in accordance with reasonable rules and regulations of the Secretary of the Army. The rules and regulations are addressed in a memorandum of understanding between the Corps and APC (Exhibit B of the Master Water Control Manual, Alabama-Coosa-Tallapoosa (ACT) River Basin, Alabama, Georgia), in individual WCMs for the three projects, and in this ACT Basin DCP. The Weiss Lake is on the Coosa River in northeast Alabama, about 80 mi northeast of Birmingham, Alabama, and extends into northwest Georgia for about 13 miles upstream on the Coosa River. The dam impounds a 30,027 acres reservoir (Weiss Lake) at the normal summer elevation of 564 feet NGVD29 as depicted in the regulation guide curve shown in Figure 6 (source APC). The H. Neely Henry Lake is on the Coosa River in northeast Alabama, about 60 miles northeast of Birmingham, Alabama. The dam impounds an 11,200 acres reservoir at the normal summer

elevation of 508 feet NGVD29 as depicted in the regulation guide curve shown in Figure 7 (source APC). The Logan Martin Lake is in northeast Alabama on the Coosa River, about 40 miles east of Birmingham, Alabama. The dam impounds a 15,269-acre reservoir at the normal summer elevation of 465 feet NGVD29 as depicted in the regulation guide curve shown in Figure 8 (source APC). The projects' authorizations, general features, and purposes are described in the Weiss, H. Neely Henry, and Logan Martin Water Control Manual appendices to the ACT Basin Master Water Control Manual.

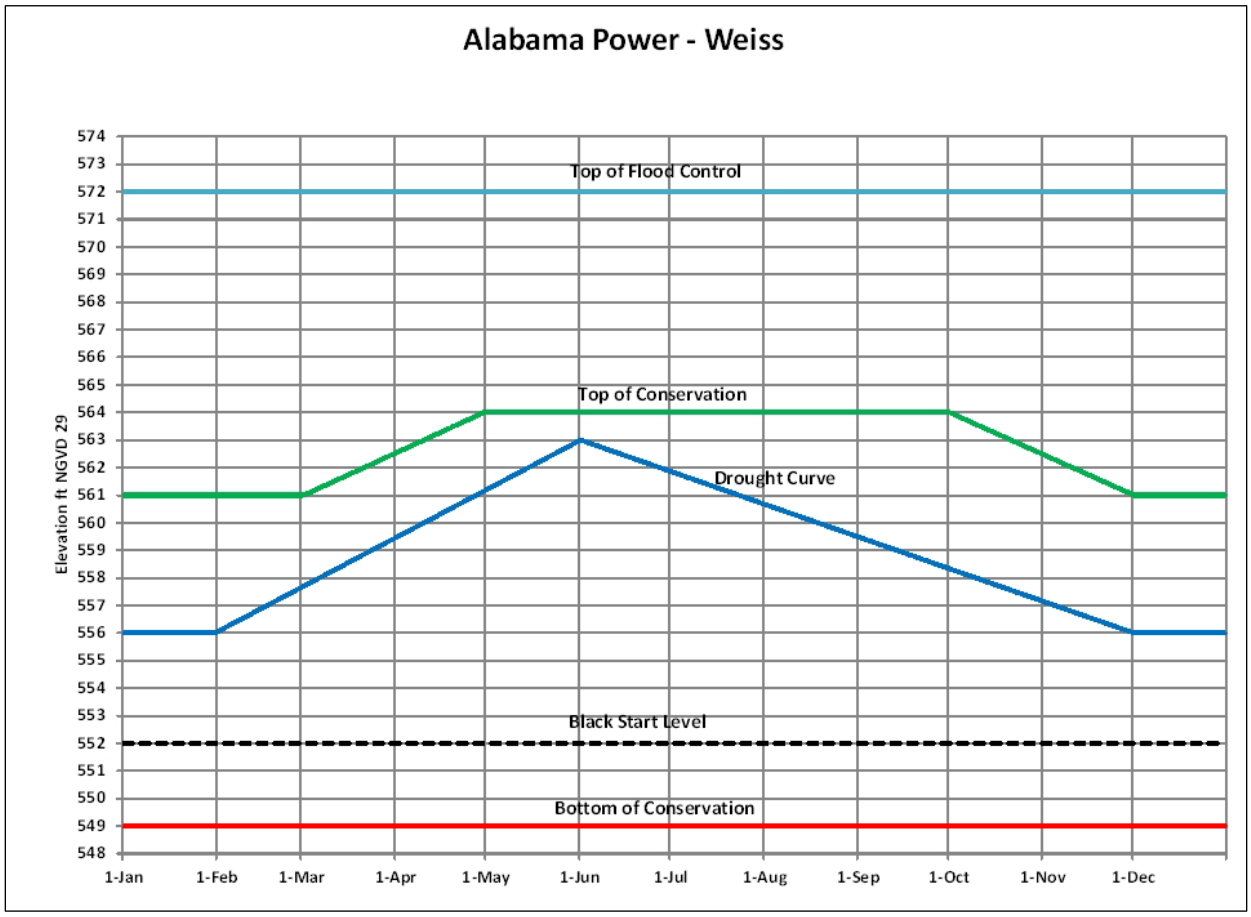

Figure 6. Weiss Lake Guide Curve

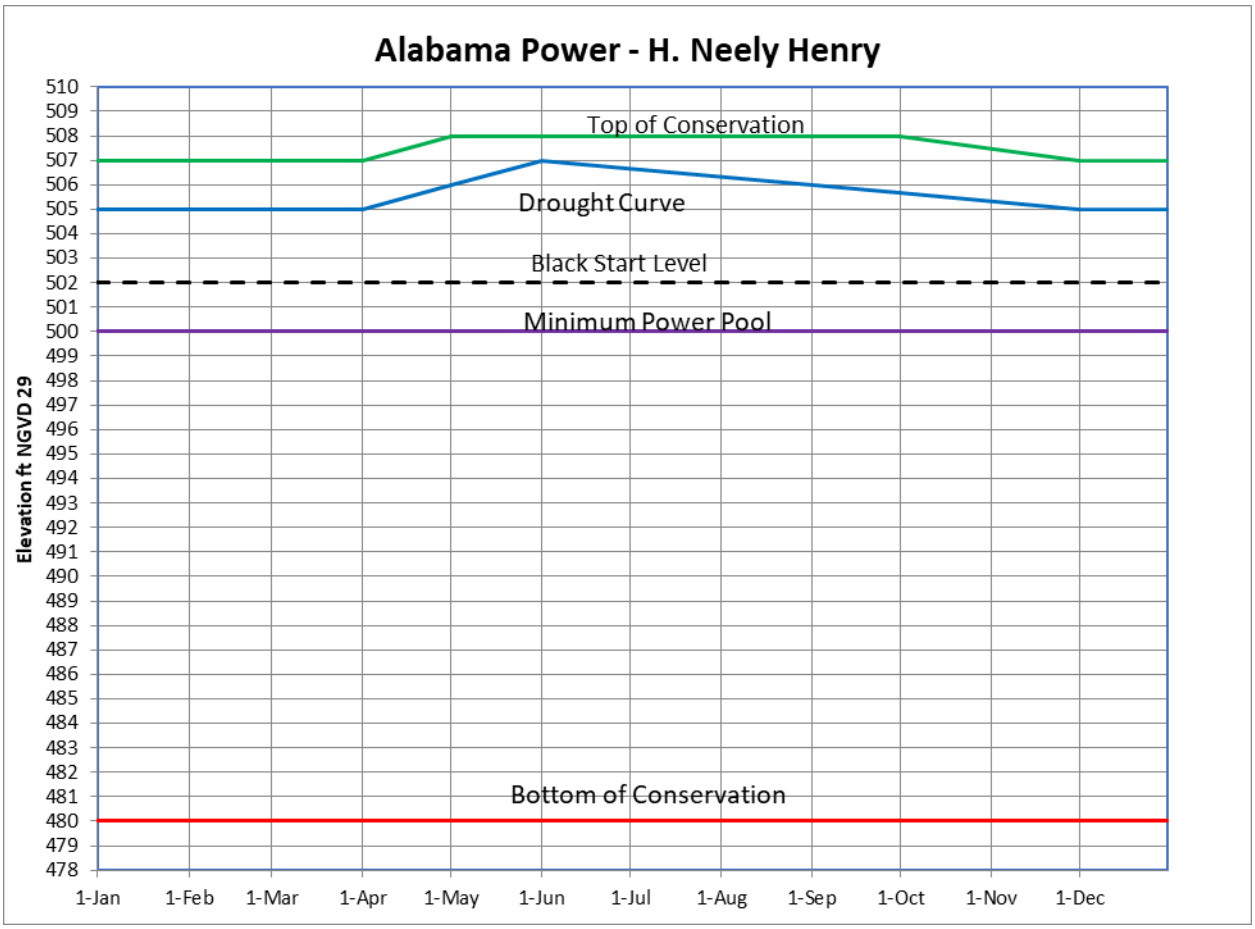

Figure 7. H. Neely Henry Lake Guide Curve

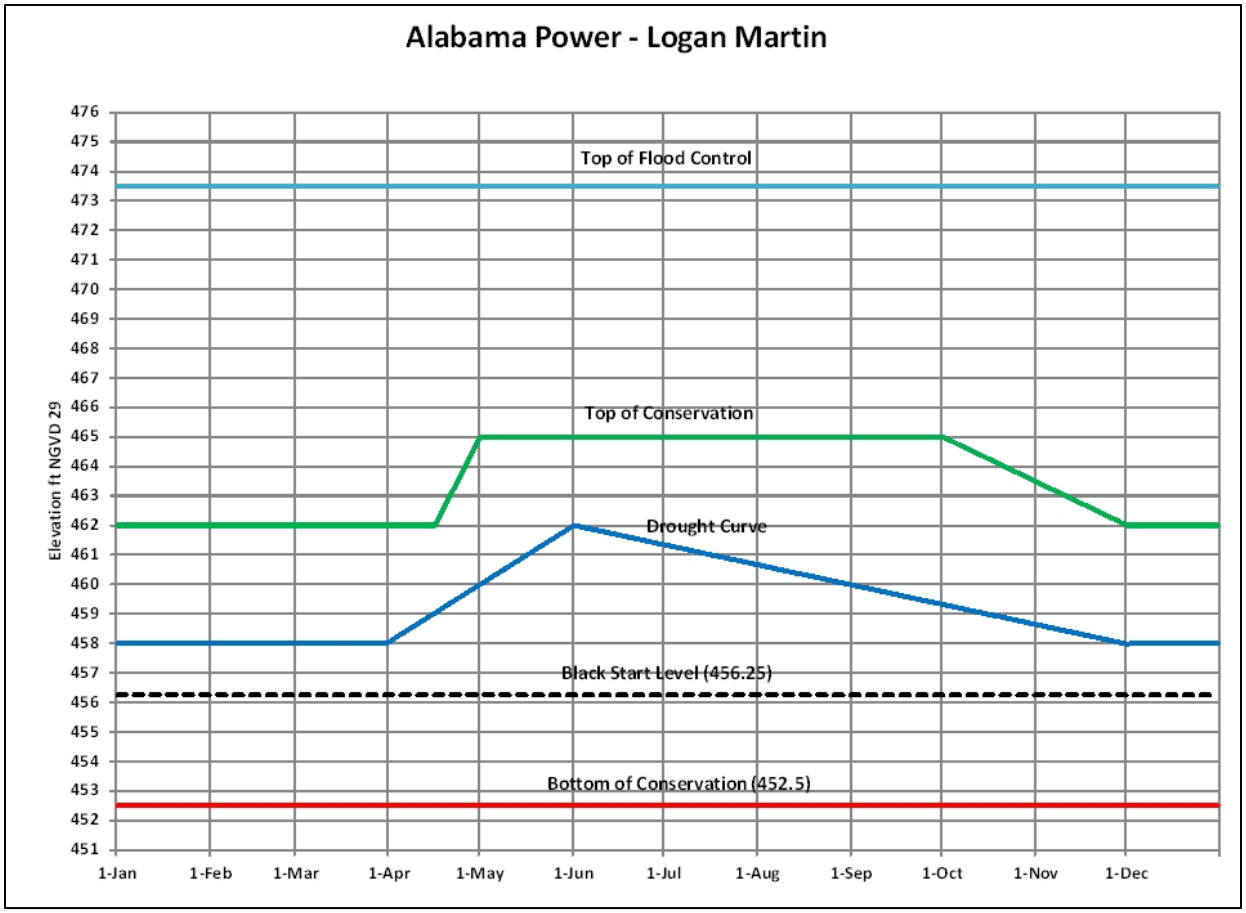

Figure 8. Logan Martin Lake Guide Curve

The downstream Coosa River APC run-of-river hydropower projects (Lay Dam and Lake, Mitchell Dam and Lake, and Jordan/Bouldin Dams and Lake) have no appreciable storage and are operated in conjunction with the upstream Coosa projects to meet downstream flow requirements and targets in support of the ACT Basin Drought Plan and navigation.

E. **APC Tallapoosa River Projects**. APC owns and operates the Tallapoosa River system of projects at Harris Dam and Lake, Martin Dam and Lake, Yates Dam, and Thurlow Dam in the ACT Basin. APC Tallapoosa River projects function mainly to generate electricity by hydropower. In addition, the Robert L. Harris Project operates pursuant to 33 CFR, Chapter II, Part 208, Section 208.65 regarding the requirement for the project to be operated for flood risk management and navigation in accordance with reasonable rules and regulations of the Secretary of the Army. The rules and regulations prescribed are described in a memorandum of understanding between the Corps and APC, individual WCMs for the APC projects, and this DCP.

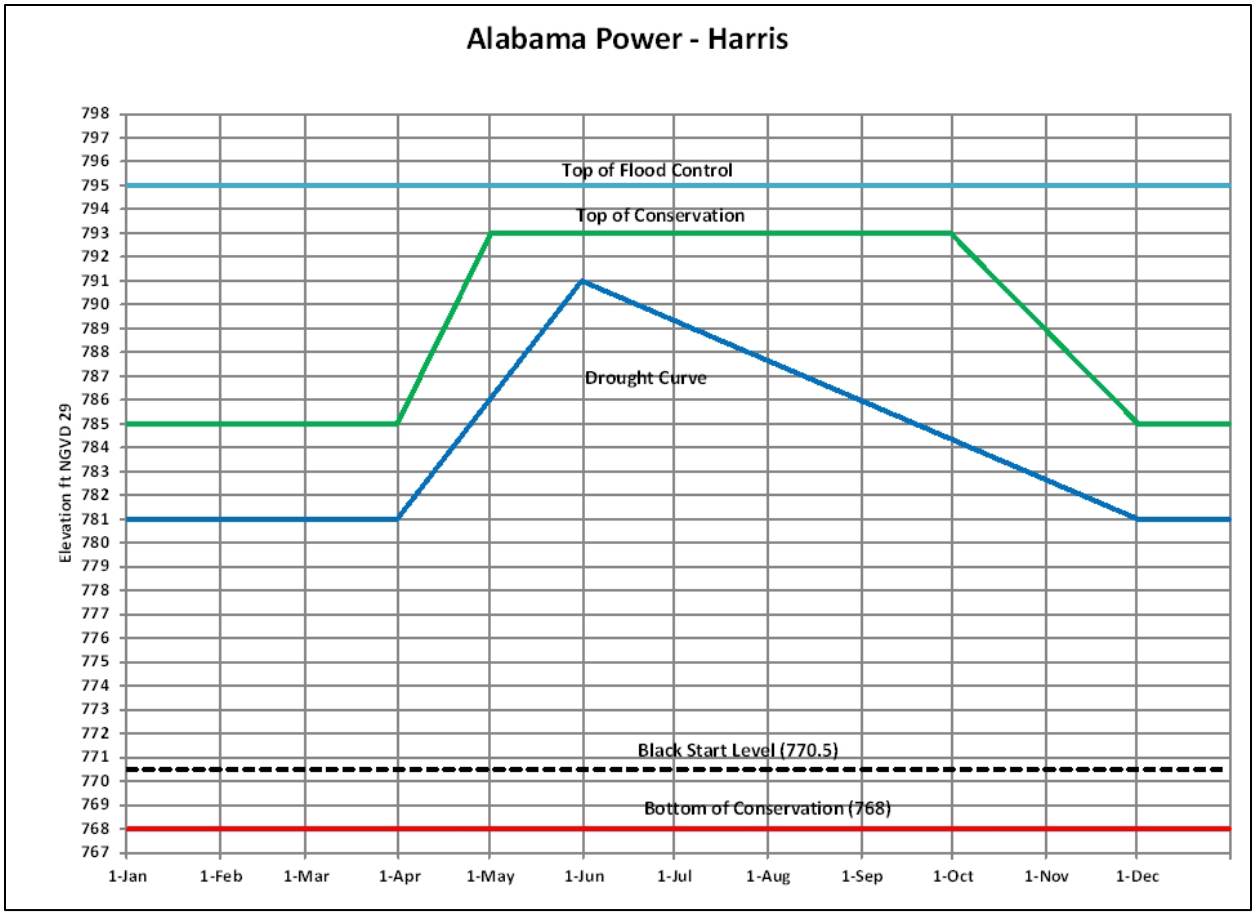

Figure 9. Robert L. Harris Lake Guide Curve

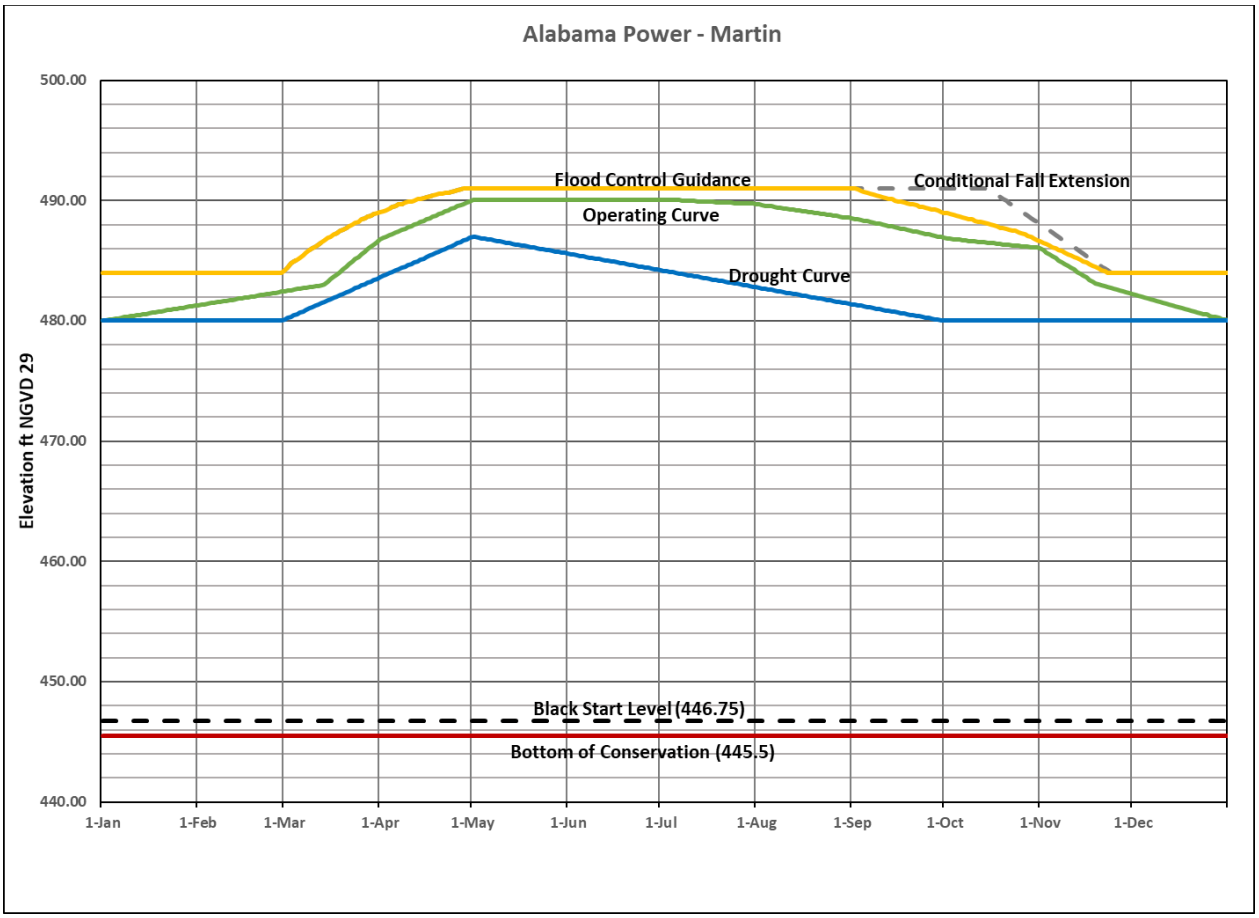

Figure 10. Martin Lake Guide Curve

F. **Corps Alabama River Projects**. The Corps operates three run-of-river lock and dam projects (Robert F. Henry, Millers Ferry, Claiborne) on the Alabama River in the lower ACT Basin to support commercial navigation. Claiborne Lake, together with R.E. "Bob" Woodruff Lake and William "Bill" Dannelly Lake, are collectively referred to as the Alabama River Lakes. The primary location used for communicating the available reliable navigation depth is the Claiborne Lock and Dam tailwater elevation. The water surface elevation is related to the available navigation depth based on the latest hydrographic surveys of the lower Alabama River reach downstream of Claiborne.

(1) Robert F. Henry. The R.E. "Bob" Woodruff Lake is created by the Robert F. Henry Lock and Dam on the Alabama River at river mile 236.3. R.E. "Bob" Woodruff Lake extends from the Robert F. Henry Lock and Dam upstream to the Walter Bouldin Dam. In addition to hydropower and navigation, R.E. "Bob" Woodruff Lake provides recreation and fish and wildlife conservation. R.E. "Bob" Woodruff Lake is 77 miles long and averages 1,300 feet wide. It has a surface area of 12,510 acres and a storage capacity of 234,200 acre-feet at a normal pool elevation of 126 feet NGVD29. Lake levels are typically fairly stable with minimal fluctuation between the operating pool elevation limits, 123 feet NGVD29 to 126 feet NGVD29. The emergency drawdown pool elevation is 122 feet NGVD29. An authorized 9-foot-deep by 200-foot-wide navigation channel exists over the entire length of the lake. The Jones Bluff hydropower plant generating capacity is 82 MW (declared value). The lake is a popular recreation destination, receiving up to two million visitors annually.

(2) Millers Ferry. The William "Bill" Dannelly Lake is created by the Millers Ferry Lock and Dam on the Alabama River at river mile 133. William "Bill" Dannelly Lake is 103 miles long and averages almost 1,400 feet wide. The reservoir has a surface area of 18,528 acres and a storage capacity of 346,254 acre-feet at the upper level of the operating range of the normal full pool elevation of 80.8 feet NGVD29. Lake levels remain fairly stable on a day-to-day basis with minimal fluctuation between the operating pool elevation limits, 79 feet NGVD29 to 80 feet NGVD29. It has an authorized 9-foot-deep by 200-foot-wide navigation channel which extends the entire length of the reservoir. The facility is a multipurpose reservoir constructed by the Corps for both navigation and hydropower. The reservoir also provides recreational benefits and has lands managed for wildlife mitigation. The Millers Ferry hydropower plant generating capacity is 90 MW (declared value). The reservoir provides ample recreation opportunities. Recreation visitors number three million annually.

(3) Claiborne. Claiborne Lake is created by the Claiborne Lock and Dam on the Alabama River at river mile 72.5. The lake is similar to a wide river, averaging about 800 feet wide, with a surface area of 5,930 acres. Claiborne Lake extends 60 miles upstream to the Millers Ferry Lock and Dam. Storage capacity in the lake is 96,360 acre-feet at a normal pool elevation of 35 feet NGVD29. The operating pool elevation limits are between 32 feet NGVD29 and 36 feet NGVD29. The lake has an authorized 9-foot-deep, 200-foot-wide navigation channel extending its entire length. The primary purpose of the Corps project is navigation. No hydropower generating capability exists at the project. The lake also provides recreation benefits and lands managed for wildlife mitigation.

G. As other ACT water management objectives are addressed, lake levels might decline during prime recreation periods. Drought conditions will cause further drawdowns in lake levels. While lake levels will be slightly higher than what would naturally occur if no specific drought actions are taken, reservoir levels will decline thus triggering impacts associated with reaching initial recreation and water access limited levels. Large reservoir drawdowns impact recreational use: access to the water for boaters and swimmers is inhibited; submerged hazards (e.g., trees, shoals, boulders) become exposed or nearly exposed, posing safety issues; and exposed banks and lake bottoms become unsightly and diminish the recreation experience. Consequently, certain levels are identified in each Corps impoundment at which recreation would be affected. The *Initial Impact level* (IIL) represents the level at which recreation impacts are first observed (i.e., some boat launching ramps are unusable, most beaches are unusable or minimally usable, and navigation hazards begin to surface). The *Recreation Impact level* (RIL) defines the level at which major impacts on concessionaires and recreation are observed (more ramps are not usable, all beaches are unusable, boats begin having problems maneuvering in and out of marina basin areas, loss of retail business occurs). The level at which severe impacts are observed in all aspects of recreational activities is called the *Water Access Limited level* (WAL). At this point, all or almost all boat ramps are out of service, all swimming beaches are unusable, major navigation hazards occur, channels to marinas are impassable and/or wet slips must be relocated, and a majority of private boat docks are unusable. The individual project WCMs describe the specific impact levels at each project and provide information regarding the effects of the water control plans on recreation.

V – WATER USES AND USERS

5-01. Water Uses and Users.

A. Uses – The ACT Basin rivers and lakes provide for wastewater dilution, M&I water supply, fish and wildlife propagation, hydropower generation, and recreational boating and fishing.

B. Users – The following tables list the surface water uses and water users within Georgia and Alabama in the ACT Basin.

Table 2. Surface water use: ACT Basin (Georgia 2015)

Water use category	Quantity (mgd)	% of total
Total Use	2,231	100%
Public Supply	839.9	38%
Domestic and Commercial	3.21	0%
Industrial and Mining	286.7	13%
Irrigation	174.4	7%
Livestock	87.9	4%
Thermoelectric Power Generation	839.8	38%

Source: U.S. Department of the Interior, U.S. Geological Survey, Estimated Use of Water in Georgia for 2015 and Water-Use Trends, 1985-2015, Open-File Report 2019-1086.

Table 3. M&I surface water withdrawal permits in the ACT Basin (Georgia)

River basin	Permit holder	Permit number	County	Source water	Permit limit max day (mgd)	Permit limit monthly average (mgd)
Coosa River Basin (Georgia)—upstream counties to downstream counties						
Coosa	Dalton Utilities, Conasauga R	155-1404-01	Whitfield	Conasauga River	49.400	40.300
Coosa	Dalton Utilities, Mill Creek	155-1404-02	Whitfield	Mill Creek	13.200	7.500
Coosa	Dalton Utilities, Coahulla Cr	155-1404-03	Whitfield	Coahulla Creek	6.000	5.000
Coosa	Dalton Utilities, Freeman Springs	155-1404-04	Whitfield	Freeman Springs	2.000	1.500
Coosa	Dalton Utilities - River Road	155-1404-05	Whitfield	Conasauga River	35.000	18.000
Coosa	Chatsworth WW Commission	105-1405-01	Murray	Holly Creek	1.100	1.000
Coosa	Chatsworth WW Commission	105-1405-02	Murray	Eton Springs	1.800	1.800
Coosa	Chatsworth WW Commission	105-1409-01	Murray	Carters Lake	2.550	2.300
Coosa	Chatsworth, City of	105-1493-02	Murray	Coosawattee River	2.200	2.000
Coosa	Ellijay, City of - Ellijay R	061-1407-01	Gilmer	Ellijay River	0.550	0.450
Coosa	Ellijay - Gilmer County W & S Authority	061-1408-01	Gilmer	Cartecay River	4.000	4.000
Coosa	Calhoun, City of	064-1411-03	Gordon	Big Spring	7.000	6.000
Coosa	Calhoun, City of	064-1412-01	Gordon	City Of Calhoun Spring	0.638	0.537
Coosa	Calhoun, City of	064-1492-02	Gordon	Oostanaula River	6.200	3.000
Coosa	Calhoun, City of	064-1493-01	Gordon	Coosawattee River	18.000	16.000

Table 3 (continued). M&I surface water withdrawal permits in the ACT Basin (Georgia)

River basin	Permit holder	Permit number	County	Source water	Permit limit max day (mgd)	Permit limit monthly average (mgd)
Coosa	Jasper, City of	112-1417-02	Pickens	Long Swamp Creek	1.000	1.000
Coosa	Bent Tree Community, Inc.	112-1417-03	Pickens	Chestnut Cove Creek and unnamed creek	0.250	0.230
Coosa	Bent Tree Community, Inc.	112-1417-04	Pickens	Lake Tamarack	0.250	0.230
Coosa	Big Canoe Utilities Company, Inc.	112-1417-05	Pickens	Lake Petit	1.000	1.000
Coosa	Big Canoe Utilities Company, Inc.	112-1417-06	Pickens	Blackwell Creek	2.650	2.650
Coosa	Etowah Water & Sewer Authority	042-1415-01	Dawson	Etowah River	5.500	4.400
Coosa	Cherokee County Water & Sewerage Auth	028-1416-01	Cherokee	Etowah River	43.200	36.000
Coosa	Gold Kist, Inc	028-1491-03	Cherokee	Etowah River	5.000	4.500
Coosa	Canton, City of	028-1491-04	Cherokee	Etowah River	23.000	18.700
Coosa	Canton, City of (Hickory Log Creek)	028-1491-05	Cherokee	Etowah River	39.000	39.000
Coosa	Bartow County Water Department	008-1411-02	Bartow	Bolivar Springs	0.800	0.800
Coosa	Adairsville, City of	008-1412-02	Bartow	Lewis Spring	5.100	4.100
Coosa	New Riverside Ochre Company, Inc.	008-1421-01	Bartow	Etowah River	5.000	5.000
Coosa	New Riverside Ochre Company, Inc.	008-1421-02	Bartow	Etowah River	6.000	6.000
Coosa	Emerson, City of	008-1422-02	Bartow	Moss Springs	0.630	0.500
Coosa	Gerdau AmeriSteel US, Inc. – Cartersville Steel Mill	008-1423-01	Bartow	Pettit Creek	2.000	1.500
Coosa	Baroid Drilling Fluids, Inc.	008-1423-02	Bartow	Etowah River	3.400	2.500
Coosa	Cartersville, City of	008-1423-04	Bartow	Etowah River	26.420	23.000
Coosa	Georgia Power Co. - Plant Bowen	008-1491-01	Bartow	Etowah River	520.000	85.000
Coosa	CCMWA	008-1491-05	Bartow	Allatoona Lake	86.000	78.000
Coosa	Cartersville, City of	008-1491-06	Bartow	Allatoona Lake	21.420	18.000
Coosa	La Fayette, City of Dry Creek	146-1401-01	Walker	Dry Creek	1.000	0.900
Coosa	La Fayette, City of Big Spring	146-1401-02	Walker	Big Spring	1.650	1.310
Coosa	Mount Vernon Mills - Riegel Apparel Div.	027-1401-03	Chattooga	Trion Spring	9.900	6.600
Coosa	Summerville, City of	027-1402-02	Chattooga	Raccoon Creek	3.000	2.500
Coosa	Summerville, City of	027-1402-04	Chattooga	Lowe Spring	0.750	0.500
Coosa	Mohawk Industries, Inc.	027-1402-05	Chattooga	Chattooga R./ Raccoon Cr.	4.500	4.000
Coosa	Oglethorpe Power Corp.	057-1402-03	Floyd	Heath Creek	3,838.000	3,030.000
Coosa	Floyd County - Brighton Plant	057-1414-02	Floyd	Woodward Creek	0.800	0.700
Coosa	Cave Spring, City of	057-1428-06	Floyd	Cave Spring	1.500	1.300
Coosa	Floyd County	057-1428-08	Floyd	Old Mill Spring	4.000	3.500
Coosa	Berry Schools, The (Berry College)	057-1429-01	Floyd	Berry (Possum Trot) Reservoir	1.000	0.700

Table 3 (continued). M&I surface water withdrawal permits in the ACT Basin (Georgia)

River basin	Permit holder	Permit number	County	Source water	Permit limit max day (mgd)	Permit limit monthly average (mgd)
Coosa	Inland-Rome Inc.	057-1490-01	Floyd	Coosa River	34.000	32.000
Coosa	Georgia Power Co. - Plant Hammond	057-1490-02	Floyd	Coosa River	655.000	655.000
Coosa	Rome, City of	057-1492-01	Floyd	Oostanaula & Etowah R	18.000	16.400
Coosa	Rockmart, City of	115-1425-01	Polk	Euharlee Creek	2.000	1.500
Coosa	Vulcan Construction Materials, L.P.	115-1425-03	Polk	Euharlee Creek	0.200	0.200
Coosa	Cedartown, City of	115-1428-04	Polk	Big Spring	3.000	2.600
Coosa	Polk County Water Authority	115-1428-05	Polk	Aragon, Morgan, Mulco Springs	1.600	1.100
Coosa	Polk County Water Authority	115-1428-07	Polk	Deaton Spring	4.000	4.000
Tallapoosa River Basin (Georgia)						
Tallapoosa	Haralson County Water Authority	071-1301-01	Haralson	Tallapoosa River	3.750	3.750
Tallapoosa	Bremen, City of	071-1301-02	Haralson	Beech Creek & Bremen Reservoir (Bush Creek)	0.800	0.580
Tallapoosa	Bowdon, City of Indian	022-1302-01	Carroll	Indian Creek	0.400	0.360
Tallapoosa	Southwire Company	022-1302-02	Carroll	Buffalo Creek	2.000	1.000
Tallapoosa	Villa Rica, City of	022-1302-04	Carroll	Lake Paradise & Cowens Lake	1.500	1.500
Tallapoosa	Carrollton, City of	022-1302-05	Carroll	Little Tallapoosa River	12.000	12.000
Tallapoosa	Bowdon, City of Lake Tysinger	022-1302-06	Carroll	Lake Tysinger	1.000	1.000

Source: GAEPD 2009a

Table 4. M&I surface water withdrawals in the ACT Basin (Georgia)

Basin (subbasin)	Withdrawal by	County	Withdrawal (mgd)
Coosa River Basin (Georgia)			
Coosa (Conasauga)	Dalton Utilities	Whitfield	35.38
Coosa (Conasauga)	City of Chatsworth	Murray	1.26
Coosa (Coosawattee)	Ellijay-Gilmer County Water System	Gilmer	3.12
Coosa (Coosawattee)	City of Fairmount	Gordon	0.06
Coosa (Oostanaula)	City of Calhoun	Gordon	9.10
Coosa (Etowah)	Big Canoe Corporation	Pickens	0.48
Coosa (Etowah)	City of Jasper	Pickens	1.00
Coosa (Etowah)	Bent Tree Community	Pickens	0.07
Coosa (Etowah)	Lexington Components Inc (Rubber)	Pickens	0.01
Coosa (Etowah)	Etowah Water and Sewer Authority	Dawson	1.50
Coosa (Etowah)	Town of Dawsonville	Dawson	0.10
Coosa (Etowah)	City of Canton	Cherokee	2.83
Coosa (Etowah)	Cherokee County Water System	Cherokee	15.81
Coosa (Etowah)a	Gold Kist, Inc.	Cherokee	1.94
Coosa (Etowah)	City of Cartersville	Bartow	13.26
Coosa (Etowah)	New Riverside Ochre Company, Inc (Chemicals)	Bartow	1.67
Coosa (Etowah)	Gerdau AmeriSteel US, Inc. – Cartersville Steel Mill (Primary metals)	Bartow	0.16
Coosa (Etowah)	Georgia Power Co – Plant Bowen	Bartow	38.92
Coosa (Etowah)	CCMWA	Bartow	44.42
Coosa (Upper Coosa)	City of Lafayette	Walker	1.20
Coosa (Upper Coosa)	City of Summerville	Chattooga	2.05
Coosa (Upper Coosa)	Mount Vernon Mills – Riegel Apparel Division (Textiles)	Chattooga	2.74
Coosa (Oostanaula)	City of Cave Spring (Domestic/Commercial)	Floyd	0.30
Coosa (Etowah / Oostanaula)	City of Rome	Floyd	9.98
Coosa (Upper Coosa)	Floyd County Water System	Floyd	2.57
Coosa (Upper Coosa)	Inland-Rome Inc. (Paper)	Floyd	25.74
Coosa (Upper Coosa)	Georgia Power Co - Plant Hammond	Floyd	535.00
Coosa (Upper Coosa)	Polk County Water Authority	Polk	2.22
Coosa (Etowah)	Vulcan Construction Materials	Polk	0.09
Tallapoosa River Basin (Georgia)			
Tallapoosa (Upper)	City of Bremen	Haralson	0.32
Tallapoosa (Upper)	Haralson County Water Authority	Haralson	2.05
Tallapoosa (Upper)	City of Bowdon	Carroll	0.75
Tallapoosa (Upper)	Southwire Company	Carroll	0.09
Tallapoosa (Upper)	City of Carrollton	Carroll	5.37
Tallapoosa (Upper)	City of Temple	Carroll	0.26
Tallapoosa (Upper)	City of Villa Rica	Carroll	0.58
Tallapoosa (Upper)	Carroll County Water System	Carroll	4.08

Table 5. Surface water use - ACT Basin (Alabama, 2005) (mgd)

ACT subbasin	HUC	Public supply	Industrial	Irrigation	Livestock	Thermo-electric	Total, by Subbasin
Upper Coosa	03150105	2.12	0	3.10	0.40	0	5.62
Middle Coosa	03150106	33.24	65.83	7.91	0.87	142.68	250.53
Lower Coosa	03150107	10.96	0.89	5.10	0.35	812.32	829.62
Upper Tallapoosa	03150108	0.90	0	0.15	0.40	0	1.45
Middle Tallapoosa	03150109	19.09	0	0.52	0.32	0	19.93
Lower Tallapoosa	03150110	38.22	2.23	4.22	0.28	0	44.95
Upper Alabama	03150201	10.40	30.63	3.84	0.84	4.14	49.85
Cahaba	03150202	52.90	0	3.49	0.25	0	56.64
Middle Alabama	03150203	0	21.04	1.73	0.48	0	23.25
Lower Alabama	03150204	0	54.61	0.64	0.02	0	55.27
Total - By Use Category		167.83	175.23	30.70	4.21	959.14	1337.11

Source: Hutson et al. 2009

Table 6. M&I surface water withdrawals in the ACT Basin (Alabama)

Basin (subbasin)	Withdrawal by	County	Withdrawal (mgd)
Coosa River Basin (Alabama)			
Coosa (Upper)	Centre Water Works & Sewer Board	Cherokee	1.19
Coosa (Upper)	Piedmont Water Works & Sewer Board	Calhoun	0.93
Coosa (Middle)	Jacksonville Water Works & Sewer Board	Calhoun	1.34
Coosa (Middle)	Anniston Water Works & Sewer Board	Calhoun	0.08
Coosa (Middle)	Fort Payne Water Works Board	DeKalb	8.10
Coosa (Middle)	Goodyear Tire and Rubber Company	Etowah	9.87
Coosa (Middle)	Gadsden Water Works & Sewer Board	Etowah	14.86
Coosa (Middle)	Alabama Power Co – Gadsden Steam Plant	Etowah	142.68
Coosa (Middle)	SIC 32 – Unnamed Stone, Glass, Clay, and/or Concrete Products	St. Clair	3.49
Coosa (Middle)	Talladega/Shelby Water Treatment Plant	Talladega	6.44
Coosa (Middle)	Talladega County Water Department	Talladega	0.81
Coosa (Middle)	Talladega Water Works & Sewer Board	Talladega	1.62
Coosa (Middle)	Bowater Newsprint, Coosa Pines Operation	Talladega	52.47
Coosa (Lower)	Sylacauga Utilities Board	Talladega	3.25
Coosa (Lower)	SIC 22 – Unnamed Textile	Talladega	0.89
Coosa (Lower)	Goodwater Water Works & Sewer Board	Coosa	0.46
Coosa (Lower)	Alabama Power Co – E.C. Gaston Plant	Shelby	812.32
Coosa (Lower)	Clanton Waterworks & Sewer Board	Chilton	1.79
Coosa (Lower)	Five Star Water Supply	Elmore	5.46
Tallapoosa River Basin (Alabama)			
Tallapoosa (Upper)	Heflin Water Works	Cleburne	0.51
Tallapoosa (Upper)	Wedowee Gas, Water, and Sewer	Randolph	0.39
Tallapoosa (Middle)	Roanoke Utilities Board	Randolph	1.29
Tallapoosa (Middle)	Clay County Water Authority	Clay	1.87
Tallapoosa (Middle)	Lafayette	Chambers	0.53
Tallapoosa (Middle)	Central Elmore Water & Sewer Authority	Elmore	4.83
Tallapoosa (Middle)	Alexander City Water Department	Tallapoosa	10.57
Tallapoosa (Lower)	West Point Home, Inc	Lee	2.23
Tallapoosa (Lower)	Opelika Water Works Board	Lee	2.61
Tallapoosa (Lower)	Auburn Water Works Board	Lee	5.75
Tallapoosa (Lower)	Tallassee	Tallapoosa	1.98
Tallapoosa (Lower)	Tuskegee Utilities	Macon	2.71
Tallapoosa (Lower)	Montgomery Water Works & Sewer Board	Montgomery	25.17
Alabama River Basin			
Alabama (Upper)	Montgomery Water Works & Sewer Board	Montgomery	10.40
Alabama (Upper)	International Paper	Autauga	30.63
Alabama (Upper)	Southern Power Co – Plant E. B. Harris	Autauga	4.14
Alabama (Cahaba)	Birmingham Water Works & Sewer Board	Shelby	52.90
Alabama (Middle)	International Paper – Pine Hill	Wilcox	21.04
Alabama (Lower)	Alabama River Pulp Company	Monroe	54.61

Source: Hutson et al. 2009

VI. – CONSTRAINTS

6-01. General. The availability of water resources in the ACT Basin is constrained by existing water supply storage contracts, Corps WCMs, minimum flow requirements from Allatoona and Carters Dams, APC, FERC licenses, Corps-APC Memorandum of Understanding, and industrial water quality flow needs. Existing water supply storage contracts do not include the use of the inactive storage pool and would require developing and implementing an emergency storage contract in order to access this water resource. Each Corps project has a WCM that specifies operational requirements for varying basin conditions and requires a deviation approval to operate outside the parameters established by the manual. The Allatoona Project has a minimum flow release requirement of 240 cfs for downstream purposes. The Carters Project has a seasonally varying minimum flow release requirement that ranges from 250 – 865 cfs during normal conditions and a minimum of 240 cfs during low flow conditions. The APC projects are operated under FERC licenses which define specific operational requirements for each project and require approval from FERC and possibly the Corps and State agencies before any revised operations could be implemented. The Corps and APC projects are also operated under the rules and regulations found in the Corps-APC Memorandum of Understanding, which describes operational requirements for flood conditions and navigation within the ACT Basin. Some industrial NPDES permits within the ACT Basin have water quality discharge limitations which are impacted by the volume of water flow in the river.

VII – DROUGHT MANAGEMENT PLAN

7-01. General. The Drought Contingency Plan (DCP) for the ACT Basin implements drought conservation actions on the basis of composite system storage, state line flows, and basin inflow as triggers to drive drought response actions. The DCP also recognizes that a basin-wide drought plan must incorporate variable hydropower generation requirements from its headwater projects in Georgia (Allatoona Dam and Carters Dam), a reduction in the level of navigation service provided on the Alabama River as storage across the basin declines, and that environmental flow requirements must still be met to the maximum extent practicable. The ACT basin-wide drought plan is composed of three components — Headwater regulation at Allatoona Lake and Carters Lake in Georgia; Regulation at APC projects on the Coosa and Tallapoosa Rivers; and Downstream Alabama River regulation at Corps projects downstream of Montgomery, Alabama.

A. **Headwater Regulation for Drought at Allatoona Lake and Carters Lake**. Drought regulation at Allatoona Lake and Carters Lake consists of progressively reduced hydropower generation as pool levels decline in accordance with the conservation storage action zones established in the projects' water control plans. For instance, when Allatoona Lake is operating in normal conditions (Conservation storage Zone 1); hydropower generation typically ranges from 0 to 4 hours per day. However, as the pool drops to lower action zones during drought conditions, generation could be reduced to 0 to 2 hours per day. As Carters Lake pool level might drop into a conservation storage Zone 2, seasonal varying minimum target flows would be reduced to 240 cfs. The WCM for each project describes the drought water control regulation plan in more detail.

B. **Drought Regulation at APC Projects on the Coosa, Tallapoosa, and Alabama River**. Regulation guidelines for the Coosa, Tallapoosa, and Alabama Rivers have been defined in a drought regulation matrix (Table 7) on the basis of a Drought Intensity Level (DIL). The DIL is a drought indicator, ranging from one to three. The DIL is determined on the basis of three basin drought criteria (or triggers). A DIL from 1 to 3 indicates some level of drought conditions. The DIL increases as more of the drought indicator thresholds (or triggers) occur. The drought regulation matrix defines minimum average daily flow requirements on a monthly basis for the Coosa, Tallapoosa, and Alabama Rivers as a function of the DIL and time of year. The combined occurrences of the drought triggers determine the DIL. Three intensity levels for drought operations are applicable to APC projects.

DIL 1 — (moderate drought) 1 of 3 triggers occur

DIL 2 — (severe drought) 2 of 3 triggers occur

DIL 3 — (exceptional drought) all 3 triggers occur

(1) Drought Indicators. The indicators used to determine drought intensity include the following:

1. **Low basin inflow**. The total basin inflow needed is the sum of the total filling volume plus 4,640 cfs. The total filling volume is defined as the volume of water required to return the pool to the top of the conservation guide curve and is calculated using the area-capacity tables for each project. Table 8 lists the monthly low basin inflow criteria. The basin inflow value is computed daily and checked on the first and third Tuesday of the month. If computed basin inflow is less than the value required, the low basin inflow indicator is triggered. The basin inflow is total flow above the APC projects excluding Allatoona Lake and Carters Lake. It is the sum of local flows, minus lake evaporation and diversions. Figure 11 illustrates the local inflows to the Coosa and Tallapoosa Basins. The basin inflow computation differs from the navigation basin inflow because it does not include releases from Allatoona Lake and Carters Lake. The intent is to capture the hydrologic condition across APC projects in the Coosa and Tallapoosa Basins.

Table 7. ACT Basin Drought Regulation Plan Matrix

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drought Level Response[a]	Normal Operations											
	DIL 1: Low Basin Inflows or Low Composite or Low State Line Flow											
	DIL 2: DIL 1 criteria + (Low Basin Inflows or Low Composite or Low State Line Flow)											
	DIL 3: Low Basin Inflows + Low Composite + Low State Line Flow											
Coosa River Flow[b]	Normal Operation: 2,000 cfs			4,000 (8,000)		4,000 – 2,000	Normal Operation: 2,000 cfs					
	Jordan 2,000 +/-cfs			4,000 +/- cfs		6/15 Linear Ramp down	Jordan 2,000 +/-cfs			Jordan 2,000 +/-cfs		
	Jordan 1,600 to 2,000 +/-cfs			2,500 +/- cfs		6/15 Linear Ramp down	Jordan 2,000 +/-cfs			Jordan 1,600 to 2,000 +/-cfs		
	Jordan 1,600 +/-cfs			Jordan 1,600 to 2,000 +/-cfs			Jordan 2,000 +/-cfs			Jordan 1,600 to 2,000 +/-cfs		Jordan 1,600 +/-cfs
Tallapoosa River Flow[c]	Normal Operations: 1200 cfs											
	Greater of 1/2 Yates Inflow or 2 x Heflin Gage (Thurlow Lake releases > 350 cfs)					1/2 Yates Inflow				1/2 Yates Inflow		
	Thurlow Lake 350 cfs					1/2 Yates Inflow				Thurlow Lake 350 cfs		
	Maintain 400 cfs at Montgomery WTP (Thurlow Lake release 350 cfs)						Thurlow Lake 350 cfs			Maintain 400 cfs at Montgomery WTP (Thurlow Lake release 350 cfs)		
Alabama River Flow[d]	Normal Operation: Navigation or 4,640 cfs flow											
	4,200 cfs (10% Cut) - Montgomery					4,640 cfs - Montgomery				Reduce: Full – 4,200 cfs		
	3,700 cfs (20% Cut) - Montgomery					4,200 cfs (10% Cut) - Montgomery				Reduce: 4,200 cfs-> 3,700 cfs Montgomery (1 week ramp)		
	2,000 cfs Montgomery				3,700 cfs Montgomery		4,200 cfs (10% Cut) - Montgomery			Reduce: 4,200 cfs -> 2,000 cfs Montgomery (1 month ramp)		
Guide Curve Elevation	Normal Operations: Elevations follow Guide Curves as prescribed in License (Measured in Feet)											
	Corps Deviations: As Needed; FERC Deviation for Lake Martin											
	Corps Deviations: As Needed; FERC Deviation for Lake Martin											
	Corps Deviations: As Needed; FERC Deviation for Lake Martin											

a. Note these are based on flows that will be exceeded when possible.
b .Jordan flows are based on a continuous +/- 5% of target flow.
c. Thurlow Lake flows are based on continuous +/- 5% of target flow: flows are reset on noon each Tuesday based on the prior day's daily average at Heflin or Yates.
d. Alabama River flows are 7-Day Average Flow.

Table 8. Low Basin Inflow Guide (in cfs-days)

Month	Coosa Filling Volume	Tallapoosa Filling Volume	Total Filling Volume	Minimum JBT Target Flow	Required Basin Inflow
Jan	0	0	0	4,640	4640
Feb	0	120	120	4,640	4760
Mar	643	2900	3543	4,640	8183
Apr	1606	2585	4191	4,640	8831
May	5	0	5	4,640	4645
Jun	0	0	0	4,640	4640
Jul	0	0	0	4,640	4640
Aug	0	0	0	4,640	4640
Sep	0	-1304	-1304	4,640	3336
Oct	-1167	-2132	-3299	4,640	1341
Nov	-1067	-2186	-3253	4,640	1387
Dec	-3	0	-3	4,640	4637

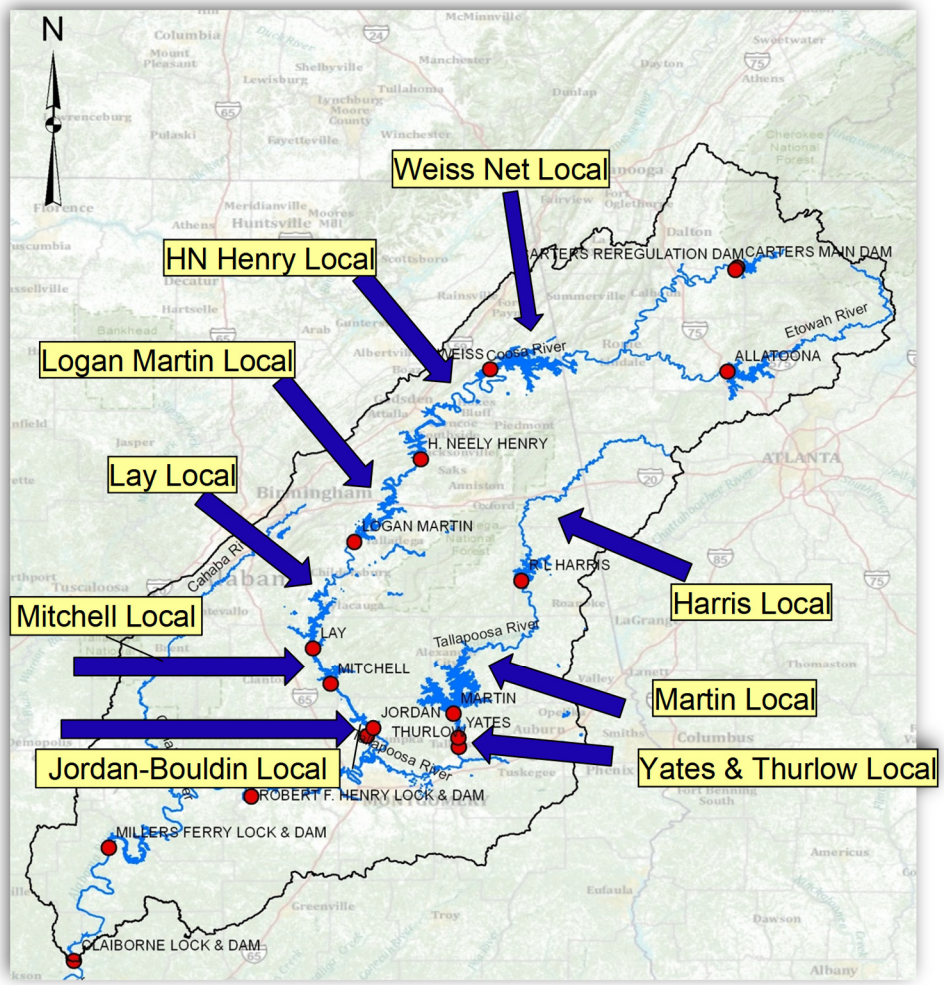

Figure 11. ACT Basin Inflows

2. **Low composite conservation storage**. Low composite conservation storage occurs when the APC projects' composite conservation storage is less than or equal to the storage available within the drought contingency curves for the APC reservoirs. Composite conservation storage is the sum of the amounts of storage available at the current elevation for each reservoir down to the drought contingency curve at each APC major storage project. The reservoirs considered for the trigger are R.L. Harris Lake, H. Neely Henry Lake, Logan Martin Lake, Lake Martin, and Weiss Lake. Figure 12 plots the APC composite zones. Figure 13 plots the APC low composite conservation storage trigger. If the actual active composite conservation storage is less than or equal to the active composite drought zone storage, the low composite conservation storage indicator is triggered. That computation is performed on the first and third Tuesday of each month and is considered along with the low state line flow trigger and basin inflow trigger.

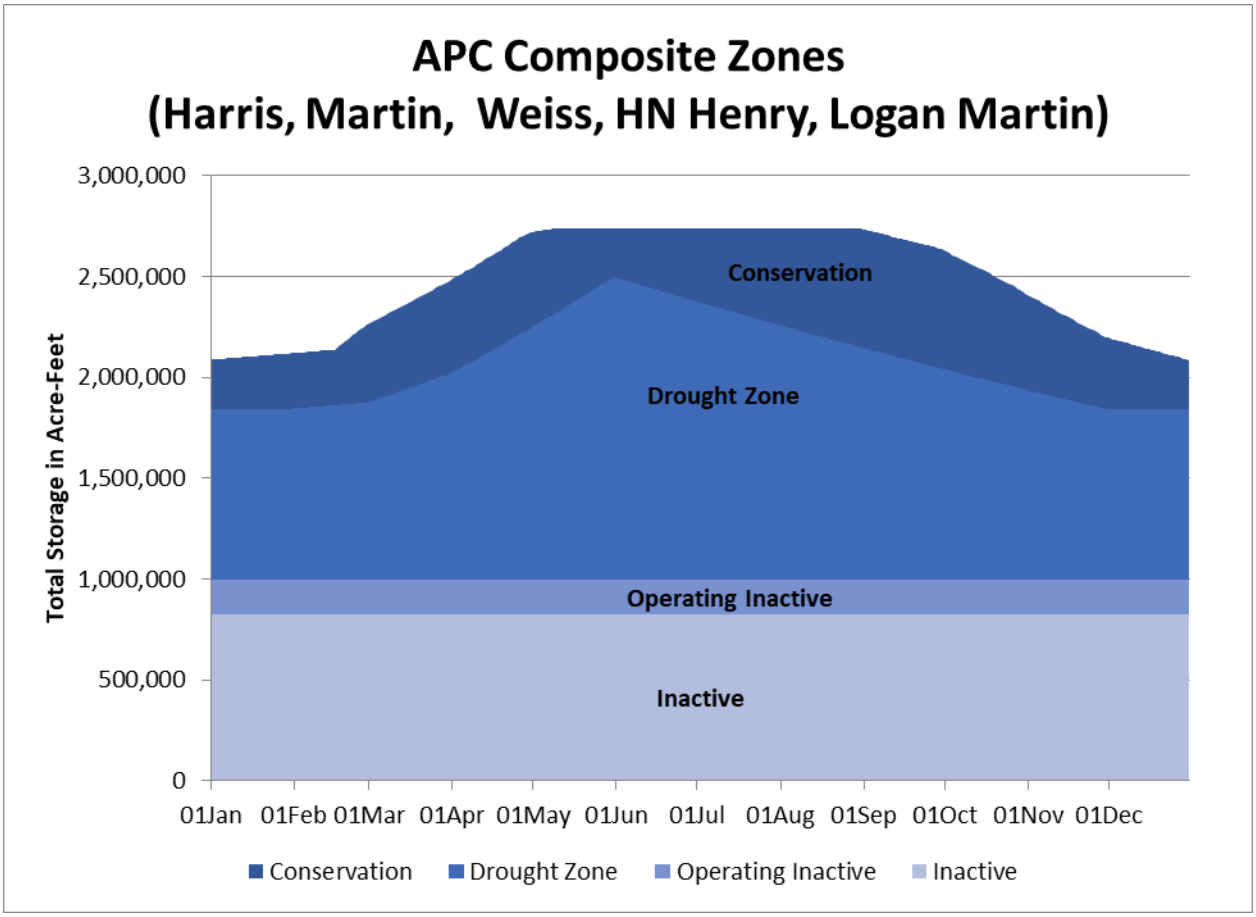

Figure 12. APC Composite Zones

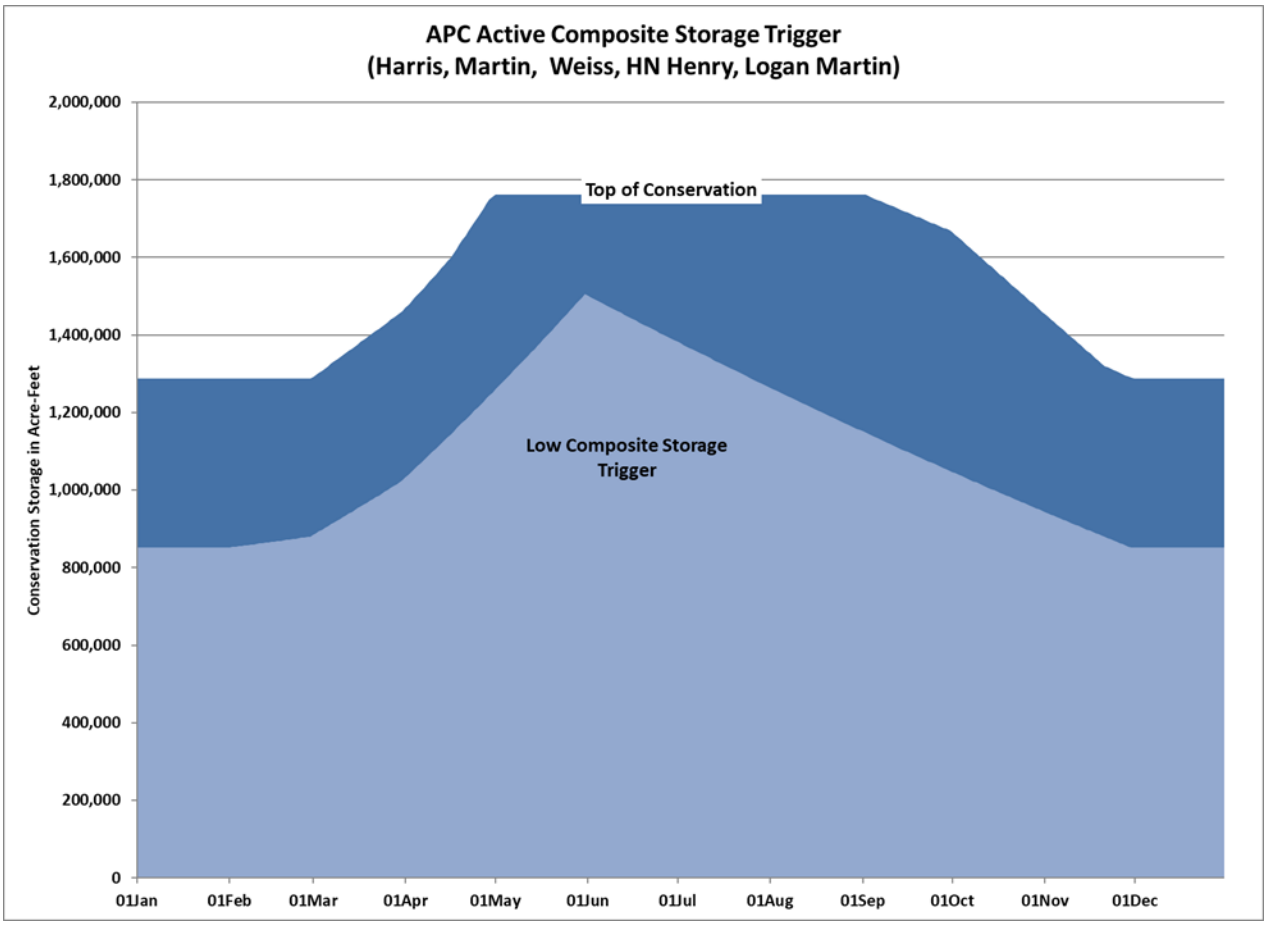

Figure 13. APC Low Composite Conservation Storage Drought Trigger

3. **Low state line flow**. A low state line flow trigger occurs when the Mayo's Bar USGS gage measures a flow below the monthly historical 7Q10 flow. The 7Q10 flow is defined as the lowest flow over a 7-day period that would occur once in 10 years. Table 9 lists the Mayo's Bar 7Q10 value for each month (determined from observed flows from 1949 – 2006). The lowest 7-day average flow over the past 14 days is computed and checked at the first and third Tuesday of the month. If the lowest 7-day average value is less than the Mayo's Bar 7Q10 value, the low state line flow indicator is triggered. If the result is greater than or equal to the trigger value from Table 9, the flow is considered normal, and the state line flow indicator is not triggered. The term state line flow is used in developing the drought management plan because of the proximity of the Mayo's Bar gage to the Alabama-Georgia state line and because it relates to flow data upstream of the Alabama-based APC reservoirs. State line flow is used only as a source of observed data for one of the three triggers and does not imply that flow targets exist at that geographic location. The ACT Basin drought matrix does not include or imply any Corps regulation that would result in water management decisions at Carters Lake or Allatoona Lake.

Table 9. State Line Flow Triggers

Month	Mayo's Bar (7Q10 in cfs)
Jan	2,544
Feb	2,982
Mar	3,258
Apr	2,911
May	2,497
Jun	2,153
Jul	1,693
Aug	1,601
Sep	1,406
Oct	1,325
Nov	1,608
Dec	2,043

Note: Based on USGS Coosa River at Rome Gage (Mayo's Bar, USGS 02397000) observed flow from 1949 to 2006

(2) Drought Regulation. The DIL is computed on the first and third Tuesday of each month. Once a drought operation is triggered, the DIL can only recover from drought condition at a rate of one level per period. For example, as the system begins to recover from an exceptional drought with DIL 3, the DIL must be stepped incrementally back to zero to resume normal operations. In that case, even if the system triggers return to normal quickly, it will still take at least a month before normal operations can resume - conditions can improve only to DIL 2 for the next 15 days, then DIL 1 for the next 15 days, before finally returning to normal operating conditions.

For normal operations, the matrix shows a Coosa River flow between 2,000 cfs and 4,000 cfs with peaking periods up to 8,000 cfs occurring. The required flow on the Tallapoosa River is a constant 1,200 cfs throughout the year. The navigation flows on the Alabama River are applied to the APC projects. The required navigation depth on the Alabama River is subject to the basin inflow.

For DIL 1, the Coosa River flow varies from 2,000 cfs to 4,000 cfs. On the Tallapoosa River, the required flow is the greater of one-half of the inflow into Yates Lake or twice the Heflin USGS gage from January through April. For the remainder of the year, the required flow is one-half of Yates Lake inflow. The required flows on the Alabama River are reduced from the amounts required for DIL 0.

For DIL 2, the Coosa River flow varies from 1,600 cfs to 2,500 cfs. On the Tallapoosa River, the minimum is 350 cfs for part of the year and one-half of Yates Lake inflow for the remainder of the year. The requirement on the Alabama River is between 3,700 cfs and 4,200 cfs.

For DIL 3, the flows on the Coosa River range from 1,600 cfs to 2,000 cfs. A constant flow of 350 cfs on the Tallapoosa River is required. It is assumed an additional 50 cfs will occur between Thurlow Lake and the City of Montgomery water supply intake. Required flows on the Alabama River range from 2,000 cfs to 4,200 cfs.

In addition to the flow regulation for drought conditions, the DIL affects the flow regulation to support navigation operations. Under normal operations, the APC projects are operated to meet the needed navigation flow target or 4,640 cfs flow as defined in the navigation measure section. Once drought operations begin, flow regulation to support navigation operations is suspended.

7-02. Extreme Drought Conditions. An extreme drought condition exists when the remaining composite conservation storage is depleted, and additional emergency actions may be necessary. When conditions have worsened to this extent, utilization of the inactive storage must be considered. Such an occurrence would typically be contemplated in the second or third year of a drought. Inactive storage capacities have been identified for the two Federal projects with significant storage (Figures 14 and 15). The operational concept established for the extreme drought impact level and to be implemented when instituting the use of inactive storage is based on the following actions:

(1) Inactive storage availability is identified to meet specific critical water use needs within existing project authorizations.

(2) Emergency uses and users will be identified in accordance with emergency authorizations and through stakeholder coordination. Typical critical water use needs within the basin are associated with public health and safety.

(3) Weekly projections of the inactive storage water availability to meet the critical water uses in the ACT Basin will be utilized when making water control decisions regarding withdrawals and water releases from the Federal reservoirs.

(4) The inactive storage action zones will be developed and instituted as triggers to meet the identified priority water uses (releases will be restricted as storage decreases).

(5) Dam safety considerations will always remain the highest priority. The structural integrity of the dams due to static head limitations will be maintained.

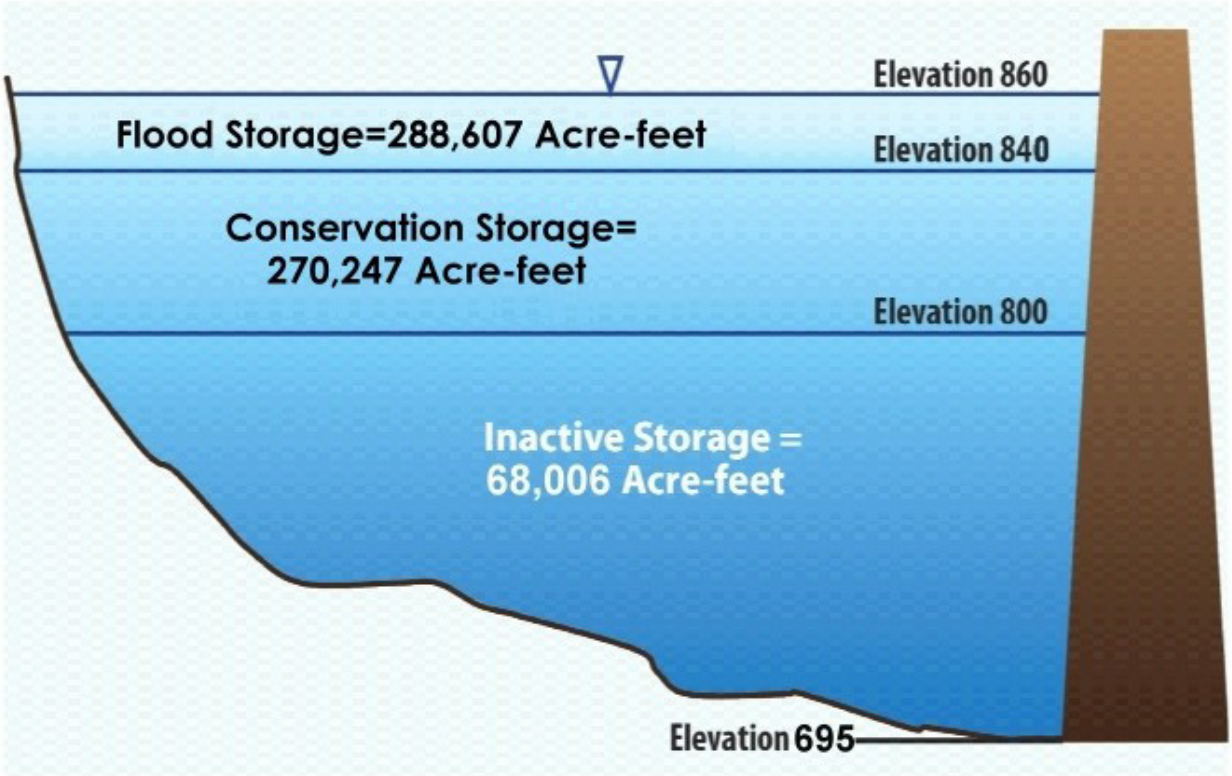

Figure 14. Storage in Allatoona Lake

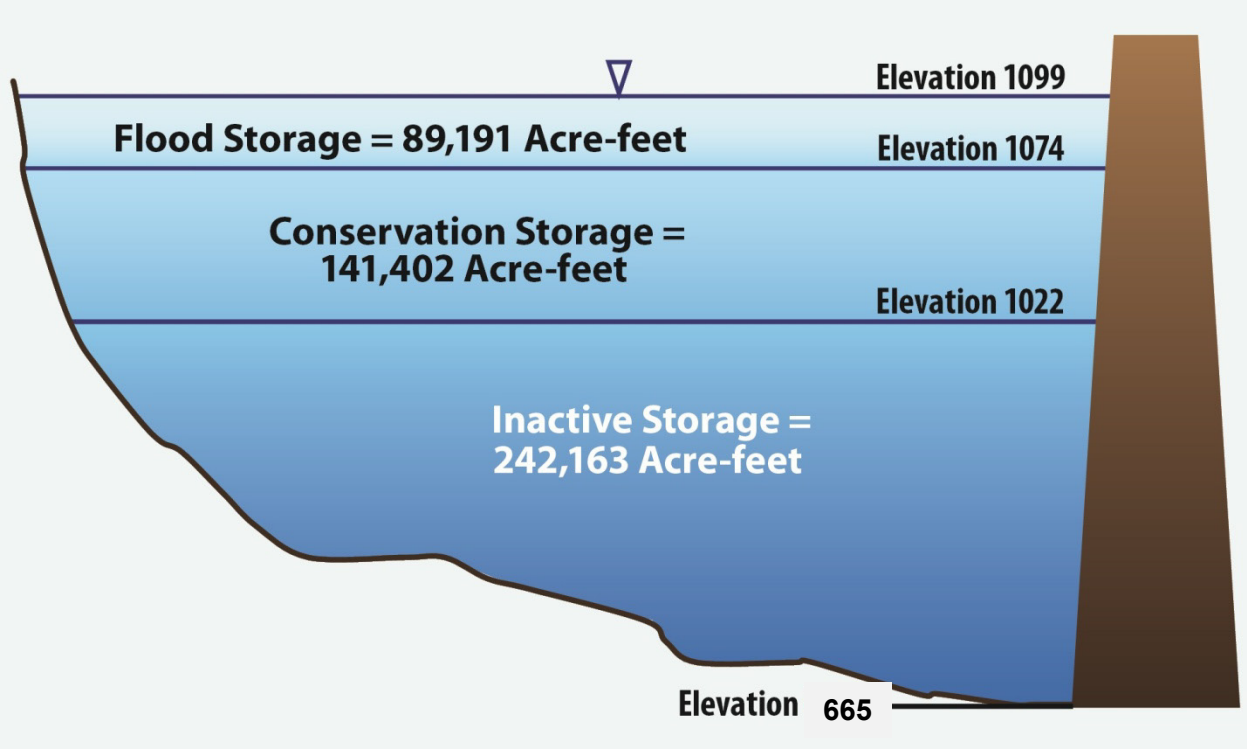

Figure 15. Storage in Carters Lake (excluding reregulation pool)

VIII – DROUGHT MANAGEMENT COORDINATION AND PROCEDURES

8-01. USACE Coordination. It is the responsibility of the Mobile District Water Management Section and APC to monitor climatological and hydrometeorological conditions at all times to make prudent water management decisions. The Water Management Section makes daily decisions and coordinates with APC every two weeks or more often if conditions warrant and with other district representatives from the various areas for which the river systems are operated -- hydropower, recreation, navigation, environmental, and others to exchange information concerning the operation of the river system. This coordination includes conducting weekly meetings with these other district elements. Daily water management decisions regarding water availability, lake level forecasts, and storage forecasts are determined using the information obtained along with current project and basin hydrometeorological data. A weekly District River System Status report is prepared that summarizes the conditions in each of the river basins. When conditions become evident that normal low flow conditions are worsening, the Water Management Section will elevate the district coordination to a heightened awareness. When drought conditions are imminent, Emergency Management representatives will be notified of the conditions and will be included in the regular coordination activities.

8-02. Interagency Coordination. The Water Management Section will support the environmental team regarding actions that require coordination with the U.S. Fish and Wildlife Service (USFWS) for monitoring threatened and endangered species and with the Environmental Protection Agency (EPA), Georgia Environmental Protection Division (GAEPD), and Alabama Department of Environmental Management (ADEM) regarding requests to lower minimum flow targets below Claiborne Dam.

8-03. Public Information and Coordination. When conditions determine that a change in the water control actions from normal regulation to drought regulation is imminent, it is important that various users of the system are notified so that any environmental or operational preparations can be completed prior to any impending reduction in reservoir discharges, river levels, and reservoir pool levels. In periods of severe drought within the ACT Basin it will be within the discretion of the Division Commander to approve the enactment of ACT Basin Water Management conference calls. The purposes of the calls are to share ongoing water management decisions with basin stakeholders and to receive stakeholder input regarding needs and potential impacts to users within the basin. Depending upon the severity of the drought conditions, the calls will be conducted at regular monthly or bi-weekly intervals. Should issues arise, more frequent calls would be implemented.

a. Local Press and Corps Bulletins. The local press consists of periodic publications in or near the ACT Basin. Montgomery, Columbus, and Atlanta have some of the larger daily papers. The papers often publish articles related to the rivers and streams. Their representatives have direct contact with the Corps through the Public Affairs Office. In addition, they can access the Corps Web pages for the latest project information. The Corps and the Mobile District publish e-newsletters regularly which are made available to the general public via email and postings on various websites. Complete, real-time information is available at the Mobile District's Water Management homepage https://www.sam.usace.army.mil/Missions/Civil-Works/Water-Management/. The Mobile District Public Affairs Office issues press releases as necessary to provide the public with information regarding Water Management issues and activities and also provides information via the Mobile District web site.

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EXHIBIT G

EMERGENCY CONTACT INFORMATION

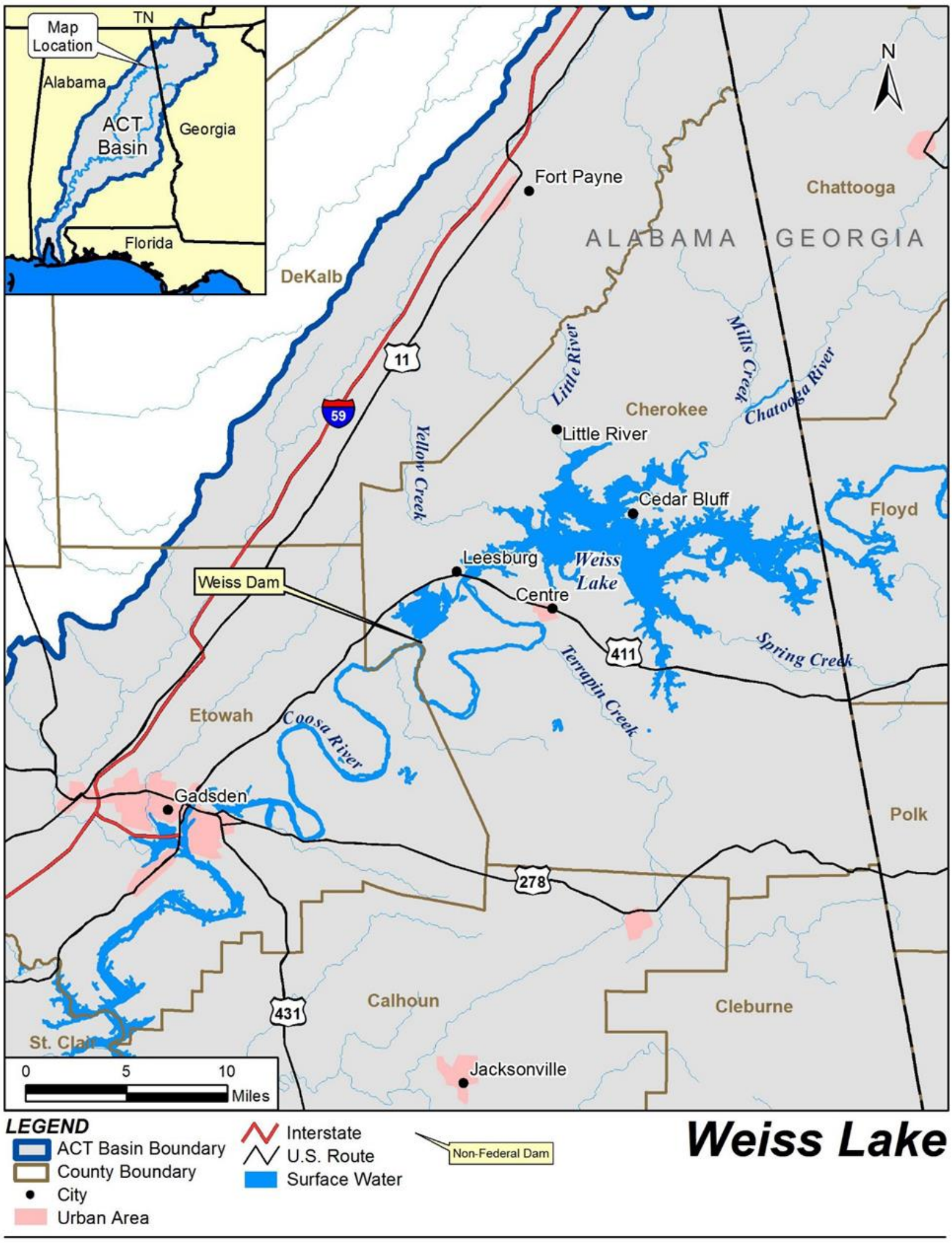
Alabama Power Company:

Reservoir Operations Supervisor	(205) 257-1401
Reservoir Operations Supervisor Alternate Daytime	(205) 257-4010
Reservoir Operations Supervisor After-Hours	(205) 257-4010
Weiss Powerhouse	(256) 526-8467

U.S. Army Corps of Engineers:

Water Management Section	(251) 690-2737
Chief of Water Management	(251) 690-2730 or (251) 509-5368

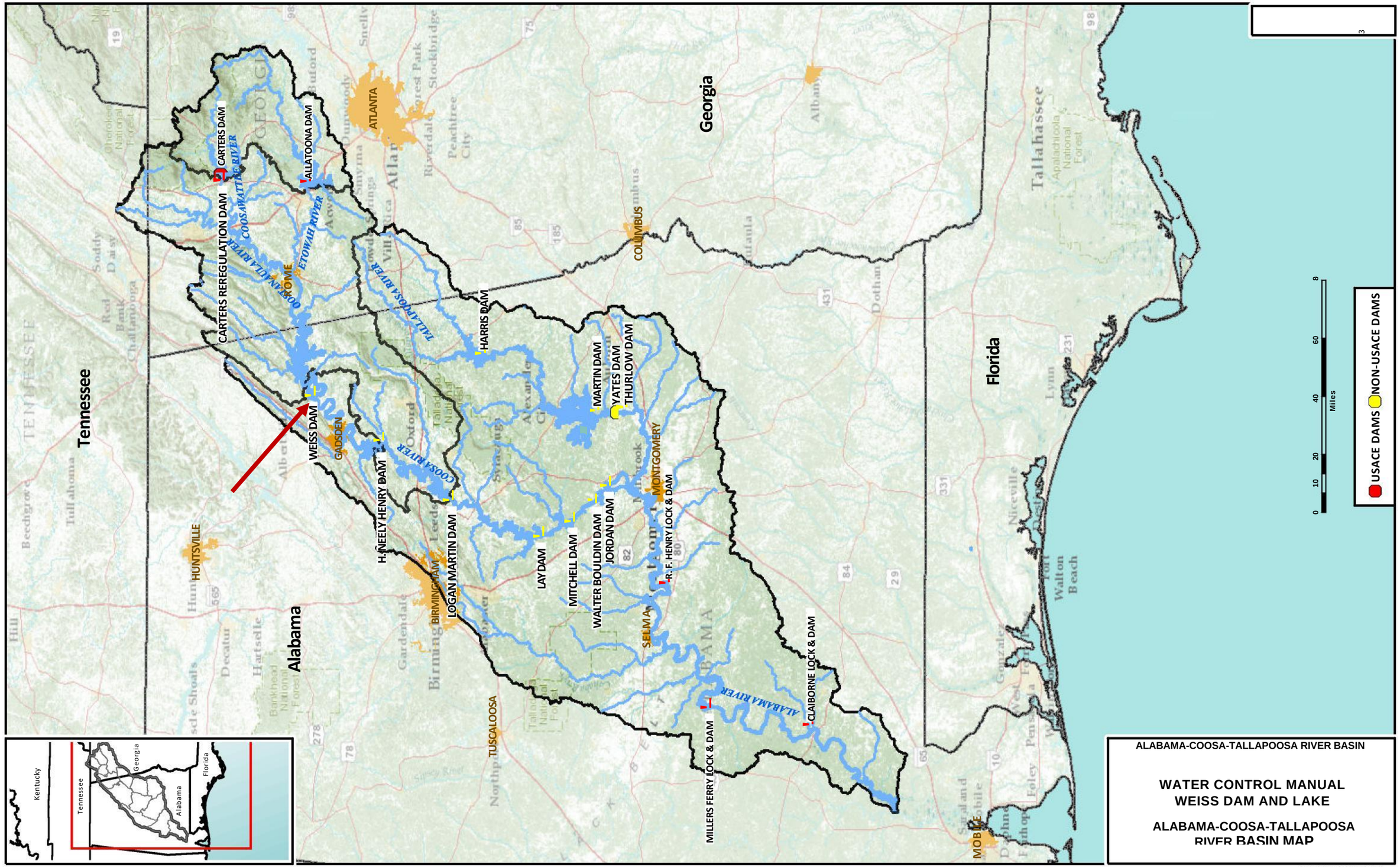
PLATES



ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

PROJECT MAP



ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN MAP

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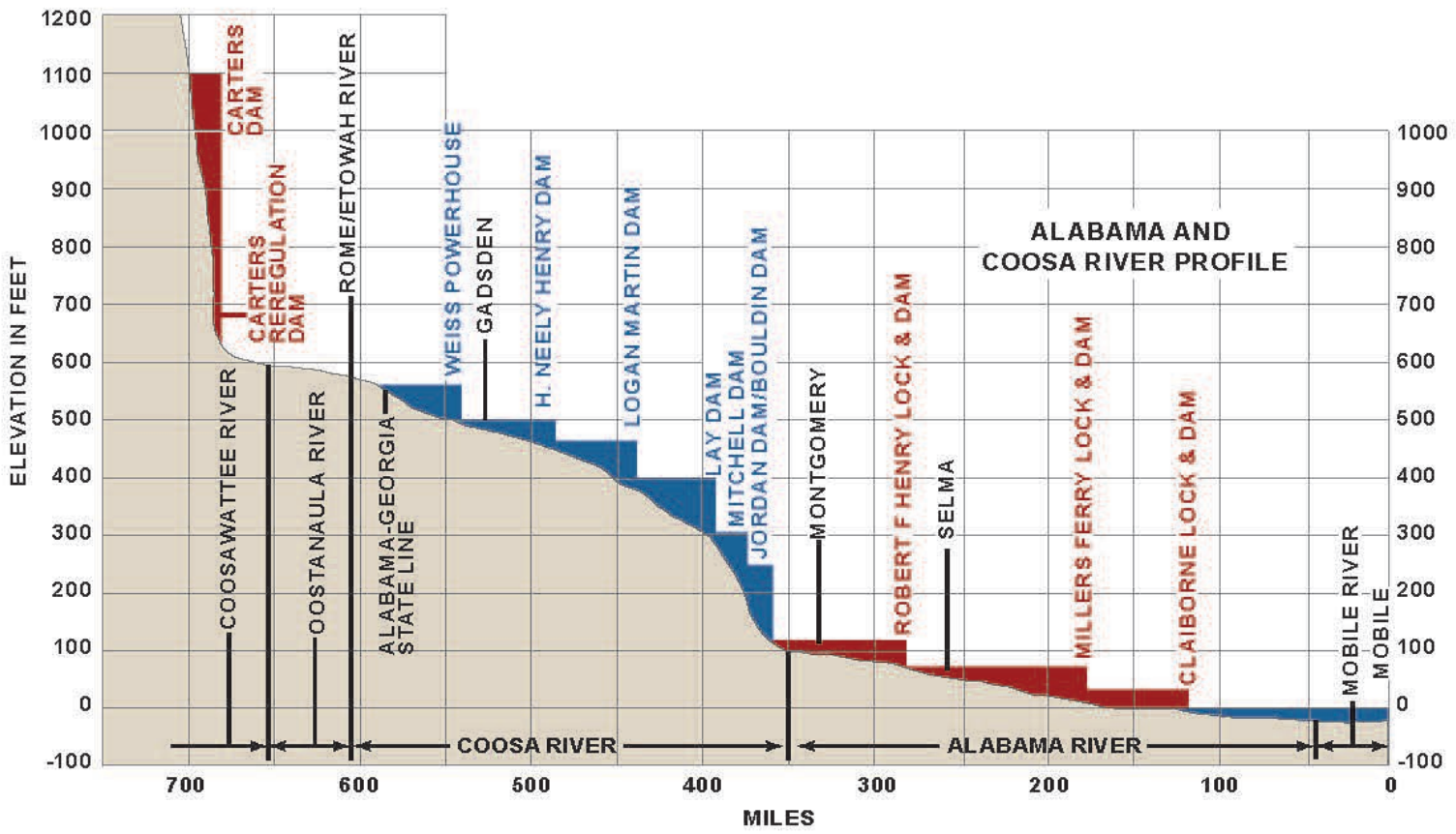
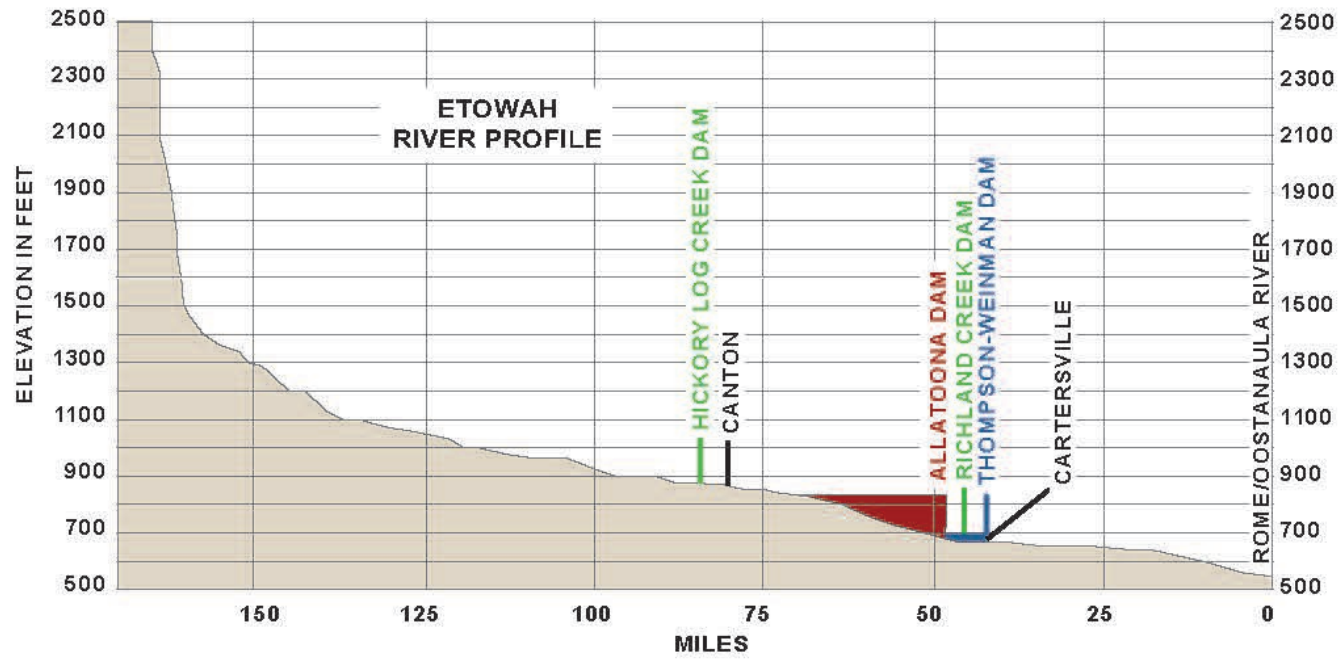
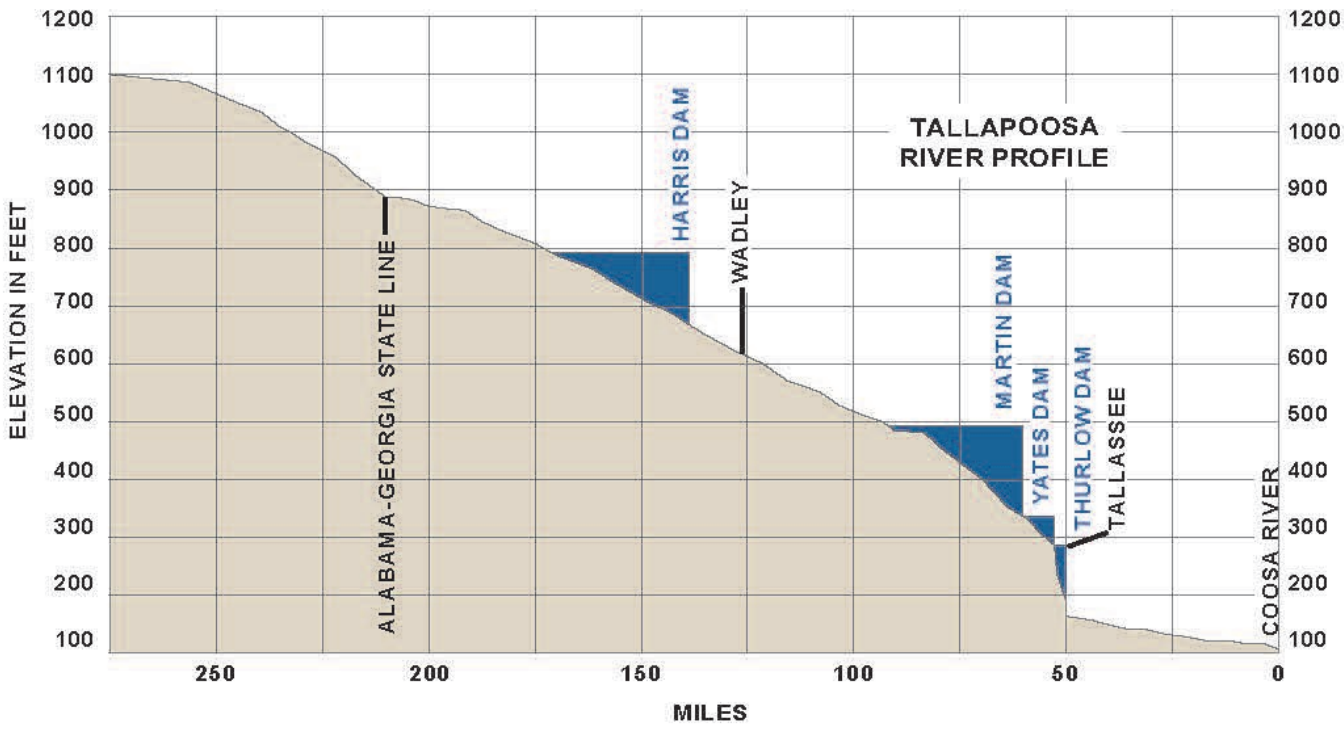
APPENDIX B PLATE 2-2







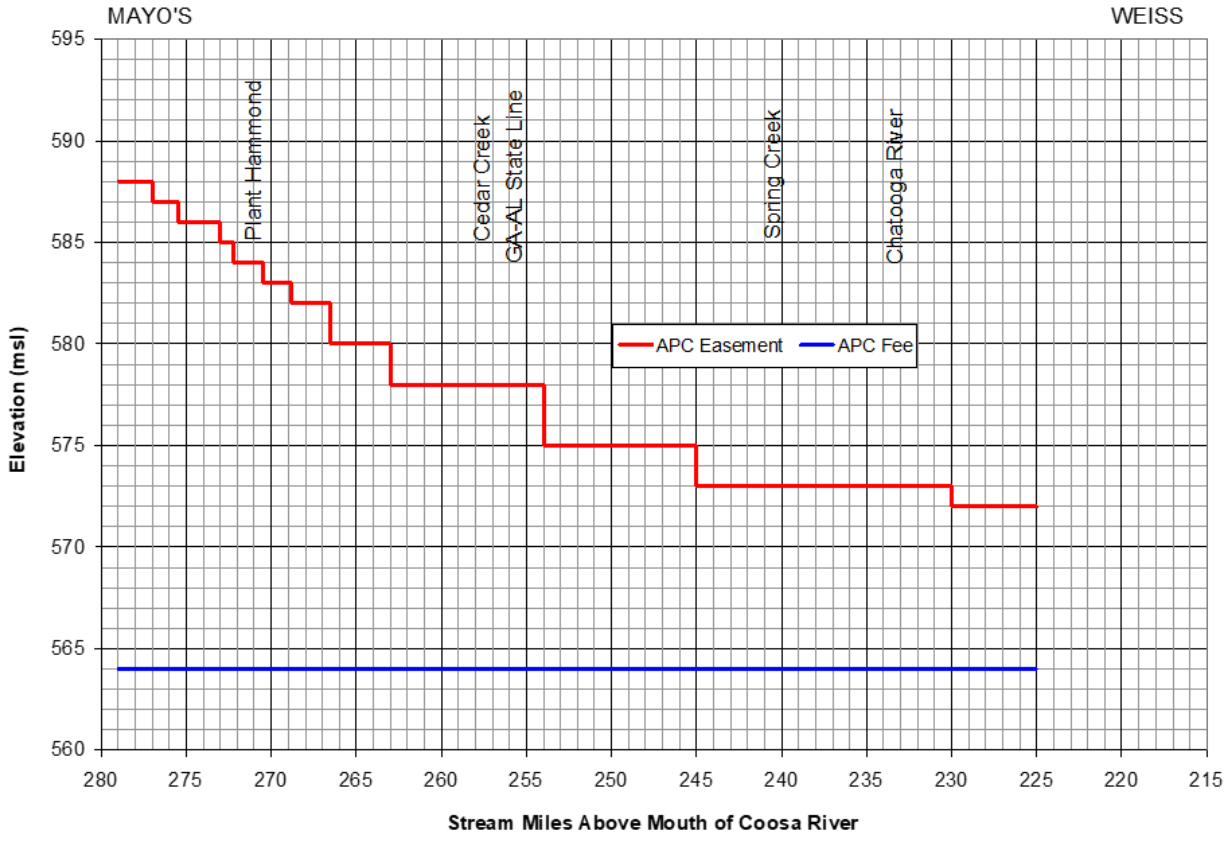
ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

ALABAMA-COOSA-TALLAPOOSA RIVER PROFILES

Profile of Coosa River

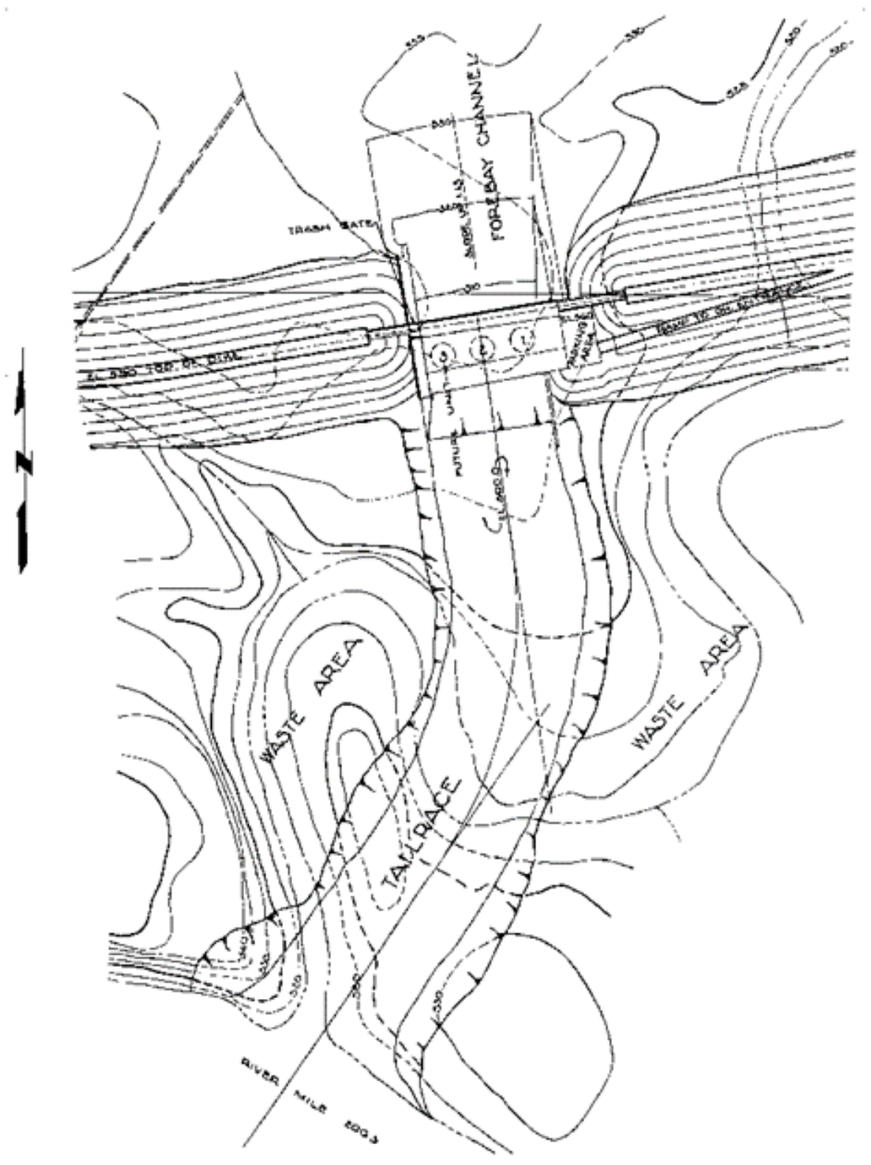
Showing Existing and Authorized Developments



ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

COOSA RIVER PROFILE

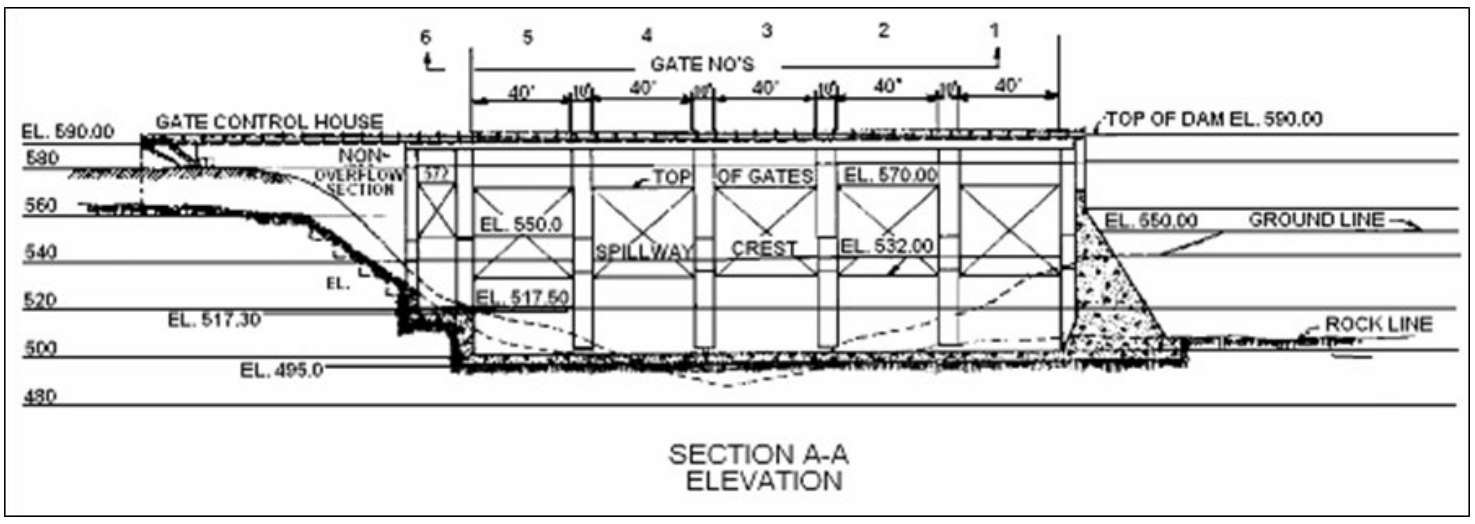


POWER HOUSE TRANSVERSE SECTION

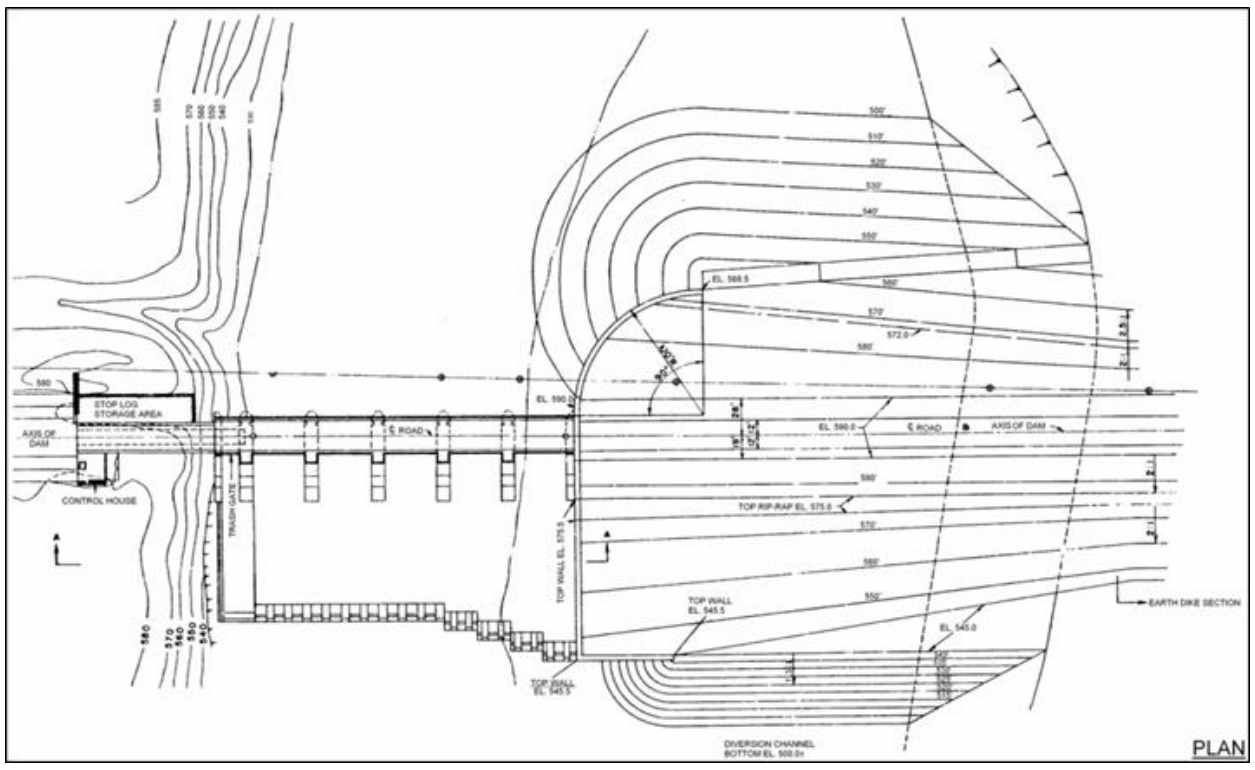
ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

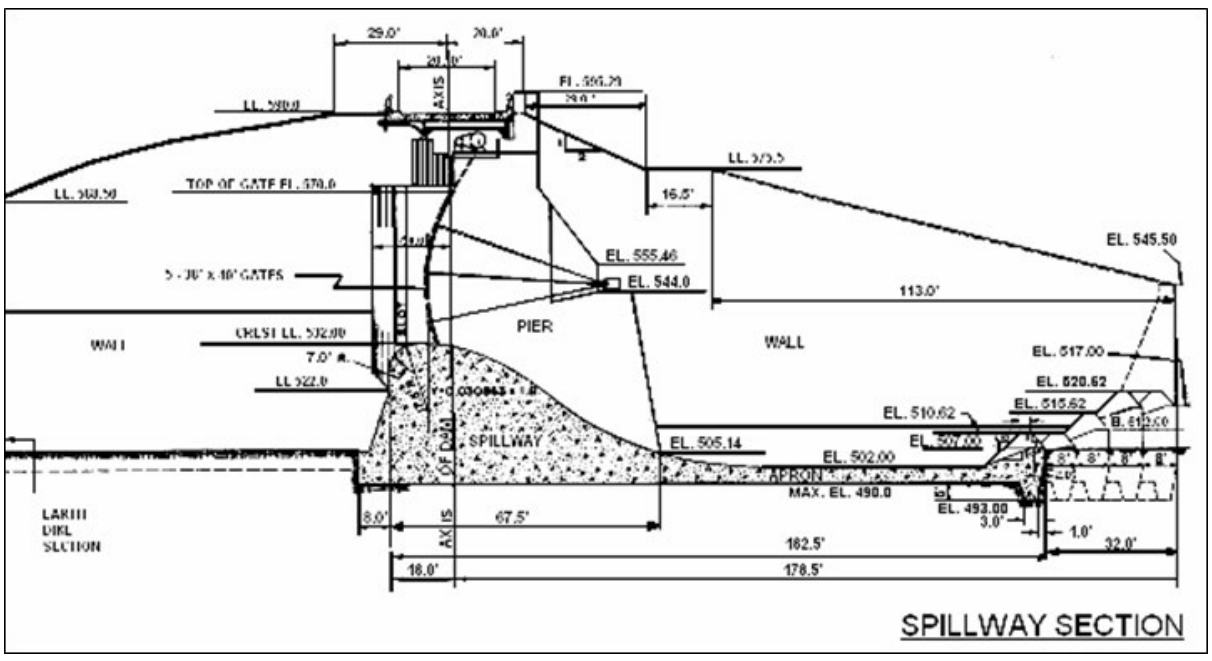
POWERHOUSE PLAN ELEVATION AND SECTION



SECTION A-A
ELEVATION



PLAN



SPILLWAY SECTION

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY PLAN, ELEVATION, & SECTION

WEISS GATE OPERATION SCHEDULE

GATE ARRANGE-MENT NO.	DIAL SETTING GATE NUMBER (EAST) 1	2	3	4	(WEST) 5	GATE ARRANGE-MENT NO.	DIAL SETTING GATE NUMBER (EAST) 1	2	3	4	(WEST) 5	GATE ARRANGE-MENT NO.	DIAL SETTING GATE NUMBER (EAST) 1	2	3	4	(WEST) 5	GATE ARRANGE-MENT NO.	DIAL SETTING GATE NUMBER (EAST) 1	2	3	4	(WEST) 5	GATE ARRANGE-MENT NO.	DIAL SETTING GATE NUMBER (EAST) 1	2	3	4	(WEST) 5
1	-	-	0.25	-	-	51	2.50	2.50	2.75	2.50	2.50	101	5.00	5.00	5.25	5.00	5.00	151	7.50	7.50	7.75	7.50	7.50	201	10.00	10.00	10.25	10.00	10.00
2	0.25	-	0.25	-	-	52	2.75	2.50	2.75	2.50	2.50	102	5.25	5.00	5.25	5.00	5.00	152	7.75	7.50	7.75	7.50	7.50	202	10.25	10.00	10.25	10.00	10.00
3	0.25	-	0.25	-	0.25	53	2.75	2.50	2.75	2.50	2.75	103	5.25	5.00	5.25	5.00	5.25	153	7.75	7.50	7.75	7.50	7.75	203	10.25	10.00	10.25	10.00	10.25
4	0.25	0.25	0.25	-	0.25	54	2.75	2.75	2.75	2.50	2.75	104	5.25	5.25	5.25	5.00	5.25	154	7.75	7.75	7.75	7.50	7.75	204	10.25	10.25	10.25	10.00	10.25
5	0.25	0.25	0.25	0.25	0.25	55	2.75	2.75	2.75	2.75	2.75	105	5.25	5.25	5.25	5.25	5.25	155	7.75	7.75	7.75	7.75	7.75	205	10.25	10.25	10.25	10.25	10.25
6	0.25	0.25	0.50	0.25	0.25	56	2.75	2.75	3.00	2.75	2.75	106	5.25	5.25	5.50	5.25	5.25	156	7.75	7.75	8.00	7.75	7.75	206	10.25	10.25	10.50	10.25	10.25
7	0.50	0.25	0.50	0.25	0.25	57	3.00	2.75	3.00	2.75	2.75	107	5.50	5.25	5.50	5.25	5.25	157	8.00	7.75	8.00	7.75	7.75	207	10.50	10.25	10.50	10.25	10.25
8	0.50	0.25	0.50	0.25	0.50	58	3.00	2.75	3.00	2.75	3.00	108	5.50	5.25	5.50	5.25	5.50	158	8.00	7.75	8.00	7.75	8.00	208	10.50	10.25	10.50	10.25	10.50
9	0.50	0.50	0.50	0.25	0.50	59	3.00	3.00	3.00	2.75	3.00	109	5.50	5.50	5.50	5.25	5.50	159	8.00	8.00	8.00	7.75	8.00	209	10.50	10.50	10.50	10.25	10.50
10	0.50	0.50	0.50	0.50	0.50	60	3.00	3.00	3.00	3.00	3.00	110	5.50	5.50	5.50	5.50	5.50	160	8.00	8.00	8.00	8.00	8.00	210	10.50	10.50	10.50	10.50	10.50
11	0.50	0.50	0.75	0.50	0.50	61	3.00	3.00	3.25	3.00	3.00	111	5.50	5.50	5.75	5.50	5.50	161	8.00	8.00	8.25	8.00	8.00	211	10.50	10.50	10.75	10.50	10.50
12	0.75	0.50	0.75	0.50	0.50	62	3.25	3.00	3.25	3.00	3.00	112	5.75	5.50	5.75	5.50	5.50	162	8.25	8.00	8.25	8.00	8.00	212	10.75	10.50	10.75	10.50	10.50
13	0.75	0.50	0.75	0.50	0.75	63	3.25	3.00	3.25	3.00	3.25	113	5.75	5.50	5.75	5.50	5.75	163	8.25	8.00	8.25	8.00	8.25	213	10.75	10.50	10.75	10.50	10.75
14	0.75	0.75	0.75	0.50	0.75	64	3.25	3.25	3.25	3.00	3.25	114	5.75	5.75	5.75	5.50	5.75	164	8.25	8.25	8.25	8.00	8.25	214	10.75	10.75	10.75	10.50	10.75
15	0.75	0.75	0.75	0.75	0.75	65	3.25	3.25	3.25	3.25	3.25	115	5.75	5.75	5.75	5.75	5.75	165	8.25	8.25	8.25	8.25	8.25	215	10.75	10.75	10.75	10.75	10.75
16	0.75	0.75	1.00	0.75	0.75	66	3.25	3.25	3.50	3.25	3.25	116	5.75	5.75	6.00	5.75	5.75	166	8.25	8.25	8.50	8.25	8.25	216	10.75	10.75	11.00	10.75	10.75
17	1.00	0.75	1.00	0.75	0.75	67	3.50	3.25	3.50	3.25	3.25	117	6.00	5.75	6.00	5.75	5.75	167	8.50	8.25	8.50	8.25	8.25	217	11.00	10.75	11.00	10.75	10.75
18	1.00	0.75	1.00	0.75	1.00	68	3.50	3.25	3.50	3.25	3.50	118	6.00	5.75	6.00	5.75	6.00	168	8.50	8.25	8.50	8.25	8.50	218	11.00	10.75	11.00	10.75	11.00
19	1.00	1.00	1.00	0.75	1.00	69	3.50	3.50	3.50	3.25	3.50	119	6.00	6.00	6.00	5.75	6.00	169	8.50	8.50	8.50	8.25	8.50	219	11.00	11.00	11.00	10.75	11.00
20	1.00	1.00	1.00	1.00	1.00	70	3.50	3.50	3.50	3.50	3.50	120	6.00	6.00	6.00	6.00	6.00	170	8.50	8.50	8.50	8.50	8.50	220	11.00	11.00	11.00	11.00	11.00
21	1.00	1.00	1.25	1.00	1.00	71	3.50	3.50	3.75	3.50	3.50	121	6.00	6.00	6.25	6.00	6.00	171	8.50	8.50	8.75	8.50	8.50	221	11.00	11.00	11.25	11.00	11.00
22	1.25	1.00	1.25	1.00	1.00	72	3.75	3.50	3.75	3.50	3.50	122	6.25	6.00	6.25	6.00	6.00	172	8.75	8.50	8.75	8.50	8.50	222	11.25	11.00	11.25	11.00	11.00
23	1.25	1.00	1.25	1.00	1.25	73	3.75	3.50	3.75	3.50	3.75	123	6.25	6.00	6.25	6.00	6.25	173	8.75	8.50	8.75	8.50	8.75	223	11.25	11.00	11.25	11.00	11.25
24	1.25	1.25	1.25	1.00	1.25	74	3.75	3.75	3.75	3.50	3.75	124	6.25	6.25	6.25	6.00	6.25	174	8.75	8.75	8.75	8.50	8.75	224	11.25	11.25	11.25	11.00	11.25
25	1.25	1.25	1.25	1.25	1.25	75	3.75	3.75	3.75	3.75	3.75	125	6.25	6.25	6.25	6.25	6.25	175	8.75	8.75	8.75	8.75	8.75	225	11.25	11.25	11.25	11.25	11.25
26	1.25	1.25	1.50	1.25	1.50	76	3.75	3.75	4.00	3.75	3.75	126	6.25	6.25	6.50	6.25	6.25	176	8.75	8.75	9.00	8.75	8.75	226	11.25	11.25	11.50	11.25	11.25
27	1.25	1.25	1.50	1.25	1.50	77	4.00	3.75	4.00	3.75	3.75	127	6.50	6.25	6.50	6.25	6.25	177	9.00	8.75	9.00	8.75	8.75	227	11.50	11.25	11.50	11.25	11.25
28	1.50	1.25	1.50	1.25	1.50	78	4.00	3.75	4.00	3.75	4.00	128	6.50	6.25	6.50	6.25	6.50	178	9.00	8.75	9.00	8.75	9.00	228	11.50	11.25	11.50	11.25	11.50
29	1.50	1.50	1.50	1.25	1.50	79	4.00	4.00	4.00	3.75	4.00	129	6.50	6.50	6.50	6.25	6.50	179	9.00	9.00	9.00	8.75	9.00	229	11.50	11.50	11.50	11.25	11.50
30	1.50	1.50	1.50	1.50	1.50	80	4.00	4.00	4.00	4.00	4.00	130	6.50	6.50	6.50	6.50	6.50	180	9.00	9.00	9.00	9.00	9.00	230	11.50	11.50	11.50	11.50	11.50
31	1.50	1.50	1.75	1.50	1.50	81	4.00	4.00	4.25	4.00	4.00	131	6.50	6.50	6.75	6.50	6.50	181	9.00	9.00	9.25	9.00	9.00	231	11.50	11.50	11.75	11.50	11.50
32	1.75	1.50	1.75	1.50	1.50	82	4.25	4.00	4.25	4.00	4.00	132	6.75	6.50	6.75	6.50	6.50	182	9.25	9.00	9.25	9.00	9.00	232	11.75	11.50	11.75	11.50	11.50
33	1.75	1.50	1.75	1.50	1.75	83	4.25	4.00	4.25	4.00	4.25	133	6.75	6.50	6.75	6.50	6.75	183	9.25	9.00	9.25	9.00	9.25	233	11.75	11.50	11.75	11.50	11.75
34	1.75	1.75	1.75	1.50	1.75	84	4.25	4.25	4.25	4.00	4.25	134	6.75	6.75	6.75	6.50	6.75	184	9.25	9.25	9.25	9.00	9.25	234	11.75	11.75	11.75	11.50	11.75
35	1.75	1.75	1.75	1.75	1.75	85	4.25	4.25	4.25	4.25	4.25	135	6.75	6.75	6.75	6.75	6.75	185	9.25	9.25	9.25	9.25	9.25	235	11.75	11.75	11.75	11.75	11.75
36	1.75	1.75	2.00	1.75	1.75	86	4.25	4.25	4.50	4.25	4.25	136	6.75	6.75	7.00	6.75	6.75	186	9.25	9.25	9.50	9.25	9.25	236	11.75	11.75	12.00	11.75	11.75
37	2.00	1.75	2.00	1.75	1.75	87	4.50	4.25	4.50	4.25	4.25	137	7.00	6.75	7.00	6.75	6.75	187	9.50	9.25	9.50	9.25	9.25	237	12.00	11.75	12.00	11.75	11.75
38	2.00	1.75	2.00	1.75	2.00	88	4.50	4.25	4.50	4.25	4.50	138	7.00	6.75	7.00	6.75	7.00	188	9.50	9.25	9.50	9.25	9.50	238	12.00	11.75	12.90	11.75	12.00
39	2.00	2.00	2.00	1.75	2.00	89	4.50	4.50	4.50	4.25	4.50	139	7.00	7.00	7.00	6.75	7.00	189	9.50	9.50	9.50	9.25	9.50	239	12.00	12.00	12.00	11.75	12.00
40	2.00	2.00	2.00	2.00	2.00	90	4.50	4.50	4.50	4.50	4.50	140	7.00	7.00	7.00	7.00	7.00	190	9.50	9.50	9.50	9.50	9.50	240	12.00	12.00	12.00	12.00	12.00
41	2.00	2.00	2.25	2.00	2.00	91	4.50	4.50	4.75	4.50	4.50	141	7.00	7.00	7.25	7.00	7.00	191	9.50	9.50	9.75	9.50	9.50	241	12.00	12.00	12.25	12.00	12.00
42	2.25	2.00	2.25	2.00	2.00	92	4.75	4.50	4.75	4.50	4.50	142	7.25	7.00	7.25	7.00	7.00	192	9.75	9.50	9.75	9.50	9.50	242	12.25	12.00	12.25	12.00	12.00
43	2.25	2.00	2.25	2.00	2.25	93	4.75	4.50	4.75	4.50	4.75	143	7.25	7.00	7.25	7.00	7.25	193	9.75	9.50	9.75	9.50	9.75	243	12.25	12.00	12.25	12.00	12.25
44	2.25	2.25	2.25	2.00	2.25	94	4.75	4.75	4.75	4.50	4.75	144	7.25	7.25	7.25	7.00	7.25	194	9.75	9.75	9.75	9.50	9.75	244	12.25	12.25	12.25	12.00	12.25
45	2.25	2.25	2.25	2.25	2.25	95	4.75	4.75	4.75	4.75	4.75	145	7.25	7.25	7.25	7.25	7.25	195	9.75	9.75	9.75	9.75	9.75	245	12.25	12.25	12.25	12.25	12.25
46	2.25	2.25	2.50	2.25	2.25	96	4.75	4.75	5.00	4.75	4.75	146	7.25	7.25	7.50	7.25	7.25	196	9.75	9.75	10.00	9.75	9.75	246	12.25	12.25	12.50	12.25	12.25
47	2.50	2.25	2.50	2.25	2.25	97	5.00	4.75	5.00	4.75	4.75	147	7.50	7.25	7.50	7.25	7.25	197	10.00	9.75	10.00	9.75	9.75	247	12.50	12.25	12.50	12.25	12.25
48	2.50	2.25	2.50	2.25	2.50	98	5.00	4.75	5.00	4.75	5.00	148	7.50	7.25	7.50	7.25	7.50	198	10.00	9.75	10.00	9.75	10.00	248	12.50	12.25	12.50	12.25	12.50
49	2.50	2.50	2.50	2.25	2.50	99	5.00	5.00	5.00	4.75	5.00	149	7.50	7.50	7.50	7.25	7.50	199	10.00	10.00	10.00	9.75	10.00	249	12.50	12.50	12.50	12.25	12.50
50	2.50	2.50	2.50	2.50	2.50	100	5.00	5.00	5.00	5.00	5.00	150	7.50	7.50	7.50	7.50	7.50	200	10.00	10.00	10.00	10.00	10.00	250	12.50	12.50	12.50	12.50	12.50

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

GATE OPERATION SCHEDULE

WEISS GATE OPERATION SCHEDULE

GATE ARRANGE-MENT NO.	DIAL SETTING GATE NUMBER (EAST) 1	2	3	4	(WEST) 5	GATE ARRANGE-MENT NO.	DIAL SETTING GATE NUMBER (EAST) 1	2	3	4	(WEST) 5	GATE ARRANGE-MENT NO.	DIAL SETTING GATE NUMBER (EAST) 1	2	3	4	(WEST) 5	GATE ARRANGE-MENT NO.	DIAL SETTING GATE NUMBER (EAST) 1	2	3	4	(WEST) 5	GATE ARRANGE-MENT NO.	DIAL SETTING GATE NUMBER (EAST) 1	2	3	4	(WEST) 5
251	12.50	12.50	12.75	12.50	12.50	301	15.00	15.00	15.25	15.00	15.00	351	17.50	17.50	17.75	17.50	17.50	401	20.00	20.00	20.25	20.00	20.00	451	22.50	22.50	22.75	22.50	22.50
252	12.75	12.50	12.75	12.50	12.50	302	15.25	15.00	15.25	15.00	15.00	352	17.75	17.50	17.75	17.50	17.50	402	20.25	20.00	20.25	20.00	20.00	452	22.75	22.50	22.75	22.50	22.50
253	12.75	12.50	12.75	12.50	12.75	303	15.25	15.00	15.25	15.00	15.25	353	17.75	17.50	17.75	17.50	17.75	403	20.25	20.00	20.25	20.00	20.25	453	22.75	22.50	22.75	22.50	22.75
254	12.75	12.75	12.75	12.50	12.75	304	15.25	15.25	15.25	15.00	15.25	354	17.75	17.75	17.75	17.50	17.75	404	20.25	20.25	20.25	20.00	20.25	454	22.75	22.75	22.75	22.50	22.75
255	12.75	12.75	12.75	12.75	12.75	305	15.25	15.25	15.25	15.25	15.25	355	17.75	17.75	17.75	17.75	17.75	405	20.25	20.25	20.25	20.25	20.25	455	22.75	22.75	22.75	22.75	22.75
256	12.75	12.75	13.00	12.75	12.75	306	15.25	15.25	15.50	15.25	15.25	356	17.75	17.75	18.00	17.75	17.75	406	20.25	20.25	20.50	20.25	20.25	456	22.75	22.75	23.00	22.75	22.75
257	13.00	12.75	13.00	12.75	12.75	307	15.50	15.25	15.50	15.25	15.25	357	18.00	17.75	18.00	17.75	17.75	407	20.50	20.25	20.50	20.25	20.25	457	23.00	22.75	23.00	22.75	22.75
258	13.00	12.75	13.00	12.75	13.00	308	15.50	15.25	15.50	15.25	15.50	358	18.00	17.75	18.00	17.75	18.00	408	20.50	20.25	20.50	20.25	20.50	458	23.00	22.75	23.00	22.75	23.00
259	13.00	13.00	13.00	12.75	13.00	309	15.50	15.50	15.50	15.25	15.50	359	18.00	18.00	18.00	17.75	18.00	409	20.50	20.50	20.50	20.25	20.50	459	23.00	23.00	23.00	22.75	23.00
260	13.00	13.00	13.00	13.00	13.00	310	15.50	15.50	15.50	15.50	15.50	360	18.00	18.00	18.00	18.00	18.00	410	20.50	20.50	20.50	20.50	20.50	460	23.00	23.00	23.00	23.00	23.00
261	13.00	13.00	13.25	13.00	13.00	311	15.50	15.50	15.75	15.50	15.50	361	18.00	18.00	18.25	18.00	18.00	411	20.50	20.50	20.75	20.50	20.50	461	23.00	23.00	23.25	23.00	23.00
262	13.25	13.00	13.25	13.00	13.00	312	15.75	15.50	15.75	15.50	15.50	362	18.25	18.00	18.25	18.00	18.00	412	20.75	20.50	20.75	20.50	20.50	462	23.25	23.00	23.25	23.00	23.00
263	13.25	13.00	13.25	13.00	13.25	313	15.75	15.50	15.75	15.50	15.75	363	18.25	18.00	18.25	18.00	18.25	413	20.75	20.50	20.75	20.50	20.75	463	23.25	23.00	23.25	23.00	23.25
264	13.25	13.25	13.25	13.00	13.25	314	15.75	15.75	15.75	15.50	15.75	364	18.25	18.25	18.25	18.00	18.25	414	20.75	20.75	20.75	20.50	20.75	464	23.25	23.25	23.25	23.00	23.25
265	13.25	13.25	13.25	13.25	13.25	315	15.75	15.75	15.75	15.75	15.75	365	18.25	18.25	18.25	18.25	18.25	415	20.75	20.75	20.75	20.75	20.75	465	23.25	23.25	23.25	23.25	23.25
266	13.25	13.25	13.50	13.25	13.25	316	15.75	15.75	16.00	15.75	15.75	366	18.25	18.25	18.50	18.25	18.25	416	20.75	20.75	21.00	20.75	20.75	466	23.25	23.25	23.50	23.25	23.25
267	13.50	13.25	13.50	13.25	13.25	317	16.00	15.75	16.00	15.75	15.75	367	18.50	18.25	18.50	18.25	18.25	417	21.00	20.75	21.00	20.75	20.75	467	23.50	23.25	23.50	23.25	23.25
268	13.50	13.25	13.50	13.25	13.50	318	16.00	15.75	16.00	15.75	16.00	368	18.50	18.25	18.50	18.25	18.50	418	21.00	20.75	21.00	20.75	21.00	468	23.50	23.25	23.50	23.25	23.50
269	13.50	13.50	13.50	13.25	13.50	319	16.00	16.00	16.00	15.75	16.00	369	18.50	18.50	18.50	18.25	18.50	419	21.00	21.00	21.00	20.75	21.00	469	23.50	23.50	23.50	23.25	23.50
270	13.50	13.50	13.50	13.50	13.50	320	16.00	16.00	16.00	16.00	16.00	370	18.50	18.50	18.50	18.50	18.50	420	21.00	21.00	21.00	21.00	21.00	470	23.50	23.50	23.50	23.50	23.50
271	13.50	13.50	13.75	13.50	13.50	321	16.00	16.00	16.25	16.00	16.00	371	18.50	18.50	18.75	18.50	18.50	421	21.00	21.00	21.25	21.00	21.00	471	23.50	23.50	23.75	23.50	23.50
272	13.75	13.50	13.75	13.50	13.50	322	16.25	16.00	16.25	16.00	16.00	372	18.75	18.50	18.75	18.50	18.50	422	21.25	21.00	21.25	21.00	21.00	472	23.75	23.50	23.75	23.50	23.50
273	13.75	13.50	13.75	13.50	13.75	323	16.25	16.00	16.25	16.00	16.25	373	18.75	18.50	18.75	18.50	18.75	423	21.25	21.00	21.25	21.00	21.25	473	23.75	23.50	23.75	23.50	23.75
274	13.75	13.75	13.75	13.50	13.75	324	16.25	16.25	16.25	16.00	16.25	374	18.75	18.75	18.75	18.50	18.75	424	21.25	21.25	21.25	21.00	21.25	474	23.75	23.75	23.75	23.50	23.75
275	13.75	13.75	13.75	13.75	13.75	325	16.25	16.25	16.25	16.25	16.25	375	18.75	18.75	18.75	18.75	18.75	425	21.25	21.25	21.25	21.25	21.25	475	23.75	23.75	23.75	23.75	23.75
276	13.75	13.75	14.00	13.75	13.75	326	16.25	16.25	16.50	16.25	16.25	376	18.75	18.75	19.00	18.75	18.75	426	21.25	21.25	21.50	21.25	21.25	476	23.75	23.75	24.00	23.75	23.75
277	14.00	13.75	14.00	13.75	13.75	327	16.50	16.25	16.50	16.25	16.25	377	19.00	18.75	19.00	18.75	18.75	427	21.50	21.25	21.50	21.25	21.25	477	24.00	23.75	24.00	23.75	23.75
278	14.00	13.75	14.00	13.75	14.00	328	16.50	16.25	16.50	16.25	16.50	378	19.00	18.75	19.00	18.75	19.00	428	21.50	21.25	21.50	21.25	21.50	478	24.00	23.75	24.00	23.75	24.00
279	14.00	14.00	14.00	13.75	14.00	329	16.50	16.50	16.50	16.25	16.50	379	19.00	19.00	19.00	18.75	19.00	429	21.50	21.50	21.50	21.25	21.50	479	24.00	24.00	24.00	23.75	24.00
280	14.00	14.00	14.00	14.00	14.00	330	16.50	16.50	16.50	16.50	16.50	380	19.00	19.00	19.00	19.00	19.00	430	21.50	21.50	21.50	21.50	21.50	480	24.00	24.00	24.00	24.00	24.00
281	14.00	14.00	14.25	14.00	14.00	331	16.50	16.50	16.75	16.50	16.50	381	19.00	19.00	19.25	19.00	19.00	431	21.50	21.50	21.75	21.50	21.50	481	24.00	24.00	24.25	24.00	24.00
282	14.25	14.00	14.25	14.00	14.00	332	16.75	16.50	16.75	16.50	16.50	382	19.25	19.00	19.25	19.00	19.00	432	21.75	21.50	21.75	21.50	21.50	482	24.25	24.00	24.25	24.00	24.00
283	14.25	14.00	14.25	14.00	14.25	333	16.75	16.50	16.75	16.50	16.75	383	19.25	19.00	19.25	19.00	19.25	433	21.75	21.50	21.75	21.50	21.75	483	24.25	24.00	24.25	24.00	24.25
284	14.25	14.25	14.25	14.00	14.25	334	16.75	16.75	16.75	16.50	16.75	384	19.25	19.25	19.25	19.00	19.25	434	21.75	21.75	21.75	21.50	21.75	484	24.25	24.25	24.25	24.00	24.25
285	14.25	14.25	14.25	14.25	14.25	335	16.75	16.75	16.75	16.75	16.75	385	19.25	19.25	19.25	19.25	19.25	435	21.75	21.75	21.75	21.75	21.75	485	24.25	24.25	24.25	24.25	24.25
286	14.25	14.25	14.50	14.25	14.25	336	16.75	16.75	17.00	16.75	16.75	386	19.25	19.25	19.50	19.25	19.25	436	21.75	21.75	22.00	21.75	21.75	486	24.25	24.25	24.50	24.25	24.25
287	14.50	14.25	14.50	14.25	14.25	337	17.00	16.75	17.00	16.75	16.75	387	19.50	19.25	19.50	19.25	19.25	437	22.00	21.75	22.00	21.75	21.75	487	24.50	24.25	24.50	24.25	24.25
288	14.50	14.25	14.50	14.25	14.50	338	17.00	16.75	17.00	16.75	17.00	388	19.50	19.25	19.50	19.25	19.50	438	22.00	21.75	22.00	21.75	22.00	488	24.50	24.25	24.50	24.25	24.50
289	14.50	14.50	14.50	14.25	14.50	339	17.00	17.00	17.00	16.75	17.00	389	19.50	19.50	19.50	19.25	19.50	439	22.00	22.00	22.00	21.75	22.00	489	24.50	24.50	24.50	24.25	24.50
290	14.50	14.50	14.50	14.50	14.50	340	17.00	17.00	17.00	17.00	17.00	390	19.50	19.50	19.50	19.50	19.50	440	22.00	22.00	22.00	22.00	22.00	490	24.50	24.50	24.50	24.50	24.50
291	14.50	14.50	14.75	14.50	14.50	341	17.00	17.00	17.25	17.00	17.00	391	19.50	19.50	19.75	19.50	19.50	441	22.00	22.00	22.25	22.00	22.00	491	24.50	24.50	24.75	24.50	24.50
292	14.75	14.50	14.75	14.50	14.50	342	17.25	17.00	17.25	17.00	17.00	392	19.75	19.50	19.75	19.50	19.50	442	22.25	22.00	22.25	22.00	22.00	492	24.75	24.50	24.75	24.50	24.50
293	14.75	14.50	14.75	14.50	14.75	343	17.25	17.00	17.25	17.00	17.25	393	19.75	19.50	19.75	19.50	19.75	443	22.25	22.00	22.25	22.00	22.25	493	24.75	24.50	24.75	24.50	24.75
294	14.75	14.75	14.75	14.50	14.75	344	17.25	17.25	17.25	17.00	17.25	394	19.75	19.75	19.75	19.50	19.75	444	22.25	22.25	22.25	22.00	22.25	494	24.75	24.75	24.75	24.50	24.75
295	14.75	14.75	14.75	14.75	14.75	345	17.25	17.25	17.25	17.25	17.25	395	19.75	19.75	19.75	19.75	19.75	445	22.25	22.25	22.25	22.25	22.25	495	24.75	24.75	24.75	24.75	24.75
296	14.75	14.75	15.00	14.75	14.75	346	17.25	17.25	17.50	17.25	17.25	396	19.75	19.75	20.00	19.75	19.75	446	22.25	22.25	22.50	22.25	22.25	496	24.75	24.75	25.00	24.75	24.75
297	15.00	14.75	15.00	14.75	14.75	347	17.50	17.25	17.50	17.25	17.25	397	20.00	19.75	20.00	19.75	19.75	447	22.50	22.25	22.50	22.25	22.25	497	25.00	24.75	25.00	24.75	24.75
298	15.00	14.75	15.00	14.75	15.00	348	17.50	17.25	17.50	17.25	17.50	398	20.00	19.75	20.00	19.75	20.00	448	22.50	22.25	22.50	22.25	22.50	498	25.00	24.75	25.00	24.75	25.00
299	15.00	15.00	15.00	14.75	15.00	349	17.50	17.50	17.50	17.25	17.50	399	20.00	20.00	20.00	19.75	20.00	449	22.50	22.50	22.50	22.25	22.50	499	25.00	25.00	25.00	24.75	25.00
300	15.00	15.00	15.00	15.00	15.00	350	17.50	17.50	17.50	17.50	17.50	400	20.00	20.00	20.00	20.00	20.00	450	22.50	22.50	22.50	22.50	22.50	500	25.00	25.00	25.00	25.00	25.00

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

GATE OPERATION SCHEDULE

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 532

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
1	254	264	274	282	290	298	306	314
2	508	528	548	564	580	596	612	628
3	762	792	822	846	870	894	918	942
4	1016	1056	1096	1128	1160	1192	1224	1256
5	1270	1320	1370	1410	1450	1490	1530	1570
6	1524	1584	1642	1692	1742	1791	1840	1888
7	1778	1848	1914	1974	2034	2092	2150	2206
8	2032	2112	2186	2256	2326	2393	2460	2524
9	2286	2376	2458	2538	2618	2694	2770	2842
10	2540	2640	2730	2820	2910	2995	3080	3160
11	3052	3168	3278	3388	3496	3597	3700	3796
12	3052	3168	3278	3388	3496	3597	3700	3796
13	3308	3432	3552	3672	3789	3898	4010	4114
14	3564	3696	3826	3956	4082	4199	4320	4432
15	3820	3960	4100	4240	4375	4500	4630	4750
16	4074	4224	4374	4522	4666	4800	4938	5066
17	4328	4488	4648	4804	4957	5100	5246	5382
18	4582	4752	4922	5086	5248	5400	5554	5698
19	4836	5016	5196	5368	5539	5700	5862	6014
20	5090	5280	5470	5650	5830	6000	6170	6330
21	5344	5544	5744	5934	6122	6300	6478	6648
22	5598	5808	6018	6218	6414	6600	6786	6966
23	5852	6072	6292	6502	6706	6900	7094	7284
24	6106	6336	6566	6786	6998	7200	7402	7602
25	6360	6600	6840	7070	7290	7500	7710	7920
26	6864	7128	7384	7634	7874	8100	8330	8552
27	6864	7128	7384	7634	7874	8100	8330	8552
28	7116	7392	7656	7916	8166	8400	8640	8868
29	7368	7656	7928	8198	8458	8700	8950	9184
30	7620	7920	8200	8480	8750	9000	9260	9500
31	7876	8184	8474	8764	9042	9302	9570	9818
32	8132	8448	8748	9048	9334	9604	9880	10136
33	8388	8712	9022	9332	9626	9906	10190	10454
34	8644	8976	9296	9616	9918	10208	10500	10772
35	8900	9240	9570	9900	10210	10510	10810	11090
36	9152	9504	9844	10182	10502	10810	11118	11408
37	9404	9768	10118	10464	10794	11110	11426	11726
38	9656	10032	10392	10746	11086	11410	11734	12044
39	9908	10296	10666	11028	11378	11710	12042	12362
40	10160	10560	10940	11310	11670	12010	12350	12680
41	10414	10824	11214	11594	11962	12312	12660	12998
42	10668	11088	11488	11878	12254	12614	12970	13316

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 532

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
43	10922	11352	11762	12162	12546	12916	13280	13634
44	11176	11616	12036	12446	12838	13218	13590	13952
45	11430	11880	12310	12730	13130	13520	13900	14270
46	11682	12142	12584	13012	13422	13822	14212	14590
47	11934	12404	12858	13294	13714	14124	14524	14910
48	12186	12666	13132	13576	14006	14426	14836	15230
49	12438	12928	13406	13858	14298	14728	15148	15550
50	12690	13190	13680	14140	14590	15030	15460	15870
51	12944	13454	13952	14422	14882	15332	15768	16188
52	13198	13718	14224	14704	15174	15634	16076	16506
53	13452	13982	14496	14986	15466	15936	16384	16824
54	13706	14246	14768	15268	15758	16238	16692	17142
55	13960	14510	15040	15550	16050	16540	17000	17460
56	14212	14774	15314	15834	16344	16842	17312	17780
57	14464	15038	15588	16118	16638	17144	17624	18100
58	14716	15302	15862	16402	16932	17446	17936	18420
59	14968	15566	16136	16686	17226	17748	18248	18740
60	15220	15830	16410	16970	17520	18050	18560	19060
61	15220	15830	16410	16970	17520	18050	18560	19060
62	15720	16350	16954	17534	18100	18650	19180	19696
63	15970	16610	17226	17816	18390	18950	19490	20014
64	16220	16870	17498	18098	18680	19250	19800	20332
65	16470	17130	17770	18380	18970	19550	20110	20650
66	16720	17392	18040	18662	19262	19850	20418	20968
67	16970	17654	18310	18944	19554	20150	20726	21286
68	17220	17916	18580	19226	19846	20450	21034	21604
69	17470	18178	18850	19508	20138	20750	21342	21922
70	17720	18440	19120	19790	20430	21050	21650	22240
71	17972	18700	19392	20070	20720	21350	21960	22558
72	18224	18960	19664	20350	21010	21650	22270	22876
73	18476	19220	19936	20630	21300	21950	22580	23194
74	18728	19480	20208	20910	21590	22250	22890	23512
75	18980	19740	20480	21190	21880	22550	23200	23830
76	19230	20002	20752	21472	22172	22852	23510	24150
77	19480	20264	21024	21754	22464	23154	23820	24470
78	19730	20526	21296	22036	22756	23456	24130	24790
79	19980	20788	21568	22318	23048	23758	24440	25110
80	20230	21050	21840	22600	23340	24060	24750	25430
81	20480	21312	22112	22882	23632	24360	25060	25748
82	20730	21574	22384	23164	23924	24660	25370	26066
83	20980	21836	22656	23446	24216	24960	25680	26384
84	21230	22098	22928	23728	24508	25260	25990	26702

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 532

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
85	21480	22360	23200	24010	24800	25560	26300	27020
86	21730	22620	23470	24292	25092	25862	26610	27340
87	21980	22880	23740	24574	25384	26164	26920	27660
88	22230	23140	24010	24856	25676	26466	27230	27980
89	22480	23400	24280	25138	25968	26768	27540	28300
90	22730	23660	24550	25420	26260	27070	27850	28620
91	22978	23918	24820	25700	26550	27368	28160	28938
92	23226	24176	25090	25980	26840	27666	28470	29256
93	23474	24434	25360	26260	27130	27964	28780	29574
94	23722	24692	25630	26540	27420	28262	29090	29892
95	23970	24950	25900	26820	27710	28560	29400	30210
96	24216	25208	26170	27100	27998	28858	29708	30528
97	24462	25466	26440	27380	28286	29156	30016	30846
98	24708	25724	26710	27660	28574	29454	30324	31164
99	24954	25982	26980	27940	28862	29752	30632	31482
100	25200	26240	27250	28220	29150	30050	30940	31800
101				28498	29440	30350	31248	32118
102				28776	29730	30650	31556	32436
103				29054	30020	30950	31864	32754
104				29332	30310	31250	32172	33072
105				29610	30600	31550	32480	33390
106				29890	30890	31850	32790	33706
107				30170	31180	32150	33100	34022
108				30450	31470	32450	33410	34338
109				30730	31760	32750	33720	34654
110				31010	32050	33050	34030	34970
111				31288	32338	33348	34336	35288
112				31566	32626	33646	34642	35606
113				31844	32914	33944	34948	35924
114				32122	33202	34242	35254	36242
115				32400	33490	34540	35560	36560
116				32678	33778	34838	35868	36878
117				32956	34066	35136	36176	37196
118				33234	34354	35434	36484	37514
119				33512	34642	35732	36792	37832
120				33790	34930	36030	37100	38150

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 534

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
1	244	254	264	274	284	294	304	314
2	488	508	528	548	568	588	608	628
3	732	762	792	822	852	882	912	942
4	976	1016	1056	1096	1136	1176	1216	1256
5	1220	1270	1320	1370	1420	1470	1520	1570
6	1466	1524	1584	1646	1708	1770	1832	1894
7	1712	1778	1848	1922	1996	2070	2144	2218
8	1958	2032	2112	2198	2284	2370	2456	2542
9	2204	2286	2376	2474	2572	2670	2768	2866
10	2450	2540	2640	2750	2860	2970	3080	3190
11	2954	3060	3180	3314	3448	3582	3716	3850
12	2954	3060	3180	3314	3448	3582	3716	3850
13	3206	3320	3450	3596	3742	3888	4034	4180
14	3458	3580	3720	3878	4036	4194	4352	4510
15	3710	3840	3990	4160	4330	4500	4670	4840
16	3966	4108	4270	4444	4616	4788	4960	5132
17	4222	4376	4550	4728	4902	5076	5250	5424
18	4478	4644	4830	5012	5188	5364	5540	5716
19	4734	4912	5110	5296	5474	5652	5830	6008
20	4990	5180	5390	5580	5760	5940	6120	6300
21	5248	5448	5670	5870	6060	6248	6434	6624
22	5506	5716	5950	6160	6360	6556	6748	6948
23	5764	5984	6230	6450	6660	6864	7062	7272
24	6022	6252	6510	6740	6960	7172	7376	7596
25	6280	6520	6790	7030	7260	7480	7690	7920
26	6800	7068	7354	7610	7856	8088	8318	8552
27	6800	7068	7354	7610	7856	8088	8318	8552
28	7060	7342	7636	7900	8154	8392	8632	8868
29	7320	7616	7918	8190	8452	8696	8946	9184
30	7580	7890	8200	8480	8750	9000	9260	9500
31	7844	8160	8474	8764	9042	9302	9570	9818
32	8108	8430	8748	9048	9334	9604	9880	10136
33	8372	8700	9022	9332	9626	9906	10190	10454
34	8636	8970	9296	9616	9918	10208	10500	10772
35	8900	9240	9570	9900	10210	10510	10810	11090
36	9152	9504	9844	10182	10502	10810	11118	11408
37	9404	9768	10118	10464	10794	11110	11426	11726
38	9656	10032	10392	10746	11086	11410	11734	12044
39	9908	10296	10666	11028	11378	11710	12042	12362
40	10160	10560	10940	11310	11670	12010	12350	12680
41	10414	10824	11214	11594	11962	12312	12660	12998
42	10668	11088	11488	11878	12254	12614	12970	13316

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 534

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
43	10922	11352	11762	12162	12546	12916	13280	13634
44	11176	11616	12036	12446	12838	13218	13590	13952
45	11430	11880	12310	12730	13130	13520	13900	14270
46	11682	12142	12584	13012	13422	13822	14212	14590
47	11934	12404	12858	13294	13714	14124	14524	14910
48	12186	12666	13132	13576	14006	14426	14836	15230
49	12438	12928	13406	13858	14298	14728	15148	15550
50	12690	13190	13680	14140	14590	15030	15460	15870
51	12944	13454	13952	14422	14882	15332	15768	16188
52	13198	13718	14224	14704	15174	15634	16076	16506
53	13452	13982	14496	14986	15466	15936	16384	16824
54	13706	14246	14768	15268	15758	16238	16692	17142
55	13960	14510	15040	15550	16050	16540	17000	17460
56	14212	14774	15314	15834	16344	16842	17312	17780
57	14464	15038	15588	16118	16638	17144	17624	18100
58	14716	15302	15862	16402	16932	17446	17936	18420
59	14968	15566	16136	16686	17226	17748	18248	18740
60	15220	15830	16410	16970	17520	18050	18560	19060
61	15220	15830	16410	16970	17520	18050	18560	19060
62	15720	16350	16954	17534	18100	18650	19180	19696
63	15970	16610	17226	17816	18390	18950	19490	20014
64	16220	16870	17498	18098	18680	19250	19800	20332
65	16470	17130	17770	18380	18970	19550	20110	20650
66	16720	17392	18040	18662	19262	19850	20418	20968
67	16970	17654	18310	18944	19554	20150	20726	21286
68	17220	17916	18580	19226	19846	20450	21034	21604
69	17470	18178	18850	19508	20138	20750	21342	21922
70	17720	18440	19120	19790	20430	21050	21650	22240
71	17972	18700	19392	20070	20720	21350	21960	22558
72	18224	18960	19664	20350	21010	21650	22270	22876
73	18476	19220	19936	20630	21300	21950	22580	23194
74	18728	19480	20208	20910	21590	22250	22890	23512
75	18980	19740	20480	21190	21880	22550	23200	23830
76	19230	20002	20752	21472	22172	22852	23510	24150
77	19480	20264	21024	21754	22464	23154	23820	24470
78	19730	20526	21296	22036	22756	23456	24130	24790
79	19980	20788	21568	22318	23048	23758	24440	25110
80	20230	21050	21840	22600	23340	24060	24750	25430
81	20480	21312	22112	22882	23632	24360	25060	25748
82	20730	21574	22384	23164	23924	24660	25370	26066
83	20980	21836	22656	23446	24216	24960	25680	26384
84	21230	22098	22928	23728	24508	25260	25990	26702

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 534

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
85	21480	22360	23200	24010	24800	25560	26300	27020
86	21730	22620	23470	24292	25092	25862	26610	27340
87	21980	22880	23740	24574	25384	26164	26920	27660
88	22230	23140	24010	24856	25676	26466	27230	27980
89	22480	23400	24280	25138	25968	26768	27540	28300
90	22730	23660	24550	25420	26260	27070	27850	28620
91	22978	23918	24820	25700	26550	27368	28160	29002
92	23226	24176	25090	25980	26840	27666	28470	29384
93	23474	24434	25360	26260	27130	27964	28780	29766
94	23722	24692	25630	26540	27420	28262	29090	30148
95	23970	24950	25900	26820	27710	28560	29400	30530
96	24216	25208	26170	27100	27998	28858	29708	30784
97	24462	25466	26440	27380	28286	29156	30016	31038
98	24708	25724	26710	27660	28574	29454	30324	31292
99	24954	25982	26980	27940	28862	29752	30632	31546
100	25200	26240	27250	28220	29150	30050	30940	31800
101				28498	29440	30350	31248	32118
102				28776	29730	30650	31556	32436
103				29054	30020	30950	31864	32754
104				29332	30310	31250	32172	33072
105				29610	30600	31550	32480	33390
106				29890	30890	31850	32790	33706
107				30170	31180	32150	33100	34022
108				30450	31470	32450	33410	34338
109				30730	31760	32750	33720	34654
110				31010	32050	33050	34030	34970
111				31288	32338	33348	34336	35288
112				31566	32626	33646	34642	35606
113				31844	32914	33944	34948	35924
114				32122	33202	34242	35254	36242
115				32400	33490	34540	35560	36560
116				32678	33778	34838	35868	36878
117				32956	34066	35136	36176	37196
118				33234	34354	35434	36484	37514
119				33512	34642	35732	36792	37832
120				33790	34930	36030	37100	38150

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 536

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
1	234	244	254	262	274	284	294	304
2	468	488	508	524	548	568	588	608
3	702	732	762	786	822	852	882	912
4	936	976	1016	1048	1096	1136	1176	1216
5	1170	1220	1270	1310	1370	1420	1470	1520
6	1404	1466	1526	1576	1642	1700	1758	1816
7	1638	1712	1782	1842	1914	1980	2046	2112
8	1872	1958	2038	2108	2186	2260	2334	2408
9	2106	2204	2294	2374	2458	2540	2622	2704
10	2340	2450	2550	2640	2730	2820	2910	3000
11	2816	2946	3066	3180	3294	3408	3522	3636
12	2816	2946	3066	3180	3294	3408	3522	3636
13	3054	3194	3324	3450	3576	3702	3828	3954
14	3292	3442	3582	3720	3858	3996	4134	4272
15	3530	3690	3840	3990	4140	4290	4440	4590
16	3770	3940	4100	4258	4416	4574	4730	4884
17	4010	4190	4360	4526	4692	4858	5020	5178
18	4250	4440	4620	4794	4968	5142	5310	5472
19	4490	4690	4880	5062	5244	5426	5600	5766
20	4730	4940	5140	5330	5520	5710	5890	6060
21	4972	5192	5404	5604	5802	6002	6190	6370
22	5214	5444	5668	5878	6084	6294	6490	6680
23	5456	5696	5932	6152	6366	6586	6790	6990
24	5698	5948	6196	6426	6648	6878	7090	7300
25	5940	6200	6460	6700	6930	7170	7390	7610
26	6428	6712	6988	7256	7506	7758	8002	8238
27	6428	6712	6988	7256	7506	7758	8002	8238
28	6672	6968	7252	7534	7794	8052	8308	8552
29	6916	7224	7516	7812	8082	8346	8614	8866
30	7160	7480	7780	8090	8370	8640	8920	9180
31	7408	7738	8050	8372	8658	8942	9228	9518
32	7656	7996	8320	8654	8946	9244	9536	9856
33	7904	8254	8590	8936	9234	9546	9844	10194
34	8152	8512	8860	9218	9522	9848	10152	10532
35	8400	8770	9130	9500	9810	10150	10460	10870
36	8656	9044	9416	9796	10124	10472	10796	11196
37	8912	9318	9702	10092	10438	10794	11132	11522
38	9168	9592	9988	10388	10752	11116	11468	11848
39	9424	9866	10274	10684	11066	11438	11804	12174
40	9680	10140	10560	10980	11380	11760	12140	12500
41	9938	10408	10842	11272	11682	12074	12464	12834
42	10196	10676	11124	11564	11984	12388	12788	13168

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 536

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
43	10454	10944	11406	11856	12286	12702	13112	13502
44	10712	11212	11688	12148	12588	13016	13436	13836
45	10970	11480	11970	12440	12890	13330	13760	14170
46	11230	11754	12254	12738	13198	13648	14090	14510
47	11490	12028	12538	13036	13506	13966	14420	14850
48	11750	12302	12822	13334	13814	14284	14750	15190
49	12010	12576	13106	13632	14122	14602	15080	15530
50	12270	12850	13390	13930	14430	14920	15410	15870
51	12538	13124	13678	14226	14742	15244	15728	16188
52	12806	13398	13966	14522	15054	15568	16046	16506
53	13074	13672	14254	14818	15366	15892	16364	16824
54	13342	13946	14542	15114	15678	16216	16682	17142
55	13610	14220	14830	15410	15990	16540	17000	17460
56	13878	14504	15124	15716	16296	16842	17312	17780
57	14146	14788	15418	16022	16602	17144	17624	18100
58	14414	15072	15712	16328	16908	17446	17936	18420
59	14682	15356	16006	16634	17214	17748	18248	18740
60	14950	15640	16300	16940	17520	18050	18560	19060
61	14950	15640	16300	16940	17520	18050	18560	19060
62	15494	16196	16888	17516	18100	18650	19180	19696
63	15766	16474	17182	17804	18390	18950	19490	20014
64	16038	16752	17476	18092	18680	19250	19800	20332
65	16310	17030	17770	18380	18970	19550	20110	20650
66	16582	17312	18040	18662	19262	19850	20418	20968
67	16854	17594	18310	18944	19554	20150	20726	21286
68	17126	17876	18580	19226	19846	20450	21034	21604
69	17398	18158	18850	19508	20138	20750	21342	21922
70	17670	18440	19120	19790	20430	21050	21650	22240
71	17932	18700	19392	20070	20720	21350	21960	22558
72	18194	18960	19664	20350	21010	21650	22270	22876
73	18456	19220	19936	20630	21300	21950	22580	23194
74	18718	19480	20208	20910	21590	22250	22890	23512
75	18980	19740	20480	21190	21880	22550	23200	23830
76	19230	20002	20752	21472	22172	22852	23510	24150
77	19480	20264	21024	21754	22464	23154	23820	24470
78	19730	20526	21296	22036	22756	23456	24130	24790
79	19980	20788	21568	22318	23048	23758	24440	25110
80	20230	21050	21840	22600	23340	24060	24750	25430
81	20480	21312	22112	22882	23632	24360	25060	25748
82	20730	21574	22384	23164	23924	24660	25370	26066
83	20980	21836	22656	23446	24216	24960	25680	26384
84	21230	22098	22928	23728	24508	25260	25990	26702

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 536

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
85	21480	22360	23200	24010	24800	25560	26300	27020
86	21730	22620	23470	24292	25092	25862	26610	27340
87	21980	22880	23740	24574	25384	26164	26920	27660
88	22230	23140	24010	24856	25676	26466	27230	27980
89	22480	23400	24280	25138	25968	26768	27540	28300
90	22730	23660	24550	25420	26260	27070	27850	28620
91	22978	23918	24820	25700	26550	27368	28160	28938
92	23226	24176	25090	25980	26840	27666	28470	29256
93	23474	24434	25360	26260	27130	27964	28780	29574
94	23722	24692	25630	26540	27420	28262	29090	29892
95	23970	24950	25900	26820	27710	28560	29400	30210
96	24216	25208	26170	27100	27998	28858	29708	30528
97	24462	25466	26440	27380	28286	29156	30016	30846
98	24708	25724	26710	27660	28574	29454	30324	31164
99	24954	25982	26980	27940	28862	29752	30632	31482
100	25200	26240	27250	28220	29150	30050	30940	31800
101				28498	29440	30350	31248	32118
102				28776	29730	30650	31556	32436
103				29054	30020	30950	31864	32754
104				29332	30310	31250	32172	33072
105				29610	30600	31550	32480	33390
106				29890	30890	31850	32790	33706
107				30170	31180	32150	33100	34022
108				30450	31470	32450	33410	34338
109				30730	31760	32750	33720	34654
110				31010	32050	33050	34030	34970
111				31288	32338	33348	34336	35288
112				31566	32626	33646	34642	35606
113				31844	32914	33944	34948	35924
114				32122	33202	34242	35254	36242
115				32400	33490	34540	35560	36560
116				32678	33778	34838	35868	36878
117				32956	34066	35136	36176	37196
118				33234	34354	35434	36484	37514
119				33512	34642	35732	36792	37832
120				33790	34930	36030	37100	38150

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 538

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
1	224	236	246	256	266	276	286	296
2	448	472	492	512	532	552	572	592
3	672	708	738	768	798	828	858	888
4	896	944	984	1024	1064	1104	1144	1184
5	1120	1180	1230	1280	1330	1380	1430	1480
6	1346	1416	1476	1534	1594	1650	1708	1766
7	1572	1652	1722	1788	1858	1920	1986	2052
8	1798	1888	1968	2042	2122	2190	2264	2338
9	2024	2124	2214	2296	2386	2460	2542	2624
10	2250	2360	2460	2550	2650	2730	2820	2910
11	2706	2836	2956	3070	3190	3298	3412	3526
12	2706	2836	2956	3070	3190	3298	3412	3526
13	2934	3074	3204	3330	3460	3582	3708	3834
14	3162	3312	3452	3590	3730	3866	4004	4142
15	3390	3550	3700	3850	4000	4150	4300	4450
16	3618	3788	3950	4110	4268	4426	4582	4738
17	3846	4026	4200	4370	4536	4702	4864	5026
18	4074	4264	4450	4630	4804	4978	5146	5314
19	4302	4502	4700	4890	5072	5254	5428	5602
20	4530	4740	4950	5150	5340	5530	5710	5890
21	4760	4982	5202	5412	5614	5812	6002	6192
22	4990	5224	5454	5674	5888	6094	6294	6494
23	5220	5466	5706	5936	6162	6376	6586	6796
24	5450	5708	5958	6198	6436	6658	6878	7098
25	5680	5950	6210	6460	6710	6940	7170	7400
26	6140	6434	6718	6988	7262	7504	7758	8004
27	6140	6434	6718	6988	7262	7504	7758	8004
28	6370	6676	6972	7252	7538	7786	8052	8306
29	6600	6918	7226	7516	7814	8068	8346	8608
30	6830	7160	7480	7780	8090	8350	8640	8910
31	7064	7406	7738	8050	8364	8640	8938	9218
32	7298	7652	7996	8320	8638	8930	9236	9526
33	7532	7898	8254	8590	8912	9220	9534	9834
34	7766	8144	8512	8860	9186	9510	9832	10142
35	8000	8390	8770	9130	9460	9800	10130	10450
36	8234	8638	9028	9398	9740	10088	10428	10760
37	8468	8886	9286	9666	10020	10376	10726	11070
38	8702	9134	9544	9934	10300	10664	11024	11380
39	8936	9382	9802	10202	10580	10952	11322	11690
40	9170	9630	10060	10470	10860	11240	11620	12000
41	9410	9880	10322	10744	11146	11536	11924	12312
42	9650	10130	10584	11018	11432	11832	12228	12624

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 538

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
43	9890	10380	10846	11292	11718	12128	12532	12936
44	10130	10630	11108	11566	12004	12424	12836	13248
45	10370	10880	11370	11840	12290	12720	13140	13560
46	10608	11130	11636	12116	12574	13016	13450	13876
47	10846	11380	11902	12392	12858	13312	13760	14192
48	11084	11630	12168	12668	13142	13608	14070	14508
49	11322	11880	12434	12944	13426	13904	14380	14824
50	11560	12130	12700	13220	13710	14200	14690	15140
51	11806	12386	12964	13500	13998	14500	14996	15458
52	12052	12642	13228	13780	14286	14800	15302	15776
53	12298	12898	13492	14060	14574	15100	15608	16094
54	12544	13154	13756	14340	14862	15400	15914	16412
55	12790	13410	14020	14620	15150	15700	16220	16730
56	13036	13678	14302	14916	15470	16032	16566	17090
57	13282	13946	14584	15212	15790	16364	16912	17450
58	13528	14214	14866	15508	16110	16696	17258	17810
59	13774	14482	15148	15804	16430	17028	17604	18170
60	14020	14750	15430	16100	16750	17360	17950	18530
61	14020	14750	15430	16100	16750	17360	17950	18530
62	14520	15278	15990	16680	17394	17984	18598	19198
63	14770	15542	16270	16970	17716	18296	18922	19532
64	15020	15806	16550	17260	18038	18608	19246	19866
65	15270	16070	16830	17550	18360	18920	19570	20200
66	15526	16342	17108	17844	18668	19236	19896	20532
67	15782	16614	17386	18138	18976	19552	20222	20864
68	16038	16886	17664	18432	19284	19868	20548	21196
69	16294	17158	17942	18726	19592	20184	20874	21528
70	16550	17430	18220	19020	19900	20500	21200	21860
71	16812	17702	18508	19318	20208	20820	21530	22202
72	17074	17974	18796	19616	20516	21140	21860	22544
73	17336	18246	19084	19914	20824	21460	22190	22886
74	17598	18518	19372	20212	21132	21780	22520	23228
75	17860	18790	19660	20510	21440	22100	22850	23570
76	18124	19066	19948	20810	21754	22424	23186	23916
77	18388	19342	20236	21110	22068	22748	23522	24262
78	18652	19618	20524	21410	22382	23072	23858	24608
79	18916	19894	20812	21710	22696	23396	24194	24954
80	19180	20170	21100	22010	23010	23720	24530	25300
81	19442	20448	21390	22314	23328	24048	24868	25644
82	19704	20726	21680	22618	23646	24376	25206	25988
83	19966	21004	21970	22922	23964	24704	25544	26332
84	20228	21282	22260	23226	24282	25032	25882	26676

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 538

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
85	20490	21560	22550	23530	24600	25360	26220	27020
86	20760	21842	22846	23836	24922	25692	26546	27340
87	21030	22124	23142	24142	25244	26024	26872	27660
88	21300	22406	23438	24448	25566	26356	27198	27980
89	21570	22688	23734	24754	25888	26688	27524	28300
90	21840	22970	24030	25060	26210	27020	27850	28620
91	22108	23256	24326	25374	26510	27328	28160	28938
92	22376	23542	24622	25688	26810	27636	28470	29256
93	22644	23828	24918	26002	27110	27944	28780	29574
94	22912	24114	25214	26316	27410	28252	29090	29892
95	23180	24400	25510	26630	27710	28560	29400	30210
96	23452	24684	25814	26948	27998	28858	29708	30528
97	23724	24968	26118	27266	28286	29156	30016	30846
98	23996	25252	26422	27584	28574	29454	30324	31164
99	24268	25536	26726	27902	28862	29752	30632	31482
100	24540	25820	27030	28220	29150	30050	30940	31800
101				28498	29440	30350	31248	32118
102				28776	29730	30650	31556	32436
103				29054	30020	30950	31864	32754
104				29332	30310	31250	32172	33072
105				29610	30600	31550	32480	33390
106				29890	30890	31850	32790	33706
107				30170	31180	32150	33100	34022
108				30450	31470	32450	33410	34338
109				30730	31760	32750	33720	34654
110				31010	32050	33050	34030	34970
111				31288	32338	33348	34336	35288
112				31566	32626	33646	34642	35606
113				31844	32914	33944	34948	35924
114				32122	33202	34242	35254	36242
115				32400	33490	34540	35560	36560
116				32678	33778	34838	35868	36878
117				32956	34066	35136	36176	37196
118				33234	34354	35434	36484	37514
119				33512	34642	35732	36792	37832
120				33790	34930	36030	37100	38150

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 540

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
1	216	226	236	246	256	266	276	286
2	432	452	472	492	512	532	552	572
3	648	678	708	738	768	798	828	858
4	864	904	944	984	1024	1064	1104	1144
5	1080	1130	1180	1230	1280	1330	1380	1430
6	1294	1358	1418	1478	1538	1598	1658	1718
7	1508	1586	1656	1726	1796	1866	1936	2006
8	1722	1814	1894	1974	2054	2134	2214	2294
9	1936	2042	2132	2222	2312	2402	2492	2582
10	2150	2270	2370	2470	2570	2670	2770	2870
11	2586	2722	2846	2970	3090	3210	3330	3450
12	2586	2722	2846	2970	3090	3210	3330	3450
13	2804	2948	3084	3220	3350	3480	3610	3740
14	3022	3174	3322	3470	3610	3750	3890	4030
15	3240	3400	3560	3720	3870	4020	4170	4320
16	3458	3628	3800	3970	4130	4286	4444	4600
17	3676	3856	4040	4220	4390	4552	4718	4880
18	3894	4084	4280	4470	4650	4818	4992	5160
19	4112	4312	4520	4720	4910	5084	5266	5440
20	4330	4540	4760	4970	5170	5350	5540	5720
21	4548	4770	5000	5222	5430	5622	5822	6012
22	4766	5000	5240	5474	5690	5894	6104	6304
23	4984	5230	5480	5726	5950	6166	6386	6596
24	5202	5460	5720	5978	6210	6438	6668	6888
25	5420	5690	5960	6230	6470	6710	6950	7180
26	5856	6146	6444	6738	7002	7258	7514	7768
27	5856	6146	6444	6738	7002	7258	7514	7768
28	6074	6374	6686	6992	7268	7532	7796	8062
29	6292	6602	6928	7246	7534	7806	8078	8356
30	6510	6830	7170	7500	7800	8080	8360	8650
31	6734	7064	7414	7754	8066	8356	8646	8946
32	6958	7298	7658	8008	8332	8632	8932	9242
33	7182	7532	7902	8262	8598	8908	9218	9538
34	7406	7766	8146	8516	8864	9184	9504	9834
35	7630	8000	8390	8770	9130	9460	9790	10130
36	7848	8234	8638	9026	9396	9740	10078	10426
37	8066	8468	8886	9282	9662	10020	10366	10722
38	8284	8702	9134	9538	9928	10300	10654	11018
39	8502	8936	9382	9794	10194	10580	10942	11314
40	8720	9170	9630	10050	10460	10860	11230	11610
41	8942	9406	9880	10312	10732	11140	11520	11912
42	9164	9642	10130	10574	11004	11420	11810	12214

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 540

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
43	9386	9878	10380	10836	11276	11700	12100	12516
44	9608	10114	10630	11098	11548	11980	12390	12818
45	9830	10350	10880	11360	11820	12260	12680	13120
46	10054	10588	11130	11622	12090	12546	12976	13426
47	10278	10826	11380	11884	12360	12832	13272	13732
48	10502	11064	11630	12146	12630	13118	13568	14038
49	10726	11302	11880	12408	12900	13404	13864	14344
50	10950	11540	12130	12670	13170	13690	14160	14650
51	11178	11780	12382	12932	13448	13976	14456	14958
52	11406	12020	12634	13194	13726	14262	14752	15266
53	11634	12260	12886	13456	14004	14548	15048	15574
54	11862	12500	13138	13718	14282	14834	15344	15882
55	12090	12740	13390	13980	14560	15120	15640	16190
56	12320	12984	13646	14248	14840	15410	15942	16498
57	12550	13228	13902	14516	15120	15700	16244	16806
58	12780	13472	14158	14784	15400	15990	16546	17114
59	13010	13716	14414	15052	15680	16280	16848	17422
60	13240	13960	14670	15320	15960	16570	17150	17730
61	13240	13960	14670	15320	15960	16570	17150	17730
62	13700	14448	15186	15860	16520	17158	17754	18354
63	13930	14692	15444	16130	16800	17452	18056	18666
64	14160	14936	15702	16400	17080	17746	18358	18978
65	14390	15180	15960	16670	17360	18040	18660	19290
66	14624	15430	16218	16946	17648	18334	18968	19608
67	14858	15680	16476	17222	17936	18628	19276	19926
68	15092	15930	16734	17498	18224	18922	19584	20244
69	15326	16180	16992	17774	18512	19216	19892	20562
70	15560	16430	17250	18050	18800	19510	20200	20880
71	15796	16682	17516	18326	19084	19812	20512	21198
72	16032	16934	17782	18602	19368	20114	20824	21516
73	16268	17186	18048	18878	19652	20416	21136	21834
74	16504	17438	18314	19154	19936	20718	21448	22152
75	16740	17690	18580	19430	20220	21020	21760	22470
76	16980	17942	18848	19706	20512	21320	22070	22798
77	17220	18194	19116	19982	20804	21620	22380	23126
78	17460	18446	19384	20258	21096	21920	22690	23454
79	17700	18698	19652	20534	21388	22220	23000	23782
80	17940	18950	19920	20810	21680	22520	23310	24110
81	18184	19208	20186	21110	21976	22832	23630	24432
82	18428	19466	20452	21410	22272	23144	23950	24754
83	18672	19724	20718	21710	22568	23456	24270	25076
84	18916	19982	20984	22010	22864	23768	24590	25398

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ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
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SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 540

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
85	19160	20240	21250	22310	23160	24080	24910	25720
86	19410	20778	21822	22900	23792	24722	25614	26436
87	19660	21316	22394	23490	24424	25364	26318	27152
88	19910	21854	22966	24080	25056	26006	27022	27868
89	20160	22392	23538	24670	25688	26648	27726	28584
90	20410	22930	24110	25260	26320	27290	28430	29300
91	20662	23204	24400	25552	26636	27626	28758	29660
92	20914	23478	24690	25844	26952	27962	29086	30020
93	21166	23752	24980	26136	27268	28298	29414	30380
94	21418	24026	25270	26428	27584	28634	29742	30740
95	21670	24300	25560	26720	27900	28970	30070	31100
96	21928	24300	25560	26720	27900	28970	30070	31100
97	22186	24300	25560	26720	27900	28970	30070	31100
98	22444	24300	25560	26720	27900	28970	30070	31100
99	22702	24300	25560	26720	27900	28970	30070	31100
100	22960	24300	25560	26720	27900	28970	30070	31100
101				27026	28214	29296	30410	31452
102				27332	28528	29622	30750	31804
103				27638	28842	29948	31090	32156
104				27944	29156	30274	31430	32508
105				28250	29470	30600	31770	32860
106				28554	29788	30932	32114	33206
107				28858	30106	31264	32458	33552
108				29162	30424	31596	32802	33898
109				29466	30742	31928	33146	34244
110				29770	31060	32260	33490	34590
111				30076	31378	32592	33826	34940
112				30382	31696	32924	34162	35290
113				30688	32014	33256	34498	35640
114				30994	32332	33588	34834	35990
115				31300	32650	33920	35170	36340
116				31608	32974	34256	35518	36702
117				31916	33298	34592	35866	37064
118				32224	33622	34928	36214	37426
119				32532	33946	35264	36562	37788
120				32840	34270	35600	36910	38150
121				33154	34602	35938	37256	38466
122				33468	34934	36276	37602	38782
123				33782	35266	36614	37948	39098
124				34096	35598	36952	38294	39414
125				34410	35930	37290	38640	39730
126				34722	36256	37630	38946	40044

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 540

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
127				35034	36582	37970	39252	40358
128				35346	36908	38310	39558	40672
129				35658	37234	38650	39864	40986
130				35970	37560	38990	40170	41300
131				36286	37894	39288	40476	41616
132				36602	38228	39586	40782	41932
133				36918	38562	39884	41088	42248
134				37234	38896	40182	41394	42564

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 542

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
55	10680	12090	12750	13370	13960	14540	15080	15630
56	10880	12318	12990	13626	14226	14816	15372	15928
57	11080	12546	13230	13882	14492	15092	15664	16226
58	11280	12774	13470	14138	14758	15368	15956	16524
59	11480	13002	13710	14394	15024	15644	16248	16822
60	11680	13230	13950	14650	15290	15920	16540	17120
61	11680	13230	13950	14650	15290	15920	16540	17120
62	12080	13694	14442	15158	15830	16480	17124	17724
63	12280	13926	14688	15412	16100	16760	17416	18026
64	12480	14158	14934	15666	16370	17040	17708	18328
65	12680	14390	15180	15920	16640	17320	18000	18630
66	12880	14620	15424	16180	16908	17602	18292	18934
67	13080	14850	15668	16440	17176	17884	18584	19238
68	13280	15080	15912	16700	17444	18166	18876	19542
69	13480	15310	16156	16960	17712	18448	19168	19846
70	13680	15540	16400	17220	17980	18730	19460	20150
71	13890	15776	16650	17480	18252	19016	19758	20458
72	14100	16012	16900	17740	18524	19302	20056	20766
73	14310	16248	17150	18000	18796	19588	20354	21074
74	14520	16484	17400	18260	19068	19874	20652	21382
75	14730	16720	17650	18520	19340	20160	20950	21690
76	14936	16958	17902	18784	19618	20450	21244	22000
77	15142	17196	18154	19048	19896	20740	21538	22310
78	15348	17434	18406	19312	20174	21030	21832	22620
79	15554	17672	18658	19576	20452	21320	22126	22930
80	15760	17910	18910	19840	20730	21610	22420	23240
81	15972	18152	19164	20108	21014	21900	22734	23552
82	16184	18394	19418	20376	21298	22190	23048	23864
83	16396	18636	19672	20644	21582	22480	23362	24176
84	16608	18878	19926	20912	21866	22770	23676	24488
85	16820	19120	20180	21180	22150	23060	23990	24800
86	17030	19366	20436	21448	22436	23354	24294	25124
87	17240	19612	20692	21716	22722	23648	24598	25448
88	17450	19858	20948	21984	23008	23942	24902	25772
89	17660	20104	21204	22252	23294	24236	25206	26096
90	17870	20350	21460	22520	23580	24530	25510	26420
91	18084	20592	21722	22790	23862	24822	25818	26736
92	18298	20834	21984	23060	24144	25114	26126	27052
93	18512	21076	22246	23330	24426	25406	26434	27368
94	18726	21318	22508	23600	24708	25698	26742	27684
95	18940	21560	22770	23870	24990	25990	27050	28000
96	19154	21804	23028	24148	25280	26292	27358	28328

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

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SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 542

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
97	19368	22048	23286	24426	25570	26594	27666	28656
98	19582	22292	23544	24704	25860	26896	27974	28984
99	19796	22536	23802	24982	26150	27198	28282	29312
100	20010	22780	24060	25260	26440	27500	28590	29640
101			24318	25538	26734	27806	28906	29970
102			24576	25816	27028	28112	29222	30300
103			24834	26094	27322	28418	29538	30630
104			25092	26372	27616	28724	29854	30960
105			25350	26650	27910	29030	30170	31290
106			25632	26932	28206	29332	30492	31614
107			25914	27214	28502	29634	30814	31938
108			26196	27496	28798	29936	31136	32262
109			26478	27778	29094	30238	31458	32586
110			26760	28060	29390	30540	31780	32910
111				28370	29714	30904	32152	33310
112				28680	30038	31268	32524	33710
113				28990	30362	31632	32896	34110
114				29300	30686	31996	33268	34510
115				29610	31010	32360	33640	34910
116				29906	31318	32684	33976	35252
117				30202	31626	33008	34312	35594
118				30498	31934	33332	34648	35936
119				30794	32242	33656	34984	36278
120				31090	32550	33980	35320	36620
121				31388	32856	34298	35652	36964
122				31686	33162	34616	35984	37308
123				31984	33468	34934	36316	37652
124				32282	33774	35252	36648	37996
125				32580	34080	35570	36980	38340
126				32876	34392	35896	37312	38684
127				33172	34704	36222	37644	39028
128				33468	35016	36548	37976	39372
129				33764	35328	36874	38308	39716
130				34060	35640	37200	38640	40060
131				34356	35950	37524	38986	40418
132				34652	36260	37848	39332	40776
133				34948	36570	38172	39678	41134
134				35244	36880	38496	40024	41492
135				35540	37190	38820	40370	41850
136				35844	37508	39152	40706	42202
137				36148	37826	39484	41042	42554
138				36452	38144	39816	41378	42906

*ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

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SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 542

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
139				36756	38462	40148	41714	43258
140				37060	38780	40480	42050	43610
141				37368	39102	40810	42394	43964
142				37676	39424	41140	42738	44318
143				37984	39746	41470	43082	44672
144				38292	40068	41800	43426	45026
145				38600	40390	42130	43770	45380

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

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SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 544

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
55	10680	11400	12090	12740	13370	13980	14520	15090
56	10880	11614	12318	12978	13622	14242	14798	15378
57	11080	11828	12546	13216	13874	14504	15076	15666
58	11280	12042	12774	13454	14126	14766	15354	15954
59	11480	12256	13002	13692	14378	15028	15632	16242
60	11680	12470	13230	13930	14630	15290	15910	16530
61	11680	12470	13230	13930	14630	15290	15910	16530
62	12080	12894	13690	14422	15138	15822	16462	17106
63	12280	13106	13920	14668	15392	16088	16738	17394
64	12480	13318	14150	14914	15646	16354	17014	17682
65	12680	13530	14380	15160	15900	16620	17290	17970
66	12880	13752	14610	15406	16160	16892	17574	18260
67	13080	13974	14840	15652	16420	17164	17858	18550
68	13280	14196	15070	15898	16680	17436	18142	18840
69	13480	14418	15300	16144	16940	17708	18426	19130
70	13680	14640	15530	16390	17200	17980	18710	19420
71	13890	14858	15766	16634	17458	18250	18990	19716
72	14100	15076	16002	16878	17716	18520	19270	20012
73	14310	15294	16238	17122	17974	18790	19550	20308
74	14520	15512	16474	17366	18232	19060	19830	20604
75	14730	15730	16710	17610	18490	19330	20110	20900
76	14936	15880	16946	17862	18750	19602	20394	21200
77	15142	16030	17182	18114	19010	19874	20678	21500
78	15348	16180	17418	18366	19270	20146	20962	21800
79	15554	16330	17654	18618	19530	20418	21246	22100
80	15760	16480	17890	18870	19790	20690	21530	22400
81	15972	16780	18130	19124	20058	20968	21822	22702
82	16184	17080	18370	19378	20326	21246	22114	23004
83	16396	17380	18610	19632	20594	21524	22406	23306
84	16608	17680	18850	19886	20862	21802	22698	23608
85	16820	17980	19090	20140	21130	22080	22990	23910
86	17030	18208	19332	20398	21400	22364	23282	24210
87	17240	18436	19574	20656	21670	22648	23574	24510
88	17450	18664	19816	20914	21940	22932	23866	24810
89	17660	18892	20058	21172	22210	23216	24158	25110
90	17870	19120	20300	21430	22480	23500	24450	25410
91	18084	19348	20544	21688	22750	23780	24752	25718
92	18298	19576	20788	21946	23020	24060	25054	26026
93	18512	19804	21032	22204	23290	24340	25356	26334
94	18726	20032	21276	22462	23560	24620	25658	26642
95	18940	20260	21520	22720	23830	24900	25960	26950
96	19154	20490	21766	22980	24102	25184	26256	27264

*ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD

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SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 544

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
97	19368	20720	22012	23240	24374	25468	26552	27578
98	19582	20950	22258	23500	24646	25752	26848	27892
99	19796	21180	22504	23760	24918	26036	27144	28206
100	20010	21410	22750	24020	25190	26320	27440	28520
101			22996	24280	25464	26608	27740	28832
102			23242	24540	25738	26896	28040	29144
103			23488	24800	26012	27184	28340	29456
104			23734	25060	26286	27472	28640	29768
105			23980	25320	26560	27760	28940	30080
106			24250	25590	26838	28058	29250	30400
107			24520	25860	27116	28356	29560	30720
108			24790	26130	27394	28654	29870	31040
109			25060	26400	27672	28952	30180	31360
110			25330	26670	27950	29250	30490	31680
111				26934	28228	29548	30792	31998
112				27198	28506	29846	31094	32316
113				27462	28784	30144	31396	32634
114				27726	29062	30442	31698	32952
115				27990	29340	30740	32000	33270
116				28258	29626	31034	32316	33590
117				28526	29912	31328	32632	33910
118				28794	30198	31622	32948	34230
119				29062	30484	31916	33264	34550
120				29330	30770	32210	33580	34870
121				29606	31060	32514	33888	35190
122				29882	31350	32818	34196	35510
123				30158	31640	33122	34504	35830
124				30434	31930	33426	34812	36150
125				30710	32220	33730	35120	36470
126				30986	32510	34034	35440	36800
127				31262	32800	34338	35760	37130
128				31538	33090	34642	36080	37460
129				31814	33380	34946	36400	37790
130				32090	33670	35250	36720	38120
131				32362	33966	35552	37040	38446
132				32634	34262	35854	37360	38772
133				32906	34558	36156	37680	39098
134				33178	34854	36458	38000	39424
135				33450	35150	36760	38320	39750
136				33724	35438	37068	38634	40086
137				33998	35726	37376	38948	40422
138				34272	36014	37684	39262	40758

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WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 544

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
139				34546	36302	37992	39576	41094
140				34820	36590	38300	39890	41430
141				35112	36896	38614	40218	41850
142				35404	37202	38928	40546	42270
143				35696	37508	39242	40874	42690
144				35988	37814	39556	41202	43110
145				36280	38120	39870	41530	43530
146				36610	38456	40232	41922	43878
147				36940	38792	40594	42314	44226
148				37270	39128	40956	42706	44574
149				37600	39464	41318	43098	44922
150				37930	39800	41680	43490	45270
151				38228	40106	42008	43826	45618
152				38526	40412	42336	44162	45966
153				38824	40718	42664	44498	46314
154				39122	41024	42992	44834	46662
155				39420	41330	43320	45170	47010
156				39702	41656	43652	45504	47358
157				39984	41982	43984	45838	47706
158				40266	42308	44316	46172	48054
159				40548	42634	44648	46506	48402
160				40830	42960	44980	46840	48750
161				41132	43276	45302	47178	49102
162				41434	43592	45624	47516	49454
163				41736	43908	45946	47854	49806
164				42038	44224	46268	48192	50158
165				42340	44540	46590	48530	50510
166				42634	44860	46914	48870	50864
167				42928	45180	47238	49210	51218
168				43222	45500	47562	49550	51572
169				43516	45820	47886	49890	51926
170				43810	46140	48210	50230	52280

*ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD

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WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 546

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
55	9930	10690	11430	12100	12740	13380	13960	14530
56	10112	10888	11644	12328	12982	13632	14222	14804
57	10294	11086	11858	12556	13224	13884	14484	15078
58	10476	11284	12072	12784	13466	14136	14746	15352
59	10658	11482	12286	13012	13708	14388	15008	15626
60	10840	11680	12500	13240	13950	14640	15270	15900
61	10840	11680	12500	13240	13950	14640	15270	15900
62	11208	12080	12932	13692	14434	15148	15806	16452
63	11392	12280	13148	13918	14676	15402	16074	16728
64	11576	12480	13364	14144	14918	15656	16342	17004
65	11760	12680	13580	14370	15160	15910	16610	17280
66	11946	12880	13794	14604	15400	16164	16878	17560
67	12132	13080	14008	14838	15640	16418	17146	17840
68	12318	13280	14222	15072	15880	16672	17414	18120
69	12504	13480	14436	15306	16120	16926	17682	18400
70	12690	13680	14650	15540	16360	17180	17950	18680
71	12882	13886	14870	15772	16606	17442	18220	18966
72	13074	14092	15090	16004	16852	17704	18490	19252
73	13266	14298	15310	16236	17098	17966	18760	19538
74	13458	14504	15530	16468	17344	18228	19030	19824
75	13650	14710	15750	16700	17590	18490	19300	20110
76	13842	14918	15972	16936	17844	18748	19574	20390
77	14034	15126	16194	17172	18098	19006	19848	20670
78	14226	15334	16416	17408	18352	19264	20122	20950
79	14418	15542	16638	17644	18606	19522	20396	21230
80	14610	15750	16860	17880	18860	19780	20670	21510
81	14802	15958	17084	18116	19110	20046	20950	21802
82	14994	16166	17308	18352	19360	20312	21230	22094
83	15186	16374	17532	18588	19610	20578	21510	22386
84	15378	16582	17756	18824	19860	20844	21790	22678
85	15570	16790	17980	19060	20110	21110	22070	22970
86	15766	17000	18204	19306	20368	21376	22346	23264
87	15962	17210	18428	19552	20626	21642	22622	23558
88	16158	17420	18652	19798	20884	21908	22898	23852
89	16354	17630	18876	20044	21142	22174	23174	24146
90	16550	17840	19100	20290	21400	22440	23450	24440
91	16744	18054	19326	20528	21654	22710	23734	24736
92	16938	18268	19552	20766	21908	22980	24018	25032
93	17132	18482	19778	21004	22162	23250	24302	25328
94	17326	18696	20004	21242	22416	23520	24586	25624
95	17520	18910	20230	21480	22670	23790	24870	25920
96	17716	19126	20462	21728	22928	24056	25156	26218

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WATER CONTROL MANUAL
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SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 546

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
97	17912	19342	20694	21976	23186	24322	25442	26516
98	18108	19558	20926	22224	23444	24588	25728	26814
99	18304	19774	21158	22472	23702	24854	26014	27112
100	18500	19990	21390	22720	23960	25120	26300	27410
101				22960	24224	25396	26588	27712
102				23200	24488	25672	26876	28014
103				23440	24752	25948	27164	28316
104				23680	25016	26224	27452	28618
105				23920	25280	26500	27740	28920
106				24172	25544	26778	28028	29220
107				24424	25808	27056	28316	29520
108				24676	26072	27334	28604	29820
109				24928	26336	27612	28892	30120
110				25180	26600	27890	29180	30420
111				25432	26866	28170	29468	30726
112				25684	27132	28450	29756	31032
113				25936	27398	28730	30044	31338
114				26188	27664	29010	30332	31644
115				26440	27930	29290	30620	31950
116				26694	28198	29572	30922	32260
117				26948	28466	29854	31224	32570
118				27202	28734	30136	31526	32880
119				27456	29002	30418	31828	33190
120				27710	29270	30700	32130	33500
121				27966	29540	30984	32428	33808
122				28222	29810	31268	32726	34116
123				28478	30080	31552	33024	34424
124				28734	30350	31836	33322	34732
125				28990	30620	32120	33620	35040
126				29244	30898	32410	33918	35350
127				29498	31176	32700	34216	35660
128				29752	31454	32990	34514	35970
129				30006	31732	33280	34812	36280
130				30260	32010	33570	35110	36590
131				30528	32284	33868	34818	36904
132				30796	32558	34166	34526	37218
133				31064	32832	34464	34234	37532
134				31332	33106	34762	33942	37846
135				31600	33380	35060	33650	38160
136				31858	33664	35348	34552	38476
137				32116	33948	35636	35454	38792
138				32374	34232	35924	36356	39108

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WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 546

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
139				32632	34516	36212	37258	39424
140				32890	34800	36500	38160	39740
141				33152	35076	36792	38476	40066
142				33414	35352	37084	38792	40392
143				33676	35628	37376	39108	40718
144				33938	35904	37668	39424	41044
145				34200	36180	37960	39740	41370
146				34474	36470	38264	40046	41692
147				34748	36760	38568	40352	42014
148				35022	37050	38872	40658	42336
149				35296	37340	39176	40964	42658
150				35570	37630	39480	41270	42980
151				35836	37894	39784	41576	43304
152				36102	38158	40088	41882	43628
153				36368	38422	40392	42188	43952
154				36634	38686	40696	42494	44276
155				36900	38950	41000	42800	44600
156				37166	39232	41298	43112	44924
157				37432	39514	41596	43424	45248
158				37698	39796	41894	43736	45572
159				37964	40078	42192	44048	45896
160				38230	40360	42490	44360	46220
161				38498	40644	42788	44672	46546
162				38766	40928	43086	44984	46872
163				39034	41212	43384	45296	47198
164				39302	41496	43682	45608	47524
165				39570	41780	43980	45920	47850
166				39850	42068	44278	46232	48176
167				40130	42356	44576	46544	48502
168				40410	42644	44874	46856	48828
169				40690	42932	45172	47168	49154
170				40970	43220	45470	47480	49480
171				41232	43504	45774	47796	49810
172				41494	43788	46078	48112	50140
173				41756	44072	46382	48428	50470
174				42018	44356	46686	48744	50800
175				42280	44640	46990	49060	51130
176				42552	44928	47294	49384	51474
177				42824	45216	47598	49708	51818
178				43096	45504	47902	50032	52162
179				43368	45792	48206	50356	52506
180				43640	46080	48510	50680	52850

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Tailwater Elevation 546

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
181				43914	46370	48816	51000	53184
182				44188	46660	49122	51320	53518
183				44462	46950	49428	51640	53852
184				44736	47240	49734	51960	54186
185				45010	47530	50040	52280	54520
186				45284	47818	50344	52600	54854
187				45558	48106	50648	52920	55188
188				45832	48394	50952	53240	55522
189				46106	48682	51256	53560	55856
190				46380	48970	51560	53880	56190
191				46668	49264	51860	54200	56530
192				46956	49558	52160	54520	56870
193				47244	49852	52460	54840	57210
194				47532	50146	52760	55160	57550
195				47820	50440	53060	55480	57890
196				48096	50734	53370	55804	57882
197				48372	51028	53680	56128	57874
198				48648	51322	53990	56452	57866
199				48924	51616	54300	56776	57858
200				49200	51910	54610	57100	57850

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

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Tailwater Elevation 548

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
155				34730	36850	38960	40870	42780
156				34984	37114	39236	41164	43092
157				35238	37378	39512	41458	43404
158				35492	37642	39788	41752	43716
159				35746	37906	40064	42046	44028
160				36000	38170	40340	42340	44340
161				36244	38434	40624	42634	44644
162				36488	38698	40908	42928	44948
163				36732	38962	41192	43222	45252
164				36976	39226	41476	43516	45556
165				37220	39490	41760	43810	45860
166				37466	39752	42036	44100	46164
167				37712	40014	42312	44390	46468
168				37958	40276	42588	44680	46772
169				38204	40538	42864	44970	47076
170				38450	40800	43140	45260	47380
171				38708	41074	43430	45564	47698
172				38966	41348	43720	45868	48016
173				39224	41622	44010	46172	48334
174				39482	41896	44300	46476	48652
175				39740	42170	44590	46780	48970
176				39988	42434	44870	47074	49278
177				40236	42698	45150	47368	49586
178				40484	42962	45430	47662	49894
179				40732	43226	45710	47956	50202
180				40980	43490	45990	48250	50510
181				41230	43754	46270	48546	50822
182				41480	44018	46550	48842	51134
183				41730	44282	46830	49138	51446
184				41980	44546	47110	49434	51758
185				42230	44810	47390	49730	52070
186				42488	45086	47682	50036	52390
187				42746	45362	47974	50342	52710
188				43004	45638	48266	50648	53030
189				43262	45914	48558	50954	53350
190				43520	46190	48850	51260	53670
191				43784	46470	49148	51572	
192				44048	46750	49446	51884	
193				44312	47030	49744	52196	
194				44576	47310	50042	52508	
195				44840	47590	50340	52820	
196				45102	47868	50634	53130	

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

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Tailwater Elevation 548

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
197				45364	48146	50928	53440	
198				45626	48424	51222	53750	
199				45888	48702	51516	54060	
200				46150	48980	51810	54370	
210				48790	51770	54750		
220				51420	54550			
230				54130				

*ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 550

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
155				32410	34620	36830	38820	40180
156				32634	34864	37092	39096	40596
157				32858	35108	37354	39372	41012
158				33082	35352	37616	39648	41428
159				33306	35596	37878	39924	41844
160				33530	35840	38140	40200	42260
161				33760	36084	38400	40476	42550
162				33990	36328	38660	40752	42840
163				34220	36572	38920	41028	43130
164				34450	36816	39180	41304	43420
165				34680	37060	39440	41580	43710
166				34912	37310	39708	41860	44002
167				35144	37560	39976	42140	44294
168				35376	37810	40244	42420	44586
169				35608	38060	40512	42700	44878
170				35840	38310	40780	42980	45170
171				36074	38560	41046	43260	45466
172				36308	38810	41312	43540	45762
173				36542	39060	41578	43820	46058
174				36776	39310	41844	44100	46354
175				37010	39560	42110	44380	46650
176				37248	39814	42380	44668	46956
177				37486	40068	42650	44956	47262
178				37724	40322	42920	45244	47568
179				37962	40576	43190	45532	47874
180				38200	40830	43460	45820	48180
181				38440	41088	43734	46106	48478
182				38680	41346	44008	46392	48776
183				38920	41604	44282	46678	49074
184				39160	41862	44556	46964	49372
185				39400	42120	44830	47250	49670
186				39634	42370	45096	47534	49972
187				39868	42620	45362	47818	50274
188				40102	42870	45628	48102	50576
189				40336	43120	45894	48386	50878
190				40570	43370	46160	48670	51180
191				40816	43632	46438	48962	51486
192				41062	43894	46716	49254	51792
193				41308	44156	46994	49546	52098
194				41554	44418	47272	49838	52404
195				41800	44680	47550	50130	52710
196				42048	44938	47820	50422	53022

*ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 550

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
197				42296	45196	48090	50714	53334
198				42544	45454	48360	51006	53646
199				42792	45712	48630	51298	53958
200				43040	45970	48900	51590	54270
210				45530	48620	51700	54530	57350
220				47960	51230	54490	57460	60430
230				50490	53930	57370	60480	63590
240				53010	56630	60240	63490	
250				55570	59350	63120		
260				58120	62060			
270				60720	64840			
280				63310				
290				65960				

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 552

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
210				41990	45320	48650	51580	54510
220				44320	47810	51300	54380	57450
230				46690	50350	54000	57230	60440
240				49060	52880	56700	60070	63430
250				51470	55460	59440	62950	66460
260				53870	58030	62180	65830	69480
270				56320	60640	64960	68780	72600
280				58760	63250	67740	71730	75720
290				61190	65870	70550	74690	
300				63610	68480	73350		
310				66110	71180			
320				68610	73870			
330				71260				
340				73900				

*ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 554

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
210				38040	41710	45380	48430	51530
220				40190	44070	47850	51050	54340
230				42390	46410	50370	53760	57190
240				44580	48780	52880	56460	60040
250				46820	51170	55470	59230	62980
260				49050	53570	58060	61990	65910
270				51330	56080	60700	64780	68860
280				53600	58470	63340	67570	71800
290				55910	60960	66000	70390	74770
300				58210	63440	68660	73200	77740
310				60550	65980	71410	76130	80860
320				62890	68520	74150	79060	83970
330				65380	71180	76980	82020	
340				67870	73840	79800	84980	
350				70400	76530	82660		
360				72930	79220	85510		
370				75450	81930			
380				77970	84640			
400				83020				

***ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD**

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 556

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
210						41550	45050	48550
220						43880	47550	51220
230						46300	50100	53900
240						48710	52650	56580
250						51180	55260	59340
260						53640	57870	62100
270						56160	60540	64910
280						58680	63200	67710
290						61200	65880	70550
300				52240	57980	63710	68550	73380
310				54520	60420	66310	71340	76360
320				56790	62850	68900	74120	79340
330				59080	65360	71630	77230	82820
340				61360	67860	74360	80330	86300
350				63710	70390	77080	82990	88890
360				66050	72920	79790	85640	91480
370				68410	75480	82550	88540	94520
380				70760	78030	85300	91430	97550
390				73140	80640	88140	94410	100680
400				75510	83250	90980	97390	
410				77990	85900	93790	100440	
420				80470	88540	96600		
430				82980	91240	99500		
440				85480	93940			
450				88030	96640			
460				90580	99330			
470				93090				
480				95590				
490				98170				
500				100750				

*ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 558

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
210								45280
220								47760
230								50330
240								52890
250								55470
260								58040
270								60700
280								63360
290								66050
300						58400	63570	68740
310						60890	66240	71580
320						63370	68900	74420
330						65900	71600	77300
340						68430	74300	80170
350						71000	77040	83090
360						73560	79780	86000
370						76170	82600	89030
380						78770	85410	92050
390						81410	88230	95050
400						84050	91050	
410				69420	78130	86830	94020	
420				71760	80690	89610		
430				74130	83270	92400		
440				76500	85850			
450				78870	88410			
460				81240	90970			
470				83630				
480				86010				
490				88450				
500				90880				

*ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

WEISS DAM SPILLWAY RATING TABLE

Tailwater Elevation 560

Headwater Elevation

Gate Step	558	560	562	564	566	568	570	572
410						79190	87040	94880
420						81820	89830	97840
430						84430	92630	100840
440						87030	95430	103830
450						89730	98300	106860
460						92430	101160	109880
470						95160	104060	112940
480						97890	106950	116000
490						100650	109870	119080
500						103400	112780	122160

*ALL DISCHARGE VALUES ARE IN CFS AND ALL TAILWATER AND HEADWATER ELEVATIONS ARE IN FEET ABOVE NGVD

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

SPILLWAY RATING TABLES

Powerhouse Trashbay – Gated Discharge
Headwater Elevation

Gate Opening Feet (Arc Length)	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572
1.0	300	320	340	360	370	390	400	420	430	450	460	470	480	490	500
2.0	570	600	630	660	690	720	750	780	810	850	880	910	930	950	980
3.0	800	850	900	940	980	1030	1070	1110	1150	1180	1220	1260	1290	1330	1360
4.0	980	1030	1090	1140	1190	1230	1280	1310	1330	1360	1480	1520	1570	1610	1650
5.0	1150	1200	1250	1310	1380	1440	1500	1560	1630	1690	1750	1800	1850	1900	1950
6.0			1450	1520	1600	1670	1740	1810	1870	1940	2000	2050	2100	2150	2200
7.0				1730	1800	1880	1950	2030	2100	2180	2250	2320	2390	2460	2530
8.0				1850	1950	2050	2150	2240	2340	2430	2520	2610	2700	2790	2880
9.0					2100	2230	2350	2460	2580	2690	2800	2900	3000	3100	3200
10.0						2400	2550	2860	2800	2930	3050	3170	3290	3400	3520
11.0							2800	2940	3080	3210	3350	3480	3610	3730	3860
12.0									3380	3520	3660	3790	3920	4040	4170
13.0										3820	3970	4100	4240	4370	4500
14.0											4200	4360	4500	4640	4780
15.0												4640	4790	4930	5080
16.0													5050	5200	5360
17.0														5450	5630

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

POWERHOUSE TRASHBAY – GATED DISCHARGE

Capacity Discharge Rating

Trash Bays at Powerhouse and Spillway

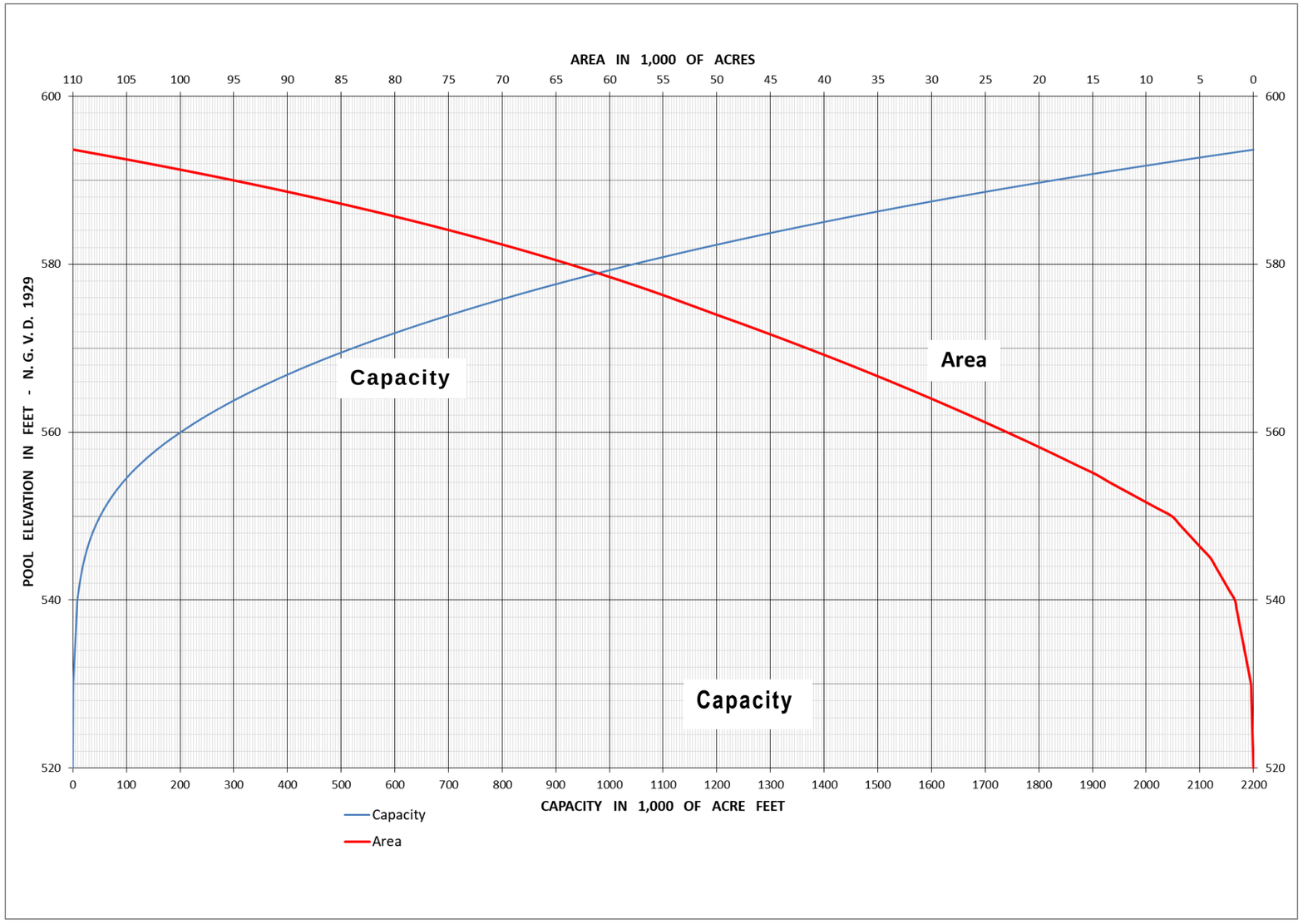
Headwater Elevation (Feet- msl)**	Headwater Elevation (feet-msl)															
	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573
0.0	1230	1480	1740	2010	2290	2590	2900	3230	3580	3950	4340	4740	5150	5580	6020	6470
0.1	1255	1505	1765	2035	2320	2620	2930	3265	3615	3985	4280	4780	5190	5620	6065	6515
0.2	1280	1530	1790	2065	2350	2650	2960	3300	3650	4020	4420	4820	5230	5660	6110	6560
0.3	1305	1555	1820	2090	2380	2680	2995	3335	3585	4060	4460	4860	5275	5705	6155	6605
0.4	1330	1585	1845	2120	2410	2710	3030	3370	3725	4100	4500	4900	5320	5750	6200	6650
0.5	1355	1610	1875	2150	2440	2745	3065	3405	3765	4140	4540	4945	5365	5795	6245	6700
0.6	1380	1635	1900	2175	2470	2775	3095	3440	3800	4180	4580	4985	5405	5840	6290	6745
0.7	1405	1660	1925	2205	2500	2805	3125	3475	3835	4220	4620	5025	5445	5885	6335	6790
0.8	1430	1685	1955	2230	2530	2835	3160	3510	3870	4260	4660	5065	5490	5930	6380	6935
0.9	1455	1710	1980	2260	2560	2865	3195	3545	3910	4300	4700	5105	5535	5975	6425	6980

* Headwater Elevation applies to: Reservoir level at spillway trash bay
Forebay level at powerhouse trash bay

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

CAPACITY DISCHARGE RATING
TRASH BAYS AT POWERHOUSE AND SPILLWAY



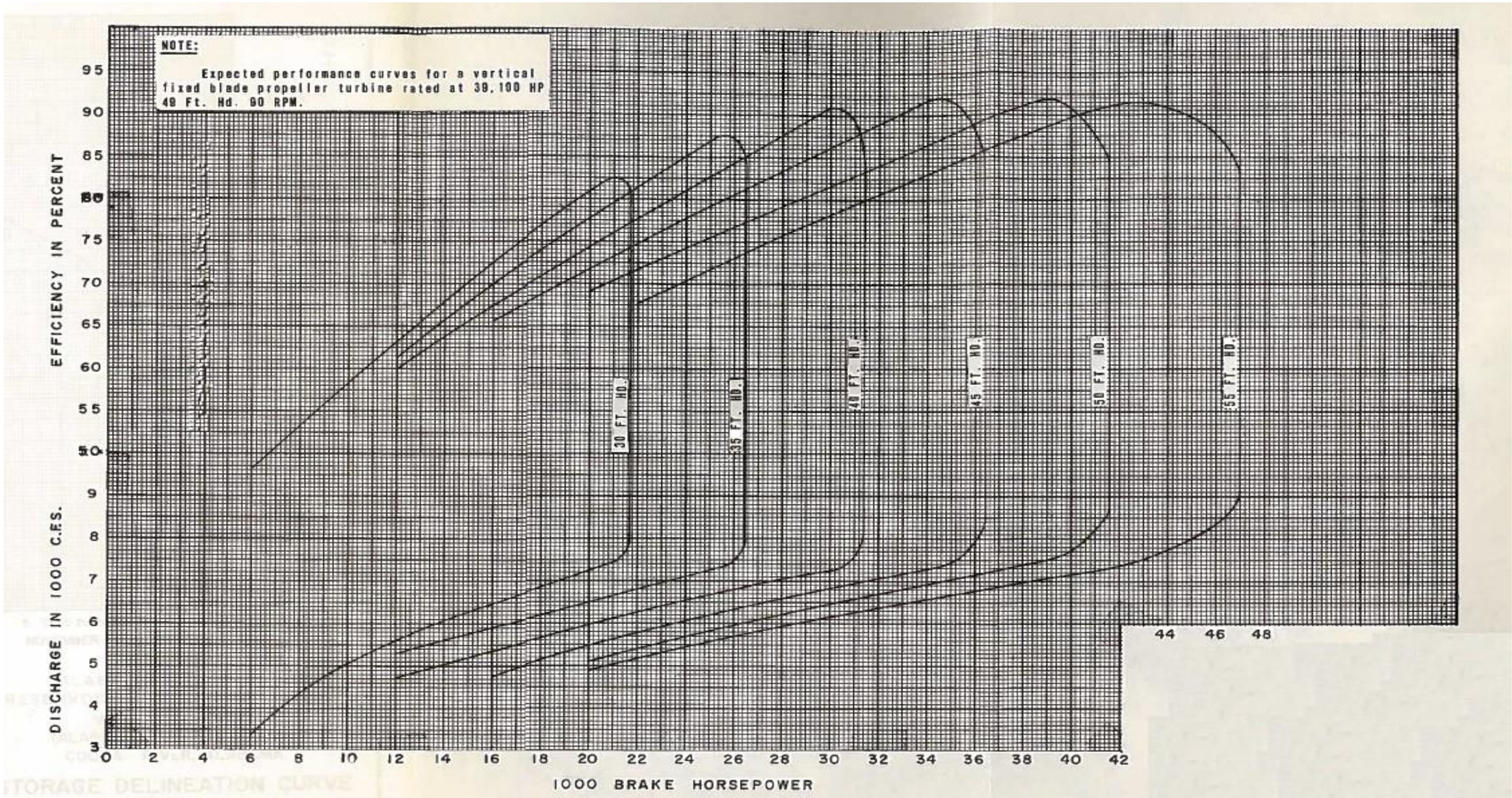
AREA CAPACITY TABLE					
Pool Elevation (Feet)	Total Area (Acres)	Total Storage (Acre-Feet)	Pool Elevation (Feet)	Total Area (Acres)	Total Storage (Acre-Feet)
520	0	0	558	19603	158039
521	23	75	559	21265	178471
522	46	149	560	22973	200810
523	70	224	561	24692	224641
524	93	298	562	26439	250205
525	116	373	563	28218	277533
526	139	447	[2]564	30027	306655
527	162	522	565	31870	337604
528	186	597	566	33744	370409
529	209	671	567	35652	405106
530	232	746	568	37596	441727
531	382	1522	569	39576	480310
532	533	2299	[5]570	41606	521305
533	683	3075	571	43659	563937
534	834	3852	[1]572	45749	608641
535	984	4628	573	47877	655454
536	1134	5405	574	50045	704414
537	1285	6182	575	52174	755560
538	1435	6958	576	54303	808793
539	1586	7735	577	56519	864197
540	1736	8511	578	58825	921863
541	2189	10519	579	61225	981881
542	2642	12776	580	63723	1044348
543	3094	15372	581	66323	1109364
544	3547	18399	582	69029	1177033
545	4000	21951	583	71846	1247462
546	4723	26121	584	74777	1320766
547	5445	30996	585	77829	1397060
548	6168	36671	586	81004	1476468
[3]549	6890	43238	587	84309	1559115
[4]550	7613	50788	588	87749	1645135
551	9053	59412	589	91330	1734664
552	10493	69204	590	95056	1827847
553	11932	80256	591	98935	1924831
554	13372	92657	592	102972	2025773
555	14722	106502	593	107173	2130833
556	16356	122096	593.7	110172	2205799
557	17967	139256			

[1]Top of flood control
[2]Top of conservation
[3]Minimum conservation
[4]Spillway crest elevation
[5]Top of gates – closed position

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

AREA AND CAPACITY



ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE
PERFORMANCE CURVES – TURBOGENERATOR UNIT

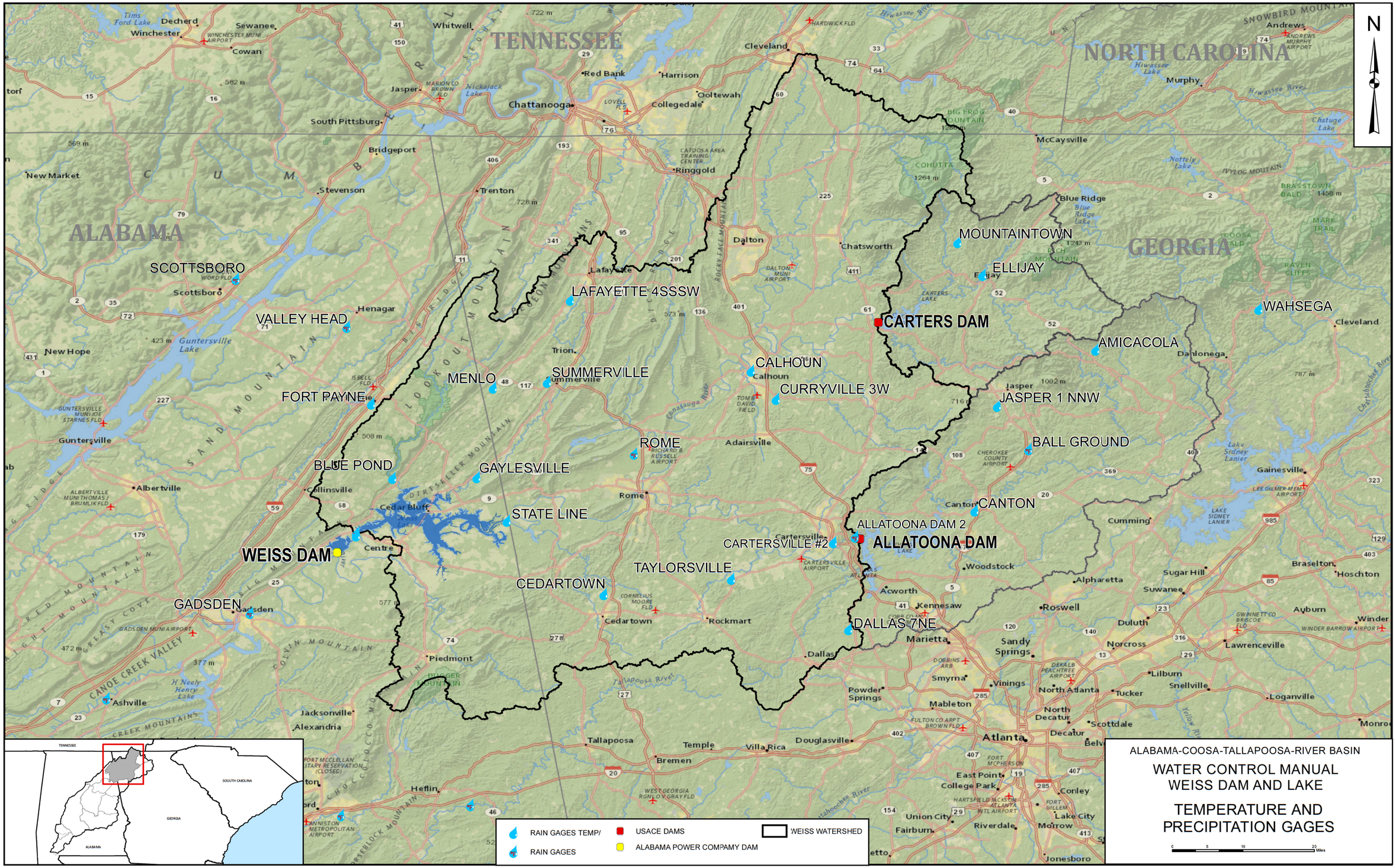


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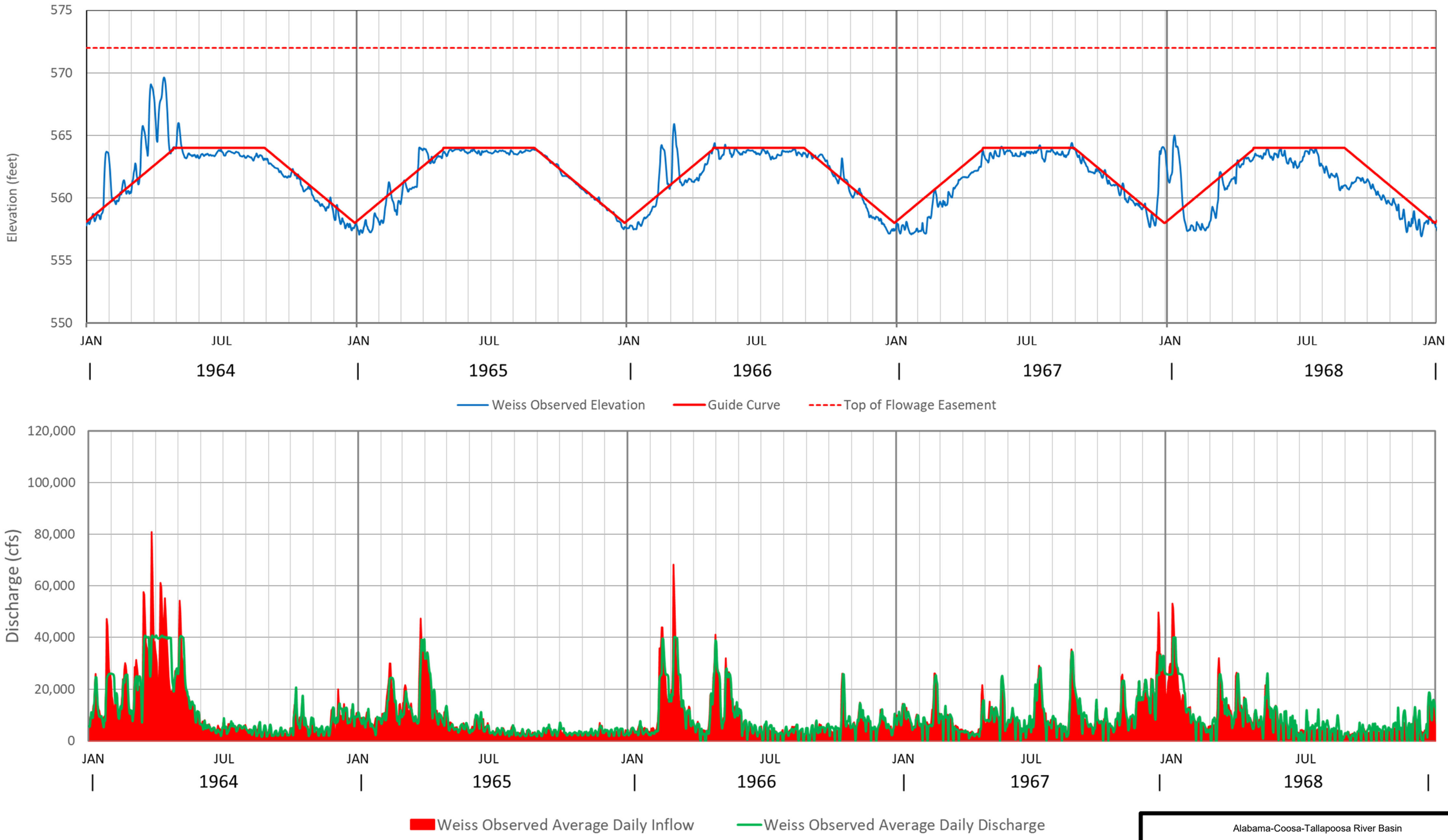
PLATE 4-1

CORPS OF ENGINEERS

U. S. ARMY

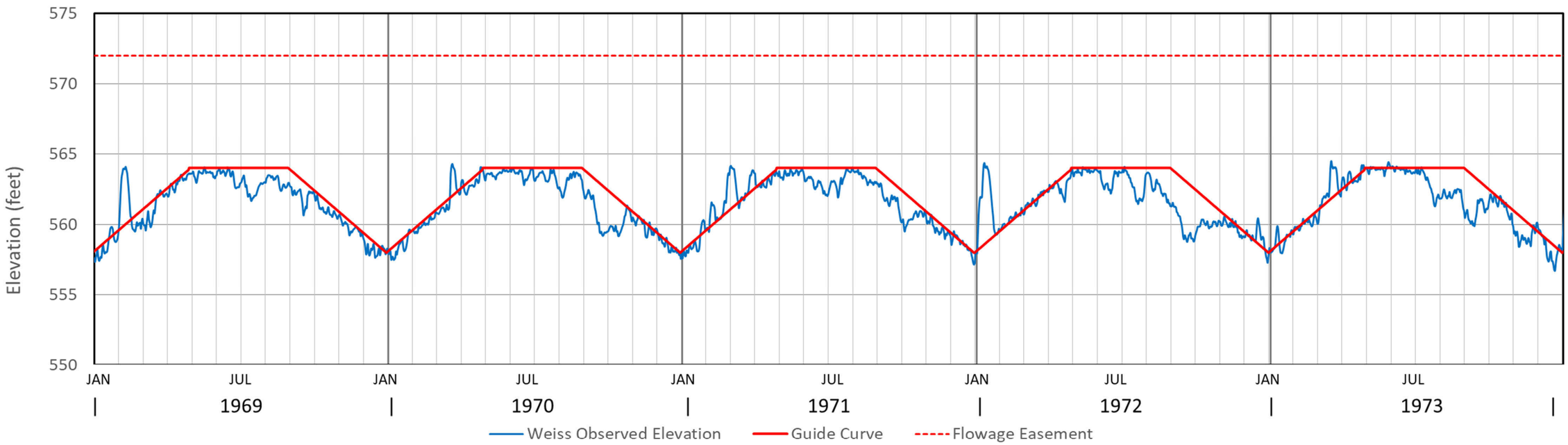


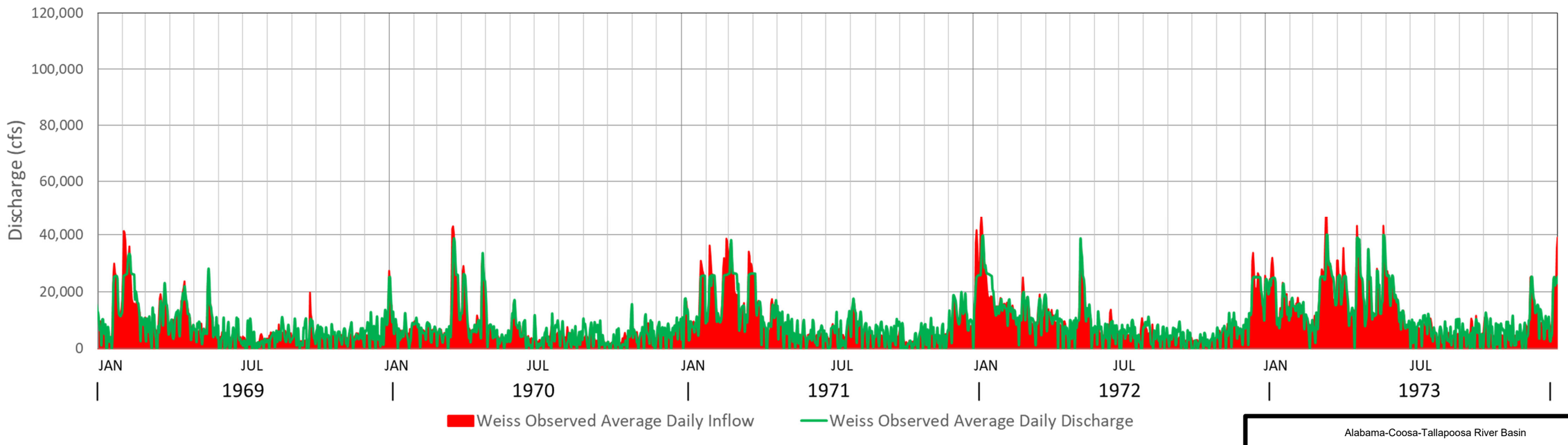
Alabama-Coosa-Tallapoosa River Basin

Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL

APPENDIX B PLATE 4-2

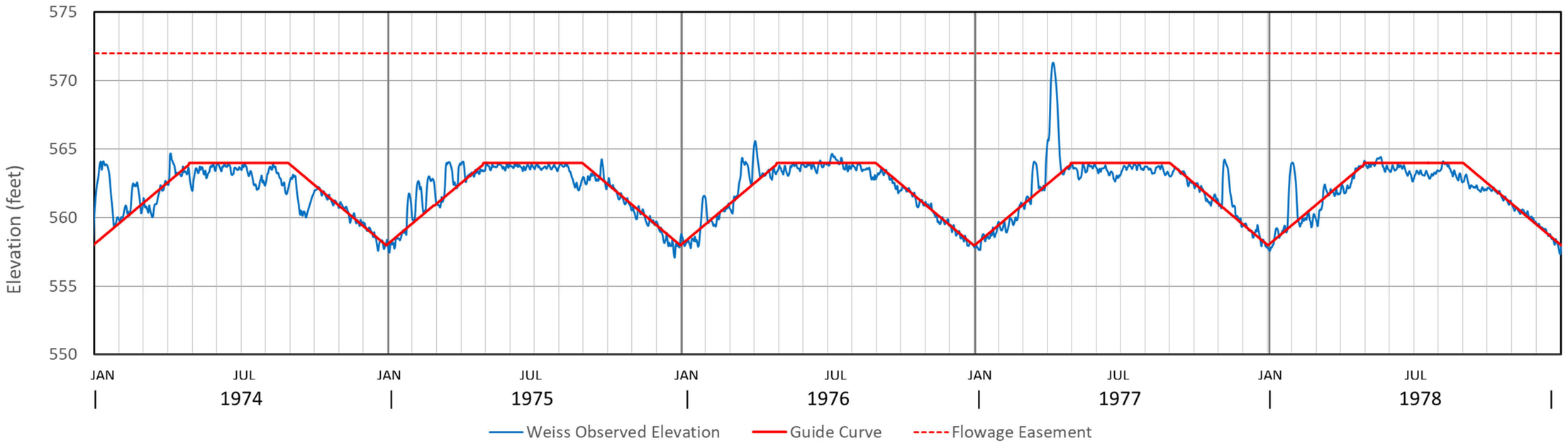


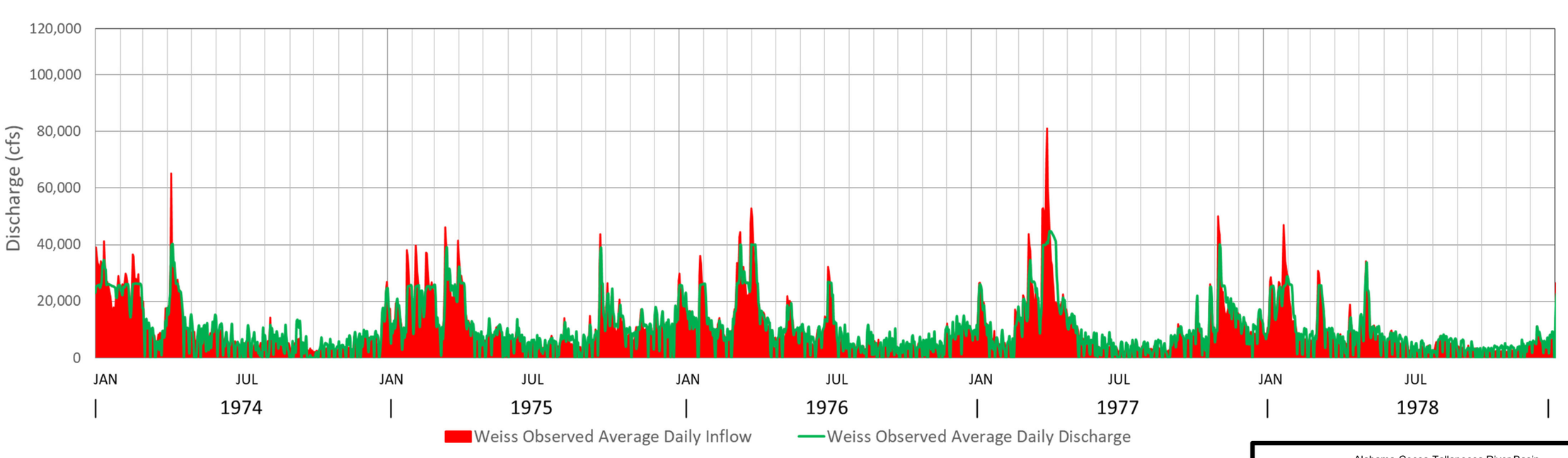


Alabama-Coosa-Tallapoosa River Basin

Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL

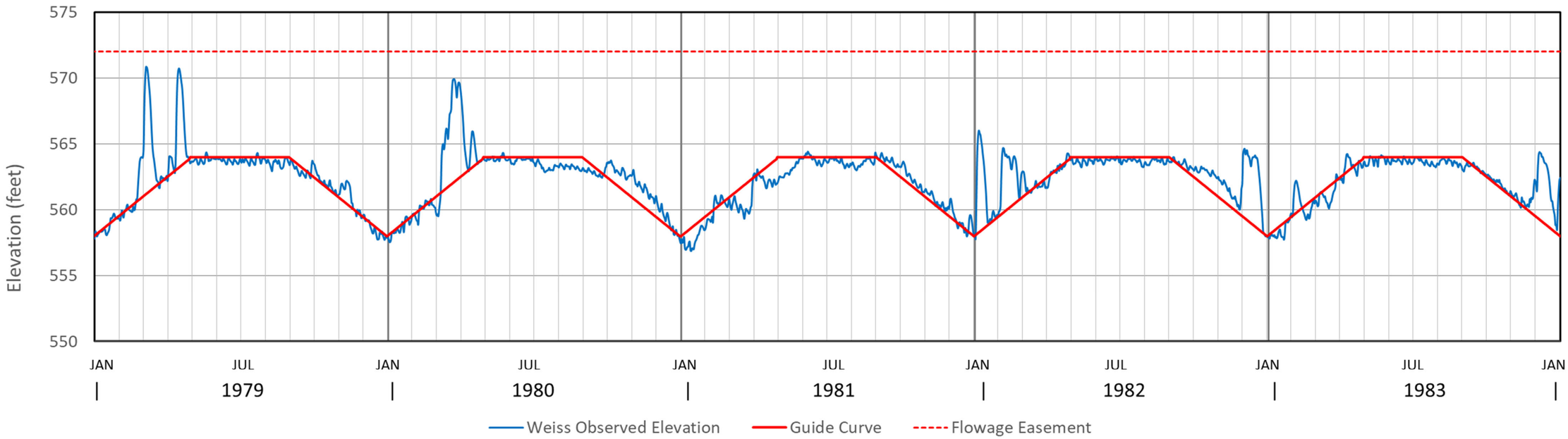


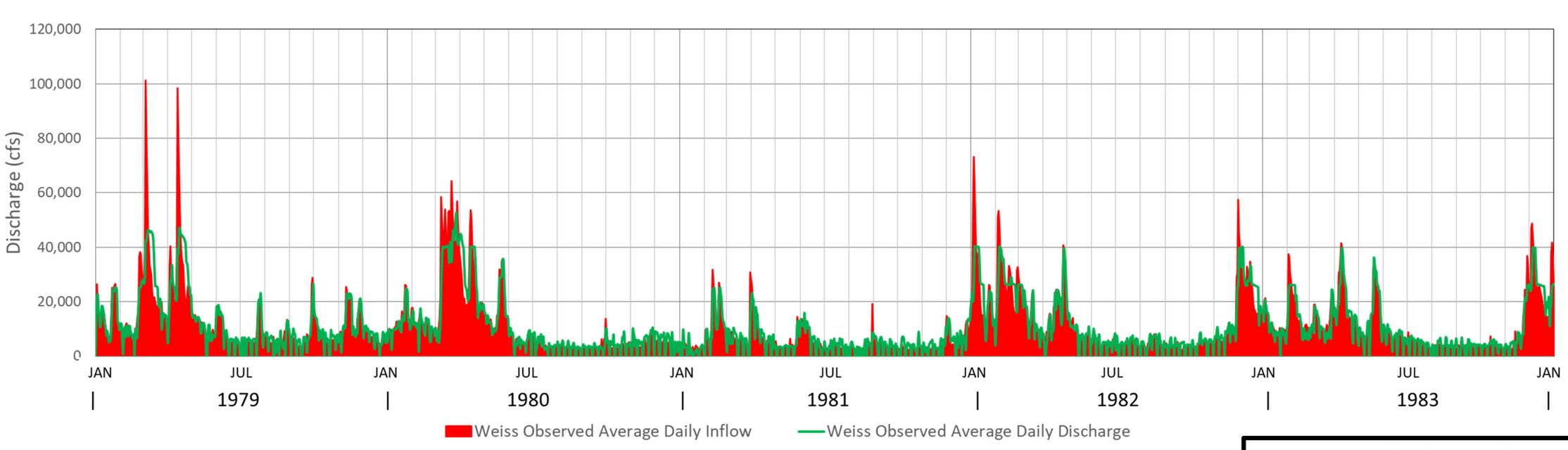


Alabama-Coosa-Tallapoosa River Basin

Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL





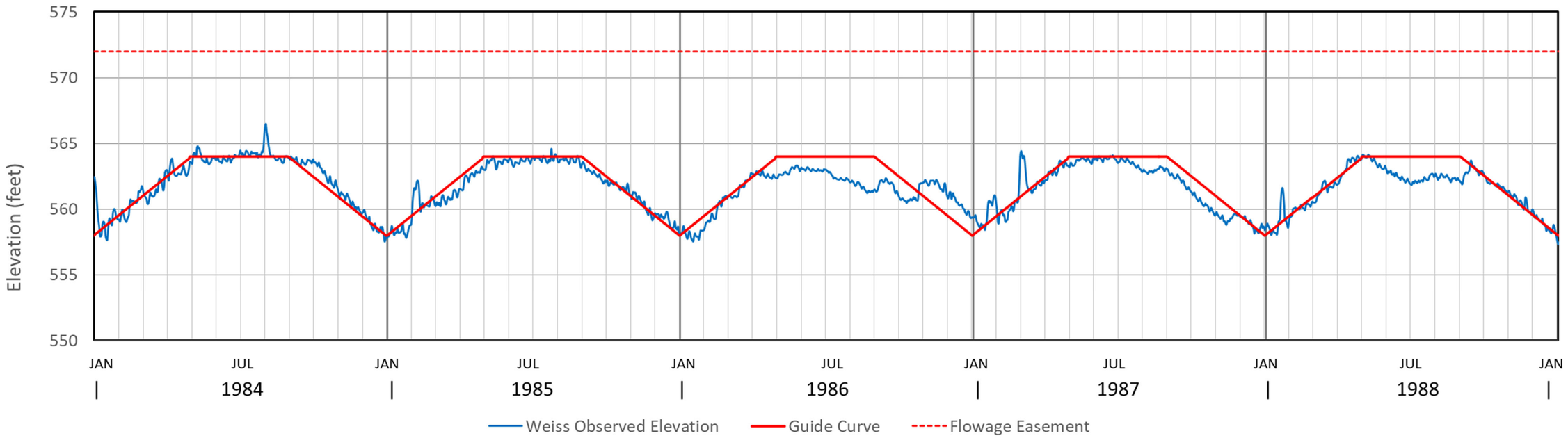
Alabama-Coosa-Tallapoosa River Basin

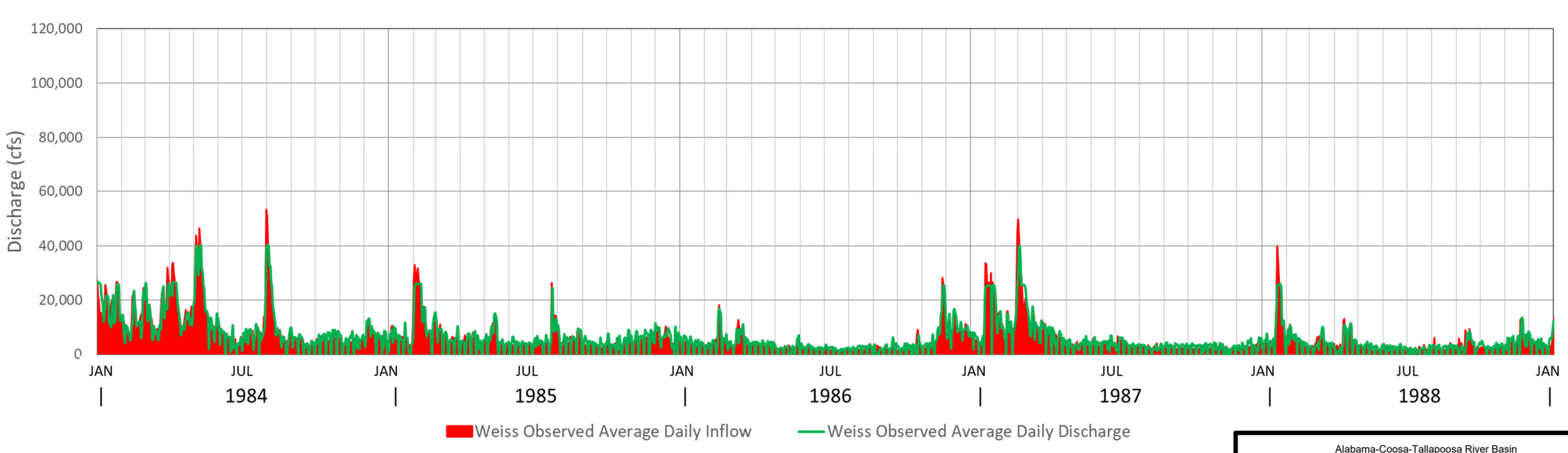
Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL

CORPS OF ENGINEERS

U. S. ARMY



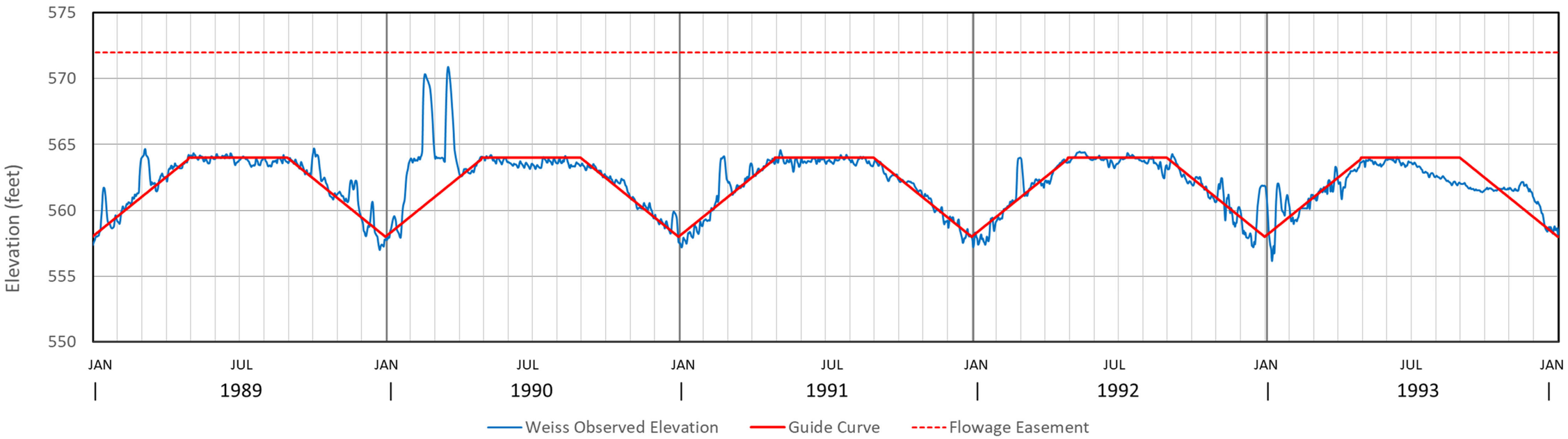


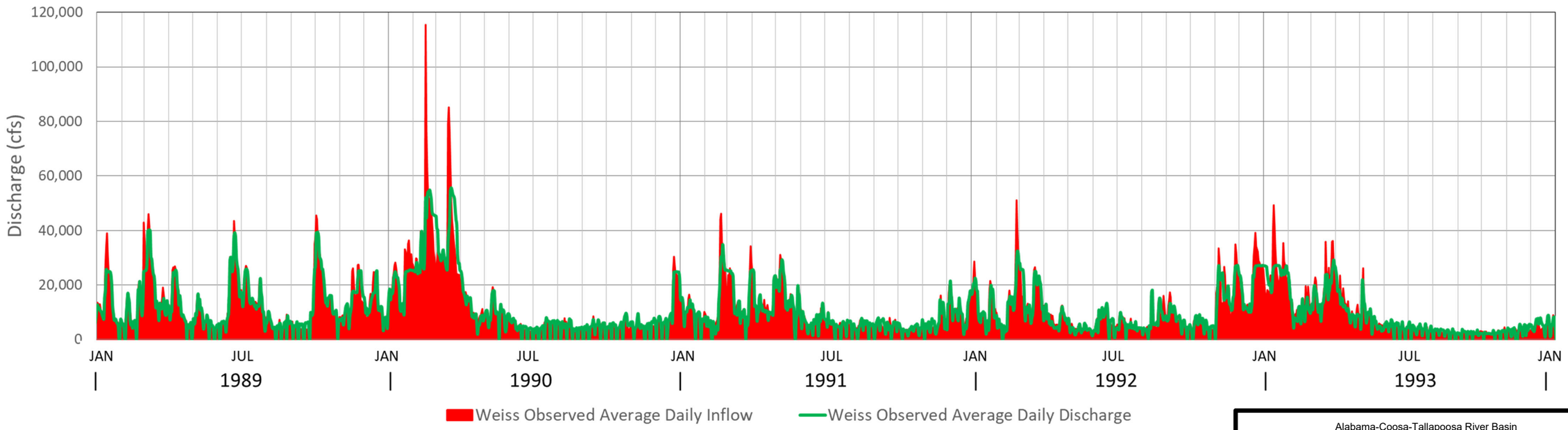
Alabama-Coosa-Tallapoosa River Basin

Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL

APPENDIX B PLATE 4-6

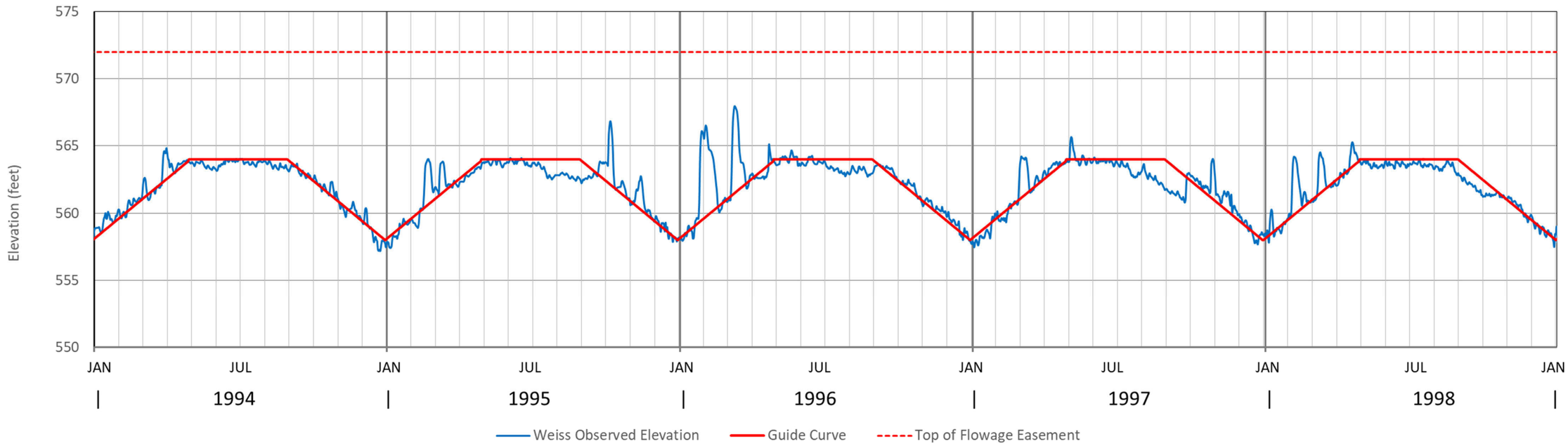


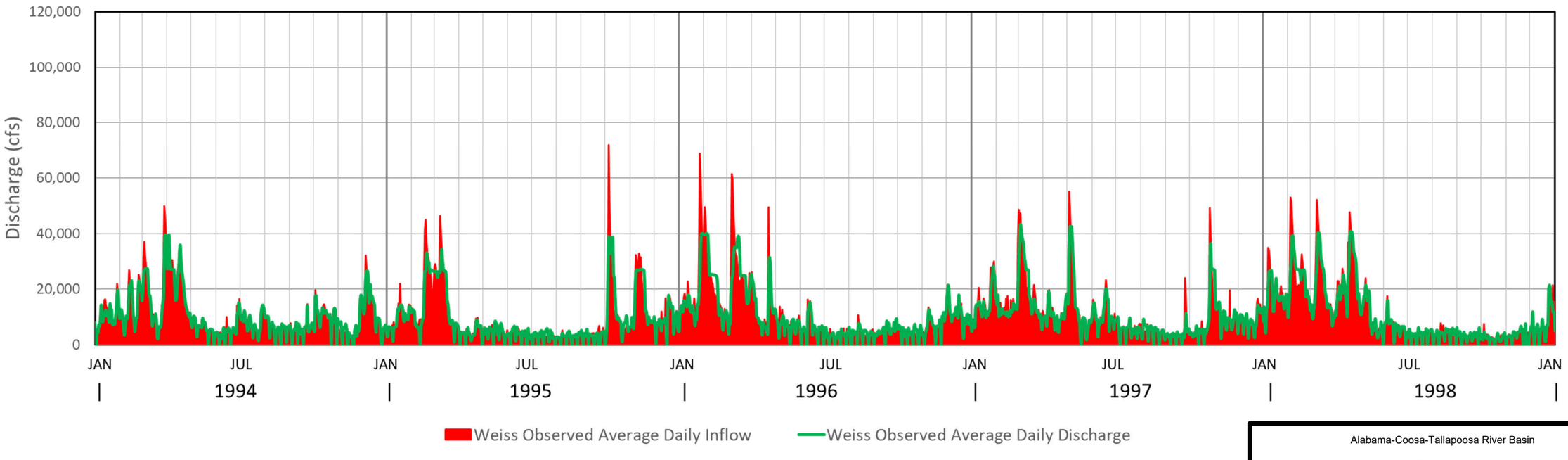


Alabama-Coosa-Tallapoosa River Basin

Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL

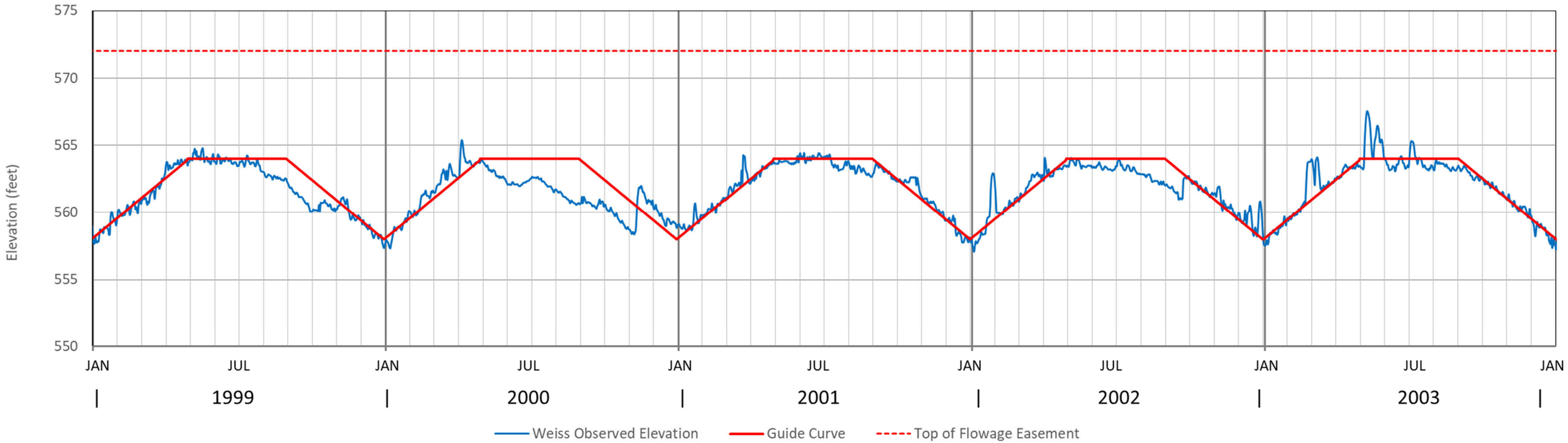


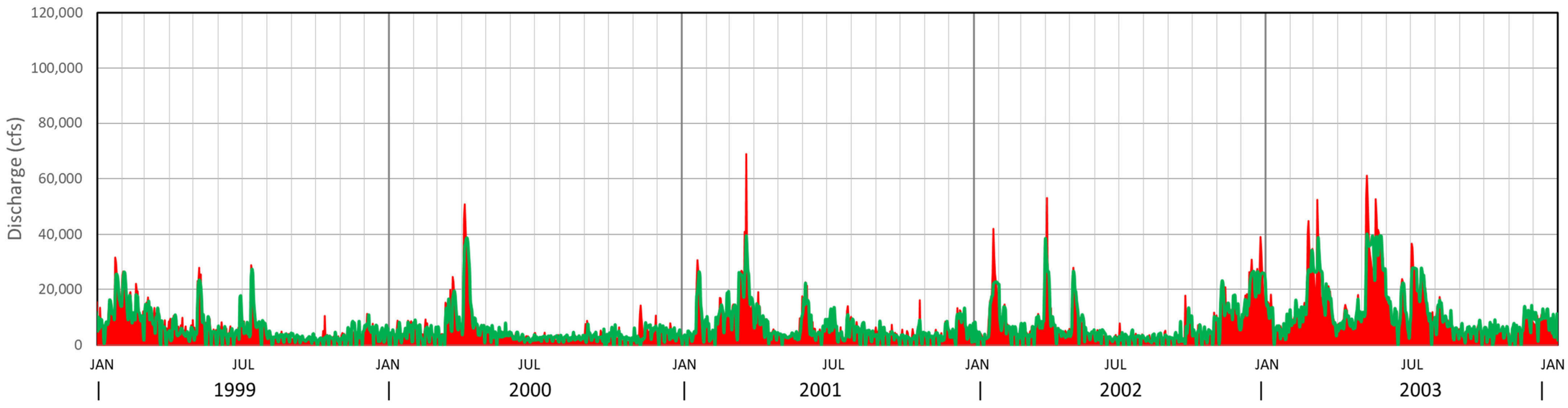


Alabama-Coosa-Tallapoosa River Basin

Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL

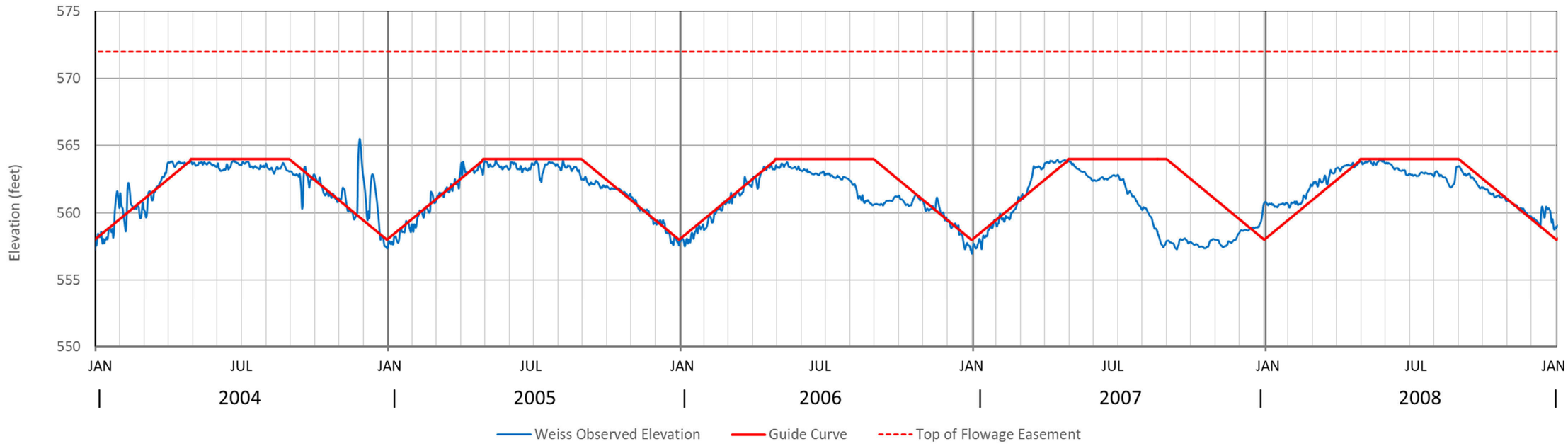


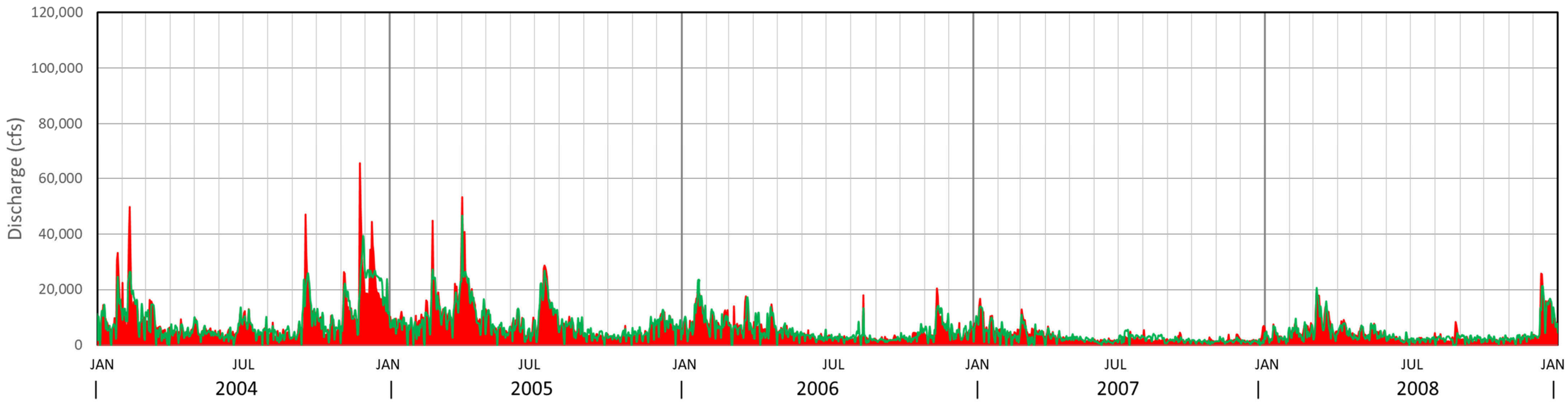


Alabama-Coosa-Tallapoosa River Basin

Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL

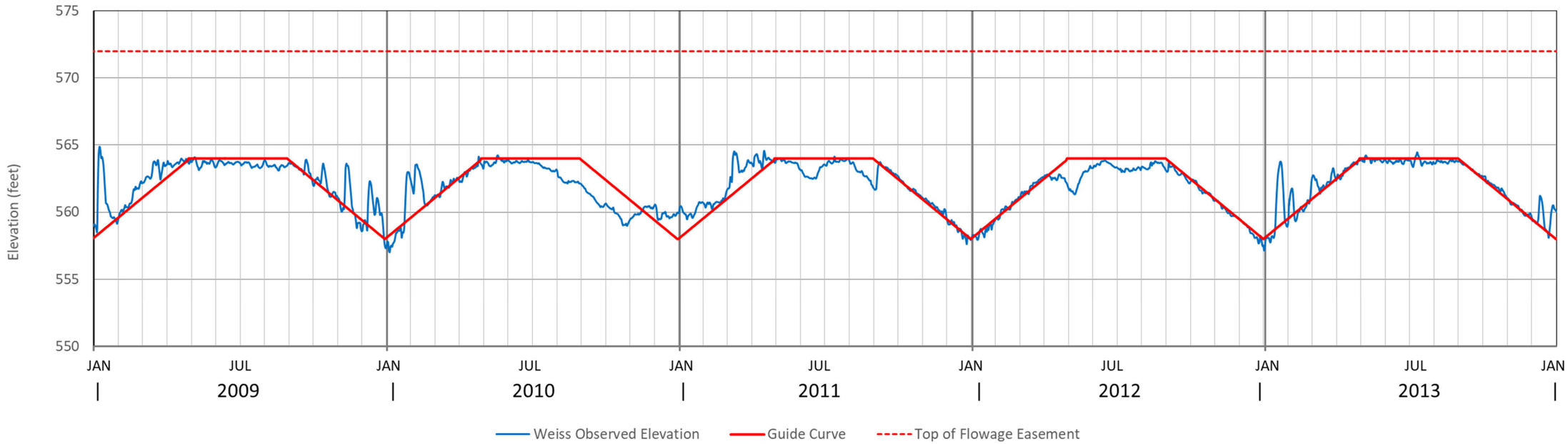


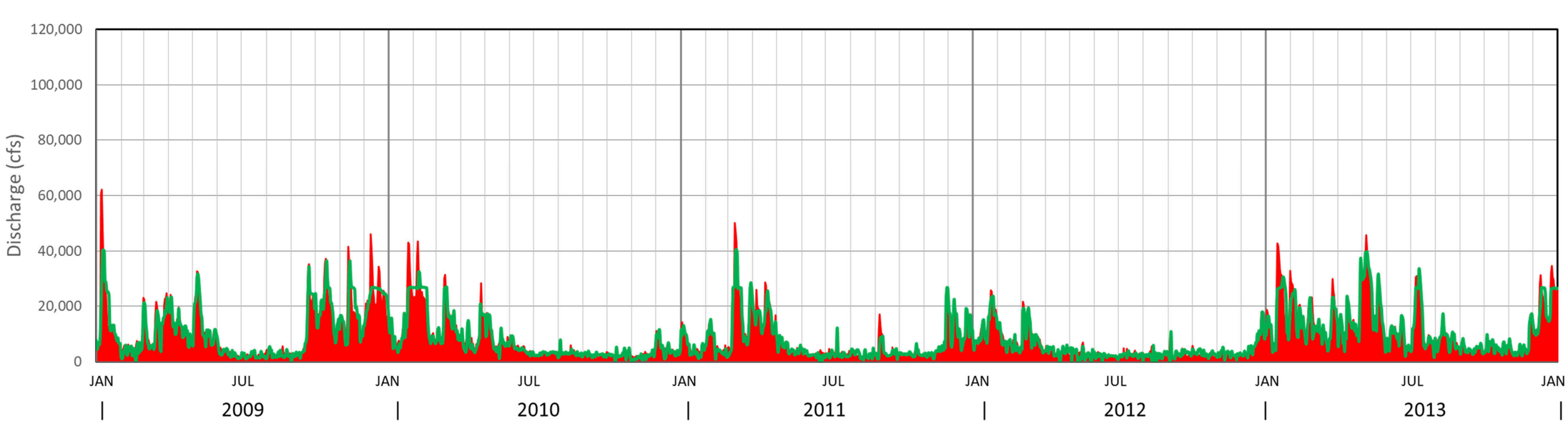


Alabama-Coosa-Tallapoosa River Basin

Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL

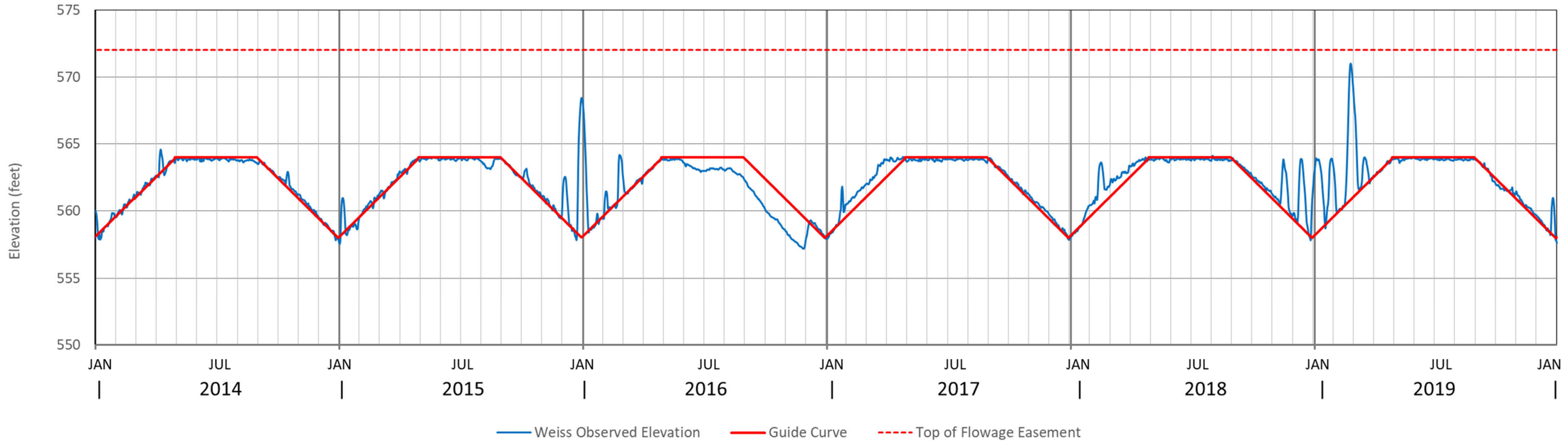


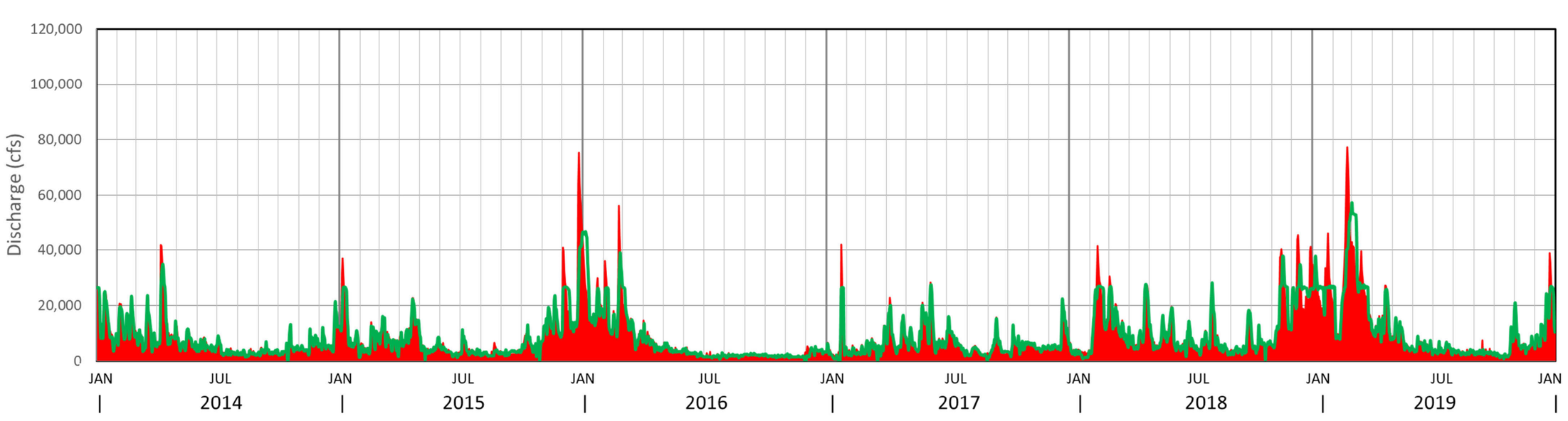


Alabama-Coosa-Tallapoosa River Basin

Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL



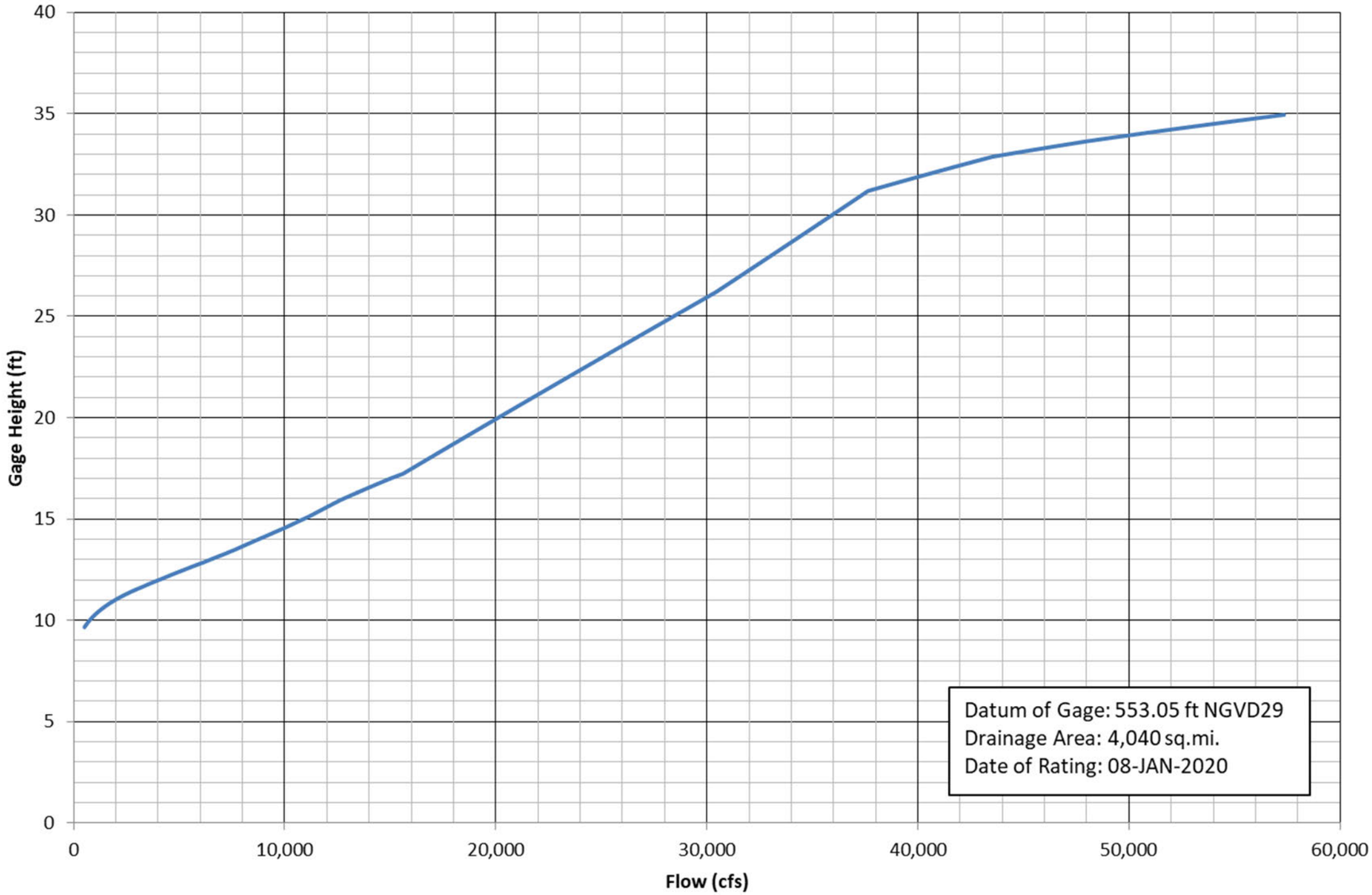


Alabama-Coosa-Tallapoosa River Basin

Water Control Manual
Weiss Dam and Lake

INFLOW-OUTFLOW-POOL

Coosa River (Mayo's Bar) near Rome, GA
(USGS GAGE 02397000)

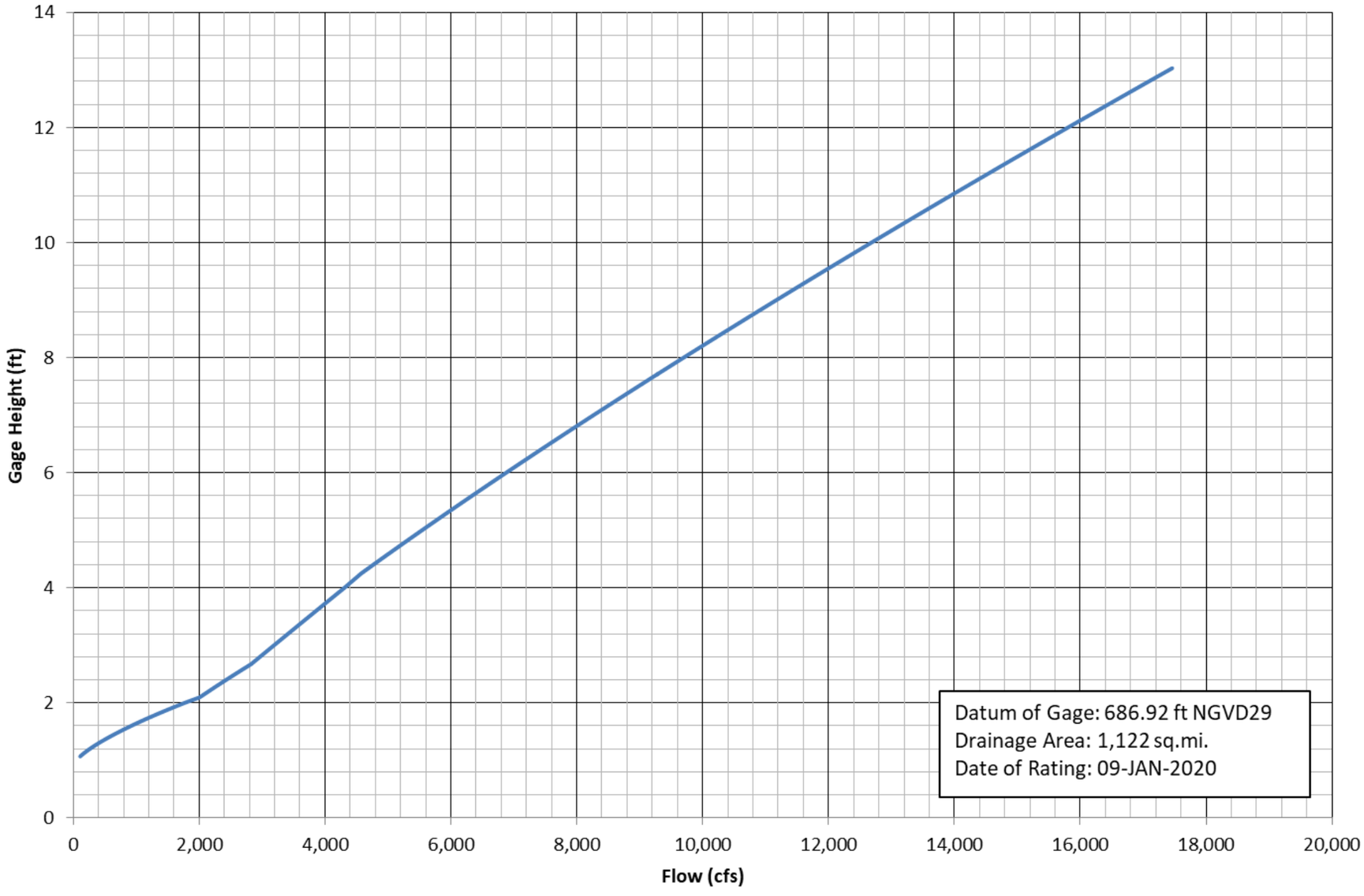


USGS GAGE 02397000			
FLOW (cfs)	GAGE HT (ft)	FLOW (cfs)	GAGE HT (ft)
510	9.66	10890	15
602	9.8	12777	16
675	9.9	16846	18
754	10	20115	20
1031	10.3	23416	22
1253	10.5	26745	24
1507	10.7	30097	26
1956	11	31596	27
2495	11.3	33046	28
2909	11.5	34491	29
3360	11.7	35931	30
4051	12	40408	32
6479	13	50446	34
8755	14	57352	34.95

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE
USGS GAGE 02397000
RATING No. 17

Etowah River River at Allatoona Dam, Above Cartersville, GA
(USGS GAGE 02394000)

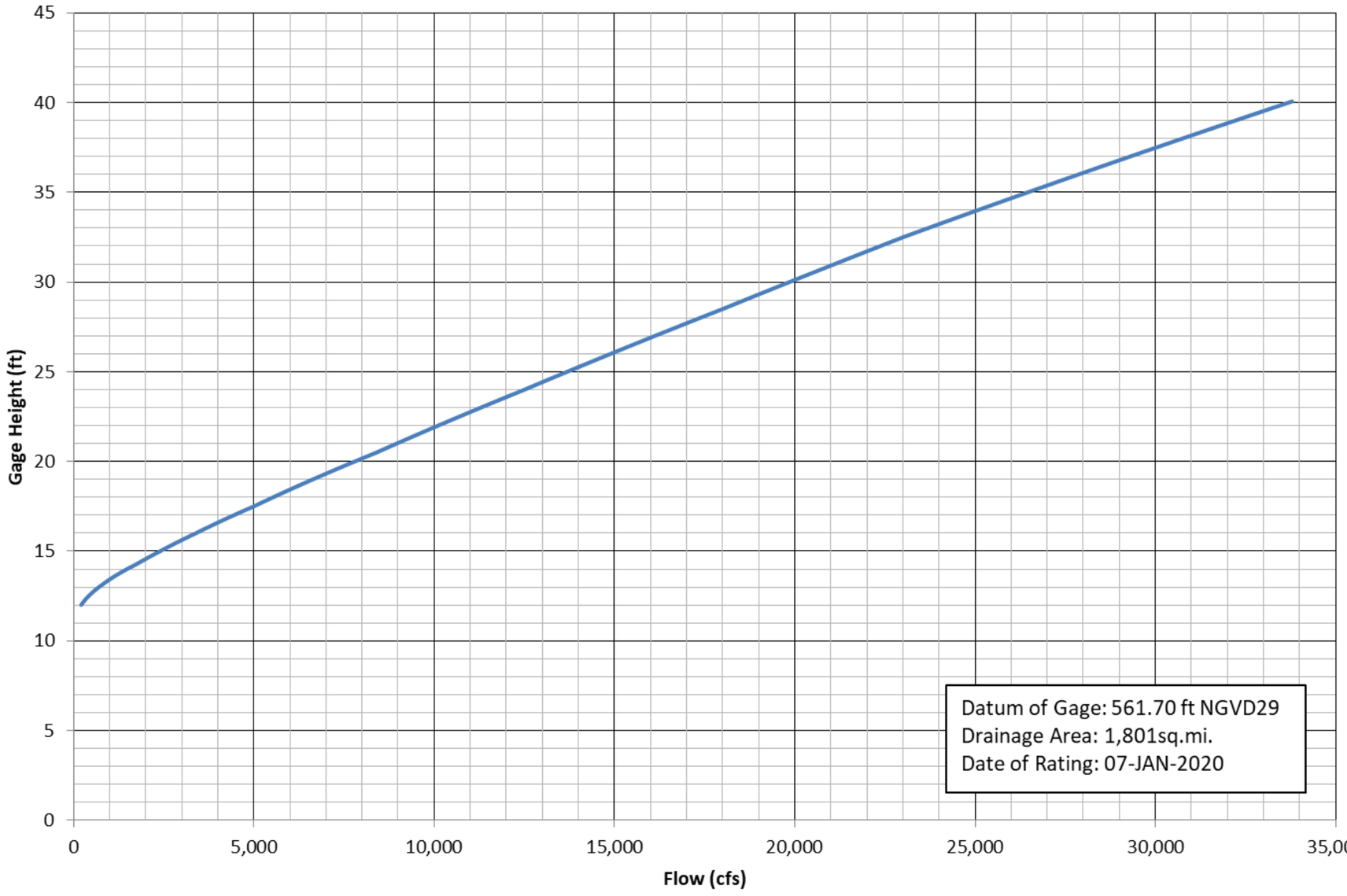


USGS GAGE 02394000	
FLOW (cfs)	GAGE HT (ft)
110	1.07
735	1.5
1769	2
2572	2.5
3188	3
3746	3.5
4308	4
5540	5
6877	6
8265	7
9697	8
11170	9
12681	10
14227	11
15804	12
17411	13
17460	13.03

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE
USGS GAGE 02394000
RATING No. 17

Etowah River at GA 1 Loop, near Rome, GA
(USGS GAGE 02395980)

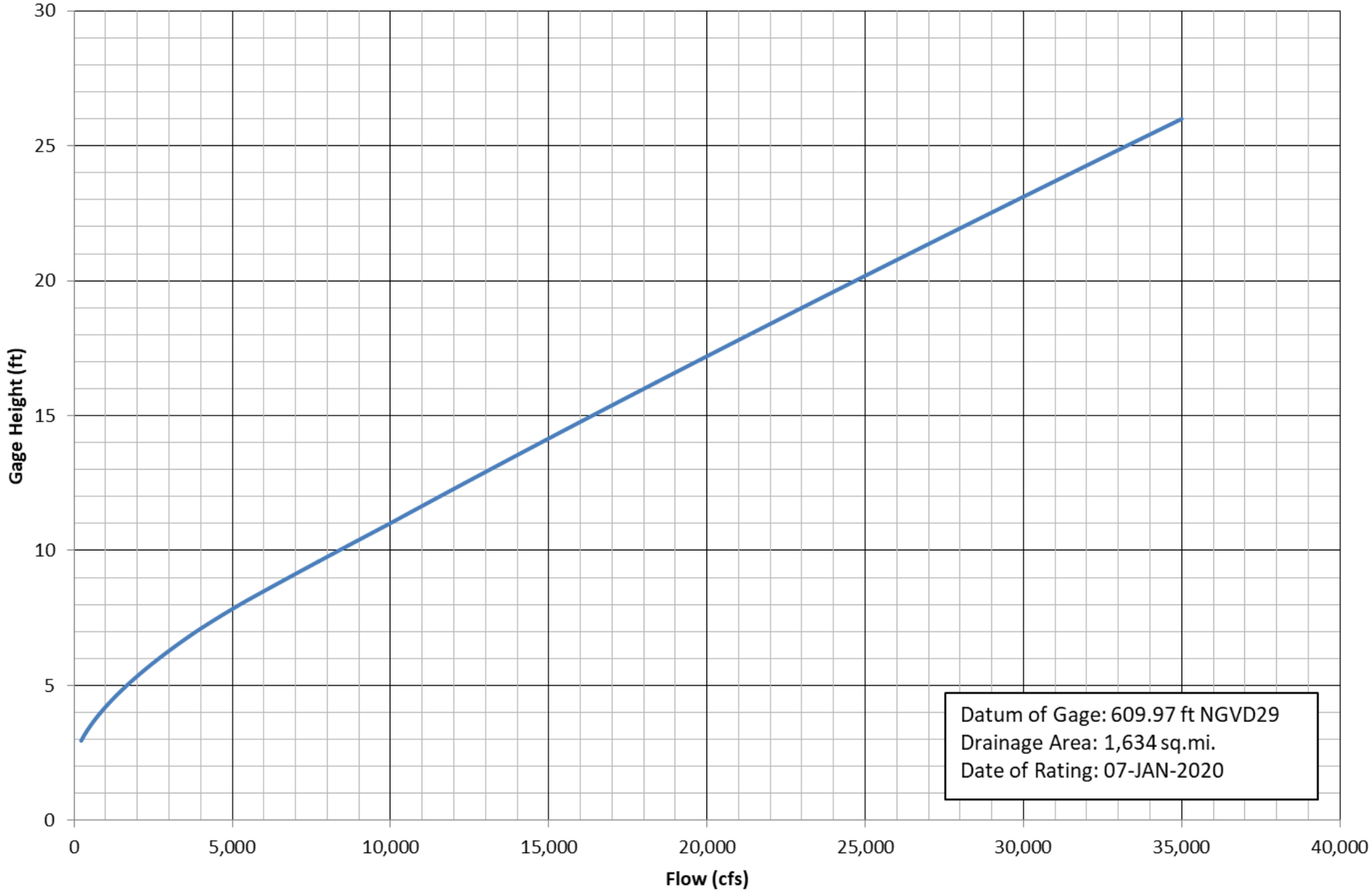


USGS GAGE 02395980			
FLOW (cfs)	GAGE HT (ft)	FLOW (cfs)	GAGE HT (ft)
210	12	10108	22
325	12.3	12500	24
418	12.5	14892	26
523	12.7	16120	27
704	13	17369	28
910	13.3	18613	29
1057	13.5	19849	30
1217	13.7	22363	32
1480	14	25061	34
2400	15	27870	36
3390	16	30746	38
5528	18	33687	40
7796	20	33791	40.07

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE
USGS GAGE 02395980
RATING No. 2.1

Etowah River near Kingston, GA
(USGS GAGE 02395000)

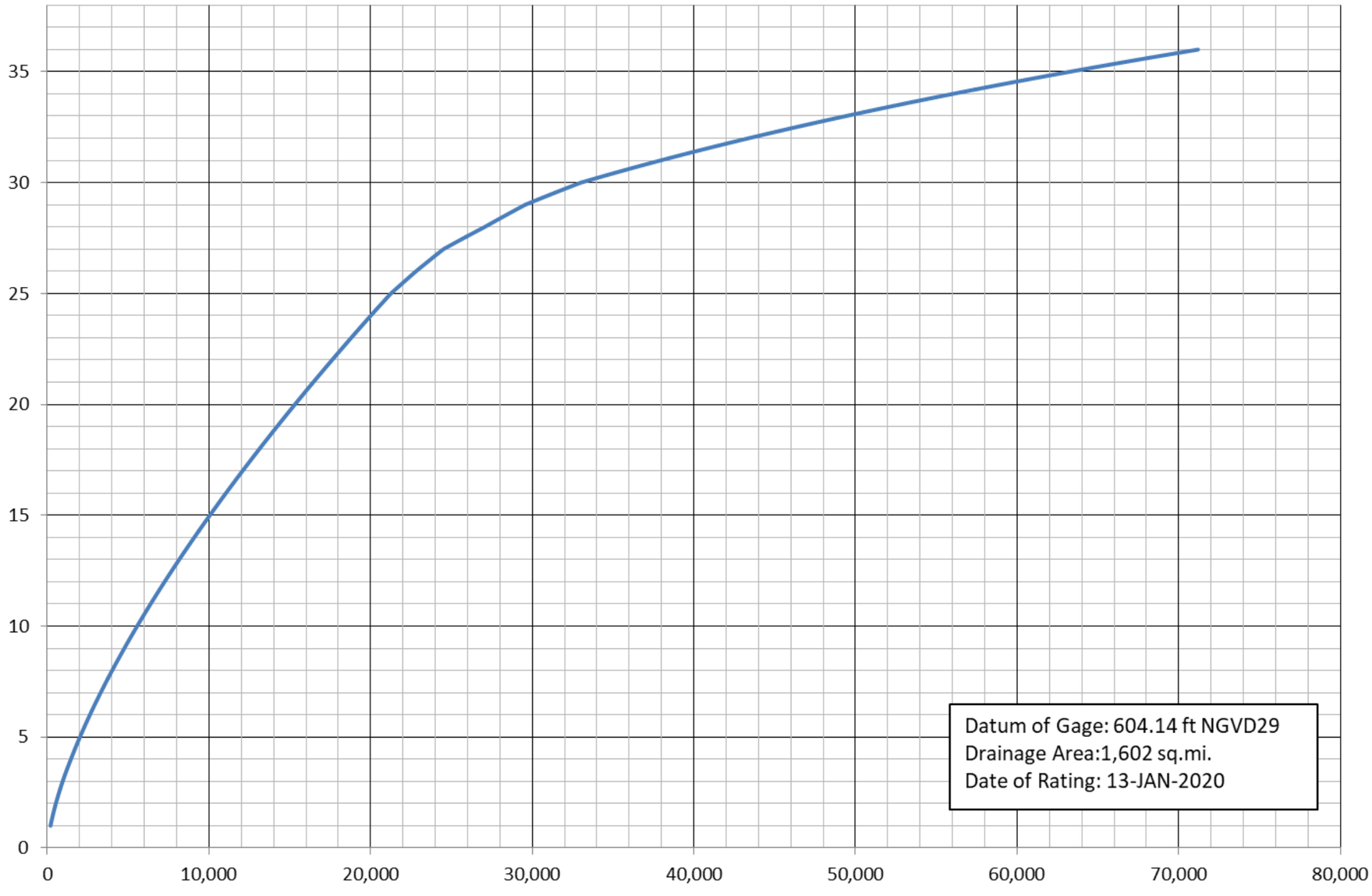


USGS GAGE 02395000	
FLOW (cfs)	GAGE HT (ft)
224	2.95
247	3
512	3.5
842	4
1667	5
2680	6
3859	7
5241	8
6783	9
8365	10
11546	12
14746	14
18008	16
21324	18
24686	20
28088	22
31527	24
35000	26

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE
USGS GAGE 02395000
RATING No. 22.1

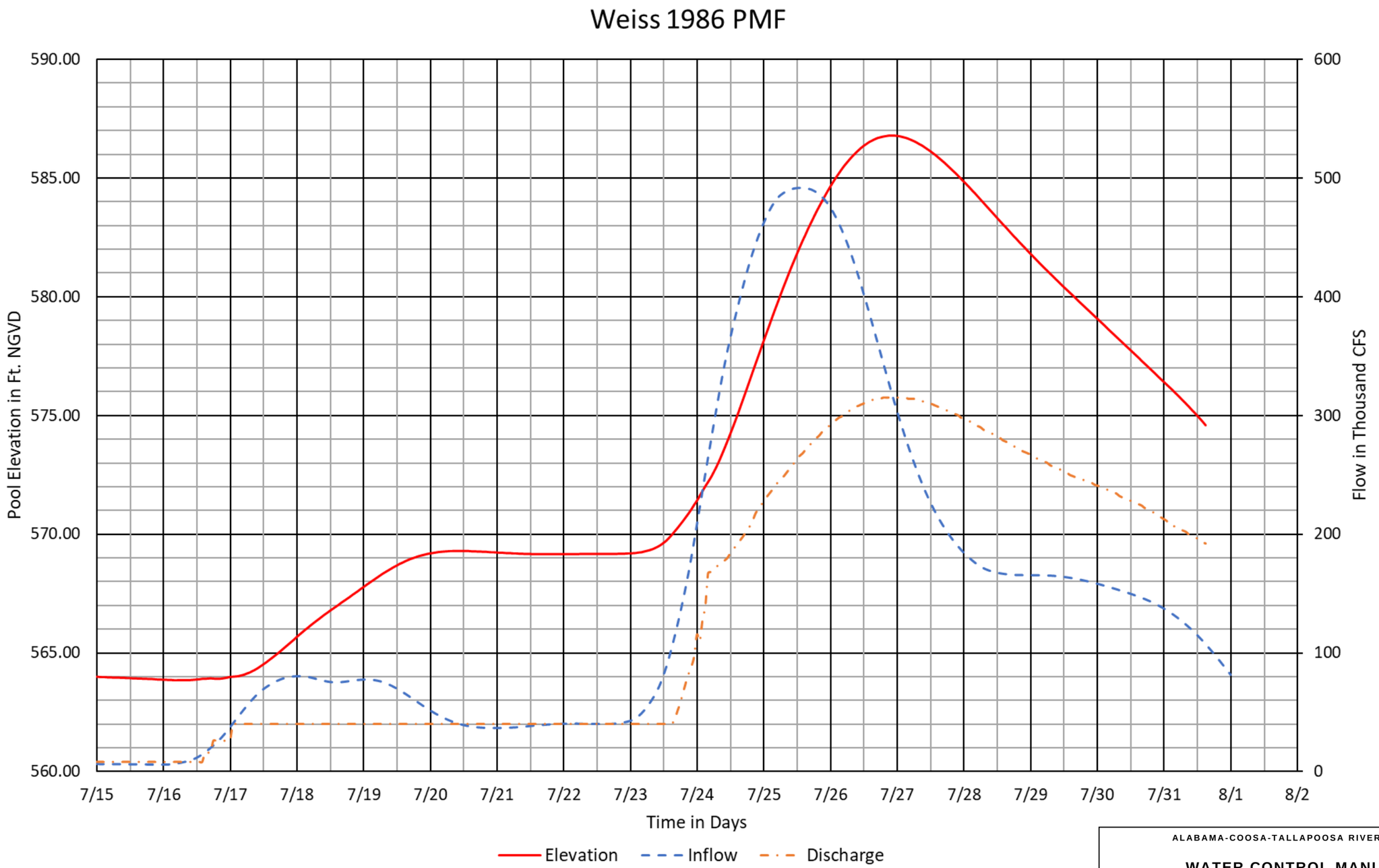
Oostanaula River at Resaca, GA
(USGS GAGE 02387500)



USGS GAGE 02387500			
FLOW (cfs)	GAGE HT (ft)	FLOW (cfs)	GAGE HT (ft)
190	1	10048	15
218	1.1	12070	17
342	1.5	13123	18
520	2	14205	19
720	2.5	15313	20
940	3	17607	22
1450	4	20000	24
2010	5	21250	25
2626	6	22800	26
3291	7	27050	28
4002	8	29550	29
4755	9	33000	30
5549	10	43369	32
6380	11	49383	33
7247	12	56000	34
8148	13	63257	35
9082	14	71195	36

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

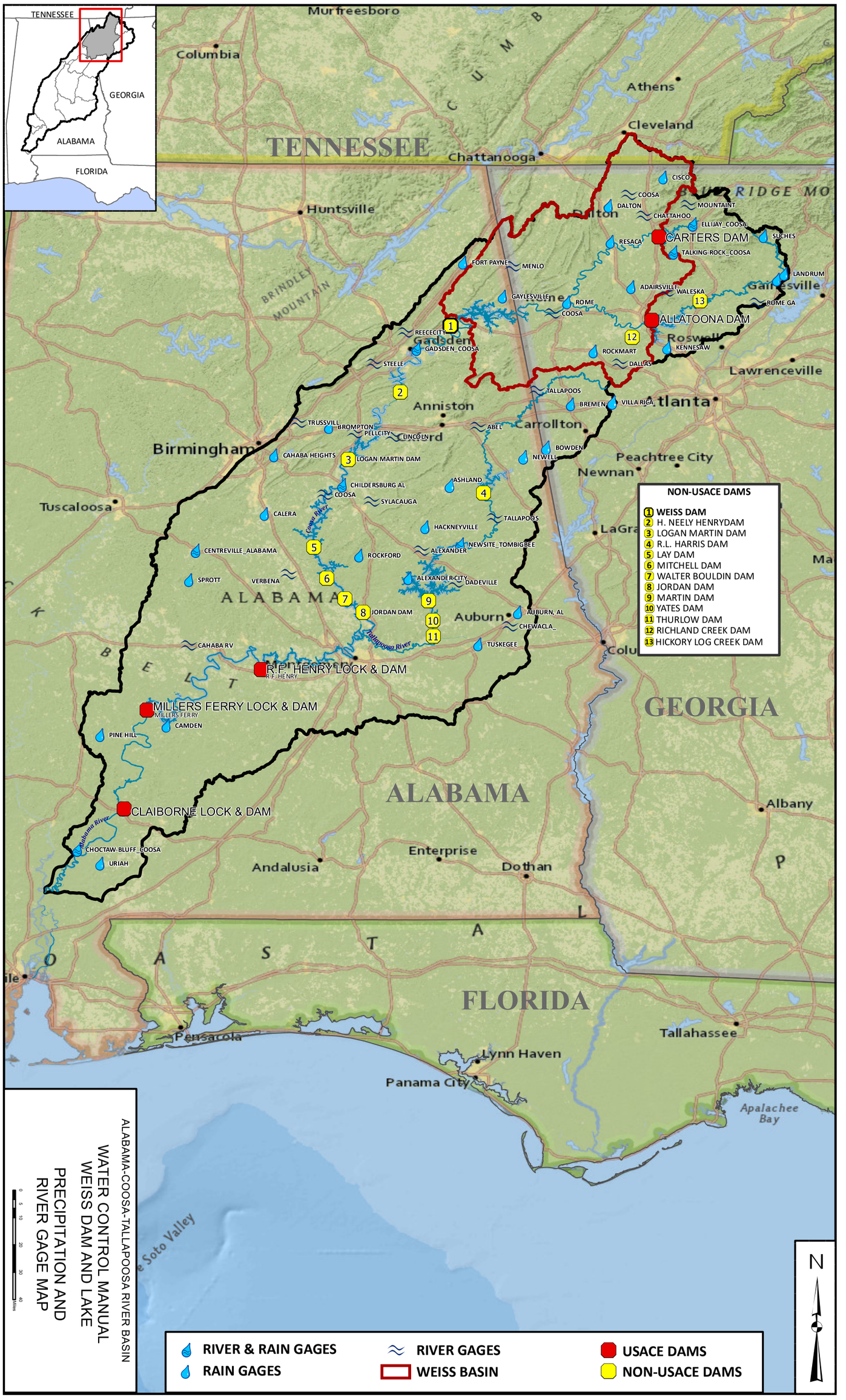
WATER CONTROL MANUAL
WEISS DAM AND LAKE
USGS GAGE 02387500
RATING No. 10.1



ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM
Pool Elevation- Inflow- Outflow Hydrographs of Probable Maximum Flood for Flood of 1986

CORPS OF ENGINEERS



ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

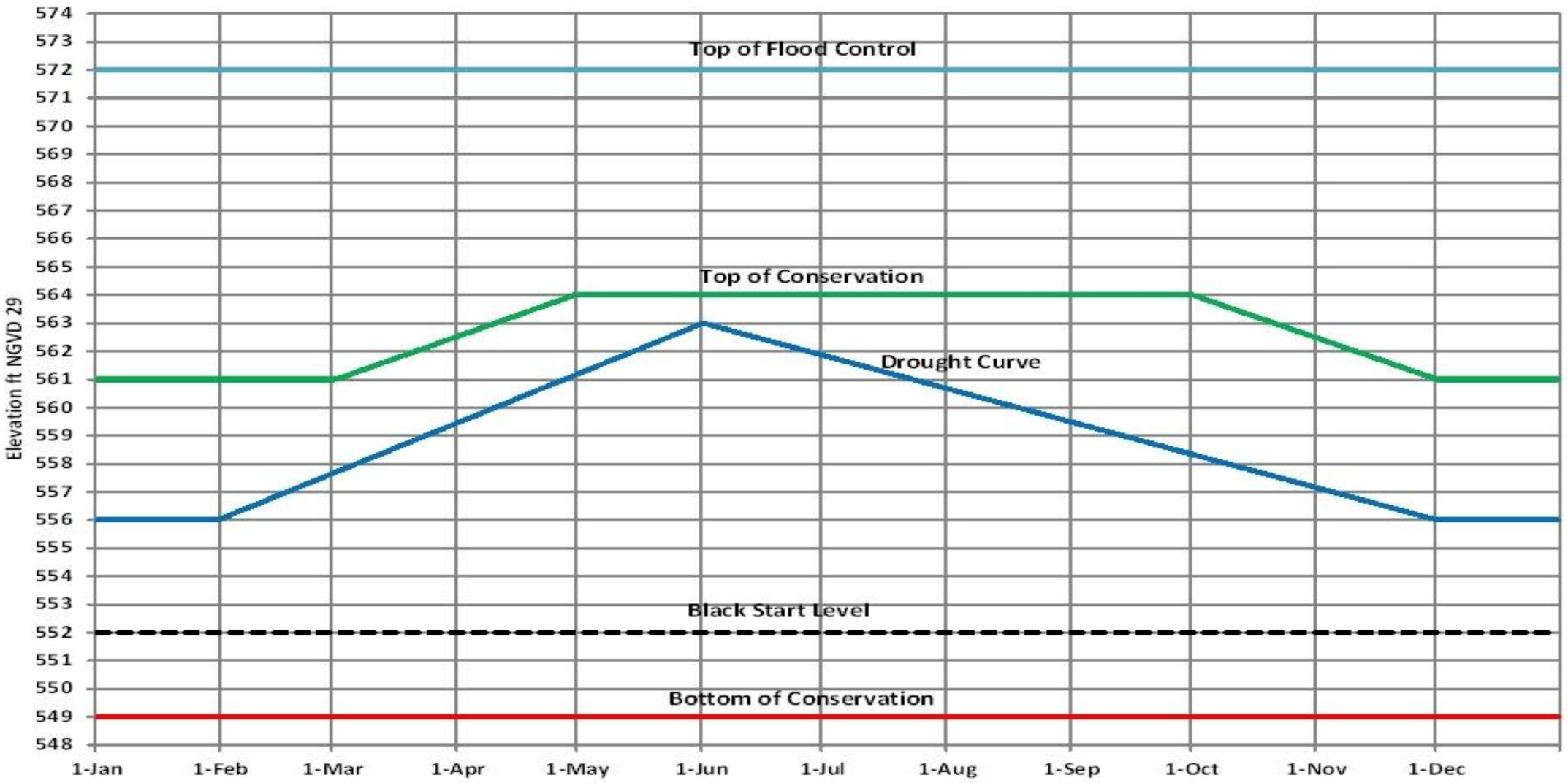
WATER CONTROL MANUAL
WEISS DAM AND LAKE

PRECIPITATION AND
RIVER GAGE MAP

APPENDIX B PLATE 5-1

U.S. ARMY

Alabama Power - Weiss



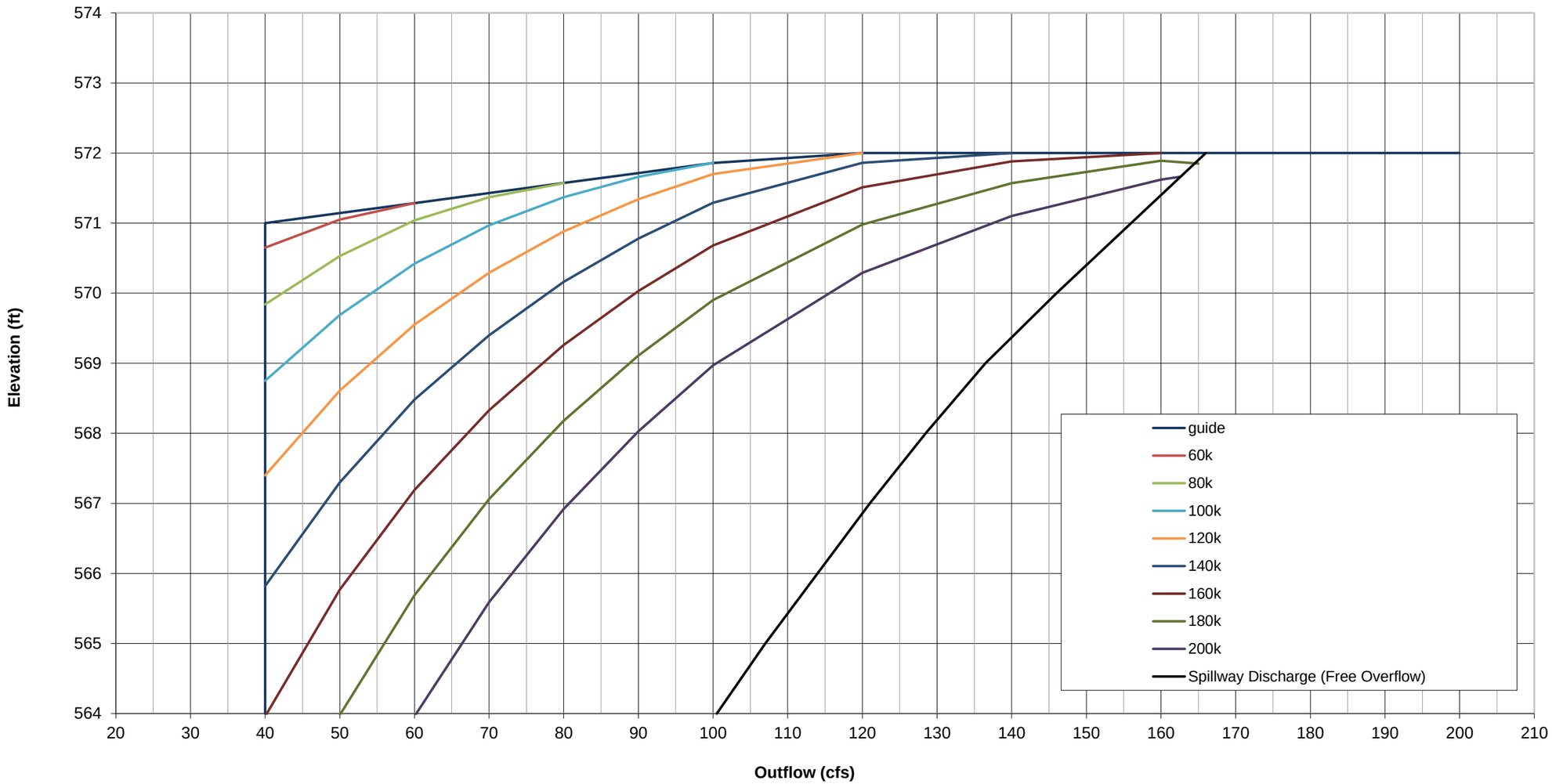
ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

WEISS GUIDE CURVES

APPENDIX B PLATE 7-1

Induced Surcharge Schedule



Note: Version 2, Revised June 2005

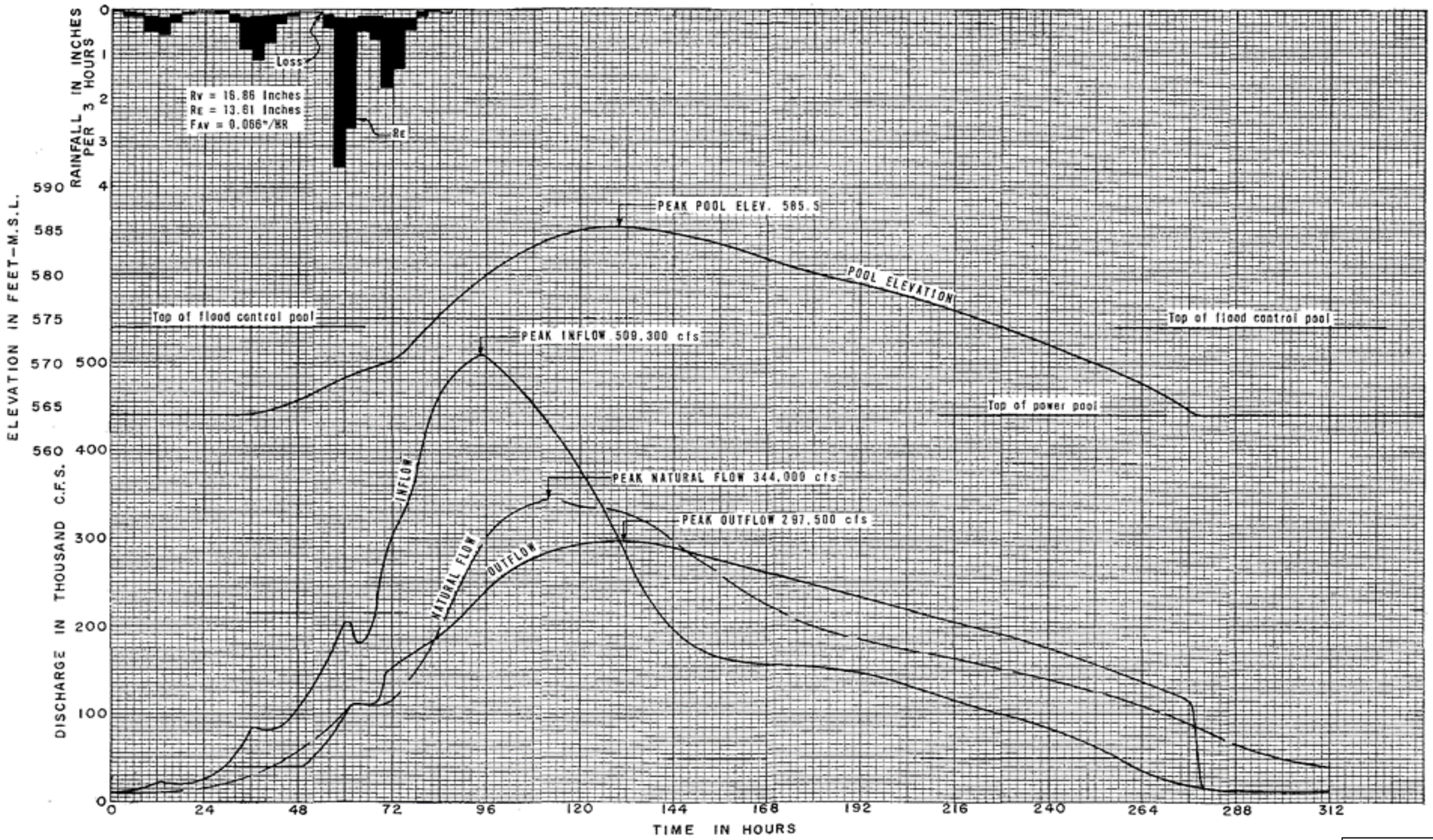
ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE
INDUCED SURCHARGE SCHEDULE

APPENDIX B PLATE 7-2

Inflow-Outflow-Pool Stage Hydrographs

Spillway Design Flood



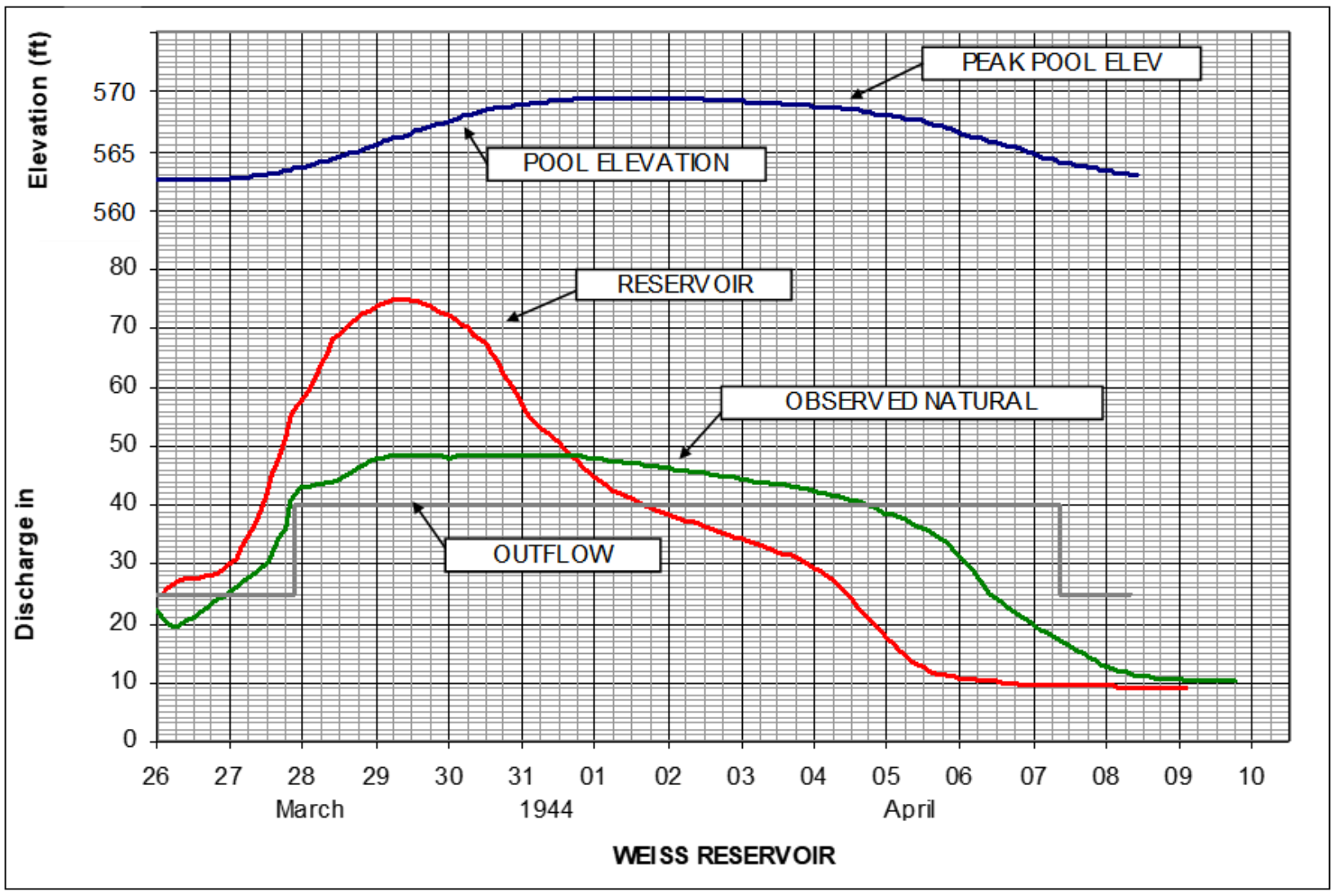
ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

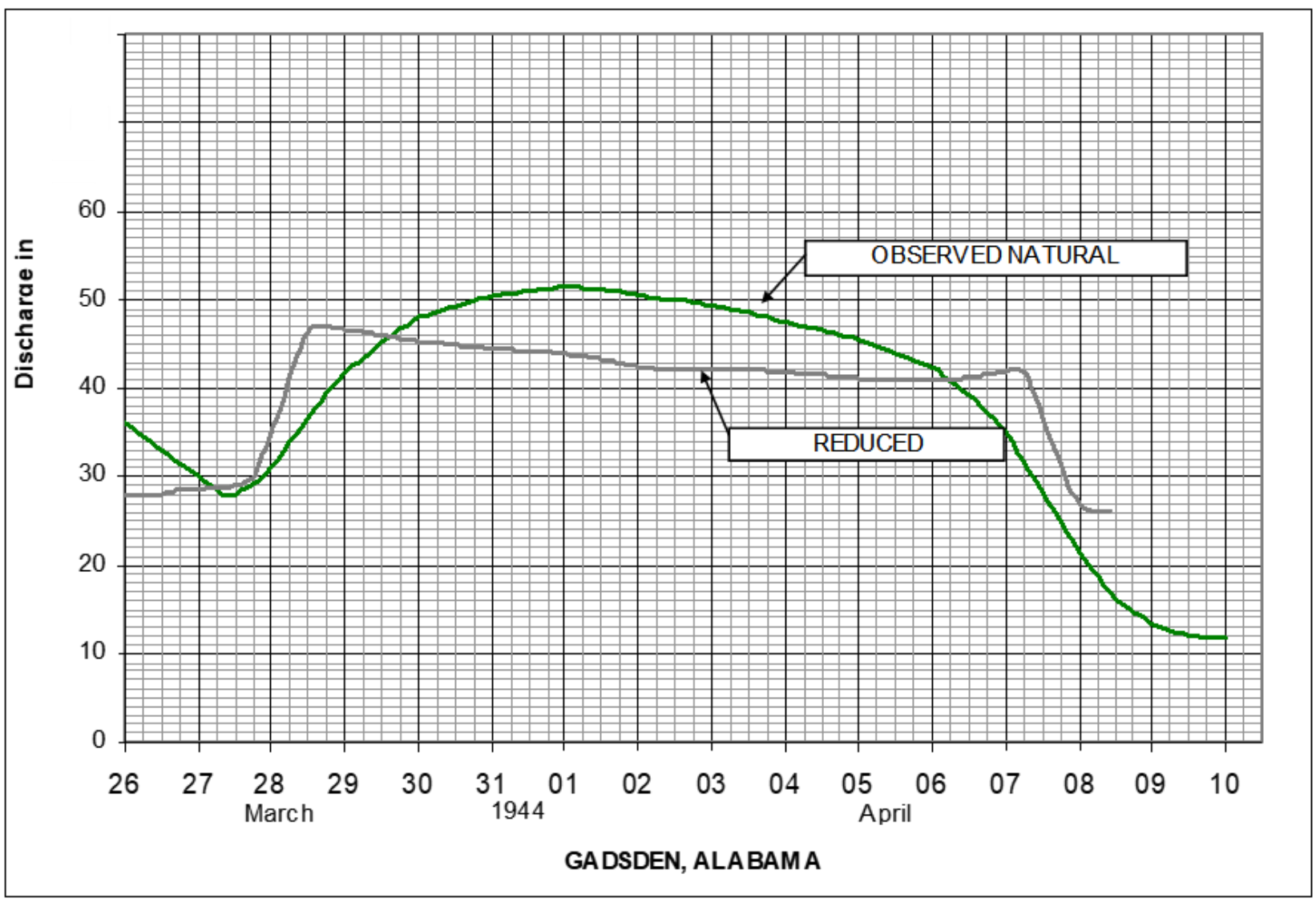
WATER CONTROL MANUAL
WEISS DAM AND LAKE

INFLOW-OUTFLOW-POOL STAGE HYDROGRAPHS

Effect of Reservoir Regulation

Flood of March & April 1944





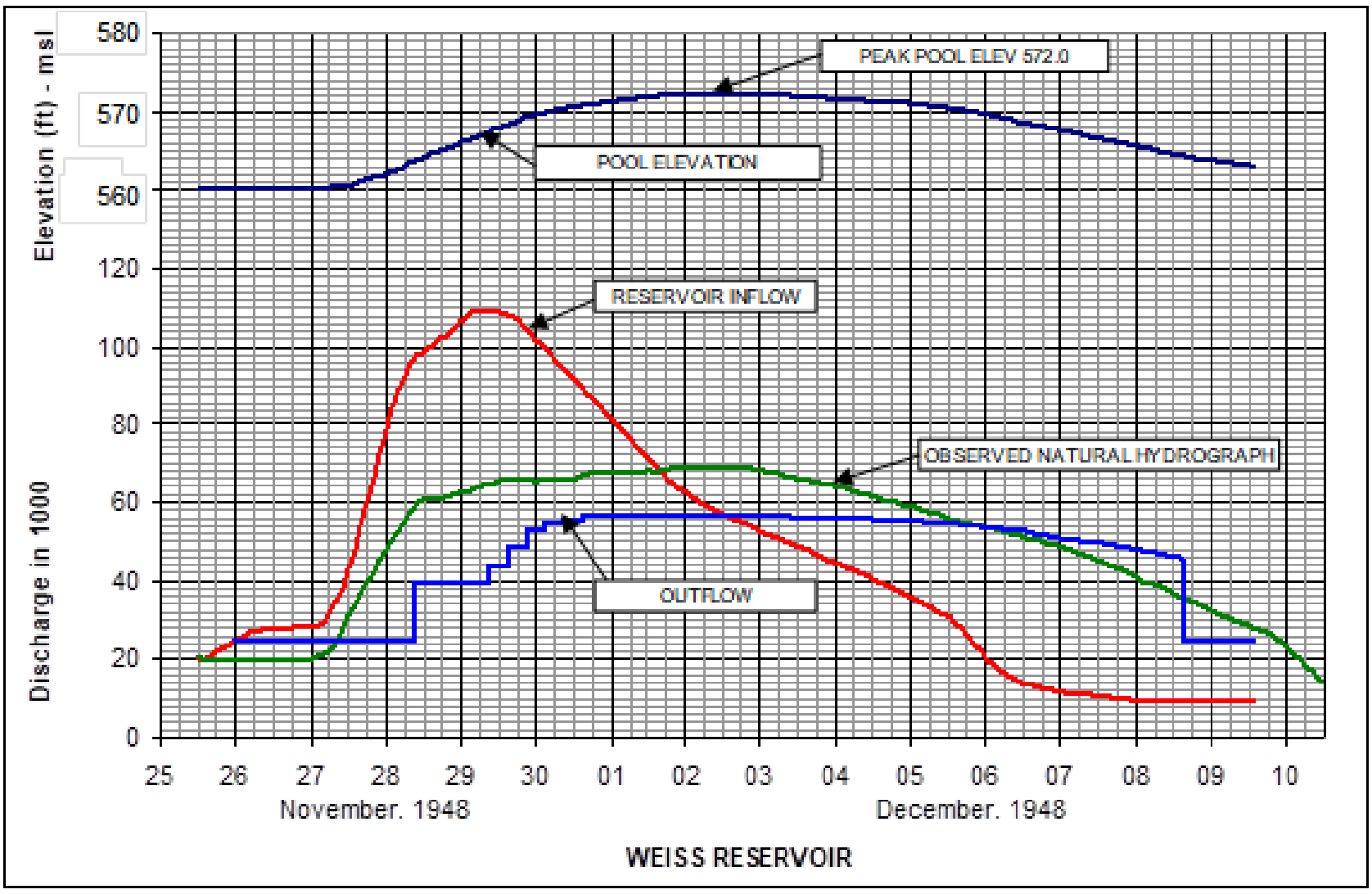
ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

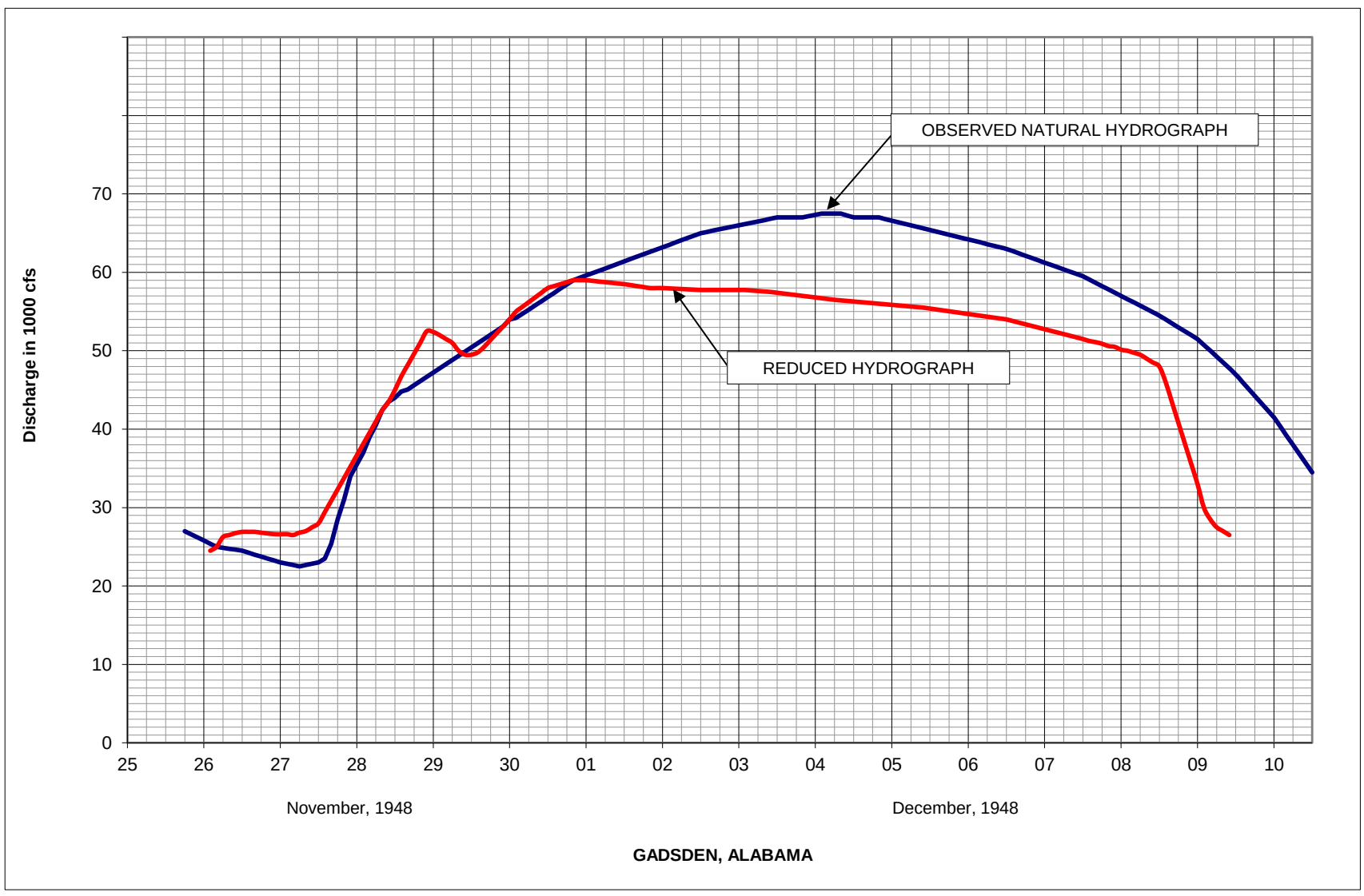
WATER CONTROL MANUAL
WEISS DAM AND LAKE

FLOOD OF MARCH & APRIL 1944

Effect of Reservoir Regulation

Flood of November & December, 1948





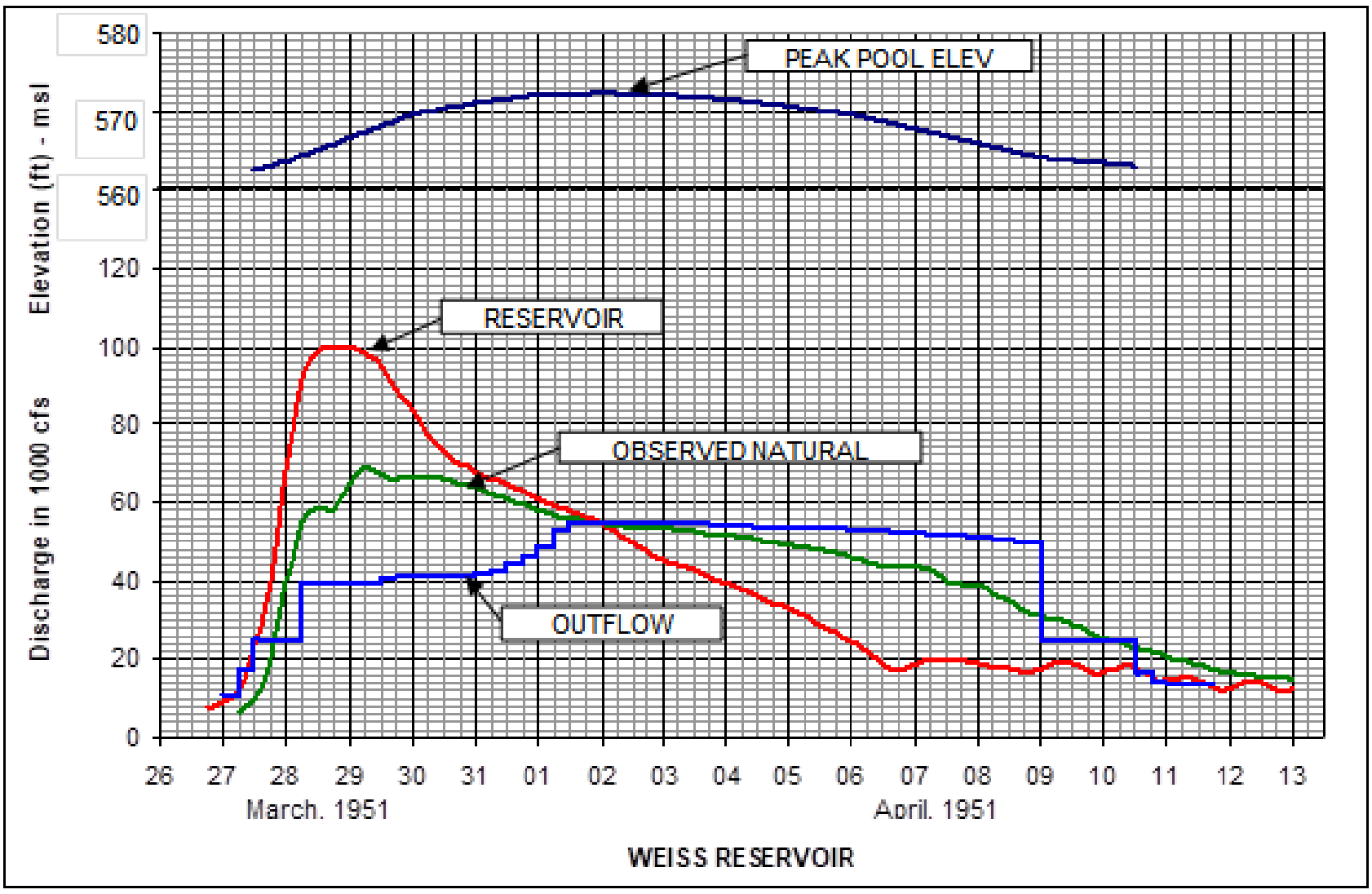
ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

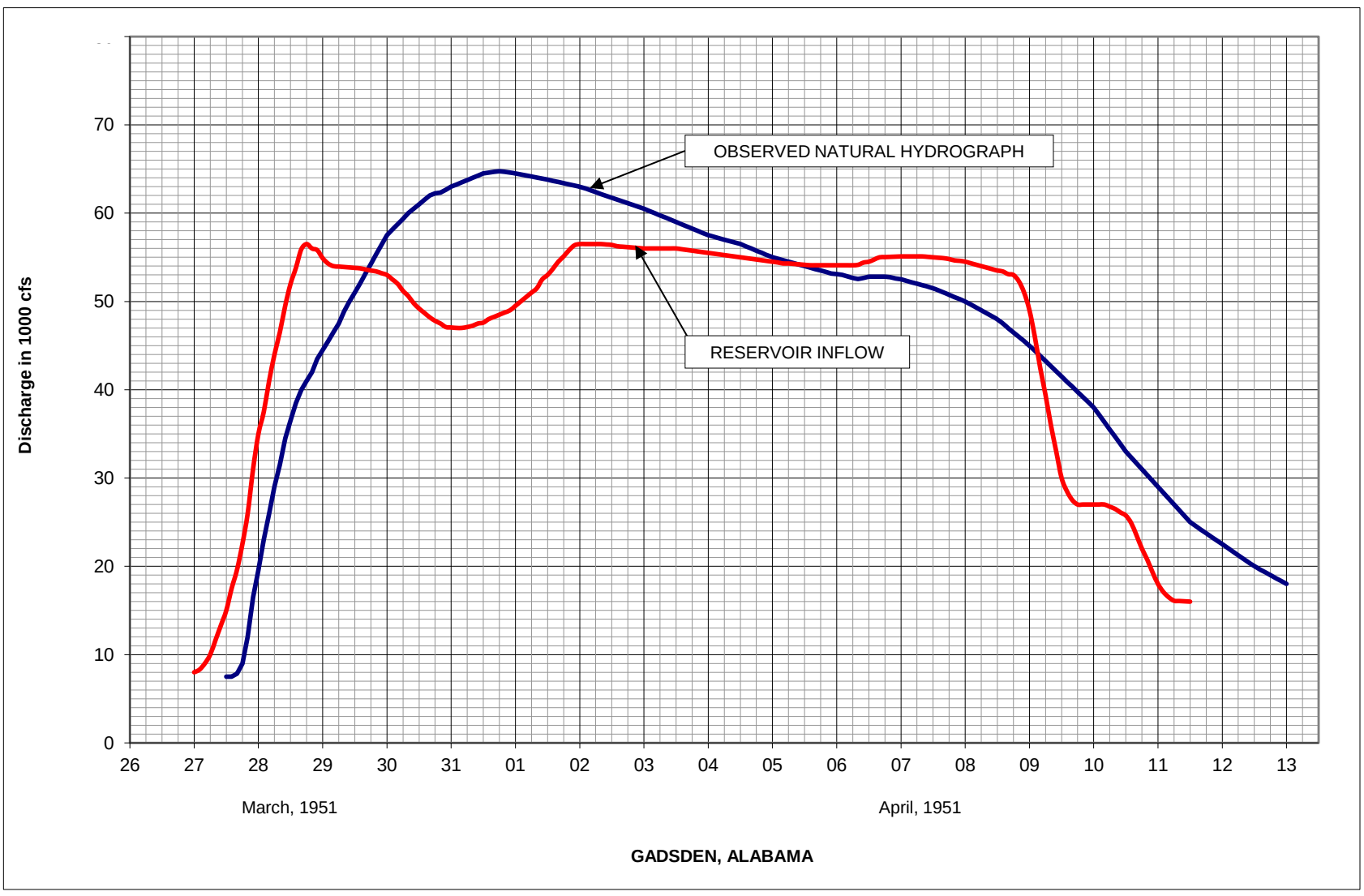
FLOOD OF NOVEMBER & DECEMBER 1948

Effect of Reservoir Regulation

Flood of March & April, 1951



WEISS RESERVOIR

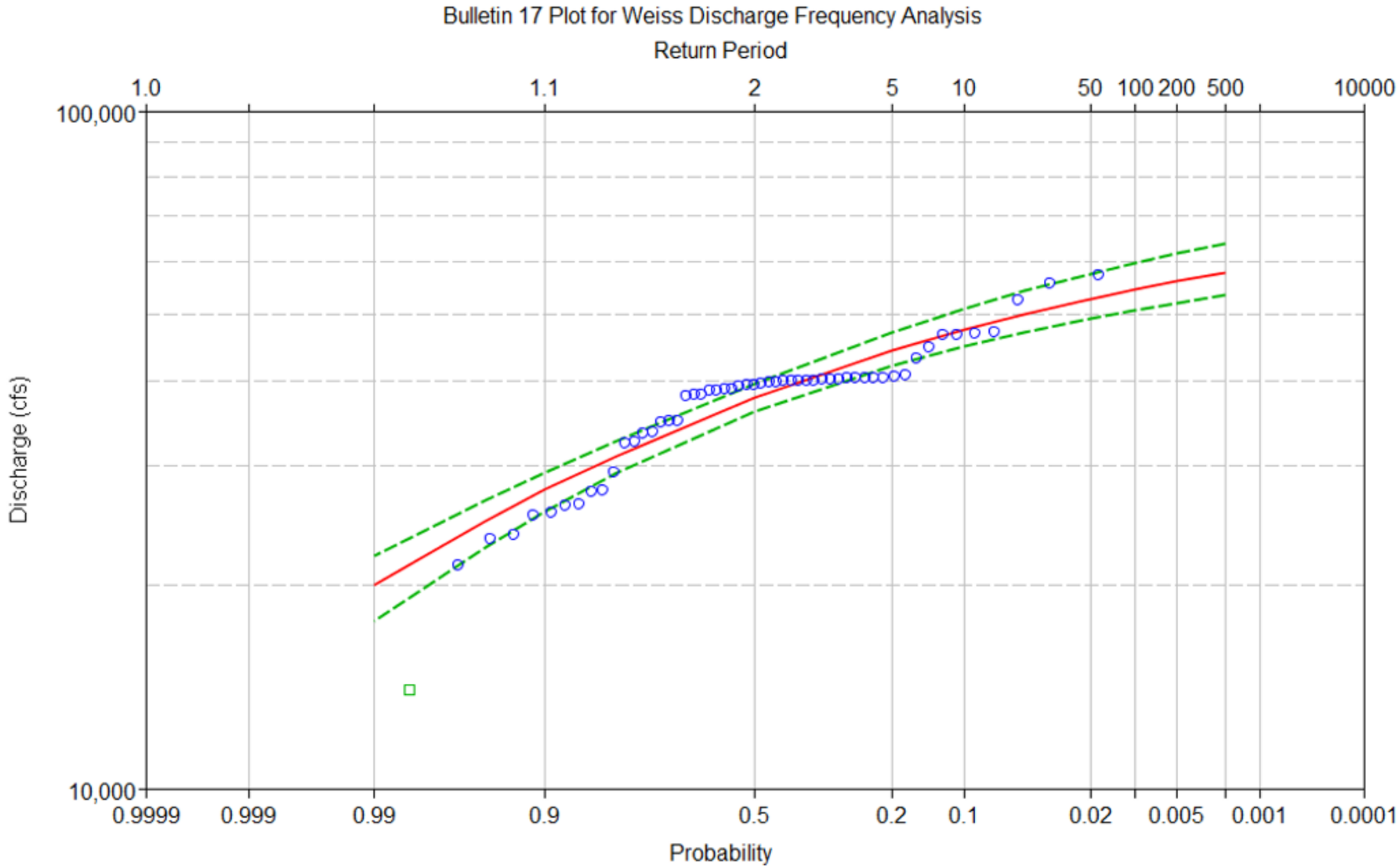


GADSDEN, ALABAMA

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

FLOOD OF MARCH & APRIL 1951



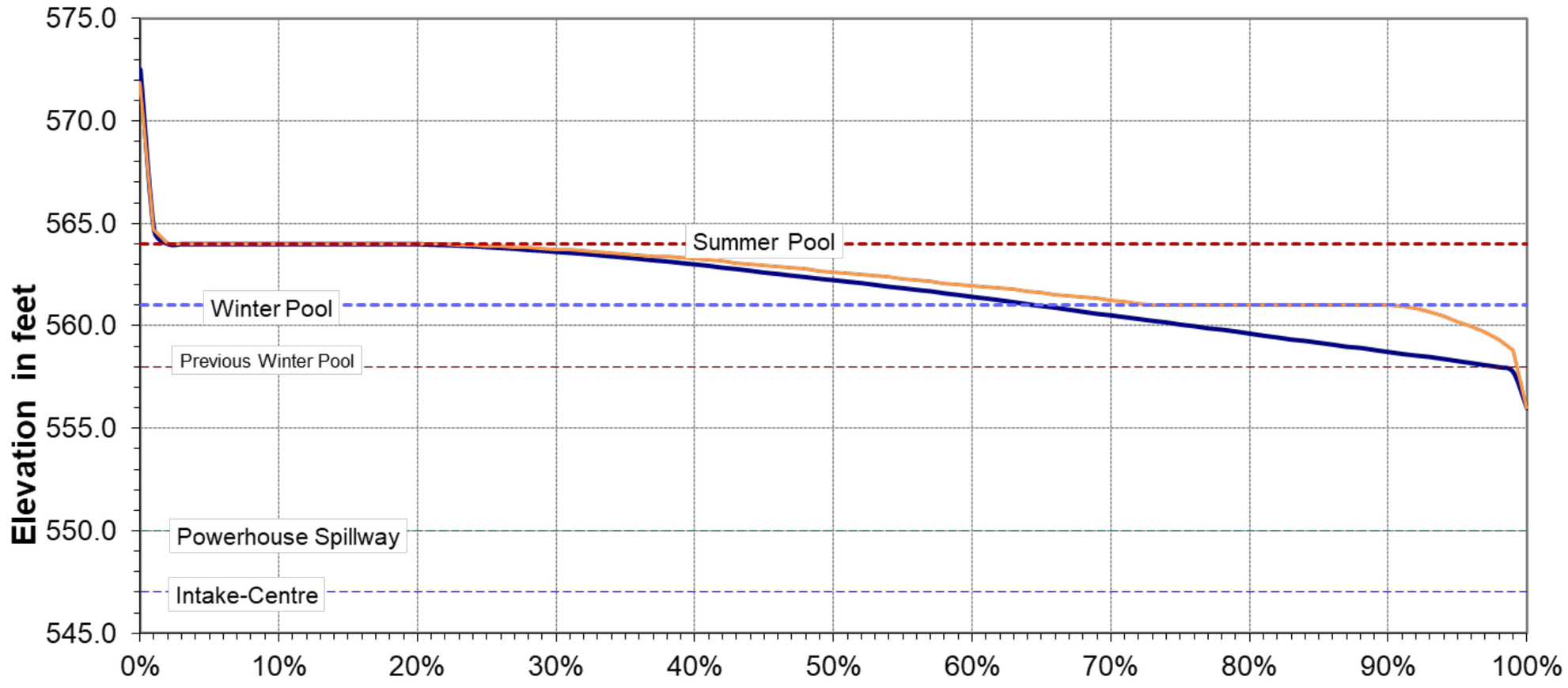
Note : Curve computed using HEC-SSP 2.2 with 1964 to 2019 period.

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

DISCHARGE FREQUENCY CURVE

Weiss Pool Elevation-Annual

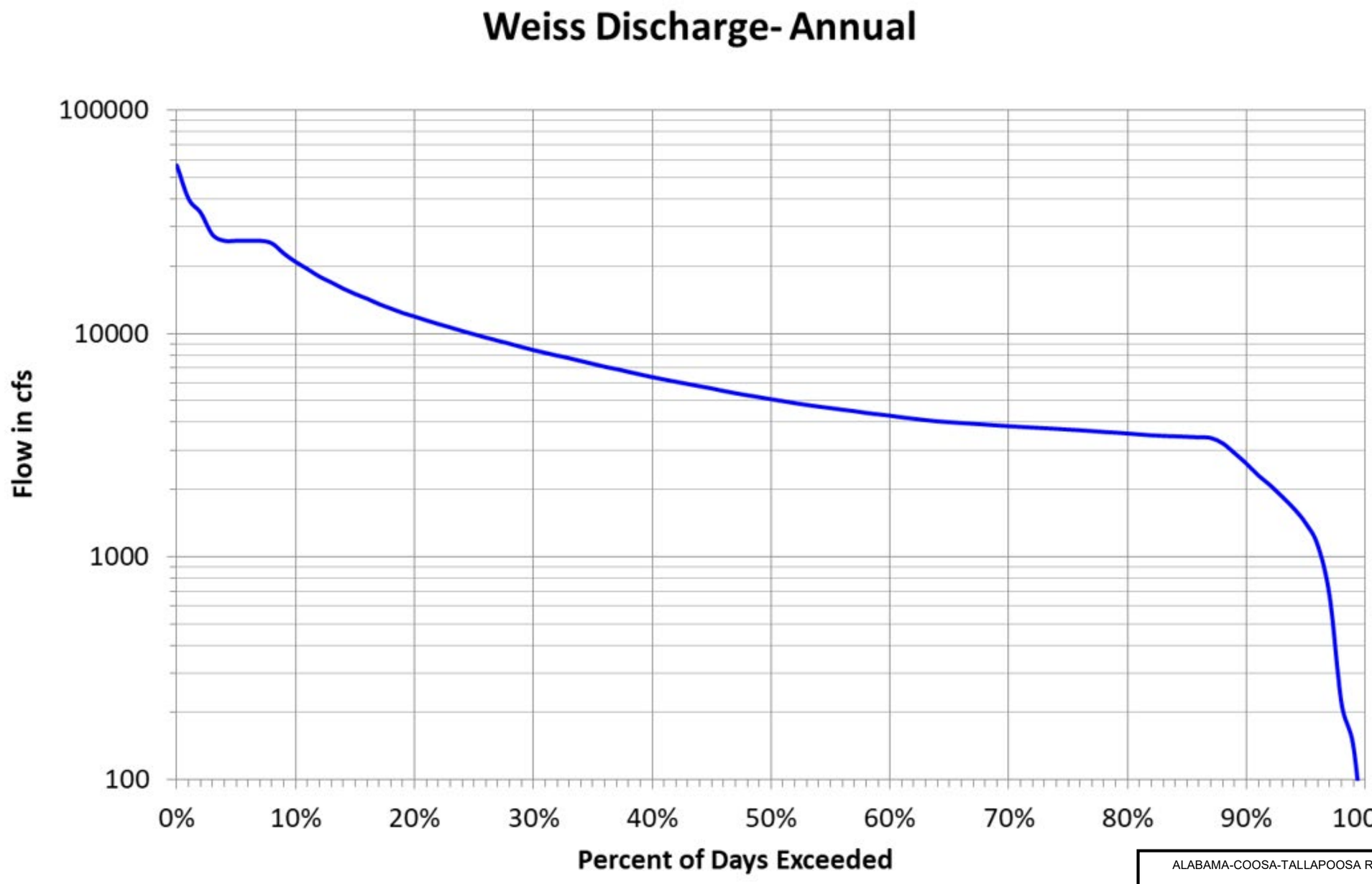


* Modeled Period of Record 1939 - 2011, used for this analysis

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

POOL DURATION CURVE



ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL
WEISS DAM AND LAKE

DISCHARGE DURATION CURVE