

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN WATER CONTROL MANUAL

Final APPENDIX A

ALLATOONA DAM AND LAKE ETOWAH RIVER, GEORGIA

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

MARCH 1952
REVISED AUGUST 1962
REVISED DECEMBER 1993 (INTERIM)
REVISED MAY 2015



Allatoona 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.

REGULATION ASSISTANCE PROCEDURES

If unusual conditions arise, contact can be made with the Water Management Section, Mobile District Office by phoning (251) 690-2737 during regular duty hours and (251) 509-5368 during non-duty hours. The Allatoona Powerhouse personnel can be reached at (678) 721-6700 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.

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 U.S. Army Corps of Engineers (herein referred to as USACE or 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. 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 The relationships among existing, constructed, or maintained project grades that are referenced to local or superseded datums (e.g., NGVD29, MSL), the current NSRS, and/or hydraulic/tidal datums, have been established per the requirements of Engineering Regulation 1110-2-8160 and in accordance with the standards and procedures as outlined in Engineering Manual 1110-2-6056. A Primary Project Control Point has been established at this project and linked to the NSRS. Information on the Primary Project Control Point, designated BM1, and the relationship between current and legacy datums are in Exhibit B.

<u>Page</u>

ALLATOONA DAM AND LAKE

WATER CONTROL MANUAL ETOWAH RIVER, GEORGIA U.S. Army Corps of Engineers, Mobile District, South Atlantic Division

TABLE OF CONTENTS

TITLE PAGE

PHOTOGRAPH		ii
NOTICE TO US	ERS OF THIS MANUAL	iii
REGULATION A	ASSISTANCE PROCEDURES	iii
METRIC CONV	ERSION	iii
VERTICAL DAT	ТИМ	iii
TABLE OF CON	ITENTS	iv
PERTINENT DA	ATA	xv
TEXT OF MANU	JAL	1-1
<u>Paragraph</u>	<u>Title</u>	<u>Page</u>
	<u>I – INTRODUCTION</u>	
1-01 1-02 1-03 1-04 1-05 1-06	Authorization Purpose and Scope Related Manuals and Reports Project Owner Operating Agency Regulating Agencies	1-1 1-1 1-1 1-2 1-2
	II – DESCRIPTION OF PROJECT	
2-01 2-02 2-03 2-04 2-05	Location Purpose Physical Components a. Dam b. Earth Dikes c. Reservoir d. Spillway e. Sluices f. Powerhouse and Penstocks g. Switchyard and Transformer Substation h. Acworth Sub-impoundment Related Control Facilities Real Estate Acquisition	2-1 2-1 2-1 2-2 2-2 2-3 2-3 2-3 2-4 2-5 2-5 2-5
2-06	Public Facilities	2-6

<u>Paragraph</u>	<u>Title</u>	<u>Page</u>
	III – HISTORY OF PROJECT	
3-01	Authorization	3-1
3-02	Planning and Design	3-2
3-03	Construction	3-2
3-04	Related Projects	3-2
3-05	Modifications to Regulations	3-3
3-06	Principal Regulation Problems	3-5
	IV – WATERSHED CHARACTERISTICS	
4-01	General Characteristics	4-1
4-02	Topography	4-2
4-03	Geology and Soils	4-2
4-04	Sediment	4-2
4-05	Climate	4-2
	a. Temperature	4-3
4.00	b. Precipitation	4-4
4-06	Storms and Floods	4-4
4-07	Runoff Characteristics	4-7
4-08	Water Quality	4-9 4-9
	a. Water Quality Needs	4-9 4-10
	b. Lake Water Quality Conditionsc. Lake Stratification	4-10 4-10
	d. Downstream Water Quality Conditions	4-10
4-09	Channel and Floodway Characteristics	4-11
4-03	a. General	4-12
	b. Damage Centers and Key Control Points	4-12
4-10	Upstream Structures	4-20
4-11	Downstream Structures	4-20
4-12	Economic Data	4-20
	a. Population	4-20
	b. Agriculture	4-21
	c. Industry	4-22
	d. Flood Damages	4-22
	V - DATA COLLECTION AND COMMUNICATION NETWORKS	
5-01	Hydrometeorological Stations	5-1
	a. Facilities	5-1
	b. Reporting	5-4
	c. Maintenance	5-5
5-02	Water Quality Stations	5-5
5-03	Sediment Stations	5-5
5-04	Recording Hydrologic Data	5-7
5-05	Communication Network	5-7

<u>Paragraph</u>	<u>Title</u>	<u>Page</u>
5-06	Communication With Project Office	5-8
	Regulating Office With Project Office	5-8
	b. Between Project Office and Others	5-8
5-07	Project Reporting Instructions	5-8
5-08	Warnings	5-9
5-09	Role of Regulating Office	5-9
5-10	Role of Power Project Manager	5-10
	<u>VI – HYDROLOGIC FORECASTS</u>	
6-01	General	6-1
	a. Role of the Corps	6-1
0.00	b. Role of Other Agencies	6-1
6-02	Flood Condition Forecasts	6-2
	a. Requirements	6-2
	b. Methods	6-2
6.02	c. Downstream Forecasts	6-4
6-03	Conservation Purpose Forecasts	6-6 6-6
	a. Requirements b. Methods	6-6
6-04	Long-Range Forecasts	6-7
0-04	a. Requirements	6-7
	b. Methods	6-7
6-05	Drought Forecast	6-7
0 00	a. Requirements	6-7
	b. Methods	6-7
	c. Reference Documents	6-7
	VII – WATER CONTROL PLAN	
7-01	General Objectives	7-1
7-02	Constraints	7-1
7-03	Overall Plan for Water Control	7-1
	a. General Regulation	7-1
	b. Conservation Pool	7-1
	c. Guide Curves and Action Zones	7-2
7-04	Standing Instructions to Damtender	7-4
7-05	Flood Risk Management	7-4
	 a. Induced Surcharge Operations 	7-7
	 Instructions for Spillway Gates and Sluices 	7-9
7-06	Recreation	7-10
	a. Initial Impact Level	7-11
	b. Recreation Impact Level	7-11
-	c. Water Access Impact Level	7-11
7-07	Water Quality	7-12
7-08	Fish and Wildlife	7-12
7-09	Water Supply	7-13

<u>Paragraph</u>	<u>Title</u>	<u>Page</u>
7-10	Hydroelectric Power	7-14
7-11	Navigation	7-14
7-12	Drought Contingency Plans a. Headwater Operations For Drought at Allatoona Lake	7-15
	and Carters Lake b. Operations at APC Projects on the Coosa, Tallapoosa,	7-15
	and Alabama Rivers	7-15
	c. Low Basin Inflow Trigger	7-18
	d. Low State Line Flow Trigger	7-20
	e. Low Composite Conservation Storage in APC Projects Trigger	7-20
	f. Operations for Corps Projects Downstream of Montgomery	7-22
	g. Summary of Potential Drought Management Measures	7-22
7-13	Flood Emergency Action Plans	7-22
7-14	Other	7-22
	a. Regulation During Low Flows	7-23
	b. Correlation With Other Projects	7-23
7-15	Deviation from Normal Regulation	7-23
	a. Emergencies	7-23
	b. Declared System Emergency	7-23
	b. Unplanned Deviations	7-24
	c. Planned Deviations	7-24
7-16	Rate of Release Change	7-24
	VIII - EFFECT OF WATER CONTROL PLAN	
8-01	General	8-1
8-02	Flood Risk Management	8-1
	a. Spillway Design Flood	8-1
	b. Standard Project Flood	8-1
	c. Historic Floods	8-2
8-03	Recreation	8-3
	a. Initial Impact Level	8-3
	b. Recreation Impact Level	8-3
	c. Water Access Impact Level	8-3
8-04	Water Quality	8-4
8-05	Fish and Wildlife	8-4
	a. Fish Spawning	8-4
	b. Threatened and Endangered Species	8-4
8-06	Water Supply	8-5
8-07	Hydroelectric Power	8-6
8-08	Navigation	8-8
8-09	Drought Contingency Plans	8-8
8-10	Flood Emergency Action Plans	8-11
8-11	Frequencies	8-11
	a. Peak Inflow Probability	8-11
0.40	b. Pool Elevation Duration and Frequency	8-11
8-12	Other Studies – Examples of Regulation	8-13

<u>Paragraph</u>	<u>Title</u>	<u>Page</u>
	IX - WATER CONTROL MANAGEMENT	
9-01	Responsibilities and Organization	9-1
	a. U.S. Army Corps of Engineers	9-1
	b. Other Federal Agencies	9-1
	c. State and County Agencies	9-2
	d. Stakeholders	9-3
9-02	Interagency Coordination	9-3
	Local Press and Corps Bulletins	9-3
9-03	Framework for Water Management Changes	9-3

LIST OF TABLES

Table No.	Table	Page No.
Table 3-1	Revisions to Available Storage at Allatoona	3-5
Table 4-1	River Mile and Drainage Area for Selected Sites in ACT Basin	4-1
Table 4-2	Normal 30-Year Air Temperature for Selected Sites in/near Allatoona Basin	4-3
Table 4-3	Normal Rainfall Based on 30-Year Period, 1981 - 2010	4-4
Table 4-4	Extreme Rainfall Within and Near the Basin (in Inches)	4-6
Table 4-5	Average Monthly Runoff in ACT Basin Measured at Rome, Georgia	4-8
Table 4-6	Flood Impacts at Dawsonville, Georgia (Upstream of any Projec USGS# 02389150)	ct, 4-15
Table 4-7	Flood Impacts at Canton, Georgia, (Upstream End of Allatoona USGS# 0239200)	, 4-15
Table 4-8	Flood Impacts at Cartersville, Georgia (Immediately Downstrea of Allatoona Dam, USGS# 02394670)	m 4-16
Table 4-9	Flood Impacts at Rome – Etowah River (Downstream of Allatoc Dam, USGS# 02395980)	ona 4-16
Table 4-10	Flood Impacts at Rome – Oostanaula River (Downstream of Allatoona Dam, USGS# 02388525)	4-17
Table 4-11	Historical Crests for Etowah River Near Dawsonville	4-17
Table 4-12	Historical Crests for Etowah River at Canton, Georgia	4-18
Table 4-13	Historical Crests for Etowah River Near Cartersville, Georgia	4-19
Table 4-14	Historical Crests for Etowah River at Rome, Georgia	4-19
Table 4-15	Historical Crests for Oostanaula River at Rome	4-19
Table 4-16	Population and per Capita Income	4-21
Table 4-17	Farm Earnings and Agricultural Production	4-21
Table 4-18	Manufacturing Activity	4-22
Table 4-19	Allatoona Lake Floodplain Value Data	4-22
Table 4-20	Flood Damages Prevented Allatoona Lake	4-23
Table 5-1	Rainfall Reporting Network (Above Rome, Georgia)	5-2
Table 5-2	River stage reporting network (Above Rome, Georgia)	5-3
Table 6-1	Rainfall – Runoff Relationship for Basin Above Rome, Georgia	6-3
Table 6-2	Unit Hydrographs in Etowah River Basin	6-4
Table 6-3	Effect of Allatoona Power Releases at Downstream Locations	6-5

LIST OF TABLES

Table No.	Table	Page No.
Table 6-4	6-Hour Unit Hydrographs in Etowah River Basin	6-6
Table 7-1	Top of Conservation and Action Zone Elevations, Allatoona La	ke 7-3
Table 7-2	Typical Hours of Peaking Hydroelectric Power Generation at Allatoona	7-4
Table 7-3	Flood Regulations Above Top of Conservation	7-6
Table 7-4	Top of Flood Action Zone Elevations, Allatoona Lake	7-7
Table 7-5	Induced Surcharge Operating Instructions	7-8
Table 7-6	Elevation Where Boat Ramps Become Unusable	7-12
Table 7-7	ACT Basin Drought Management Matrix	7-17
Table 7-8	Low Basin Inflow Guide (in cfs-days)	7-19
Table 7-9	APC Drought Operations Plan - State Line Flow Trigger	7-20
Table 8-1	Design Floods	8-2
Table 8-2	Historic Floods	8-2
Table 8-3	Effects of Reservoir Regulation on September 2009 Flood	8-3
Table 8-4	Reservoir Impact Levels – Allatoona Lake	8-4
Table 8-5	Average and Actual Inflows Into Allatoona During Droughts	8-10

LIST OF FIGURES

Figure No.	Figure	Page No.
Figure 2-1	Allatoona Dam and Lake	2-1
Figure 2-2	Dam Under Construction	2-2
Figure 2-3	Completed Project	2-2
Figure 2-4	Gate Platform Under Construction	2-3
Figure 2-5	City of Cartersville Raw-Water Intake	2-4
Figure 2-6	Dam and Penstocks Under Construction	2-4
Figure 2-7	Acworth Sub-Impoundment	2-5
Figure 2-8	Acworth Sub-Impoundment, Ungated Spillway	2-5
Figure 3-1	Early Depiction of Proposed Project	3-1
Figure 3-2	Early Construction, circa 1947 - 1948	3-2
Figure 4-1	Basin Rainfall and Runoff Above Rome, Georgia	4-8
Figure 4-2	Lake Stratification	4-11
Figure 4-3	Levee Locality Map for Rome, Georgia	4-12
Figure 4-4	Portion of Levee Along Oostanaula River, Rome, Georgia	4-13
Figure 4-5	USGS Gages in the Vicinity of Rome, Georgia	4-14
Figure 5-1	Encoder with Wheel Tape for Measuring the River Stage or Lake Elevation in the Stilling Well	5-1
Figure 5-2	Typical Field Installation of a Precipitation Gage	5-1
Figure 5-3	Typical Configuration of the GOES System	5-4
Figure 7-1	Guide for Initiation of Induced Surcharge	7-8
Figure 7-2	Schematic of the ACT Basin Drought Plan	7-15
Figure 7-3	ACT Basin Inflows	7-19
Figure 7-4	APC Composite Zones	7-21
Figure 7-5	APC Low Composite Conservation Storage Drought Trigger	7-22
Figure 8-1	Allatoona Lake, Typical Release Pattern, Normal Conditions	8-7
Figure 8-2	Etowah River at Allatoona Dam, Above Cartersville, Georgia (USGS 02394000), Tailrace Gage Height	8-8
Figure 8-3	Allatoona Lake Inflow Percent Exceedence Curve Over the Modeled Period (1939 – 2011)	8-12
Figure 8-4	Allatoona Pool Elevation Percent Exceedence Curves	8-12

LIST OF EXHIBITS

Exhibit No.	Exhibit	Page No.
A	Supplementary Pertinent Data	E-A-1
В	Unit Conversions and Vertical Datum Conversion Information	E-B-1
С	Standing Instructions to the Damtenders for Water Control	E-C-1
D	Alabama-Coosa-Tallapoosa (ACT) River Basin, Drought Contingency Plan	E-D-1

LIST OF PLATES

Plate No.	Title
2-1	Basin Map
2-2	River Stage and Rainfall Gauge Map
2-3	Plan and Sections of Dam and Powerhouse
2-4	Sedimentation and Retrogression Ranges
2-5	Area and Capacity
2-6	Recreational Use Map
2-7	Spillway Rating Curves for One 40'x26' Tainter Gate
2-8	Spillway Rating Tables
2-9	Rating Curve for One 5'8" x 10' Sluice
2-10	Performance Curves, Main Turbogenerator Unit
2-11	Performance Curves, Small Turbogenerator Unit
2-12	Historical Hydropower Production (1961 – 1990)
2-13	Historical Hydropower Production (1991 – 2013)
3-1	Top of Conservation Pool and Action Zones
4-1	April 1964 Flood - Flow, Discharge and Pool
4-2	Observed April 1964 Stages below Allatoona Dam
4-3	April 1979 Flood - Flow, Discharge and Pool
4-4	Observed April 1979 Stages below Allatoona Dam
4-5	March 1990 Flood - Flow, Discharge and Pool
4-6	Observed March 1990 Stages below Allatoona Dam
4-7	September 2009 Flood - Flow, Discharge and Pool
4-8	September 2009 Flood - Observed Stages below Allatoona Dam
4-9	Allatoona Estimated Monthly Inflows (1896–1938)
4-10	Allatoona Monthly Inflows (1939-1949)
4-11	Allatoona Monthly Inflows (1950-1984)
4-12	Allatoona Monthly Inflows (1985-2013)
4-13	Unimpaired Flows (1939-1942)
4-14	Unimpaired Flows (1943-1946)
4-15	Unimpaired Flows (1947-1950)
4-16	Unimpaired Flows (1951-1954)

CONTENTS (Cont'd)

LIST OF PLATES

Plate No.	Title
4-17	Unimpaired Flows (1955-1958)
4-18	Unimpaired Flows (1959-1962)
4-19	Unimpaired Flows (1963-1966)
4-20	Unimpaired Flows (1967-1970)
4-21	Unimpaired Flows (1971-1974)
4-22	Unimpaired Flows (1975-1978)
4-23	Unimpaired Flows (1979-1982)
4-24	Unimpaired Flows (1983-1986)
4-25	Unimpaired Flows (1987-1990)
4-26	Unimpaired Flows (1991-1994)
4-27	Unimpaired Flows (1995-1998)
4-28	Unimpaired Flows (1999-2002)
4-29	Unimpaired Flows (2003-2006)
4-30	Unimpaired Flows (2007-2010)
4-31	Unimpaired Flows (2011-2012)
7-1	Water Control Zones
7-2	Flood Regulation above Conservation Pool
7-3	Induced Surcharge Schedule
7-4	Flow, Discharge, and Pool for Max. Probable Flood
7-5	Flow, Discharge, and Pool for Standard Project Flood
7-6	Limiting Gate-Opening Schedule for Induced Surcharge Operation

PERTINENT DATA

(see Exhibit A, page E-A-1 for Supplementary Pertinent Data)

GENERAL

Location – Bartow County, Georgia, Etowah River, river mile 47.86 Drainage area above damsite – square miles Drainage area btwn damsite & mouth of Etowah River at Rome, GA – sq mi	1,122 728
RESERVOIR	
Length – river miles Full summer pool elevation – feet NGVD29 Peak pool for standard project flood – feet NGVD29 Peak pool for spillway design flood – feet NGVD29 Area at full summer pool (elev. 840) – acres Total volume at full summer pool (elev. 840) – acre feet Total volume (between elev. 823-840) – acre feet Total volume at elev. 823 – acre feet Total Inactive volume (below elev. 800) – acre feet Shore line length at static full pool – miles	28.0 840.0 864.7 872.1 11,862 367,471 164,702 202,769 82,891 270
TAILWATER ELEVATIONS	
Normal, (minimum outflow 240 cfs) – feet NGVD29 Normal, one turbine operating (outflow 3,250 cfs) – feet NGVD29 Normal, full powerhouse flow (outflow 6,500 cfs) – feet NGVD29 Bankfull (9,500 cfs)	690.0 692.6 694.7 696.5
DAM/EARTH DIKES	
Total length, concrete dam – feet Total length, earth dikes - feet Top elevation, dam – feet NGVD29 Top elevation, earth dike – feet NGVD29	1,250 4,200 880.0 875.0
SPILLWAY SECTION	
Total length – feet (net length 400 ft) Number of piers, including end piers Elevation of crest – feet NGVD29 Type of gates Size of gates – feet Elevation top of gates – feet NGVD29 Number of gates	500 12 835.0 Tainter 9@40 x 26 2 @ 20 x 26 860.0 11
POWER PLANT AND DATA	
Number of units	3
Generator rating, two units @ 40,000 each; 1 small unit @ 2,200 – kW (declared values) Plant output at rated net head	82,200
Installed capacity at rated power factor – kW Installed capacity at unity power factor – kW	86,800 96,400

I - INTRODUCTION

1-01. Authorization. Section 7 of the Flood Control Act of 1944 instructed the Secretary of the Army to prescribe regulations for the use of storage allocated for flood control (now termed flood risk management) or navigation at all Corps reservoirs. Therefore, this water control manual has been prepared as directed in the Corps' Water Management Regulations, specifically Engineering Regulation (ER) 1110-2-240, *Water Control Management* (date enacted 8 October 1982). 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 30 November 1987); under the format and recommendations described in ER 1110-2-8156, *Preparation of Water Control Manuals* (date enacted 31 August 1995); and ER 1110-2-1941, *Drought Contingency Plans* (date enacted 15 September 1981). Revisions to this manual are to be processed in accordance with ER 1110-2-240.

1-02. Purpose and Scope. This individual project manual describes the water control plan for the Allatoona Dam and Lake Project (Allatoona Project). The description of the project's physical components, history of development, water control activities, and coordination with others are provided as supplemental information to enhance the knowledge and understanding of the water control plan. The Allatoona Project water control plan must be coordinated with the multiple projects in the Alabama-Coosa-Tallapoosa (ACT) Basin to ensure consistency with the purposes for which the projects were authorized. In conjunction with the ACT Basin master water control manual, this manual provides a general reference source for Allatoona water control regulation. It is intended for use in day-to-day, real-time water management decision making and for training new personnel.

1-03. Related Manuals and Reports.

Other manuals related to the Allatoona Project water control regulation activities include the Operation and Maintenance manual for the project, and the ACT Master Water Control Manual for the entire basin.

One master water control manual and nine individual project manuals, which are incorporated as appendices, compose the complete set of water control manuals 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 Allatoona Project is a federally owned project entrusted to the Corps, South Atlantic Division (SAD), Mobile District.
- **1-05. Operating Agency**. Operation and maintenance of the Allatoona Project is the responsibility of the Mobile District Operations Division. Supervision and direction for this effort is provided by the project's Operations Project Manager.
- 1-06. Regulating Agencies. Authority for the water control regulation of the Allatoona Project has been delegated to the SAD Commander. Water control regulation activities are the responsibility of the Mobile District, Engineering Division, Water Management Section. Water control actions for the Allatoona Project are regulated in a system-wide, balanced approach to meet the federally authorized purposes. It is the responsibility of the Water Management Section to develop water control regulation procedures for the ACT Basin Federal projects. The regulating instructions presented in the basin water control plan are issued by the Water Management Section with approval of SAD. The Water Management Section monitors the project for compliance with the approved water control plan and makes water control regulation decisions on the basis of that plan. When necessary, the Water Management Section instructs the project personnel regarding normal procedures and emergencies for unusual circumstances.

II - DESCRIPTION OF PROJECT

2-01. Location. Allatoona Dam and Lake is located in Georgia on the Etowah River in Bartow, Cobb and Cherokee Counties, about 32 miles northwest of Atlanta and 26 miles east-southeast of Rome, Georgia. An aerial view of the Allatoona Project is shown in Figure 2-1. The location of the project, 47.86 river miles above the mouth of the Etowah River, is indicated on Plate 2-1. Detailed hydrology of the area and the river stage gages and rainfall gages are shown on Plate 2-2. The 1,122 square miles drainage area lies on the southern slopes of the Blue Ridge Mountains and consists of steep sloping mountain terrain.



Figure 2-1. Allatoona Dam and Lake

2-02. Purpose. Allatoona Dam and Lake is a multiple purpose project, originally authorized for hydropower, flood risk management and navigation. The original congressional authorization has been modified and expanded by later legislation to include the additional project purposes of public recreation, water quality, fish and wildlife conservation, conservation of federally listed threatened and endangered species and their critical habitat, and water supply.

2-03. Physical Components. The project consists of a lake extending 28 miles up the Etowah River at full summer conservation pool of 840 feet NGVD29, a concrete gravity-type dam with gated spillway, earth dikes, an 82,200 kilowatt (kW) (declared value) power plant and appurtenances. Declared power capacity is defined as the plant's operational capacity declared on a weekly basis to the power marketing agency. The value may vary slightly from week to

week depending on factors such as head and cooling capabilities. The dam under construction is shown in Figure 2-2 and the completed structure in Figure 2-3.

a. <u>Dam</u>. The dam is a concrete gravity-type structure with curved axis convex upstream, having a top elevation of 880 feet NGVD29 and an overall length of approximately 1,250 feet. The maximum height above the existing river bed is 190 feet. An 18-foot wide, non-public use roadway is provided across the entire length of the dam. Sections and plans of the dam and appurtenant works are shown on Plate 2-3. The dam is located east of Interstate 75 approximately 30 miles northwest of downtown Atlanta, Georgia.

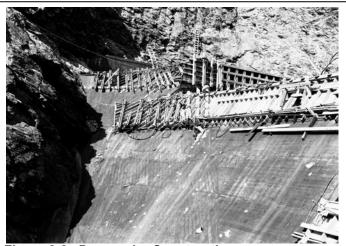


Figure 2-2. Dam under Construction



Figure 2-3. Completed Project

b. <u>Earth Dikes</u>. The left bank (south) basin divide at the dam site between Allatoona and Pumpkinvine Creeks has three low saddle dikes. In order to prevent overflow into the Pumpkinvine Creek drainage basin, it was necessary to construct earth dikes at these locations. These dikes are designated on Plate 2-4 as plug dam (3.25 miles south of dam), saddle dike No. 1 (one mile east-southeast of plug dam), and saddle dike No. 2 (1.5 miles southwest of No. 1). Built along the abandoned line of the Western and Atlantic Railroad near the divide, the dikes have been constructed to elevation 875 feet with a top width of 12 feet and side slopes of 1:3 on the water side and 1:2.5 on the land side. The side facing the reservoir is completely

covered with two feet of riprap on a one-foot gravel blanket. The total length of the two dikes is about 4,200 feet. The plug dam is built similarly.

c. <u>Reservoir</u>. The drainage area into the Allatoona Project is 1,122 square miles. The reservoir has a total storage capacity of 670,047 acre-feet at full flood-control pool (elevation 860 feet NGVD29). At elevation 860, the reservoir covers a surface area of 19,201 acres (30.0 square miles) or 2.7 percent of the dam site drainage area.

At full summer-level conservation pool (elevation 840 feet NGVD29), the reservoir covers 11,862 acres and has a total storage capacity of 367,471 acre-feet. At minimum conservation pool (elevation 800 feet NGVD29), the reservoir covers 3,251 acres and has a total storage capacity of 82,891 acre-feet. Area-capacity curves and tables are shown on Plate 2-5.

Allatoona Creek, a major arm of the lake, extends southward into Cobb County near Acworth, Georgia, is used as a source of water by the Cobb County-Marietta Water Authority (CCMWA) for its Wyckoff Water Treatment Plant. The Howell-Bunger sluice, located in Allatoona Dam, is presently used by the city of Cartersville, Georgia, for its water intake. Water is returned from sewage treatment plants located on Allatoona Lake tributaries including; Cobb Noonday Creek Water Reclamation Facility, Cobb Fitzgerald Creek Water Pollution Control Plant Little River, and the Cobb Rose Creek Water Pollution Control Plant that discharges to the Etowah River arm of Allatoona Lake.

d. Spillway. The spillway section of the dam, with a crest elevation of 835 feet NGVD29, has a total flow length of 500 feet, a net length of 400 feet, and a discharge capacity of 184,000 cubic feet per second (cfs) at elevation 860 feet, full flood-control pool. It is equipped with 11 tainter gates, nine of which are 40 feet wide by 26 feet high and two gates are 20 feet wide by 26 feet high. In closed position, the top of the gates are at elevation 860 feet NGVD29 and the bottom of the gates are at elevation 834 feet NGVD29, one foot below the crest. Protection against erosion below the spillway is provided by a concrete apron which will produce the depth required for a hydraulic jump at a discharge of about 65,000 cfs. The spillway rating curves are shown on Plates 2-7 and 2-8. Figure 2-4 shows the gate platforms under construction.

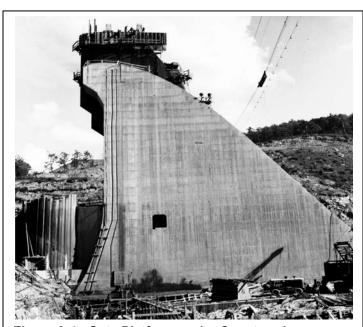


Figure 2-4. Gate Platform under Construction

e. <u>Sluices</u>. There are four sluices, 5.67 feet wide by 10 feet high, and one sluice, the 48-inch diameter Howell-Bunger valve. The sluices were designed to be used to release water when the lake level is below the spillway crest elevation of 835 feet NGVD29. However, the Howell-Bunger valve was replaced with the raw-water intake for the City of Cartersville in early 1969. The capacity of each sluice with a one foot gate opening is 4,050 cfs (total 16,200 cfs) at elevation 840 feet NGVD29, as shown on Plate 2-9.



Figure 2-5. City of Cartersville Raw-Water Intake

f. Powerhouse and Penstocks. The powerhouse and penstock intakes are located on the left (south) bank of the river and consists of two 40,000 kW main units and one 2,200 kW small unit, for a total power installation of 82,200 kW (declared value). The penstocks are steel-lined and are controlled by a hoist operated tractor-type head gates. The penstock to the small unit has a diameter of 5.5 feet and the penstocks to the main units are 20 feet in diameter at the intake and reduce to 18 feet at an elbow under the switchyard. Space has been allotted for a future unit of 36,000 kW capacity. However, the channel capacity would have to be increased to

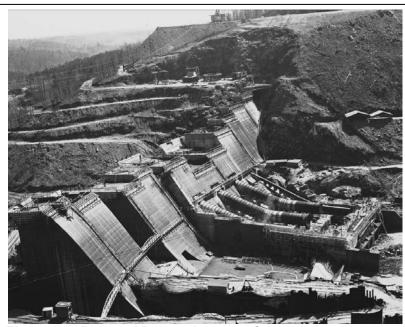


Figure 2-6. Dam and Penstocks under Construction

allow the operation of a third large unit. Discharge rating curves for the main units are shown on Plate 2-10 and for small unit on Plate 2-11. Plates 2-12 and 2-13 show historical hydropower production for the power plant. The location of the penstocks is shown in Figure 2-6.

- g. Switchyard and Transformer Substation. The switchyard and transformer substation are located in the area between the dam and powerhouse. The main transformer gallery with deck at elevation 744 feet NGVD29 is immediately adjacent to the switchyard deck. The switchyard deck is at elevation 744 feet NGVD29 and adjoins the downstream face of the dam. There are two 50,000kVA, 13.8/115kV three phase transformers. Full provision has been made for the installation of an additional transformer. A ring bus has been installed complete with switching equipment, protective devices, relays, and accessories which could ultimately extend to include the additional transformer and a second line. At present, the busses extend over only two transformer bays and one line bay.
- h. Acworth Sub-impoundment. The Acworth development is situated on the Proctor Creek arm of Allatoona Lake, as shown on Plate 2-6, and enhances the Allatoona Project purposes for recreation and conservation of fish and wildlife. All structures associated with Acworth Dam are owned and maintained by the Corps. The sub-impoundment dam, shown in Figure 2-7, provides a generally non-fluctuating level for the 325 acre lake and provides a road across Allatoona Lake, connecting the City of Acworth, Georgia, with U.S. Highway 41. The earth filled dam is 1,500 feet long with a 60-foot concrete spillway flanked on each side by concrete non-overflow sections 61 feet long. The maximum height of the earth fill is 45 feet and the slopes are covered with one foot of riprap on a six-inch gravel filter blanket. The ungated spillway, shown in Figure 2-8. has its crest at elevation 848 feet NGVD29 and is bridged in a single span by the road crossing the dam. Stilling action at the toe is accomplished by means of a bucket which deflects the water upward. Two 24-inch sluices. one at each end of the spillway, are provided to allow fluctuation of the upper pool during low flow for mosquito control and to drain the reservoir. The Area/Volume of the Acworth sub-impoundment is included in the Area/Capacity of Allatoona Lake.



Figure 2-7. Acworth Sub-impoundment



Figure 2-8. Acworth Sub-Impoundment, Ungated Spillway

2-04. Related Control Facilities. Operation of the

Allatoona Powerhouse (as well as Buford) is remotely controlled from the Carters pumped storage facility in nearby Carters, Georgia. This is accomplished through a microwave network between Carters and Allatoona. The spillway gates at Allatoona can only be operated locally. The Allatoona Powerhouse can also be locally operated if conditions require.

2-05. Real Estate Acquisition. Beginning in the 1940's, the Federal Government acquired lands for Allatoona Lake and flowage easements for flood-prone areas. The criteria for establishing the basic taking line required all the land within the pool at the top of the flood risk management storage of elevation 860 feet NGVD29, plus three feet of freeboard. This elevation of 863 feet NGVD29 provides for wave run up on the dam and adds to the safety of preventing overtopping. The main dam, the plug dam, and the two saddle dikes along the

divide with Pumpkinvine Creek, were designed to incorporate this additional three feet in elevation. These land purchases are referred to as fee simple and have a building restriction of elevation 863 feet NGVD29 for any structures used for human habitation. The total fee acquisition for the project was 37,742 acres.

The Government leases 6,291 acres for park and campground uses and 11,663 acres to the State of Georgia as a wildlife area. Flowage easements are used in flooding areas where the government does not own the land but wants to prevent structures from being built in flood-prone areas. The Government pays the owner a fee (flow easements) which allows the owner to use the land without holding the government liable for flood damages. There are 208 acres of flowage easements consisting of small parcels in the Canton area, the recreational cottage areas, and downstream of the dam. Plate 2-6 shows project property lines and recreation sites.

2-06. Public Facilities. The Acworth sub-impoundment forms one of the developed areas for a variety of recreational activities. The Acworth sub impoundment, with a constant pool level, is leased to the Acworth Lake Authority and Cobb County Parks Department which operates the area as a public park. Other areas, designated for second, third, and fourth priority use, have been leased to organized nonprofit groups, semi-public organized groups and to private clubs.

Additional development has been provided by the Corps at 30 public access areas to meet demands for picnicking, camping, sight-seeing, boating, and fishing. Tracts on the north bank and on Little River have been licensed to the Georgia Department of Natural Resources (GADNR) for game management. The recreation development plan on Plate 2-6 shows the distribution of recreational areas around the reservoir.

III - HISTORY OF PROJECT

3-01. Authorization. The first official recognition that the present dam site on the Etowah River near Cartersville, Georgia, was a prime location for a hydropower project was in a document entitled, "Reports on Examination and Survey of Etowah, Coosa, Tallapoosa and Alabama Rivers", prepared in 1910 by the U. S. Army Corps of Engineers. The site was considered suitable for a dam of any height up to 200 feet. It is interesting to note that Allatoona Dam rises 190 feet above the river bed.

In the late 1920s, the Georgia Power Company expressed interest in the Allatoona site and conducted extensive surveys and studies. In 1934, the Corps, under the provisions of House Document No. 306, 69th Congress, 1st Session, developed a general plan for overall development of the Alabama-Coosa River System. That report, published in House Document No. 66, 74th Congress, 1st Session, included the Allatoona Project but the economic aspect of the project appeared unfavorable at that time.

Further studies were directed by Congress in resolutions adopted by the Committee on Rivers and Harbors, House of Representatives, on 1 April 1936 and 26 April 1936, and by the Committee on Commerce, United States Senate, on 18 January 1939. In response to those

resolutions, an interim report on Allatoona Dam was submitted to Congress in 1940. That report, published in House Document No. 674, 76th Congress, 3rd Session, recommended the construction of Allatoona Dam and Reservoir as a dual purpose flood control and power project with an estimated total storage capacity of 630,000 acrefeet to be utilized as follows: flood control storage, 422,500 acre-feet between elevations 821 and 855 feet NGVD29; conservation storage. 182,500 acre-feet between

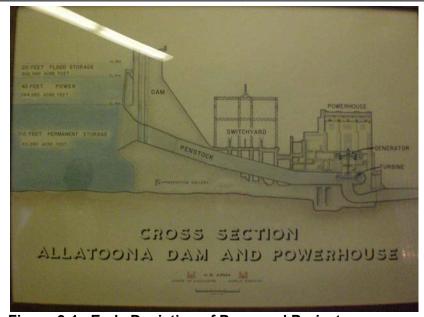
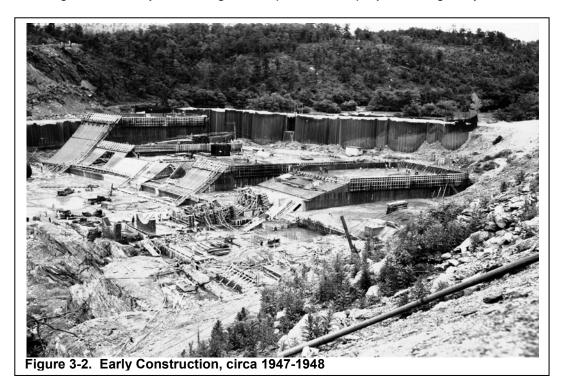


Figure 3-1. Early Depiction of Proposed Project

elevations 771 and 821 feet NGVD29; and inactive storage of 25,000 acre-feet below elevation 771 feet NGVD29. The Allatoona Project was authorized by the Flood Control Act of 1941 (Public Law (P.L.) 77-228) as a multipurpose project for flood risk management, hydropower, and navigation. An early concept of the plan for Allatoona Dam is shown in Figure 3-1.

Other statutory authorities generally applicable to Corps projects, including Allatoona, include P.L. 78-534, P.L. 85-500, P.L. 85-624, P.L. 92-500, and P.L. 93-205. Pursuant to the above-referenced authorities, purposes of the Allatoona Project include hydropower, flood risk management, navigation, recreation, water quality, fish and wildlife conservation, and water supply.

- **3-02. Planning and Design**. In December 1941, the District Engineer submitted to the Chief of Engineers a report entitled "Definite Project Report, Allatoona Dam and Reservoir, Etowah River, in the Alabama-Coosa River Basin, Georgia", and work was initiated on plans and specifications. The proposals presented in the definite project report were substantially in agreement with those described in the interim report except that the estimated total storage was increased to 722,000 acre-feet by raising the full flood control pool from elevation 855 to 860 feet NGVD29 and making a number of changes in the design of the structure.
- **3-03. Construction**. Construction was authorized in the Flood Control Act of 18 August 1941, now known as Public Law No. 228, 77th Congress, 1st Session, H. R. 4911. Project construction was delayed during World War II and was restarted on 8 February 1946, using hired labor. The contract for the construction of the main dam was awarded on 29 April 1946 to National Constructors, Inc. The main dam was essentially complete in late 1949, and filling the reservoir commenced 27 December 1949. The reservoir pool reached elevation 835 feet NGVD29 in June 1950 and normal reservoir operation began at that time. Hydropower generation began in January 1950. Figure 3-2 pictures the project during early construction.



3-04. Related Projects. Allatoona Dam and Lake is one of five Corps reservoir projects in the ACT Basin. Carters Dam and Lake (with Reregulation Dam) is on the Coosawattee River and Robert F. Henry, 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. Outflows from Allatoona Dam are defined by the water control plan and requirements at the downstream Corps reservoirs. In addition, 11 privately owned dams are located in Alabama on the Coosa and Tallapoosa Rivers and operate mainly for the production of hydropower. The Corps has flood control authority over 4 of these 11 privately owned dams; Weiss, H. Neely Henry, and Logan Martin Dams on the Coosa River, and Harris Dam on the Tallapoosa River.

3-05. Modifications to Regulations. Shortly after construction began, the storage allocation was reconsidered and the top of the conservation pool was changed to elevation 835 feet NGVD29, with estimated storages of 389,000 acre-feet between elevation 835 and 860 feet NGVD29 allocated for flood risk management, and 253,000 acre-feet between elevations 800 and 835 feet NGVD29 reserved for power generation and conservation. The inactive storage below minimum conservation pool, elevation 800 feet NGVD29, was estimated at 80,000 acre-feet.

The storage curve previously used was revised in 1950 as a result of more detailed data. According to this revised curve, the total storage in the reservoir at elevation 860 feet NGVD29 is 670,047 acre-feet. Of this total, 587,156 acre-feet between elevations 860 and 800 feet NGVD29 is usable storage and 82,891 acre acre-feet below elevation 800 feet NGVD29 is inactive storage.

Studies conducted in 1952 revealed that overall benefits from the project could be increased appreciably by varying the storage allocations in Allatoona Lake on a seasonal basis. Raising the top of conservation pool during the summer months with a drawdown prior to the flood season would result in a considerable increase in power revenue with no reduction in flood risk management benefits. An operating plan based on seasonal variation of storage allocations was approved by the Chief of Engineers in November 1956. Under this plan, 840 feet NGVD29 is the top of conservation pool during the months May through August, transitions down from 840 to 820 feet NGVD29 during September through December, and then transitions back up from 820 to 840 feet NGVD29 during January through April. The flood risk management storage at elevation 840 feet NGVD29 is 302,580 acre-feet, and at elevation 820 feet NGVD29 is 489,060 acre-feet. The conservation storage is 284,580 acre-feet at elevation 840 feet NGVD29 and 98,100 acre-feet at elevation 820 feet NGVD29.

In 1967, another study of the top of conservation pool was made to determine the desirability of allowing the pool level to remain at elevation 840 feet NGVD29 until the end of September whenever flow conditions are favorable. Such an operation would be particularly desirable from the standpoint of recreation and would provide additional benefits to hydropower, low-flow control, and navigation. Another change considered was the elimination of the steep drawdown and immediate refilling in late December and early January. The study showed that the changes could be made without depreciating flood risk management benefits. On 28 March 1968, the Chief of Engineers approved a revised top of conservation curve which has a top level at elevation 840 feet NGVD29 during the months May through September, varies uniformly from elevation 840 to 823 feet NGVD29 during 1 October through 15 December, remains at elevation 823 feet NGVD29 from 15 December through January, then varies uniformly from 823 feet NGVD29 on 15 January to 840 feet NGVD29 at the end of April. The flood risk management storage at elevation 823 feet NGVD29 is 467,278 acre-feet and the conservation storage is 119,878 acre-feet. The curve delineating the current top of conservation pool is shown on Plate 3-1 adopted in the 2014 manual revision. The curve remains steady at 840 feet NGVD29 between 1 May to Labor Day; then the pool is drawn down uniformly from 840 feet NGVD29 to 835 feet NGVD29 beginning the day after Labor Day to 1 October; the curve is held steady at 835 feet NGVD29 from 1 October to 15 November, then transitions uniformly down to 823 feet NGVD29 by 31 December; then held steady at 823 feet NGVD29 between 31 December to 15 January; and then transitions uniformly between 16 January to 1 May back to 840 feet NGVD29. Table 3-1 summarizes the historical changes in Allatoona storage allocation.

The 2014 update to the water control manual also establishes four action zones within the conservation storage pool. These zones are shown on Plate 3-1. The action zones are used to manage the lake at the highest level possible within the conservation storage pool while

balancing the needs of all authorized purposes with water conservation as a national priority used as a guideline. These provide water control regulation guidance to meet this water conservation plan while balancing the use of available conservation storage to meet the project purposes.

When the project went into operation in 1949, the top of conservation pool was at elevation 835 feet NGVD29 and the regulation plan called for evacuation of flood waters stored above that level as soon as practicable by releasing at rates not to exceed the downstream bankfull capacity estimated at 12,000 cfs. Through actual operating experience, the channel capacity below Allatoona Dam has been determined to be about 9,500 cfs. A survey and real estate appraisal was made to determine the acreage involved and the cost of acquiring easements to permit emptying releases up to 12,000 cfs. This higher release rate, which would expedite the evacuation of flood storage, would be necessary to permit operation of the power plant at full capacity if the third generating unit was installed. Until such easements are acquired, flood storage will be emptied at a maximum rate of 9,500 cfs, except in induced surcharge operations.

The induced surcharge operation during floods which exceed the available flood storage is a departure from the operating plan outlined in the Definite Project Report. In that report, the pool level would be maintained at elevation 860.0 feet NGVD29 by regulating the gates to make outflow equal to inflow until all spillway gates were opened, after which the outflow becomes uncontrolled until the pool level dropped back to elevation 860 feet. A study of induced surcharge operation was conducted in February 1947 to determine the most desirable plan for Allatoona Dam. Since Allatoona Dam was under construction at the time, induced surcharge operation was limited by the pool elevation-gate opening curve, shown on Plate 2-8, so that the maximum pool for the spillway design flood could be held to a level that would not necessitate major changes in the structure. The gate operating machinery is provided with limit switches which will open gates in 0.5-foot increments up to a 12-foot opening. In following the induced surcharge schedule, the gates will be opened as uniformly as practicable with no gate opening more than 0.5-foot larger than any other gate opening.

Table 3-1. Revisions to Available Storage at Allatoona

	_		ilable Storage in Acre-Feet	_				
Approval by	Year Authorized	Available Storage** (acre-feet)	Purpose	Elevation Range (Ft-NGVD29)	Period			
HD674,76th,3rd +	1940	422,500	Flood risk management	821-855	Jan-Dec			
		182,500	Conservation	771-821	Jan-Dec			
		25,000	Inactive	Below 771	Jan-Dec			
Flood Control Act +	1941	212,000	Flood risk management	848-860	Jan-Dec			
		456,000	Conservation	788-848	Jan-Dec			
		54,000	Inactive	Below 788	Jan-Dec			
OCE	1946	389,000	Flood risk management	835-860	Jan-Dec			
		253,000	Conservation	800-835	Jan-Dec			
		80,000	Inactive	Below 800	Jan-Dec			
OCE	1956	489,060	Flood risk management	820-860	Sep-Apr			
		302,580	Flood risk management	840-860	May-Aug			
		98,100	Conservation	800-820	Sep-Apr			
		284,580	Conservation	800-840	May-Aug			
		82,900	Inactive	Below 800	Jan-Dec			
OCE	1968	467,280	Flood risk management	823-860	Oct-Apr#			
		302,600	Flood risk management	840-860	May-Sep#			
		119,900	Conservation	800-823	Oct-Apr#			
		284,600	Conservation	800-840	May-Sep			
		82,900	Inactive	Below 800	Jan-Dec			
OCE	1 Act + 1941 1946 1956	467,278	Flood risk management	823-860	16 Nov-30 Apr			
		358,582	Flood risk management	835-860	6 Sep-15 Nov			
		302,576	Flood risk management	840-860	1 May-5 Sep			
		119,878	Conservation	800-823	16 Nov-30 Apr			
		228,574	Conservation	800-835	6 Sep-15 Nov			
		284,580	Conservation	800-840	1 May-5 Sep			
		82,890	Inactive	Below 800	Jan-Dec			
(OCE) Office of Chi	ef of Engineers	, COE						
# Conservation is so	at at 922 fact N	C\/D20 from 1	15 Dog 15 Jan					

Conservation is set at 823 feet-NGVD29 from 15 Dec-15 Jan.

3-06. Principal Regulation Problems. The initial regulation plan called for evacuation of flood waters stored above the conservation pool as soon as practicable by releasing at rates not to exceed the downstream bankfull capacity estimated at 12,000 cfs. However, through actual operating experience, particularly the April 1964 flood, the channel capacity below Allatoona Dam was reevaluated and reduced from 12,000 cfs to 9,500 cfs. A survey and real estate

^{**} Total storage is 630,000 acre-feet (1940), 722,000 (1941&46) and 670,100. (1956&1968)

appraisal was made to determine the acreage involved and the cost of acquiring easements to permit emptying releases up to 12,000 cfs. This higher release rate, which would expedite the evacuation of flood storage, would be necessary to permit operation of the power plant at full capacity if the third generating unit was installed. Until such easements are acquired, flood storage will continue to be emptied at a maximum rate of 9,500 cfs.

IV - WATERSHED CHARACTERISTICS

4-01. General Characteristics. Etowah River and its upstream tributaries originate in the Blue Ridge Mountains of northern Georgia, near the western tip of South Carolina. The northern boundary of the Allatoona drainage area is along a high ridge varying from elevation 1,300 to 3,800 feet NGVD29. Creeks along the upper Etowah River have steep mountainous slopes which produce rapid runoff. Amicalola Creek is a major tributary and begins at the divide with the Carters Project drainage area. The main stem of the Etowah River above the reservoir is more than 70 miles long. Rain storms produce large flood inflows that can persist for several days.

The Etowah River Basin below Allatoona Dam is about 30 miles wide and has 700 square miles of uncontrolled runoff. The Etowah River drops from elevation 687 feet NGVD29 at the toe of the dam to 562 feet NGVD29 at Rome, Georgia. This lower portion of the basin has a wider floodplain and flatter stream slope than the upper basin. The drainage area and river miles (from Mobile Bay) for important locations of interest within the basin are shown in Table 4-1. The entire ACT Basin is shown on Plate 2-1.

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	River	Location	Drainage Area (Square Miles)	Owner							
693	Etowah	Allatoona Dam	1,122	COE							
683.4	Etowah	Cartersville, GA (Hwy 61)	1,345								
666.6	Etowah	Kingston, GA	1,634								
645.2	Etowah	Mouth	1,861								
672	Coosawattee	Carters Dam	374	COE							
670.2	Coosawattee	Carters Reregulation	520	COE							
645.2	Oostanaula	Mouth	2,150								
645.5	Oostanaula	Rome, GA (Hwy 27)	2,149								
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							
497.4	Tallapoosa	R. L. Harris	1,454	APO							
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	COE							
178	Alabama	Millers Ferry Dam*	20,637	COE							
117.5	Alabama	Claiborne Dam*	21,473	COE							
Navigation	Lock at Project										
OE - Corps	of Engineers; APC - A	labama Power Company									

- **4-02. Topography**. The Blue Ridge Province comprises much of the drainage basin above Allatoona Dam. This province is characterized by irregular divides formed by isolated and poorly connected masses of highly metamorphosed and igneous rocks. The western boundary of this province is determined largely by the extent of over thrust of resistant crystalline rocks on the weaker sedimentary formations of the Valley and Ridge Province. The drainage area above Allatoona is composed of mountainous streams with steep slopes.
- **4-03. Geology and Soils**. Many of the rocks of the Blue Ridge appear to be the metamorphosed equivalents of Proterozoic or Paleozoic (or both) sedimentary rocks. Others are metamorphosed igneous rocks, such as the Corbin Metagranite, the Fort Mountain Gneiss, various mafic and ultramafic rocks, and the metavolcanic rocks of the Gold Belt. Geologic resources of the Blue Ridge include marble, much of which is mined. Talc has been mined in the western Blue Ridge just east of Chatsworth, Georgia. Gold was mined at Dahlonega, Georgia, in the early 1800s, and the U.S. mint produced gold coins there from 1830 to 1861.

Piedmont soils consist of kaolinite and halloysite (aluminosilicate clay minerals) and iron oxides. They result from the intense weathering of feldspar-rich igneous and metamorphic rocks. Such intense weathering dissolves or alters nearly all minerals and leaves behind a residue of aluminum-bearing clays and iron-bearing iron oxides because of the low solubilities of aluminum and iron at earth-surface conditions. Those iron oxides give the red color to the clayrich soil that has come to be synonymous with north and central Georgia.

4-04. Sediment. The streams in the northern part of the Etowah River Basin have been severely impacted by past and present urban development. Urban development generally increases the peak and volume of rainfall events, which increases the velocity and erosion potential of rainfall runoff. Results are generally a down-cutting and widening of the stream, which creates bank caving and further erosion. Other significant sources of sediment within the basin are agricultural land erosion, unpaved roads, and sliviculture, 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.

In 1960, the Corps established sedimentation and retrogression ranges to monitor changes in reservoir volume and channel degradations. Reservoirs tend to slow river flow and accelerate deposition. The locations of the ranges for the Allatoona Project are shown on Plate 2-4. Descriptive analyses are performed after periodic re-surveys of the ranges to determine the level of sedimentation occurring in the main body of the reservoir and to examine shoreline erosion. Detailed reports are written after each re-survey to determine changes in reservoir geometry. Those reports include engineering analysis of the range cross-sections to estimate reservoir storage loss by comparing to the earlier surveys of the existing ranges. The data provide the ability to compute new area/capacity curves for the reservoirs. Area/capacity curves have not been updated since construction of the project. Maintenance of the sedimentation and retrogression ranges, which could include reestablishing or relocating ranges, typically occurs when they are resurveyed.

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 Blue Ridge Mountains protect the Etowah River Basin in the vicinity of Allatoona Dam from the more rigorous winters prevailing across the divide in the Tennessee Valley and tend to assure a milder climate. The average annual temperature in the vicinity of the Allatoona Project is 59.7 degrees Fahrenheit (°F), based on records at six stations averaged for the 30-year period of 1981 - 2010, inclusive. The stations are Gainesville, Dahlonega. Jasper, Cedartown, Cartersville and Rome, Georgia. The maximum temperature recorded during this time period was 109 °F at Rome, Georgia. The minimum temperature recorded was -14 °F at Jasper, Georgia. The average summer temperature is about 76 °F and the average winter temperature is about 42 °F. The frost-free period usually lasts from April through October and extended periods of below freezing temperature are unusual. Tables 4-2 presents the maximum, minimum, and mean monthly normal temperature data for selected stations in the basin. Climatologists define a climatic normal as the arithmetic average of a climate element, such as temperature, over a prescribed 30-year time interval. The National Climatic Data Center (NCDC) uses a homogenous and complete dataset with no changes to the collection site or missing values to determine the 30-year normal values. When developing this 30-year normal dataset, the NCDC has standard methods available to them to make adjustments to the dataset for any inhomogeneities or missing data before computing normal values.

Table 4-2. Normal 30-Year Air Temperature for Selected Sites in/near Allatoona Basin

Normal Temperature Based on 30-Year Period – 1981 Through 2010 (degrees Fahrenheit)														
Station		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	ОСТ	NOV	DEC	ANNUAL
		07.01			7 1 .				7100	<u> </u>				744110742
Gainesville	Max	49.8	54.2	62.5	70.6	77.3	84.1	87.2	86.0	79.9	70.8	61.8	51.9	69.7
	Mean	40.8	44.2	51.5	59.2	66.8	77.4	77.9	76.9	70.5	60.6	51.7	43.1	60.1
	Min	31.7	34.2	40.5	47.8	56.4	64.7	68.6	67.9	61.2	50.5	41.6	34.4	50.0
Dahlonega	Max	50.3	54.9	61.8	70.3	77.4	83.1	86.3	85.2	79.4	71.2	62.3	52.2	64.9
	Mean	38.4	41.9	48.3	55.8	63.2	70.6	74.5	74.0	67.3	57.9	48.7	40.4	56.8
	Min	26.4	28.9	34.7	41.3	49.1	58.1	62.7	62.8	55.2	44.5	35.2	28.6	37.1
Jasper	Max	47.8	52.0	60.6	69.0	76.1	82.7	85.6	84.9	79.2	69.5	60.0	50.3	68.1
	Mean	39.0	42.7	50.3	57.8	65.5	73.0	76.1	75.6	69.6	59.3	50.4	42.0	58.4
	Min	30.2	33.4	40.1	46.1	54.9	63.2	66.7	66.2	59.9	49.0	40.9	33.7	48.7
Cedartown	Max	51.7	55.8	64.6	72.8	79.6	86.6	89.4	88.9	83.0	73.5	63.6	53.6	65.7
	Mean	40.0	43.6	51.1	59.3	67.1	75.0	78.3	77.7	71.0	60.2	50.5	42.3	59.7
	Min	28.3	31.3	37.6	45.8	54.6	63.4	67.3	66.5	59.0	46.9	37.5	31.0	44.0
Cartersville	Max	53.2	58.6	67.3	74.9	81.7	88.6	91.5	91.1	85.2	75.5	65.9	55.5	74.1
	Mean	41.4	45.9	53.1	60.7	68.7	76.4	79.7	79.3	73.3	62.1	52.7	43.9	61.4
	Min	29.6	33.2	38.8	46.5	55.7	64.2	67.8	67.5	61.5	48.8	39.6	32.3	48.8
Rome	Max	52.1	56.8	65.7	73.6	80.5	86.9	89.7	89.1	83.3	73.6	64.1	54.2	72.5
	Mean	41.6	45.6	53.2	61.0	68.9	76.6	80.1	79.4	72.9	61.9	52.4	44.1	61.5
	Min	31.1	34.3	40.8	48.3	57.3	66.3	70.5	69.6	62.4	50.1	40.7	34.0	50.5
	1		l					22.5			:			
Basin	Max	50.8	55.4	63.8	71.9	78.8	85.3	88.3	87.5	81.7	72.4	63.0	53.0	69.2
	Mean	40.2	44.0	51.3	59.0	66.7	74.8	77.8	77.2	70.8	60.3	51.1	42.6	59.7
	Min	29.6	32.6	38.9	46.0	54.7	63.3	67.3	66.8	59.9	48.3	39.3	32.3	46.5

b. <u>Precipitation</u>. Due to the topographic lift of the Blue Ridge Mountains, the upland slopes are subject to intense local storms and to general storms of heavy rainfall lasting days. Heavy rains may occur at any time during the year, but are most frequent between late fall and midspring, when the majority of the large floods in the basin have been recorded. The large flood of March 1990 occurred when a storm front extended from Mobile, Alabama, to Montgomery, Alabama, to Rome, Georgia, and subtropical moisture was continuously drawn along the line producing an extended period of heavy rain. The normal monthly precipitation above Allatoona Dam is based on the 1981 - 2010 normal rainfall at six National Weather Service (NWS) stations; Cumming, Dahlonega, Cartersville, Jasper, Canton and Woodstock, Georgia. Table 4-3 lists the normal precipitation at these 6 stations. Extreme rainfall events of record are shown in Table 4-4. About 40 percent of the normal annual precipitation occurs from January through April, while only about 30 percent occurs during the dry period August through November. The average annual snowfall is three to four inches, usually in January and February, but is of minor importance in producing runoff.

Normal Rainfall Based on 30-Year Period - 1981 Through 2010 (inches) JUNE JULY SEPT JAN FEB MAR APR MAY AUG ОСТ NOV DEC ANNUAL Station Gainesville 5.17 5.10 5.23 3.69 3.80 4.13 4.22 4.39 4.55 3.88 4.34 4.66 53.16 Dahlonega 6.00 5.84 5.55 4.36 4.46 5.06 4.63 4.77 4.93 4.59 5.09 6.15 61.43 5.45 5.18 5.31 4.56 4.07 4.81 5.48 4.41 4.07 4.87 4.89 52.58 Jasper 3.88 Cedartown 4.60 4.89 5.01 3.92 4.29 3.96 4.83 3.91 3.63 3.44 4.51 4.39 51.38 Cartersville 3.24 4.35 4.12 3.43 2.88 3.25 3.92 3.84 2.81 2.62 3.29 4.30 42.05 Rome 4.76 4.84 5.35 4.28 4.11 4.76 4.98 4.49 3.56 3.25 4.58 4.61 54.07 5.10 4.04 Basin 4.87 5.03 3.94 4.33 4.68 4.30 3.93 3.61 4.45 4.83 52.45

Table 4-3. Normal Rainfall Based on 30-Year Period – 1981 Through 2010

Flood-producing storms can occur over the basin at any time, but they are much more frequent in the winter and early spring. Major storms in the winter are usually of the frontal type. Summer storms consist mainly of convective thundershowers with occasional tropical storms affecting southern sections of the basin.

4-06. Storms and Floods. Frontal systems influence conditions throughout the year. During the warmer months, thunderstorms are a major producer of rainfall. Tropical disturbances and hurricanes also impact the region. The autumn months are usually dryer but flood producing storms can occur any time of the year.

Allatoona Project began filling on 27 December 1949, and the pool reached elevation 835 feet NGVD29 in June 1950. Because Allatoona has a seasonally varied conservation level, and other operational reasons, the maximum pool elevation does not always correspond with the maximum inflow. A long series of floods could cause the pool to rise steadily above elevation 840 feet NGVD29 because releases are limited by the downstream flood conditions. Then, an average flood inflow towards the end of the flood series could produce the maximum pool for that event. As a rule, the extended, larger volume floods normally impact the reservoir elevation more than short, high inflow flood events. The maximum pool elevation of record (elevation 861.19 feet NGVD29) occurred during the April 1964 flood while the maximum daily inflow (prior

to the September 2009 flood) of 45,845 cfs over a 24-hour period (day-second-feet (dsf)) occurred during February 1982 with a resulting peak pool of elevation 848.01 feet NGVD29. The September 2009 flood exceeded previous inflow records producing a daily inflow of 53,534 cfs and a peak pool elevation of 853.04 feet NGVD29.

The April 1964 event was a series of storms which occurred during early 1964, and caused the local runoff below the dam to stay near bankfull through most of the period. The flood waters into the dam could not be evacuated without causing flood damages downstream. Thus, the pool elevations were high for several weeks. The April 1964 peak inflow occurred during the period of maximum elevation and produced a higher elevation than would have been expected.

Table 4-4. Extreme Rainfall Within and Near the Basin (in Inches)

Station: (093621) GAINESEVILLE									tion: (09247	5) DAHLON	IEGA		Station: (094648) JASPER							
From 1891 To 2010									-		4 To 2010			From 1937 To 2010						
MONTH	HIGH	YEAR	LOW	YEAR	1-DAY	DATE		HIGH	YEAR	LOW	YEAR	1-DAY	DATE	HIGH	YEAR	LOW	YEAR	1-DAY	DATE	
					MAX							MAX						MAX		
JAN	11.70	1936	0.74	1907	4.15	25/1964		14.33	1946	0.93	1981	5.72	27/1996	11.35	1947	1.19	1981	4.43	27/1996	
FEB	11.85	1961	0.21	1906	4.45	21/1961		14.11	1903	0.60	1906	5.17	03/1982	11.18	1944	0.72	1978	5.78	17/1942	
MAR	15.47	1980	1.02	1910	5.33	26/1964		19.70	1980	1.38	1910	6.28	30/1977	16.67	1980	1.94	1985	5.1	04/1979	
APR	14.03	1964	0.25	1915	4.15	30/1963		13.62	1979	0.55	1915	4.9	17/1998	13.57	1979	1.05	1942	5.32	08/1938	
MAY	12.23	1923	0.20	1914	4.00	12/1942		14.65	1976	0.68	1914	5.49	15/1976	10.15	1976	0.00	2009	4.35	15/1976	
JUN	13.48	1963	0.50	1988	4.62	24/1980		13.01	1900	0.97	1925	4.12	03/1995	12.83	1989	0.55	1986	3.82	27/1994	
JUL	13.47	1916	0.12	1952	3.92	15/1949		16.67	1916	0.62	1952	4.18	12/1948	11.62	2003	0.52	1957	3.98	02/1992	
AUG	16.40	1969	0.26	1925	5.62	16/1969		18.16	1978	0.34	1925	7.34	16/1895	11.30	1969	0.15	1953	5.55	09/0977	
SEP	16.80	2004	0.13	1978	6.04	02/2004		14.49	1929	0.11	1954	5.44	27/1942	10.57	2004	0.44	2005	7.41	17/2004	
OCT	10.74	1977	0.00	1963	4.40	09/1977		11.29	1918	0.00	1904	5.41	26/1997	9.12	1997	0.00	1938	5.38/	26/1997	
NOV	13.75	1948	0.15	1901	4.15	11/2009		13.97	1948	0.51	1924	3.63	11/2009	12.60	1948	0.53	1939	4.22	11/2009	
DEC	15.37	1932	0.69	1980	4.27	06/1983		20.63	1932	0.97	1896	5.89	12/1961	15.45	1961	1.07	1980	5.75	12/1961	
ANN	80.39	2009	20.96	1904	6.04	20040902		62.02	1929	38.82	1904	7.34	18950816	80.95	1989	36.08	2007	7.41	20040917	
Station: (091732) CEDARTOWN									Stati	on: (09166	5) CARTERS	VILLE		Station: (097600) ROME						
			m 1896 To 2							1 To 2010	******		From 1893 To 2010							
MONTH	HIGH	YEAR	LOW	YEAR	1-DAY	DATE		HIGH	YEAR	LOW	YEAR	1-DAY	DATE	HIGH	YEAR	LOW	YEAR	1-DAY	DATE	
					MAX							MAX						MAX		
JAN	9.91	1947	0.99	1981	4.35	26/1996		8.69	1947	0.44	1981	3.38	26/1976	12.42	1947	0.85	1981	4.65	16/1954	
FEB	11.14	1944	0.52	1898	4.10	03/1982		10.05	1944	0.00	1996	3.58	22/1974	13.45	1903	0.74	1906	5.30	09/1921	
MAR	15.68	1980	1.35	1985	6.45	04/1979		13.66	1976	1.19	1983	6.00	18/1990	17.98	1980	1.07	1918	6.22	26/1901	
APR	14.61	1979	0.43	2007	5.05	13/1979		13.34	1964	0.81	1986	4.56	03/1979	13.60	1979	0.30	1915	4.30	05/1957	
MAY	9.01	2003	0.80	2007	3.17	14/1972		8.76	1946	0.00	1899	3.29	20/1973	11.33	2003	0.22	2007	2.99	03/1964	
JUN	11.77	1989	0.58	2009	3.65	21/1961		7.08	1963	0.15	1984	3.64	19/1976	10.85	1989	0.23	1988	3.31	06/1930	
JUL	14.83	2003	0.41	1993	5.04	07/1962		11.94	2001	0.95	1983	4.21	16/1897	14.76	1916	0.87	1960	4.05	12/1999	
AUG	10.72	1992	0.71	1955	3.43	24/1967		9.77	1942	0.32	1997	4.50	16/1955	14.54	1992	0.49	1987	4.92	22/1992	
SEP	10.04	1957	0.09	1998	3.77	17/2004		9.34	1898	0.00	2008	4.20	01/1898	11.33	1957	0.00	1897	4.95	25/1997	
OCT	10.80	1995	0.00	1938	5.08	04/1995		8.66	1975	0.00	1963	4.11	01/1958	10.37	1995	0.00	1938	6.67	26/1997	
NOV	15.29	1948	0.57	1949	4.90	09/2000		12.50	1948	0.23	1939	3.62	19/2003	16.26	1948	0.36	1924	5.58	19/1906	
DEC	13.01	1961	0.09	2010	4.61	12/1961		13.19	1961	0.17	1980	4.85	12/1961	16.47	1932	0.58	1980	5.96	12/1961	
ANN	71.21	1989	28.41	2007	6.45	19790304		68.45	1964	19.84	1998	6.00	19900318	77.65	1932	28.71	2007	6.67	19971026	

based on single storm inflow alone. The bankfull capacity below the dam was reevaluated due to the flooding at Cartersville, Georgia, and farther downstream. At that time, the defined stream capacity was reduced from 12,000 cfs to 9,500 cfs due to flood damages of the April 1964 flood. With this change in channel capacity, a repeat of the events of the April 1964 flood would produce a higher pool level than occurred in 1964. The April 1964 operation is shown on Plates 4-1 and 4-2.

The April 1979 and March 1990 flood events were large areal storms which caused the pool to be in the top five of maximum annual pools. The April 1979 and March 1990 floods are typical flood events that occurred with current rule curves, storage allocation and basin conditions. Plates 4-3 and 4-5 present the pool inflow and outflow and Plates 4-4 and 4-6 presents the downstream stages.

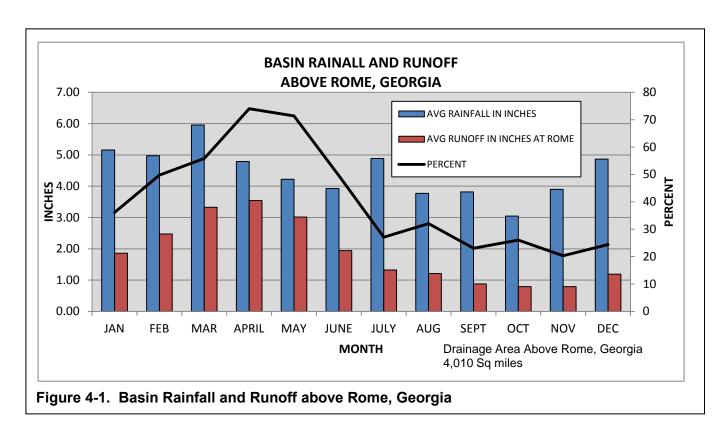
The storm of September 2009 occurred at the end of a severe drought and Allatoona Lake was lower than normal for that time of year (837 feet NGVD29). The storms resembled a tropical event, but in reality were caused by steady rain for eight days. Between 15 – 18 September 2009, there was constant rainfall, but not in unusual amounts. Most areas only had about an inch or less of accumulated rainfall during this time. On 19 September, the rainfall increased, with three to five inches falling that day. Some of the heaviest rainfall occurred above Allatoona Lake. The storing of runoff in Allatoona Lake significantly reduced downstream flows and stages. Plates 4-7 and 4-8 show the pool inflow and outflow and graphs of the downstream flows.

4-07. Runoff Characteristics. Runoff characteristics of the Etowah River and its major tributaries above the dam site are those of mountain streams with rapid rise and recession of the flood hydrographs. Peak flood discharges at Rome, Georgia are usually caused by local inflow from tributary streams downstream of Allatoona Dam.

The retention of floodwaters in Allatoona Lake essentially reduces flood stages in the latter portion of a flood and prevents the Oostanaula River from causing a secondary flood peak. Carters Dam and Lake Project, located in the Oostanaula River Basin, has some flood risk management capacity for the upper Oostanaula and is operated to reduce flood peaks at Resaca, Calhoun, and Rome, Georgia.

In the ACT Basin, rainfall occurs throughout the year but is less abundant from August through November. Only a portion of rainfall actually runs into local streams to form the major rivers. Factors that determine the percent of rainfall that runs into the streams include the intensity of the rain, antecedent conditions, ground cover and time of year (plants growing or dormant). Intense storms will have high runoff potential regardless of other conditions while a slow rain can produce little measurable runoff. Table 4-5 and Figure 4-1 present the average monthly runoff for the ACT Basin above Rome, Georgia. This information was computed by comparing unregulated flows with rainfall over the basin. The percent of rainfall appearing as streamflow is presented for each month.

Table 4-5 Average Monthly Runoff in ACT Basin Measured at Rome Georgia												
	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	ОСТ	NOV	DEC
AVG MONTHLY FLOW AT ROME	6525	9602	11652	12828	10565	7038	4636	4234	3188	2778	2867	4162
AVG RUNOFF IN INCHES AT ROME	1.86	2.47	3.33	3.54	3.01	1.94	1.32	1.21	0.88	0.79	0.79	1.19
AVG RAINFALL IN INCHES	5.15	4.97	5.96	4.79	4.22	3.92	4.89	3.77	3.82	3.05	3.90	4.87
PERCENT OF RAINFALL AS RUNOFF	36	50	56	74	71	50	27	32	23	26	20	24



Streamflow has been measured at the Allatoona gage site since September 1938. The station was operated by the Mobile District until the late 1970's when the U. S. Geological Survey (USGS) took over operation and maintenance of the gage. Other gages in the region have been in existence since the late 1800's and can be used to estimate flows at Allatoona. Since 1950, the inflow and outflow have been measured at Allatoona Dam by the COE. The inflows at the dam are computed by combining the change in storage with the measured outflow that accounts for evaporation and withdrawals. Travel time for water released from Allatoona Dam to reach Rome, Georgia, is approximately 12 hours. Monthly flows for 1896 through 1949 are shown on Plates 4-9 and 4-10. The monthly inflows at the dam are shown on Plates 4-11 and 4-12. A set of unimpaired inflows that have been corrected for evaporation, increase runoff from rain directly on the reservoir, and other factors are shown on Plates 4-13 through 4-31.

- **4-08. Water Quality**. The mid-lake and dam forebay portions of Allatoona Lake meet all designated water use criteria established by the State of Georgia. Both the Etowah River and Little River embayment sections of Allatoona Lake are listed on the 2012 draft Integrated 305(b) and 303(d) list because of chlorophyll *a* impairment. A draft Total Maximum Daily Load (TMDL) for chlorophyll *a* was completed in 2009, and a fecal coliform TMDL was completed in 2004. The lake is transitioning from mesotrophic to eutrophic due to the influx of phosphorus nutrients. Phosphorus levels have increased in the lake and its tributaries because of increases in urban lands and broiler and beef cattle production. Dissolved oxygen levels in the tailwaters below Allatoona Dam drops below four mg/L during the summer and through early fall, and can reach as low as one mg/L.
- a. <u>Water Quality Needs</u>. Georgia Department of Natural Resources has classified various portions of the Etowah River above Allatoona Dam as drinking water, recreation, and fishing. Etowah River below the dam has been classified as suitable for fishing, in accordance with Georgia Water Quality Control laws. Georgia has promulgated water quality criteria for various water use classifications. The principal specific criteria related to the use classifications are as follows:

Drinking Water:

- Bacteria: Fecal coliform not to exceed a geometric mean of 200 colonies per 100 milliliters (ml) during May – October; 4,000 per 100 ml November – April (instantaneous maximum).
- Dissolved oxygen: A daily average greater or equal to 5.0 milligrams per liter (mg/l) and no less than 4.0 mg/l at all times.
- pH: Within the range of 6.0 8.5.
- Temperature: Less than 90 degrees Fahrenheit.

Recreation:

- Bacteria: Fecal coliform not to exceed a geometric mean of 200 colonies per 100 ml.
- Dissolved oxygen: A daily average greater or equal to 5.0 mg/l and no less than 4.0 mg/l at all times.
- pH: Within the range of 6.0 8.5.
- Temperature: Less than 90 degrees Fahrenheit.

Fishing:

- Bacteria: Fecal coliform not to exceed a geometric mean of 500 colonies per 100 ml during May – October; 4,000 per 100 ml November – April (instantaneous maximum).
- Dissolved oxygen: A daily average greater or equal to 5.0 mg/l and no less than 4.0 mg/l at all times.
- pH: Within the range of 6.0 8.5.
- Temperature: Less than 90 degrees Fahrenheit.

The following criteria apply to all use classifications:

 All waters shall be free from materials associated with municipal or domestic sewage, industrial waste or any other waste which will settle to form sludge deposits that become putrescent, unsightly or otherwise objectionable.

- All waters shall be free from oil, scum and floating debris associated with municipal or domestic sewage, industrial waste or other discharges in amounts sufficient to be unsightly or to interfere with legitimate water uses.
- All waters shall be free from material related to municipal, industrial or other discharges which produce turbidity, color, odor or other objectionable conditions which interfere with legitimate water uses.
- No material in concentration that after treatment would exceed Georgia Environmental Protection Division (GAEPD) and Federal drinking water standards.

The above listing is not intended to be all-inclusive, and Georgia Water Quality Control regulations and standards should be consulted as necessary. Note that Allatoona Dam was constructed in the late 1940s, before specific water quality standards were established. Achievement of standards in release water is viewed as a goal rather than a strict legal requirement.

b. Lake Water Quality Conditions. Georgia's 2012 draft integrated 305(b)/303(d) list of impaired waters designates the dam pool and the mid-lake reaches in Allatoona Lake as supporting designated uses. Two reaches, the Etowah River arm and the Little River embayment, were identified as impaired. The Allatoona Creek arm was identified as pending because growing season average chlorophyll a exceeded the criteria. Chlorophyll a standards for Allatoona Lake, set according to the growing season (April through October) average less than 10 micrograms per liter (µg/l) upstream from the dam, mid-lake downstream from Kellogg Creek, and at Allatoona Creek upstream from I-75; less than 15 µg/l in Little River upstream from Highway 205; and less than 12 µg/l in Etowah River upstream from Sweetwater Creek. In April 2009, GAEPD developed a draft nutrient TMDL for Allatoona Lake which was the first TMDL in the ACT Basin that identified the need for reductions in total nitrogen and phosphorus to achieve in-lake chlorophyll a standards. Reductions of 16 percent and 20 percent nitrogen and 20 percent and 40 percent phosphorus in the Etowah River and Allatoona Creek arms, respectively, have been proposed. Measured data at compliance points for dissolved oxygen, total nitrogen, and pH are in compliance with Georgia's standards. The state collects profile data at compliance points in the reservoir for dissolved oxygen, pH, conductivity, and water temperature during the growing season. It also collects grab samples of nitrogen, phosphorus, chlorophyll a, and bacteria.

Georgia has begun efforts to identify sources contributing to high chlorophyll *a* by developing a total maximum daily load. As part of the state's water planning effort, it is also modeling the Coosa River Basin, including the Etowah River portion downstream of Allatoona Dam.

c. <u>Lake Stratification</u>. During the colder winter months, the water in Allatoona Lake is generally cold, relatively clear, and the same temperature from the top to the bottom. Water on the top and bottom of the reservoir has similar densities. Wind action keeps the lake well mixed, resulting in adequate dissolved oxygen levels throughout the water column. During winter-time, water temperature and oxygen concentrations do not limit fish movement in the lake. Lake water, which is released through the hydropower units from near the bottom of the lake into the Etowah River below the dam, is cold, oxygenated, and relatively clear.

During spring and early summer, the lake warms and stratifies into three distinct layers: a surface layer called the epilimnion, a bottom layer called the hypolimnion, and a layer between the two called the metalimnion, or the thermocline. Figure 4-2 shows the summer stratification layers.

The warm, upper layer is fairly uniform in temperature and varies from 15 to 30 feet thick throughout the summer. It is well oxygenated from wind action and photosynthesis.

The hypolimnion, the cold (45 to 55 °F) dense bottom layer, becomes isolated and no longer mixes with the warm, oxygenated epilimnion. Oxygen is not produced in the hypolimnion because the cold, deep layer does not receive sunlight and is devoid of phytoplankton production. Early in the lake stratification process, the hypolimnion still contains some oxygen but declines through the summer as biological and chemical processes consume oxygen. By

Epilimnion Thermocline Hypolimnion

Summer Lake Stratification Zones

Figure 4-2. Lake Stratification

summer's end, the lake is strongly stratified. The epilimnion is warm and well oxygenated. Water temperature and oxygen concentrations in the thermocline are both lower but still often provide acceptable habitat for cool-water fish species. In the hypolimnion, the water is cold and low in oxygen (less than 1 mg/l). As oxygen levels fall to anoxic conditions, some metals and sulfides in the lake sediments become soluble. They dissolve in the water and can be released downstream, entering the river. The river water becomes re-aerated rapidly as it flows downstream, thus releasing the metals and sulfides that have become soluble.

In the fall, the lake begins to lose heat, and the process of destratification begins. The warm water of the epilimnion cools and becomes deeper and denser. As the epilimnion's density approaches the density of the hypolimnion, mixing of the layers occurs and the stratification is broken. This event is called *lake turnover*, and generally occurs around November - December each year. After mixing, no layers exist, and the entire lake has a relatively uniform temperature and oxygen levels, until the next summer season.

During the 1960's an extensive field test was made of an air diffuser system for destratifying the reservoir. The method included a system of pipes and mechanical pumping of air to the lower levels of the lake. Partial success was achieved; dissolved oxygen levels in downstream releases increased on the order of 2-3 mg/l in late summer. Maintenance issues relating to design of the equipment resulted in frequent equipment breakdowns, associated financial costs and eventual discontinuance.

d. <u>Downstream Water Quality Conditions</u>. Water quality conditions in the releases from Allatoona Dam are typical for hydropower projects in the southeast; i.e., cold water year-round with low dissolved oxygen levels during summer-time lake stratification periods and high dissolved oxygen levels during winter-time lake destratification periods. Turbidity is relatively low year-round. The potential for suspended metals occurs during lake stratification periods when the hypolimnion reaches anoxic conditions. The water use classification established by the State of Georgia for the Etowah River below Allatoona Dam is *fishing*, with corresponding water quality standards as described in section 4-08.a. above. TMDLs for dissolved oxygen, fecal coliforms, and polychlorinated biphenyls (PCBs) have been established for the Etowah River below Allatoona Dam. Due to PCB levels in fish tissue, the fishery advisories of one meal per week for spotted bass and one meal per month for smallmouth buffalo have been established by the State of Georgia.

4-09. Channel and Floodway Characteristics.

- a. <u>General</u>. Allatoona Dam is a headwater project with only one reservoir located upstream (Hickory Log Creek Project) and a sub-impoundment (Lake Acworth) within Allatoona Lake. The channel capacity of the Etowah River below Allatoona Dam is 9,500 cfs.
- b. <u>Damage Centers and Key Control Points</u>. There are major flood damage reaches both above Allatoona Lake and downstream on the Etowah River. Urban flood damages occur above the lake at Dawsonville, and Canton, Georgia. This flooding is due to flood flows exceeding the channel capacity. However, Allatoona Lake can affect flood heights at Canton, Georgia, due to backwater effects, so the Corps has acquired the property which may be affected. Since the drainage area has a long travel reach, the flood hydrograph peaks at Canton, Georgia, occur one or two days after the maximum rainfall, and the high flows tend to continue for many days.

The City of Cartersville, Georgia, located below Allatoona Dam, experiences flooding if the local runoff plus the outflow from the dam becomes too large. Rome, Georgia, is the major flood damage area protected by the Allatoona Project. The Carters Project also provides some flood risk management benefits at Rome, Georgia. Of the 4,011 square miles of drainage area at Rome, Georgia (2,150 square miles Oostanaula River plus 1,861 square miles Etowah River), 374 square miles are controlled by the Carters Dam, 146 square miles are controlled by the Carters Reregulation Dam, and 1,122 square miles are controlled by Allatoona Dam. This leaves 59 percent of the drainage area at Rome, Georgia, unregulated. A levee system was completed in 1939 that, along with flood risk management operations at the Allatoona and Carters Projects, has protected the city of Rome. A locality map of the Rome, Georgia levee system is shown on Figure 4-3 and a portion of the levee along the Oostanaula River is shown on Figure 4-4.

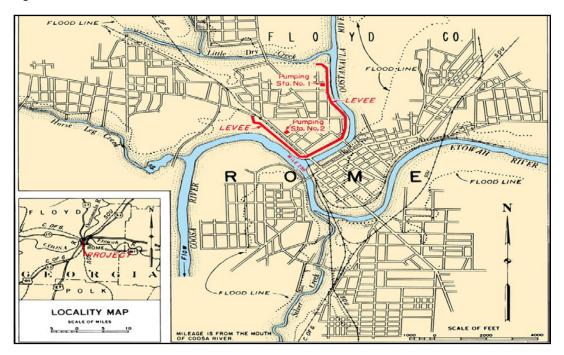


Figure 4-3. Levee Locality Map for Rome, Georgia



Figure 4-4. Portion of Levee along Oostanaula River at Rome, Georgia

The USGS gages for the Etowah River at GA 1 Loop (USGS # 02395980) and Coosa River at Mayo's Bar (USGS # 02397000) are used to guide operations of Allatoona Dam to insure maximum flood reductions. The location of USGS gages are shown in Figure 4-5.

Travel time for water released from Allatoona Dam to reach Rome, Georgia, is approximately 12 hours.

The Carters Dam and Reregulation Dam Project is located northeast of Rome, Georgia, on the Coosawattee River and its operation also provides some flood risk management benefits for Rome, Georgia. However, Carters Dam controls runoff from less than 10 percent of the drainage area above Rome, Georgia, so flood reductions at Rome due to the Carters Project are relatively small.

Tables 4-6 through 4-10 provide details for river stages and flood damages at Dawsonville, Canton, Cartersville, and Rome, Georgia. Tables 4-11 through 4-15 give the dates and heights of historical floods for these locations.

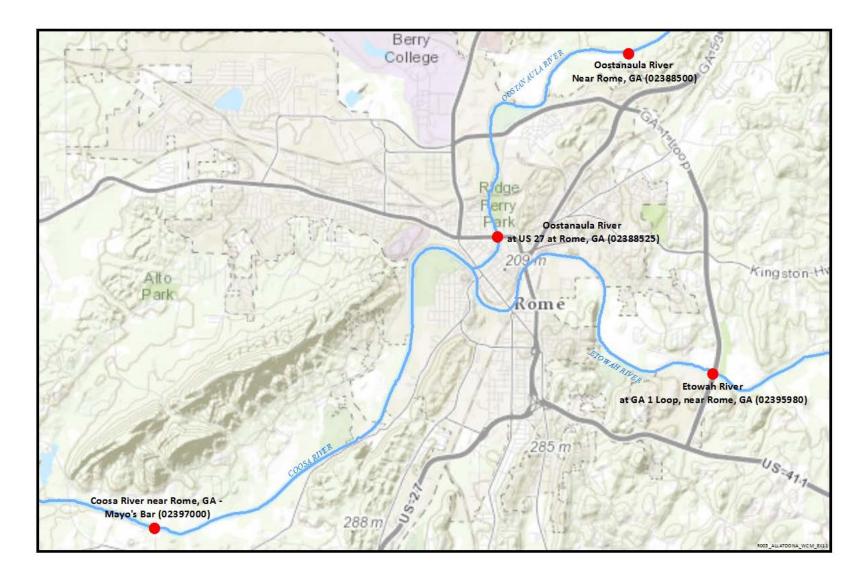


Figure 4-5. USGS Gages in the vicinity of Rome, Georgia

	Table 4-6. Flood Impacts at Dawsonville, Georgia (Upstream of Any Project, USGS# 02389150)						
Stages (feet)	Impacts						
11	Bankfull is reached on the river in south Dawson County. Some minor flooding begins in pasture lands of northwest Forsyth County and water approaches low areas of Nicholson Road.						
12	Minor flooding of Nicholson Road in northwest Forsyth County begins.						
13	Flood Stage is reached and minor flooding begins in south Dawson County. Minor flood continues on Nicholson Road in northwest Forsyth County.						
14	Moderate flooding begins in northwest Forsyth County. Old Federal Road begins to flood and Nicholson Road is closed off to residents. Minor flooding continues in south Dawson County.						
16	Moderate flood begins in south Dawson County and continues in northwest Forsyth County. Widespread flooding of pasture land and horse stables occur. Old Federal and Nicholson Roads are closed in northwest Forsyth County.						
21	Major flooding occurs. Highway 9 goes underwater in low areas in south Dawson County and Nicholson and Old Federal Roads are closed in northwest Forsyth County to residents.						

Table 4-7. Flood Impacts at Canton, Georgia (Upstream End of Allatoona, USGS# 0239200)					
Stages (feet)	Impacts				
15	Bankfull is reached. Water begins to spill out of the Etowah River banks in Canton.				
16	Flood Stage is reached. Minor flooding begins in Boiling Park in Canton. Soccer fields and Lady Warriors' ball fields begin to flood. This is located behind the Canton High School which is on higher ground. Canton Greenway begins to flood.				
17	Minor flooding continues to expand. Parking lot and road to Boiling Park begins to flood. Flooding of lowlands begins to increase.				
18	Minor flooding expands. Mill Industrial Way Road floods.				
19	Flood waters reach base of water treatment plant near Highway 140 and Boiling Park.				
22	Moderate flooding begins. Old Canton Textile Plant Number 1 begins to flood.				
23	Moderate flooding expands. Several buildings near the Canton Textile Plant floodsecondary roads and access roads to the river floodas well as farm lands.				
25	Moderate flooding expands. Buildings along Railroad Street flood.				
26	Major flooding begins. Electrical power station floods near Waleska Street. River Place Shopping Center begins to flood. Flooding affects several businesses. Economic losses begin to mount.				
28	Railroad tracks of L&N are inundated. Some warehouses and small industrial buildings are also affectedbut without serious damage. The gage house elevation is at 27.8 feet above datum. Instrument shelf is at 31.3 feet.				
30	Major flooding continues in Canton. The lowest part of Highway 140 is inundated and many businesses near the river and a few houses flood.				

	Table 4-8. Flood Impacts at Cartersville, Georgia (Immediately Downstream of Allatoona Dam, UGS# 02394670)						
Stages (feet)	Impacts						
16	Bankfull Stage is reached. Impacts are minimal to none. Some water enters far backyard edges of homes along Riverside Court Southeast.						
18	Flood Stage is reached. Minor flooding develops as flood waters reach through backyards of homes right up to homes on Riverside Court Southeast. Farmland and farm building floods downstream of Old River Road.						
19	Moderate flooding begins. Old River Road Southeast floods near Highway 41.						
20	Major flooding begins. Flood waters enter Seaboard Coastline Railroads buildings.						
22	Major flooding expands. CIMBAR company floods along Old River Road. Allatoona Dam Road Southeast has a building that floods. Two (2) homes flood near Highway 293 and Old River Road.						
34	Widespread flooding occurs. Highway 41 bridge has water to under-supports. Many homes and businesses are underwater.						

	Table 4-9. Flood Impacts at Rome – Etowah River (Downstream of Allatoona Dam, USGS# 02395980)						
Stage (feet)	Impacts						
28	Bankfull and Action Stage is reached on the river.						
32	Flood Stage is reached and minor flooding begins of open fields on the right bank.						
34	Minor flooding continues. Grizzard Park athletic fields begin to flood on the right bank.						
36	Moderate flooding begins. The concession stand and other maintenance buildings at the Grizzard Park athletic fields begin to flood.						
40	Major flooding begins. Grizzard Park athletic fields & buildings completely inundated.						

Table 4-10. Flood Impacts at Rome – Oostanaula River (Downstream of Allatoona Dam, USGS# 02388525)					
Stage (feet)	Impacts				
19	Action Stage is reached. Heritage Park Rome Greenway floods within floodplain.				
22	Drainage valve must be closed at 2nd Avenue and Avenue A Pump station outfalls.				
24	Drainage valves must be closed at American Legion Outfall and Police Station Outfall.				
25	Flood Stage is reached. Mainly minor flooding will develop.				
28	Moderate flooding begins. Water will enter basements of lower two city blocks near the gage site. Flood gates on 2nd Avenue and Avenue A must be closed.				
30	Moderate flooding expands. Water enters Georgia Power Maintenance Yard at Etowah River.				
32	Major flooding begins. Flooding of Rome Sewage Treatment Plant begins. 5th Avenue Bridge closed. Water overflows onto 2nd Avenue between railroad & bridge.				
34.5	Major flooding continues. Six city blocks of basements in Rome near the Oostanaula River will flood. Water will cover the 200 block of East Second Avenue.				
36	Major flooding continues. Water overflows at the lowest point of Summerville Road.				
38	Major flooding expands. Water will reach Broad Street. This is the 100-year flood.				
40.29	The record crest was 40.30 feet on April 1, 1886.				
42	The levee of the Oostanaula will reach the top of the city levee. This is a very serious situation. Floyd Medical Center, Law Enforcement Center, and numerous businesses flood.				
46	Highway 27 / 5th Avenue bridge floods. Many businesses and homes flooded.				

Table 4-11	
Historical Crests for Etowah River Near Dawsonville (USGS #02389150) Gage Datum 1,022 ft NAVD88	
(1) 16.20 ft on 01/07/1946 (2) 16.03 ft on 01/16/1954 (3) 15.78 ft on 09/17/2004 (4) 15.72 ft on 03/11/1952 (5) 15.19 ft on 03/06/2003 (6) 15.02 ft on 09/06/1949 (7) 14.56 ft on 09/21/2009 (8) 14.31 ft on 03/13/1950 (9) 14.20 ft on 04/05/1957 (10) 14.05 ft on 11/11/2009 (11) 14.00 ft on 11/16/2006 (12) 13.73 ft on 03/29/1951 (13) 13.31 ft on 01/06/2009	
(14) 13.13 ft on 12/09/2009 Low Water Records	
(1) 2.92 ft on 09/13/2002 (2) 3.01 ft on 10/01/2007	

Table 4-12							
Historical Crests for Etowah River at Canton, Georgia (USGS #02392000) Gage Datum 845 ft NGVD29							
(1) 26.70 ft on 01/07/1946 (2) 26.30 ft on 12/10/1919 (3) 25.90 ft on 07/10/1916 (4) 25.33 ft on 03/17/1990 (5) 25.20 ft on 12/12/1932 (6) 25.20 ft on 12/12/1932 (6) 25.20 ft on 12/22/1918 (7) 25.00 ft on 01/01/1892 (8) 24.70 ft on 03/26/1964 (9) 24.45 ft on 02/03/1982 (10) 24.38 ft on 04/30/1963 (11) 24.20 ft on 10/02/1989 (12) 23.80 ft on 12/13/1961 (13) 23.57 ft on 04/14/1979 (14) 23.56 ft on 03/31/1977 (15) 23.30 ft on 02/05/1936 (17) 23.20 ft on 02/26/1961 (18) 23.20 ft on 02/26/1961 (18) 23.20 ft on 02/26/1961 (18) 23.20 ft on 03/31/1976 (20) 22.72 ft on 01/28/1996 (21) 22.67 ft on 03/04/1966 (22) 22.40 ft on 04/08/1938 (23) 22.40 ft on 11/29/1948 (24) 22.39 ft on 09/17/2004 (25) 22.20 ft on 03/16/1899 (27) 22.00 ft on 02/17/1903 (28) 21.96 ft on 03/15/1917 (39) 21.70 ft on 04/05/1957 (31) 21.60 ft on 05/21/1901 (32) 21.32 ft on 03/15/1912 (34) 21.20 ft on 03/15/1912 (35) 21.20 ft on 03/07/1996 (37) 20.73 ft on 09/22/2009 (38) 20.50 ft on 01/03/1937 (39) 20.41 ft on 01/11/1972 (40) 20.20 ft on 03/07/1930	(41) 20.17 ft on 03/09/1980 (42) 20.10 ft on 02/07/1955 (43) 19.82 ft on 02/05/1998 (44) 19.81 ft on 02/04/1998 (45) 19.60 ft on 03/24/1917 (46) 19.50 ft on 03/14/1909 (47) 19.50 ft on 03/05/1929 (48) 19.20 ft on 04/05/1974 (49) 19.04 ft on 03/14/1975 (50) 19.00 ft on 12/18/1922 (51) 19.00 ft on 03/20/1944 (52) 18.91 ft on 08/23/1969 (53) 18.56 ft on 12/16/1972 (54) 18.47 ft on 01/07/2009 (55) 18.43 ft on 03/06/2003 (56) 18.43 ft on 03/06/2003 (56) 18.43 ft on 03/01/1987 (57) 18.40 ft on 12/30/1942 (58) 18.30 ft on 12/30/1942 (58) 18.30 ft on 12/07/1983 (60) 18.05 ft on 12/07/1983 (61) 18.05 ft on 10/27/1997 (62) 17.67 ft on 03/09/1998 (63) 17.60 ft on 05/24/1928 (64) 17.60 ft on 01/10/1895 (66) 17.30 ft on 01/10/1895 (66) 17.30 ft on 03/31/1932 (67) 17.28 ft on 12/17/1992 (68) 17.20 ft on 04/05/1911 (69) 17.11 ft on 11/11/2009 (70) 17.00 ft on 10/06/1995 (71) 16.60 ft on 04/25/1908 (72) 16.50 ft on 02/14/1927 (73) 16.20 ft on 02/14/1927 (73) 16.10 ft on 03/14/1950 (77) 16.10 ft on 03/14/1950 (77) 16.10 ft on 08/05/1948 (78) 16.04 ft on 03/25/1965 (79) 16.00 ft on 08/13/1940						
(1) 0.20 ft on 10/02/1927 (2) 0.70 ft on 09/14/1924 (3) 0.70 ft on 10/02/1931 (4) 0.78 ft on 10/01/2007	(5) 0.80 ft on 09/13/2002 (6) 0.86 ft on 09/09/2007 (7) 0.90 ft on 10/09/1935 (8) 1.00 ft on 09/24/1941						

Table 4-13

Historical Crests for Etowah River at GA 61, Near Cartersville, Georgia (USGS #02394670) Gage Datum 651 ft NGVD29

- (1) 37.00 ft on 04/01/1886 (2) 31.00 ft on 12/19/1919 (3) 30.40 ft on 01/08/1946 (4) 30.00 ft on 11/29/1948 (5) 29.90 ft on 04/08/1938
- (6) 25.80 ft on 01/27/1947 (7) 24.80 ft on 12/30/1942
- (8) 24.50 ft on 03/22/1942
- (9) 22.60 ft on 03/30/1944
- (10) 21.98 ft on 07/11/2005
- (11) 20.76 ft on 02/03/1982
- (12) 20.70 ft on 03/04/1979
- (13) 20.10 ft on 04/10/1964
- (14) 19.80 ft on 08/14/1940
- (15) 19.70 ft on 05/28/1981
- (16) 19.50 ft on 12/06/1983
- (17) 19.35 ft on 03/22/1952
- (18) 19.20 ft on 03/01/1939 (19) 19.00 ft on 08/03/1948
- (20) 18.85 ft on 04/14/1980
- (21) 18.40 ft on 03/29/1977
- (22) 18.00 ft on 02/21/1961
- (23) 18.00 ft on 07/02/1941 (24) 18.00 ft on 03/06/2003

Low Water Records

- (1) 3.80 ft on 10/01/1949
- (2) 4.60 ft on 10/01/2007
- (3) 4.66 ft on 09/26/2007

Table 4-14

Historical Crests for Etowah River at Rome, Georgia (USGS #02395980) Gage Datum 562 ft NGVD29

- (1) 37.50 ft on 04/09/1938
- (2) 37.40 ft on 11/30/1948
- (3) 36.77 ft on 03/17/1990
- (4) 36.70 ft on 01/21/1947
- (5) 36.20 ft on 01/09/1946
- (6) 36.05 ft on 02/04/1998
- (7) 33.44 ft on 03/06/2003
- (8) 33.25 ft on 02/26/1964
- (9) 32.81 ft on 02/04/1982
- (10) 32.10 ft on 12/30/1942 (11) 31.17 ft on 01/27/1996
- (12) 30.70 ft on 03/30/1994
- (13) 30.10 ft on 02/22/1961
- (14) 29.81 ft on 07/12/2005
- (15) 28.97 ft on 05/03/1997
- (16) 28.20 ft on 03/20/2001

Low Water Records

(1) 12.43 ft on 10/01/2007

Table 4-15

Historical Crests for Oostanaula River at US 27, Rome, (USGS Gage #02388525) Gage Datum 562 ft NGVD29

- 1) 40.30 ft on 04/01/1886 (2) 37.20 ft on 01/15/1892 (3) 34.50 ft on 01/22/1947 (4) 34.30 ft on 07/12/1916 (5) 34.26 ft on 03/18/1990 (6) 34.10 ft on 02/12/1946 (7) 33.90 ft on 11/30/1948 (8) 33.80 ft on 01/09/1946
- (9) 33.80 ft on 12/30/1932 (10) 33.70 ft on 04/08/1936 (11) 33.30 ft on 02/06/1936
- (12) 33.00 ft on 04/14/1979 (13) 32.80 ft on 12/11/1919 (14) 32.64 ft on 02/27/1990
- (15) 32.00 ft on 12/14/1932 (16) 31.80 ft on 04/05/1977 (17) 31.80 ft on 12/18/1932 (18) 30.50 ft on 03/27/1964

- (19) 30.50 ft on 03/30/1951 (20) 30.50 ft on 04/05/1920
- (21) 29.90 ft on 01/28/1996 (22) 29.60 ft on 03/22/1980
- (23) 29.00 ft on 01/04/1982 (24) 28.90 ft on 03/08/1996
- (25) 28.82 ft on 02/05/1998 (26) 28.00 ft on 01/20/1925
- (27) 27.70 ft on 05/07/2003 (28) 27.00 ft on 11/29/1929
- (29) 26.90 ft on 03/10/1998 (30) 26.50 ft on 04/14/1980
- (31) 26.20 ft on 10/04/1989 (32) 25.98 ft on 05/04/1997 (33) 25.65 ft on 01/07/2009
- (34) 25.60 ft on 03/07/2003
- (35) 25.10 ft on 03/01/1987 (36) 25.04 ft on 01/13/1993

Low Water Records

- (1) 1.75 ft on 10/08/2007
- (2) 1.82 ft on 09/27/2007

4-10. Upstream Structures. Allatoona Dam is a headwater project with only one reservoir located upstream. The Hickory Log Creek Project was constructed in 2007 and is located approximately 16 miles east northeast of Allatoona Dam. Hickory Log Creek Reservoir is a pump back reservoir for water supply that, when full covers 411 acres and has a capacity of 17,702 acre-feet. The drainage area for Hickory Log Creek Reservoir is 8.3 square miles.

There is also a sub-impoundment within Allatoona Lake at Acworth, Georgia. The Acworth development is situated on the Proctor Creek arm of Allatoona Lake as shown on Plate 2-6, and enhances Allatoona Lake's purposes for recreation and conservation of fish and wildlife. The sub-impoundment dam provides a generally unfluctuating level for the 325 acre lake and provides a road across Allatoona Lake, connecting Acworth with U.S. Highway 41. The dam is 1,500 feet long and consists of earth fill with a 60-foot concrete spillway flanked on each side by concrete non-overflow sections 61 feet long, which form a transition and connection between the earth fill and spillway. The maximum height of the earth fill is 45 feet and the slopes are covered with one foot of riprap on a six-inch gravel filter blanket. The ungated spillway has a crest elevation of 848 feet NGVD29 and is bridged in a single span by the road crossing the dam. Stilling action at the toe is accomplished by means of a bucket which deflects the water upward. Two, 24-inch sluices, one at each end of the spillway, are provided to allow fluctuation of the upper pool during low flow for mosquito control and to drain the reservoir.

- **4-11. Downstream Structures**. Allatoona Lake is one of a number of reservoirs in the ACT Basin which include Corps projects at Allatoona, Carters, Robert F. Henry, Millers Ferry, and Claiborne. These projects provide flood risk management, water supply, water quality, hydropower, recreation, navigation, and fish and wildlife conservation. Also, Alabama Power Company (APC) has hydropower plants at Weiss, H. Neely Henry, Logan Martin, Lay, Mitchell, Bouldin and Jordan on the Coosa River and R. L. Harris, Martin, Yates, and Thurlow Dams on the Tallapoosa River. The Corps has flood control authority over Weiss, H. Neely Henry, Logan Martin, and R.L. Harris. The Alabama River is navigable to Montgomery, Alabama, near river mile 342.0. Locations of these projects are shown on Plate 2-1. The Thompson-Weinman Dam which is no longer in operation is a low head structure located about three miles downstream of Allatoona Dam. The Purdy Dam and Lake Project is located on the Cahaba River (a tributary of the Alabama River) and provides water supply for the Birmingham Water Works.
- **4-12. Economic Data**. The general economics of the region are represented by the nine counties in Table 4-16. Eight of the counties are located within Georgia and one county in Alabama. The watershed includes both developed urban and residential land uses and more rural land uses within the watershed.
- a. <u>Population</u>. The 2010 population estimates for the nine counties composing the Allatoona Project watershed and basin below was 641,529 persons. Table 4-16 shows the 2010 population and the 2006 per capita income for each county. The most recent data available is provided.

Table 4-16. Population and Per Capita Income

	2010	2006
	Population	Per Capita Income
Bartow	96,082	\$ 27,649
Cherokee	217,186	\$ 33,700
Dawson	22,358	\$ 30,710
Floyd	96,531	\$ 29,730
Haralson	29,019	\$ 25,445
Paulding	138,097	\$ 26,851
Polk	42,256	\$ 22,617
Carroll	110,527	\$ 24,244
Cleburne	14,972	\$ 23,997

^{*}US Census Bureau, 2010

b. Agriculture. The watershed and basin consists of approximately 4,403 farms averaging 107 acres per farm. In 2005 the area produced \$379 million in farm products sold and total farm earnings of more than \$125 million. Agriculture in the Allatoona Project watershed and basin consists primarily of livestock, which accounts for a little less than 92 percent of the value of farm products sold. Livestock production consists primarily of poultry operations in the counties in the immediate vicinity of the project. Livestock operations consist predominately of beef cattle in the basin. The principal crops consist of nursery and greenhouse ornamentals, floriculture, and sod, along with vegetable farms and orchards. Agricultural production information and farm earnings for each of the counties in the Allatoona Project watershed and basin are shown in Table 4-17.

Table 4-17. Farm Earnings and Agricultural Production

County	2005 Farm Earnings (\$1,000)	Number of Farms	Total Farm Acres (1,000)	Acres Per Farm	Value of Farm Products Sold (\$1,000)	Percent Crops	<u>From</u> Livestock
			Ged	orgia			
Bartow	9,983	586	82	139	49,000	15.1	84.9
Carroll	35,700	975	94	97	106,000	4.6	95.4
Cherokee	20,321	606	36	60	51,000	10.7	89.3
Dawson	11,500	222	20	91	40,000	2.5	97.5
Floyd	8,416	663	91	138	29,000	7.9	92.1
Haralson	5,391	332	40	120	19,000	3.4	96.6
Paulding	25	265	17	63	14,000	20.5	79.5
Polk	6,296	428	52	122	19,000	5.6	94.4
	Alabama						
Cleburne	27,633	326	44	136	52,000	2.6	97.4

^{*}US Census Bureau, City and County Data Books, 2007

^{*}US Census Bureau, County and City Data Book, 2007

- c. <u>Industry</u>. The leading industrial sectors that provide non-farm employment are wholesale and retail trade, services, and manufacturing. The remaining non-farm employment is provided by construction, finance, insurance, real estate, transportation, and public utilities. In 2005 the Allatoona Lake project area counties contained 679 manufacturing establishments that provided 38,400 jobs with total earnings of more than \$2.1 billion. Additionally, the value added by the area manufactures was more than \$3.7 billion. Table 4-18 contains information on the manufacturing activity for each of the counties in the Allatoona Project watershed and basin.
- d. Flood Damages. Allatoona Lake provides flood risk management for existing development in and along the Etowah and Coosa River Floodplain. The floodplain below Allatoona Lake consists of 1,132 residential structures, nine public structures, and 189 commercial structures totaling over \$280 million in value. The tax assessor appraised values of residential structures and contents total about \$65.8 million, public structures more than \$847 thousand, and commercial structures over \$213 million. The values for each category of structures in the upper area of the ACT River Floodplain below Allatoona Lake are shown in Table 4-19.

Table 4-18. Manufacturing Activity

County	No. of Manufacturing Establishments	Total Manufacturing Employees	Total Earnings (\$1,000)	Value Added by Manufactures (\$1,000)
		Georgia		
Bartow	119	8,435	490,437	1,421,853
Carroll	123	7,616	518,749	738,564
Cherokee	167	4,846	199,411	267,277
Dawson	21	687	39,212	55,509
Floyd	119	9,484	585,524	735,657
Haralson	33	1,939	88,086	145,833
Paulding	48	1,186	50,778	93,799
Polk	37	3,292	144,540	258,971
		Alabama		
Cleburne	12	915	37,185	60,310

*US Census Bureau, City and County Data Books, 2007

Table 4-19. Allatoona Lake Floodplain Value Data

	Structure (\$)	Content (\$)	Inventory (\$)	Equipment (\$)
Residential	65,804,000	29,149,000	-	-
Public	847,000	-	169,000	741,000
Commercial	213,691,000	-	25,066,000	54,389,000
Total	280,342,000	29,149,000	25,235,000	55,130,000

The Corps' Water Management Office has developed an Annual Damage Reduction Summary that estimates the flood damages prevented by the Allatoona Lake flood reduction project in the ACT Basin. Table 4-20 shows the Allatoona Project flood damages prevented by year from 1986 through 2013.

Table 4-20. Flood Damages Prevented Allatoona Lake

Year	Allatoona Dam	Year	Allatoona Dam
1986	\$0	2000	\$0
1987	\$2,626,000	2001	\$0
1988	\$0	2002	\$0
1989	\$0	2003	\$21,706,008
1990	\$14,620,100	2004	\$11,002,375
1991	\$0	2005	\$20,033,559
1992	\$142,580	2006	\$0
1993	\$0	2007	\$0
1994	\$0	2008	\$0
1995	\$433,046	2009	\$32,666,192
1996	\$33,200	2010	\$20,330,262
1997	\$0	2011	\$18,354,891
1998	\$628,127	2012	\$0
1999	\$0	2013	\$26,795,190

^{**}Dollar values are indexed to each FY using CP

V - DATA COLLECTION AND COMMUNICATION NETWORKS

5-01. Hydrometeorological Stations.

a. <u>Facilities</u>. Management of water resources requires continuous, real-time knowledge of hydrologic conditions. The Mobile District contracts out the majority of basin data collection and maintenance to the USGS and National Weather Service (NWS) through cooperative stream gaging and precipitation network programs. The USGS, in cooperation with other federal and state agencies, maintains a network of real-time gaging stations throughout the ACT Basin. The stations continuously collect various types of data including stage, flow, and precipitation. The data are stored at the gage location and are transmitted to orbiting satellites. 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. The gage locations are discussed in Chapter VI related to hydrologic forecasting.

Reservoir project data are obtained through each project's Supervisory Control and Data Acquisition (SCADA) system and provided to the Water Management Section both daily and in real-time.



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

The Water Management Section employs a staff of hydrologic field technicians and contract work to USGS to operate and maintain Corps' gages throughout the ACT Basin. Corps personnel also maintain precipitation gages at project locations over the ACT Basin.

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. The 30 stations listed in Table 5-1 and shown on Plate 2-2 are considered the rainfall reporting network for the Allatoona Dam project. Because Allatoona Dam regulates flood flows to downstream locations, the reporting network extends to Rome, Georgia. Allatoona Dam regulation of peak flows does not affect areas below Weiss Dam on the Coosa River but does reduce flood inflows to that project.

Table 5-1. Rainfall Reporting Network (Above Rome, Georgia)

Location	Operating Agency	Agency ID	Latitude	Longitude				
	Etov	vah River Basin						
Cleveland,GA	NWS	92006	34.6	83.766667				
Dahlonega, GA	NWS	92475	34.533333	83.983333				
Amicacola, GA	USACE	AMIG1	34.55	84.25				
Wahsega, GA	USACE	WAHG1	34.633333	84.083333				
Mountaintown, GA	USACE	MTNG1	34.766667	84.533333				
Dawsonville, GA	NWS	92578	34.416667	84.116667				
Jasper 1 NNW	NWS	94648	34.483333	84.45				
Ball Ground, GA	NWS	90603	34.35	84.383333				
Waleska, GA	NWS	99077	34.316667	84.55				
Canton, GA	USACE	CTNG1	34.233333	84.5				
Woodstock, GA	NWS	99524	34.116667	84.516667				
Allatoona Dam, GA	USACE	CVLG1	34.15	84.716667				
Allatoona Dam 2, GA	NWS	90181	34.166667	84.733333				
Carters Dam, GA	USACE	CTRG1	34.6	84.666667				
Cartersville #2, GA	NWS	91670	34.166667	84.783333				
Dallas 7NE, GA	NWS	92485	33.983333	84.75				
Taylorsville, GA	NWS	98600	34.083333	84.983333				
Kingston, GA	NWS	94854	34.233333	84.933333				
·	Oosta	naula River Basin						
Dalton, GA	NWS	92493	34.766667	84.95				
Chatsworth 2, GA	NWS	91863	34.766667	84.783333				
Ellijay, GA	NWS	93115	34.7	84.483333				
Fairmont, GA	NWS	93295	34.433333	84.7				
Resaca, GA	NWS	97430	34.566667	84.95				
Adairsville 5 SE, GA	NWS	90044	34.35	84.933333				
Curryville 3W, GA	NWS	92429	34.45	85.1				
Rome WSO Arpt, GA	NWS	93801	34.35	85.166667				
Rome, GA	NWS	97600	34.25	85.166667				
Coosa River Basin								
Summerville, GA	NWS	98436	34.483333	85.366667				
Lafayette 4SSSW, GA	NWS	94941	34.633333	85.3				
Cedartown, GA	NWS	91732	34.016667	85.25				

All river stage 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. The stations listed in Table 5-2 are in the ACT Basin and provide information for operations for both Allatoona and Carters Dams. The locations of river stage stations are shown on Plate 2-2.

Table 5-2. River Stage Reporting Network (above Rome, Georgia)

	River Stage Reporting Network (above Rome, Georgia)								
USGS Gage	Location	Latitude	Longitude	Drainage Area	River Mile above Rome	Datum Elev NGVD29	Flood Stage	Rain Gage	
		Etow	ah River						
02333500	Chestatee River Near Dahlonega, GA	34.5281	-83.93972	153	30.69	1,129	19	Υ	
02388975	Etowah River at GA 136, Near Landdrum, GA	34.4089	-84.01972	97.3	133.22	1,080	14	Υ	
02389150	Etowah River At GA 9, Near Dawsonville, GA	34.3581	-84.11333	131	129.17	1,022 (NAVD88)	13	Υ	
02390000	Amicaclola Creek Near Dawsonville, GA	34.4256	-84.21194	89	128.64	1,204 (NAVD88)	10	Υ	
02390050	Etowah River at Kelly Bridge Road, Near Matt, GA	34.3522	-84.20639	277	118.31	980	19	Y	
02392000	Etowah River At Canton, GA	34.4167	-84.11667	613	77.8	845	16	N	
02394000	Etowah River At Allatoona Dam, Abv Cartersville,GA	34.1631	-84.74111	1122	47.8	687	23	Ν	
02393501	Etowah River Allatoona Dam Tw, Abv Cartersville,GA	34.1639	-84.72806	1122	47.73	0	9	Ν	
02393500	Allatoona Lake Near Cartersville, GA	34.1628	-84.72778	1122	47.8	0	0	Υ	
02394670	Etowah River At GA 61, Near Cartersville, GA	34.1428	-84.83889	1345	38.22	651	18	Υ	
02394820	Euharlee Creek At Us 278, At Rockmart, GA	33.9986	-85.0525	42.1	30.54	733	9	Υ	
02395000	Etowah River Near Kingston,GA	34.2089	-84.97873	1634	21.4	610	20	N	
02395120	Two Run Creek Near Kingston, GA	34.2428	-84.88972	33.1	NA	723.2 (NAVD88)	8	Ν	
02395980	Etowah River At GA 1 Loop, Near Rome, GA	34.2322	-85.11694	1801	1.8	562	32	Ν	
02395996	Etowah River At Coosa Valley F.G., At Rome, GA	34.2564	-85.15056	1819	0.9	562	32	Ν	
		Oostar	naula River						
02380500	Coosawattee River Near Ellijay, GA	34.675	-84.50861	236	93.3	1,216.0 (NAVD88	8	Y	
02381400	Carters Lake Near Carters, GA	34.6139	-84.67111	374	73.75	0.05 (NAVD88)	20	Y	
02381401	Carters Lake Tailrace Near Carters, GA	34.6142	-84.67472	374	73.55	0	0	Ζ	
02382200	Talking Rock Creek Near Hinton, GA	34.5228	-84.61111	119	NA	894	10	Υ	
02382400	Carters Re-Regulation Lake Near Carters, GA	34.6042	-84.69139	520	72.25	651	N/A	Z	
02382500	Coosawattee River At Carters, GA	34.6036	-84.69556	521	71.86	650.67 (NAVD88)	20	Υ	
02383500	Coosawattee River Near Pine Chapel, GA	34.5642	-84.83306	831	53.55	616	22	Υ	
02384500	Conasauga River At GA 286, Near Eton, GA	34.8278	-84.85083	252	89.62	673	12	Υ	
02385800	Holly Creek Near Chatsworth, GA	34.7167	-84.77	64	NA	689	18	Υ	
02387000	Conasauga River At Tilton, GA	34.6667	-84.92833	687	59.09	622	10	Ν	
02387500	Oostanaula River At Resaca, GA	34.5771	-84.94185	1602	43.16	604	22	Υ	
02388500	Oostanaula River Near Rome, GA	34.2983	-85.13806	2115	0.5	561.7 (NAVD88)	30	N	
02388525	Oostanaula River At Us 27, At Rome, GA	34.2606	-85.17083	2150	0.35	561.7 (NAVD88)	25	Υ	

b. Reporting. The Water Management Section 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 new Corps Water Management System (CWMS), together automate and integrate data acquisition and retrieval to best meet all Corps water management activities.

Data are collected at Corps sites and 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 then transmits the information to a fixed geostationary satellite. Data Collection Platforms transmit real-time data at regular intervals to the GOES System operated by the National Oceanic and Atmospheric Administration (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.

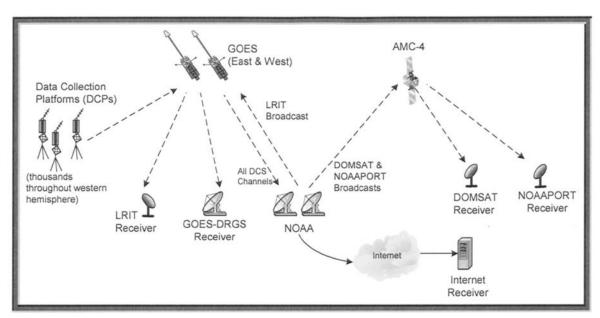


Figure 5-3. Typical Configuration of the GOES System

Typically, reporting stations log 15-minute data that are transmitted every hour. A few remaining gages report every four hours, but they are being transitioned to the hourly increment. All river stage and precipitation gages equipped with a Data Collection Platform and GOES antenna are capable of being part of the reporting network.

The power plant at Allatoona Dam is operated remotely from the control room at the Carters Dam powerhouse via a microwave link between the two projects. The remote system also produces visual observations of the project. Data from Allatoona Dam are automatically collected at the project and transmitted through the project's SCADA system and the Internet to

Carters Dam and the Mobile District. Telephone is an option for other communications. Data for the project and the Data Collection Platforms are downloaded both daily and hourly through the Corps' server network to the Water Management Section.

c. <u>Maintenance</u>. Maintenance of data reporting equipment is a cooperative effort among the Corps, USGS, and NWS. The USGS, in cooperation with other federal and state agencies, maintains a network of real-time Data Collection Platform stream gaging stations throughout the ACT Basin. The USGS is responsible for the supervision and maintenance of the real-time Data Collection Platform gaging stations and the collection and distribution of streamflow data. In addition, the USGS maintains a systematic measurement program at the stations so the stage-discharge relationship for each station is current. Through cooperative arrangements with the USGS, discharge measurements at key ACT Basin locations are made to maintain the most current stage-discharge relationships at the stations. The NWS also maintains precipitation data for the flood control precipitation (FC-1) network.

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

U.S. Army Corps of Engineers, Mobile District, 109 Saint Joseph Street, Mobile, AL 36602-3630 Phone: (251) 690-2737 Web: http://water.sam.usace.army.mil

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: http://www.srh.noaa.gov/

5-02. Water Quality Stations. The Corps' local ranger staff maintains a water quality monitoring station at Riverside Park. The water quality parameters monitored are dissolved oxygen, temperature, pH, and conductivity. The data are not reported in real-time; the project staff collects the data and periodically reports the data to the Mobile District Environmental Resources Section. The data is not stored in an automated system available to water management.

There is also some real-time water quality parameters collected at several of the stream gages maintained by the USGS for general water quality monitoring purposes.

5-03. Sediment Stations. In order to provide an adequate surveillance of sedimentation, a network of sediment ranges were established for Allatoona Lake. Quantitative computations can be made from these ranges to compute storage depletion rates. The network also serves as an index of any bank sloughing that may occur. General conditions and changes have been measured and recorded using this network. The network of sediment stations is shown on Plate 2-4. In order to monitor degradation and gradation of the Etowah River below Allatoona Dam, a network of tailwater ranges were established before operations began. Sedimentation and retrogression surveys were conducted in 1956, with resurveys conducted on a periodic basis. The first resurvey (using the same cross-section locations) was made in 1960 and showed no large deposits in the principal reservoir. Although the June 1960 study of the tailwater ranges concluded the channel below the dam to be fairly stable, some isolated areas of bank caving were noted.

Sediment surveys were conducted in 2010. Tetra Tech, Inc., was retained to conduct an analysis of the data and determine the extent and degree of sedimentation and erosion that has occurred in the lake and its tributaries over the years, and where appropriate, to speculate on the causes of those changes. This analysis and results are presented in a report entitled; "Sedimentation and Erosion Analysis for Allatoona Dam and Lake". Sedimentation and erosion classifications were developed for each range. Based on the percentage change for the entire cross section, range cross sections were classified for sedimentation as "Heavy" (greater than 15 percent change), "Medium" (5 to 15 percent change), "Light" (0 to 5 percent), and "None" (0 or negative change). Erosion classifications were also developed from bank retreat and advance rates. A bank retreat or advance rate is the average change in location, measured in feet, of the shoreline. It is the area bounded between two cross section profiles at the shore erosion zone (sq-ft) divided by the height of shore erosion zone (ft). The shorelines were separated into two groups, erosional and depositional. The erosional group was further divided into three classes by percentile. The 25 percent of shorelines showing the greatest bank retreat were classed as "Acute." the middle 50 percent in bank retreat were classed as "Moderate." and the 25 percent with the least bank retreat were classed as "Slight." Shorelines in the depositional group were classed as "Deposition."

Analysis revealed that sedimentation within the channel is classified as heavy in the head and mid-upper sections of tributaries, specifically those with urban areas upstream. Tributaries with forested contributing areas, such as Clear Creek, had little or no sedimentation within the channel. Sedimentation occurred with the channel at the head and mid-upper sections because the river velocity slows upon entering the pool, and the sediment is removed from suspension. Sediment deposition also tended to be heavier in sections where the lake channel widens, slowing the velocity and allowing additional sediment to be removed from suspension. Most sediment is removed from suspension in the tributaries; therefore little to no sedimentation occurs in the downstream ranges in the main pool, as seen in the downstream ranges on the Etowah River and Allatoona Creek. Overall, sediment deposition was heaviest in the Little River and upper Etowah River due to the large sediment loads both rivers carry.

Erosion along the summer pool shoreline was pervasive in Allatoona Lake and typically occurred in the downstream sections of tributaries and the main rivers. Acute erosion was typically seen in the main body of Allatoona Lake and at the mouth of tributaries to the lake. This was potentially caused by increased boat traffic in the main body. Erosion also appeared to be more severe when the shoreline slope was greater. At these steep slopes, mass wasting of the bank appeared to be the main cause of shoreline erosion. The site visit indicated that some shorelines, specifically those with slight to moderate erosion, were fairly stable. These shorelines often exhibited lower slopes or exposed bedrock. Shorelines with lower slope allowed for greater wave dissipation, preventing wave erosion, and were also less prone to mass wasting. At shorelines with exposed bedrock, the unconsolidated material had been eroded, likely immediately after Allatoona Lake was constructed, but the shorelines appeared to have stabilized due to the presence of the hard rock or saprolitic material.

Shoreline deposition typically occurred in the heads of tributaries at the summer pool level, and at the heads of mid section of tributaries at the winter pool level. Deposition appeared to be more severe in tributaries with upstream urban areas.

The amount of sediment deposition that has occurred has not affected the operation of the project. The resurvey data remains under review and no revisions to the area/capacity curves have been included in this manual update.

5-04. Recording Hydrologic Data. The Water Control Data Support System (WCDSS) is an integrated system of computer hardware and software packages readily usable by water managers and operators as an aid for making and implementing decisions. An effective decision support system requires efficient data input, storage, retrieval, and capable information processing. Corps-wide standard software and database structure are used for real-time water control. Time series hydrometeorological data are stored and retrieved using the CWMS Oracle database. In the event this database is unavailable, data can alternately be stored in the Hydrologic Engineering Center Data Storage System (HEC-DSS).

To provide stream gage and precipitation data needed to support proper analysis, a DOMSAT Receive Station (DRS) is used to retrieve DCP data from gages throughout the ACF Basin. The DRS equipment and software then receives the DOMSAT data stream, decodes the DCPs of interest and reformats the data for direct ingest into a HEC-DSS database. Reservoir data is received through a link with the Supervisory Control and Data Acquisition (SCADA) system which monitors and records reservoir conditions and operations in real time.

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, 1-hour, or other intervals. Reservoir data are examined and recorded in water control models every morning (or other times when needed). The data are automatically transferred to 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 Southeast River Forecast Center (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, NEXRAD radar 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. The global network of the Corps consists of private, dedicated, leased lines between every Division and District office worldwide. Those lines are procured through a minimum of two General Services Administration-approved telephone vendors, and each office has a minimum of two connections, one for each vendor. The primary protocol of the entire Corps network is Ethernet. The reliability of the Corps' network is considered a command priority and, as such, supports a dedicated 24 hours per day Network Operations Center. The use of multiple telephone companies supplying the network connections minimizes the risk of a one cable cut causing an outage for any office. Such dual redundancy, plus the use of satellite data acquisition, makes for a very reliable water control network infrastructure.

The Water Management Section has a critical requirement to be available during emergency situations for operation of the ACT Basin and to ensure data acquisition and storage remain functional. The Water Management Section must be able to function in cases of flooding or other disasters, which typically are followed by the loss of commercial electricity. The WCDS servers and the LRGS each have individual UPS (uninterruptable power supply) and a large UPS unit specifically for the portion of Mobile District Office in which the Water Management Section resides to maintain power for operational needs.

In the event of a catastrophic incident that causes loss of communication or complete loss of access to the Mobile District Office and the WCDS and CWMS servers located on site, a Continuity of Operations Program (COOP) site is being set up as a backup to these systems.

This site will have servers that mirror the WCDS and CWMS servers located at the Mobile District Office allowing Water Managers to continue operating with no interruption or loss of data. It is currently planned that the COOP site will be located at the South Atlantic Division Office in Atlanta, Georgia.

The primary communication network of the Allatoona Project is a SCADA system network. The SCADA network includes a microwave link between Allatoona and Carters Dam. The SCADA network also monitors powerhouse conditions and digitally records real-time project data hourly. Computer servers at Allatoona and Carters are connected to the Mobile District through the Corps Network, permitting data transfer at any time. The data include physical conditions at the reservoir such as pool elevations, outflow, river stages, generation, and rainfall. Special instructions or deviations are usually transmitted by e-mail, telephone, or fax.

Emergency communication is available at the following numbers:

Water Management Section 251-690-2737

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

Carters Powerhouse* 706-334-2906
Allatoona Resource Office 678-721-6700
* Allatoona Dam is operated remotely from Carters Dam

5-06. Communication with Project Office.

a. Regulating Office With Project Office. The Water Management Section is the regulating office for the Corps' projects in the ACT Basin. Daily routine communication between the Water Management Section and project offices occur thru electronic mail, telephone, and facsimile. Daily hydropower generation schedules are issued by the Southeastern Power Administration (SEPA). During normal conditions on weekends, hydropower generation schedules can be sent out on Friday to cover the weekend period of project regulation, but it can change if deemed appropriate. If loss of network communications occurs, orders can be given via telephone.

During critical reservoir regulation periods and to assure timely response, significant coordination is often conducted by telephone between the project office and the Water Management Section. That direct contact ensures that issues are completely coordinated, and concerns by both offices are presented and considered before final release decisions are made. The Chief of the Water Management Section is available by cell phone during critical reservoir operation periods.

b. <u>Between Project Office and Others</u>. Each reservoir project office is generally responsible for local notification and for maintaining lists of those individuals who require notification under various project regulation changes. In addition, the project office is responsible for notifying the public including project recreation areas, campsites, and other facilities that could be affected by various project conditions.

In order to warn the public at the start of a hydropower release downstream, when an operator initiates a generator start, a warning horn sounds. An audio detector verifies the horn has sounded and allows the unit start-up sequence to continue. The horn will continue to sound for three minutes. The spillway at Allatoona Dam has a manually operated warning horn switch, located at gate No.1. The horn switch is activated by the operator opening the spillway gates. The horn will sound for three minutes. There is no audio detector for the spillway gates.

5-07. Project Reporting Instructions. In addition to automated data, project operators maintain record logs of gate position, water elevation, and other relevant hydrological

information including inflow and discharge. That information is stored and available to the Water Management Section through the Corps' network. The Water Management Section maintains constant contact with project operators. Operators notify the Water Management Section if changes in conditions occur. Unforeseen or emergency conditions at the project that require unscheduled manipulations of the reservoir should be reported to the Water Management Section as soon as possible.

If the automatic data collection and transfer are not working, projects are required to fax or email daily or hourly project data to the Water Management Section. Water Management staff will manually input the information into the database. In addition, Mobile District Power Projects must verify pool level gauge readings each week, in accordance with *Standard Operating Procedure, Weekly Verification of Gauge Readings, Mobile District Power Projects* dated 19 February 2008, and CESAD SOP 1130-2-6 dated 21 July 2006. Those procedures require that powerhouse operators check the accuracy of pool monitoring equipment by verifying readings of the equipment against gage readings at each plant. That information is logged into the Official Log upon completion and furnished to the master plant. A Trouble Report to management communicates any discrepancies with the readings. Operations Division, Hydropower Section will be notified by electronic mail when verification is complete. The e-mail notification will include findings of the verification.

Project personnel or the Hydropower Section within Operations Division, or both, are responsible for requesting any scheduled system hydropower unit outages in excess of two hours. The out-of-service times for the hydropower units are reported back to Water Management upon completion of outages. Forced outages are also reported with an estimated return time, if possible. Any forced or scheduled outages causing the project to miss scheduled water release targets must be immediately reported to the Water Management Section and to SEPA. In such cases, minimum flow requirements can be met through spilling.

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 that agency will have the lead role for disseminating the information. For emergencies involving the Allatoona Project, the operator on duty should notify the Water Management Section, Operations Division and the Operations Project Manager at the project. A coordinated effort among those offices and the District's Emergency Management Office will develop notifications to make available to local law enforcement, government officials and emergency management agencies.

5-09. Role of Regulating Office. The Water Management Section of the Mobile District Office is responsible for developing operating procedures for both flood and non-flood conditions. Plans are developed to most fully use the water resources potential of each project within the constraints of authorized functions. Those plans are presented in water control manuals such as this one. Water control manual preparation and updating is a routine operation of the Water Management Section. In addition, the Water Management Section maintains information on current and anticipated conditions, precipitation, and river-stage data to provide the background necessary for best overall operation. The Water Management Section arranges communication channels to the Power Project Manager and other necessary personnel. Instructions pertaining to reservoir regulation are issued to the Power Project Manager; however, routine instructions are normally issued directly to the powerhouse operator on duty.

5-10. Role of Power Project Manager. The Power Project Manager should be completely familiar with the approved operating plans for the Allatoona and Carters Projects. The Power Project Manager is responsible for implementing actions under the approved water control plans and carrying out special instructions from the Water Management Section. The Power Project Manager is expected to maintain and furnish records requested from him by the Water Management Section. Training sessions should be held as needed to ensure that an adequate number of personnel are informed of proper operating procedures for reservoir regulation. Unforeseen or emergency conditions at the project that require unscheduled manipulation of the reservoir should be reported to the Water Management Section as soon as practicable.

VI - HYDROLOGIC FORECASTS

6-01. General. Reservoir operations for Allatoona Dam are scheduled by the Water Management Section in accordance with forecasts of reservoir inflow and river stages. Operations at Carters Dam are coordinated with Allatoona Dam to reduce the flood damage at Rome, Georgia.

The Corps has developed techniques to conduct forecasting in support of the regulation of the ACT Basin. In addition, the Corps has a strong reliance on other Federal agencies such as the NWS and the USGS to help maintain accurate data and forecast products to aid in making the most prudent water management decisions. The regulation of multipurpose projects requires scheduling releases and storage on the basis of both observed and forecasted hydrologic events throughout the basin. During both normal and below-normal runoff conditions, releases through the power plants are scheduled on the basis of water availability, to the extent reasonably possible, during peak periods to generate electricity during periods of greatest demand. The release level and schedules are dependent on current and anticipated hydrologic events. The most efficient use of water is always a goal, especially during the course of a hydrologic cycle when below-normal streamflow is occurring. Reliable forecasts of reservoir inflow and other hydrologic events that influence streamflow are critical to the efficient regulation of the ACT System.

- a. Role of the Corps. The Water Management Section maintains real-time observation of river and weather conditions in the Mobile District. The Water Management Section has capabilities to make forecasts for several areas in the ACT Basin. Those areas include all the Federal projects and other locations. Observation of real-time stream conditions provides guidance of the accuracy of the forecasts. The Corps maintains contact with the River Forecast Center to receive forecast and other data as needed. Daily operation of the ACT River Basin during normal, flood risk management, and drought conservation regulation requires accurate, continual short-range and long-range elevation, streamflow, and river-stage forecasting. These short-range inflow forecasts are used as input in computer model simulations so that project release determinations can be optimized to achieve the regulation objectives stated in this manual. The Water Management Section continuously monitors the weather conditions occurring throughout the basin and the weather and hydrologic forecasts issued by the NWS. The Water Management Section then develops forecasts that are to meet the regulation objectives of regulating the ACT projects. The Water Management Section prepares five-week inflow and lake elevation forecasts weekly based on estimates of rainfall and historical observed data in the basin. These projections assist in maintaining system balance and providing project staff and the public lake level trends based on the current hydrology and operational goals of the period. In addition, the Water Management Section provides weekly hydropower generation forecasts based on current power plant capacity, latest hydrological conditions, and system water availability.
- b. 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. The Water Management Section uses the NWS as a key source of information for weather forecasts. The meteorological forecasting provided by the Birmingham, Alabama and Peachtree City, Georgia offices of 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 proactive management of basin release determinations. 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. That role is the responsibility of the Southeast River Forecast Center (SERFC) co-located in Peachtree City, Georgia with the Peachtree City Weather Forecast Office. SERFC is responsible for the supervision and coordination of streamflow and river-stage forecasting services provided by the NWS Weather Service Forecast Office in Peachtree City, Georgia. 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 of 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 and SERFC have a cyclical procedure for providing forecast data between Federal 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 projects. Having revised inflow forecasts from SERFC, the Corps has up-to-date forecast data to make the following days' release decisions.
- **6-02. Flood Condition Forecasts**. During flood conditions, forecasts are made for two conditions; rainfall that has already fallen, and for potential rainfall (or expected rainfall). Proactive decisions can be made on the basis of known events and *what if* scenarios. The Water Management Section prepares forecasts and receives the official forecasts from SERFC.
- a. <u>Requirements</u>. 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. <u>Methods</u>. In determining the expected inflow into the Allatoona Lake, it is necessary to forecast the flows of the Etowah River above Allatoona Dam. Runoff or rainfall excess for the area is estimated using the seasonal correlation values shown in Table 6-1, depending on antecedent conditions. For very dry conditions, initial runoff can be near zero and then increase as rainfall continues. During wet conditions, most of the rainfall appears as runoff into the lake. The rainfall excess is distributed over the area by using the unit hydrograph shown in Table 6-2. During the next several hours and days, the observed inflow is compared to the forecasts and adjustments are applied. Additional rainfall/runoff is accumulated with the continuing forecasts.

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.

Allatoona is located 48 river miles above the primary damage point at Rome, Georgia. The forecasting procedure requires routing Allatoona releases and adding the local runoff at Rome, Georgia. Forecasting stage at Rome, Georgia, is further complicated by being located at the junction of the Etowah and Oostanaula Rivers. Flood events lasting several days produce double flood peaks, and at times, the two rivers are at different water surface elevations. The first peak at Rome, Georgia, is a result of runoff in the Etowah River Basin. Allatoona Lake controls runoff from 1,122 square miles or about 60 percent of the Etowah River Basin. Releases from the project take approximately 12 hours to reach Rome, Georgia. The area above Carters Lake is 374 square miles or about 17 percent of the Oostanaula River Basin. Releases from Carters take about 32 hours to reach Rome, Georgia.

Table 6-1. Rainfall - Runoff Relationship for Basin above Rome, Georgia

		Runoff - Etowah Basin			Runoff - Oostanaula Basin			in				
	Rainfall	0	0.20	0.4	0.6	0.8	Rainfall	0	0.2	0.4	0.6	0.8
	0	0.00	0.10	0.30	0.05	0.08	0	0.00	0.04	0.90	0.15	0.21
	1	0.12	0.16	0.20	0.24	0.30	1	0.28	0.36	0.44	0.54	0.64
	2	0.37	0.44	0.51	0.58	0.66	2	0.74	0.84	0.96	1.08	1.22
Wet condition	3	0.75	0.84	0.53	1.02	1.14	3	1.37	1.52	1.67	1.81	1.97
Condition	4	1.27	1.44	1.62	1.80	1.98	4	2.12	2.27	2.41	2.56	2.71
	5	2.16	2.34	2.52	2.70	2.88	5	2.85	3.00	3.15	3.30	3.45
	6	3.06	3.26	3.46	3.66	3.86	6	3.60	3.75	3.89	4.04	4.19
			ı									
	0	0.00	0.01	0.02	0.04	0.06	0	0.00	0.03	0.06	0.08	0.11
	1	0.08	0.10	0.13	0.16	0.20	1	0.14	0.18	0.22	0.26	0.30
	2	0.24	0.30	0.36	0.42	0.47	2	0.36	0.40	0.44	0.50	0.58
Normal condition	3	0.53	0.59	0.67	0.72	0.77	3	0.65	0.73	0.81	0.90	0.98
00110111011	4	0.83	0.90	0.97	1.05	1.14	4	1.07	1.14	1.21	1.29	1.38
	5	1.22	1.32	1.43	1.56	1.68	5	1.46	1.56	1.67	1.80	1.92
	6	1.80	1.94	2.08	2.22	2.36	6	2.04	2.18	2.32	2.48	2.60
			ı									ı
	0	0.00	0.00	0.01	0.02	0.04	0	0.00	0.02	0.04	0.05	0.06
	1	0.05	0.07	0.08	0.09	0.11	1	0.08	0.10	0.12	0.14	0.16
	2	0.13	0.15	0.18	0.20	0.23	2	0.18	0.20	0.23	0.27	0.32
Dry condition	3	0.25	0.28	0.31	0.34	0.37	3	0.36	0.44	0.50	0.57	0.64
30110111011	4	0.40	0.43	0.46	0.49	0.52	4	0.72	0.80	0.88	0.96	1.04
	5	0.56	0.60	0.64	0.69	0.75	5	1.12	1.20	1.29	1.37	1.45
	6	0.82	0.90	0.98	1.06	1.14	6	1.54	1.60	1.70	1.76	1.86

Table 6-2. Unit Hydrographs in Etowah River Basin

Area between gages (square miles) 1,122 223 289 167 Time in hours 6 15600 2600 1660 2860 12 20000 4370 5110 5550 18 17000 3640 6340 4320 24 14000 3400 4980 2610 30 11400 2920 3620 1580 36 9100 2300 2620 960 42 7100 1760 1900 570 48 5550 1320 1380 350 54 4300 920 1000 210 60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 96 800 10 110 <tr< th=""><th>6</th><th>-hour unit hydr</th><th>ographs in Ftow</th><th>ah River basin</th><th></th></tr<>	6	-hour unit hydr	ographs in Ftow	ah River basin	
Time in hours 6		Allatoona	Cartersville	Kingston	Rome (02395980)
in hours Flow in crs 6 15600 2600 1660 2860 12 20000 4370 5110 5550 18 17000 3640 6340 4320 24 14000 3400 4980 2610 30 11400 2920 3620 1580 36 9100 2300 2620 960 42 7100 1760 1900 570 48 5550 1320 1380 350 54 4300 920 1000 210 60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 <td></td> <td>1,122</td> <td>223</td> <td>289</td> <td>167</td>		1,122	223	289	167
12 20000 4370 5110 5550 18 17000 3640 6340 4320 24 14000 3400 4980 2610 30 11400 2920 3620 1580 36 9100 2300 2620 960 42 7100 1760 1900 570 48 5550 1320 1380 350 54 4300 920 1000 210 60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 150 <t< td=""><td></td><td></td><td>Flov</td><td>v in cfs</td><td></td></t<>			Flov	v in cfs	
18 17000 3640 6340 4320 24 14000 3400 4980 2610 30 11400 2920 3620 1580 36 9100 2300 2620 960 42 7100 1760 1900 570 48 5550 1320 1380 350 54 4300 920 1000 210 60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 120 132 150 138 100 138	6	15600	2600	1660	2860
24 14000 3400 4980 2610 30 11400 2920 3620 1580 36 9100 2300 2620 960 42 7100 1760 1900 570 48 5550 1320 1380 350 54 4300 920 1000 210 60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 114 400 400 120 300 60 132 150 138 100 144 70 150 50	12	20000	4370	5110	5550
30 11400 2920 3620 1580 36 9100 2300 2620 960 42 7100 1760 1900 570 48 5550 1320 1380 350 54 4300 920 1000 210 60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 40 120 300 60 132 150 138 138 100 144 144 70 150	18	17000	3640	6340	4320
36 9100 2300 2620 960 42 7100 1760 1900 570 48 5550 1320 1380 350 54 4300 920 1000 210 60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 80 84 1350 100 200 90 90 1000 40 150 96 96 800 10 110 110 102 600 80 60 114 400 40 150 60 120 300 60 114 400 110 110 110 110 110 110 110 110 110 110 110 110 110 110 110 110 <	24	14000	3400	4980	2610
42 7100 1760 1900 570 48 5550 1320 1380 350 54 4300 920 1000 210 60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 400 120 300 60 132 150 138 138 100 144 144 70 150	30	11400	2920	3620	1580
48 5550 1320 1380 350 54 4300 920 1000 210 60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 60 120 300 60 132 150 138 138 100 144 150 50 60	36	9100	2300	2620	960
54 4300 920 1000 210 60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 400 120 300 60 132 150 138 138 100 144 150 50 60	42	7100	1760	1900	570
60 3400 600 730 130 66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 60 120 300 60 132 150 138 138 100 144 150 50 60	48	5550	1320	1380	350
66 2600 360 530 80 72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 60 120 300 60 132 150 60 138 100 144 150 50 60	54	4300	920	1000	210
72 2100 240 380 40 78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 60 120 300 60 132 150 60 138 100 60 144 70 60 150 50 60	60	3400	600	730	130
78 1700 160 280 84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 60 120 300 60 132 150 138 138 100 144 150 50 60	66	2600	360	530	80
84 1350 100 200 90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 60 120 300 60 126 200 60 132 150 60 138 100 60 144 70 60 150 50 60	72	2100	240	380	40
90 1000 40 150 96 800 10 110 102 600 80 108 500 60 114 400 60 120 300 60 126 200 60 132 150 60 138 100 60 144 70 60 150 50 60	78	1700	160	280	
96 800 10 110 102 600 80 108 500 60 114 400 60 120 300 60 126 200 60 132 150 60 138 100 60 144 70 70 150 50 60	84	1350	100	200	
102 600 80 108 500 60 114 400 60 120 300 9 126 200 9 132 150 9 138 100 9 144 70 9 150 50 9	90	1000	40	150	
108 500 60 114 400 60 120 300 60 126 200 60 132 150 60 133 150 60 138 100 60 144 70 70 150 50 70	96	800	10	110	
114 400 120 300 126 200 132 150 138 100 144 70 150 50	102	600		80	
120 300 126 200 132 150 138 100 144 70 150 50	108	500		60	
126 200 132 150 138 100 144 70 150 50	114	400			
132 150 138 100 144 70 150 50	120	300			
138 100 144 70 150 50	126	200			
144 70 150 50	132	150			
150 50	138	100			
	144	70			
450	150	50			
156 20	156	20			

c. <u>Downstream Forecasts</u>. Table 6-3 gives estimates of the time for releases from Allatoona Dam to reach downstream locations, and the increased flow over time. This table can be used to maximize use of the power plant during flood event without causing additional damages.

In addition to locations below Allatoona Dam, it is important to know conditions in the Oostanaula River Basin. Table 6-4 presents unit hydrographs for Carters Dam, Carters Reregulation Dam, Redbud, Tilton, Resaca, and flows from the Oostanaula at Rome. Outflow from the Carters Project is determined at the reregulation dam. A combination of local flows, generation, and pump-back determines the outflow from the reregulation dam. Flood waters stored at Carters are not released until after the stage at Rome has receded to below flood stage, unless induced surcharge operations are required at Carters.

Table 6-3. Effect of Allatoona Power Releases at Downstream Locations

Effect of Allatoona power releases at downstream locations Cartersville, and Rome, Georgia								
Release rate	at dam in cfs	2000	4000	6000	7000	8000	8500	8900
110,0000 1010		2000	1000	0000	7000	0000	0000	0000
Number of hours units are running	Hours since releases began to reach peak	Increase in flow						
	At Cartersville	e, river beg	ins to rise t	wo hours af	ter releases	start		
1	4	800	1440	2040	2380	2720	2810	2940
2	4.5	1400	2560	3540	4200	4960	5360	5610
3	5	1680	3200	4620	5530	6480	6800	7120
4	6	1960	3680	5340	6230	7120	7570	7920
5	7	2000	3880	5700	6650	7600	8080	8280
6	8		4000	5880	6830	7760	8250	8630
7	9			6000	6930	7920	8420	8810
8	10				7000	8000	8500	8900
	At Kingston,	river begins	to rise sev	en hours af	ter releases	start		
1	9	520	960	1320	1540	1760	1870	1960
2	10	940	1760	2460	2870	3360	3570	3740
3	11	1240	2320	3300	3850	4480	4760	4980
4	12	1420	2720	3900	4550	5200	5530	5790
5	13	1580	3040	4380	5110	5840	6210	6500
6	14	1700	3280	4740	5460	6160	6550	6850
7	15	1960	3680	4980	5770	6560	6970	7300
8	16	2000	3880	5160	6020	6880	7310	7650
9	17		4000	5640	6720	7840	8330	8720
10	18			6000	6970	7920	8420	8810
11	19				7000	8000	8500	9000
	At Rome,	river begins	s to rise 12	hours after	releases st	art		
1	14	300	460	670	770	880	940	980
2	15	550	900	1320	1510	1720	1830	1900
3	16	780	1300	1920	2230	2540	2700	2830
4	17	980	1720	2520	2910	3320	3530	3690
5	18	1160	2080	3050	3500	4010	4250	4450
6	19	1320	2400	3510	4050	4630	4920	5150
7	20	1460	2680	3900	4590	5240	5570	5830
8	21	1580	2940	4280	5030	5740	6100	6390
9	22	1760	3350	4880	5670	6490	6890	7210
10	23	1880	3630	5300	6150	7020	7460	7810
11	24	1950	3820	5620	6510	7460	7910	8280
12	25	1980	3940	5840	6780	7740	8230	8620
13	26	2000	3980	5960	6920	7900	8400	8790
14	27		4000	6000	7000	7980	8480	8880
15	28					8000	8500	8900

Table 6-4. 6-Hour Unit Hydrographs in Etowah River Basin

	6-hou	r unit hydrograph	s in Ftowah R	iver Rasin			
		osawattee River		Conasauga - Oostanaula Rivers			
	Carters Main Dam (02381400)	Carters Reregulation Dam (02382400)	Redbud 02383500)	Tilton (02387000)	Resaca (02387500)	Rome (02388525)	
Area between gages (square miles)	374	146	311	687	84	547	
Time in hours			l Flow i	n cfs			
6	1740	960	2470	190	1810	820	
12	5900	3100	7740	690	2800	2170	
18	9050	4190	9830	1360	1500	4200	
24	8260	3290	7090	2120	780	6400	
30	5530	1990	3940	2910	400	8040	
36	3550	1200	2190	3710	210	8160	
42	2280	720	1220	44'60	110	6990	
48	1470	440	680	5050	60	5390	
54	940	260	380	5420	30	3880	
60	610	160	210	5590		2720	
66	390	100	120	5560		1920	
72	250	60		5300		1370	
78	160	40		4730		990	
84	100			4020		720	
90				3410		520	
96				2880		370	
102				2440		270	
108				2070		200	
114				1750		150	
120				1480		120	
126				1250		90	
132				1060		60	
138				900		30	
144				760			
150				640			
156				550			
162	1			460			
168	-			390			
174	-			330	 		
180	ļ			280			
186	-			240			
192	-			210			
198	-			180			
204				150			
210				120			
216				100			
222				80			
228				60			

6-03. Conservation Purpose Forecasts. Forecasts for conservation operations are accomplished similarly to flood condition forecasts.

- a. <u>Requirements</u>. The ACT projects are typically regulated for normal or below normal runoff conditions. Therefore, the majority of the forecasting and runoff modeling simulation is for conservation regulation decisions. Conservation requirements are the same as for flood conditions with the additional emphasis to ensure the minimum flow requirement of 240 cfs is maintained from the project.
- b. <u>Methods</u>. The Water Management Section prepares five-week inflow and lake elevation forecasts weekly based on estimates of rainfall and historical observed data in the basin. These projections assist in maintaining system balance and providing project staff and the public lake level trends based on the current hydrology and operational goals of the period. In addition, the

Water Management Section provides weekly hydropower generation forecasts based on current power plant capacity, latest hydrological conditions, and system water availability.

6-04. Long-Range Forecasts.

- a. <u>Requirements</u>. The Corps utilizes available information from the NWS to develop longrange forecasts to aid in the operation of the system and for planning studies. These longrange forecasts vary from the five-week forecast to six-month forecasts.
- b. <u>Methods</u>. During normal conditions, the current long-range outlook produced by the Corps is a five-week forecast. For normal operating conditions, a forecast longer than this incorporates a greater level of uncertainty and reliability. In extreme conditions, three-month and six-month forecasts can be produced based on observed hydrology and comparative percentage hydrology inflows into the ACT Basin. One-month and three-month outlooks for temperature and precipitation produced by the NWS Climate Prediction Center are used in long-range planning for prudent water management of the ACT reservoir projects.

6-05. Drought Forecast.

- a. <u>Requirements</u>. ER 1110-2-1941, Drought Contingency Plans, dated 15 September 1981, called for developing drought contingency plans for all Corps' reservoirs. Drought recognition and drought forecast information can be used in conjunction with the drought contingency plan.
- b. Methods. Various products are used to detect the extent and severity of basin drought conditions. One key indicator is the U.S. Drought Monitor. The Palmer Drought Severity Index is also used as a regional drought indicator. The index is a soil moisture algorithm calibrated for relatively homogeneous regions and may lag emerging droughts by several months. The Alabama Office of State Climatologist also produces a Lawn and Garden Index which gives a basin-wide ability to determine the extent and severity of drought. The runoff forecasts developed for both short and long-range time periods reflect drought conditions when appropriate. There is also a heavy reliance on latest ENSO (El Niño/La Niña-Southern Oscillation) forecast modeling to represent the potential impacts of La Nina on drought conditions and spring inflows. Long-range models are used with greater frequency during drought conditions to forecast potential impacts to 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 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. Models using data of previous droughts or a percent of current to mean monthly flows with several operational schemes have proven helpful in planning. Other parameters are the ability of Allatoona Lake to meet the demands placed on its storage, the probability that Allatoona Lake pool elevation will return to normal seasonal levels, the conditions at other basin impoundments, basin streamflows, basin groundwater table levels, and the total available storage to meet hydropower marketing system demands.
- c. <u>Reference Documents</u>. The drought contingency plan for the Allatoona Project is summarized in Section 7-12 below. The complete ACT Drought Contingency Plan is provided in Exhibit D.

VII - WATER CONTROL PLAN

7-01. General Objectives. The Congressionally authorized purposes for the Allatoona Project as specified in the original project authorizing documents are flood risk management, hydropower, and navigation. Several other project purposes have been authorized at Allatoona through generally applicable legislation. Those purposes include water quality, recreation, fish and wildlife conservation, and water supply. The regulation plan seeks to balance the needs of all project purposes at the Allatoona Project and at other projects in the ACT Basin and is intended for use in day-to-day, real-time water management decision making and for training new personnel.

The Allatoona Project authorizing legislation (Flood Control Act of 1941) did not specify allocations or priorities within conservation storage, and left it to the discretion of the Corps how to operate conservation storage to fulfill the authorized purposes of the Allatoona Project. Conservation purposes are not fundamentally in competition; Mobile District seeks to attain balanced operations to achieve all authorized purposes and take into account other considerations to the extent possible.

7-02. Constraints. Physical constraints of the project are generally limited to available powerhouse capacity, sluice capacity, and downstream channel capacity. As the project approaches the bottom of conservation pool, the powerhouse turbines can no longer effectively run and discharge will be limited to sluice operation. Allatoona Dam has a minimum flow requirement of 240 cfs immediately downstream of the dam for water quality purposes. That flow is met with the small hydropower unit that is operated 24 hours a day. If the small unit is out of service, a spillway gate or sluice gate will be opened or one of the main hydropower units will be operated to meet minimum flow requirements.

7-03. Overall Plan for Water Control.

- a. <u>General Regulation</u>. The water control operations of Allatoona Dam are in accordance with the regulation schedule as outlined in the following paragraphs. The Corps operates the Allatoona Dam and Lake to provide for the authorized project purposes of the project. All authorized project purposes are considered when making water control regulation decisions, and those decisions affect how water is stored and released from the project. Deviations from the prescribed instructions, which can occur due to planned or unplanned events as described in section 7-15, will be at the direction of the Water Management Section. Additionally, if communication between the District Office and the dam is interrupted, the operator will follow an emergency operation schedule, Exhibit C Instructions to the Damtenders for Water Control.
- b. <u>Conservation Pool</u>. Allatoona Lake's conservation storage pool was designed to provide the necessary capacity to store water for subsequent use to meet the multiple conservation purposes for which the project was constructed. The top of conservation pool elevation is the reservoir's normal maximum operating level for conservation storage purposes. If the elevation is higher than the conservation limit, the reservoir level is in the flood pool. The conservation pool is regulated between a minimum elevation of 800 feet NGVD29 and a seasonal variable top-of-conservation pool ranging between elevations 823 to 840 feet NGVD29. The top-of-conservation pool guide curve and minimum conservation pool are shown on Plate 7-1 along with other operating action zones. The flood risk management plan drawdown to elevation 823 feet NGVD29 in advance of flood season provides 467,278 acre-feet (elevation 823 to 860 feet NGVD29) of flood risk management storage.

- c. <u>Guide Curves and Action Zones</u>. Multiple project purposes and water demands in the basin require that the Corps regulate the use of conservation storage in a balanced manner in an attempt to meet all authorized purposes, while continuously monitoring the climatological conditions to ensure that project purposes can at least be minimally satisfied during critical drought periods. The balanced water management strategy for Allatoona does not prioritize any project function but seeks to balance all project authorized purposes. However, during a flood event, flood risk management does clearly govern the operation of Allatoona. A seasonal conservation pool regulation guide curve and conservation storage action zones have been developed to guide the water control management decisions in meeting the balanced strategy. Table 7-1 provides key elevations of the top of conservation pool and action zones. Area Capacity Curves for Allatoona Lake, which indicate the amount of storage and the surface area of the lake for the complete range of possible pool elevations, are shown on Plate 2-5.
- 1) A regulation guide curve for Allatoona Lake has been prescribed to facilitate the water control regulation of the project. The guide curve defines the seasonal top of conservation storage water surface elevation. Water management operational decisions strive to maintain the pool elevation at the top of conservation elevation or at the highest elevation possible while meeting project purposes. Normally, the pool elevation will be lower than the guide curve as available conservation storage is utilized to meet project purposes except when storing flood waters or during conservative lake level regulation when drought conditions exist within the project watershed during the spring refill period. The top of conservation elevation from 1 May to 5 Sep is 840-feet NGVD29; transitions to elevation 835 feet NGVD29 by 1 Oct; is elevation 835 feet NGVD29 through 15 November; drawn down to elevation 823 feet NGVD29 by 31 Dec for additional flood storage; and begins the refill period 16 Jan.
- 2) The water control plan also establishes action zones within the conservation storage pool. The action zones are used to manage the lake at the highest level possible within the conservation storage pool while balancing the needs of all authorized purposes with water conservation as a national priority used as a guideline. The action zones at Allatoona provide water control regulation guidance to meet this water conservation plan while balancing the use of available conservation storage to meet the project purposes. Additionally Zone A, above the top of conservation pool, can also be used to meet these purposes. Zone A is described in Section 7-05. These zones are used as a general guide to the hydropower peaking generation available from the Allatoona Project to help meet system hydropower commitments. Table 7-2 shows the typical peak generation hours available for each zone. The term "peak generation" is defined as using the full plant capacity for generating hydroelectric power. The following provides a general description of each zone.
- **Zone 1**: While Allatoona is in Zone 1, the project conditions are likely to be normal to wetter than normal during the late summer and fall months. Most likely, other projects in the basin and within the Federal hydropower system will be in similar condition. Full consideration will be given to meeting hydropower demand by typically providing up to four hours of peak generation. However, the duration of peak generation could be zero or exceed four hours based on various factors or activities, such as, maintenance and repair of turbines; emergency situations such as a drowning or chemical spill; draw-downs because of shoreline maintenance; drought operations; increased or decreased hydropower demand; and other circumstances.
- **Zone 2**: While in Zone 2, a reduced amount of peaking generation will be provided to meet system hydropower demand. The typical peak generation schedule will provide up to three hours of peak generation. However, the duration of peak generation could be zero or exceed three hours based on various factors or activities, such as, maintenance and repair of turbines; emergency situations such as a drowning or chemical spill; draw-downs because of

shoreline maintenance; drought operations; increased or decreased hydropower demand; and other circumstances.

Zone 3: Zone 3 will typically indicate drier than normal conditions or impending drought conditions. Careful, long range analyses and projections of inflows, pool levels, and upstream and downstream water needs will be made when pool levels are in Zone 3. While in Zone 3 during the months of Jan-Apr, a reduced amount of peaking generation will be provided to meet system hydropower demand while making water control regulation decisions to ensure refilling the reservoir to elevation 840 feet NGVD29 by 1 May. Should drier than normal hydrologic conditions exist or persist, the reduced peak generation will continue until the reservoir level rises to a higher action zone. The typical peak generation schedule will provide up to two hours of peak generation. However, the duration of peak generation could be zero or exceed two hours based on various factors or activities, such as, maintenance and repair of turbines; emergency situations such as a drowning or chemical spill; draw-downs because of shoreline maintenance; drought operations; increased or decreased hydropower demand; and other circumstances.

Zone 4: Reservoir elevations in Zone 4 indicate severe drought conditions. Careful, long range analyses and projections of inflows, pool levels, and upstream and downstream water needs will be made when pool levels are in Zone 4. Peak generation will typically be suspended. Continuous operation of the small unit will continue in order to maintain the 240 cfs minimum flow release.

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

Date	Elevation (feet NGVD29)							
	Top of Zone 1	Top of Zone 2	Top of Zone 3	Top of Zone 4				
1 Jan	823.00	823.00	823.00	818.00				
16 Jan	823.00	823.00	823.00	818.00				
1 Feb	825.59	825.59	825.59	818.00				
1 Mar	830.29	830.29	830.29	824.00				
30 Apr	840.00	840.00	840.00	831.83				
1 Jun	840.00	840.00	838.49	836.00				
1 Jul	840.00	840.00	837.02	828.00				
1 Sep	840.00	835.34	834.00	824.29				
5 Sep	840.00	835.04	833.58	824.05				
1 Oct	835.00	833.09	830.86	822.49				
15 Nov	835.00	829.71	826.14	819.80				
15 Dec	827.17	823.00	823.00	818.00				
31 Dec	823.00	823.00	823.00	818.00				

Action zone	Allatoona (hours of operation)
Zone 1	up to 4
Zone 2	up to 3
Zone 3	up to 2
Zone 4	0

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

7-04. Standing Instructions to Damtender. During normal operations, the powerhouse operators will operate the Allatoona Project in accordance with the daily hydropower schedule. Any deviation from the schedule must come through the Water Management Section. Normally, flood control instructions are issued by the Water Management Section in the Mobile District Office. However, if a storm of flood-producing magnitude occurs and all communications are disrupted between the Mobile District and the powerhouse operators, the operators will follow instructions in Exhibit C - Standing Instructions to the Damtender for Water Control.

7-05. Flood Risk Management. The prime objective of flood risk management is to retain flood waters in Allatoona when the Rome, Georgia, stage is above the flood stage of 25 feet at the USGS "Oostanaula River Near Rome, GA" (gage # 02388500), and to release stored waters without causing or unduly prolonging downstream flood damages, and to manage the release/storage options to minimize flooding whether actions are prior to an event or after an event while utilizing all available information. The key gage used to obtain this "prime objective" is USGS gage #02388525 as explained in Table 7-3.

The basic plan for flood risk management is defined by flood action zones within the flood risk management storage of the pool similar to how the conservation storage is defined by action zones to guide operations. Figure 7-1 provides guidance for initiating induced surcharge releases and Table 7-5 describes the operating procedures. The induced surcharge schedule is implemented whenever it is apparent that 100 percent of the flood risk management storage will be used. The induced surcharge operation is a rationale operation which protects the structural integrity of the dam while providing reasonable downstream flood protection. There are five flood actions zones defined above the top of the conservation storage identified as zones A through E. These action zones are shown on Plate 7-2. Table 7-3 contains a detailed description of the flood risk management regulations based on the action zones when above the top of conservation. Table 7-4 provides key elevations for the top of the flood action zones.

When the reservoir is in the lowest flood zone, (Zone A), releases can be controlled to the minimum flow needed from the small unit. As the reservoir rises to higher flood zones, flood risk management may diminish depending on inflow forecasts. For the larger floods, induced surcharge releases may be required.

Releases are scheduled based on the Allatoona pool level and stages at Rome, Georgia. Usually this provides optimum protection for Cartersville and Kingston, Georgia, and the upper Coosa River. If conditions dictate, other restraints may influence releases.

During the rising phase of a flood, normal power operation as a peaking plant will be permitted unless predictions indicate that the power releases added to the uncontrolled area runoff will cause or aggravate damaging flood stages along the lower Etowah River and at Rome, Georgia. Runoff is retained in the flood storage space when releases are restricted to prevent flooding downstream. When the flood is receding downstream, the water in flood storage will be released in accordance with the rules in Table 7-3 and on Plate 7-2 without

exceeding the bankfull capacity downstream. There may be minor alterations to the evacuation rules when the pool approaches the top of conservation pool in order to permit realistic scheduling of power generation. This scheduling of power releases is on a weekly basis and is reviewed each day. Often daily changes are necessary when the downstream flow is near bankfull capacity or weather conditions are unstable.

Table 7-3. Flood Regulations Above Top of Conservation

Flood Regulations Above Top of Conservation Pool

Flood Zone E (highest) - Only minimum continuous release will ordinarily be made while Rome stage (USGS gage 02388525) is above or expected to rise above 28 feet (moderate flood stage). However, if inflows are predicted to exceed flood control space before Rome has crested, then powerhouse releases which are less than inflow will be made until either the stage at Rome has peaked or until greater (surcharge) releases are required (Figure 7-1 and Plate 7-3). Assuming that surcharge releases do not govern, after Rome has crested, peaking power will be made if the releases do not reverse the falling trend at Rome. Increasing releases will be made as the stage at Rome drops below 28 feet. Releases of channel capacity (about 9,500 cfs) will be made whenever such a release does not reverse the falling trend at Rome. Surcharge Releases: Infrequently inflows into Allatoona will be of such magnitude that the stage at Rome does not govern the operation of Allatoona but rather the structural stability of the dam will govern. Whenever this happens, surcharge releases will be made. Figure 7-1 shows the relationship of the last 3-hour Allatoona inflow and the current pool elevation and also indicates the required release strategy. If a surcharge release is required then Plate 7-3 defines the required release (see also para. 7-05.a. and Table 7-4). This surcharge requirement is pertinent in Zones B, C, D, and E as a function of pool elevation and last 3-hour inflow.

<u>Flood Zone D</u> - Only minimum continuous release will ordinarily be made while Rome stage is above or expected to rise above 28 feet. However, if inflows are predicted to exceed flood control space before Rome has crested, powerhouse releases which are less than inflow may be made until either the stage at Rome has peaked or greater (surcharge) releases are required (see Flood Zone E). Once Rome has fallen below 28 feet, up to full channel capacity (about 9,500 cfs) will be discharged. The release of powerhouse capabilities (about 6,500 cfs) may follow if consideration of downstream conditions and expected weather conditions make this prudent.

<u>Flood Zone C</u> - Only minimum continuous release will ordinarily be made while Rome stage is above or expected to rise above 28 feet. However, if inflows are predicted to exceed flood control space before Rome has crested, powerhouse releases which are less than inflow may be made until either the stage at Rome has peaked or greater (surcharge) releases are required (see Flood Zone E). After Rome has receded below 25 feet, releases will be up to channel capacity (about 9,500 cfs). Generally, releases will be at turbine capacity (about 6,500 cfs). Scheduled peak power releases of less than 6,500 dsf/day may be used if the scheduled releases sufficiently lower the pool in light of expected weather conditions.

Flood Zone B - Only minimum continuous release will ordinarily be made while Rome stage is above or expected to rise above 25 feet. However, if inflows are predicted to exceed flood control space before Rome has crested, powerhouse releases which are less than inflow and do not violate the Rome 25 foot stage may be made until either the stage at Rome has peaked or greater (surcharge) releases are required (see Flood Zone E) to protect the structure. Floodwaters will be evacuated by regular scheduled hydropower releases which do not violate bankfull flows. Normally, the schedule will be to remove the floodwater within two weeks. A faster evacuation may be scheduled if additional rainfall is expected in the next several days.

<u>Flood Zone A (lowest)</u> - Only minimum continuous release will ordinarily be made while Rome stage is above or expected to rise above 25 feet. This zone has the least urgency for being evacuated. It is allowable to take several weeks to evacuate zone A. The pool is allowed to rise to elevation 842 feet NGVD29 in the summer weekends without releases above the minimum 240 cfs. During dry periods, water may be retained indefinitely in zone A as a precaution for possible droughts.

Table 7-4. Top of Flood Action Zone Elevations, Allatoona Lake

Date	Elevation (feet NGVD29)						
Dute	Top of Zone A	Top of Zone B	Top of Zone C	Top of Zone D			
1 Jan	827	834	840	844			
28 Feb	835.47	837.91	840	844			
31 Mar	840	840	842.04	846.70			
1 May	842	842	844.02	849.30			
1 Jun	842	842	846	852			
30 Sep	842	842	846	852			
1 Nov	839.1	839.1	842.35	851.82			
20 Nov	835.27	837.49	840	848.44			
15 Dec	830.23	835.36	840	844			
31 Dec	827	834	840	844			

- a. <u>Induced Surcharge Operations</u>. If current pool levels and inflow rates indicate that runoff from a storm will appreciably exceed the storage capacity remaining below elevation 860 feet NGVD29; the flood risk management operation will be directed by the induced surcharge curves shown on Plate 7-3. Figure 7-1 provides guidance for initiating induced surcharge releases and Table 7-5 describes the operating procedures. This schedule follows the objectives set forth in EM 1110-2-3600 as follows:
 - 1) Peak rate of reservoir release during damaging floods should not exceed peak rates of the corresponding floods that would have occurred under runoff conditions prevailing before construction of the reservoir.
 - 2) The rate of increase in reservoir releases during significant increment of time should be limited to values that would not constitute a major hazard to downstream interests.

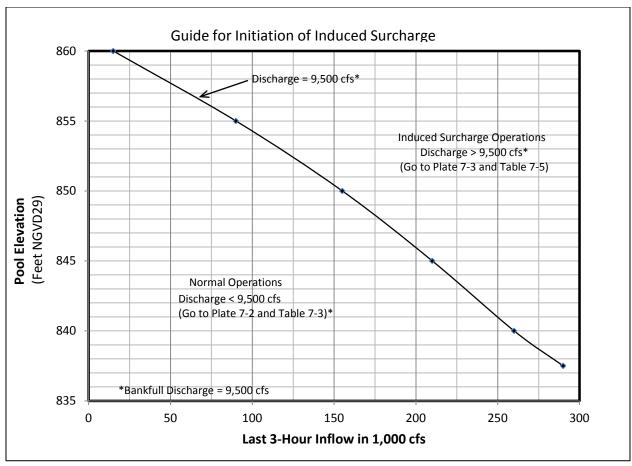


Figure 7-1. Guide for Initiation of Induced Surcharge

Table 7-5. Induced Surcharge Operating Instructions

- (1) Follow regular flood risk management regulation schedule until larger releases are required by this schedule. When pool rises to 859.5 feet NGVD29, pass the inflow up to 9,500 cfs (channel capacity), unless larger releases are required by the surcharge schedule.
- (2) Adjust the outflow each hour on the basis of the average inflow for the preceding 3 hours and the current reservoir elevations indicated by the curves. The 3-hour inflow may be increased if the forecasted inflows increase appreciably and would cause a flood wave downstream due to much higher releases in the next hour. Do not decrease gate settings as long as pool is rising.
- (3) After the reservoir elevation starts to fall, maintain the current gate opening until the pool level recedes to elevation 859.5 feet NGVD29, then pass inflow or release at the maximum allowable rate under the regular flood risk management regulation schedule, whichever is greater. Normal operations should be followed once the inflow drops below 9,500 cfs.
- (4) Discharge may be made through turbines and/or spillway. The two large turbines release a combined discharge of 6,500 cfs.

A lower outflow can be released in the earlier stages of the flood event if there is a possibility that the flood wave would create a hazard downstream; however, a release up to channel capacity of 9,500 cfs would be feasible before the actual use of the induced surcharge curve if weather and flow conditions indicate a need to postpone the rapid increase of discharge shown in the induced surcharge curve.

The gate operating machinery is provided with limit switches which will open gates in 0.5 foot increments up to a 12-foot opening. In following the induced surcharge schedule, the gates will be opened as uniformly as practicable with no gate opening more than 0.5 foot larger than any other gate opening.

An example of induced surcharge operations is the routing of the spillway design flood through the reservoir. This is shown on Plate 7-4. The maximum pool elevation is 872.1 feet NGVD29 as compared with 870.2 feet NGVD29 for the original induced surcharge plan and 868.4 feet NGVD29 for the constant pool operating plan. Special considerations of spillway gate openings after a probable maximum flood (PMF) are based upon concerns about the safety of Allatoona Dam. Under current induced surcharge operations, the last gate openings are maintained until pool levels recede to 859.5 feet NGVD29. Then, the greater of the inflow or the maximum allowable under the regular flood risk management schedule, are released.

The routing of another large flood, the Standard Project Flood, (SPF) is shown on Plate 7-5 and is an example of the induced surcharge operation which is less severe than the PMF. The SPF will exceed the maximum flood stage of 863 feet NGVD29 for buildings on Federal lands within Allatoona Lake.

Allatoona has only been in an induced surcharge operation one time since the project was constructed. This occurred in 1964 as a result of a series of floods with very little flood evacuation between the storms. The resulting pool level reached elevation 861.19 feet NGVD29. The April 1979, March 1990, and September 2009 floods are examples where induced surcharge operations were not used. The 16-18 March 1990, flood at Rome, Georgia, is a good example of the usage of the flood storage pool at the Allatoona Project to reduce flood damages downstream. The retention of the 40,700 cfs daily peak inflow into Allatoona Lake reduced the natural Rome, Georgia, river stage by seven feet and by 17 feet at Kingston, Georgia. The rainfall of 5.3 inches on 16-17 March 1990, and the storing of water within the Allatoona Lake resulted in the inflow exceeding the releases from 17-23 March 1990. The resulting Allatoona pool reached elevation 855.82 feet NGVD29 and induced surcharge operations were not used. To date, the maximum one-day inflow into Allatoona Lake was 53,534 cfs, which occurred on 21 September 2009. The second highest one-day inflow was 45,845 cfs, which occurred on 3 February 1982. Examples of project operation during flood events are shown on Plates 4-1 thru 4-8.

- b. <u>Instructions for Spillway Gates and Sluices</u>. When it is necessary to release water other than through the turbines, the following instructions apply:
 - 1) If pool is above elevation 835.0 feet NGVD29 (spillway crest), the discharge will be made preferably through spillway gates. Discharge uniformly across spillway (or as nearly so as possible) by setting gates so that no gate opening is more than 0.5 foot larger or smaller than any other gate opening. Gates will be opened in the following order: 11, 1, 6, 8, 4, 10, 2, 7, 5, 3, 9: this order of operation will be reversed when closing. Gates are numbered in order across the spillway commencing with number 1 adjacent to the powerhouse. The spillway gates will be operated in accordance with the gate regulation schedule to ensure that the top of the gates remain out of the water. The gate operating schedule is shown on Plate 7-6.

2) When the pool is above elevation 835.0 feet NGVD29 and the required discharge cannot be maintained through spillway gates, or if the pool is below elevation 835.0 feet NGVD29, it will be necessary to discharge through the sluices. The four, 5'-8"x 10'-0" sluices will be opened in steps not exceeding five feet so that no sluice is opened more than five feet until all sluices are opened that amount. The sluices may be operated in any order. Sluice outflow capacity is shown on Plate 2-9. Short-time releases of 11,200 cfs may be made using the sluice gate as long as the tailwater does not exceed elevation 697.0 feet NGVD29 or causes overtopping of the sump wall in the future Unit #3 draft tube.

Flood risk management operations at Allatoona Dam reduce peak stages of the Etowah River below the dam downstream to its confluence with the Oostanaula River at Rome, Georgia. Unless induced surcharge operations govern, which is rare, releases of stored flood waters will not be made until Rome, Georgia, stage falls below flood stage which can take several weeks. During that period, the threat of additional rainfall may delay some releases.

Flood level reductions at Rome are primarily affected by the Allatoona Project with the Carters Project usually providing incidental flood stage reductions at Rome, Georgia. The flood operation also provides assistance in the flood risk management operation at Weiss Dam on the Coosa River by reducing the inflow into that project. Weiss Dam is described in detail in Appendix B of the Alabama-Coosa River Basin Master Water Control Manual and Carters regulation is described in Appendix H.

The extent that Allatoona can provide protection from a given storm depends on the rainfall distribution and movement, storm centering and flood characteristics, and the elevation of Allatoona Lake at the beginning of the flood event. Local area storms tend to be better managed since the local runoff below Allatoona Dam will have flowed through Weiss Dam before the flood evacuation releases are required from Allatoona Dam.

The flood risk management storage between pool levels 840 and 860 feet NGVD29 (302,580 acre-feet or 5.11 inches of runoff) would completely control a flood equal to 40 percent of the standard project flood. If the initial Allatoona pool were at elevation 823 feet NGVD29 (467,280 acre-feet or 7.89 inches of runoff) a flood equal to 62 percent of the standard project flood could be completely controlled at the dam. Since the beginning of operations, the maximum one-day inflow of 53,534 cfs occurred on 21 September 2009. Effects of reservoir regulation on the September, 2009 flood are shown on Plates 4-7 and 4-8. The second highest one-day inflow was 45,845 cfs, which occurred on 3 February 1982.

The observed maximum pool was 861.19 feet NGVD29 on 10 April 1964. This maximum elevation was reached in part because of a series of floods that limited the flood evacuation releases. For floods larger than the April, 1964 event, there is always the possibility that the induced surcharge curve (high pool and inflows) would be required to pass large flows downstream. In such a case, the project would provide less than maximum flood risk management at Rome and there could be flood damages around the lake since many facilities have been built based upon the 863 feet NGVD29 level. Effects of reservoir regulation on the April 1964 flood are shown on Plates 4-1 and 4-2.

Flood records since 1891 indicate that the highest pool level that would have occurred before 1950 would have been elevation 860.3 feet NGVD29 in July 1916.

7-06. Recreation. 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

becomes limited. Water management personnel are aware of recreational effects caused by 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. To classify recreation effects associated with conservation storage usage at Allatoona Lake, various impact levels have been identified. The impact levels are defined as pool elevations with associated effects on recreation facilities and exposure to hazards within the lake. The following are general descriptions of each impact level:

- a. <u>Initial Impact Level</u>. The Initial Impact Level is defined at lake elevation 837.0 feet NGVD29. This is the elevation at which the recreational usage and recreation-related economy will begin to notice impact. Swimming areas will be reduced in size. Private docks will need adjusting and some boating hazards may become evident in some areas of the reservoir. Marina concessionaires will begin to need to move docks and water related business will decline.
- b. <u>Recreation Impact Level</u>. The lake elevation of 835.0 feet NGVD29 is defined as the Recreation Impact Level. Recreation will be more severely affected at this level. All regular swimming areas will be exposed. Two boat ramps will be closed. Almost half of the private docks will be affected. Marina business will be severely reduced.
- c. Water Access Impact Level. The lake elevation of 828.0 feet NGVD29 is defined as the Water Access Impact level. It is at this level that the most severe effects on recreation begin to occur. At this level, only half of boat ramps will be usable. Private docks will be totally unusable. Hazards to navigation will be numerous. Marinas will have severe problems such as gas docks being grounded and some slips being unusable. There will be reduction in recreational business activity.

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

Many of the boat ramps become unusable as the lake level recedes. Table 7-6 lists end of ramp elevations for all boat ramps. Some work to extend and improve boat ramps has occurred when pool levels have been lowered during droughts, but much more work remains both by the Corps and local interests to retain lake access during periods of extreme drawdown.

Table 7-6. Elevation Where Boat Ramps Become Unusable

Public Ramps at Park Areas	Lowest ramp elevation at end of concrete	Public Ramps at Park Areas	Lowest ramp elevation at end of concrete
Allatoona Landing L&R	825.78	McKaskey	823.34
Bartow Carver	828.35	McKinney	822.75
Bartow C. Pk L	829.51	Old Hwy 41 #1 L	827.68
Bartow C. Pk R	822.01	Old Hwy 41 #1 R	822.43
Blockhouse L	812.79	Old Hwy 41 #3	828.83
Blockhouse C	816.39	Payne L	817.34
Blockhouse R	821.29	Payne C	821.36
Cherokee Co. Park	825.82	Payne R	830.39
Cherokee Mills L	819.04	819.04 Red Top Mtn. B/BR L	
Cherokee Mills C	823.19	Red Top Mtn. B/BR R	822.39
Cherokee Mills R	818.84	Sweetwater Camp/G	831.00
Clark Creek L & R	825.53	Tanyard	832.14
Cooper Branch L&R	822.71	Upper Stamp Ck.	832.50
Dallas Rd	831.43	Stamp Ck. D/U L&R	818.74
Galts Ferry L	822.41	Victoria (New) L&R	832.72
Galts Ferry C&R	816.59	Victoria Old L	829.77
Holiday Marina	826.75	Victoria Old R	824.31
Glade Marina	821.74	Websters Ferry	821.79
Knox Bridge	830.8	Wilderness Camp L&R	821.34
Little River	823.9		

7-07. Water Quality. The minimum required continuous release from Allatoona Dam is 240 cfs. This minimum release is accomplished by operating the small turbine-generator unit continuously. If the small unit is out of service, a spillway gate or sluice gate will be opened or one of the main hydropower units will be operated to meet minimum flow requirements. During long periods of only minimum flow release, it is advisable to periodically release some water from the large turbines. Doing so will help the turbine-generators stay in good operating condition. Current leakage from the powerhouse amounts to about 40 to 60 cfs and is not included in the minimum releases through the turbines. The resultant total continuous flow from the project ranges from 280 to 300 cfs.

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

15 March to 15 May is the expected timing for fish spawning at Allatoona Lake. The length of the spawning period depends on how rapidly temperatures increase after spawning begins, but in general, it varies from one to three weeks. During that period, the pool level should not be lowered more than six inches. Fish spawning operations are described in Division Regulation 1130-2-16, *Lake Regulation and Coordination for Fish Management Purpose*, dated 31 May 2010, and Mobile District's draft Standard Operating Procedure 1130-2-9, *Lake Reservoir Regulation and Coordination for Fish Management Purposes*, dated February 2005.

Operations for fish and wildlife do not supersede the normal operating procedure of maintaining the pool within the top of conservation. During a high-flow event, it might be necessary to decrease the pool by more than six inches to return the pool to within normal operating levels.

7-09. Water Supply. Under the authority of the Water Supply Act of 1958, the Corps has allocated storage in Allatoona Lake for municipal and industrial water supply by entering into contracts with two entities. The two entities that withdraw water from Allatoona Lake are the City of Cartersville, Georgia, under contracts DACW01-67-RE-002 (dated 12 July 1966) and DACW01-9-91-120 (dated 18 October 1991) and the Cobb County-Marietta Water Authority (CCMWA) under contract DA-01-076-CIVENG-64-116 (dated 10 October 1963). The City of Cartersville contracts provide for the use of a total of 2.24% (or 6,371 acre-feet) of the 284,580 acre-feet conservation storage (between 800 feet - 840 feet NGVD29) at Allatoona Lake (noted as 285,000 acre-feet in the contract) with an expected yield of 16.76 mgd. The CCMWA contract provides for the use of a total of 4.61% (or 13,140 acre-feet) of the 284,580 acre-feet conservation storage (between 800 feet - 840 feet NGVD29) at Allatoona Lake (noted as 285,000 acre-feet in the contract) with an expected yield of 34.5 mgd. The amounts of storage stated in these contracts were estimated, at the time the contracts were executed, to yield 16.76 mgd, and 34.5 mgd, respectively, during the critical drought, i.e., during the worst drought on record at the time the agreements were executed. The severity and frequency of droughts change over time, however, and more recent storage-yield analysis by the Corps has indicated that the estimated yield of Allatoona Lake storage has decreased.

For the purpose of managing water supply storage, the Mobile District has employed a storage accounting methodology that tracks multiple storage accounts, applying a proportion of inflows and losses, as well as direct withdrawals by specific users, to each account. The amount of water that may actually be withdrawn is ultimately dependent on the amount of water available in storage, which will naturally change over time.

Below are the state permitted withdrawals and contracted amounts.

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

The necessary data to determine water supply storage availability is received daily, with computations performed weekly during normal conditions, and daily under extreme drought conditions. This accounting is especially critical during drought, when available water supply storage is reduced and conservation measures or alternative sources may be necessary. The formula used to calculate water supply storage is shown below:

Ending Storage = Beginning Storage + Inflow Share - Loss Share - User's Usage. (with constraint that "Ending Storage" cannot be larger than User's total storage)

The conservation pool is drawn down as water usage exceeds inflow. The entire pool is drawn down and the individual accounts are also drawn down at different rates based on their usage. Users will be notified on a weekly basis of the available storage remaining, once their storage account balance drops below 30 percent.

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

Reservoir releases required for conservation, or flood risk management operations in Sections 7-03 through 7-09 will normally be used to produce hydropower. Such production is scheduled during peak energy demand hours throughout the week. Additional hydropower can be supplied according to the reservoir's zone. Table 7-2 describes the typical number of hours for hydropower production. Historical hydropower production is shown on Plates 2-12 and 2-13. Actual monthly and annual production is tabulated. The average annual production from 1961 through 2013 is 154,534 megawatt hours (MWH). The annual production ranged from a low of about 51,820 MWH in 2007 to a high of about 240,005 in 1973.

Energy generated at Allatoona Dam is delivered to SEPA to be marketed to the government's preference customers under terms of contracts negotiated and administered by SEPA. The generation (and water release) is based on a declaration of energy and capacity available that is prepared weekly by the Mobile District on the basis of the overall ACT water control plan. The declarations, which are designed to keep the pools within the established seasonal and pondage limits, where practicable, are prepared by the Water Management Section of the Mobile District and furnished to the South Atlantic Division (SAD) office for coordination of the hydropower projects within the Alabama-Georgia-South Carolina Power Marketing System. Actual daily and hourly scheduling of generation is coordinated by the Water Management Section, SEPA, and the hydropower customers. Local restraints can dictate generation during certain hours.

The weekly power declaration may be modified by the Mobile District during the week. Special emergency requirements for downstream flow for structural stability, water quality emergencies or other reasons can usually be met by quickly arranged powerhouse releases. However, when a powerhouse release cannot be arranged, spillway releases can be made to meet the requirement.

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

7-11. Navigation. Navigation is an authorized purpose of the Federal ACT System, and navigational flows were taken into account in updating the manual, including updating Allatoona operations. Due to the intervening APC projects, there are no specific reservoir regulation requirements to support navigation at Allatoona Dam. However, the seasonal variation in

reservoir storage does redistribute downstream flows and other operations at Allatoona provide a benefit to downstream navigation.

7-12. Drought Contingency Plan. ER 1110-2-1941, *Drought Contingency Plans*, dated 15 September 1981, called for developing drought contingency plans for Corps' reservoirs. For the Allatoona Project, the Corps will coordinate water management during drought with other Federal agencies, private power companies, navigation interests, the states, and other interested state and local parties as necessary. Drought operations will be in compliance with the plan for the entire ACT Basin as outlined in Exhibit D, and summarized below. The plan includes operating guidelines for drought conditions and normal conditions.

In response to the 2006 - 2008 drought, APC worked closely with the State of Alabama to develop the APC draft *Alabama Drought Operations Plan* (ADROP) that specified operations at APC projects on the Coosa and Tallapoosa Rivers. The plan included the use of composite system storage, state line flows, and basin inflow as triggers to drive drought response actions. Similarly, in response to the 2006 - 2008 drought, the Corps recognized that a basin-wide drought plan must incorporate variable hydropower generation requirements from its headwater projects in Georgia (Allatoona Lake and Carters Lake), 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.

Based upon experience gained during previous droughts, and in particular the 2006 - 2008 drought, a basin-wide drought plan composed of three components - headwater operations at Allatoona Lake and Carters Lake in Georgia; operations at APC projects on the Coosa and Tallapoosa Rivers; and downstream operations at Corps projects below Montgomery, Alabama, has been developed. The concept is graphically depicted in Figure 7-2 with the specifics shown on Table 7-7.

	ACT Basin Drought Plan					
<u>Headwater</u> <u>Operations</u>	APC Operations <u>Downstream Operations</u>					
Allatoon Carters	Weiss HN Henry Logan Martin Harris Lay RF Millers Henry Ferry Claiborne					
	Mitchell Jordan/Bouldin Martin Yates Thurlow					
<u>State of</u> <u>Georgia</u> <u>Drought Plan</u>	State of Alabama Drought Plan					

Figure 7-2. Schematic of the ACT Basin Drought Plan

- a. <u>Headwater Operations for Drought at Allatoona Lake and Carters Lake</u>. Drought operations at Carters Lake and Allatoona Lake consist of progressively reduced hydropower generation as pool levels decline. For instance, when Allatoona Lake is operating in normal conditions (Zone 1 operations), hydropower generation would be zero to four hours per day. However, as the pool drops to lower action zones during drought conditions, generation would be reduced to zero to two hours per day. As Carters Lake pool level drops into Zone 2, minimum target flows would be reduced from seasonal varying values to 240 cfs.
- b. Operations at APC Projects on the Coosa, Tallapoosa, and Alabama Rivers. Under current operations, APC provides a combined minimum flow of 4,640 cfs (seven-day average) from the Bouldin, Jordan, and Thurlow Projects on the Tallapoosa and Coosa Rivers. The

minimum flow target of 4,640 cfs was originally derived from the 7Q10 flow at Claiborne Lake of 6,600 cfs. Those flows were established with the understanding that if APC provided 4,640 cfs, the Corps and intervening basin inflow would be able to provide the remaining water to meet 6,600 cfs at Claiborne Lake. However, as dry conditions continued in 2007, water managers realized that, if the basin inflows from rainfall were insufficient, the minimum flow target would not likely be achievable. Therefore, in coordination with APC, drought operations for the middle reaches of the ACT Basin have been revised and are described below.

The ADROP served as the initial template for developing proposed drought operations for the APC Drought Operation Plan (APCDOP) and ACT Basin. APCDOP operational guidelines for the Coosa, Tallapoosa, and Alabama Rivers have been defined in a matrix, 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). The DIL increases as more of the drought indicator thresholds (or triggers) occur. The APCDOP matrix defines monthly minimum flow requirements for the Coosa, Tallapoosa, and Alabama Rivers as a function of DIL and time of year. Such flow requirements are modeled as daily averages.

The combined occurrences of the drought triggers determine the DIL. Three intensity levels for drought operations are applicable to APC projects.

- DIL1 (moderate drought) one of three triggers occur
- DIL2 (severe drought) two of three triggers occur
- DIL3 (exceptional drought) all three triggers occur

Table 7-7. ACT Basin Drought Management Matrix

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
e _a t						Normal Opera						
Drought Level Response ^a	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)											
rou Lev			DIL	2: DIL 1 criteria -	F (Low B	asın Inflows or Lo	w Compos	ite or Low	State Line	Flow)		
Re	DIL 3: Low Basin Inflows + Low Composite + Low State Line Flow											
٧ ^b	Normal C	Operation:	2,000 cfs	4,000 (8,00	0)	4,000 – 2,000		No	rmal Oper	ation: 2,00	0 cfs	
r Flov	Jord	lan 2,000 +	-/-cfs	4,000 +/-	cfs	6/15 Linear Ramp down	Jord	an 2,000 +	-/-cfs	Jor	dan 2,000	+/-cfs
Rive	Jordan 1	,600 to 2,0	000 +/-cfs	2,500 +/-	cfs	6/15 Linear Ramp down	Jord	an 2,000 +	-/-cfs	Jordan	1,600 to 2,	000 +/-cfs
Coosa River Flow ^b	Jordan 1,600 +/-cfs		Jordan 1,	,600 to 2,000 +/-cfs		Jord	lan 2,000 +/-cfs		I lordan 1 600 to I 3		Jordan 1,600 +/- cfs	
_	Normal Operations: 1200 cfs											
Tallapoosa River Flow [¢]	Greater of: 1/2 Yates Inflow or 2 x Heflin Gage(Thurlow Lake releases > 350 cfs)				1/2 Yates Inflow			1/2 Yates Inflow				
0 P		Thurlow	/ Lake 350	cfs		1/2 Yates Inflow			Thurlow Lake 350 cfs		50 cfs	
	Maintain 400 cfs at Mo (Thurlow Lake relea							Maintain 400 cfs at Montgomery WTP (Thurlow Lake release 350 cfs)				
er	Normal Operation: Navigation or 7Q10 flow											
ᇎ	4,200 (cfs (10% 7	Q10 Cut) -	Montgomery	7Q10 - Montgomery (4,640 cfs)			Reduce: Full – 4,200 cfs				
Alabama River Flow ^d	3,700 cfs (20% 7Q10 Cut) - Montgomery				4,200 cfs (10% 7Q10 Cut) - Montgomery		Reduce: 4,200 cfs-> 3,700 cfs Montgomery (1 week ramp)					
Alab	2,000 cfs Montgomery					3,700 cfs lontgomery	4,200 cfs (10% 7Q10 Cut) - Reduce: 4,200 cf Montgomery Montgomery (1					
on			Normal Op	perations: Elevat	ions follo	ow Guide Curves a	as prescrib	ed in Licer	nse (Measu	ured in Fee	t)	
Guide Curve levatio				•		As Needed; FER						
Guide Curve Elevation						As Needed; FER						
Ш	Corps Variances: As Needed; FERC Variance for Lake Martin											

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

<sup>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</sup> daily average at Heflin or Yates. d. Alabama River flows are 7-Day Average Flow.

The indicators used in the APCDOP to determine drought intensity include the following:

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

Each of the indicators is described in detail below.

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 operations.

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, part of the year, the required flow is the greater of one-half of the inflow into Yates Lake and twice the Heflin USGS gage. 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 when DIL=0.

For DIL=2, the Coosa River flow varies from 1,800 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's water supply intake. Required flows on the Alabama River range from 2,000 cfs to 4,200 cfs

In addition to the APCDOP, the DIL affects the navigation operations. During normal operating conditions, APC projects are operated to meet the navigation flow target or 4,640 cfs, whichever is greater. Once DIL is greater or equal to one, drought operations will occur, and navigation operations are suspended.

c. <u>Low Basin Inflow Trigger</u>. The total basin inflow needed for navigation is the sum of the total filling volume plus 4,640 cfs. Table 7-8 lists the monthly low basin inflow criteria. All numbers are in cfs-days. 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 the 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 7-3 illustrates the local inflows to the Coosa and Tallapoosa River Basin. 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.

Month	Coosa Filling Volume	Tallapoosa Filling Volume	Total Filling Volume	Minimum JBT Target Flow	Required Basin Inflow
Jan	628	0	628	4,640	5,268
Feb	626	1,968	2,594	4,640	7,234
Mar	603	2,900	3,503	4,640	8,143
Apr	1,683	2,585	4,269	4,640	8,909
May	248	0	248	4,640	4,888
Jun			0	4,640	4,640
Jul			0	4,640	4,640
Aug			0	4,640	4,640
Sep	-612	-1,304	-1,916	4,640	2,724
Oct	-1,371	-2,132	-3,503	4,640	1,137
Nov	-920	-2,748	-3,667	4,640	973
Dec	-821	-1,126	-1,946	4,640	2,694

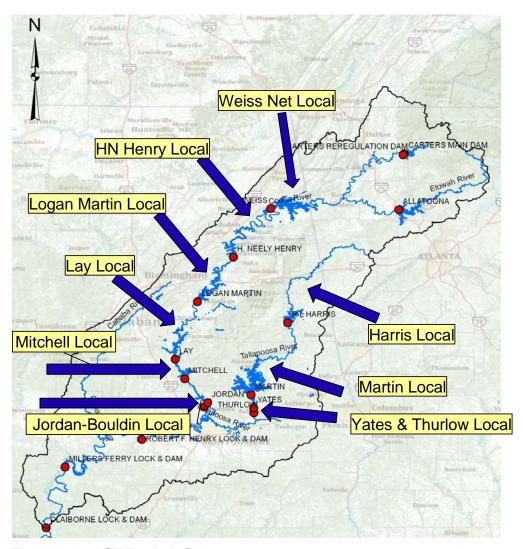


Figure 7-3. ACT Basin Inflows

d. Low State Line Flow Trigger. 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 seven-day period that would occur once in 10 years. Table 7-8 lists the Mayo's Bar 7Q10 value for each month based on flows from 1949 - 2006. The lowest seven-day average flow over the past 14 days is computed and checked at the first and third Tuesday of the month. If the lowest seven-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 7-9, 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 *targets* exist at that geographic location. The APCDOP does not include or imply any Corps operation that would result in water management decisions at Carters Lake or Allatoona Lake.

Table 7-9. APC Drought Operations Plan - State Line Flow Trigger

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

e. <u>Low Composite Conservation Storage in APC Projects Trigger</u>. 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 Projects. Figure 7-4 plots the APC composite zones. Figure 7-5 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.

The computation is performed on the first and third Tuesday of each month, and is compared to the low state line flow trigger and basin inflow trigger.

APC has two additional guide curves; the drought contingency curve and the operating inactive curve. The drought contingency curve is used to trigger drought operation at the project and is a component of the Low Composite Storage Trigger. The operational inactive curve reflects the level of storage required to support an APC system limit for 12 hours of hydropower generation needed for system reliability (black start operations). While these curves are not labeled as action zones, they have a similar purpose.

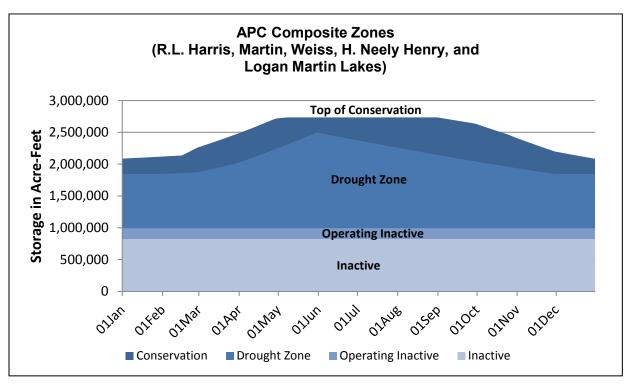


Figure 7-4. APC Composite Zones

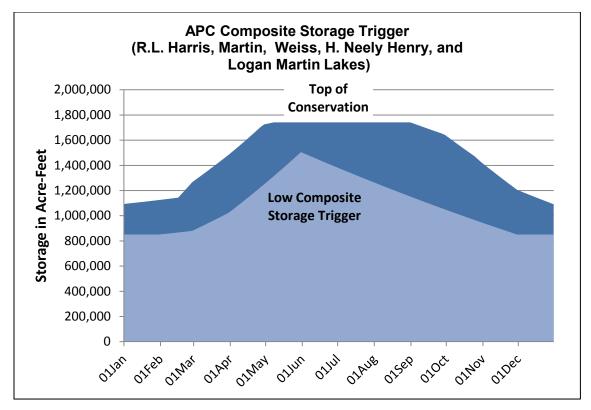


Figure 7-5. APC Low Composite Conservation Storage Drought Trigger

- f. Operations for Corps Projects Downstream of Montgomery. Drought operations of the Corps' Alabama River projects (R.E. "Bob" Woodruff Lake [Robert F. Henry Lock and Dam], and William "Bill" Dannelly Lake [Millers Ferry Lock and Dam]) will respond to drought operation of the APC projects. When combined releases from the APC Bouldin, Jordan, and Thurlow Projects are reduced to 4,640 cfs, the Corps' Alabama River projects will operate to maintain a minimum flow of 6,600 cfs below Claiborne Lake. When the APCDOP requires flows less than 4,640 cfs, the minimum flow at Claiborne Lake is equal to the inflow into Millers Ferry Lock and Dam. There is inadequate storage in the Alabama River projects to sustain 6,600 cfs, when combined releases from the APC projects are less than 4,640 cfs.
- g. <u>Summary of Potential Drought Management Measures</u>. Management measures developed for ACT Basin-wide drought operations consist of three major components:
 - Headwater operations at Allatoona Lake and Carters Lake in Georgia
 - Operations at APC projects on the Coosa and Tallapoosa Rivers
 - Operations at Corps projects downstream of Montgomery
- **7-13. Flood Emergency Action Plans**. The Corps is responsible for developing Flood Emergency Action Plans for the ACT System. The plans are included in the Operations and Maintenance Manuals for each system project. Example data available include emergency contact information and flood inundation information.
- **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.

- a. <u>Regulation during Low Flows</u>. There is a 240 cfs minimum release requirement at the Allatoona Project. With normal seepage from the project, the actual minimum flow released to meeting the minimum flow is around 300 cfs.
- b. <u>Correlation with Other Projects</u>. Weiss Dam below Rome, Georgia, the levee system in the Rome area, and Carters Dam above Rome are affected in varying degrees by operations at Allatoona Dam. Flood risk management operations at Allatoona, Carters and Weiss Dams during the rising phase of a flood will normally be independent of each other. Following a flood, the emptying of flood storage at Allatoona may prolong the time required to evacuate flood storage at Weiss Dam. Allatoona releases will be made so as to minimize any undesirable conditions that might be created by the emptying operation and maintain its flood risk management objective at Rome. The Corps and APC have established regular and rapid exchange of data concerning the two projects to ensure the fullest coordination of operations.

The levee system at Rome, Georgia was built by the Corps for the protection of the Fourth Ward in Rome and the floodplain area north of the Coosa and west of the Oostanaula Rivers. The top of the levee is at elevation 605 feet NGVD29, corresponding to a stage of 43.3 feet on the NWS gage at the 5th Avenue Bridge across the Oostanaula River. Since flow from Allatoona Dam will ordinarily be curtailed whenever a stage of 25 feet or higher is expected, close coordination between outflows from the Allatoona and Carters Projects is required. As a general rule, the Allatoona flood inflows will be stored longer than the Carters flood inflows because Allatoona has a larger flood risk management storage and a shorter routing time to Rome, Georgia.

A major thermal-electric generating facility is located on the Etowah River near Euharlee, Georgia, about 16 miles downstream of Allatoona Lake. Plant Bowen generates a large portion of the power supply of Georgia. The Etowah River is the source of cooling water for the plant and during very dry periods, water releases from Allatoona may be necessary to assure sufficient flow in the Etowah River to allow for cooling water withdrawals. Under extreme low flow conditions, hydropower operations may be made over a 7-day period to keep Rome, Georgia Etowah River water intake submerged over the weekend

7-15. Deviation From Normal Regulation. The District Commander is occasionally requested to deviate from normal regulation. Prior approval for a deviation is required from the Division Engineer except as noted in subparagraph a below.

Deviation requests usually fall into the following categories:

- a. <u>Emergencies</u>. 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. The Mobile District will notify the SAD office as soon as practicable.
- b. <u>Declared System Emergency</u>. A Declared System Emergency can occur when there is a sudden loss of power within the electrical grid and there is an immediate need of additional power generation capability to meet the load on the system. In the Mobile District, a system emergency can be declared by the Southern Company or the Southeastern Power Administration's Operation Center. Once a system emergency has been declared, the requester will contact the project operator and request generation support. The project operator will then lend immediate assistance within the projects operating capabilities. Once support has been given, the project operator should inform the Mobile District Office immediately. The responsibilities and procedures for a Declared System Emergency are discussed in more detail

in Division Regulation Number 1130-13-1, *Hydropower Operations and Maintenance Policies*. It is the responsibility of the District Hydropower Section and the Water Management Section to notify SAD Operations Branch of the declared emergency. The Division Operations Branch should then coordinate with SEPA, District Water Management, and the District Hydropower section on any further actions needed to meet the needs of the declared emergency.

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

VIII - EFFECT OF WATER CONTROL PLAN

8-01. General. Allatoona Dam and Lake was authorized as part of the general plan for the full development of the ACT River Basin as described in House Document No. 674, 76th Congress, 3rd Session, published in 1940. That report recommended the construction of Allatoona Dam and Reservoir as a multipurpose project including flood control, hydropower, and navigation. Along with the purposes specified in its authorizing documents, several other project purposes have been authorized at Allatoona through other congressional legislation including recreation, fish and wildlife conservation, water quality, and municipal and industrial (M&I) water supply.

The impacts of the ACT Master Water Control Manual and its Appendices, including this water control manual have been fully evaluated in an Environmental Impact Statement (EIS) that was published on November 2014. A Record of Decision (ROD) for the action was signed on May 2015. During the preparation of the EIS, a review of all direct, secondary and cumulative impacts was made. As detailed in the EIS, the decision to prepare the Water Control Manual and the potential impacts was coordinated with Federal and State agencies, environmental organizations, Indian tribes, and other stakeholder groups and individuals having an interest in the basin. The ROD and EIS are public documents and references to their accessible locations are available upon request.

- **8-02. Flood Risk Management**. One of the major benefits of the water control operations at the Allatoona Project is flood risk management. Allatoona Lake contains storage space in which flood water is stored and later released in moderate amounts to prevent downstream flooding. During most years, one or more flood events occur in the ACT Basin. While most of those events are of minor significance, on occasion, major storms produce widespread flooding or unusually high river stages. Major flooding has occurred in April 1964 (reached maximum pool elevation of record of 861.19 feet NGVD29), April 1979, March 1990, and September 2009. Flood risk management operations at Allatoona Dam reduce the peak stages of the Etowah River below the dam downstream to its confluence with the Oostanaula River at Rome, Georgia. While those four floods also resulted in considerable damage, a total of more than \$169 million in estimated damages was prevented by Allatoona Lake from all flooding events between 1986 and 2013 as a result of flood risk management operations.
- a. <u>Spillway Design Flood</u>. Spillway Design Floods (SDF) is the criteria used by the Corps to design the spillway on a dam to prevent its overtopping due to the occurrence of an extremely rare flood event. The basis of the SDF is the Probable Maximum Precipitation (PMP) defined in the National Weather Service Hydrometeorological Report Nos. 51 and 52. The SDF total rainfall was 30.7 inches with a total storm runoff of 25.3 inches. The pattern was computed by centering the hypothetical storm over the drainage area above the dam site to get the largest runoff at the dam site. The SDF is not assigned a frequency of occurrence. The PMP was started with the pool at elevation 859.5 feet NGVD29 with only the spillway gates being used to pass inflows. After the pool starts to fall, the gate openings are maintained until the pool reaches elevation 859.5 feet NGVD29. At that point, the outflows are gradually reduced until the channel capacity of 9,500 cfs is reached. The SDF has a peak pool elevation of 872.1 feet NGVD29 feet with a maximum inflow and discharge of 382,000 and 333,000 cfs. This elevation is 37.1 feet above the crest of the spillway at elevation 835.0 feet NGVD29 and 7.9 feet below the top of the dam at elevation 880.0 feet NGVD29. Effects of reservoir regulation on the spillway design flood are shown on Plate 7-4.
- b. <u>Standard Project Flood</u>. The Standard Project Flood (SPF) is a theoretical flood, based on rainfall criteria, that would be reasonably possible and has been used in hydrologic analyses

of reservoirs and river reaches. The basis of the SPF is one-half of the flow of the Spillway Design Flood. Perhaps, one could use one half of the PMP total rainfall and runoff for an estimate of the SPF rainfall and runoff amounts. The routing of the SPF assumes a normal flood risk management operation in which flood waters are retained and discharged as downstream channel capacity permits. A large flood was assumed to have occurred a week before the SPF. Thus, surcharge releases would occur early in the SPF. The SPF is not assigned a frequency of occurrence and is only used as a comparison in any dischargefrequency analysis. The SPF has a peak inflow of 183,700 cfs and produces a pool elevation of 864.7 feet NGVD29. The maximum discharge is 180,000 cfs. This pool elevation is 29.1 feet above the crest of the spillway at elevation 835.0 feet NGVD29 and 15.9 feet below the top of the dam at elevation 880.0 feet NGVD29. Maximum flows at Cartersville, Kingston, and Rome (GA 1 Loop) gages would be near 192,000 cfs. The antecedent flood added 6,000 cfs to the baseflow of the SPF and started the pool at elevation 854.0 feet NGVD29. The effects of reservoir regulation on the SPF are depicted on Plate 7-5. Table 8-1 presents data for both the SDF and the SPF floods. In Table 8-1, natural flows are those flows that would occur without the presence of Allatoona Dam. The reservoir inflows account for the presence of the dam and reservoir. These flows are slightly higher because the reservoir is an impervious surface and increases the amount of run-off measured at the dam site.

Design floods Flood Natural Reservoir Reservoir Pool Cartersville Kingston Rome Flow Event Inflow Inflow Outflow Elevation Flow Flow Spillway Design 280,000 382,000 333,000 872.1 342,000 343,000 345,000 Standard Project 140,000 184,000 192,000 192,000 192,000 180,000 864.7

Table 8-1. Design Floods

c. <u>Historic Floods</u>. Significant floods occurred in April 1964, April 1979, March 1990 and September 2009. Effects of flood risk management operations for three of these floods are shown in Table 8-2. The effects of reservoir regulation on the 1964, 1979, 1990, and 2009 floods are shown on Plates 4-1 through 4-8.

	Historic Floods						
Allato	ona	Carte	ersville	King	ston	Ror	me
Peak Inflow (cfs)	Peak outflow (cfs)	Observed Stage Feet	Stage Stage		Natural Stage Feet	Observed Stage Feet	Natural Stage Feet
Flood of April 19							
34,000	12,000	18	18 28		25	28	33
			Flood of A	pril 1979			
41,000	7,800			20	33	33	40
	•		Flood of Ma	arch 1990			•
46,000	9,000			22	38	35	38

Table 8-2. Historic Floods

The September 2009 flood is of special interest for a variety of reasons. It occurred at the end of an extended low flow period, the lake level was relatively low, the storm was large, and

the greatest rainfall was above the dam. The daily inflow for this flood is the highest of record (53,534 cfs). Reservoir regulation reduced downstream flows to about a third of natural flow. Table 8-3 lists the reductions for this flood. Plates 4-7 and 4-8 show the reservoir regulation and downstream effects for the 2009 flood event.

Effects of reservoir regulation on flood of September 2009						
Location	Peak Date & Time	Observed Flow (cfs)	Observed Stage (ft)	Computed Natural Flow (cfs)	Computed Natural Stage (ft)	Stage Reduction (ft)
Kingston	9/22/2009 @ 0300	19,100	16.7	75,200	32.5	15.8
Resaca	9/25/2009 @ 0500	13,300	18.9	62,700	20.7	1.75
Rome-Etowah	9/21/2009 @ 1830	19,700	29.9	70,100	57.2	27.75
Rome-Coosa	9/22/2009 @ 1800	28,200	23.9	77,800	38.5	14.6

Table 8-3. Effects of Reservoir Regulation on September 2009 Flood

8-03. Recreation. Allatoona Lake is an important recreational resource, providing significant economic and social benefits for the region and the nation. The project contains 11,862 acres of water at the summer conservation pool elevation of 840 feet NGVD29, plus an additional 37,683 acres of land, most of which is available for public use. A wide variety of recreational opportunities are provided at the lake including boating, fishing, camping, picnicking, water skiing, hunting, and sightseeing. Mobile District park rangers and other project personnel conduct numerous environmental and historical education tours and presentations, as well as water safety instructional sessions each year for the benefit of area students and project visitors. Allatoona Lake is one of the most visited Corps lake in the United States; averaging almost seven million recreational visits per year. The local and regional economic benefits of recreation at Allatoona Lake are significant. Annual recreational visitor spending within 30 miles of the project totals \$144.66 million.

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

- a. <u>Initial Impact Level</u>. Reduced swim areas, some recreational navigation hazards are marked, boat ramps are minimally affected, a few private boat docks are affected.
- b. <u>Recreation Impact Level</u>. All swim areas are unusable, recreational navigation hazards become more numerous, boat ramps are significantly affected, 20 percent of private boat docks are affected.
- c. <u>Water Access Impact Level</u>. Most water-based recreational activities are severely restricted, most boat ramps are unusable, and navigation hazards become more numerous, 50 percent of private boat docks are affected. Table 8-4 shows the lake elevation for each impact level and the percent of time over a 70-year simulation of the proposed operation that each impact level would be reached at Allatoona Lake.
- d. Allatoona Lake also has a High Water Action Plan that establishes guidelines to determine areas impacted by high water levels during the normal recreation season and the actions to be taken by Operations personnel for each stage.

Table 8-4. Reservoir Impact Levels - Allatoona Lake

837.0 Feet initial impact level	835.0 Feet recreation impact level	828.0 Feet water access limited impact level
68%	56%	20.4%

8-04. Water Quality. The water quality conditions that are generally present in Allatoona Lake are typical of water quality conditions and trends that exist in reservoirs throughout the ACT Basin. Water quality conditions in the main body of the reservoir is typically better than in the arms of the reservoir because of nutrient and sediment-rich, riverine inflows. Sediment and phosphorus concentrations are also highest in the upper arms and decrease toward the main pool as velocity is lowered and sediment is removed from suspension. During summertime thermal stratification of Allatoona Lake, dissolved oxygen levels and water temperatures are typically highest in the top 15 feet of the reservoir, with colder, anoxic or nearly anoxic conditions existing near the bottom. Additionally, chlorophyll a concentrations vary both seasonally and spatially and are highest from July to October during periods of low flow. Point and nonpoint sources from urban areas increase sediment and pollutant loads in the rivers immediately downstream. Reservoirs in the ACT Basin, including Allatoona Lake, typically act as a sink, removing pollutant loads and sediment. The mid-lake and dam forebay portions of Allatoona Lake meet all designated water use criteria. Both the Etowah River and Little River embayment sections of Allatoona Lake are listed on the 2012 draft Integrated 305(b) and 303(d) list because of chlorophyll a impairment. The chlorophyll a draft TMDL was completed in 2009, and a fecal coliform TMDL was completed in 2004. The reservoir is transitioning from mesotrophic to eutrophic because of the influx of phosphorus nutrients. Phosphorus levels have increased in the reservoir and its tributaries because of increases in urban lands and broiler and beef cattle production. Dissolved oxygen in the tailwaters of Allatoona Dam drops below 4 mg/L during the summer and through early fall, and can reach as low 1 mg/L.

8-05. Fish and Wildlife.

- a. <u>Fish Spawning</u>. In developing the action zones for Allatoona Lake's water control plan, the needs of fish spawning was a factor influencing the selected elevations for each zone. The plan improves the ability to maintain steady reservoir levels during the spring fish spawning period, provide a gradual ramp down of river levels to prevent stranding endangered species, and to ensure adequate flows in the river to support threatened and endangered species. The Corps operates the ACT System to provide favorable conditions for annual fish spawning, both in the reservoirs and in the rivers. During the fish spawning period for Allatoona Lake, March 15 to May 15, the Corps' goal is to operate for a generally stable or rising lake level and a stable or gradually declining river stage for approximately four to six weeks during the designated spawning period. When climatic conditions preclude a favorable operation for fish spawning, the Corps consults with the state fishery agencies and the USFWS on balancing needs in the system and minimizing the effects of fluctuating lake or river levels. Operations for fish spawning help to increase the population of fish in the basin and attempt to offset the changed hydrology resulting from the installation of the dams.
- b. Threatened and Endangered Species. The ACT System of reservoirs, including Allatoona Lake, is operated to comply with the Endangered Species Act of 1973. The USFWS by letter dated 20 March 2014, concurred that operation of the project, along with the other ACT projects would either have no effect or may affect but be not likely to adversely affect listed species in the basin. The Etowah River originates as a high-gradient stream in the Blue Ridge province of the Southern Appalachian Mountains and flows approximately 69 miles westward through Piedmont upland to Allatoona Lake. Habitat loss and modifications resulting from

impoundments, timbering, agriculture, gold mining, and urban development have caused at least 35 mussel species and seven fish species to be extirpated from the Etowah River subbasin. The upper mainstem and tributaries of the Etowah River support the federally endangered Amber darter and Etowah darter, and the federally threatened Cherokee darter.

The lower Etowah River extends 48.6 miles from the Allatoona Dam and Lake to its confluence with the Oostanaula River, forming the Coosa River in Rome, Georgia. Historically, the lower Etowah River contained more than 91 native fish species, including lake sturgeon and at least 51 mussel species. Most Federal and state endangered fish species are found in the upper Etowah River (above Allatoona Lake) and to a lesser extent in the lower Etowah River. Currently, only the Etowah Darter, listed as Endangered by the USFWS is found in the main stem of the Etowah River downstream of Allatoona Dam. Other listed species have been documented in downstream tributaries.

In 1996, American Rivers' list of the top 10 most endangered river systems in the United States included the Etowah River. The diversity of fish and mussels in the Etowah River is equal to the Conasauga River, which was considered to have the highest biodiversity in the Coosa River drainage area.

8-06. Water Supply. Under the authority of the Water Supply Act of 1958, the Corps has allocated storage in Allatoona Lake for municipal and industrial water supply by entering into contracts with two entities. The two entities that withdraw water from Allatoona Lake are the City of Cartersville, Georgia, under contracts DACW01-67-RE-002 (dated 12 July 1966) and DACW01-9-91-120 (dated 18 October 1991) and the Cobb County-Marietta Water Authority (CCMWA) under contract DA-01-076-CIVENG-64-116 (dated 10 October 1963). The City of Cartersville contracts provide for the use of a total of 2.24 percent (or 6,371 acre-feet) of the 284,580 acre-feet conservation storage (between 800 feet - 840 feet NGVD29) at Allatoona Lake (noted as 285,000 acre-feet in the contract) with an expected yield of 16.76 mgd. The CCMWA contract provides for the use of a total of 4.61 percent (or 13,140 acre-feet) of the 284,580 acre-feet conservation storage (between 800 feet – 840 feet NGVD29) at Allatoona Lake (noted as 285,000 acre-feet in the contract) with an expected yield of 34.5 mgd. The amounts of storage stated in these contracts were estimated, at the time the contracts were executed, to yield 16.76 mgd, and 34.5 mgd, respectively, during the critical drought, i.e., during the worst drought on record at the time the agreements were executed. The severity and frequency of droughts change over time, however, and more recent storage-yield analysis by the Corps has indicated that the estimated yield of Allatoona Lake storage has decreased.

For the purpose of managing water supply storage, the Mobile District has employed a storage accounting methodology that tracks multiple storage accounts, applying a proportion of inflows and losses, as well as direct withdrawals by specific users, to each account. The amount of water that may actually be withdrawn is ultimately dependent on the amount of water available in storage, which will naturally change over time.

Below are the state permitted withdrawals and contracted amounts.

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

The necessary data to determine water supply storage availability is received daily, with computations performed weekly during normal conditions, and daily under extreme drought conditions. This accounting is especially critical during drought, when available water supply

storage is reduced and conservation measures or alternative sources may be necessary. The formula used to calculate water supply storage is shown below:

Ending Storage = Beginning Storage + Inflow Share - Loss Share - User's Usage. (with constraint that "Ending Storage" cannot be larger than User's total storage)

The conservation pool is drawn down as water usage exceeds inflow. The entire pool is drawn down and the individual accounts are also drawn down at different rates based on their usage. Users will be notified on a weekly basis of the available storage remaining, once their storage account balance drops below 30 percent.

8-07. Hydroelectric Power. The Allatoona Dam hydropower project, along with 22 other hydropower dams in the southeastern United States, composes the SEPA service area. SEPA sells hydroelectric power generated by Corps plants to a number of cooperatives and municipal power providers, referred to as preference customers. Hydroelectric power is 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 produced as peak energy at Allatoona 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 6,500 cfs, which is turbine capacity. Often, the weekend releases are lower than those during the weekdays. Figure 8-1 shows effects of a typical release pattern from the powerhouse. Tailwater stages may vary significantly daily because of peaking hydropower operations at Allatoona Dam, characterized by a rapid rise in river stage immediately after generation is initiated and a rapid fall in stage as generation is ceased, generally from two to several hours later, depending on available basin inflows. Figure 8-2 depicts river stages immediately downstream of Allatoona Dam over a typical one-week period in late summer under normal conditions. River stages rise and fall by 2.5 to 3.0 feet before, during, and following peak hydropower generation. 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 week day (not generally on weekends).

Projects with hydropower capability provide three principal power generation benefits:

- a. Hydropower helps to ensure the reliability of the electrical power system in the SEPA service area by providing dependable capacity to meet annual peak power demands. That condition occurs when the reservoir is at its maximum elevation. Dependable capacity at hydropower plants reduces the need for additional coal, gas, oil, or nuclear generating capacity.
- b. Hydropower projects provide a substantial amount of energy at a small cost relative to thermal electric generating stations, reducing the overall cost of electricity. Hydropower facilities reduce the burning of fossil fuels, thereby reducing air pollution. Between 1961 and 2013, Allatoona powerhouse produced an average of 154,534 megawatt hours per calendar year, with a minimum of 51,820 (year 2007) and a maximum of 240,005 (year 1973) MWH, dependent upon water availability (see Plates 2-12 and 2-13).
- c. Hydropower has several valuable operating characteristics that improve the reliability and efficiency of the electric power supply system, including efficient peaking, a rapid rate of unit unloading, and rapid power availability for emergencies on the power grid. Hydropower generation by the Allatoona Dam Hydropower Plant, in combination with the 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 relatively low-cost power and the annual return of revenues to the Treasury of the United States. Hydropower plays an important role in meeting the electrical power demands of the region.

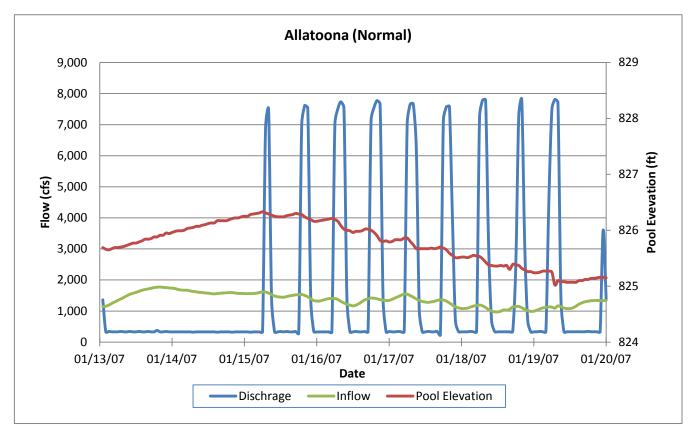


Figure 8-1. Allatoona Lake, Typical Release Pattern, Normal Conditions

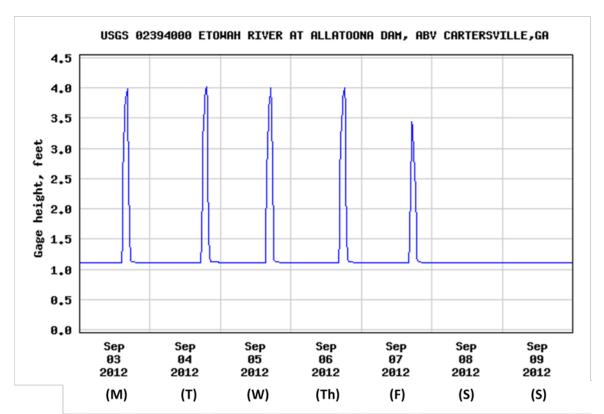


Figure 8-2. Etowah River at Allatoona Dam, Above Cartersville, Georgia (USGS02394000), Tailrace Gage Height

8-08. Navigation. Navigation is an authorized purpose of the Federal ACT System, and navigational flows were taken into account in updating the manual, including updating Allatoona operations. Due to the intervening APC projects, there are no specific reservoir regulation requirements to support navigation at Allatoona Dam. However, the seasonal variation in reservoir storage does redistribute downstream flows and other operations at Allatoona provide a benefit to downstream navigation.

8-09. Drought Contingency Plans. The importance of drought contingency plans 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 Allatoona Dam in 1949. The duration of low flows can be seasonal or they can last for several years. Some of the more extreme droughts occurred in the mid 1950s, the early and mid 1980's, and most of the time period between late1998 to mid-2009. There were periods of high flows during these droughts but the lower than normal rainfall trend continued. Allatoona monthly inflows and percent of monthly inflows to the long-term average monthly flows for 1954-56, 1980-81, 1985-86 and 1998-2009 are shown on Table 8-5. Allatoona conservation storage of 284,580 acrefeet is 22 percent of the average annual inflow. This low storage to inflow ratio indicates that it is much *easier* to refill Allatoona Lake than a project like Lake Lanier, which has a storage to inflow ratio of 130 percent.

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. Minimum instream flows protect the area below Allatoona Dam and conservation efforts strengthen the ability to supply water supply needs.

For the Allatoona Dam Project, the Corps will coordinate water management during drought with other Federal agencies, private power companies, navigation interests, the states, and other interested state and local parties as necessary. Drought operations will be in compliance with the plan for the entire ACT Basin.

Table 8-5. Average and Actual Inflows Into Allatoona During Droughts

Allatoona - Average Monthly Inflow vs Actual Inflow during drought periods												
				riod of r				•	_			
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average flow	<u>2389</u>	<u>2685</u>	<u>3173</u>	<u>2695</u>	<u>1882</u>	<u>1292</u>	<u>1125</u>	<u>873</u>	<u>837</u>	<u>921</u>	<u>1183</u>	<u>1754</u>
10-15				1				1				
1954 flow	3867	1702	2152	2115	1460	925	560	441	217	236	499	947
% of Avg.	162	63	68	78	78	72	50	51	26	26	42	54
1955 flow	1322	3114	1761	2293	1332	779	917	641	253	400	669	649
% of Avg.	55	116	55	85	71	60	82	73	30	43	56	37
1956 flow	630	2293	2466	2691	2021	793	1048	455	541	557	600	1596
% of Avg.	26	85	78	100	107	61	93	52	65	60	51	91
		1					1			1		
1980 flow	2768	2192	8326	4057	2987	1884	915	571	742	928	792	665
% of Avg.	116	82	262	151	159	146	81	65	89	101	67	38
1981 flow	620	2601	1394	1282	1446	1177	327	482	343	342	391	984
% of Avg.	26	97	44	48	77	91	29	55	41	37	33	56
1985 flow	1156	3094	1383	1185	1316	720	1040	1149	428	589	762	1060
% of Avg.	48	115	44	44	70	56	92	132	51	64	64	60
1986 flow	828	941	1186	644	727	284	162	174	431	1085	1135	1448
% of Avg.	35	35	37	24	39	22	14	20	52	118	96	83
1998 flow	3283	4949	4174	4703	3012	1526	795	840	370	397	787	1049
% of Avg.	137	184	132	175	160	118	71	96	44	43	67	60
1999 flow	1884	2162	1610	1017	1117	730	870	152	103	784	674	693
% of Avg.	79	81	51	38	59	57	77	17	12	85	57	40
2000 flow	1643	1175	1527	2353	688	316	221	484	1166	260	1228	755
% of Avg.	69	44	48	87	37	24	20	55	139	28	104	43
2001 flow	1965	1674	2884	1648	996	1936	1395	563	604	420	392	737
% of Avg.	82	62	91	61	53	150	124	64	72	46	33	42
2002 flow	2029	1200	2011	1365	1371	481	270	11	587	967	1913	3537
% of Avg.	85	45	63	51	73	37	24	1	70	105	162	202
2003 flow	1558	2803	3903	2054	3810	2677	3201	1504	893	743	1603	1521
% of Avg.	65	104	123	76	202	207	285	172	107	81	135	87
2004 flow	1602	2337	1378	1629	1128	1174	966	673	3481	867	1973	2607
% of Avg.	67	87	43	60	60	91	86	77	416	94	167	149
2005 flow	1529	3028	3240	3019	1546	1907	4051	1508	613	803	710	1510
% of Avg.	64	113	102	112	82	148	360	173	73	87	60	86
2006 flow	2171	2018	1850	1546	821	473	273	415	591	741	1513	935
% of Avg.	91	75	58	57	44	37	24	48	71	80	128	53
2007 flow	2556	1320	1523	892	470	285	396	58	-5	92	213	609
% of Avg.	107	49	48	33	25	22	35	7	-1	10	18	35
2008 flow	677	1435	2054	1072	713	291	513	619	125	192	212	1250
% of Avg.	28	53	65	40	38	22	46	71	15	21	18	71
2009 flow	2600	1151	2252	2326	1846	772	341	542	5244	3273	3409	4440
% of Avg.	109	43	71	86	98	60	30	62	626	355	288	253
2010 flow	3344	3928	3559	2358	2034	1142	802	490	256	373	473	771
% of Avg.	140	146	112	87	108	88	71	56	31	40	40	44
2011 flow	931	1480	3112	2249	846	590	356	113	386	181	667	1199
% of Avg.	39	55	98	83	45	46	32	13	46	20	56	68
-		i je					Ţ.					

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:

INFLOW = OUTFLOW + 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, spillway gates, or navigation locks. 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. The daily storage value comes from the storage-elevation tables using the adjusted midnight pool elevation for each day. CHANGE IN STORAGE = STORAGE_i – STORAGE_{i+1}. Negative inflow calculations can occur when there is a decrease in storage which exceeds the project's outflow. Evaporative losses, direct reservoir withdrawals, and losses to groundwater are several causes of negative inflow calculations.

8-10. Flood Emergency Action Plans. Normally, all flood risk management operations are directed by the Mobile District Office. If, however, a storm of flood-producing magnitude occurs and all communications are disrupted between the Mobile District Water Management Section and Allatoona Dam, emergency operating procedures, as described in Exhibit C, Standing Instructions to Damtenders for Water Control, will begin. If communication is broken after some instructions have been received from the Mobile District Water Management Section, those instructions will be followed for as long as they are applicable.

Flood emergency operations at Allatoona Dam are the responsibility of the Allatoona Power Project Manager. It is his responsibility to obtain the gage readings at Rome, Georgia by whatever means possible before making any power releases other than that required for station service. The plans are intended to serve only as temporary guidance for operating a project in an emergency until Mobile District staff can assess the results of real-time hydrologic model runs and issue more detailed instructions to project personnel. The benefits of Flood Emergency Action Plans are to minimize uncertainties in how to operate a project in a flood emergency, to facilitate quick action to mitigate the adverse impacts of a flood event, and to provide for emergency action exercises to train operating personnel on how to respond in an actual emergency flood situation.

8-11. Frequencies.

- a. <u>Peak Inflow Probability</u>. A percent chance exceedance curve for inflow into Allatoona Lake is shown on Figure 8-3.
- b. <u>Pool Elevation Duration and Frequency</u>. The water control plan for the ACT Basin influences the lake levels at Allatoona. Normal seasonal operating levels range from elevation 823 feet NGVD29 in the higher flow months to elevation 840 feet NGVD29 in the summer. Pool duration curves for the historic observed data, previous regulation plan, and current regulation plan as described in this manual are presented in Figure 8-4. Pool duration curves for operation under the previous regulation plan and the current regulation plan were modeled using the Reservoir Simulation (ResSim) model developed by the Hydrologic Engineering Center in Davis, California. Recreation impact levels are also shown. The observed and modeled period used in the analysis is January 1958 through December 2011.

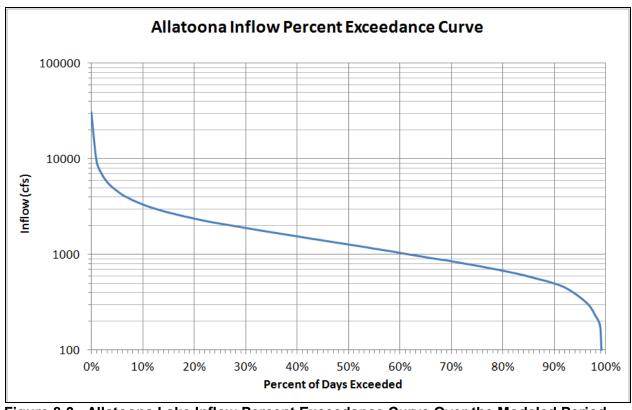


Figure 8-3. Allatoona Lake Inflow Percent Exceedance Curve Over the Modeled Period (1939-2011)

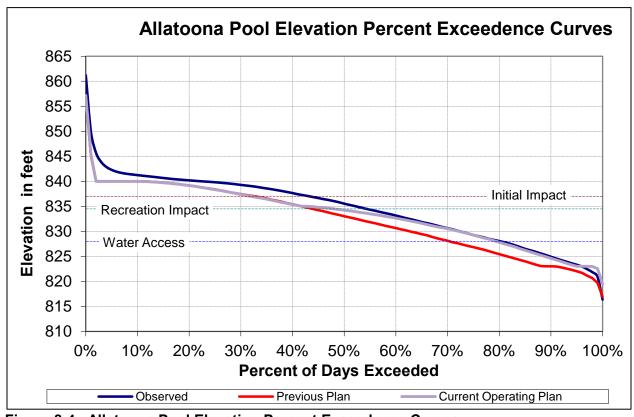


Figure 8-4. Allatoona Pool Elevation Percent Exceedence Curves

8-12. Other Studies – Examples of Regulation. In early 2010 the Corps, Mobile District, developed updated critical yields for the Allatoona and Carters Projects in the ACT Basin (Federal Storage Reservoir Critical Yield Analysis, Alabama-Coosa-Tallapoosa (ACT) and Apalachicola-Chattahoochee-Flint (ACF) River Basins, February 2010) in response to the following language in the FY 2010 Energy & Water Development Appropriations Bill, 111th Congress, 1st Session:

Alabama-Coosa-Tallapoosa [ACT], Apalachicola-Chattahoochee-Flint [ACF] Rivers, Alabama, Florida, and Georgia - The Secretary of the Army, acting through the Chief of Engineers, is directed to provide an updated calculation of the critical yield of all Federal projects in the ACF River Basin and an updated calculation of the critical yield of all Federal projects in the ACT River Basin within 120 days of enactment of this act.

Robert F. Henry Lock and Dam, Millers Ferry Lock and Dam and Claiborne Lock and Dam are Federal projects in the ACT Basin that were excluded from the critical yield analyses because they are *run-of-river* impoundments with little or no usable water storage and cannot significantly contribute to critical yield.

Critical yield provides the basis from which water stored in a reservoir is allocated to various project purposes. The volume of water stored in a reservoir can be allocated to a specific project purpose (e.g., hydropower or water supply) based on a percent of critical yield. A change in critical yield may result in modification of the allocations for a project purpose.

The impact of water withdrawals upstream of the project on the critical yield of the project can be quantified by computing the critical yield with and without diversions. Withdrawals for the year 2006 was used in the analyses and showed that river withdrawals had a measurable impact, reducing critical yield as much as five percent at Allatoona Dam but only 0.8 percent at Carters Dam. The critical yield for Allatoona was determined to be 729 cfs without diversions and 693 cfs with diversions. The critical drought for the period of record occurred in 2007.

The critical yield is a mathematically derived value and is the maximum continuous release that could be maintained with historical project inflows combined with the complete use of conservation storage. In this instance, a withdrawal greater than 729 cfs (continuous release) would have drawn the pool below the bottom of conservation. Conversely, a withdrawal less than 729 cfs would not have fully utilized all the conservation storage in 2007. The drought of 2007 is the "defining drought" and a worse drought than 2007 would produce a "computed critical yield" less than 729 cfs.

IX - WATER CONTROL MANAGEMENT

- **9-01. Responsibilities and Organization**. Many agencies in federal and state governments are responsible for developing and monitoring water resources in the ACT Basin. Some of the federal agencies are the Corps, U.S. Environmental Protection Agency, National Parks Service, U.S. Coast Guard, USGS, U.S. Department of Energy, U.S. Department of Agriculture, USFWS, and NOAA. In addition to the federal agencies, each state has agencies involved: GAEPD, The Coosa-North Georgia Regional Water Planning Council, and the Alabama Department of Environmental Management, Alabama Office of Water Resources.
- a. U.S. Army Corps of Engineers. Authority for water control regulation of the Allatoona Project has been delegated to the SAD Commander. The responsibility for water control regulation activities has been entrusted to the Mobile District. Water control actions for the Allatoona Project are regulated to meet the federally authorized project purposes at Allatoona in coordination with other authorized projects in the ACT Basin. It is Mobile District's responsibility to develop water control regulation procedures for the Allatoona Project, including all foreseeable conditions. The Water Management Section monitors the project for compliance with the approved water control plan. In accordance with the water control plan, the Water Management Section performs water control regulation activities that include determination of project water releases, daily declarations of water availability for hydropower generation and other purposes; daily and weekly reservoir pool elevation and release projections; weekly river basin status reports; tracking basin composite conservation storage and projections; determining and monitoring daily and seven-day basin inflow; managing high-flow operations and regulation; and coordination with other District elements and basin stakeholders. When necessary, the Water Management Section instructs the project operator regarding normal water control regulation procedures and emergencies, such as flood events. The power plant at Allatoona Dam is operated remotely from the control room at the Carters Dam Powerhouse under direct supervision of the Power Project Manager. The Water Management Section communicates directly with the powerhouse operators at the Carters Powerhouse and with other project personnel as necessary. The Water Management Section is also responsible for collecting historical project data and disseminating water control information, such as historical data, lake level and flow forecasts, and weekly basin reports within the agency; to other Federal, state, and local agencies; and to the general public. The main mechanism for such data dissemination is the internet through web pages and computer-to-computer data transfers. The web address for water management data is

http://www.sam.usace.army.mil/Missions/CivilWorks/WaterManagement.aspx

b. Other Federal Agencies.

- 1) National Weather Service (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.
- 2) U.S. Geological Survey (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 Corps-USGS Cooperative Gaging program, the USGS maintains a comprehensive network of gages in the Allatoona Watershed and 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 NWIS web site. The Water Management Section uses the USGS to operate and maintain project water level gaging stations at each Federal reservoir to ensure the accuracy of the reported water levels.

- 3) Southeastern Power Administration (SEPA). SEPA was created in 1950 by the Secretary of the Interior to carry out the functions assigned to the Secretary by the Flood Control Act of 1944. In 1977, SEPA was transferred to the newly created U.S. Department of Energy. SEPA, headquartered in Elberton, Georgia, is responsible for marketing electric power and energy generated at reservoirs operated by the Corps. The power is marketed to nearly 500 preference customers in Georgia, Florida, Alabama, Mississippi, southern Illinois, Virginia, Tennessee, Kentucky, North Carolina, and South Carolina.
- i. SEPA's objectives are to market electricity generated by the Federal reservoir projects, while encouraging its widespread use at the lowest possible cost to consumers. Power rates are formulated using sound financial principles. Preference in the sale of power is given to public bodies and cooperatives, referred to as preference customers. SEPA does not own transmission facilities and must contract with other utilities to provide transmission, or wheeling services, for the Federal power.
- ii. SEPA's responsibilities include the negotiation, preparation, execution, and administration of contracts for the sale of electric power; preparation of repayment studies to set wholesale rates; the provision, by construction, contract or otherwise, of transmission and related facilities to interconnect reservoir projects and to serve contractual loads; and activities pertaining to the operation of power facilities to ensure and maintain continuity of electric service to its customer.
- iii. SEPA schedules the hourly generation schedules for the Allatoona power project at the direction of the Corps on the basis of daily and weekly water volume availability declarations and water release requirements.
- 4) 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. The Corps, Mobile District, with support from the Water Management Section, coordinates water control actions and management with USFWS in accordance with both laws.

c. State and County Agencies

1) Alabama. 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.

- i. 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.
- ii. 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.
- 2) Georgia. GAEPD conducts water resource assessments to determine a sound scientific understanding of the condition of the water resources, in terms of the quantity of surface water and groundwater available to support current and future in-stream and off-stream uses and the capacity of the surface water resources to assimilate pollution. Regional water planning councils in Georgia prepare recommended Water Development and Conservation Plans. Those regional plans promote the sustainable use of Georgia's waters by selecting an array of management practices, to support the state's economy, to protect public health and natural systems, and to enhance the quality of life for all citizens.
- d. <u>Stakeholders</u>. 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 that occur during unusual flood or drought conditions to share information regarding water control regulation actions and gather stakeholder feedback. The Master Water Control Manual includes a list of state and Federal agencies and active stakeholders in the ACT Basin that have participated in the ACT Basin water management teleconferences and meetings.

9-02. Interagency Coordination.

Local Press and Corps Bulletins. The local press includes any periodic publications in or near the Allatoona Watershed and the ACT Basin. Montgomery, Alabama, and Atlanta, Georgia, have some of the larger daily papers. These 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. The Corps and the Mobile District publish e-newsletters regularly which are made available to the general public via email and postings on various web sites. Complete, real-time information is available at the Mobile District's Water Management homepage http://water.sam.usace.army.mil/. The Mobile District Public Affairs Office issues press releases as necessary to provide the public with information regarding Water Management issues and activities.

9-03. Framework for Water Management Changes. Special interest groups often request modifications of the basin water control plan or project specific water control plan. The Allatoona 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 insure 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 variances 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.

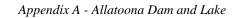


EXHIBIT A SUPPLEMENTARY PERTINENT DATA

EXHIBIT A SUPPLEMENTARY PERTINENT DATA

STREAM FLOW

Drainage area at dam site-square miles	1,122
Minimum mean monthly flow prior to construction (Oct 1931)-cfs	240
Minimum mean monthly flow after construction based on unimpaired flows (September 2007)-cfs	148
Minimum mean monthly flow after construction based on flows computed at the project without correcting for losses (Sept. 2007)-cfs	-5
Maximum mean monthly flow prior to construction (Dec 1932)-cfs	9,360
Maximum mean monthly flow after construction based on unimpaired flows (March 1980)-cfs	8,249
Maximum mean monthly flow after construction based on flows computed at the project without correcting for losses (March 1980)-cfs	8,326
Average daily flow (1896 – 1949 Prior to construction)-cfs	2,257
Average daily flow (1950 – 2012) unimpaired flows)-cfs	1,764
Average daily flow (1950 – 2012) computed at the project-cfs	1,706
Discharge at bankfull stage-cfs	9,500
Maximum recorded daily flow (Sept 2009)-cfs	53,534
SPILLWAY-DESIGN FLOOD	
National Weather Service 72-hr storm at Long. 84° 23' and Lat, 34° 18'	
Total rainfall-inches	30.7
Total storm runoff-inches	25.3
Total volume of storm runoff-acre feet	1,496,000
Peak rates of flow	
Reservoir inflow-cfs	382,000
Reservoir outflows -cfs	333,000
Duration of flood-days	9
Maximum pool elevation feet-NGVD29	872.1
Top of flood risk management pool, elevation feet-NGVD29	860.0
RESERVOIR	
Summer top of conservation, 1 May – 5 Sep, elevation feet-NGVD29	840.0
Winter top of conservation pool, 31 Dec 15-Jan, elevation feet-NGVD29	823.0
Bottom of conservation pool, elevation feet-NGVD29	800.0
Storage volumes-acre feet	
Maximum pool, spillway design flood; (elevation 872.1 feet-NGVD29)	886,200
Total storage,-(elevation 860 feet-NGVD29)	670,047
Total storage,-(elevation 840 feet-NGVD29)	367,471
Total storage,-(elevation 823 feet-NGVD29)	202,769

inactive storage, below elevation 800 feet-NGVD29	82,891
Summer flood risk management storage, (elev. 840 – 860 feet NGVD29)/inches of runoff	302,576/5.11
Summer conservation storage, (elev. 840 – 800 feet NGVD29/inches of runoff	284,580/4.81
Winter flood risk management storage, (elev. 823 – 860 feet NGVD29/inches of	467,278/7.89
runoff	101,210/1.00
Winter conservation storage, elev. 800 - 823 feet NGVD29/inches of runoff	119,878/2.03
Reservoir areas-acres Area within taking line-acres	
Maximum pool, spillway design flood, elev. 872.1 feet NGVD29 - acres	25,670
Top of flood risk management pool, elev. 860 feet NGVD29 – acres	19,201
Top of summer pool, elev. 840 feet NGVD29 - acres	11,862
Top of winter pool, elev. 823 feet NGVD29 - acres	7,606
Top of inactive storage, elev. 800 feet NGVD29 - acres	3,251
Purchased in fee simple - acres	37,742
River bed - acres	500
Total - acres	38,242
Flowage easement - acres	208
Parks and campgrounds	
Wildlife areas - acres	11,683
Length of shore line-miles	
Top of summer pool, elev. 840 feet NGVD29 - miles	270
Length of reservoir at elev. 840 - feet NGVD29 - river miles	28
<u>DAM</u>	
Type, main dam	Concrete gravity
Length overall-feet	1,250
Non-overflow section, length - feet	750
Height of main dam above river bed-feet	190
Top of dam, elevation - feet NGVD29	880
Saddle dikes, total length - feet	4,200
Top of saddle dikes, elevation - feet NGVD29	875
SPILLWAY	
Net length-feet	400
Crest elevation feet-NGVD29	835.0
Crest tainter gates	9@40'x26'; 2@20'x26'
Top of spillway gates, closed, elevation – feet NGVD29	860.0
Total discharge capacity – (pool elev. 870.3)-cfs	321,000
Total discharge capacity – (pool elev. 860.0)-cfs	184,000

FLOOD RISK MANAGEMENT SLUICE

Number of sluices-5'8"x10'0"	4
Discharge capacity at elev. 860 feet NGVD29 - cfs	17,300
Discharge capacity at elev. 840 feet NGVD29 - cfs	16,200
Discharge capacity at elev. 823 feet NGVD29 - cfs	15,100
Discharge capacity at elev. 800 feet NGVD29 - cfs	13,600
POWER PLANT	
Present installation-kw	
Two units at 42,000 each and 1 small unit at 2,400 (nameplate) - kw	86,400
Two units at 40,000 each and 1 small unit at 2,200 (declared) - kw	82,200
Penstocks three-20' and one-5.5' dia. Steel pipes	,
POWER DATA	
Gross static head at full summer pool (840 feet NGVD29) - feet	150.0
Minimum gross head at bottom of conservation (800 feet NGVD29) - feet	110.0
Average designed head - feet	138.0
Tailwater elevations, feet-NGVD29	
Maximum, design storm-outflow 321,000 cfs - feet NGVD29	733.1
Sump Wall Limit, Turbines and Sluice outflow 11,200 cfs - feet NGVD29	697.0
Downstream bankfull capacity outflow 9,500 cfs - feet NGVD29	696.5
Normal, 2 large units operating outflow 6,500 cfs - feet NGVD29	694.7
Normal, 1 large unit operating outflow 3,250 cfs - feet NGVD29	692.6
Minimum, outflow 203 cfs - feet NGVD29	690.0
Plant output	
Installed capacity, at rated power factor - kw	86,800
Installed capacity, at unity power factor - kw	96,400
Designed dependable capacity - kw	82,200
Overload capacity, at unity power factor - kw	96,4000
Historical average annual energy (1961 – 2013) - kwh	154,534,000

E-A-4

1

EXHIBIT B UNIT CONVERSIONS AND VERTICAL DATUM CONVERSION INFORMATION

AREA CONVERSION

UNIT	m²	km²	ha	in²	ft ²	yd²	mi²	ac
1 m ²	1	10 ⁻⁶	10 ⁻⁴	1550	10.76	1.196	3.86 X 10 ⁻⁷	2.47 X 10 ⁻⁴
1 km²	10 ⁶	1	100	1.55 X 10 ⁹	1.076 X 10 ⁷	1.196 X 10 ⁶	0.3861	247.1
1 ha	10 ⁴	0.01	1	1.55 X 10 ⁷	1.076 X 10 ⁷	1.196 X 10⁴	3.86 X 10 ⁻³	2,471
1 in²	6.45 X 10 ⁻⁴	6.45 X 10 ¹⁰	6.45 X 10 ⁻⁸	1	6.94 X 10 ⁻³	7.7 X 10 ⁻⁴	2.49 X 10 ⁻¹⁰	1.57 X 10 ⁷
1 ft ²	.0929	9.29 X 10 ⁻⁸	9.29 X 10 ⁻⁶	144	1	0.111	3.59 X 10 ⁻⁸	2.3 X 10 ⁻⁵
1 yd²	0.8361	8.36 X 10 ⁻⁷	8.36 X 10 ⁻⁵	1296	9	1	3.23 X 10 ⁻⁷	2.07 X 10 ⁻⁴
1 mi²	2.59 X 10 ⁶	2.59	259	4.01 X 10 ⁹	2.79 X 10 ⁷	3.098 X 10 ⁶	1	640
1 ac	4047	0.004047	0.4047	6. 27 X 10 ⁶	43560	4840	1.56 X 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 X 10 ⁻⁶
m	100	1	0.001	39.37	3.281	1.094	6.21 X 10 ⁻⁴
km	10 ⁵	1000	1	39,370	3281	1093.6	0.621
in.	2.54	0.0254	2.54 X 10 ⁻⁵	1	0.0833	0.0278	1.58 X 10 ⁻⁵
ft	30.48	0.3048	3.05 X 10 ⁻⁴	12	1	0.33	1.89 X 10 ⁻⁴
yd	91.44	0.9144	9.14 X 10 ⁻⁴	36	3	1	5.68 X 10 ⁻⁴
mi	1.01 X 10 ⁵	1.61 X 10 ³	1.6093	63,360	5280	1760	1

FLOW CONVERSION

UNIT	m³/s	m³/day	l/s	ft³/s	ft ³ /day	ac-ft/day	gal/min	gal/day	mgd
m³/s	1	86,400	1000	35.31	3.05 X 10 ⁶	70.05	1.58 X 10 ⁴	2.28 X 10 ⁷	22.824
m³/day	1.16 X 10 ⁻⁵	1	0.0116	4.09 X 10 ⁻⁴	35.31	8.1 X 10 ⁻⁴	0.1835	264.17	2.64 X 10 ⁻⁴
l/s	0.001	86.4	1	0.0353	3051.2	0.070	15.85	2.28 X 10 ⁴	2.28 X 10 ⁻²
ft³/s	0.0283	2446.6	28.32	1	8.64 X 10 ⁴	1.984	448.8	6.46 X 10 ⁵	0.646
ft ³ /day	3.28 X 10 ⁻⁷	1233.5	3.28 X 10 ⁻⁴	1.16 X 10 ⁻⁵	1	2.3 X 10 ⁻⁵	5.19 X 10 ⁻³	7.48	7.48 X 10 ⁻⁶
ac-ft/day	0.0143	5.451	14.276	0.5042	43,560	1	226.28	3.26 X 10 ⁵	0.3258
gal/min	6.3 X 10 ⁻⁵	0.00379	0.0631	2.23 X 10 ⁻³	192.5	4.42 X 10 ⁻³	1	1440	1.44 X 10 ⁻³
gal/day	4.3 X 10 ⁻⁸	3785	4.38 X 10 ⁻⁴	1.55 X 10 ⁻⁶	11,337	3.07 X 10 ⁻⁶	6.94 X 10 ⁻⁴	1	10 ⁻⁶
mgd	0.0438		43.82	1.55	1.34 X 10 ⁵	3.07	694	10 ⁶	1

VOLUME CONVERSION

UNIT	liters	m³	in ³	ft ³	gal	ac-ft	million gal
liters	1	0.001	61.02	0.0353	0.264	8.1 X 10 ⁻⁷	2.64 X 10 ⁻⁷
m^3	1000	1	61,023	35.31	264.17	8.1 X 10 ⁻⁴	2.64 X 10 ⁻⁴
in ³	1.64 X 10 ⁻²	1.64 X 10 ⁻⁵	1	5.79 X 10 ⁻⁴	4.33 X 10 ⁻³	1.218 X 10 ⁻⁸	4.33 X 10 ⁻⁹
ft ³	28.317	0.02832	1728	1	7.48	2.296 X 10 ⁻⁵	7.48 X 10 ⁶
gal	3.785	3.78 X 10 ⁻³	231	0.134	1	3.07 X 10 ⁻⁶	10 ⁶
ac-ft	1.23 X 10 ⁶	1233.5	75.3 X 10 ⁶	43,560	3.26 X 10 ⁵	1	0.3260
million gallon	3.785 X 10 ⁶	3785	2.31 X 10 ⁸	1.34 X 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

VERTICAL DATUM CONVERSION INFORMATION

LEVEL ABSTRACT

ABSTRACTED BY SCN SURVEY OF LAKE ALLATOONA ORDER 3rd ADJUSTED BY SCN

DATE CHECK BY SCN 9/23/2009

RUN BY TRD

9/23/2009					RUN BY TRD		<u> </u>				
STATION	# OF TURNS	FOR B	SUM OF ROD		DIFF OF	ELEVATIONS-STATIC			MEAN	251115112	
	L		BS	FS	ELEV	UNADJUSTED	CORRECTION	ADJUSTED	STATIC	REMARKS	
	na Dam Hea	dwater									
LOOP 1									MEAN F & B	Elevation Held	
BM-1						879.923	0.000	879.923	879.923	Static Solution	Brass disk just inside the entrance gate to the top of the dam
	1	F	4.997	4.786	0.211		0.000	0.0.020			are a sign part made are emanted gate to the top of the dam
TP-1				MEAN	0.211	880.134	0.000	880.134	880.134		Turning Point
	1	F	4.129	4.061	0.068						
RP-2			20	MEAN	0.068	880.202	0.000	880.202	880.202		Bolt in sidewalk closest to the gage house door
	1	В	4.163	4.23	-0.067	555.252	0.000	000.202	000.202		Dok in Section desert to the gage mouse door
TP-1				MEAN	-0.067	880.135	-0.001	880.134			Turning Point
	1	В	4.834	5.045	-0.211	555.165	0.001	000.101			Talling Fork
BM-1			4.034	MEAN	-0.211	879.924	-0.001	879.923	879.923		Brass disk just inside the entrance gate to the top of the dam
DINFI	4	Sum Turns		INICAIN	-0.211	076.624	-0.001	076.623	076.623		brass disk just inside the entrance gate to the top of the dain
	-	Sum rums			_	-	+				
LOOP 2									MEAN F & B		
BM-1			4.000			879.923	0.000	879.923	879.923	Elevation Held	Brass disk just inside the entrance gate to the top of the dam
	1	F	4.629	1.304	3.325						
RP-1				MEAN	3.325	883.248	0.000	883.248	883.249		Chiseled square on right end of bridge railing near the entrance gat
	1	F	1.117	1.042	0.075						
RP-4				MEAN	0.075	883.323	0.000	883.323	883.323		Angle iron used for tape downs left of entrance gate on bridge railin Held on top (vertical leg) of the angle
	1	F	1.344	4.526	-3.182						
BM-2				MEAN	-3.182	880.141	0.000	880.141	880.141		Brass disk in the center upstream side of the top of the dam
	1	F	4.61	4.555	0.055						
TBM-1				MEAN	0.055	880.196	0.000	880.196	880.193		Chiseled square used for making tape downs at the old staff. Locat on a half oval shaped extension of the dam over the railing, left of the door to the gage room and right of the old staff
	1	F	4.843	5.336	-0.493						
TP-2				MEAN	-0.493	879.703	0.000	879.703	879.703		Turning Point
	1	F	4.976	4.829	0.147						
BM-3				MEAN	0.147	879.850	0.000	879.850	879.850		Brass disk in center of road at the far left side of the dam
	1	В	4.65	4.797	-0.147						
TP-2				MEAN	-0.147	879.703	-0.001	879.702			Turning Point
	1	В	5.256	4.768	0.488						
TBM-1				MEAN	0.488	880.191	-0.001	880.190			Chiseled square used for making tape downs at the old staff. Locat on a half oval shaped extension of the dam over the railing, left of the door to the gage room and right of the old staff
	1	В	4.496	4.548	-0.052						-
BM-2				MEAN	-0.052	880.139	-0.001	880.138			Brass disk in the center upstream side of the top of the dam
	1	В	4.644	1.459	3.185						· · ·
RP-4		_		MEAN	3.185	883.324	-0.001	883.323	883.323		Angle iron used for tape downs left of entrance gate on bridge railir Held on top (vertical leg) of the angle
	1	В	1.371	1.444	-0.073						
RP-1				MEAN	-0.073	883.251	-0.001	883.250			Chiseled square on right end of bridge railing near the entrance gar
	1	В	1.216	4.543	-3.327						
BM-1				MEAN	-3.327	879.924	-0.001	879.923	879.923	Elevation Held	Brass disk just inside the entrance gate to the top of the dam
	12	Sum Turns									

VERTICAL DATUM

NAVD88

SURVEY OF LAKE ALLATOONA ABSTRACTED BY SCN

 ORDER
 3rd
 ADJUSTED BY SCN

 DATE
 CHECK BY SCN

 9/23/2009
 RUN BY TRD

VERTICAL DATUM NAVD88

STATION	# OF TURNS	FOR B	SUM OF ROD	DEADINGS	DIFF OF	ELEVATIONS-STATIC			MEAN		
STATION	TORNS	TOKB	BS BS	FS	ELEV	UNADJUSTED	CORRECTION	ADJUSTED	STATIC	REMARKS	
								7.2000122			
LOOP 3									MEAN F & B		
BM-1						879.923	0.000	879.923	879.923	Elevation Held	Brass disk just inside the entrance gate to the top of the dam
	1	F	4.978	5.019	-0.041						
RP-3				MEAN	-0.041	879.882	0.000	879.882	879.882		Square bolt closest to the road on downstream side of the end of the curb in parking area outside of gate to the top of the dam. Near guy wire and solitary pine tree
	1	F	1.278	12.971	-11.693						
TP-3				MEAN	-11.693	868.189	0.000	868.189	868.190		Turning Point
	1	F	0.215	10.898	-10.683						
E-1				MEAN	-10.683	857.506	0.000	857.507	857.507		Leaning brass disk downhill towards lake from parking area, 20 ft. upstream and 30-40 ft. downhill from RP 3. Not a stable starting point
	1	В	11.253	0.57	10.683						
TP-3				MEAN	10.683	868.189	0.001	868.190			Turning Point
	1	В	12.702	1.01	11.692						
RP-3				MEAN	11.692	879,881	0.001	879.882			Square bolt closest to the road on downstream side of the end of the curb in parking area outside of gate to the top of the dam. Near guy wire and solitary pine tree
	1	В	5.245	5.204	0.041						
BM-1				MEAN	0.041	879.922	0.001	879.923		Elevation Held	Brass disk just inside the entrance gate to the top of the dam
	6	Sum Tums									
LOOP 4											
RP-3						879.882	0.000	879.882		Elevation from Loop 3	Square bolt closest to the road on downstream side of the end of the curb in parking area outside of gate to the top of the dam. Near guy wire and solitary pine tree
	1	F	2.96	7.49	-4.530				MEAN F & B		
TP-4				MEAN	-4.530	875.532	-0.002	875.350	875.350		Turning Point
	1	F	0.46	22.37	-21.910				MEAN F & B		
RP-5				MEAN	-21.910	853.442	-0.004	853.438	853.438		Rock with a Bolt
	1	F	22.31	21.91	0.400				MEAN F & B		
Gage @											
854				MEAN	0.400	853.842	-0.006	853.836	853.836		Gage at 854.00
	1	F	22.06	0.53	21.530				MEAN F & B		
TP-6				MEAN	21.530	875.372	-0.008	875.364	875.364		Turning Point
	1	F	7.67	3.15	4.520						
RP-3				MEAN	4.520	879.892	-0.010	879.882		Elevation from Loop 3	Brass disk just inside the entrance gate to the top of the dam
	5	Sum Tums									

SURVEY OF LAKE ALLATOONA ABSTRACTED BY SCN
ORDER 3rd ADJUSTED BY SCN

 DATE
 CHECK BY SCN

 9/23/2009
 RUN BY TRD

NAVD88

VERTICAL DATUM

STATION	# OF TURNS	FOR B	SUM OF ROD	READINGS	DIFF OF	ELEVATIONS-STATIC			MEAN		
			BS	FS	ELEV	UNADJUSTED	CORRECTION	ADJUSTED	STATIC	REMARKS	

Lake Allatoona Dam Headwater Final Elevations

Point	ELEVATION	ELEVATION	DIFF	DESCRIPTION
	NAVD88	Furnished	NAVD88	
	Feet	NGVD29	NGVD29	
		Feet	Feet	
BM-1	879.923	880.059	-0.138	Brass disk just inside the entrance gate to the top of the dam
TP-1	880.134			Turning Point
RP-2	880.202	880.377	-0.175	Bolt in sidewalk closest to the gage house door
RP-1	883.249	883.383	-0.134	Chiseled square on right end of bridge railing near the entrance gate
RP-4	883.323	883.455	-0.132	Angle iron used for tape downs left of entrance gate on bridge railing. Held on top (vertical leg) of the angle.
BM-2	880.140	880.029	0.111	Brass disk in the center upstream side of the top of the dam
TBM-1	880.193	880.323	-0.130	Chiseled square used for making tape downs at the old staff. Located on a half oval shaped extension of the dam over the railing, left of the door to the gage room and right of the old staff
TP-2	879.703			Turning Point
BM-3	879.850	879.98	-0.130	Brass disk in center of road at the far left side of the dam
RP-3	879.882	880.029	-0.147	Square bolt closest to the road on downstream side of the end of the curb in parking area outside of gate to the top of the dam. Near guy wire and solitary pine tree
TP-3	868.190			Turning Point
E-1	857.507	857.641	-0.135	Leaning brass disk downhill towards lake from parking area, 20 ft. upstream and 30-40 ft. downhill from RP 3. Not a stable starting point
TP-4	875.350			Turning Point
RP-5	853.438			Rock with a Bolt
GAGE & 854	853.836			Gage at 854.00
TP-6	875.364			Turning Point

METHOD	READING	DATE/TIME
VISABLE	852.36	9/25/2009 @ 9:55:00 AM
ELECTRONIC	852.40	9/25/2009 @ 10:00:00 AM

853.836	NAVD88 Elevation on Gage @ 854.00'
854.000	Actual gage reading
-0.164	Difference (NAVD88 & Staff Gage)

SURVEY OF LAKE ALLATOONA ABSTRACTED BY SCN ORDER ADJUSTED BY SCN

DATE CHECK BY SCN

9/23/2009 RUN BY TRD

STATION	# OF TURNS	FOR B	B SUM OF ROD READIN		DIFF OF	ELEVATIONS-STATIC			MEAN		
			BS	FS	ELEV	UNADJUSTED	CORRECTION	ADJUSTED	STATIC	REMARKS	
Lake Allatoo	ona Dam Tail	water									
LOOP 4									MEAN F & B		
D-4						736.579	0.000	736.579	736.579	Elev establish from COE Mon	Bronze tablet set in concrete pad 30 feet downstream and 40 feet shoreward of powerhouse entrance door. Origin of level run
	1	F	6.88	0.45	6.430				MEAN F & B		
BM-RW				MEAN	6.430	743.009	-0.001	743.008	743.009		4-inch bronze tablet set in curb located 100 feet upstream and 18.5 feet shoreward of powerhouse entrance door
	1	F	1.183	7.993	-6.810				MEAN F & B		
BM-K9				MEAN	-6.810	736.199	-0.002	736.198			2-inch bronze tablet set in pad located 102 feet upstream and 24 fee streamward of powerhouse entrance door
	1	В	8.118	1.306	6.812						
BM-RW				MEAN	6.812	743.011	-0.002	743.009			4-inch bronze tablet set in curb located 100 feet upstream and 18.5 feet shoreward of powerhouse entrance door
	1	В	1.027	7.456	-6.429						
D-4				MEAN	-6.429	736.582	-0.003	736.579		Elev establish from COE Mon	Bronze tablet set in concrete pad 30 feet downstream and 40 feet shoreward of powerhouse entrance door. Origin of level run
	4	Sum Tums									
LOOP 5									MEAN F & B		
D-4						736.579	0.000	736.579	736.579	Elev establish from COE Mon	Bronze tablet set in concrete pad 30 feet downstream and 40 feet shoreward of powerhouse entrance door. Origin of level run
	1	F	4.343	1.72	2.623				MEAN F & B		
RM-2				MEAN	2.623	739.202	0.000	739.202	739.202		Chiseled square in concrete shelf at gage house
	1	В	1.841	4.463	-2.622						
D-4				MEAN	-2.622	736.580	-0.001	736.579		Elev establish from COE Mon	Bronze tablet set in concrete pad 30 feet downstream and 40 feet shoreward of powerhouse entrance door. Origin of level run
	2	Sum Tums									

VERTICAL DATUM

NAVD88

SURVEY OF LAKE ALLATOONA ABSTRACTED BY SCN ORDER ADJUSTED BY SCN

DATE CHECK BY SCN

9/23/2009 RUN BY TRD

9/23/2009				т.	UNBYIRD						
STATION	# OF TURNS	FOR B	SUM OF ROD		DIFF OF	ELEVATIONS-STATIC			MEAN		
			BS	FS	ELEV	UNADJUSTED	CORRECTION	ADJUSTED	STATIC	REMARKS	
LOOP 6									MEAN F & B		
D-4						736.579	0.000	736.579	736.579	Elev establish from COE Mon	Bronze tablet set in concrete pad 30 feet downstream and 40 feet shoreward of powerhouse entrance door. Origin of level run
	1	F	4.14	12.63	-8.490				MEAN F & B		-
2				MEAN	-8.490	728.089	-0.001	728.088	728.088		Turning Point
	1	F	0.458	12.948	-12.490				MEAN F & B		
3				MEAN	-12.490	715.599	-0.001	715.598	715.598		Turning Point
	1	F	1.243	5.43	-4.187				MEAN F & B		
RP-1				MEAN	-4.187	711.412	-0.002	711.410	711.410		Outside most end of vertical angle iron leaded to left side of tailrace wing wall
10.1	1	F	5.298	6.516	-1.218	711.112	0.002	711.110	MEAN F & B		1
GAGE	-	-	5.286	MEAN	-1.218	710.194	-0.003	710.192	710.192		Top Gage (710.00)
0.1.02	1	В	6.422	5.203	1,219	110.101	0.000	7.15.152			Top dage (Tid.day)
RP-1				MEAN	1.219	711.413	-0.003	711.410			Outside most end of vertical angle iron leaded to left side of tailrace wing wall
	1	В	5.324	1.136	4.188						
3				MEAN	4.188	715.601	-0.004	715.597			Turning Point
	1	В	12.716	0.226	12.490						
2		_		MEAN	12.490	728.091	-0.004	728.087			Turning Point
	1	В	12.616	4.123	8.493						
D-4				MEAN	8.493	736,584	-0.005	736.579		Elev establish from COE Mon	Bronze tablet set in concrete pad 30 feet downstream and 40 feet shoreward of powerhouse entrance door. Origin of level run
	8	Sum Tums									
					<u> </u>						
LOOP 7									MEAN F & B		
BM-K9						736.198	0.000	736.198	736.198	Elevation from Loop 4	2-inch bronze tablet set in pad located 102 feet upstream and 24 feet streamward of powerhouse entrance door
	1	F	3.465	5.433	-1.968				MEAN F & B	·	'
BM-K6				MEAN	-1.968	734.230	0.000	734.229	734.229		2-inch bronze tablet set in sidewalk located 103 feet upstream and 110 feet streamward of powerhouse entrance door
	1	F	5.453	3.885	1.568				MEAN F & B		
BM-C1				MEAN	1.568	735.798	-0.001	735.797	735.797		2-inch bronze tablet set in sidewalk located 124 feet upstream and 247 feet streamward of powerhouse entrance door
	1	В	3.95	5.518	-1.568						
ВМ-К6				MEAN	-1.568	734.230	-0.001	734.229			2-inch bronze tablet set in sidewalk located 103 feet upstream and 110 feet streamward of powerhouse entrance door
	1	В	5.42	3.451	1.989						
ВМ-К9				MEAN	1.969	736.199	-0.001	736.198		Elevation from Loop 4	2-inch bronze tablet set in pad located 102 feet upstream and 24 feet streamward of powerhouse entrance door
	4	Sum Tums									

VERTICAL DATUM

NAVD88

SURVEY OF LAKE ALLATOONA ABSTRACTED BY SCN
ORDER 3rd ADJUSTED BY SCN

 DATE
 CHECK BY SCN

 9/23/2009
 RUN BY TRD

VERTICAL	DATUM	NAVD88

	# OF	500.0		DE ADMICA	DIEE OF	EL ELIZATIONIO OTATIO					
STATION	TURNS	FOR B	SUM OF ROD	READINGS	DIFF OF	ELEVATIONS-STATIC			MEAN		
			BS	FS	ELEV	UNADJUSTED	CORRECTION	ADJUSTED	STATIC	REMARKS	

Lake Allatoona Dam Tailwater Final Elevations

ELEVATION	ELEVATION	DIFF	DESCRIPTION
NAVD88	Furnished	NAVD88	
Feet	NGVD29	NGVD29	
	Feet	Feet	
736.579	736.286	0.293	Bronze tablet set in concrete pad 30 feet downstream and 40 feet shoreward of powerhouse entrance door. Origin of level run
743.009	742.71		4-inch bronze tablet set in curb located 100 feet upstream and 18.5 feet shoreward of powerhouse entrance door
736.198	735.898	0.299	2-inch bronze tablet set in pad located 102 feet upstream and 24 fee streamward of powerhouse entrance door
739.202	738.892	0.310	Chiseled square in concrete shelf at gage house
728.088			Turning Point
715.598			Turning Point
711.410	711.114	0.296	Outside most end of vertical angle iron leaded to left side of tailrace wing wall
710.192			Top Gage (710.00)
734.229	733.924	0.305	2-inch bronze tablet set in sidewalk located 103 feet upstream and 110 feet streamward of powerhouse entrance door
735.797	735.924	-0.127	2-inch bronze tablet set in sidewalk located 124 feet upstream and 247 feet streamward of powerhouse entrance door
	736.579 743.009 736.198 739.202 728.088 715.598 711.410 710.192 734.229	NAVD88 Furnished Feet NGVD29 Feet 736.579 736.286 743.009 742.71 736.198 735.898 739.202 738.892 728.088 715.598 711.410 711.114 710.192 734.229 733.924	NAVD88 Furnished NAVD88 Feet NGVD29 NGVD29 Feet Feet Feet 736.579 736.286 0.293 743.009 742.71 0.299 739.202 738.892 0.310 728.088 715.598 0.296 711.410 711.114 0.296 734.229 733.924 0.305

METHOD	READING	DATE/TIME
VISABLE	695.33	9/25/2009 @ 9:55:00 AM
ELECTRONIC	695.32	9/25/2009 @ 10:00:00 AM

710.192	NAVD88 Elevation on Gage @ 710.00'
710.00	Actual gage reading
0.191	Difference (NAVD88 & Staff Gage)

SURVEY DATASHEET (Version 1.0)

PID: BBBM47
Designation: BM1

Stamping: 1

Stability: Most reliable; expected to hold position well **Setting:** Massive structures (other than listed below)

Mark G

Description: THE MARK IS FOUND ON THE NORTH END OF ALLATOONA

DAM WHERE SR 120 SPUR TERMINATES.

LOCATED NEAR CENTERLINE OF DAM, MARK IS 33.2' NE OF A LIGHT POLE, 41.4' SE OF THE S CORNER OF A CONCRETE STAIRWELL. AND 30.8' SW OF THE

CENTERLINE OF AN ACCESS GATE TO THE NORTH END OF

THE DAM.

Observed: 2009-09-29T12:30:00Z

Source: OPUS - page5 0909.08

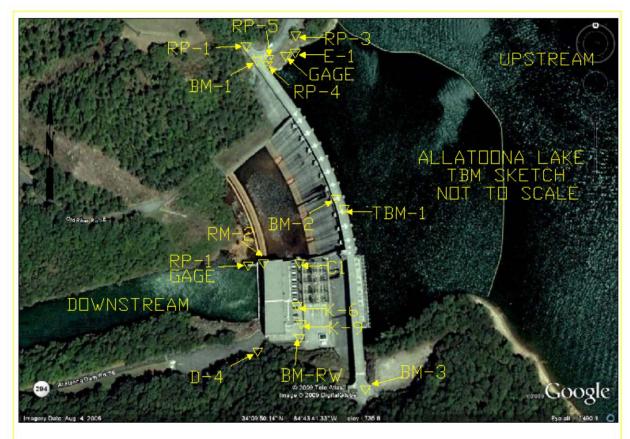


REF_FRAME: NAD_83 (CORS96)		OURCE: NAVD88 (Computed using EOID03)	UNITS: SET DETAILS
LAT: 34° 9' 55.17435" LON: -84° 43' 43.62824' ELL HT: 238.778 X: 485367.359 Y: -5260836.485 Z: 3561769.250 ORTHO HT: 268.201	± 0.013 m " ± 0.018 m ± 0.041 m ± 0.017 m ± 0.041 m ± 0.013 m ± 0.059 m	UTM 16 NORTHING: 3782818.2461 EASTING: 709354.925m CONVERGENCE: 1.27593869° POINT SCALE: 1.00014031 COMBINED FACTOR: 1.00010282	

See Also 2009-10-06

SURVEY DATASHEET (Version 1.0) Page 1 of 1

The numerical values for this position solution have satisfied the quality control criteria of the National Geodetic Survey. The contributor has verified that the information submitted is accurate and complete.



Allatoona Dam and Lake

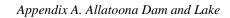


EXHIBIT C STANDING INSTRUCTIONS TO THE DAMTENDERS FOR WATER CONTROL

STANDING INSTRUCTIONS TO THE DAMTENDER FOR WATER CONTROL ALLATOONA DAM AND LAKE

1. BACKGROUND AND RESPONSIBILITIES

- a. <u>General Information</u>. These Standing Instructions to the Project Operator for Water Control are written in compliance with Section 9-2 of EM-1110-2-3600 (Engineering and Design, *Management of Water Control Systems*, 30 November 1987) and with ER-1110-2-240 (Engineering and Design, *Water Control Management*, 8 October 1982). A copy of these Standing Instructions must be kept on hand at the project site at all times. Any deviation from the Standing Instructions will require approval of the District Commander.
- (1) **Project Purposes**. The Allatoona Project is operated for flood risk management, hydropower, recreation, fish and wildlife conservation, water quality, water supply and navigation (only incidental benefits due to reregulation of flow by APC projects downstream). Water Control actions are in support of these project purposes and for purposes of the ACT River system.
- (2) **Chain of Command**. The Project Operator is responsible to the Water Control Manager for all water control actions.
- (3) **Structure**. Allatoona Dam is located on the Etowah River, 48 river miles above Rome, Georgia. Allatoona Dam and Lake are located within Bartow, Cherokee, and Cobb Counties. The drainage area above Allatoona Dam is approximately 1,122 square miles.
- (4) **Operation and Maintenance (O&M)**. All O&M activities are the responsibility of the U.S. Army Corps of Engineers under the supervision of the Mobile District, Operations Division, and the direction of the Allatoona Dam (Allatoona Lake) Operations Project Manager.
- **b.** Role of the Project Operator. The term Project Operator refers to both the Carters Powerhouse Operator and to the Allatoona Powerhouse Personnel. Operation of the hydropower units and data reporting is the responsibility of the Carters Powerhouse Operator. Operation of the spillway and sluice gates is the responsibility of the Allatoona Powerhouse Personnel.
- (1) Normal Conditions (dependent on day-to-day instruction). The Water Control Manager will coordinate the daily water control actions regarding hydropower releases with the Southeastern Power Administration (SEPA), and will notify the Project Operator of these changes. The Project Operator will then receive instructions from SEPA via hourly generation schedule updates. This daily communication will be increased to an hourly basis if the need develops. Daily generation schedules and updates are provided to the Water Management Section. In the event that water cannot be passed through the hydropower units or if additional releases in excess of hydropower capacity are needed, the Water Control Manager will coordinate releases through the spillway and/or sluice gates with the Powerhouse Operator at the Carters Powerhouse. The Carters Project Operator then dispatches Allatoona Powerhouse personnel for spillway and sluice operations.
- (2) Emergency Conditions (flood, drought, or special operations). During emergency conditions, the Project Operator will be instructed by the Water Control Manager on a daily or hourly basis for all water control actions. In the event that communications with Water Management Section are cut off, the Project Operator will continue to follow the water control

plan and contact the Water Management Section as soon as communication is reestablished. Specific operator instructions are shown below:

Operator instructions in the event of lost communications with Water Management Section						
Condition	Action					
II. Rome stage is above 20' and rising. Pool is below Elevation 850 feet-NGVD29	Halt scheduled releases					
II. Rome stage is above 20' and rising. Pool is above Elevation 850 feet-NGVD29	Continue scheduled releases					
III. Rome stage is below 22' and falling.	Make scheduled releases					
IV. Rome is above 25'. or Kingston is above11'. or Cartersville is above 18'.	Make no releases unless called for in Condition V.					
V. Releases are required by the Induced Surcharge Schedule. See Plate 7-2.	Release the greater of: requirements from Induced Surcharge Schedule, or releases from condition III,					

NOTES:

Bankfull stages at Rome, Kingston and Cartersville are 20, 9, and 15 feet, respectively.

If Rome stage cannot be obtained, then make projection by using the rate of change of the last known 3 hours to estimate the current stage.

If a rainfall of 4 inches or greater occurs the rate of rise at Rome should be in the range of one foot per three hours.

If Rome stage is expected to exceed 25 feet and Induced Surcharge Schedule does not call for release, then halt generation.

Condition II implies a previous flood condition and the pool should be lowered.

2. DATA COLLECTION AND REPORTING

- **a.** <u>General</u>. Report hourly the pool elevation, tailwater elevation, turbine discharge, spillway discharge, capacity, and general project status on the computer and have it accessible to the Water Control Manager by computer network.
- **b.** <u>Daily Reporting</u>. The Project Operator will record the following items daily and will report them by 6:30 AM (0630) Central Time to the Water Management Section either by

computer network, by fax machine (251-694-4058), or by telephone conversation (251-690-2737):

- (1) Pool elevation and tailwater elevation in feet above mean sea level at 6 am and 12 midnight (0600 and 2400) for the period since the last report.
- (2) Average plant discharge in cubic feet per second for the first 4 hours of each day and for the 24 hours of the previous day.
 - (3) Average turbine discharge for the 24 hours of the previous day.
- (4) Inflow to the lake in cubic feet per second for the first 4 hours of each day and for the 24 hours of the previous day.
- (5) Current day's generation schedule and previous day's actual generation in megawatt-hours. Include the schedule for the current day's generation.
 - (6) Total current generating capacity of the plant in megawatts.
- **c.** <u>Gage Verification</u>. In accordance with the USACE Guidance Memorandum for Critical Gage Instrumentation dated 15 Dec 2006, the Allatoona Powerhouse personnel will perform gage reading verifications by providing the pool level automated instrumentation gage reading and staff gage readings. Weekly reports are sent to the Water Management Section which provide gage verification readings for all projects so that potential gage equipment issues can be addressed. In the event that the automated gage equipment malfunctions or if the difference in stage readings is greater than 0.3 feet, the Project Operator will report readings from the staff gage until the automated gage is rectified.
- **d.** Regional Hydrometeorological Conditions. The Project Operator will be informed by the Water Control Manager of any regional hydro-meteorological conditions that may impact water control actions.

3. WATER CONTROL ACTION AND REPORTING

- **a.** <u>Normal Conditions</u>. During normal conditions, all releases will be made through the turbine units. The Project Operator will follow the Allatoona Dam and Lake Water Control Manual for normal water control actions and will report directly to the Water Control Manager.
- **b.** <u>Emergency Conditions</u>. During high flows, the Project Operator will follow the instructions from the Water Control Manager and SEPA generation schedule updates regarding the suspension of releases during flood events and for resuming releases. If needed, the Project Operator will follow the instructions for the spillway and/or sluice gate settings to achieve the desired release rate.
- **c.** <u>Inquiries</u>. All significant inquiries received by the Project Operator from citizens, constituents, or interest groups regarding water control procedures or actions must be referred directly to the Water Control Manager.
- **d.** <u>Water Control Problems</u>. The Project Operator must immediately notify the Water Control Manager, by the most rapid means available, in the event that an operational malfunction, erosion, or other incident occurs that could impact project integrity in general or water control capability in particular.



EXHIBIT D 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



South Atlantic Division Mobile District

May 2015

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 water control manual within the respective project appendix to the ACT Basin Master Water Control Manual.

II - AUTHORITIES

- **2-01.** <u>Authorities</u>. 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 15 Sep 1981. 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 31 Aug 1995. 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 8 Oct 1982. 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 30 Nov 1987. 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	5.9
Carters Reregulation Dam	Corps/GA/1974	17,500	16,000	0.1
Etowah River				
Allatoona Dam and Lake	Corps/GA/1949	367,471	284,580	10.8
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	144,383	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	207,317	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. <u>Definition</u>. 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 3month) 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 longrange 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. <u>Historical Droughts</u>. Drought events have occurred in the ACT Basin with varying degrees of severity and duration. Five of the most significant historical basin wide droughts

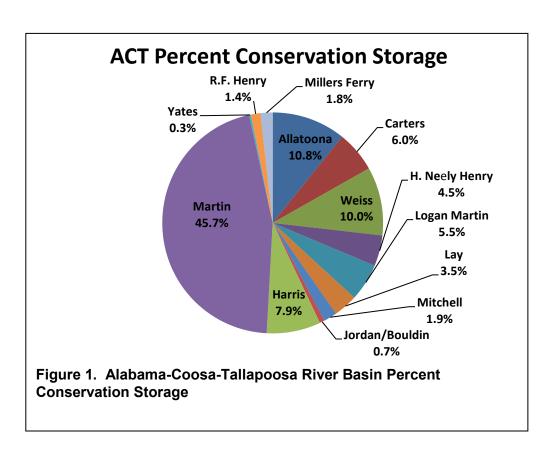
occurred in 1940-1941, 1954-1958, 1984-1989, 1999-2003, and 2006-2009. The 1984 to 1989 drought caused water shortages across the basin in 1986. This resulted in the need for the Corps to make adjustments in the water management practices. Water shortages occurred again from 1999 through 2002 and during 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 are 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 II – Basin Description and Characteristics.

4-02. Project Description. 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 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.



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 45.7 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 20 percent. The two most upstream Corps reservoirs, Allatoona Lake and Carters Lake, account for 16.8 percent of the total basin conservation storage.



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

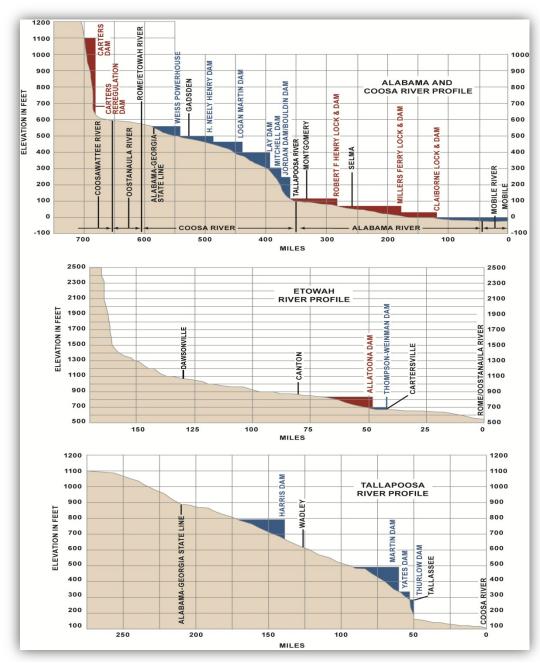


Figure 3. Alabama-Coosa-Tallapoosa River Basin Profile Map

B. **Allatoona Dam and Lake**. The Corps' Allatoona Dam on the Etowah River creates the 11,862 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.

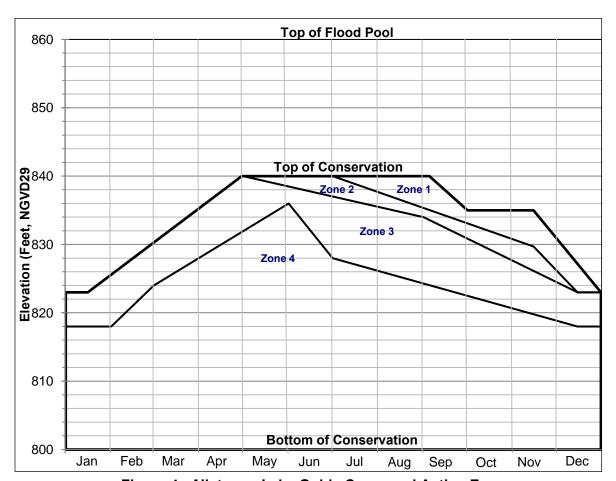


Figure 4. Allatoona Lake Guide Curve and Action Zones

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.

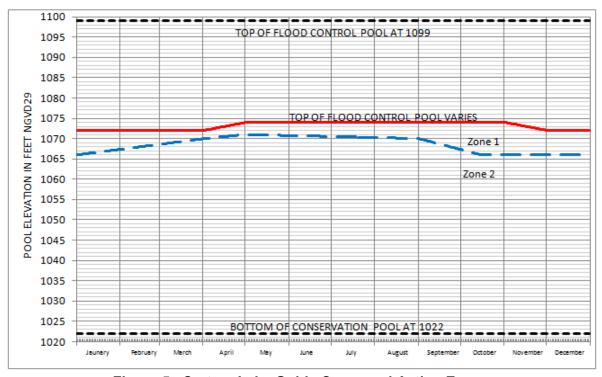


Figure 5. Carters Lake Guide Curve and Action Zones

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 water control manuals 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.

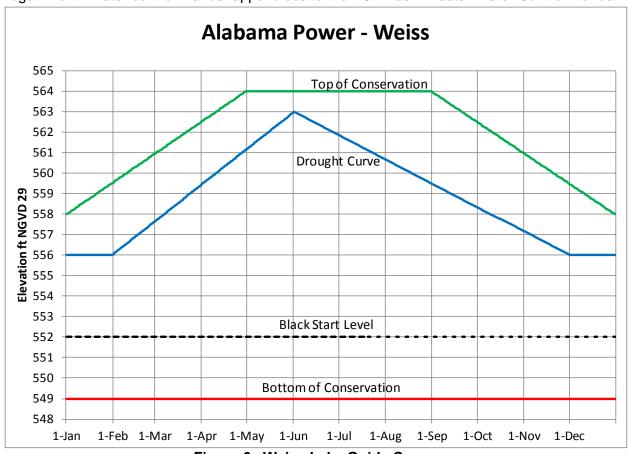


Figure 6. Weiss Lake Guide Curve

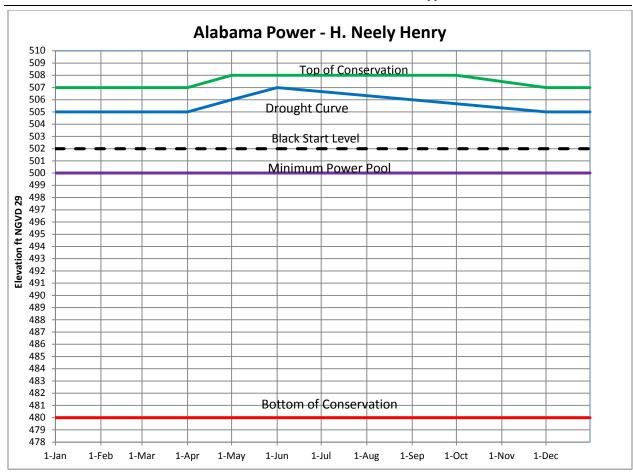


Figure 7. H. Neely Henry Lake Guide Curve

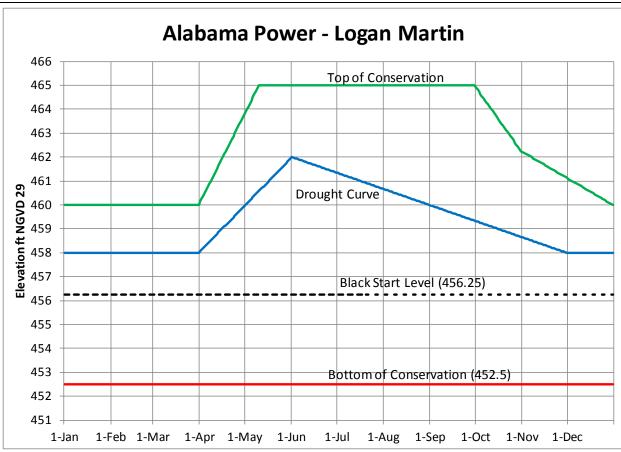


Figure 8. Logan Martin Lake Guide Curve

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 water control manuals for the APC projects, and this DCP.

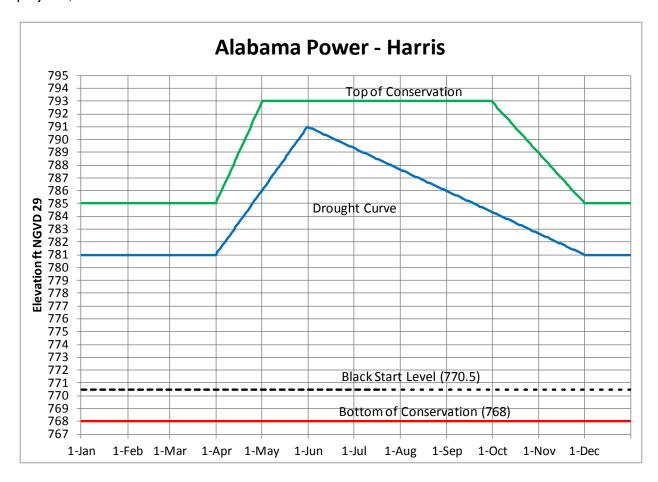


Figure 9. Robert L. Harris Lake Guide Curve

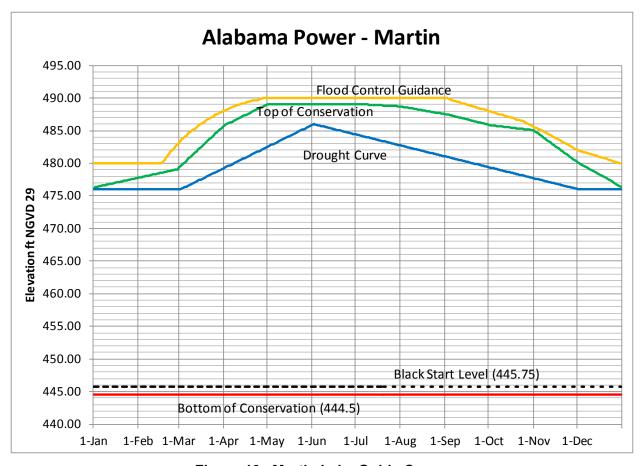


Figure 10. Martin Lake Guide Curve

- 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 18,500 acres and a storage capacity of 346,254 acre-feet at a normal full pool elevation of 80 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) <u>Claiborne</u>. 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 water control manuals 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 2005)

Water use category	Quantity (mgd)	% of total
Total Use	788.98	100%
Public Supply	154.78	19.6%
Domestic and Commercial	0.30	0.0%
Industrial and Mining	32.49	4.1%
Irrigation	11.31	1.4%
Livestock	16.18	2.1%
Thermoelectric Power Generation	573.92	72.8%

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	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 Sprngs	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			

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

- 10010	5 (continued). Wat s	uriado water	Withalaw	ar pormite in the A	y Daoin (Joorgia,
River basin	Permit holder	Permit number	County	Source water	Permit limit max day (mgd)	Permit limit monthly average (mgd)
Coosa	Calhoun, City of	064-1493-01	Gordon	Coosawattee River	18.000	16.000
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

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	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
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 F	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 (Georg	ia)	•	
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

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

Basin (subbasin)	Withdrawal by	County	Withdrawal (mgd)
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 (Georgi	a)		
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 Categor	у	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 (Alab	ama)		
Coosa (Upper)	Centre Water Works & Sewer Board	Cherokee	1.19
Coosa (Upper)	Piedmont Water Works & Sewer Board	Calhoun	0.93
Coosa (Middlé)	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
Basin (subbasin)	Withdrawal by	County	Withdrawal (mgd)
Tallapoosa (Middle)	Alexander City Water Department	Tallapoosa	10.57
Tallapoosa (Vildule) 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
	Tallassee		1.98
Tallapoosa (Lower)		Tallapoosa	2.71
Tallapoosa (Lower)	Tuskegee Utilities Montgomery Water Works & Sewer Board	Macon	
Tallapoosa (Lower)	Montgomery Water Works & Sewer Board	Montgomery	25.17
Alabama River Basin		1.5.4	10.10
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

General. The availability of water resources in the ACT Basin is constrained by existing water supply storage contracts, Corps water control manuals, 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 water control manual 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 water control manual 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) <u>Drought Indicators</u>. 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	Jı	un	Jul	Aug	Sep	Oct	Nov	Dec
ь _а	Normal Operations												
ghi el	DIL 1: Low Basin Inflows or Low Composite or Low State Line Flow												
Drought Level esponse	DIL 2: DIL 1 criteria + (Low Basin Inflows or Low Composite or Low State Line Flow)												
Drought Level Response ^a	DIL 3: Low Basin Inflows + Low Composite + Low State Line Flow												
	Normal	Operation: 2	2,000 cfs	4,000	(8,000)	4,000 -	- 2,000			Normal O	peration: 2,00	0 cfs	
r Flow ^b	Jordan 2,000 +/-cfs			4,000 +/- cfs	i	6/15 Linear Ramp down	Jordan 2,000 +/-cfs		J	Jordan 2,000 +/-cfs			
Coosa River Flow ^b	Jordan	1,600 to 2,0	00 +/-cfs	6/15 Linear Ramp down		Jordan 1,600 to 2,000		000 +/-cfs					
ပိ	Jor	Jordan 1,600 +/-cfs			Jord	dan 2,000 +	-/-cfs		1,600 to 0 +/-cfs	Jordan 1,600 +/- cfs			
ē						Normal	Operations:	: 1200 cfs					
Tallapoosa River Flow ^c	_	eater of: 1/2 Gage(Thurlo cl					1/2 Yate	ates Inflow 1/2 Yates Inf		flow			
응윤		Thurlow La	ake 350 cfs				1/2 Yate	es Inflow			Th	Thurlow Lake 350 cfs	
Tallap		ľ		cfs at Mont Lake releas	gomery WTI e 350 cfs)	D		Maintain 400 cfs at Mo Thurlow Lake 350 cfs WTP (Thurlow Lake re cfs)					
פַ	Normal Operation: Navigation or 4,640 cfs flow												
_ ⊒ a o v	4,200	ocfs (10% C	cut) - Montgo	omery	<u> </u>		4,640 cfs - N	Montgomery				uce: Full – 4	,
Alabama River Flow ^d	3,700 cfs (20% Cut) - Montgomery 4,200 cfs (10% Cut) - Montgomery				Mont	e: 4,200 cfs- gomery (1 w	eek ramp)						
		2,000 cfs 3,700 cfs Montgomery Montgomery					0 cfs (10% Montgomei	ry ´	Montg	e: 4,200 cfs - omery (1 mo			
e e u	Normal Operations: Elevations follow Guide Curves as prescribed in License (Measured in Feet)												
Guide Curve Elevation					Corps Varia								
ថ្មី ភ្ជ <u>ិ</u>					Corps Varia								
Ш	Corps Variances: As Needed; FERC Variance 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.

Month	Coosa Filling Volume	Tallapoosa Filling Volume	Total Filling Volume	Minimum JBT Target Flow	Required Basin Inflow
Jan	628	0	628	4,640	5,268
Feb	626	1,968	2,594	4,640	7,234
Mar	603	2,900	3,503	4,640	8,143
Apr	1,683	2,585	4,269	4,640	8,909
May	248	0	248	4,640	4,888
Jun			0	4,640	4,640
Jul			0	4,640	4,640
Aug			0	4,640	4,640
Sep	-612	-1,304	-1,916	4,640	2,724
Oct	-1,371	-2,132	-3,503	4,640	1,137
Nov	-920	-2,748	-3,667	4,640	973
Dec	-821	-1,126	-1,946	4,640	2,694

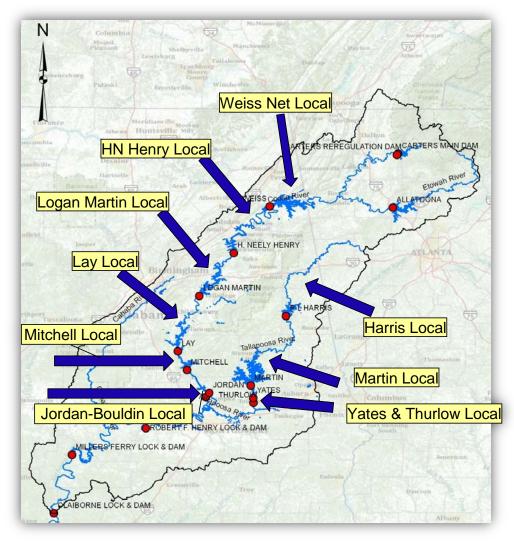


Figure 11. ACT Basin Inflows

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.

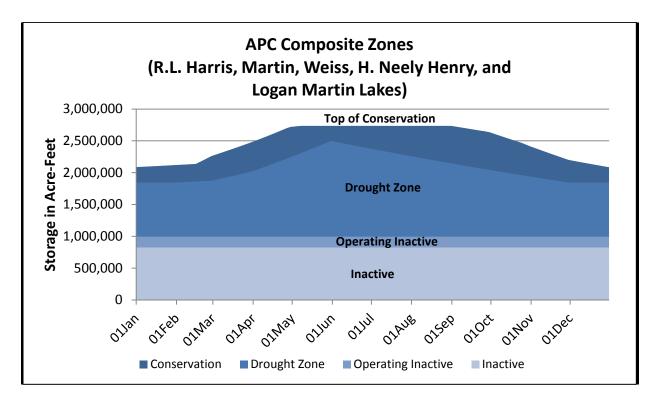


Figure 12. APC Composite Zones

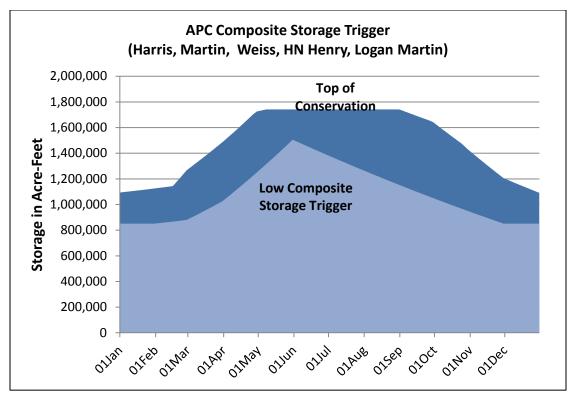


Figure 13. APC Low Composite Conservation Storage Drought Trigger

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) <u>Drought Regulation</u>. 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 thru 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.

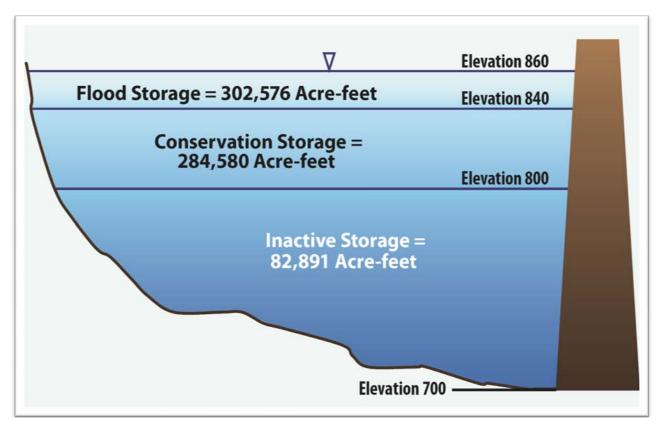


Figure 14. Storage in Allatoona Lake

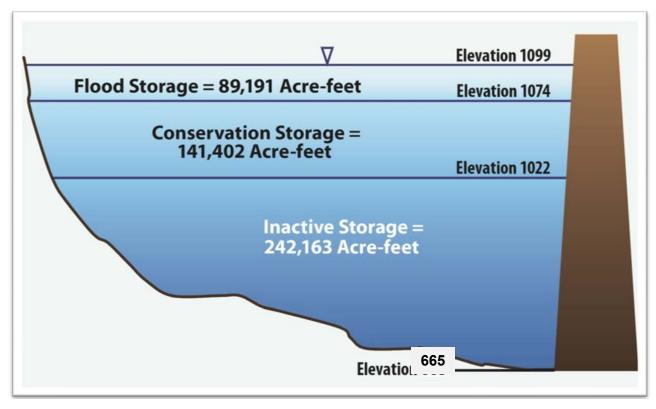


Figure 15. Storage in Carters Lake (excluding reregulation pool)

VIII - DROUGHT MANAGEMENT COORDINATION AND PROCEDURES

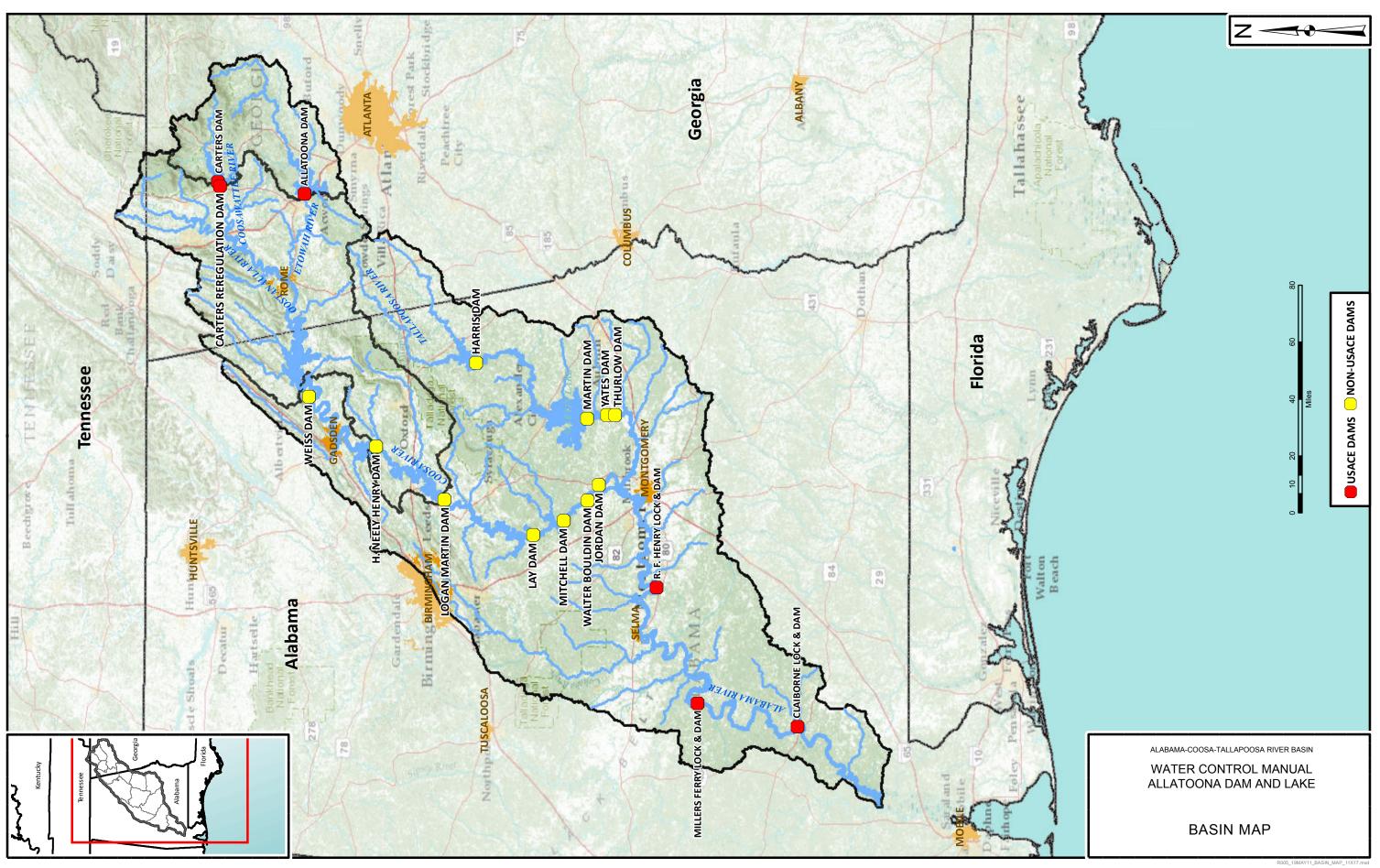
- 8-01. <u>USACE Coordination</u>. It is the responsibility of the Mobile District Water Management Section and APC to monitor climatological and hydrometeorological conditions at all times to make prudent water management decisions. The Water Management Section makes daily decisions and coordinates 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.** <u>Interagency Coordination</u>. 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 http://water.sam.usace.army.mil/. 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.

IX - REFERENCES

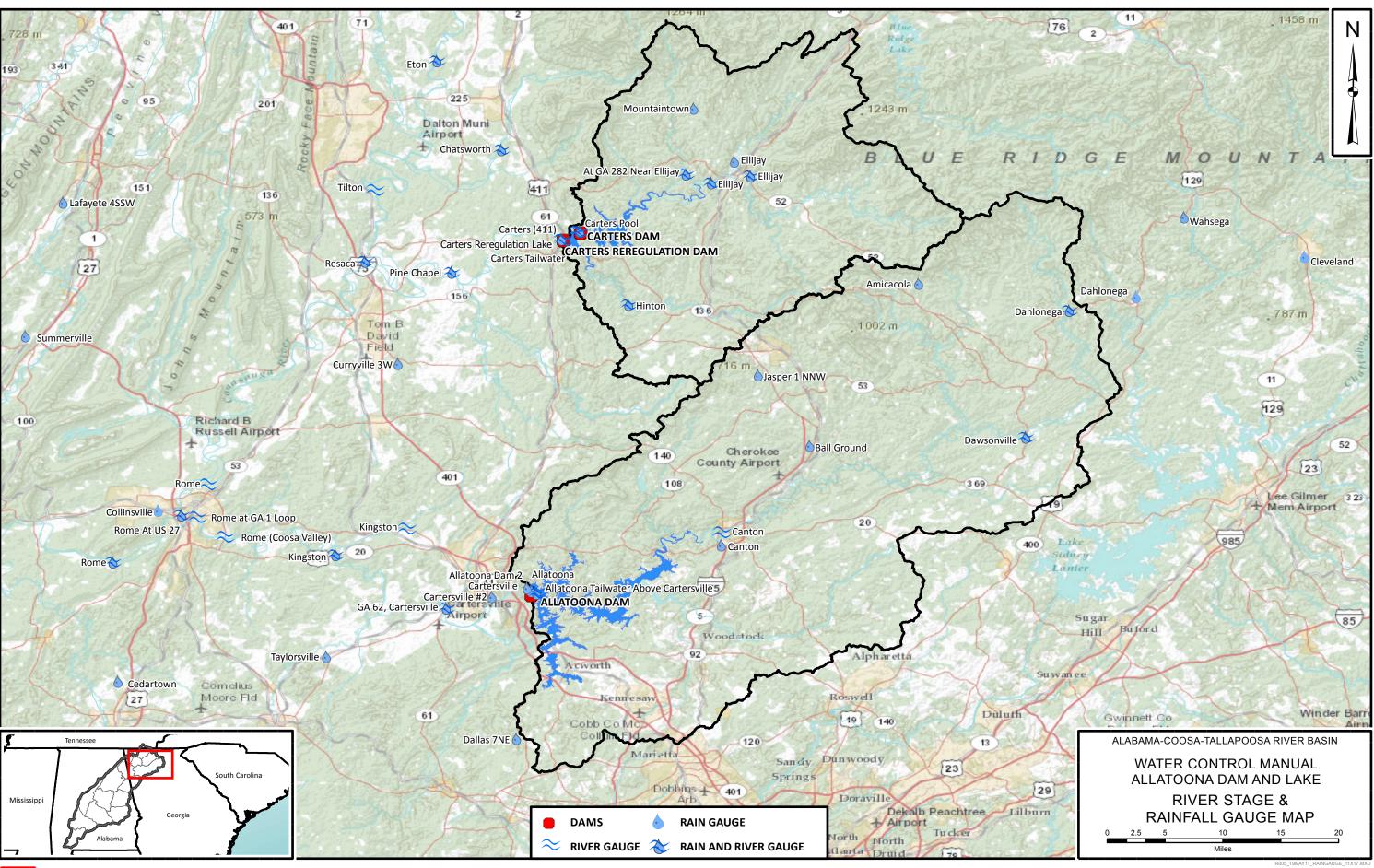
- Institute for Water Resources (IWR). 1991. National Study of Water Management During Drought A Research Assessment, U.S. Army Corps of Engineers, Water Resources Support Center, Institute for Water Resources, IWR Report 91-NDS-3.
- Institute for Water Resources (IWR). 1994. National Study of Water Management During Drought The Report to the U.S. Congress, U.S. Army Corps of Engineers, Water Resources Support Center, Institute for Water Resources, IWR Report 94-NDS-12.
- Institute for Water Resources (IWR). 1998. Water Supply Handbook, U.S. Army Corps, Water Resources Support Center, Institute for Water Resources, Revised IWR Report 96-PS-4.
- U.S. Army Corps of Engineers, (USACE). 1993. Development of Drought Contingency Plans, Washington, DC: CECW-EH-W Technical Letter No. 1110-2-335, (ETL 1110-2-335).
- U.S. Army Corps of Engineers, (USACE). January 2009. Western States Watershed Study: Drought.
- U. S. Geological Survey (USGS). 2000. *Droughts in Georgia*. Open-file report 00-380. U.S. Geological Survey, Atlanta, Georgia.

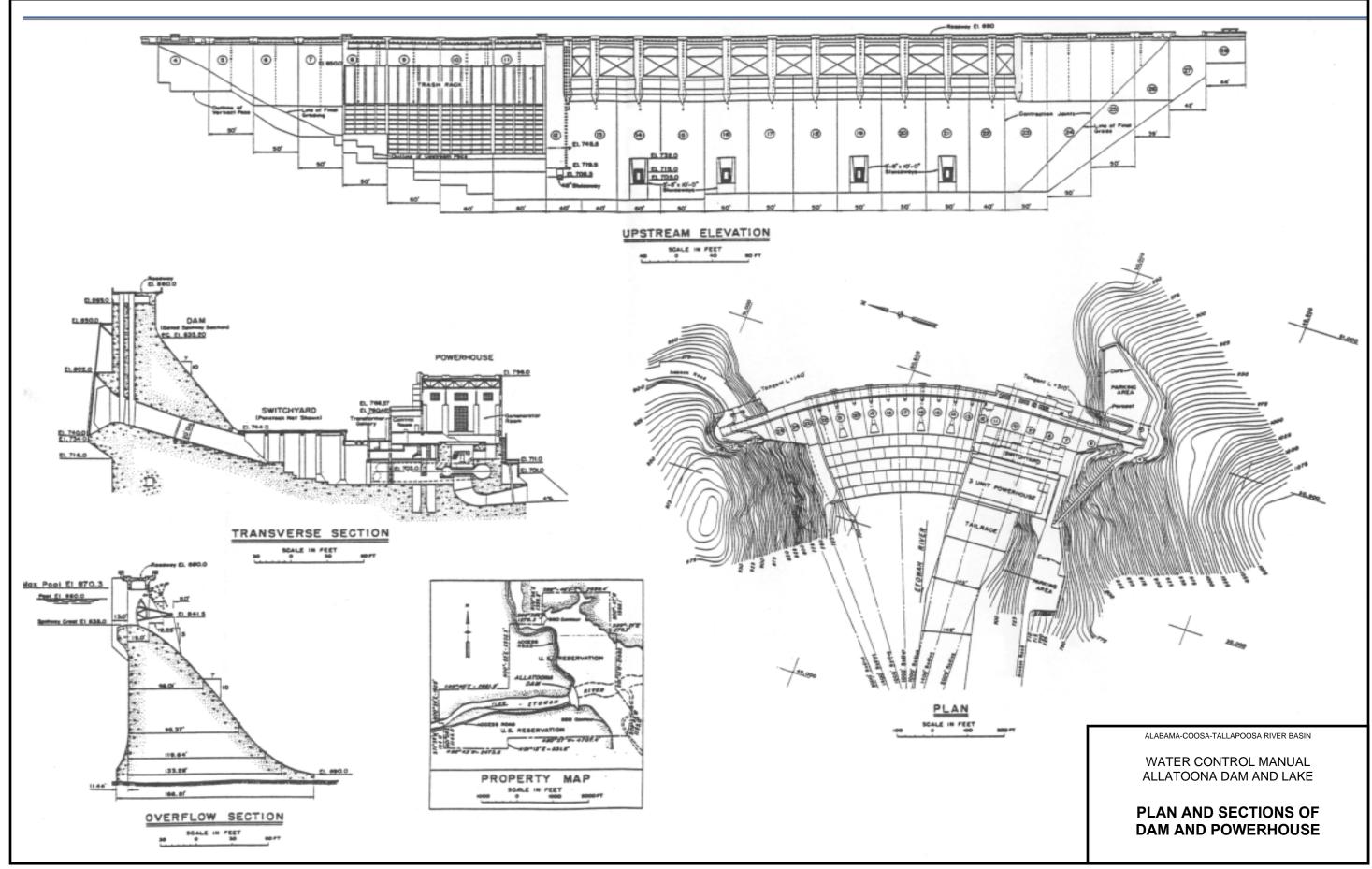
PLATES

CORPS OF ENGINEERS U.S. ARMY

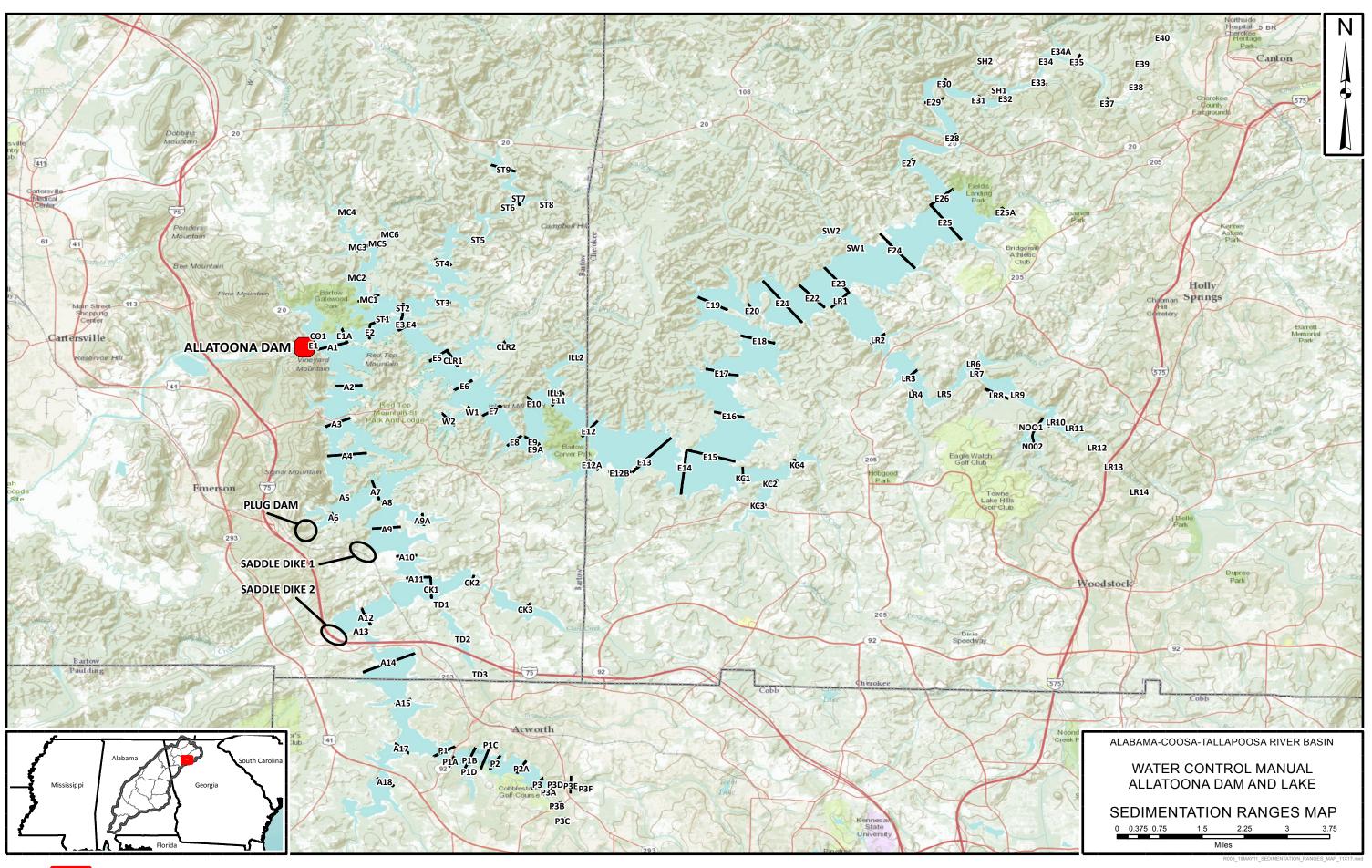


CORPS OF ENGINEERS U.S. ARMY

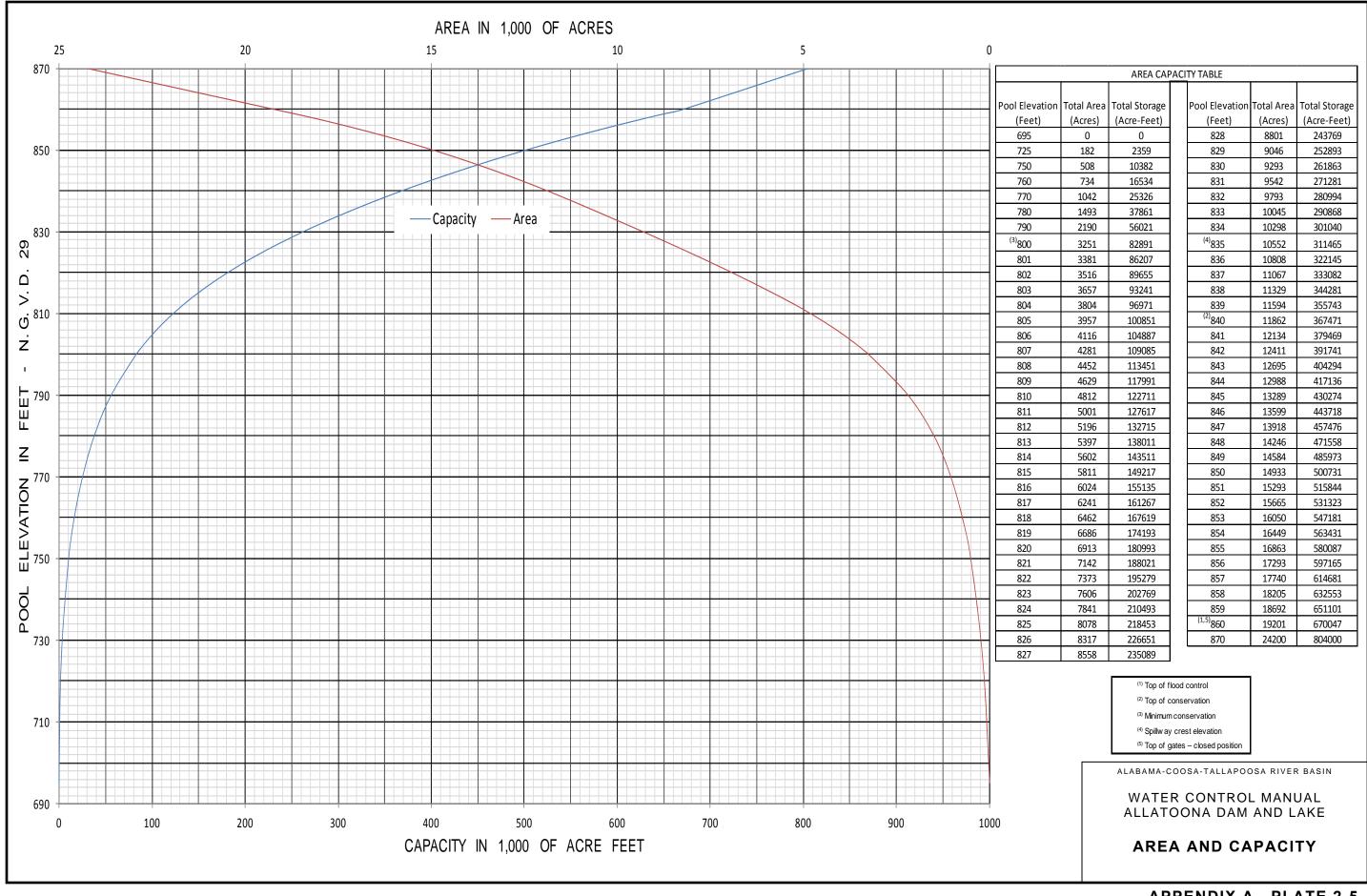




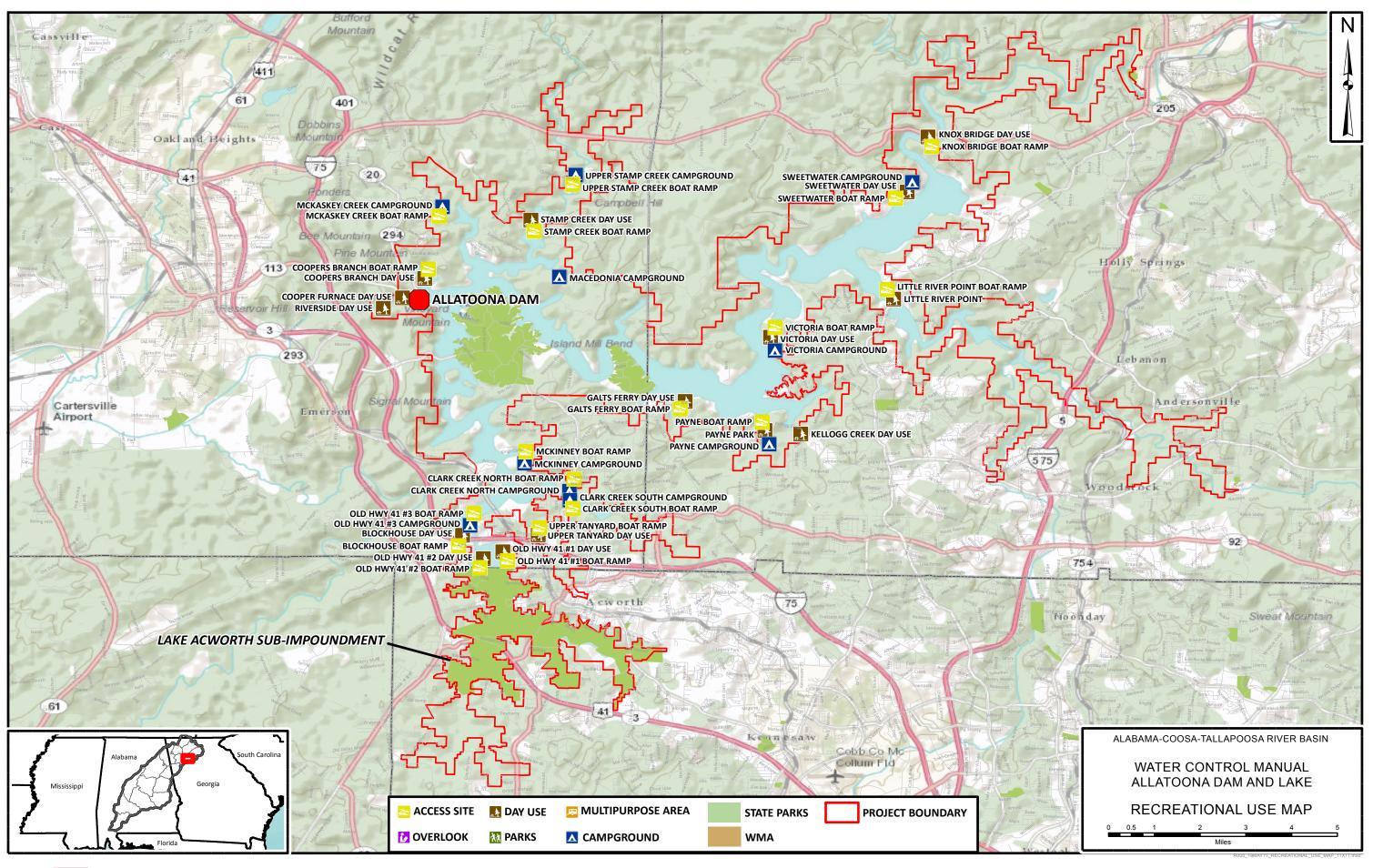
CORPS OF ENGINEERS U.S. ARMY

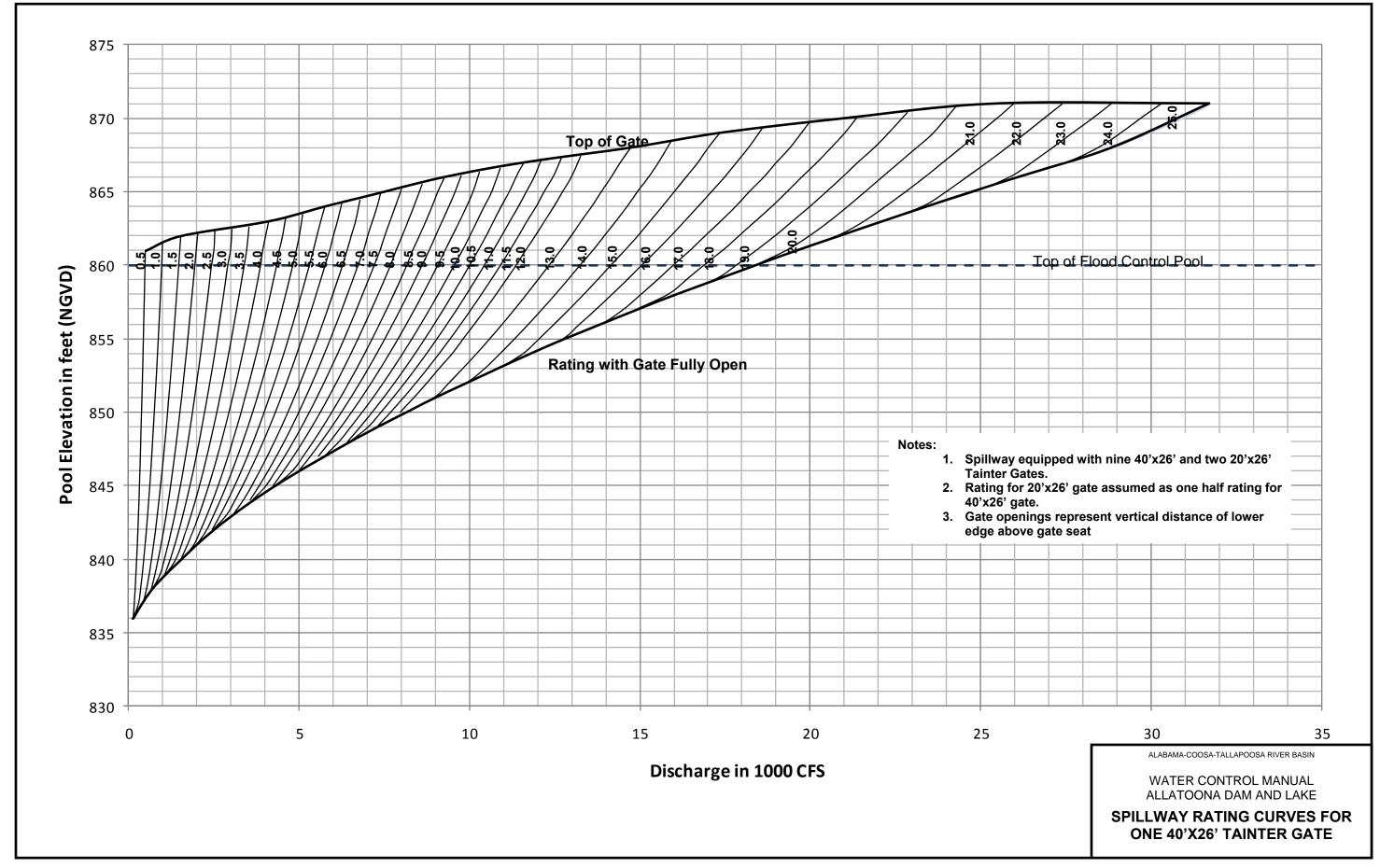


CORPS OF ENGINEERS U. S. ARMY



CORPS OF ENGINEERS U.S. ARMY



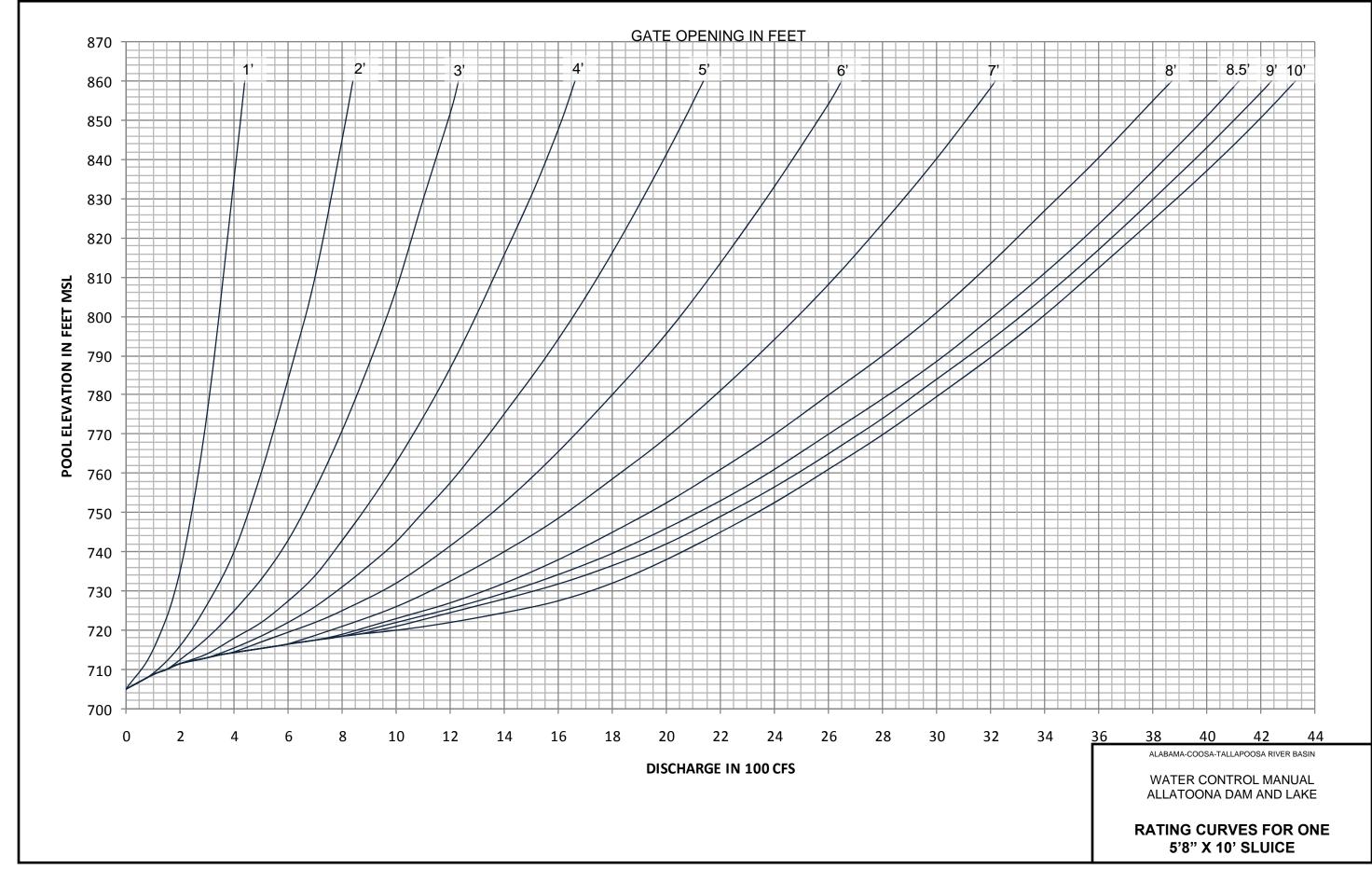


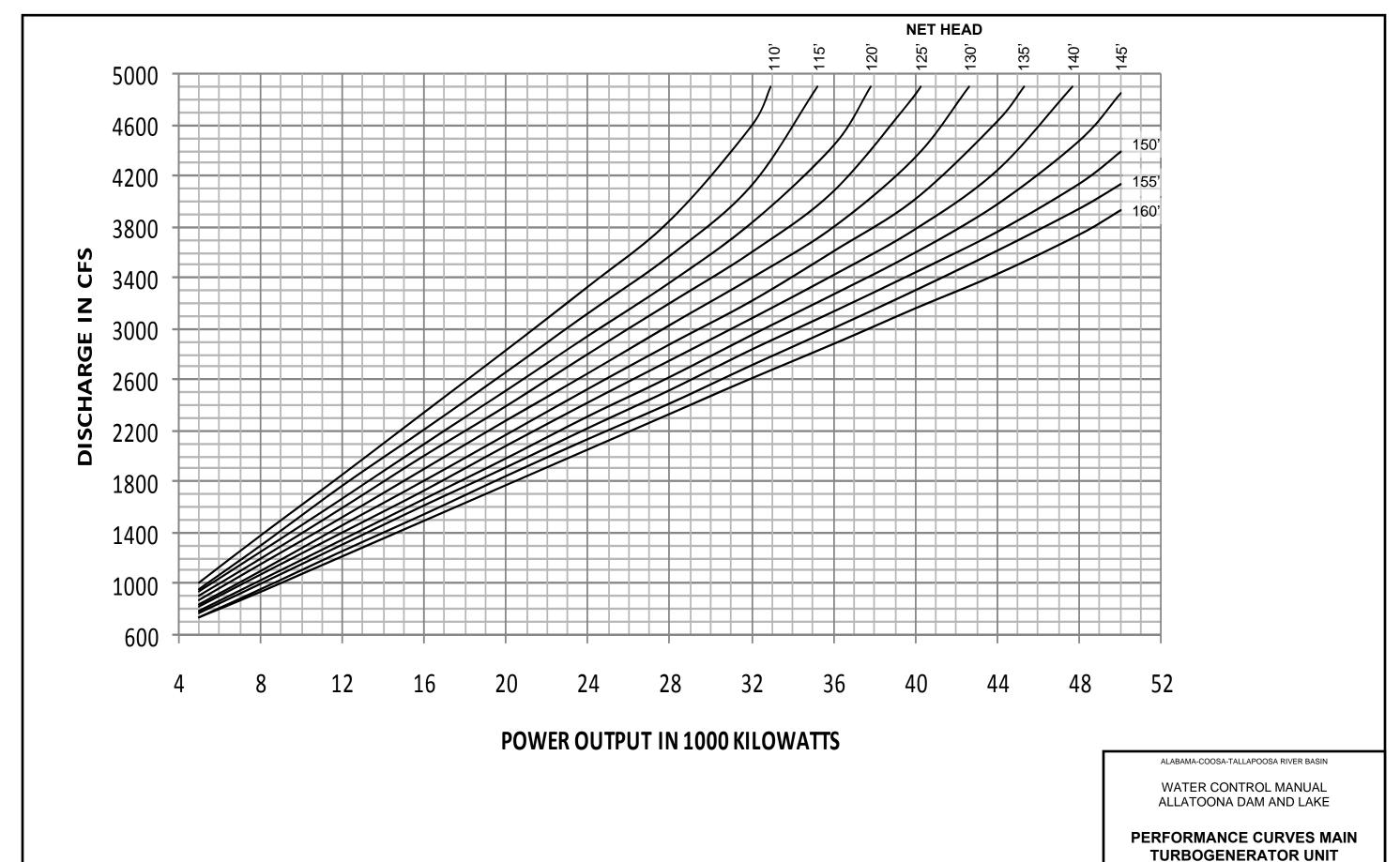
CORPS OF ENGINEERS U. S. ARMY

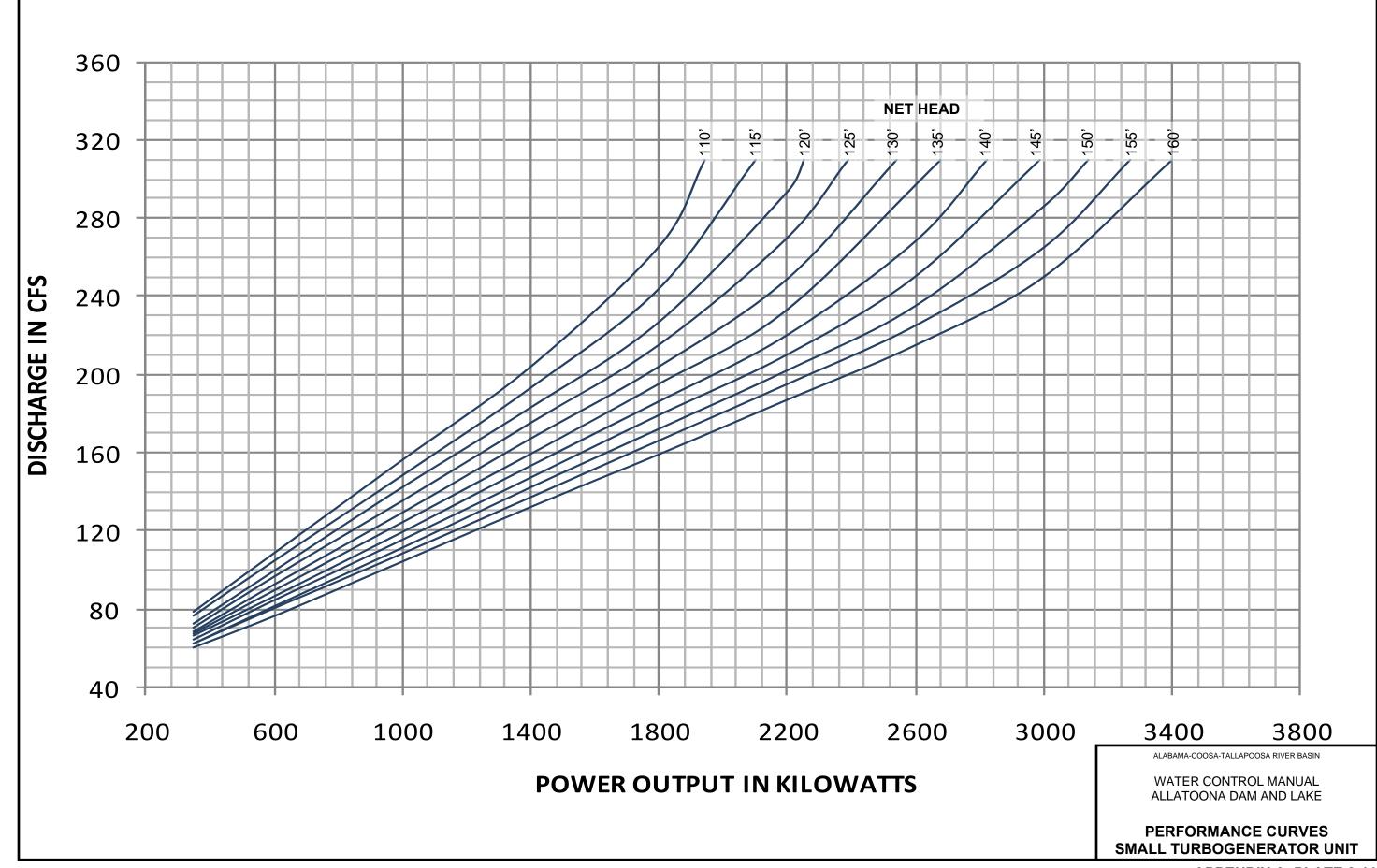
ol 836	0.5 120	0.75 130	1 140	1.25	1.5	1.75	2	2.25	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11
837	155	225	295	348	400																						
838	180	268	355	433	510	583	655	678	700	4005	4400																
839 840	205 225	305 335	405 445	495 550	585 655	673 755	760 855	840 948	920 1040	1065 1220	1100 1380	1535	1550														
841	245	365	445	600	715	828	940	1045	1150	1355	1545	1730	1900	2000													
842	265	395	525	650	775	895	1015	1133	1250	1475	1690	1905	2100	2290	2460	2500											
843	280	418	555	690	825	958	1090	1218	1345	1590	1825	2065	2285	2495	2700	2890	3050										
844	295	443	590	733	875	1015	1155	1293	1430	1695	1955	2210	2455	2690	2915	3135	3355	3550	3650								
845	310	465	620	770	920	1070	1220	1365	1510	1795	2070	2350	2615	2870	3120	3360	3605	3825	4050	4260	4300						
846	325	488	650	808	965	1123	1280	1435	1590	1890	2185	2480	2765	3040	3310	3570	3840	4085	4330	4565	4795	5000					
847	340	508	675	843 878	1010	1175	1340 1390	1500	1660	1980 2065	2290	2605 2725	2905 3040	3200 3355	3490 3660	3775	4060 4270	4330	4595	4855	5110 5405	5345	5580 5920	5750	6420	6500	
848 849	350 360	525 543	700 725	910	1055 1095	1223 1270	1445	1560 1623	1730 1800	2065 2145	2390 2485	2725 2835	3040 3170	3505 3505	3825	3965 4145	4270 4470	4560 4780	4850 5085	5130 5385	5405 5685	5660 5965	6245	6180 6523	6420 6790	6500 7035	7
850	375	563	750	940	1130	1313	1495	1680	1865	2225	2580	2945	3295	3645	3980	4320	4665	4990	5315	5635	5950	6250	6555	6855	7143	7410	7
851	385	580	775	970	1165	1355	1545	1735	1925	2300	2670	3050	3410	3780	4130	4485	4850	5190	5535	5870	6205	6525	6850	7175	7480	7765	8
852	400	600	800	1003	1205	1400	1595	1790	1985	2375	2760	3155	3530	3910	4275	4645	5025	5380	5745	6100	6450	6790	7130	7475	7800	8110	8
853	410	615	820	1030	1240	1440	1640	1843	2045	2450	2845	3250	3640	4035	4415	4800	5195	5570	5945	6315	6685	7040	7400	7765	8110	8435	8
854	420	633	845	1058	1270	1478	1685	1895	2105	2520	2925	3345	3750	4160	4555	4950	5360	5750	6145	6530	6915	7285	7665	8045	8410	8755	9
855 856	430	648	865	1085 1110	1305	1518 1555	1730 1775	1945	2160	2585	3005	3440	3855	4280 4395	4685	5100 5240	5525	5925 6095	6335	6735	7135	7525 7755	7915	8315	8695	9055	9
857	440 450	663 678	885 905	1138	1335 1370	1593	1815	1995 2040	2215 2265	2650 2715	3085 3160	3530 3620	3960 4060	4505 4505	4815 4940	5240 5380	5680 5830	6260	6515 6695	6935 7125	7350 7560	7755 7975	8160 8400	8575 8830	8975 9245	9350 9640	9 10
858	460	693	925	1163	1400	1628	1855	2088	2320	2780	3235	3705	4155	4615	5060	5515	5980	6420	6870	7315	7760	8195	8630	9075	9505	9915	10
859	470	708	945	1188	1430	1663	1895	2133	2370	2840	3305	3790	4250	4725	5180	5645	6125	6580	7040	7500	7960	8405	8855	9315	9760	10185	10
860	480	723	965	1213	1460	1698	1935	2178	2420	2900	3380	3870	4345	4830	5300	5775	6265	6735	7210	7680	8150	8610	9075	9550	10010	10450	10
861	490	738	985	1238	1490	1735	1980	2235	2490	2980	3450	3930	4420	4930	5410	5910	6400	6900	7380	7840	8320	8820	9290	9790	10260	10700	11
862					1520	1773	2025	2273	2520	3020	3520	4020	4520	5020	5520	6020	6520	7020	7520	8020	8520	9010	9500	10010	10500	10960	11
863 864												4100	4610	5120	5630 5740	6140 6260	6650 6780	7160 7300	7670 7830	8190 8360	8710 8890	9200 9400	9720 9920	10220 10430	10720 10940	11200 11450	11
																							9920	10430			
															07-10	0200	0.00										
865 866															01-10	0200	0,00	7480	8010	8540	9060 9240	9580 9760	10110 10300	10650 10840	11180 11390	11680 11910	12
865															07.10	0200	0,00				9060	9580	10110	10650	11180	11680	119 122 124 127
865 866 867	12	CFS D	ischar <u>(</u>	ge of O	ne 40 l	Foot Ra	adial Ga	ate with	Openi	ngs at	Indicat	ors in	Feet	18.5	19	10.5		7480			9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
865 866	12	CFS D	ischarç	ge of O	ne 40 l	Foot Ra	adial Ga	ate with	Openi	ngs at	Indicat	ors in	Feet	18.5	19	19.5	20				9060	9580	10110	10650	11180 11390	11680 11910	12 12
865 866 867 848 849 850	12 7965	12.5 8058	13 8150	13.5	14	Foot Ra	adial Ga	ate with	Openi	ngs at	Indicat	ors in	Feet	18.5	19	19.5		7480			9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851	12 7965 8370	12.5 8058 8670	13 8150 8970	13.5 8985	14 9000	Foot Ra	adial Ga	ate with	Openi	ngs at	Indicat	ors in	Feet	18.5	19	19.5		7480			9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852	7965 8370 8755	12.5 8058 8670 9078	8150 8970 9400	13.5 8985 9650	9000 9900	14.5	adial Ga 15	ate with	Openi 16	ngs at 16.5	Indicat	ors in	Feet 18	18.5	19	19.5		7480			9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852 853	7965 8370 8755 9120	12.5 8058 8670 9078 9468	8150 8970 9400 9815	8985 9650 10135	9000 9900 10455	14.5 10653	15	15.5	16	ngs at 16.5	Indicat	ors in	Feet 18	18.5	19	19.5		7480			9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852 853 854	7965 8370 8755 9120 9775	12.5 8058 8670 9078 9468 9995	8150 8970 9400 9815 10215	8985 9650 10135 10555	9000 9900 10455 10895	14.5 10653 11228	15 10850 11560	15.5 11680	16	ngs at 16.5	17	ors in	Feet 18	18.5	19	19.5		7480			9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852 853	7965 8370 8755 9120	12.5 8058 8670 9078 9468	8150 8970 9400 9815	8985 9650 10135	9000 9900 10455	14.5 10653	15	15.5	16	16.5	17 17 12800 13850	ors in	Feet 18	18.5	19	19.5		7480			9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852 853 854 855 856 857	7965 8370 8755 9120 9775 9820 10150 10470	8058 8670 9078 9468 9995 10208	8150 8970 9400 9815 10215 10595	8985 9650 10135 10555 10958 11348 11723	9000 9900 10455 10895 11320	14.5 10653 11228 11673	10850 11560 12025 12475 12910	15.5 11680 12383	11800 12740	16.5	12800 13850 14515	tors in 17.5	Feet 18	18.5	19	19.5		7480			9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852 853 854 855 856 857 858	7965 8370 8755 9120 9775 9820 10150 10470 10780	8058 8670 9078 9468 9995 10208 10558 10895 11223	8150 8970 9400 9815 10215 10595 10965 11320 11665	8985 9650 10135 10555 10958 11348 11723 12085	9000 9900 10455 10895 11320 11730 12125 12505	10653 11228 11673 12103 12518 12918	10850 11560 12025 12475 12910 13330	11680 12383 12855 13313 13753	11800 12740 13235 13715 14175	16.5 12770 13543 14115 14598	12800 13850 14515 15020	17.5 14728 15430	18 14940 15840	15945	19	19.5		7480			9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 851 852 853 854 855 856 857 858 859	7965 8370 8755 9120 9775 9820 10150 10470 10780 11080	8058 8670 9078 9468 9995 10208 10558 10895 11223 11540	8150 8970 9400 9815 10215 10595 10965 11320 11665 12000	8985 9650 10135 10555 10958 11348 11723 12085 12438	9000 9900 10455 10895 11320 11730 12125 12505 12875	14.5 10653 11228 11673 12103 12518 12918 13308	10850 11560 12025 12475 12910 13330 13740	11680 12383 12855 13313 13753 14183	11800 12740 13235 13715 14175 14625	12770 13543 14115 14598 15068	12800 13850 14515 15020 15510	17.5 14728 15430 15943	14940 15840 16375	15945 16788	19 16050 17200	19.5	20	7480			9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852 853 854 855 856 857 858 859 860	7965 8370 8755 9120 9775 9820 10150 10470 10780 11080 11375	8058 8670 9078 9468 9995 10208 10558 10895 11223 11540 11853	8150 8970 9400 9815 10215 10595 10965 11320 11665 12000 12330	13.5 8985 9650 10135 10555 10958 11348 11723 12085 12438 12783	9000 9900 10455 10895 11320 11730 12125 12505 12875 13235	14.5 10653 11228 11673 12103 12518 12918 13308 13685	10850 11560 12025 12475 12910 13330 13740 14135	11680 12383 12855 13313 13753 14183 14595	11800 12740 13235 13715 14175 14625 15055	12770 13543 14115 14598 15068 15518	12800 13850 14515 15020 15510 15980	17.5 14728 15430 15943 16435	14940 15840 16375 16890	15945 16788 17368	16050 17200 17845	19.5	20 18400	7480 20.5	21		9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852 853 854 855 856 857 858 859 860 861	7965 8370 8755 9120 9775 9820 10150 10470 10780 11080 11375 11650	8058 8670 9078 9468 9995 10208 10558 10895 11223 11540 11853 12155	8150 8970 9400 9815 10215 10595 10965 11320 11665 12000 12330 12660	8985 9650 10135 10555 10958 11348 11723 12085 12438 12783 13135	9000 9900 10455 10895 11320 11730 12125 12505 12875 13235 13610	14.5 10653 11228 11673 12103 12518 12918 13308 13685 14075	10850 11560 12025 12475 12910 13330 13740 14135 14540	11680 12383 12855 13313 13753 14183 14595 15020	11800 12740 13235 13715 14175 14625 15055 15500	12770 13543 14115 14598 15068 15518 15985	12800 13850 14515 15020 15510 15980 16470	17.5 14728 15430 15943 16435 16955	14940 15840 16375 16890 17440	15945 16788 17368 17930	16050 17200 17845 18420	19.5 18123 18860	20 18400 19300	20.5	21 21	21.5	9060 9240 22	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852 853 854 855 856 857 858 859 860	7965 8370 8755 9120 9775 9820 10150 10470 10780 11080 11375	8058 8670 9078 9468 9995 10208 10558 10895 11223 11540 11853	8150 8970 9400 9815 10215 10595 10965 11320 11665 12000 12330	13.5 8985 9650 10135 10555 10958 11348 11723 12085 12438 12783	9000 9900 10455 10895 11320 11730 12125 12505 12875 13235	14.5 10653 11228 11673 12103 12518 12918 13308 13685	10850 11560 12025 12475 12910 13330 13740 14135	11680 12383 12855 13313 13753 14183 14595	11800 12740 13235 13715 14175 14625 15055	12770 13543 14115 14598 15068 15518	12800 13850 14515 15020 15510 15980	17.5 14728 15430 15943 16435	14940 15840 16375 16890	15945 16788 17368	16050 17200 17845	19.5	20 18400	7480 20.5	21		9060	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852 853 854 855 856 857 858 859 860 861 862	7965 8370 8755 9120 9775 9820 10150 10470 10780 11080 11375 11650 11940	8058 8670 9078 9468 9995 10208 10558 10895 11223 11540 11853 12155 12460	8150 8970 9400 9815 10215 10595 10965 11320 11665 12000 12330 12660 12980	8985 9650 10135 10555 10958 11348 11723 12085 12438 12783 13135 13465	9000 9900 10455 10895 11320 11730 12125 12505 12875 13235 13610 13950	14.5 10653 11228 11673 12103 12518 12918 13308 13685 14075 14440	10850 11560 12025 12475 12910 13330 13740 14135 14540 14930	11680 12383 12855 13313 13753 14183 14595 15020 15425	11800 12740 13235 13715 14175 14625 15055 15500 15920	12770 13543 14115 14598 15068 15518 15985 16420	12800 13850 14515 15020 15510 15980 16470 16920	17.5 14728 15430 15943 16435 16955 17420	14940 15840 16375 16890 17440 17920	15945 16788 17368 17930 18450	16050 17200 17845 18420 18980	19.5 18123 18860 19480	20 18400 19300 19980	20.5 20.5 19450 20395	21 21 19600 20810	21.5 20835	9060 9240 22 20860	9580	10110	10650	11180 11390	11680 11910 12120	12 12
848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865	7965 8370 8755 9120 9775 9820 10150 10470 10780 11080 11375 11650 11940 12210 12490 12740	8058 8670 9078 9468 9995 10208 10558 10895 11223 11540 11853 12155 12460 12740 13035 13300	8150 8970 9400 9815 10215 10595 10965 11320 11665 12000 12330 12660 12980 13270	8985 9650 10135 10555 10958 11348 11723 12085 12438 12783 13135 13465 13780 14100 14390	9000 9900 10455 10895 11320 11730 12125 12505 12875 13235 13610 13950 14290 14620 14920	14.5 10653 11228 11673 12103 12518 12918 13308 13685 14075 14440 14790 15135 15460	10850 11560 12025 12475 12910 13330 13740 14135 14540 14930 15290 15650 16000	11680 12383 12855 13313 13753 14183 14595 15020 15425 15805 16185 16555	11800 12740 13235 13715 14175 14625 15055 15500 15920 16320 16720 17110	12770 13543 14115 14598 15068 15518 15985 16420 16850 17270 17665	12800 13850 14515 15020 15510 15980 16470 16920 17380 17820 18220	14728 15430 15943 16435 16955 17420 17890 18350 18770	14940 15840 16375 16890 17440 17920 18400 18880 19320	15945 16788 17368 17930 18450 18945 19440 19900	16050 17200 17845 18420 18980 19490 20000 20480	19.5 18123 18860 19480 20030 20500 21045	18400 19300 19980 20570 21000 21610	7480 20.5 19450 20395 21085 21610 22210	19600 20810 21600 22220 22810	21.5 21.5 20835 21875 22765 23405	20860 22150 23310 24000	9580 9760 22.5 23365 24400	23 23 23 23 23420 24800	10650 10840	11180 11390 11600	11680 11910 12120	12 12
848 849 850 851 852 853 854 855 856 857 858 860 861 862 863 864 865 866	7965 8370 8755 9120 9775 9820 10150 10470 10780 11375 11650 11940 12210 12490 12740 13000	8058 8670 9078 9468 9995 10208 10558 10895 11223 11540 11853 12155 12460 12740 13035 13300 13575	8150 8970 9400 9815 10215 10595 10965 11320 11665 12000 12330 12660 12980 13270 13580 13860 14150	13.5 8985 9650 10135 10555 10958 11348 11723 12085 12438 12783 13135 13465 13780 14100 14390 14700	9000 9900 10455 10895 11320 11730 12125 12505 12875 13235 13610 13950 14290 14620 14920 15250	14.5 10653 11228 11673 12103 12518 12918 13308 13685 14075 14440 14790 15135 15460 15800	10850 11560 12025 12475 12910 13330 13740 14135 14540 14930 15290 15650 16000 16350	11680 12383 12855 13313 13753 14183 14595 15020 15425 15805 16185 16555 16925	11800 12740 13235 13715 14175 14625 15055 15500 15920 16320 16720 17110 17500	12770 13543 14115 14598 15068 15518 15985 16420 16850 17270 17665 18075	12800 13850 14515 15020 15510 15980 16470 16920 17380 17820 18220 18650	14728 15430 15943 16435 16955 17420 17890 18350 18770 19200	14940 15840 16375 16890 17440 17920 18400 18880 19320 19750	15945 16788 17368 17930 18450 18945 19440 19900 20350	16050 17200 17845 18420 18980 19490 20000 20480 20950	18123 18860 19480 20030 20500 21045 21530	18400 19300 19980 20570 21000 21610 22110	7480 20.5 19450 20395 21085 21610 22210 22740	19600 20810 21600 22220 22810 23370	21.5 21.5 20835 21875 22765 23405 23985	20860 22150 23310 24000 24600	9580 9760 22.5 23365 24400 25225	23420 24800 25850	10650 10840 23.5	11180 11390 11600 24	11680 11910 12120	12 12
848 849 850 851 852 853 854 855 856 857 860 861 862 863 864 865 866 867	7965 8370 8755 9120 9775 9820 10150 10470 10780 11080 11375 11650 11940 12210 12490 12740	8058 8670 9078 9468 9995 10208 10558 10895 11223 11540 11853 12155 12460 12740 13035 13300	8150 8970 9400 9815 10215 10595 10965 11320 11665 12000 12330 12660 12980 13270 13580 13860 14150 14420	8985 9650 10135 10555 10958 11348 11723 12085 12438 12783 13135 13465 13780 14100 14390 14700 14980	9000 9900 10455 10895 11320 11730 12125 12505 12875 13235 13610 13950 14290 14620 14920 15250 15540	14.5 10653 11228 11673 12103 12518 12918 13308 13685 14075 14440 14790 15135 15460 15800 16120	10850 11560 12025 12475 12910 13330 13740 14135 14540 14930 15650 16600 16350 16700	11680 12383 12855 13313 13753 14183 14595 15020 15425 15805 16185 16555 16925 17275	11800 12740 13235 13715 14175 14625 15055 15500 15920 16320 16720 17110 17500 17850	12770 13543 14115 14598 15068 15518 15985 16420 16850 17270 17665 18075 18435	12800 13850 14515 15020 15510 15980 16470 16920 17380 17820 18220 18650 19020	14728 15430 15943 16435 16955 17420 17890 18350 18770 19200 19610	14940 15840 16375 16890 17440 17920 18400 18880 19320 19750 20200	15945 16788 17368 17930 18450 18945 19440 19900 20350 20800	16050 17200 17845 18420 18980 19490 20000 20480 20950 21400	18123 18860 19480 20030 20500 21045 21530 22010	18400 19300 19980 20570 21000 21610 22110 22620	7480 20.5 19450 20395 21085 21610 22210 22740 23260	19600 20810 21600 22220 22810 23370 23900	21.5 21.5 21875 21875 22765 23405 23985 24550	20860 22150 23310 24600 25200	9580 9760 22.5 23365 24400 25225 25850	23420 24800 25850 26500	23.5 25975 27000	11180 11390 11600 24 24	11680 11910 12120	12 12 12
848 849 850 851 852 853 854 855 856 857 868 861 862 863 864 865 866 867 868	7965 8370 8755 9120 9775 9820 10150 10470 10780 11375 11650 11940 12210 12490 12740 13000	8058 8670 9078 9468 9995 10208 10558 10895 11223 11540 11853 12155 12460 12740 13035 13300 13575	8150 8970 9400 9815 10215 10595 10965 11320 11665 12000 12330 12660 12980 13270 13580 13860 14150	13.5 8985 9650 10135 10555 10958 11348 11723 12085 12438 12783 13135 13465 13780 14100 14390 14700	9000 9900 10455 10895 11320 11730 12125 12505 12875 13235 13610 13950 14290 14620 14920 15250	14.5 10653 11228 11673 12103 12518 12918 13308 13685 14075 14440 14790 15135 15460 15800	10850 11560 12025 12475 12910 13330 13740 14135 14540 14930 15290 15650 16000 16350 16700 17000	11680 12383 12855 13313 14753 14183 14595 15020 15425 15805 16185 16555 16925 17275 17600	11800 12740 13235 13715 14175 14625 15055 15500 15920 16320 16720 17110 17500 17850 18200	12770 13543 14115 14598 15068 15518 15985 16420 16850 17270 17665 18075 18435 18810	12800 13850 14515 15020 15510 15980 16470 16920 17380 17820 18220 18650 19020 19420	14728 15430 15943 16435 16955 17420 17890 18350 18770 19200 19610 20015	14940 15840 16375 16890 17440 17920 18400 18880 19320 19750 20200 20610	15945 16788 17368 17930 18450 18945 19440 19900 20350 20800 21245	16050 17200 17845 18420 18980 19490 20000 20480 20950 21400 21880	18123 18860 19480 20030 20500 21045 21530 22010 22500	18400 19300 19980 20570 21000 21610 22110 22620 23120	7480 20.5 19450 20395 21085 21610 22210 22740 23260 23775	19600 20810 21600 22220 22810 23370 23900 24430	20835 21875 22765 23405 23985 24550 25100	20860 22150 23310 24000 24600 25200 25770	9580 9760 22.5 23365 24400 25225 25850 26435	23420 24800 25850 26500 27100	23.5 23.5 25975 27000 27765	11180 11390 11600 24 24 26100 27500 28430	11680 11910 12120 24.5	12 12 12
848 849 850 851 852 853 854 855 856 857 858 860 861 862 863 864 865 866 867	7965 8370 8755 9120 9775 9820 10150 10470 10780 11375 11650 11940 12210 12490 12740 13000	8058 8670 9078 9468 9995 10208 10558 10895 11223 11540 11853 12155 12460 12740 13035 13300 13575	8150 8970 9400 9815 10215 10595 10965 11320 11665 12000 12330 12660 12980 13270 13580 13860 14150 14420	8985 9650 10135 10555 10958 11348 11723 12085 12438 12783 13135 13465 13780 14100 14390 14700 14980	9000 9900 10455 10895 11320 11730 12125 12505 12875 13235 13610 13950 14290 14620 14920 15250 15540	14.5 10653 11228 11673 12103 12518 12918 13308 13685 14075 14440 14790 15135 15460 15800 16120	10850 11560 12025 12475 12910 13330 13740 14135 14540 14930 15650 16600 16350 16700	11680 12383 12855 13313 13753 14183 14595 15020 15425 15805 16185 16555 16925 17275	11800 12740 13235 13715 14175 14625 15055 15500 15920 16320 16720 17110 17500 17850	12770 13543 14115 14598 15068 15518 15985 16420 16850 17270 17665 18075 18435	12800 13850 14515 15020 15510 15980 16470 16920 17380 17820 18220 18650 19020	14728 15430 15943 16435 16955 17420 17890 18350 18770 19200 19610	14940 15840 16375 16890 17440 17920 18400 18880 19320 19750 20200	15945 16788 17368 17930 18450 18945 19440 19900 20350 20800	16050 17200 17845 18420 18980 19490 20000 20480 20950 21400	18123 18860 19480 20030 20500 21045 21530 22010	18400 19300 19980 20570 21000 21610 22110 22620	7480 20.5 19450 20395 21085 21610 22210 22740 23260	19600 20810 21600 22220 22810 23370 23900	21.5 21.5 21875 21875 22765 23405 23985 24550	20860 22150 23310 24600 25200	9580 9760 22.5 23365 24400 25225 25850	23420 24800 25850 26500	23.5 25975 27000	11180 11390 11600 24 24	11680 11910 12120	12 12 12

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

SPILLWAY RATING TABLES







Monthly Hydropower Production at Allatoona (MWH)															
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Max	Min
1961	7361	4092	43419	21882	16462	13599	13870	11388	9884	5030	4894	22038	173919	43419	4092
1962	31970	15328	24575	23584	15107	9509	10708	10976	4623	5684	10178	15770	178012	31970	4623
1963	11719	8013	25023	10902	34898	12943	14672	9291	9220	14282	10011	16755	177729	34898	8013
1964	14723	24797	15489	38517	39029	15578	12138	9349	9298	26376	10671	20471	236436	39029	9298
1965	10479	18538	11230	24373	12772	14202	9127	7916	9958	6939	9149	9624	144307	24373	6939
1966	5117	13852	28898	11673	28435	15779	9281	10705	8997	7410	16021	12063	168231	28898	5117
1967	10010	7699	7791	3909	17483	17103	20772	17125	23456	11467	23491	26632	186938	26632	3909
1968	29200	9743	19718	16603	17842	10254	8515	7483	8072	11038	12961	13189	164618	29200	7483
1969	16823	19323	9797	16886	14984	7998	6327	14978	9546	12247	12746	11118	152773	19323	6327
1970	7948	4930	10324	9571	9076	13038	9702	10978	8592	4667	8101	11361	108288	13038	4667
1971	12604	11822	24248	13450	15696	8505	12961	19817	11905	9739	14044	21751	176542	24248	8505
1972	34784	18610	11758	9344	25830	12172	8718	12190	8120	5534	17593	22810	187463	34784	5534
1973	23925	15808	19011	31133	32297	35406	15372	11873	8797	14844	14659	16880	240005	35406	8797
1974	32770	22644	11457	30582	16209	12978	10356	13171	11884	9106	10868	15944	197969	32770	9106
1975	17121	20796	26481	24917	18050	11816	9981	12339	8358	18684	16886	15605	201034	26481	8358
1976	19171	14354	27117	41222	21739	15149	17069	10315	9849	7336	10796	12082	206199	41222	7336
1977	14846	5296	12538	39588	22074	8231	7632	8092	7746	12291	35362	18389	192085	39588	5296
1978	26592	18287	10330	8218	20459	9910	7319	12652	6804	7613	9055	9492	146731	26592	6804
1979	14464	9725	35641	35598	36656	15036	12100	12214	6273	17486	21525	13104	229822	36656	6273
1980	18314	11744	22969	57520	41060	13068	12399	8068	7466	7037	10011	10548	220204	57520	7037
1981	6897	6815	5348	4898	7799	11660	8936	7628	8085	4149	5015	4672	81902	11660	4149
1982	15531	36606	19072	17343	19692	11138	9276	12735	9060	10835	14906	31573	207767	36606	9060
1983	18820	14986	16832	25819	22787	12524	9817	11561	6507	7373	12879	40364	200269	40364	6507
1984	31346	15684	19238	18856	30652	12577	18466	26162	11771	14138	3658	15432	217980	31346	3658
1985	11618	11347	7400	5190	7376	4923	8393	8878	6149	7350	14979	12171	105774	14979	4923
1986	5662	4338	3703	4885	4870	4477	2154	2082	2011	2112	3777	14472	54543	14472	2011
1987	15428	10760	18349	8491	5104	7224	9019	8175	4301	6147	4812	4147	101957	18349	4147
1988	12005	7692	5087	1811	1705	5046	4079	5203	5563	5123	4646	7114	65074	12005	1705
1989	10197	4828	15628	12175	8378	18587	27457	11517	7844	45402	23298	16988	202299	45402	4828
1990	24740	25852	46514	35470	17650	8737	10909	10367	9059	10805	11244	11581	222928	46514	8737

ALABAMA-COOSA-TALLAPOOSA BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

HISTORICAL HYDROPOWER
PRODUCTION
Page 1 of 2

	Monthly Hydropower Production at Allatoona (MWH)														
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Max	Min
1991	13858	10668	19752	12390	29552	12945	13162	15512	14787	11845	15735	16259	186465	29552	10668
1992	13619	11142	19363	11235	6844	10876	12788	9112	11895	10468	16275	22245	155862	22245	6844
1993	28448	17203	21485	16712	14273	10055	10190	5311	6389	8014	10275	9247	157602	28448	5311
1994	10145	9878	14421	24186	10558	11054	17030	11632	14537	20383	6740	10977	161541	24186	6740
1995	6790	16185	21851	4953	8995	7312	8241	7787	10524	18704	28541	13737	153620	28541	4953
1996	12956	35495	25484	13693	13820	11193	6187	7722	8876	9930	13121	16479	174956	35495	6187
1997	13063	10774	24498	7439	17366	15505	12358	8301	6398	13533	28644	14021	171900	28644	6398
1998	21279	27233	20496	32429	24075	13660	8389	8157	8758	6853	5607	8646	185582	32429	5607
1999	9324	13021	6048	2112	4180	5086	10442	6915	3210	4226	9680	8572	82816	13021	2112
2000	4136	3722	4370	12690	5877	6692	4996	6762	8695	6281	6523	8839	79583	12690	3722
2001	6496	5351	12355	12381	8048	13715	13711	9515	7217	7024	6634	7413	109860	13715	5351
2002	7700	5553	2892	8502	10971	4575	5496	5486	4171	4287	20800	21967	102400	21967	2892
2003	16783	10395	21182	7930	28155	23440	27229	12615	8462	11187	16743	14735	198856	28155	7930
2004	7425	10580	5711	5047	6416	8294	9785	7319	16850	19905	15401	28334	141067	28334	5047
2005	9862	7586	17701	25420	11639	15335	31545	13904	8510	8485	11544	13270	174801	31545	7586
2006	11680	7317	9773	3991	5880	6016	5733	4489	4617	6322	14765	7192	87775	14765	3991
2007	17136	2828	3473	2388	2674	3254	3518	4594	3309	3534	3425	1687	51820	17136	1687
2008	1669	1553	4123	8228	4944	7490	4990	4019	4879	5246	6284	9465	62890	9465	1553
2009	14630	4455	5736	17252	15197	2396	4786	5915	8860	24752	23740	25151	152870	25151	2396
2010	15996	15625	15505	11803	14137	10247	6047	6226	5698	4641	5410	11532	122867	15996	4641
2011	3888	7538	7125	15308	10328	5061	5506	4932	1940	2047	4636	11745	80054	15308	1940
2012	8374	3232	7236	2547	8941	4009	6069	4131	3357	5557	5598	5268	64319	8941	2547
2013	6491	13584	10444	15205	24661	14889	19771	20045	7950	14994	8815	24155	181004	24661	6491
Average	14603	12551	16151	16571	16409	11175	11047	9918	8285	10499	12513	14813	154534		
Max	34784	36606	46514	57520	41060	35406	31545	26162	23456	45402	35362	40364			
Min	1669	1553	2892	1811	1705	2396	2154	2082	1940	2047	3425	1687			

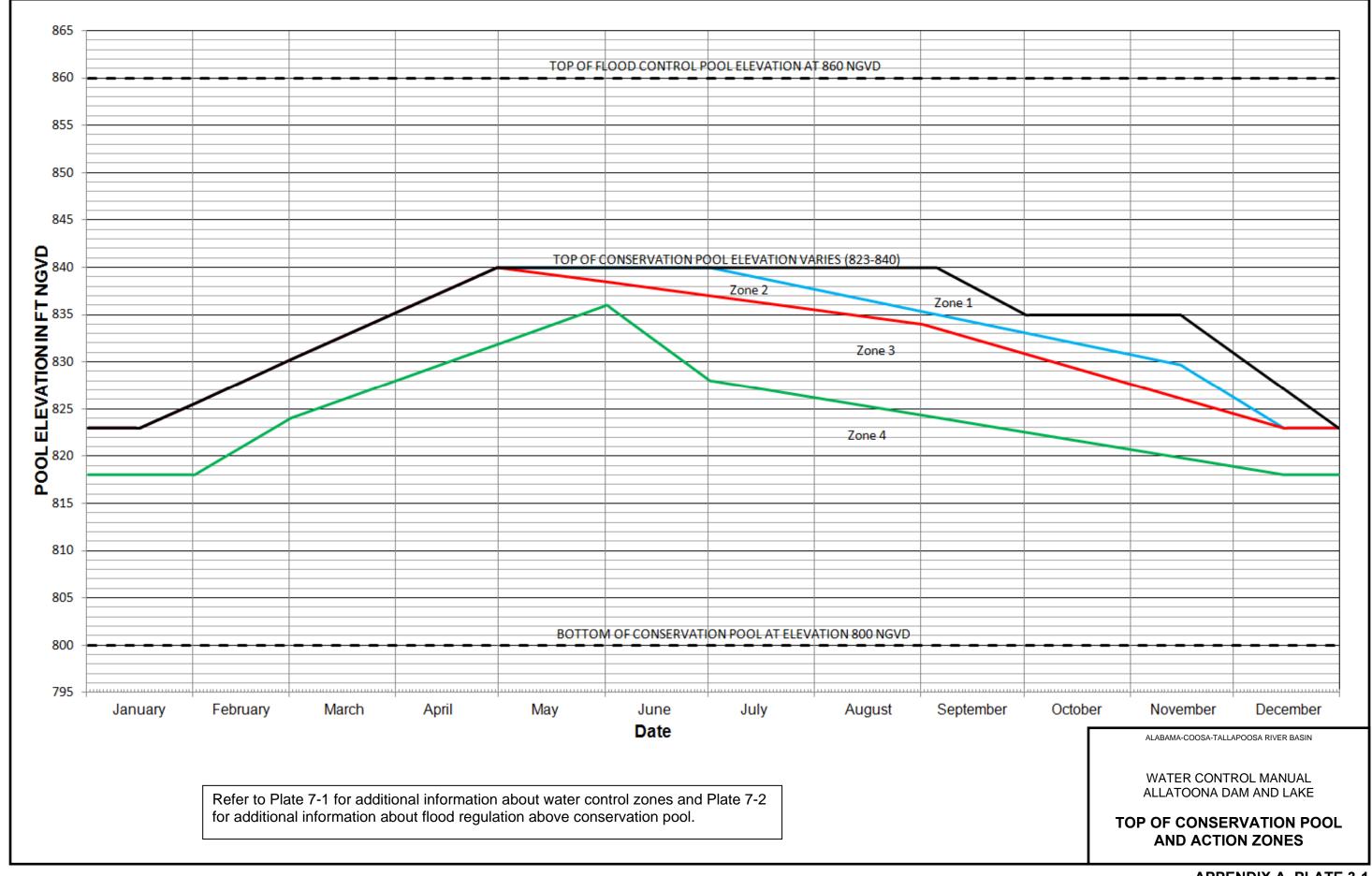
ALABAMA-COOSA-TALLAPOOSA BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

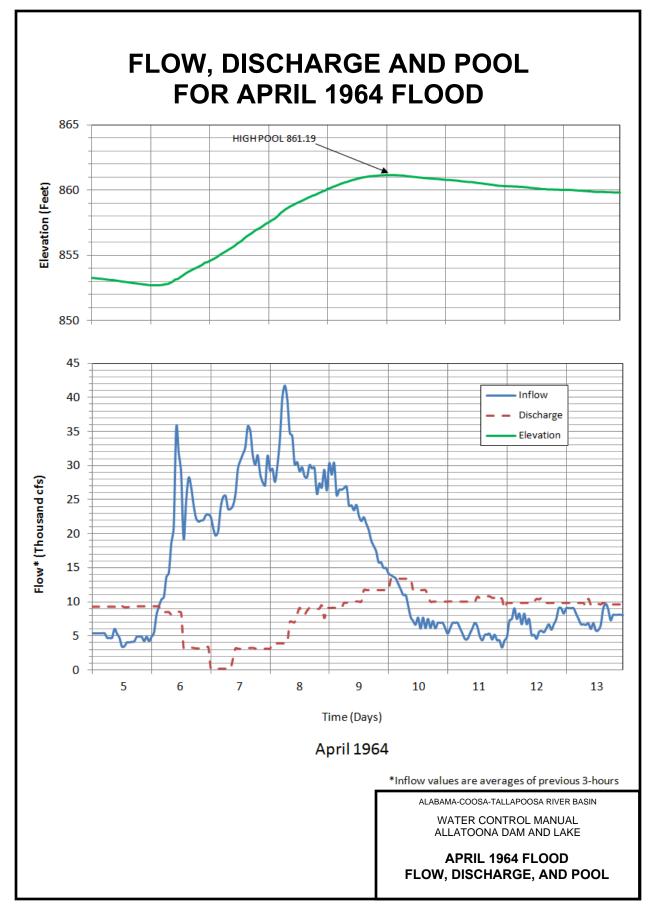
HISTORICAL HYDROPOWER PRODUCTION

Page 2 of 2

U. S. ARMY **CORPS OF ENGINEERS**

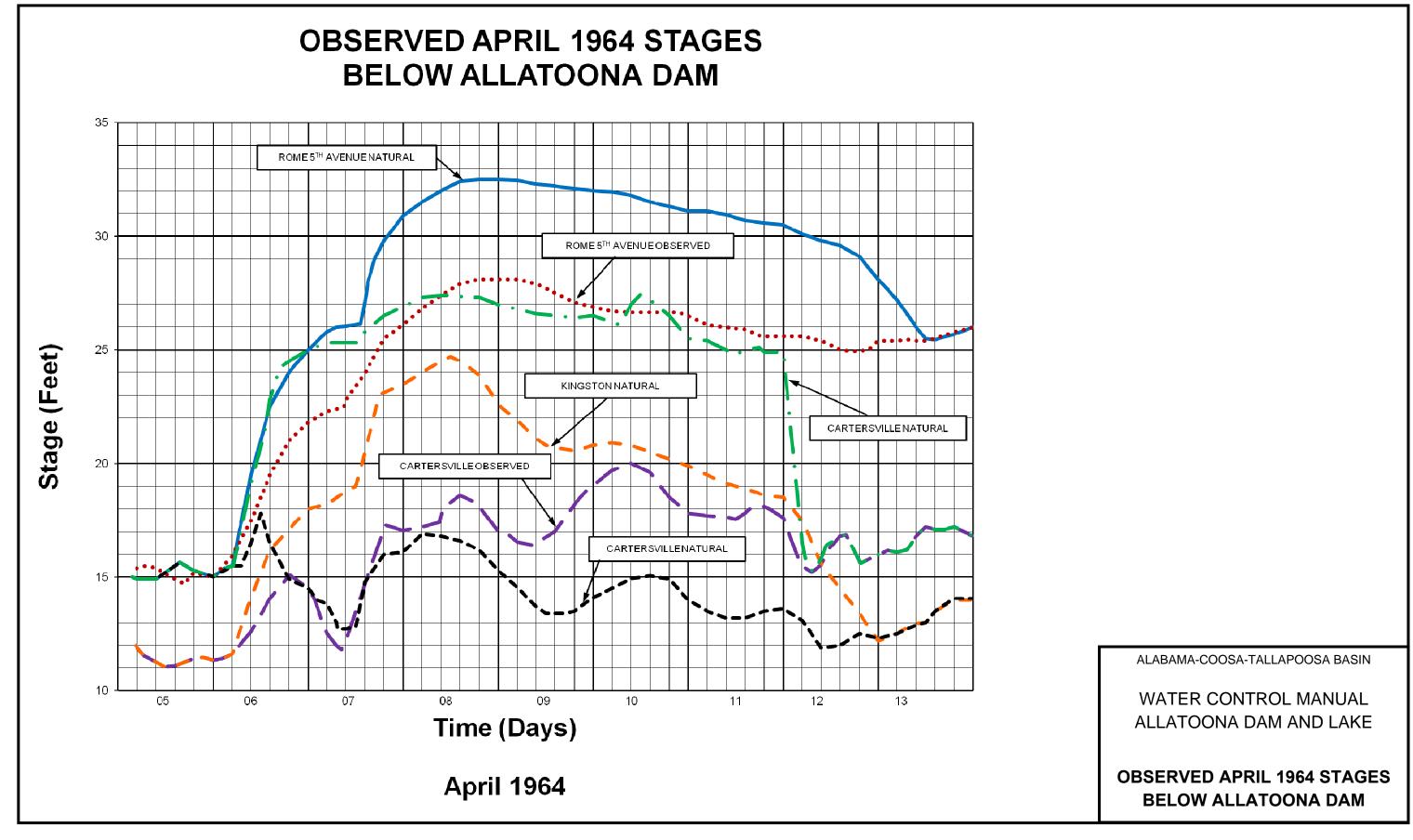


CORPS OF ENGINEERS U. S. ARMY

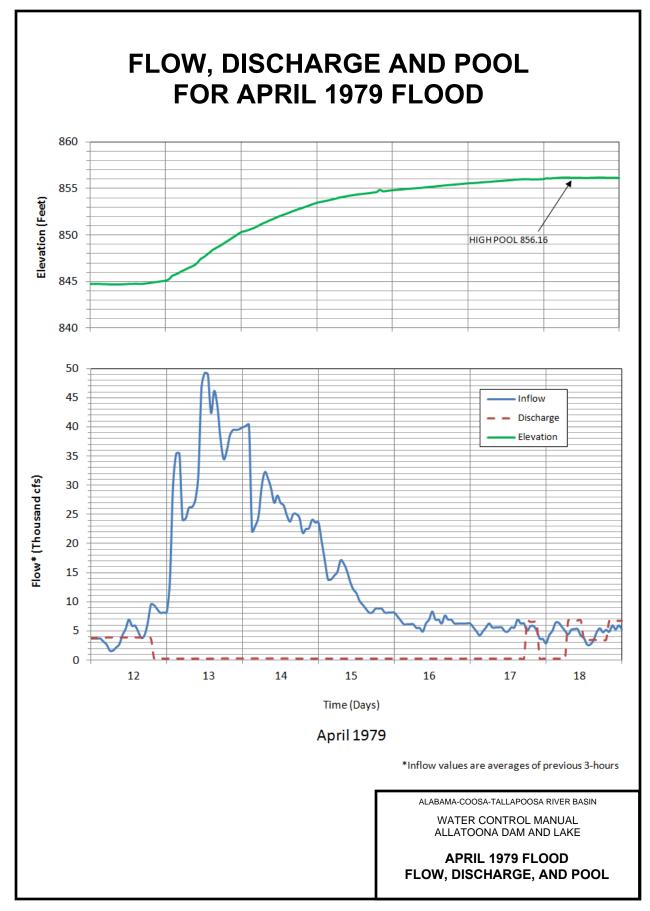


APPENDIX A PLATE 4-1

CORPS OF ENGINEERS
U.S. ARMY

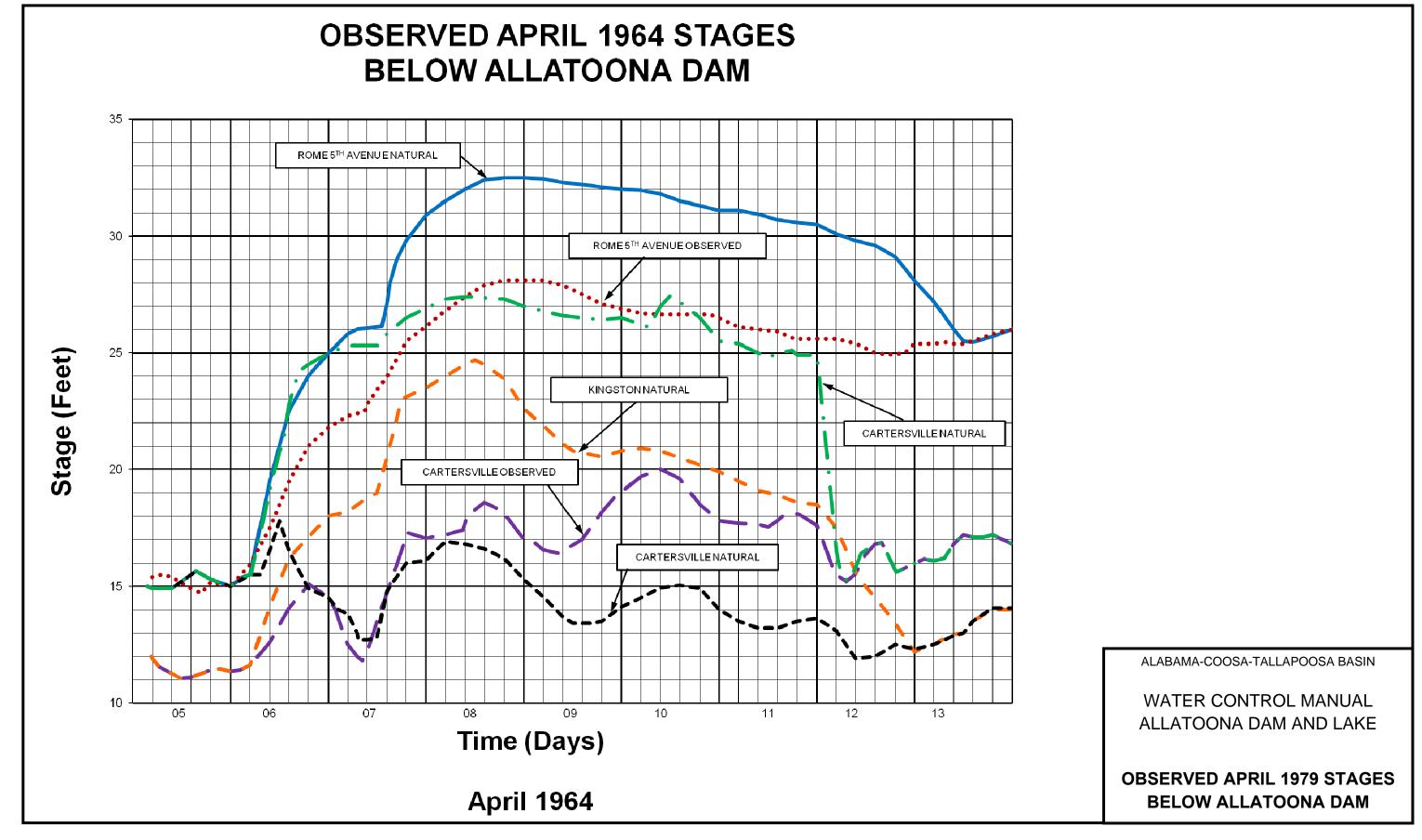


CORPS OF ENGINEERS U. S. ARMY

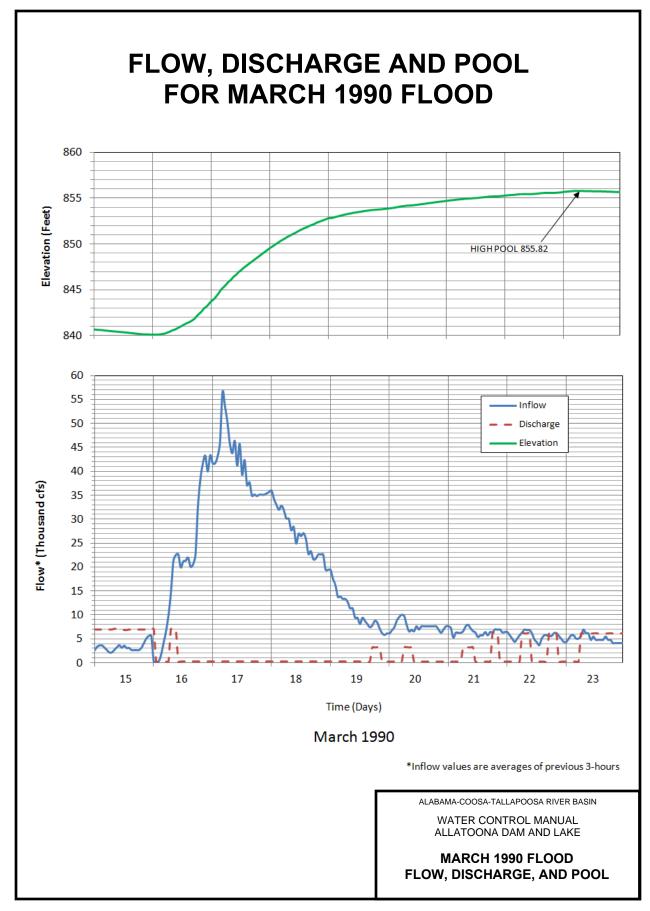


APPENDIX A PLATE 4-3

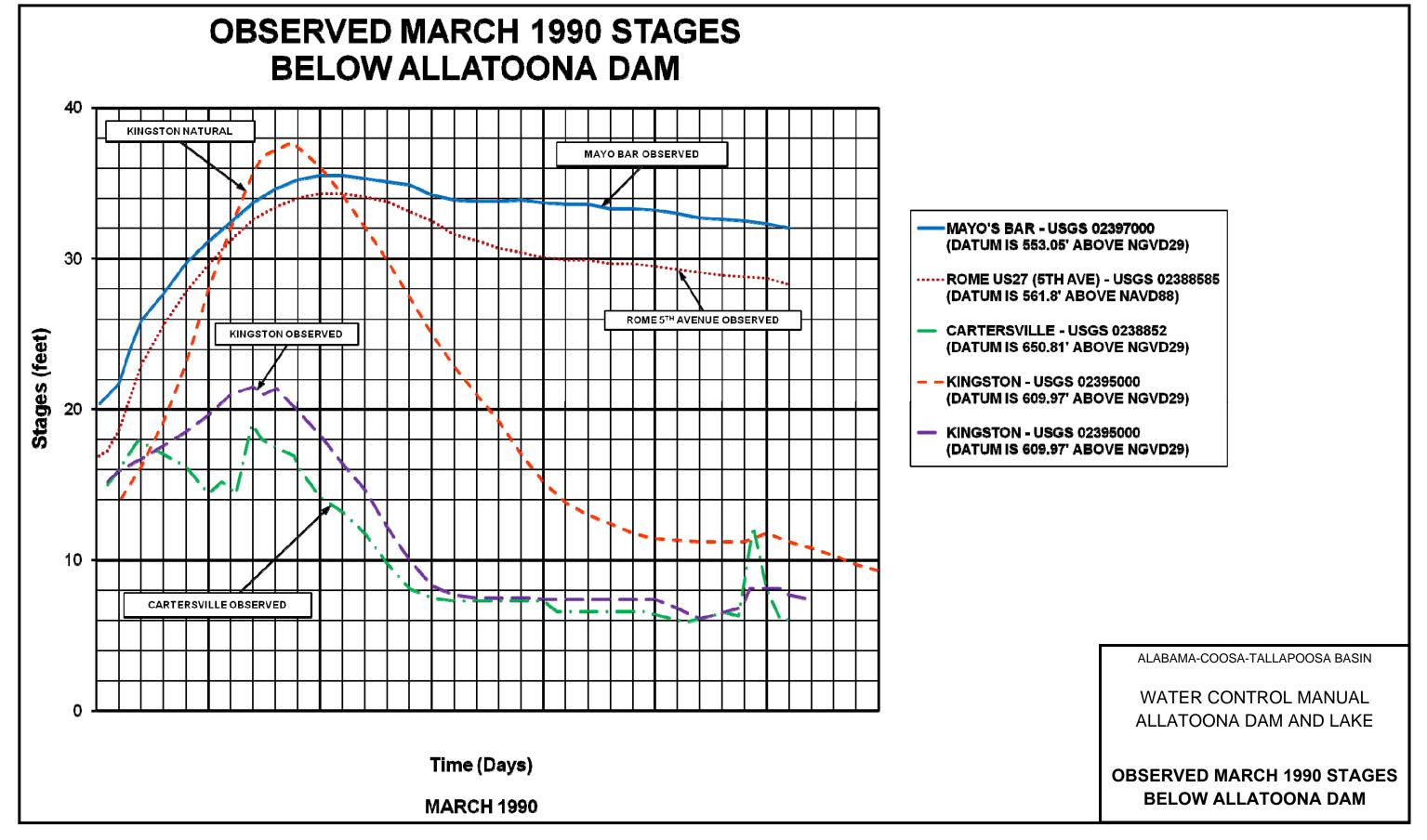
CORPS OF ENGINEERS
U.S. ARMY

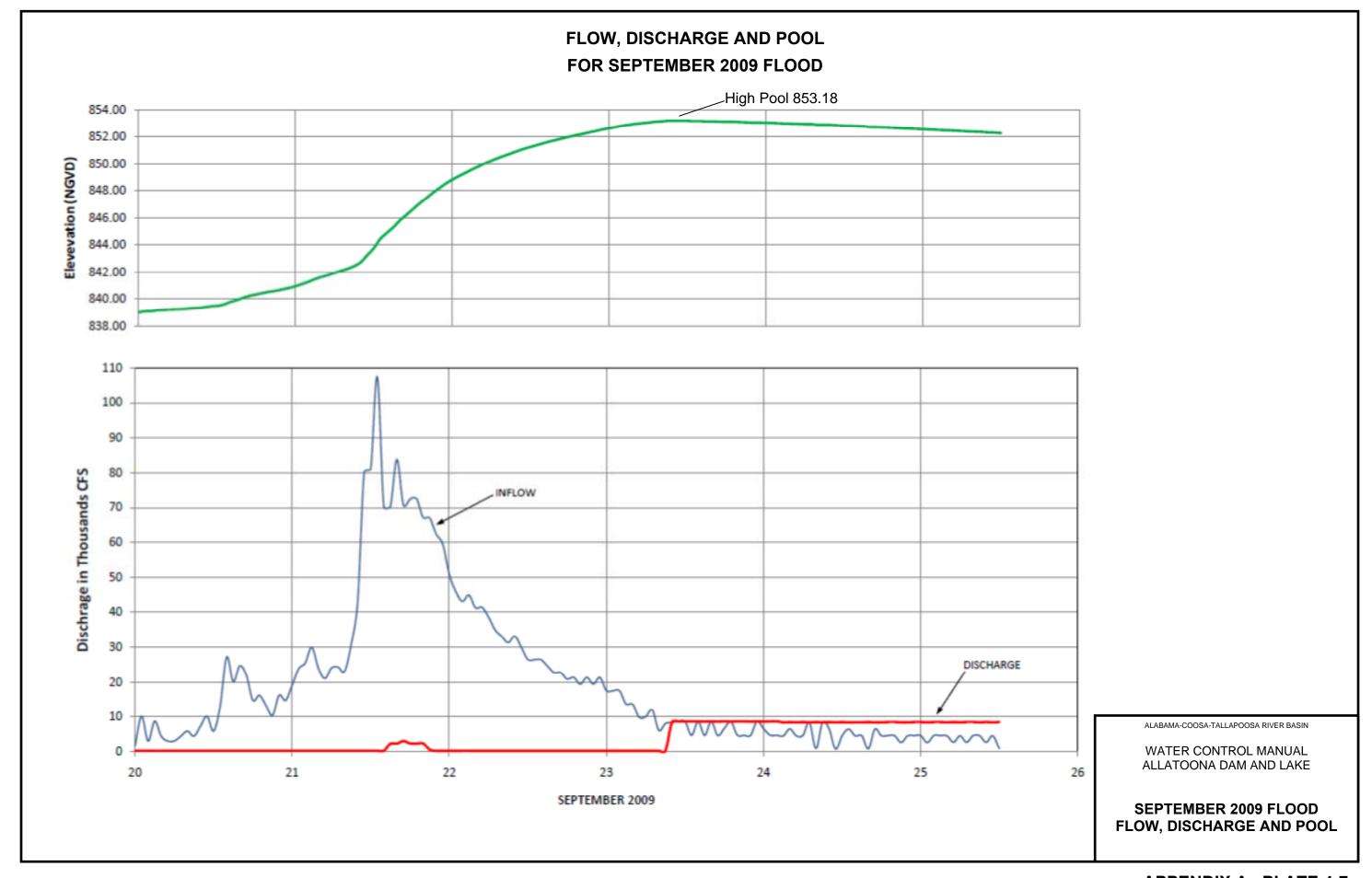


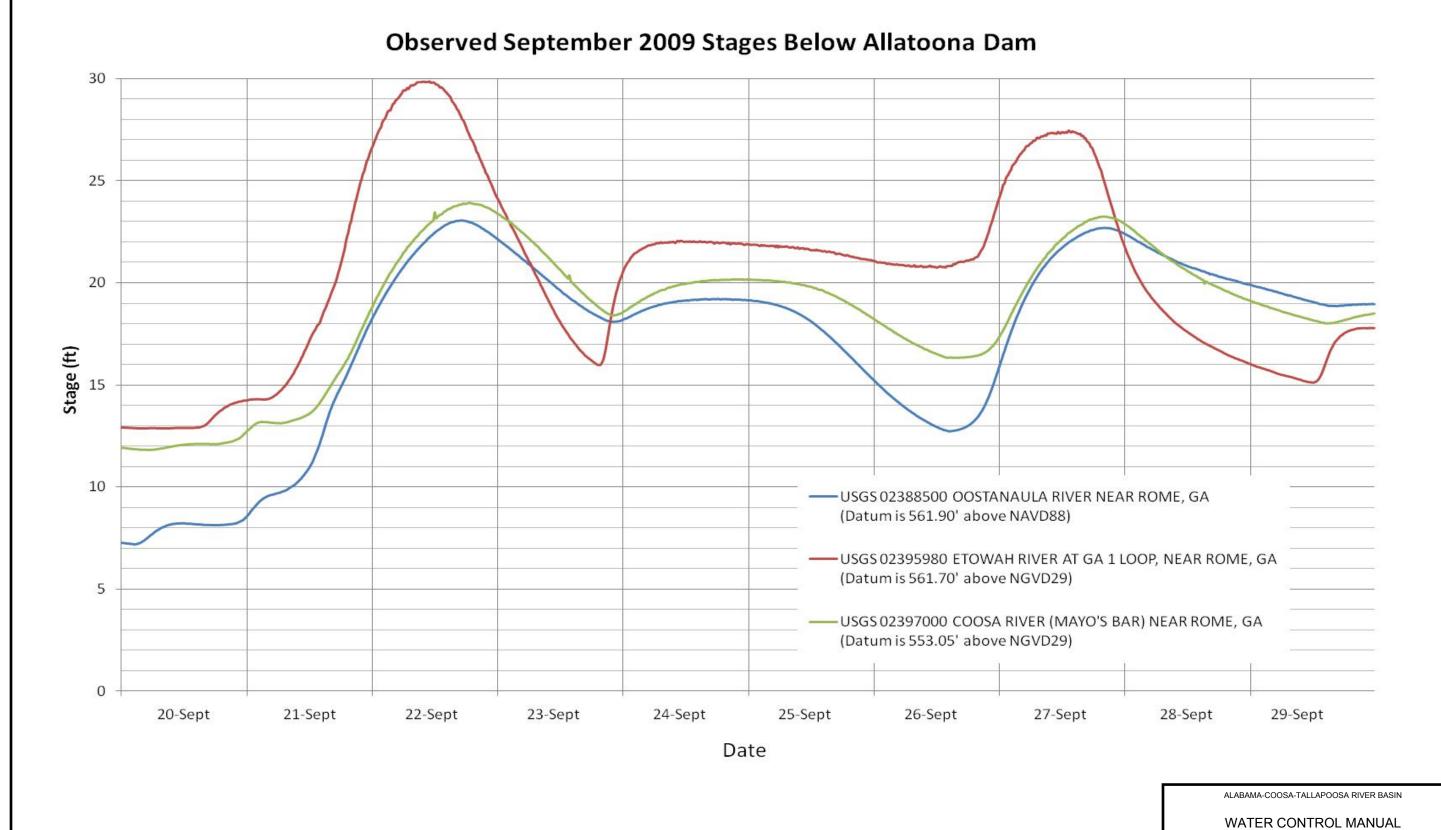
CORPS OF ENGINEERS U. S. ARMY



CORPS OF ENGINEERS
U.S. ARMY







WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

SEPTEMBER 2009 FLOOD OBSERVED STAGES BELOW ALLATOONA DAM

			ALLAT	OONAE	STIMATE	D (1896-1	1938) MO	NTHLY	NFLOW IN	N CFS			
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1896	2480	2760	1670	1320	640	550	820	280	360	440	980	950	1104
1897	2190	2370	4340	4160	1900	1730	2170	1570	650	1070	1010	1750	2076
1898	2060	1160	1880	2140	1070	920	2520	3840	3610	4210	2610	3540	2463
1899	3820	5480	6110	4340	3090	3020	3250	2820	1370	860	1130	2020	3109
1900	1800	3940	3660	3600	2570	3000	3400	2520	2480	3750	3620	2390	3061
1901	3670	3930	3480	4230	4400	4450	2420	4660	2730	1960	1940	5000	3573
1902	4230	4960	5390	2810	1770	2240	1720	1050	1650	1340	1820	2300	2607
1903	2780	7240	7370	4820	2670	4860	2230	1320	820	830	890	750	3048
1904	1320	1690	1680	1200	860	880	770	1810	410	320	540	870	1029
1905	2170	3270	1460	1200	1990	1230	1820	1210	690	850	650	4400	1745
1906	4300	1600	7210	2300	1500	2400	2570	2060	1810	2930	2710	2240	2803
1907	2190	2990	3150	1990	2060	1700	1140	1110	1040	740	1600	2520	1853
1908	2440	4360	3680	3310	2320	1470	1270	1080	810	820	760	2080	2033
1909	1970	5080	6980	2850	3270	3330	1900	2540	1290	1230	870	1550	2738
1910	1520	1980	1670	1280	2630	1880	1990	1200	860	710	620	1070	1451
1911	1770	1280	1140	3720	1190	790	1200	940	570	1260	1420	1510	1399
1912	2410	4280	6220	4270	3160	3040	3020	2020	1640	1640	1140	1290	2844
1913	2490	3480	6010	2320	1680	1270	1330	1120	790	740	670	950	1904
1914	930	1260	1070	2860	850	690	840	830	580	990	720	3070	1224
1915	3060	3870	2240	1400	1970	1250	1250	870	880	2760	1100	4170	2068
1916	2120	2500	1630	1220	1540	1280	7760	2340	1180	800	960	1550	2073
1917	2720	5490	9210	3960	1900	1720	1590	1560	2000	920	650	680	2700
1918	2970	2050	970	2790	1880	950	1390	1200	890	2190	1650	4340	1939
1919	4330	4300	4650	2840	1910	1960	1350	1230	900	1060	970	4660	2513
1920	3790	4660	5130	8190	4130	2510	2580	4540	1690	1180	1810	5160	3781
1921	3220	7390	2680	1530	1200	990	1880	1880	1490	1340	1920	2000	2293
1922	4070	4150	4420	3250	4180	2970	2280	1500	1420	1650	2340	4550	3065
1923	2940	3150	2960 3690	4410 4060	4880 4010	4410 4190	4210 4120	4230 2120	3590	2510 1270	2410 1060	4180	3657 2941
1924 1925	3890 4930	3940 2120	2430	2100	2100	1220	1460	1240	950 1370	2970	2960	1990 2670	2298
1925		2710	3040	2780	2660	2770	3040	4320	3600	3340	3450		3320
1926	3860 3420	4310	3730	3610	1740	1580	1660	1450	1040	1220	1320	4270 2150	2269
1927	1550	1970	2050	2710	3980	2980	2850	1510	1650	950	840	780	1985
1928	1260	2750	6870	3030	4470	2190	1570	1370	2000	1200	3530	1950	2683
1930	2090	2260	3630	1660	1730	890	690	520	660	520	1240	1050	1412
1931	1270	1200	1230	2110	1150	670	690	550	380	240	410	2990	1074
1932	3860	4660	2950	2970	2600	2350	2330	1960	1620	2340	2600	9360	3300
1933	1370	1640	1390	1460	1680	980	1730	2340	470	720	490	1630	1325
1934	880	2040	4080	1540	1960	1260	1220	1640	690	1550	930	1290	1590
1935	2050	1520	2390	3010	2060	1110	940	1210	660	530	2330	890	1558
1936	6690	4960	3330	7450	2280	1680	1220	1480	15960	1430	950	1990	4118
1937	5100	3220	2090	3880	2550	1380	1030	1300	910	1380	790	890	2043
1938	960	880	2670	5260	1350	1440	1820	1190	680	420	750	660	1507
Avg	2766	3276	3573	3068	2315	1958	2024	1803	1647	1423	1469	2467	2316
_ · · · J		-	-										

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

ALLATOONA ESTIMATED MONTHLY INFLOWS

			ALLA.	TOONAE	STIMATE	ED (1939-	1949) MC	NTHLYI	NFLOW II	N CFS			
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1939	1490	3120	2750	1960	1660	1360	870	1040	740	520	470	640	1385
1940	1130	1610	2020	1680	1100	1000	1440	1700	680	480	820	1240	1242
1941	1370	1010	1590	1180	690	610	2560	840	420	350	630	1220	1039
1942	1020	2720	3620	1610	1410	1220	950	1080	1240	1020	850	2980	1643
1943	2450	2820	3910	3180	1970	1310	1520	1010	850	700	780	910	1784
1944	1520	4220	5200	3680	2450	1420	1080	840	650	560	720	1050	1949
1945	1510	2630	2230	2210	1760	1130	1130	940	1140	890	1100	2480	1596
1946	6790	6640	6350	3730	4200	2310	1510	790	720	820	870	900	2969
1947	4230	1700	2170	2340	1540	1240	810	680	450	690	1770	1550	1598
1948	1270	4230	3390	2780	1600	1100	2220	2170	830	640	4160	2770	2263
1949	3910	4650	2950	3030	2640	1900	2470	1590	2080	1490	1420	1520	2471
Avg	2426	3214	3289	2489	1911	1327	1505	1153	891	742	1235	1569	1813

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

ALLATOONA MONTHLY INFLOWS

			ALLAT	OONA (19	950-1984)	MEAN M	ONTHLY	, MINIMU	M, AND	MAXIMUN	INFLOW	/(CFS)			
	Jan	Feb	Mar	A pr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Avg
1950	2209	2120	2989	1751	1377	1519	1378	863	1124	1010	755	1084	755	2989	1515
1951	1156	1417	2730	2869	1278	1075	1007	471	714	586	1064	3657	471	3657	1502
1952	2231	2275	7236	2820	1736	1350	618	993	498	498	807	1306	498	7236	1864
1953	2958	2932	2547	1756	2346	898	1102	443	801	491	575	1833	443	2958	1557
1954	3867	1702	2152	2115	1460	925	560	441	217	236	499	947	217	3867	1260
1955	1322	3114	1761	2293	1332	779	917	641	253	400	669	649	253	3114	1178
1956	630	2285	2466	2691	2021	793	1048	455	541	557	600	1596	455	2691	1307
1957	1875	2780	1882	4117	1504	1130	578	310	445	657	1755	2003	310	4117	1586
1958	1521	2113	2649	2603	1761	909	1679	830	572	777	635	801	572	2649	1404
1959	1392	2000	2034	2165	1718	1536	727	402	529	1453	738	1182	402	2165	1323
1960	2198	2796	2640	2676	1284	821	635	665	924	987	724	902	635	2796	1438
1961	1043	6737	3185	3206	1908	1725	1489	903	563	407	656	5315	407	6737	2261
1962	2520	3418	2981	3953	1543	1182	983	479	647	546	1366	1211	479	3953	1736
1963	2066	1773	4844	2988	2665	2126	1630	851	1118	649	858	1564	649	4844	1928
1964	4099	3024	7422	8271	4225	1794	1482	1174	716	2409	1275	2235	716	8271	3177
1965	2160	2916	3838	2896	1719	1688	976	691	675	681	710	645	645	3838	1633
1966	1322	4649	3980	3105	3108	1448	918	981	628	1224	1163	1209	628	4649	1978
1967	1993	1986	1810	1718	1976	2098	2530	3339	1468	1091	2422	3299	1091	3339	2144
1968	4340	2151	3219	3068	2236	1340	1018	617	782	552	1139	1795	552	4340	1855
1969	2387	3455	2277	2873	2017	1117	748	1909	1007	674	899	1167	674	3455	1711
1970	1445	1336	2463	1902	1197	1488	777	793	449	1049	993	914	449	2463	1234
1971	2154	3296	3656	2514	1663	1004	1953	1966	1130	788	1013	2452	788	3656	1966
1972	5511	2707	2490	2054	3232	1465	1181	929	656	654	1433	3243	654	5511	2130
1973	3075	3027	4255	4799	4346	2815	1745	1275	1278	1041	1178	2336	1041	4799	2598
1974	4486	3731	2505	4253	2159	1447	1288	1489	859	615	1001	1940	615	4486	2148
1975	2800	4140	4847	2612	2483	1522	1159	1004	1054	1754	1628	1645	1004	4847	2221
1976	3670	2226	6232	3602	2822	1867	1792	833	539	713	836	1623	539	6232	2230
1977	2208	1485	4930	4189	1504	851	545	560	726	2101	3440	2086	545	4930	2052
1978	4699	2215	2447	1869	2244	1199	657	1585	462	349	528	1101	349	4699	1613
1979	2640	2964	3940	7119	2336	1795	1553	985	1325	1312	1990	1238	985	7119	2433
1980	2768	2214	8326	4057	2987	1884	915	571	742	928	792	665	571	8326	2237
1981	620	2601	1394	1282	1446	1177	327	482	343	342	391	984	327	2601	949
1982	3385	5759	2356	4227	1958	1136	1096	1327	595	1318	1327	3661	595	5759	2345
1983	2159	3196	3118	4166	2625	1550	1552	511	984	637	1943	5472	511	5472	2326
1984	2833	2915	3263	3367	3512	1557	2579	2254	802	692	859	1271	692	3512	2159

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

ALLATOONA MONTHLY INFLOWS

			ALLAT	OONA (19	985-2013)	MEAN M	ONTHLY	, MINIMU	M, AND N	//AXIMUN	INFLOW	(CFS)			
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Max	Avg
1985	1156	3094	1383	1185	1316	720	1040	1149	428	589	762	1060	428	3094	1157
1986	828	941	1186	644	727	284	162	174	431	1085	1135	1448	162	1448	754
1987	2498	2200	2847	1733	997	911	459	279	198	104	426	823	104	2847	1123
1988	2092	1266	865	1510	516	98	342	204	452	706	604	488	98	2092	762
1989	1643	1889	2665	1853	1266	3012	2583	1094	1747	3819	2012	2154	1094	3819	2145
1990	4297	5978	7365	2603	2015	1011	999	621	1132	1225	790	1439	621	7365	2456
1991	1932	2556	3181	2539	3283	1711	1548	1658	1329	707	1363	1666	707	3283	1956
1992	2118	3036	3040	1988	1376	1278	1464	1399	984	984	3283	4131	984	4131	2090
1993	5247	2972	3461	2644	1853	1123	526	491	264	396	952	1105	264	5247	1753
1994	1634	2484	3531	2970	1378	1635	1463	1435	800	1021	1058	1211	800	3531	1718
1995	1733	3267	2925	1575	1233	1118	419	944	539	2417	2943	1527	419	3267	1720
1996	4398	3844	5403	2814	1694	1213	627	792	721	464	891	1721	464	5403	2049
1997	2507	2962	3270	2067	2007	1846	1412	748	1088	2025	1500	1799	748	3270	1936
1998	3283	4949	4174	4703	3012	1526	795	840	370	397	787	1049	370	4949	2157
1999	1884	2162	1610	1017	1117	730	870	152	103	784	674	693	103	2162	983
2000	1643	1179	1527	2353	688	316	221	484	1166	260	1228	755	221	2353	985
2001	1965	1674	2884	1648	996	1936	1395	563	604	420	392	737	392	2884	1268
2002	2029	1200	2011	1365	1371	481	270	11	587	967	1913	3537	11	3537	1312
2003	1558	2803	3903	2054	3810	2677	3201	1504	893	743	1603	1521	743	3903	2189
2004	1602	2366	1378	1629	1128	1174	966	673	3481	867	1973	2607	673	3481	1654
2005	1529	3028	3240	3019	1546	2133	4051	1508	613	803	710	1510	613	4051	1974
2006	2171	2018	1850	1546	821	473	273	415	591	741	1513	935	273	2171	1112
2007	2556	1320	1523	892	470	285	396	58	-5	92	213	609	-5	2556	701
2008	677	1451	2054	1072	713	291	513	619	125	192	212	1250	125	2054	764
2009	2600	1151	2252	2326	1846	772	341	542	5244	3273	3409	4440	341	5244	2350
2010	3409	3925	3507	2280	2053	1098	767	630	408	541	480	928	408	3925	1669
2011	1090	1787	3271	2817	1193	570	402	425	537	434	736	1482	402	3271	1229
2012	1902	1424	2042	1192	1174	576	479	489	455	674	447	1372	447	2042	1019
2013	2816	2942	2833	2810	4575	2312	2832	2750	1431	1160	1627	4554	1160	4575	2720
Avg	2383	2677	3157	2669	1905	1286	1124	886	826	907	1161	1775			

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

ALLATOONA MONTHLY INFLOWS

						19	939												19	40					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1		2232	6926	2302	1720	2162	1115	824	881	721	480	550	1	674	8 14	1586	1936	1502	911	824	837	1542	519	1133	935
3	730 714	2192 3016	5448 4356	2088 1876	1632 1568	1896 1656	1095 1071	793	963 987	659 635	472 470	807 745	3	630 612	872 914	1484 1518	19 14 18 9 0	1592 1416	841 787	870 896	770 672	1241 883	513 513	1715 1119	120 106
4	934	4642	3302	1842	1518	1642	1230	731 757	972	611	470	630	4	645	1148	1856	1990	1352	744	1107	585	802	498	892	93
5	1509	3206	3068	1906	1474	1530	1123	709	1022	599	474	611	5	642	13 14	1560	2098	1272	726	113 1	569	872	491	749	85
6	1600	3444	3536	2140	1470	1422	1026	662	920	577	477	557	6	638	2026	1424	1950	1226	740	1078	585	8 13	486	755	796
7 8	1291	4810 3134	3634 3008	2304 2028	1562 1678	1384 1410	923 887	796 660	878 682	572 556	483 487	53 1 512	7 8	701	2261 1896	14 14 1706	1684	1190 1165	672 719	1297 1473	802 674	865 823	485 504	742 672	760 734
9	887	2946	2718	1996	1934	1378	879	602	607	540	484	504	9	692	1528	1920	1678	1131	2725	1788	586	780	508	649	72
10	960	3082	2736	1978	1696	1344	1026	587	586	526	476	494	10	828	1514	1806	1488	1121	1079	2313	552	755	491	662	70
11	1133	3366	3652	1954	1574	1468	1123	527	553	520	476	487	11	932	1772	1962	14 18	1163	1030	2563	881	740	482	869	70
12 13	1427 2469	2818 2220	3328 3264	2126 2014	1450 1402	1778 1764	898 829	486 602	523 489	507 494	481 489	490 501	12 13	1517 2005	1504 1326	2508 4164	1382 1322	1126 1074	12 14 12 6 4	2830 3562	2523 9668	672 645	474 467	1326 1104	68 69
14	2585	2744	2702	1828	1474	1852	771	1103	510	483	489	528	14	3056	1430	5140	1268	1064	1044	3080	7725	617	458	924	76
15	2177	4690	2452	1686	1482	1663	699	1087	742	479	470	518	15	4058	1404	3884	1258	1068	1076	2326	4204	588	463	828	90
16	1789	4200	2268	1634	1434	1467	667	1330	607	467	460	507	16	2485	14 14	2948	1228	1135	1330	2290	3282	566	488	748	116
17 18	1477 1691	3028 2676	2096 1986	1656 1722	1388 1350	1291 1362	655 666	2087 3963	555 588	481 489	472 478	500 494	17 18	1849	1522 2094	2332 1900	1118 1200	1077 1031	1308 1118	2080 1584	1694 1274	552 531	503 491	706 675	160
19	18 19	2318	19 14	1582	14 16	1255	603	2452	570	486	473	508	19	1132	3282	2044	2198	1005	960	1406	1105	519	484	670	109
20	1439	2980	1852	1552	2112	1155	627	1752	578	478	489	556	20	971	2654	1884	3978	961	980	1204	994	514	477	648	100
21	1279	2580	1840	1498	1854	1097	951	1396	600	480	529	596	21	921	2094	1658	2504	927	855	1092	938	500	470	639	91 85
22	1166 1088	2312 2020	1752 1706	1484 1390	18 16 2 14 8	1039 1005	914 723	1006 897	552 520	472 459	561 541	6 15 6 53	22	9 15 9 10	1742 1478	1564 1436	2 13 2 18 78	923 895	795 858	10 13 920	881 852	487 469	463 460	640 638	85
24	1176	1838	1664	13 12	1986	954	779	965	491	439	518	860	24	879	1356	1420	1642	892	931	858	822	499	459	643	86
25	1589	1828	1660	1762	1788	948	768	927	522	432	511	986	25	836	1355	1678	1520	916	1049	798	762	718	456	710	95
26	1306 1190	3004 3876	1656 1660	3978	1588	993 991	860	909	868	490	504 501	880	26 27	8 12 8 12	1259 1241	1478 1406	1462 1398	948 1050	969	751	736	847 734	454 452	744 861	142
28	1158	6960	1850	3322 2384	1824 2164	1025	836 839	877 881	2013 1120	663 609	503	1034 1118	28	816	2023	1502	13 18	1000	853 808	721 704	690 854	659	449	885	183
29	13 16		1954	2182	1996	1189	909	805	916	554	501	920	29	8 16	1949	1606	1296	1046	1098	763	1788	610	478	8 12	442
3 0	3396		2686	1866	1800	1044	945	749	842	529	489	802	30	8 16		2100	1306	1126	928	791	2380	566	652	833	324
3 1	3079							007		400		70.0	~ .	0.44		0000		000			40.70				0.50
			2668		1796		868	927		499		730	31	8 14		2206		996		806	1873		861		250:
			2668		1796	19	868	927		499		730	31	8 14		2206		996	19		1873		861		250
	Jan	Feb	Mar	Apr	1796 May	19 Jun		927 Aug	Sep	499 Oct	Nov	730 De c	31	814 Jan	Feb	2206 Mar	Apr	996 May	19 Jun		1873 Aug	Sep	861 Oct	Nov	
1	Jan 22 16	Fe b 1002		Apr 1505			941		Se p		Nov 743		31		Fe b 1567		Apr 1808			42		Se p		Nov 1041	De
2	2216 2356	1002 988	Mar 916 885	1505 1422	May 930 902	Jun 534 567	Jul 1301 1396	Aug 755 706	605 577	Oct 332 323	743 1025	De c 536 516	1 2	Jan 10 13 1593	1567 1360	Mar 1438 1612	1808 1732	May 1223 1200	Jun 1024 973	42 Jul 2 179 1896	Aug 642 635	738 741	Oct 1458 1122	1041 1038	De 119 211
3	2216 2356 2918	1002 988 1027	Mar 916 885 910	1505 1422 1337	May 930 902 874	Jun 534 567 637	341 Jul 1301 1396 1772	Aug 755 706 744	605 577 689	Oct 332 323 317	743 1025 759	De c 536 516 750	1 2 3	Jan 1013 1593 1452	1567 1360 1200	Mar 1438 1612 2202	1808 1732 1702	May 1223 1200 1129	Jun 1024 973 930	42 Jul 2179 1896 1335	Aug 642 635 593	738 741 714	Oct 1458 1122 1007	1041 1038 945	De 119 211 156
2	2216 2356	1002 988	Mar 916 885	1505 1422	May 930 902	Jun 534 567	Jul 1301 1396	Aug 755 706	605 577	Oct 332 323	743 1025	De c 536 516	1 2	Jan 10 13 1593	1567 1360	Mar 1438 1612	1808 1732	May 1223 1200	Jun 1024 973	42 Jul 2 179 1896	Aug 642 635	738 741	Oct 1458 1122	1041 1038	De 119 211 156 156
2 3 4	2216 2356 2918 2506	1002 988 1027 1009	Mar 916 885 910 1125	1505 1422 1337 1280	May 930 902 874 847	Jun 534 567 637 617	Jul 1301 1396 1772 2568	Aug 755 706 744 864	605 577 689 639	Oct 332 323 317 320	743 1025 759 681	De c 536 516 750 1744	1 2 3 4	Jan 10 13 159 3 1452 1375	1567 1360 1200 1138	Mar 1438 1612 2202 2358	1808 1732 1702 1666	May 1223 1200 1129 1220	Jun 1024 973 930 930	42 Jul 2179 1896 1335 1290	Aug 642 635 593 569	738 741 714 650	Oct 1458 1122 1007 930	1041 1038 945 896	De 119 2 11 156 156 175
2 3 4 5 6 7	2216 2356 2918 2506 2079 1688 1447	1002 988 1027 1009 970 959 951	Mar 916 885 910 1125 1292 1271 1706	1505 1422 1337 1280 1303 1289 1228	May 930 902 874 847 843 851 882	Jun 534 567 637 617 595 515 478	341 Jul 1301 1396 1772 2568 7810 9144 7850	Aug 755 706 744 864 1190 1804 1197	605 577 689 639 588 536 488	Oct 332 323 317 320 331 321 309	743 1025 759 681 656 828 797	De c 536 516 750 1744 2569 1494 1267	1 2 3 4 5 6	Jan 1013 1593 1452 1375 1343 1188 1076	1567 1360 1200 1138 1100 1321 2439	Mar 1438 1612 2202 2358 2670 3006 3218	1808 1732 1702 1666 1642 1616 1658	May 1223 1200 1129 1220 2029 1549 1326	Jun 1024 973 930 930 916 879 955	42 Jul 2179 1896 1335 1290 1018 946 861	Aug 642 635 593 569 589 794 906	738 741 714 650 680 1111	Oct 1458 1122 1007 930 987 1150 957	1041 1038 945 896 856 823 820	De 119 211 156 156 175 195 276
2 3 4 5 6 7 8	2216 2356 2918 2506 2079 1688 1447	1002 988 1027 1009 970 959 951 923	Mar 916 885 910 1125 1292 1271 1706 2489	1505 1422 1337 1280 1303 1289 1228 1185	May 930 902 874 847 843 851 882 1006	Jun 534 567 637 617 595 515 478 481	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132	Aug 755 706 744 864 1190 1804 1197 1126	605 577 689 639 588 536 488 453	Oct 332 323 317 320 331 321 309 309	743 1025 759 681 656 828 797 696	De c 536 516 750 1744 2569 1494 1267 976	1 2 3 4 5 6 7 8	Jan 1013 1593 1452 1375 1343 1188 1076 1002	1567 1360 1200 1138 1100 1321 2439 1912	Mar 1438 1612 2202 2358 2670 3006 3218 3152	1808 1732 1702 1666 1642 1616 1658 1898	May 1223 1200 1129 1220 2029 1549 1326 1314	Jun 1024 973 930 930 916 879 955 1089	42 Jul 2179 1896 1335 1290 1018 946 861 833	Aug 642 635 593 569 589 794 906 1305	738 741 714 650 680 1111 1307	Oct 1458 1458 1122 1007 930 987 1150 957 884	1041 1038 945 896 856 823 820 817	De 119 211 156 156 175 195 276 4 16
2 3 4 5 6 7	2216 2356 2918 2506 2079 1688 1447	1002 988 1027 1009 970 959 951	Mar 916 885 910 1125 1292 1271 1706	1505 1422 1337 1280 1303 1289 1228	May 930 902 874 847 843 851 882	Jun 534 567 637 617 595 515 478	341 Jul 1301 1396 1772 2568 7810 9144 7850	Aug 755 706 744 864 1190 1804 1197	605 577 689 639 588 536 488	Oct 332 323 317 320 331 321 309	743 1025 759 681 656 828 797	De c 536 516 750 1744 2569 1494 1267	1 2 3 4 5 6	Jan 1013 1593 1452 1375 1343 1188 1076	1567 1360 1200 1138 1100 1321 2439	Mar 1438 1612 2202 2358 2670 3006 3218	1808 1732 1702 1666 1642 1616 1658	May 1223 1200 1129 1220 2029 1549 1326	Jun 1024 973 930 930 916 879 955	42 Jul 2179 1896 1335 1290 1018 946 861	Aug 642 635 593 569 589 794 906	738 741 714 650 680 1111	Oct 1458 1122 1007 930 987 1150 957	1041 1038 945 896 856 823 820	De 119 2 111 156 156 175 195 2 76 4 16 3 111
2 3 4 5 6 7 8 9 10	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182	1002 988 1027 1009 970 959 951 923 898 894 873	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447	May 930 902 874 847 843 851 882 1006 900 840 783	Jun 534 567 637 617 595 515 478 481 516 563 599	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827	605 577 689 639 588 536 488 453 466 466	Oct 332 323 317 320 331 321 309 309 313 329 422	743 1025 759 681 656 828 797 696 588 520 486	De c 536 516 750 1744 2569 1494 1267 796 792 718 682	1 2 3 4 5 6 7 8 9 10 111	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103	Jun 1024 973 930 930 916 879 955 1089 707 1153 3904	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007	Aug 642 635 593 569 589 794 906 1305 1355 1129	738 741 714 650 680 1111 1307 1495 1084 1029 839	Oct 1458 1122 1007 930 987 1150 957 884 882 881	1041 1038 945 896 856 823 820 817 779 781	De 119 211 156 156 156 156 156 156 156 156 156 1
2 3 4 5 6 7 8 9 10 11	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136	1002 988 1027 1009 970 959 951 923 898 894 873 957	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447	May 930 902 874 847 843 851 882 1006 900 840 783	Jun 534 567 637 617 595 515 478 481 516 563 599 1070	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006	605 577 689 639 588 536 488 453 466 466 460	Oct 332 323 317 320 331 321 309 309 313 329 422 389	743 1025 759 681 656 828 797 696 588 520 486	De c 536 516 750 1744 2569 1494 1267 792 718 682 693	1 2 3 4 5 6 7 8 9 10 11	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103	Jun 1024 973 930 930 916 879 955 1089 707 1153 3904 2611	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806	738 741 714 650 680 1111 1307 1495 1084 1029 839 729	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004	1041 1038 945 896 856 823 820 817 779 781 921	De 119 211 156 156 156 156 156 156 156 156 156 1
2 3 4 5 6 7 8 9 10	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182	1002 988 1027 1009 970 959 951 923 898 894 873	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447	May 930 902 874 847 843 851 882 1006 900 840 783	Jun 534 567 637 617 595 515 478 481 516 563 599	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827	605 577 689 639 588 536 488 453 466 466	Oct 332 323 317 320 331 321 309 309 313 329 422	743 1025 759 681 656 828 797 696 588 520 486	De c 536 516 750 1744 2569 1494 1267 796 792 718 682	1 2 3 4 5 6 7 8 9 10 111	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103	Jun 1024 973 930 930 916 879 955 1089 707 1153 3904	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007	Aug 642 635 593 569 589 794 906 1305 1355 1129	738 741 714 650 680 1111 1307 1495 1084 1029 839	Oct 1458 1122 1007 930 987 1150 957 884 882 881	1041 1038 945 896 856 823 820 817 779 781	Dec 1199 211 156 156 175 198 276 4 16 311 249 190 158
2 3 4 5 6 7 8 9 10 11 12 13	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259	May 930 902 874 847 843 851 882 1006 900 840 783 754	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128	605 577 689 639 588 536 488 453 466 466 460 491 494	Oct 332 323 317 320 331 321 309 309 313 329 422 389 362	743 1025 759 681 656 828 797 696 588 520 486 471	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938	1 2 3 4 5 6 7 8 9 10 11 12 13	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147	Jun 1024 973 930 930 916 879 955 1089 707 1153 3904 2611 2070	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882	1041 1038 945 896 856 823 820 817 779 781 921 896	Dec 1199 2 111 1566 1566 1755 199 2 776 4 166 3 111 2 2 4 9 1158 142 12 9 158 142 142 142 142 142 142 142 142 142 142
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1359	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087	605 577 689 639 588 536 488 453 466 466 440 491 491 420 387	Oct 332 323 317 320 331 321 309 309 313 329 422 389 422 389 362 363 353 352	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119 1203 1730 3639	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525	Jun 1024 973 930 930 936 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855 885 931 821	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 881 775	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771	De 119 211 156 156 156 156 156 156 156 156 156 1
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084 1357	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1359 1213	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211 1300 1430	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135 1102 1072	May 930 902 874 847 843 851 1006 900 840 783 754 725 713 687 675 673	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526 478	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034 2122	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087 789	605 577 689 639 588 536 488 453 466 466 491 494 451 420 387 380	Oct 332 323 317 320 331 321 309 309 313 329 422 389 362 363 353 352 348	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890 810	1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119 1203 1730 3639 13732	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402 2776	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598 1536	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525 1651	Jun 1024 973 930 930 936 916 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606 1828	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855 885 931 821 846	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711 1031	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 8819 775 749	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771 750 748	De 119 211 156 156 156 156 156 156 156 156 156 1
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1359	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 16777 1512 1364 1279 1211	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087	605 577 689 639 588 536 488 453 466 466 440 491 491 420 387	Oct 332 323 317 320 331 321 309 309 313 329 422 389 422 389 362 363 353 352	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119 1203 1730 3639	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525	Jun 1024 973 930 930 936 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855 885 931 821	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 881 775	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771	Dec 1199 211 156 156 156 156 156 156 156 156 156 1
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084 1357	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1359 1213 1108	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211 1300 1430 1265	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135 1102 1072 1058	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675 673	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526 478 446	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034 2122 2358	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087 789	605 577 689 639 588 536 488 453 466 466 460 491 494 451 420 387 380 372	Oct 332 323 317 320 331 321 309 309 313 329 422 389 362 363 363 353 352 348 332	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446 444 447	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890 810	1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789 761	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119 1203 1730 3639 13732	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 24402 2776 3050	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598 1536 1524 1478	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525 1651 1434	Jun 1024 973 930 930 916 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606 1828	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855 885 931 821 846 791	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645 664	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711 1031 908	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 819 775 749 725 728	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771 750 748	Dec 119 211 156 156 175 195 276 190 158 142 122 122 114 110
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084 1357 1533 1355 1241 1152	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1213 1108 1032 988 955	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211 1300 1430 1430 1265 1261 1325 1373	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135 1102 1072 1058 1032 1010 1006	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675 673 667 661 636 619	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526 478 446 417	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034 2122 2358 2352 2900 2170	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087 789 722 623 599 577	605 577 689 639 588 536 488 453 466 466 460 491 494 451 420 387 380 372 357 338 326	Oct 332 323 317 320 331 321 309 309 313 329 422 389 362 363 353 352 348 332 330 342 337	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446 444 447 445 443	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890 810 730 696 671 724	1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789 761 755 890 1062 913	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1437 1293 1730 3639 13732 12128 5650 4524 2956	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402 2776 3050 3714 4810 10850	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598 1536 1524 1478 1468 1426 1398	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525 1651 1434 1237 1090 1170 1584	Jun 1024 973 930 930 936 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606 1828 1220 1133 1048 958	42 Jul 2179 1896 1335 1290 1018 861 833 1020 1539 1007 963 855 885 931 821 846 791 722 669 663	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645 664 1086 2134 2679 2822	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711 1031 908 782 695	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 819 775 749 725 728 722 784 1014	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771 750 748 749 750 731	Dec 1199 211 156 156 156 156 156 156 156 156 156 1
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084 1357 1533 1355 1241 1152	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1359 1213 1108 1032 988 955 945	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211 1300 1430 1265 1261 1325 1373 1670	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135 1102 1072 1058 1032 1010 1006 1014	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675 667 661 636 619 601	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526 478 446 446 401 468 512	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034 2122 2358 2322 2900 2170 2230	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087 789 722 623 599 577 558	605 577 689 639 588 536 488 453 466 466 460 491 494 451 420 387 380 372 357 338 326 315	Oct 332 323 317 320 331 309 309 313 329 422 389 362 363 353 352 348 332 330 342 337	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446 4444 447 445 443 484 733 772	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890 810 730 696 671 724	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789 761 755 890 1062 913 861	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119 1203 1730 3639 13732 12128 5650 4524 2956	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402 2776 3050 3714 4810 10850 13292	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598 1536 1524 1478 1468 1426 1398 1378	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525 1651 1434 1237 1090 1170 1584 3470	Jun 1024 973 930 930 930 916 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606 1828 1220 1133 1048 958	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855 885 931 821 846 791 722 669 663 649	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645 664 1086 2134 2679 2822 2232	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711 1031 908 782 695 615 576	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 881 775 749 725 728 728 722 784 1014 984	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771 750 748 749 749 750 731	De 119 211 156 156 156 156 156 156 156 156 156 1
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084 1357 1533 1355 1241 1152	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1213 1108 1032 988 955	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211 1300 1430 1430 1265 1261 1325 1373	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135 1102 1072 1058 1032 1010 1006	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675 673 667 661 636 619	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526 478 446 417	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034 2122 2358 2352 2900 2170	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087 789 722 623 599 577	605 577 689 639 588 536 488 453 466 466 460 491 494 451 420 387 380 372 357 338 326	Oct 332 323 317 320 331 321 309 309 313 329 422 389 362 363 353 352 348 332 330 342 337	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446 444 447 445 443	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890 810 730 696 671 724	1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789 761 755 890 1062 913	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1437 1293 1730 3639 13732 12128 5650 4524 2956	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402 2776 3050 3714 4810 10850	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598 1536 1524 1478 1468 1426 1398	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525 1651 1434 1237 1090 1170 1584	Jun 1024 973 930 930 936 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606 1828 1220 1133 1048 958	42 Jul 2179 1896 1335 1290 1018 861 833 1020 1539 1007 963 855 885 931 821 846 791 722 669 663	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645 664 1086 2134 2679 2822	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711 1031 908 782 695	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 819 775 749 725 728 722 784 1014	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771 750 748 749 750 731	De 119 21: 156 156 156 156 156 156 156 156 156 156
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 2 3	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084 1357 1533 1355 1241 1152 1086 1057	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1359 1213 1108 1032 988 955 945 924	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211 1300 1430 1265 1261 1325 1373 1670 1836	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135 1102 1072 1058 1032 1010 1006 1014 1005	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675 673 667 661 636 619 601 582	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526 478 446 417 401 468 512 670	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034 2122 2358 2322 2900 2170 2230 2160	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087 789 722 623 599 577 558	605 577 689 639 588 536 488 453 466 460 491 420 387 380 372 357 338 326 315 316	Oct 332 323 317 320 331 321 309 309 313 329 422 389 362 363 353 352 348 332 330 342 337 334 327	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446 444 447 445 443 484 733 772 788	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890 810 730 696 671 724 897 1824	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789 761 755 890 1062 913 861 825	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119 1203 1730 3639 13732 12128 5650 4524 2956 1988 1790	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402 2776 3050 3714 4810 10850 13292 7676	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598 1536 1524 1478 1468 1426 1398 1378	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525 1651 1434 1237 1090 1170 1584 3470 2158	Jun 1024 973 930 930 930 916 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606 1828 1220 1133 1048 958 924 998	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855 885 931 821 846 791 722 669 663 649 689	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645 664 1086 2134 2679 2822 2232	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711 1031 908 782 695 615 576 553	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 819 775 749 725 728 722 784 1014 984 860	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771 750 748 749 750 731 752	Dec 119 21: 156 156 156 156 156 156 156 156 156 156
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084 1357 1533 1355 1241 1152 1086 1057 1088 1089	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1359 1213 1108 1032 988 955 945 924 924 944 948	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211 1300 1430 1265 1261 1325 1373 1670 1836 2309 2226 2014	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135 1102 1072 1058 1032 10 10 10 10 10 10 10 10 11 10 11 12 11 11 12 11 12 12 11 13 13 11 14 17 11 15 18 18 18 18 18 18 18 18 18 18 18 18 18	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675 661 636 619 601 582 565 546 525	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526 478 446 417 401 468 512 670 985 1021 779	341 301 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034 2122 2358 2322 2900 2170 2230 2160 1328 1167 1294	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087 789 722 623 599 577 558 540 515 548 698	605 577 689 639 588 536 488 453 466 466 460 491 494 451 420 387 380 372 357 338 326 315 316 318 323 377	Oct 332 323 317 320 331 321 309 309 313 329 422 389 362 363 353 352 348 332 330 342 337 334 327 312 307 305	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 4446 444 447 445 443 484 733 772 788 1096 877 718	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890 810 730 696 671 724 897 1824 3639 2538 2252	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789 761 755 890 1062 913 861 825 792	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119 1203 1730 3639 13732 12128 5650 4524 2956 1988 1790 1876 1948 1718	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402 2776 3050 3714 4810 10850 13292 7676 5752 4154 3070	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598 1536 1524 1478 1468 1426 1398 1376 1357 1331 1310	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525 1651 1434 1237 1090 1170 1584 3470 2158 1768 1376	Jun 1024 973 930 930 916 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606 1828 1220 1133 1048 958 924 998 952 847 811	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855 885 931 821 846 791 722 669 663 649 689 916 841 872	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645 664 1086 2134 2679 2822 2232 1820 1580 1198 918	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711 1031 908 782 695 615 576 553 553 841	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 819 775 749 725 728 722 784 1014 984 860 1019 1210 2459	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771 750 748 749 750 731 752 868 1235	Dec 1199 211 1566 236
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084 1357 1533 1355 1241 1152 1086 1057 1088 1057 1088 1057 1088 1089 1104 1115	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1213 1108 1032 988 955 945 944 944 948 948	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211 1300 1430 1430 1265 1261 1325 1373 1670 1836 2309 2226 2014	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135 1102 1072 1058 1032 10 10 10 10 10 10 10 10 10 10 11 127 14 27 12 36 11 34	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675 661 636 619 601 582 565 546 525	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526 478 446 417 401 468 512 670 985 1021 779 715	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034 2122 2358 2322 2900 2170 2230 2160 1328 1167 1294 1022	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087 789 722 623 599 577 558 540 515 548 698	605 577 689 639 588 536 488 453 466 466 460 491 494 451 420 387 380 372 357 338 326 316 316 318 323 377 413	Oct 332 323 317 320 331 321 309 309 313 329 422 389 362 363 353 352 348 332 330 342 337 334 327 312 307 305 350	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446 444 447 445 443 733 772 788 1096 877 718	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890 810 730 696 671 724 897 1824 3639 2538 2252 1917	1 2 3 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789 761 755 890 1062 913 861 825 792 807 868	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119 1203 1730 3639 13732 12128 5650 4524 2956 1988 1790 1948 1718	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402 2776 3050 3714 4810 10850 13292 7676 5752 4154 3070 3092	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598 1536 1524 1478 1468 1426 1398 1378 1376 1357 1331 1310 1303	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525 1651 1434 1237 1090 1170 1584 3470 2158 1768 1376 1244	Jun 1024 973 930 930 936 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606 1828 1220 1133 1048 958 924 998 952 847 811	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855 885 931 821 846 791 722 669 663 649 689 916 841 872	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645 664 1086 2134 2679 2822 2232 1580 1198 918 848	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711 1031 908 782 695 615 576 553 553 841 1517 4963	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 819 775 749 725 728 722 784 1014 984 860 1019 1210 2459 1897	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771 750 748 749 750 731 752 868 1235 1070 951	De 119 211 156 156 156 156 156 156 156 156 156 1
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084 1357 1533 1355 1241 1152 1086 1057 1088 1089 1104 1115 1155	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1359 1213 1108 1032 988 955 945 924 924 944 948	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211 1300 1430 1265 1261 1325 1373 1670 1836 2309 2226 2014 1936 2716	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135 1102 1072 1058 1032 1010 1006 1014 1005 1127 1427 1236 1134 1072	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675 661 636 619 601 582 565 546 525 517	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526 478 446 417 401 468 512 670 985 1021 779 715	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034 2122 2358 2352 2900 2170 2230 2160 1328 1167 1294 1022 879	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087 789 722 623 599 577 558 540 515 548 698 630 683	605 577 689 639 588 536 488 453 466 460 491 494 451 420 387 380 372 357 338 326 316 318 318 323 377 413	Oct 332 323 317 320 331 309 309 313 329 422 389 362 363 353 352 348 332 330 342 337 334 327 312 307 305 350 633	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446 444 447 445 443 484 733 772 788 1096 877 718	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890 810 730 696 671 724 897 1824 3639 2538 2252 1917 1499	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789 761 755 890 1062 913 861 825 792 807 868 1022 1651	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119 1203 1730 3639 13732 12128 5650 4524 2956 1988 1790 1876 1948 1718	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402 2776 3050 3714 4810 10850 13292 7676 5752 4154 3070 3092 3444	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598 1536 1524 1478 1468 1426 1398 1378 1376 1357 1357 1310 1303 1276	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1103 1103 1104 1525 1651 1434 1237 1090 1170 1584 3470 2158 1768 1376 1244 1650 1545	Jun 1024 973 930 930 930 916 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606 1828 1220 1133 1048 958 924 998 952 998 952 847 811 802 806	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855 885 931 821 846 791 722 669 663 649 689 916 887 995 973	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645 664 1086 2134 2679 2822 2232 1820 1580 1198 918 848	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711 1031 908 782 695 615 576 553 553 841 1517 4963 5402	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 819 775 749 725 728 725 728 722 784 1014 984 860 1019 1210 2459 1897	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771 750 748 749 750 731 752 868 1235 1070 951 903 813	250 De
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	2216 2356 2918 2506 2079 1688 1447 1326 1249 1182 1136 1094 1065 1059 1084 1357 1533 1355 1241 1152 1086 1057 1088 1057 1088 1057 1088 1089 1104 1115	1002 988 1027 1009 970 959 951 923 898 894 873 957 1054 1435 1569 1213 1108 1032 988 955 945 944 944 948 948	Mar 916 885 910 1125 1292 1271 1706 2489 2205 1882 1677 1512 1364 1279 1211 1300 1430 1430 1265 1261 1325 1373 1670 1836 2309 2226 2014	1505 1422 1337 1280 1303 1289 1228 1185 1232 1567 1447 1320 1259 1177 1135 1102 1072 1058 1032 10 10 10 10 10 10 10 10 10 10 11 127 14 27 12 36 11 34	May 930 902 874 847 843 851 882 1006 900 840 783 754 725 713 687 675 661 636 619 601 582 565 546 525	Jun 534 567 637 617 595 515 478 481 516 563 599 1070 811 669 617 526 478 446 417 401 468 512 670 985 1021 779 715	341 Jul 1301 1396 1772 2568 7810 9144 7850 5132 3508 2750 2124 2360 1896 1714 2164 2034 2122 2358 2322 2900 2170 2230 2160 1328 1167 1294 1022	Aug 755 706 744 864 1190 1804 1197 1126 1014 896 827 1006 1128 1172 1083 1087 789 722 623 599 577 558 540 515 548 698	605 577 689 639 588 536 488 453 466 466 460 491 494 451 420 387 380 372 357 338 326 316 316 318 323 377 413	Oct 332 323 317 320 331 321 309 309 313 329 422 389 362 363 353 352 348 332 330 342 337 334 327 312 307 305 350	743 1025 759 681 656 828 797 696 588 520 486 471 461 450 446 444 447 445 443 733 772 788 1096 877 718	De c 536 516 750 1744 2569 1494 1267 976 792 718 682 693 938 1331 1001 890 810 730 696 671 724 897 1824 3639 2538 2252 1917	1 2 3 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	Jan 1013 1593 1452 1375 1343 1188 1076 1002 913 839 775 825 844 827 801 789 761 755 890 1062 913 861 825 792 807 868	1567 1360 1200 1138 1100 1321 2439 1912 1580 1437 1288 1214 1119 1203 1730 3639 13732 12128 5650 4524 2956 1988 1790 1948 1718	Mar 1438 1612 2202 2358 2670 3006 3218 3152 3532 2966 2484 2178 2010 2042 2156 2402 2776 3050 3714 4810 10850 13292 7676 5752 4154 3070 3092	1808 1732 1702 1666 1642 1616 1658 1898 2128 2812 2380 2140 1826 1682 1598 1536 1524 1478 1468 1426 1398 1378 1376 1357 1331 1310 1303	May 1223 1200 1129 1220 2029 1549 1326 1314 1178 1130 1103 1090 1147 1284 1525 1651 1434 1237 1090 1170 1584 3470 2158 1768 1376 1244	Jun 1024 973 930 930 936 879 955 1089 707 1153 3904 2611 2070 1976 1414 1606 1828 1220 1133 1048 958 924 998 952 847 811	42 Jul 2179 1896 1335 1290 1018 946 861 833 1020 1539 1007 963 855 885 931 821 846 791 722 669 663 649 689 916 841 872	Aug 642 635 593 569 589 794 906 1305 1355 1129 943 806 737 683 620 645 664 1086 2134 2679 2822 2232 1580 1198 918 848	738 741 714 650 680 1111 1307 1495 1084 1029 839 729 679 645 669 711 1031 908 782 695 615 576 553 553 841 1517 4963	Oct 1458 1122 1007 930 987 1150 957 884 882 881 1004 932 882 819 775 749 725 728 722 784 1014 984 860 1019 1210 2459 1897	1041 1038 945 896 856 823 820 817 779 781 921 896 803 799 771 750 748 749 750 731 752 868 1235 1070 951	De 1199 2111 156 156 156 156 156 156 156 156 156

ALABAMA-COOSA-TALLAPOOSA BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	43												19	944					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	De
1	5566	2184	1646	2368	2202	1530	2865	1071	899	652	678	636	1	1431	920	4848	6310	2684	1714	1066	973	707	759	486	115
2	3942	19 16	1684	2362	2 114	1468	2470	1936	793	645	676	636	2	1746	908	3354	4546	2514	1676	1057	1000	681	632	489	96
	2546	2146	1648	2290	2070	1436	2146	1331	711	650	676	636	3	4396	903	2756	3674	2478	1668	1027	982	628	596	490	86
1	2148	3824	1644	2234	2066	1398	18 12	1175	710	708	677	651	4	4 170	900	2622	3422	2572	16 14	10.56	931	587	571	490	78
5	1906	7154	1696	2104	2026	1371	1706	1337	707	695	673	664	5	2812	881	3164	3200	2652	1634	10 19	984	564	552	487	81
6 7	1750 1676	9444 6604	1980	2066 2060	1988 1996	1339	1706 1506	1465 1231	671 671	645 636	732 910	665 737	6 7	2214 1608	944 1211	39 12 74 14	3046 2948	3070 2720	1746 1870	10 19 10 13	1243 1209	564 582	565 592	484 476	89 116
3	1806	5050	2080 1814	2046	2022	1328 1299	1431	1189	653	635	1694	757 754	8	14 12	1626	5330	2834	2536	1654	1133	1035	540	584	478	21
9	1756	3910	1734	2002	2126	1328	1427	1132	628	614	1602	702	9	1436	3737	4310	2880	2334	16 18	1052	892	593	559	501	193
10	1604	3008	1770	2656	2 114	1515	1225	969	585	606	12 13	687	10	1405	5078	3386	3228	2232	1540	1021	799	677	527	566	154
11	1558	2716	2 110	3260	2200	1517	1241	10 15	554	600	1038	684	11	1306	5408	2750	3478	2158	1622	1097	726	838	507	591	14 (
2	1496	2500	2972	4564	2664	1518	2309	1085	536	592	903	677	12	12 12	6120	2788	4086	2074	1558	1176	758	1147	570	556	129
3	1434	2262	3496	4320	2282	14 17	170 1	1201	521	548	807	658	13	1158	4136	2810	3776	2030	2284	2039	754	1128	712	543	113
14	1382	2124	3508	3726	2078	1328	1886	1105	519	643	766	654	14	1171	3848	2550	3844	2062	1698	1677	804	923	852	533	102
15	1380	1954	3268	2942	1998	1280	1593	1088	515	1066	736	633	15	150 1	5136	2362	4518	1966	1590	1595	897	767	732	531	94
16	1476	1850	3182	2316	1896	1182	1241	985	520	1402	729	619	16	1824	4124	2246	5106	1960	1447	1408	1133	678	668	597	88
17	2032	1778	4452	2826	1830	1105	1207	897	530	931	722	596	17	1547	5160	2600	4502	1924	1345	1107	998	620	595	605	86
18	3312	1754	5188	3650	1776	1102	1063	783	530	863	703	602	18	14 10	6844	3374	4150	1870	1346	1080	1077	598	549	584	84
19	4960	1770	6168	74 16	1754	1095	1094	722	835	764	699	631	19	1309	5832	76 10	3942	2028	1321	1263	935	624	526	654	85
0	4018 3296	1752 1774	10328 12054	6896 5022	1698 1676	1050 1064	2284	707 687	1687 2659	700 669	683 678	618 624	20	1226 1164	5046 4314	13324 8984	3720 3792	2588 5156	1360 1317	14 11 12 77	778 711	659 683	532 569	886 954	86
2 1	2526	1774	12054	4042	1696	1102	1654 1359	666	2340	660	676	612	22	1096	3540	6434	3504	3310	1270	1200	657	699	549	799	79
3	1976	1760	8 154	3290	1752	1157	1166	658	1697	642	671	626	23	1055	3346	6200	3478	3020	1175	1052	641	623	528	733	78
4	1802	1720	5994	3502	2134	1507	890	648	1232	637	653	665	24	1026	3438	4684	3936	2830	1115	886	619	585	524	667	77
2 5	1996	1724	4408	3206	2352	1243	926	697	897	636	650	916	25	1009	4394	3952	3834	3518	10.59	816	604	555	518	655	77
2 6	2636	1678	3392	2954	2276	1120	14 10	665	775	653	651	2565	26	10 17	7514	3684	3644	2320	1027	778	580	551	498	742	86
2 7	4080	1636	3240	2676	1924	1032	1593	763	729	684	651	2415	27	1096	10204	4634	4122	2156	994	737	614	562	480	1230	97
8	4198	1638	3018	2434	1824	1124	1108	813	698	771	651	1844	28	1085	8918	70 12	3700	2146	985	734	772	546	467	2210	88
9	3710		2690	2324	1772	1494	1162	927	675	726	651	2165	29	1044	6665.671	12242	3292	1994	974	751	820	551	464	1456	10
3 0	3018		2478	2228	1598	2714	1030	1395	671	698	652	1630	30	993		11680	2970	1858	984	813	771	658	466	1341	
3 0	3018 2554		2478 2398	2228	1598 1584		1030 930 945	1395 1240	671	698 685	652	1364	30	993 952		11680 8026	2970	1858 1756		813 889 946	771 747	658	475	1341	158 173
3 1	2554 Jan	Feb	2398 Mar	Apr	1584 May	19 Jun	930)45 Jul	1240 Aug	Sep	685 Oct	Nov	1364 De c	31	952 Jan	Feb	8026 Mar	Apr	1756 May	19 Jun	889 946 Jul	747	Sep	475 Oct	Nov	173
1	2554 Jan 2368	938	2398 Mar 1890	Apr 1760	1584 May 2292	19 Jun 1148	930 945 Jul 788	1240 Aug 1178	Se p 543	685 Oct 664	Nov 825	1364 De c 973	1	952 Jan 4050	7292	8026 Mar 3110	Apr 7484	1756 M ay 3380	19 Jun 2816	889 946 Jul 1536	747 Aug 1029	Sep	475 Oct 740	Nov 712	173 De
1 2	2554 Jan 2368 2654	938 915	2398 Mar 1890 2134	Apr 1760 2259	1584 May 2292 2112	19 Jun 1148 1129	930 45 Jul 788 874	1240 Aug 1178 1146	Se p 543 522	0ct 664 703	Nov 825 837	1364 De c 973 1008	1 2	952 Jan 4050 3192	7292 5104	8026 Mar 3110 3032	Apr 7484 5444	1756 May 3380 5080	19 Jun 2816 2982	889 946 Jul 1536 1770	747 Aug 1029 991	Se p 697 670	475 Oct 740 673	Nov 712 712	173 De 83 79
1 2 3	2554 Jan 2368 2654 1971	938 915 962	2398 Mar 1890 2134 2702	Apr 1760 2259 2487	1584 May 2292 2112 2134	19 Jun 1148 1129 1146	930 45 Jul 788 874 878	1240 Aug 1178 1146 1056	Se p 543 522 496	Oct 664 703 816	Nov 825 837 878	1364 De C 973 1008 1328	1 2 3	952 Jan 4050 3192 2718	7292 5104 4334	8026 Mar 3110 3032 2884	Apr 7484 5444 4204	1756 May 3380 5080 6156	19 Jun 2816 2982 2734	889 346 Jul 1536 1770 3296	747 Aug 1029 991 964	Sep 697 670 636	475 Oct 740 673 670	Nov 712 712 715	173 De 83 79 76
1 2 3 4	2554 Jan 2368 2654 1971 1698	938 915 962 1296	2398 Mar 1890 2134 2702 4994	Apr 1760 2259 2487 2092	1584 May 2292 2112 2134 1972	19 Jun 1148 1129 1146 1101	930 45 Jul 788 874 878 893	1240 Aug 1178 1146 1056 1041	Se p 543 522 496 457	Oct 664 703 816 724	Nov 825 837 878 1003	De c 973 1008 1328 2139	1 2 3 4	952 Jan 4050 3192 2718 3250	7292 5104 4334 3696	Mar 3110 3032 2884 2850	Apr 7484 5444 4204 3970	1756 May 3380 5080 6156 7026	19 Jun 2816 2982 2734 2620	889 946 Jul 1536 1770 3296 2130	747 Aug 1029 991 964 945	Se p 697 670 636 622	475 Oct 740 673 670 665	Nov 712 712 715 735	173 De 83 79 76 74
1 2 3 4 5	2554 Jan 2368 2654 1971 1698 1456	938 915 962 1296 2930	2398 Mar 1890 2134 2702 4994 4600	Apr 1760 2259 2487 2092 1967	May 2292 2112 2134 1972 1874	19 Jun 1148 1129 1146 1101 1057	930 945 Jul 788 874 878 893 931	1240 Aug 1178 1146 1056 1041 1824	Se p 543 522 496 457 445	Oct 664 703 816 724 688	Nov 825 837 878 1003 925	De c 973 1008 1328 2139 4891	3 1 1 2 3 4 5	952 Jan 4050 3192 2718 3250 3908	7292 5104 4334 3696 3578	Mar 3110 3032 2884 2850 2766	Apr 7484 5444 4204 3970 3826	1756 May 3380 5080 6156 7026 5498	19 Jun 2816 2982 2734 2620 2468	889 946 Jul 1536 1770 3296 2130 1900	747 Aug 1029 991 964 945 980	Sep 697 670 636 622 635	900 475 900 475 900 900 900 900 900 900 900 900 900 90	Nov 712 712 715 735 737	173 De 83 79 76 74 73
1 2 3 4 5	2554 Jan 2368 2654 1971 1698	938 915 962 1296	2398 Mar 1890 2134 2702 4994 4600 3674	Apr 1760 2259 2487 2092 1967 1708	May 2292 2112 2134 1972 1874 1790	19 Jun 1148 1129 1146 1101	930 45 Jul 788 874 878 893	1240 Aug 1178 1146 1056 1041	Se p 543 522 496 457	Oct 664 703 816 724 688 782	Nov 825 837 878 1003 925 871	1364 De C 973 1008 1328 2139 4891 3434	1 2 3 4	952 Jan 4050 3192 2718 3250 3908 11984	7292 5104 4334 3696	Mar 3110 3032 2884 2850 2766 3288	Apr 7484 5444 4204 3970 3826 3716	May 3380 5080 6156 7026 5498 4382	19 Jun 2816 2982 2734 2620 2468 2310	889 946 Jul 1536 1770 3296 2130	747 Aug 1029 991 964 945	Se p 697 670 636 622	475 Oct 740 673 670 665 641 704	Nov 712 712 715 735	173 De 83 79 76 74 73 71:
1 2 3 4 5 6	2554 Jan 2368 2654 1971 1698 1455 1378	938 915 962 1296 2930 2910	2398 Mar 1890 2134 2702 4994 4600	Apr 1760 2259 2487 2092 1967	May 2292 2112 2134 1972 1874	1148 1148 1129 1146 1101 1057 1012	930 045 Jul 788 874 878 893 931 891	1240 Aug 1178 1146 1056 1041 1824 1628	Se p 543 522 496 457 445 469	Oct 664 703 816 724 688	Nov 825 837 878 1003 925	De c 973 1008 1328 2139 4891	3 1 1 2 3 4 5 6	952 Jan 4050 3192 2718 3250 3908	7292 5104 4334 3696 3578 3816	Mar 3110 3032 2884 2850 2766	Apr 7484 5444 4204 3970 3826	1756 May 3380 5080 6156 7026 5498	19 Jun 2816 2982 2734 2620 2468	889 346 Jul 1536 1770 3296 2130 1900 1788	747 Aug 1029 991 964 945 980 998	Sep 697 670 636 622 635 593	900 475 900 475 900 900 900 900 900 900 900 900 900 90	Nov 712 712 715 735 737 715	173 Dec 83 79 76 74 73 71
1 1 2 3 3 4 5 6 7 8	2554 Jan 2368 2654 1971 1698 1455 1378 1645	938 915 962 1296 2930 2910 2334	2398 Mar 1890 2134 2702 4994 4600 3674 3032	Apr 1760 2259 2487 2092 1967 1708 1607	May 2292 2112 2134 1972 1874 1790 1696	19 Jun 1148 1129 1146 1101 1057 1012 1013	930 945 Jul 788 874 878 893 931 891 847	Aug 1178 1146 1056 1041 1824 1628 1928	Se p 543 522 496 457 445 469 508	Oct 664 703 816 724 688 782 923	Nov 825 837 878 1003 925 871 837	1364 De c 973 1008 1328 2139 4891 3434 2619	31 1 2 3 4 5 6 7	952 Jan 4050 3192 2718 3250 3908 11984 30974	7292 5104 4334 3696 3578 3816 5240	Mar 3110 3032 2884 2850 2766 3288 4066	Apr 7484 5444 4204 3970 3826 3716 4006	May 3380 5080 6156 7026 5498 4382 3702	18 Jun 2816 2982 2734 2620 2468 2310 2262	889 346 Jul 1536 1770 3296 2130 1900 1788 1586	747 Aug 1029 991 964 945 980 998 992	Sep 697 670 636 622 635 593 560	475 Oct 740 673 670 665 641 704 784	Nov 712 712 715 735 737 715 783	173 Dec 83 79 76 74 73 71 71 72
1 2 3 4 5 6 7 8 8	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036	938 915 962 1296 2930 2910 2334 2146	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292	Apr 1760 2259 2487 2092 1967 1708 1607 1534	May 2292 2112 2134 1972 1874 1790 1696 1723	159 Jun 1148 1129 1146 1101 1057 1012 1013 1027	930 788 874 878 893 931 891 847 767 696 679	Aug 1178 1146 1056 1041 1824 1628 1928 1555	Se p 543 522 496 457 445 469 508 491	Oct 664 703 816 724 688 782 923 823	Nov 825 837 878 1003 925 871 837 807 778	1364 De C 973 1008 1328 2139 4891 3434 2619 2066	1 2 3 4 5 6 7 8	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256	7292 5104 4334 3696 3578 3816 5240 6204	Mar 3110 3032 2884 2850 2766 3288 4066 8710	Apr 7484 5444 4204 3970 3826 3716 4006 4570	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930	18 Jun 2816 2982 2734 2620 2468 2310 2262 2236	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516	747 Aug 1029 991 964 945 980 998 992 955	Sep 697 670 636 622 635 593 560	740 673 670 665 641 704 784 1184 1796	Nov 712 712 715 735 737 715 783 1091 1065 907	73 74 74 75 76 77 71 72 73
0 51 1 1 2 3 3 4 4 5 6 7 7 0	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009	19 Jun 1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980	930 788 874 878 893 931 891 847 767 696 679 642	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861	Se p 543 522 496 457 445 469 508 491 471 447 466	0ct 664 703 816 724 688 782 923 823 737 707 654	Nov 825 837 878 1003 925 871 837 807 778 770	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450	31 1 2 3 4 5 6 7 8 9 10 11	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846	18 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458	747 Aug 1029 991 964 945 980 998 992 955 905 851 810	Sep 697 670 636 622 635 593 560 565 633 679	740 673 670 665 641 704 784 1184 1796 1434 1105	Nov 712 712 715 735 737 715 783 1091 1065 907 915	173 De 83 79 76 74 73 71: 72 73 71: 71: 72
1 1 2 3 3 4 5 6 6 7 0	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1659 1483 1387	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1758 1712	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255	19 Jun 1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905	930 788 874 878 893 931 891 847 767 696 679 642 845	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1012 861 774	Se p 543 522 496 457 445 469 508 491 447 466 474	Oct 664 703 816 724 688 782 923 823 737 707 654 631	Nov 825 837 878 1003 925 871 837 807 778 770 770	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300	31 1 2 3 4 5 6 7 7 8 9 10 11 12	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 12928 8644 6406	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550	Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4992 5052 4362	1756 May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940	15 Jun 28 16 29 82 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108	889 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778	Se p 697 670 636 622 635 593 560 565 633 679 729	475 Oct 740 673 670 665 641 704 784 1184 11796 1434 1105	Nov 712 712 715 735 737 715 783 1091 1065 907 915	173 De 83 79 76 74 73 71 72 73 71 71 73
1 1 2 2 3 3 4 5 6 7 7 3 9 0	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1443 1442 1385 1351 1333	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868	19 Jun 1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870	930 145 Jul 788 874 878 893 931 891 847 767 696 679 642 845 1434	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789	Se p 543 522 496 457 445 469 508 491 471 446 474 716	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600	Nov 825 837 878 1003 925 871 837 807 778 770 770 785 832	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270	3 1 1 2 3 4 5 6 7 8 9 10 11 12 13	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922	Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142	18 Jun 28 16 29 82 2734 2620 24 68 23 10 22 62 22 36 22 04 24 20 24 20 24 20 24 20 24 20 24 20 24 20 24 20 24 20 24 20	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743	Se p 697 670 636 622 635 593 560 565 633 679 729 742 653	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983	173 Dec 83 79 76 74 73 71 74 72 73 71 71 73
1 1 2 3 4 5 6 7 8 8 9 10 11 11 12 13	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1663 2009 2255 2868 2822	19 Jun 1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875	930 145 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591	Nov 825 837 878 1003 925 871 837 807 778 770 770 785 832 975	1364 De c 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388	3 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166	Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038	18 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2476 2108 2014 1956	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848	73 79 76 74 73 71 72 73 71 71 73 79
1 2 3 4 5 6 7 7 8 8 9 110 111 112 113 114 115	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1778 1702 1698 1691	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388	1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598	Nov 825 837 878 1003 925 871 837 807 778 770 770 785 832 975	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692	Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904	15 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108 2014 1956 2970	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821	73 76 76 73 71 71 72 73 71 71 72 73 71 75 75 76
1 2 3 4 5 6 7 7 8 8 9 9 110 111 112 113 114 115 116	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1691 1651	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360 1412	1584 May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388 2046	1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666	Nov 825 837 878 1003 925 871 837 807 778 770 770 785 832 975 1189 1029	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320	15 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108 2014 1956 2970 3128	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821	173 Dec 83 79 76 74 71 71 72 73 71 71 71 72 73 75 76 76 76 77 77 77 77 78
1 2 3 4 5 6 7 7 8 8 9 110 111 112 113 114 115 116 117	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1691 1651 1612	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360 1412 1796	1584 May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388 2046 1847	1148 1129 1146 1101 11057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637	Nov 825 837 878 1003 925 871 837 778 770 770 785 832 975 1189 1029	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402	15 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108 2014 1956 2970 3128 3358	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771 738	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821	73 74 74 74 75 71 72 73 74 75 78 76 76 76 77
1 2 3 4 5 6 7 7 8 8 9 10 11 12 13 14 11 5 11 6 11 7 11 8	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1691 1651	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360 1412	1584 May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388 2046	1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666	Nov 825 837 878 1003 925 871 837 807 778 770 770 785 832 975 1189 1029	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320	15 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108 2014 1956 2970 3128	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821	79 83 79 76 74 73 71 71 72 73 78 79 85 76 76 78
3 0 3 1 1 2 2 3 4 5 5 6 7 8 8 9 10 111 112 113 114	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1659 1483 1387 1573 1849 1597 1481 1371 1301	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1758 1712 1702 1698 1861 1651 1612	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360 1412 1796 1846	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2846 1847 1768	19 Jun 1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393 1739	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834	Se p 543 522 496 457 445 469 508 491 447 466 474 716 2021 2824 3300 5342 3013	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608	Nov 825 837 878 1003 925 871 837 807 770 770 785 832 975 1189 1029 958	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408 1277 1260	3 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 56642 6238 6014 5178	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140	Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846	1756 May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238	28 16 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108 2014 1956 2970 3128 3358 3004	889 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724 693	Se p 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613 676 712	475 Oct 740 673 670 665 641 704 784 1184 11796 1434 1105 1012 961 839 776 771 738	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821 874 1088	73 79 76 74 73 71 71 72 73 78 78 76 76 76 78
1 1 2 3 3 4 5 6 6 7 7 8 8 9 10 11 11 12 13 14 15 16 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481 1371 1301	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880 2928	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1691 1651 1612 1697 1876	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360 1412 1796 1846 1580	1584 May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388 2822 2388 1847 1768 1655	19 Jun 1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 9163 1393 1739 2032	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795 1349	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834 714	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342 3013 2273	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608 591	Nov 825 837 878 1003 925 871 837 807 778 770 770 785 832 975 1189 1029 958 942	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408 1277 1260 1243	3 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014 5178	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140 5408	Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992 5016	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846 3498	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238 4128	28 16 29 82 27 34 26 20 24 68 23 10 22 62 22 36 22 04 24 20 21 76 21 08 20 14 19 56 29 70 31 28 33 58 30 04 28 80	889 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616 1448 1438	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724 693 704	Se p 697 670 636 632 635 593 560 565 633 679 729 742 653 633 611 676 712 661	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 796 771 738 735	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 874 1088 1022	173 Be 833 79 76 744 73 715 71 72 73 79 85 76 75 86 96 9113
1 1 2 3 3 4 4 5 5 6 6 7 8 8 9 10 11 12 13 14 15 16 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481 1371 1301 1444	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880 2928 2794	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1691 1651 1612 1697 1876 2069	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360 1412 1796 1846 1580 1418	1584 May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388 2046 1847 1768 1655	19 Jun 1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393 1739 2032 2220	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795 1349 1179 940	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834 714 668	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342 3013 2273	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608 591 577	Nov 825 837 878 1003 925 871 837 807 778 770 775 832 975 1189 1029 942 1038	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408 1277 1260 1243 1203	3 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014 5178 4342	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140 5408 6204	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992 5016	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846 3498 3346	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238 4128	2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108 2014 1956 2970 3128 3358 3004 2880 2464	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616 1448 1438 1318	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724 693 704	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613 613 676 712 661	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771 738 735 734 729	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821 821 821 874 1088 1022	73 74 74 73 74 75 75 76 76 75 76 75 78 86 96
1 1 2 3 3 4 4 5 5 6 6 7 8 8 9 9 10 11 12 13 14 15 16 16 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481 1371 1301 1444 1703	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880 2928 2794 3118	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1691 1651 1612 1697 1876 2069 2935	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360 1412 1796 1846 1580 1418 1370	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1663 2009 2255 2868 2822 2388 2046 1847 1768 1655 1557	1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393 1739 2032 2220	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795 1349 1179 940 872	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834 714 668 650	Sep 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342 3013 2273 1460 1106	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608 591 577	Nov 825 837 878 1003 925 871 837 807 778 770 785 832 975 1189 1029 958 942 1038 1348	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408 1277 1260 1243 1203 1140	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014 5178 4342 3728	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140 5408 6204 4990	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992 5016 4110 3588	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846 3498 3346 3128	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238 4128 3720 3440	18 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108 2014 1956 2970 3128 3358 3004 2880 2464 2270	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616 1448 1438 1318 1270	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724 693 704 692 678	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613 676 712 661 636	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771 738 735 734 729 707	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821 874 1088 1022 943 882	73 76 76 77 71 72 73 71 71 73 79 85 76 75 78 86 96 91 91 91 91 91 91 91 91 91 91 91 91 91
1 1 2 3 3 4 4 5 6 6 7 7 8 8 9 10 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481 1371 1301 1444 1703 1499	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880 2928 2794 3118 3948	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1778 1702 1698 1691 1651 1612 1697 1876 2069 2935 2424	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1442 1385 1351 1333 1299 1360 1412 1796 1846 1580 1418 1370 1422	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388 2046 1847 1768 1655 1557 1466 1393	1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393 1739 2032 2220 1844 1456	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795 1349 1179 940 872 807	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834 714 668 650 633	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342 3013 2273 1460 1106 969	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608 591 577 499 794	Nov 825 837 878 1003 925 871 837 807 778 770 770 785 832 975 1189 1029 958 942 1038 1348 1468 2465	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408 1277 1260 1243 1203 1140 1105	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014 5178 4342 3728 3348 3064	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140 5408 6204 4990 4568	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992 5016 4110 3588 3376	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846 34498 3346 3128 3016	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238 4128 3720 3440 3276	158 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2014 1956 2970 3128 3358 3004 2880 2464 2270 2220	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616 1448 1438 1318 1270 1310	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724 693 704 692 678	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613 676 712 661 636 597	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771 738 735 734 729 707	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821 874 1088 1022 943 882 882	173 Dec 83 79 76 74 71 71 72 73 71 71 71 72 73 71 71 71 71 71 71 71 71 71
0 3 1 1 2 3 4 5 6 6 7 8 9 0 11 2 3 4 4 15 6 6 17 8 9 0 17 18 19 19 19 19 19 19 19 19 19 19	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481 1371 1301 1444 1703 1499 1422 1363	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880 2928 2794 3118 3948 3948	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1691 1651 1612 1697 1876 2069 2935 2424 2087	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360 1412 1796 1846 1580 1418 1370 1422 2252	1584 May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388 2046 1847 1768 1655 1557 1466 1393 1364	1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393 1739 2032 2220 1844 1456	930 788 874 878 893 931 891 847 767 696 679 642 2434 2609 1795 1349 1179 940 872 807 744	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834 714 668 650 633 699	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342 3013 2273 1460 1106 969 868	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608 591 577 499 794 2697	Nov 825 837 878 1003 925 871 837 770 770 770 785 832 975 1189 1029 958 942 1038 1348 1468 2465 2151	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408 1277 1260 1243 1203 1140 1105	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014 5178 4342 3728 3348 3064 2832	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140 5408 6204 4990 4568 4100	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992 5016 4110 3588 3376 3228	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846 3498 3346 3128 3016 2992	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238 4128 3720 3440 3276 3096	15 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108 2014 1956 2970 3128 3358 3004 2880 2464 2270 2220 2094	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616 1448 1438 1438 1318 1270 1310 1323	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724 693 704 692 678 672 681	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 631 611 613 676 712 661 636 597 712	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771 738 735 734 729 707 705 700	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821 874 1088 1022 943 882 882 882	173 833 79 764 73 71 71 72 73 71 71 73 79 85 78 86 96 113 170 160 131
1 1 2 3 3 4 5 6 6 7 7 3 3 4 1 5 6 6 7 7 8 9 9 0 0 1 1 1 1 2 1 2 1 1 2 1 1 2 1 1 2 1 1 2 3 3 3 3	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481 1371 1301 1444 1703 1499 1422 1363 1241 1174	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880 2928 2794 3118 3948 3946 3262 2686 2206	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1651 1612 1697 1876 2069 2035 2424 2087	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360 1412 1796 1846 1580 1418 1370 1422 2252 3612	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388 2046 1847 1768 1655 1557 1466 1393 1364	159 Jun 1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393 1739 2032 2220 1844 1456 11065 940 892	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795 1349 1179 940 872 807 807 744 710 911 888	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834 714 668 650 633 699 822 1011 918	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342 3013 2273 1460 1106 969 868 800	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608 591 577 499 794 2697 2084	Nov 825 837 878 1003 925 871 837 807 778 770 770 775 832 975 1189 1029 958 942 1038 1348 1468 2465 2151 1704 1471	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1408 1408 1277 1260 1243 1203 1140 1105 1678 2592 5414 6578	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014 5178 4342 3728 3348 3064 2832 2714 2626 2572	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140 5408 6204 4990 4568 4100 3784	Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992 5016 4110 3588 3376 3228 3192	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846 3498 3346 3128 3016 3016 2992 2932 3102 3658	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238 4128 3720 3440 3276 3096 3380 3884 6080	15 Jun 28 16 29 82 27 34 26 20 24 68 23 10 22 62 22 36 22 04 24 20 2176 2108 20 14 19 56 29 70 31 28 33 58 30 04 28 80 24 64 22 70 20 20 94 19 82 17 52 17 64	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616 1448 1438 1318 1270 1310 1323 1261 1212	747 Aug 1029 991 964 945 980 998 992 955 851 810 778 743 714 708 723 724 693 704 692 678 672 681	Se p 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613 676 712 661 636 597 712 1571	475 Oct 740 673 670 665 641 704 784 1184 1196 1434 1105 1012 961 839 771 738 735 734 729 707 705 700 694	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821 821 821 821 821 821 821 821 82	173 83 79 74 73 71 71 71 72 73 71 71 71 73 79 85 76 96 91 107 118 118
1 1 2 3 3 4 5 5 6 6 7 8 8 9 9 10 11 12 12 13 14 15 16 16 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481 1371 1301 1444 1703 1499 1422 1363 1241 1174 1134	938 915 962 1296 2930 2940 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880 2928 2794 3118 3948 3946 3262 2686 2206 1980	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1691 1651 1651 1612 1697 1876 2069 2935 2424 2087 1843 1721 1843 2599	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1483 1442 1385 1351 1333 1299 1360 1412 1796 1846 1580 1418 1370 1422 2252 3612 6066 5286 4040	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388 2046 1847 1768 1655 1557 1466 1393 1364 1314 1322 1416	159 Jun 1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393 1739 2032 2220 1844 1456 1166 1005 940 892 850	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795 1349 1179 940 872 807 744 740 911 888 750	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834 714 668 650 633 699 822 1011 918 798	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342 3013 2273 1460 1106 969 868 800 781 744 711	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608 591 577 499 794 2697 2084 1478 1653	Nov 825 837 878 1003 925 871 837 807 778 770 775 832 975 1189 1029 958 942 1038 1348 1468 2465 2151 1704 1471 1250	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408 1277 1260 1243 1203 1140 1105 1678 2592 5414 6578	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014 5178 4342 3728 3348 3064 2832 2714 2626 2572 2536	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140 5408 6204 4990 4568 4100 3784 3524 3390 3292	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992 5016 4110 3588 3376 3228 3192 3362 4640 6002	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846 3498 3346 3128 3016 2992 2932 3102 3658 3144	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238 4128 3720 3440 3276 3096 3380 3384 6080 4936	15 Jun 28 16 29 82 27 34 26 20 24 68 23 10 22 62 22 36 22 04 24 20 21 76 21 08 20 14 19 56 29 70 31 28 33 58 30 04 28 80 24 64 22 70 22 20 20 94 19 82 17 52 17 64 18 82	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616 1448 1438 1318 1270 1310 1323 1261 1212	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724 693 704 692 678 672 681 720 759 734	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613 613 697 712 661 636 597 712 1571 1385 1091 947 810	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771 738 738 735 734 729 707 705 700 694 715 853 858	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821 874 1088 1022 943 882 862 862 820 846 862 1019	173 173 833 79 76 744 73 71: 71 72 73 79 85 76 96 91 100 131 1188 104 93 88
1 2 3 3 4 5 6 7 8 9 9 10 11 11 12 13 14 15 16 16 17 18 19 2 2 1 2 2 2 3 2 4 2 2 3 3 4 3 4 3 4 3 4 3 4 3	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481 1371 1301 1444 1703 1499 1422 1363 1241 1174 1134 1096	938 915 962 1296 2930 2910 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880 2928 2794 3118 3948 3946 3262 2686 2206	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1691 1651 1612 1697 1876 2069 2935 2424 2087 1843 1721 1843 2599 2094	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1443 1442 1385 1351 1333 1299 1360 1412 1796 1846 1580 1418 1370 1422 2252 3612 6066 5286 4040 3336	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1663 2009 2255 2868 2822 2388 2046 1847 1768 1655 1557 1466 1393 1364 1314 1322 1416 1606	1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393 1739 2032 2220 1844 1456 1166 1005 940 892 850 812	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795 1349 1179 940 872 807 744 710 911 888 750 969	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834 714 668 650 633 699 822 1011 918 798 693	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342 3013 2273 1460 1106 969 868 800 781 744 711 689	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608 591 577 499 794 2697 2084 1478 1653 1295	Nov 825 837 878 1003 925 871 837 807 778 770 770 770 785 832 975 1189 1029 958 942 1038 1348 1468 2465 2151 1704 1471 1250 1168	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408 1277 1260 1243 1203 1140 1105 1678 2592 5414 6578 4960 4414	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014 5178 4342 3728 3348 3064 2832 2714 2626 2572 2536 2564	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140 5408 6204 4990 4568 4100 3784 3524 3390	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992 5016 4110 3588 3376 3228 3192 3362 4640 6002	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846 3498 3346 3128 3016 2992 2932 3102 3658 3144 2944	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238 4128 3720 3440 3276 3096 3380 3880 4936 3968	15 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108 2014 1956 2970 3128 3358 3004 2880 2464 2270 2220 2094 1982 1752 1764 1882 1680	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616 1448 1438 1318 1270 1310 1323 1261 1212 1199 1142	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724 693 704 692 678 672 681 720 759 734 746 730	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613 676 712 1571 1385 1091 947 810 726	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771 738 735 734 729 707 705 700 694 715 853 858 774	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821 874 1088 1022 943 882 882 862 820 846 862 1019 1033	733 744 733 745 744 733 745 733 748 755 766 766 966 913 113 118 93 88 88 88 88 88 88 88 88 88 88 88 88 88
1 1 2 3 4 4 5 5 6 6 7 8 8 9 9 10 11 12 13 14 11 15 16 16 17 18 19 2 0 1 2 1 2 2 5 2 6 2 7	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481 1371 1301 1444 1703 1499 1422 1363 1241 1174 1134 1096 1066 1033	938 915 962 1296 2930 2940 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880 2928 2794 3118 3948 3946 3262 2686 2206 1980	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1778 1702 1698 1691 1651 1612 1697 1876 2069 2935 2424 2087 1843 1721 1843 2599 2094	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1443 1442 1385 1351 1333 1299 1360 1412 1796 1846 1580 1418 1370 1422 2252 3612 6066 5286 4040 3336 3328	May 2292 2112 2134 1790 1696 1723 1663 1685 2009 2255 2868 2822 2388 2046 1847 1768 1655 1557 1466 1393 1364 1314 1322 1416 1606 1379 1330	1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393 1739 2032 2220 1844 1456 1166 1005 940 892 850 812 776	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795 1349 1179 940 872 807 744 710 911 888 750 969 1738	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834 774 668 650 633 699 822 1011 918 798 693 628	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342 3013 2273 1460 1106 969 868 800 781 744 711 689 668	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608 591 577 499 794 2697 2084 1478 1653 1295	Nov 825 837 878 1003 925 871 837 807 778 770 770 785 832 975 1189 1029 958 942 1038 1348 1468 2465 2151 1704 1471 1250 1168 1162 1103	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408 1277 1260 1243 1203 1140 1105 1678 2592 5414 6578 4960 4414 5048	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 29 20 20 20 20 20 20 20 20 20 20	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014 5178 4342 3728 3348 3064 2832 2714 2626 2552 2536 2564 2892	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140 5408 6204 4990 4568 4100 3784 3524 3390 3292	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992 5016 4110 3588 3376 3228 3192 3362 4640 6002 10446	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846 34498 3346 3128 3016 2992 2932 3102 3658 3144 2944 2874	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238 4128 3720 3440 3276 3380 3880 3880 4936 3968 3968 3474	158 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2014 1956 2970 3128 3358 3004 2880 2464 2270 2220 2094 1982 1752 1764 1882 1680 1582	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616 1448 1438 1318 1270 1310 1323 1261 1212 11199 1142	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724 693 704 692 678 672 681 720 759 734 746 730 715	\$\begin{array}{c} \text{Sep} \\ 697 \\ 670 \\ 636 \\ 635 \\ 593 \\ 560 \\ 565 \\ 633 \\ 679 \\ 729 \\ 742 \\ 653 \\ 633 \\ 611 \\ 613 \\ 676 \\ 712 \\ 661 \\ 636 \\ 597 \\ 712 \\ 1571 \\ 1385 \\ 1091 \\ 947 \\ 810 \\ 726 \\ 706 \end{array}	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771 738 735 734 729 707 705 700 694 715 853 858 774 762	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821 874 1088 1022 943 882 882 862 820 846 862 1019 1033 932	733 744 733 745 745 745 746 746 747 746 746 746 746 746 746 746
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2554 Jan 2368 2654 1971 1698 1455 1378 1645 2036 1898 1659 1483 1387 1573 1849 1597 1481 1371 1301 1444 1703 1499 1422 1363 1241 1174 1134 1096	938 915 962 1296 2930 2940 2334 2146 1774 1583 1879 2431 4704 5045 3600 3010 2970 3880 2928 2794 3118 3948 3946 3262 2686 2206 1980	2398 Mar 1890 2134 2702 4994 4600 3674 3032 2292 1998 1862 1758 1712 1702 1698 1691 1651 1612 1697 1876 2069 2935 2424 2087 1843 1721 1843 2599 2094	Apr 1760 2259 2487 2092 1967 1708 1607 1534 1443 1442 1385 1351 1333 1299 1360 1412 1796 1846 1580 1418 1370 1422 2252 3612 6066 5286 4040 3336	May 2292 2112 2134 1972 1874 1790 1696 1723 1663 1663 2009 2255 2868 2822 2388 2046 1847 1768 1655 1557 1466 1393 1364 1314 1322 1416 1606	1148 1129 1146 1101 1057 1012 1013 1027 1015 993 980 905 870 875 955 1163 1393 1739 2032 2220 1844 1456 1166 1005 940 892 850 812	930 788 874 878 893 931 891 847 767 696 679 642 845 1434 2352 2234 2609 1795 1349 1179 940 872 807 744 710 911 888 750 969	1240 Aug 1178 1146 1056 1041 1824 1628 1928 1555 1215 1012 861 774 789 869 909 949 933 834 714 668 650 633 699 822 1011 918 798 693	Se p 543 522 496 457 445 469 508 491 471 447 466 474 716 2021 2824 3300 5342 3013 2273 1460 1106 969 868 800 781 744 711 689	685 Oct 664 703 816 724 688 782 923 823 737 707 654 631 600 591 598 666 637 608 591 577 499 794 2697 2084 1478 1653 1295	Nov 825 837 878 1003 925 871 837 807 778 770 770 770 785 832 975 1189 1029 958 942 1038 1348 1468 2465 2151 1704 1471 1250 1168	1364 De C 973 1008 1328 2139 4891 3434 2619 2066 1579 1466 1450 1300 1270 1388 1488 1408 1277 1260 1243 1203 1140 1105 1678 2592 5414 6578 4960 4414	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	952 Jan 4050 3192 2718 3250 3908 11984 30974 29256 16886 12928 8644 6406 5250 5134 5642 6238 6014 5178 4342 3728 3348 3064 2832 2714 2626 2572 2536 2564	7292 5104 4334 3696 3578 3816 5240 6204 10512 22436 24318 13550 8922 7166 4692 4140 3980 4140 5408 6204 4990 4568 4100 3784 3524 3390 3292	8026 Mar 3110 3032 2884 2850 2766 3288 4066 8710 15248 8272 6090 4974 3534 4686 6028 6608 7724 5992 5016 4110 3588 3376 3228 3192 3362 4640 6002	Apr 7484 5444 4204 3970 3826 3716 4006 4570 4992 4962 5052 4362 3846 3472 3314 3376 4246 3846 3498 3346 3128 3016 2992 2932 3102 3658 3144 2944	May 3380 5080 6156 7026 5498 4382 3702 3294 3068 2930 2846 2940 3142 4038 4904 7320 6402 5238 4128 3720 3440 3276 3096 3380 3880 4936 3968	15 Jun 2816 2982 2734 2620 2468 2310 2262 2236 2204 2420 2176 2108 2014 1956 2970 3128 3358 3004 2880 2464 2270 2220 2094 1982 1752 1764 1882 1680	889 346 Jul 1536 1770 3296 2130 1900 1788 1586 1516 1476 1666 1458 1536 1624 1470 1500 2120 1616 1448 1438 1318 1270 1310 1323 1261 1212 1199 1142	747 Aug 1029 991 964 945 980 998 992 955 905 851 810 778 743 714 708 723 724 693 704 692 678 672 681 720 759 734 746 730	Sep 697 670 636 622 635 593 560 565 633 679 729 742 653 633 611 613 676 712 1571 1385 1091 947 810 726	475 Oct 740 673 670 665 641 704 784 1184 1796 1434 1105 1012 961 839 796 771 738 735 734 729 707 705 700 694 715 853 858 774	Nov 712 712 715 735 737 715 783 1091 1065 907 915 983 931 848 821 821 874 1088 1022 943 882 882 862 820 846 862 1019 1033	177 83 83 79 70 77 77 77 77 77 78 88 76 79 111 16 133 111 100 93 84 85

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

				_			947													948			_		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	De
1	2595	2040	1538	1624	2278	1335	1071	685	455	355	680	987	1	1256	2309	2024	5598	1628	1745	1024	2384	858	742	569	99
2	4937	1850	1573	1622	2194	1229	964	687	432	349	1470	936	2	1630	2036	2360	4788	1664	1502	906	3650	8 13	715	1065	75
3	3532	1730	1517	1676	1976	1194	893	700	423	347	1594	921	3	1447	1800	2622	4120	1758	1368	827	4482	839	673	3338	46
4	2966	1674	1600	1656	1860	1151	851	706	404	349	1196	902	4	1340	1620	2536	3624	1850	1288	737	8 176	930	663	2726	30
5	2260	1626	1770	1746	1738	1087	834	661	383	347	1450	925	5	1270	1790	2508	3338	1926	12 19	692	10422	1158	658	2040	26
6	1876	1586	2617	1708	1704	1077	882	720	370	402	1696	1030	6	1174	2780	2844	3416	1858	1173	644	3948	1282	648	2864	2
7	1714	1634	3175	1696	1608	1040	943	775	396	521	1585	1004	7	1124	4558	5970	3440	2014	1272	633	2980	1195	643	2905	2
9	1800	1634 1526	4856 4530	1668 1790	1570	985	903	768 733	438 547	688	2322 1972	1134 1442	9	1088	9200 9528	5158	3838 3966	1782	1358	669	2480 1772	1142 1042	686 700	1946	2
9 10	1693 1555	1480	3506	1970	1510 1472	953 914	847 809	707	565	925 916	2192	1659	10	1042	8420	3836 3326	3384	1676 1608	1209 1141	974 1630	1604	969	643	16 18 14 0 0	2:
11	1523	1448	2806	2136	1460	896	765	707	572	718	4020	2303	11	1018	7024	2726	3242	1524	1092	5186	1492	957	650	1344	2
12	1891	1436	2336	2906	1404	965	752	714	673	584	4316	1977	12	10.52	7822	2378	3022	1504	1037	5367	1492	918	669	1226	19
13	2145	1432	2186	2854	1388	1061	731	751	552	514	2914	1853	13	1300	10406	2180	2790	1492	1025	4528	1495	865	641	1128	19
14	2620	14 11	2372	3604	1387	1575	712	753	488	478	2280	1921	14	1554	9082	2028	2806	1480	996	4566	1471	858	623	1084	1
15	2822	14 11	2196	4442	1377	1591	630	643	534	478	2060	2199	15	1303	7054	1990	2720	1440	989	8058	1472	858	622	1047	1
16	3672	1388	2056	5074	1322	1132	763	634	729	742	2286	4007	16	1245	5110	2018	2508	1394	1090	5654	1473	807	604	1061	19
17	5188	1364	1894	52 16	1286	1070	1406	720	576	2238	1740	3148	17	12 16	3996	2174	2346	1348	1079	5080	1457	775	598	1396	2
18	5776	1464	18 16	3700	1254	994	1575	711	505	1774	1566	2398	18	1138	3182	2048	2168	13 19	995	4232	1405	750	619	1801	19
19	7764	1668	18 12	3078	1223	1049	1088	799	496	12 16	1533	1970	19	1103	2822	2026	2070	1287	1067	3162	1232	732	636	2217	2
2 0	15660	2319	1890	2482	1249	1187	1070	865	464	1048	1465	1605	20	1078	2656	2052	1988	1242	1046	19 13	1160	707	621	3492	2
2 1	19588	3137	1798	2216	1494	1265	905	731	450	746	1341	1492	21	1096	2508	2494	1960	1206	997	1496	1107	697	619	3218	2
22	10406	2454	1708	2020	1761	1977	786	675	433	626	1268	1400	22	1130	2556	3102	1896	1185	1279	13 13	1082	684	628	4108	1
2 3	6576	2152	1718	1886	1521	2410	718	706	425	574	1320	1332	23	1133	2412	7234	1892	1148	1111	1202	1164	695	684	4 156	1
2 4	4860	1848	1874	1828	1390	16 19	677	721	408	558	1495	1298	24	1183	2262	6622	1838	1112	991	1111	1137	690	706	4244	1
25	2634	1662	2046	1784	1371	1422	652	849	402	591	1669	1320	25	1179	2136	4784	1800	1094	9 19	1032	1253	667	677	3708	2
26	2368	1596	18 16	1732	1396	1382	623	740	393	602	1459	1374	26	1167	2046	4248	1808	1106	845	970	1121	663	662	3742	2
27	2184	1540	1740	1666	1278	1373	598	593	372	576	13 14	13 10	27	1233	2032	5346	1752	1373	781	990	1067	636	645	6488	2
28	1986 1856	1538	1828 1766	1694 1748	1326 1903	1477 1305	597 615	564 517	358 353	656 709	1238 1099	1241 1184	28	1395 1644	1976 1959.67	4810 4066	1694 1682	2414 2847	767 988	1096 1173	1021 966	705 810	640 641	13 18 6 23 9 6 6	2
29 30	1934	+	1710	1840	1846	1160	577	491	354	638	1024	1136	30	1747	1959.67	3998	1632	2570	1397	1160	930	759	643	17730	4
31	2390	+	1674	1840	1436	1100	647	479	334	552	1024	1136	31	2287		4710	1032	2050	1397	1285	880	759	644	17730	3
<u> </u>	2000		.07.				0			552		1.00	•	220.				2000		.200	000		0		- 0.
						10	949												10	950					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	D
1	3194	4318	3104	3796	4894	2308	2290	1680	1399	1140	2704	1185	1	1548	14 17	2323	1947	1659	1757	685	1298	1198	580	813	8
2	2848																								
		3770	2992			2120	19 10	1726	1290	1098	2472	1160	2		14 14		2044	1700	1754		1168	1471	568	793	9
3	2434	3770 3926	2992 2868	3342 3126	5334 4508				1290 1259	1098 1066		1160	2	1837		2360 2103	2044 2096		1754	681		1471 1229		793 761	
	2434 2086			3342	5334	2120	19 10	1726			2472				14 14	2360		1700 2259 1992			1168		568 583 635		9
3		3926	2868	3342 3126	5334 4508	2120 1886	19 10 178 0	1726 1850	1259	1066	2472 2104	1160 1142	3	1837 2063	14 14 1579	2360 2103	2096	2259	1754 2398	681 722	1168 997	1229	583	761	9
3	2086	3926 5026	2868 2814	3342 3126 2950	5334 4508 3768	2120 1886 1760	19 10 178 0 172 8	1726 1850 1956	1259 1221	1066 1070	2472 2104 1798	1160 1142 1139	2 3 4	1837 2063 2055	14 14 1579 14 58	2360 2103 1847	2096 2109	2259 1992	1754 2398 4215	681 722 726	1168 997 906	1229 914	583 635	761 771	9 1: 14
3 4 5	2086 7132	3926 5026 4976	2868 2814 2742	3342 3126 2950 2822	5334 4508 3768 3280	2120 1886 1760 1690	19 10 1780 1728 1864	1726 1850 1956 1802	1259 1221 932	1066 1070 1049	2472 2104 1798 1620	1160 1142 1139 1120	2 3 4 5	1837 2063 2055 2071	14 14 1579 14 58 152 3	2360 2103 1847 1869	2096 2109 2516	2259 1992 1680	1754 2398 4215 4817	681 722 726 743	1168 997 906 864	1229 914 1438	583 635 648	76 1 771 8 10	1:
3 4 5 6	2086 7132 15662	3926 5026 4976 4160	2868 2814 2742 2688	3342 3126 2950 2822 2880	5334 4508 3768 3280 2948	2120 1886 1760 1690 1770	19 10 178 0 172 8 186 4 180 8	1726 1850 1956 1802 1558	1259 1221 932 5347	1066 1070 1049 1076	2472 2104 1798 1620 1476	1160 1142 1139 1120 1132	2 3 4 5 6	1837 2063 2055 2071 1962	14 14 1579 14 58 152 3 16 74	2360 2103 1847 1869 2021	2096 2109 2516 2470	2259 1992 1680 1510	1754 2398 4215 4817 2674	681 722 726 743 861	1168 997 906 864 938	1229 914 1438 1935	583 635 648 663	76 1 771 8 10 779	1: 14 1: 1
3 4 5 6 7	2086 7132 15662 13456	3926 5026 4976 4160 3866	2868 2814 2742 2688 2688	3342 3126 2950 2822 2880 2716	5334 4508 3768 3280 2948 2802	2 12 0 18 8 6 17 6 0 16 9 0 17 7 0 16 12	19 10 1780 1728 1864 1808	1726 1850 1956 1802 1558 1406	1259 1221 932 5347 10397	1066 1070 1049 1076 1296	2472 2104 1798 1620 1476 1410	1160 1142 1139 1120 1132 1194	2 3 4 5 6 7	1837 2063 2055 2071 1962 1904	14 14 1579 14 58 1523 16 74 2 3 14	2360 2103 1847 1869 2021 2371	2096 2109 2516 2470 2121	2259 1992 1680 1510 1384	1754 2398 4215 4817 2674 2093	681 722 726 743 861 900	1168 997 906 864 938 847	1229 914 1438 1935 2314	583 635 648 663 681	761 771 810 779 758	1 1 1 1 1 2
3 4 5 6 7 8	2086 7132 15662 13456 7790 7864 6530	3926 5026 4976 4160 3866 3472 4558 7698	2868 2814 2742 2688 2688 2770 2918 3628	3342 3126 2950 2822 2880 2716 2612 2526 2440	5334 4508 3768 3280 2948 2802 2648 2656 2652	2 120 1886 1760 1690 1770 16 12 1600 1628 1604	19 10 1780 1728 1864 1808 1896 1822 1728 16 10	1726 1850 1956 1802 1558 1406 1342 1336 1307	1259 1221 932 5347 10397 5624 3660 3636	1066 1070 1049 1076 1296 1268 1156	2472 2104 1798 1620 1476 1410 1406 1354	1160 1142 1139 1120 1132 1194 1342 1251	2 3 4 5 6 7 8	1837 2063 2055 2071 1962 1904 1785 1611 1547	14 14 1579 14 58 152 3 16 74 2 3 14 3 0 0 1 2 8 2 0 2 9 6 9	2360 2103 1847 1869 2021 2371 2763 2648 2382	2096 2109 2516 2470 2121 1981 1912 1832	2259 1992 1680 1510 1384 1325 1304	1754 2398 4215 4817 2674 2093 1837 2321 1758	681 722 726 743 861 900 769 733	1168 997 906 864 938 847 815 804	1229 914 1438 1935 2314 2812 3070 2310	583 635 648 663 681 639 605	761 771 8 10 779 758 758 757	9 1; 14 1; 1 1 2
3 4 5 6 7 8 9 10	2086 7132 15662 13456 7790 7864 6530 4554	3926 5026 4976 4160 3866 3472 4558 7698 6732	2868 2814 2742 2688 2688 2770 2918 3628 3304	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650	2 120 1886 1760 1690 1770 16 12 1600 1628 1604	19 10 1780 1728 1864 1808 1896 1822 1728 16 10	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283	1259 1221 932 5347 10397 5624 3660 3636 2480	1066 1070 1049 1076 1296 1268 1156 1151 1103	2472 2104 1798 1620 1476 1410 1406 1354 1310	1160 1142 1139 1120 1132 1194 1342 1251 1286	2 3 4 5 6 7 8 9 10	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679	14 14 1579 14 58 1523 1674 23 14 3001 2820 2969 2795	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404	2096 2109 2516 2470 2121 1981 1912 1832 1761	2259 1992 1680 1510 1384 1325 1304 1328	1754 2398 4215 4817 2674 2093 1837 2321 1758	681 722 726 743 861 900 769 733 761 864	1168 997 906 864 938 847 815 804 765	1229 914 1438 1935 2314 2812 3070 2310 1471	583 635 648 663 681 639 605 601	761 771 8 10 779 758 758 757 759	9 1: 14 1: 1: 2 1 1: 1: 1:
3 4 5 6 7 8 9 10 11	2086 7132 15662 13456 7790 7864 6530 4554 3208	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924	19 10 1780 1728 1864 1808 1896 1822 1728 16 10 1666 2710	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246	1259 1221 932 5347 10397 5624 3660 3636 2480	1066 1070 1049 1076 1296 1268 1156 1151 1103	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459	2 3 4 5 6 7 8 9	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614	14 14 1579 1458 1523 1674 23 14 3001 2820 2969 2795 2511	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979	2096 2109 2516 2470 2121 1981 1912 1832 1761	2259 1992 1680 1510 1384 1325 1304 1328 1337	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589	681 722 726 743 861 900 769 733 761 864	1168 997 906 864 938 847 815 804 765 787	1229 914 1438 1935 2314 2812 3070 2310 1471 1169	583 635 648 663 681 639 605 601 553	76 1 771 8 10 779 758 758 757 759 755 759	9 1: 14 1: 1: 2 1 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1
3 4 5 6 7 8 9 10 11 12	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846	19 10 1780 1728 1864 1808 1896 1822 1728 16 10 1666 2710 42 10	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240	1259 1221 932 5347 10397 5624 3660 3636 2480 1696	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130	2472 2104 1798 1620 1476 14 10 1406 1354 1310 1316 1274	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459	2 3 4 5 6 7 8 9 10 11 12	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714	14 14 1579 1458 1523 1674 2314 3001 2820 2969 2795 2511 2332	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251	681 722 726 743 861 900 769 733 761 864 1463 1629	1168 997 906 864 938 847 815 804 765 787 896	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000	583 635 648 663 681 639 605 601 553 544 505	761 771 8 10 779 758 758 757 759 755 759	1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1
3 4 5 6 7 8 9 10 11 12 13	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2 166	19 10 1780 1728 1864 1808 1896 1822 1728 1610 1666 2710 4210 3426	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286	2472 2104 1798 1620 1476 14 10 1406 1354 1310 1316 1274 1266 1297	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638	2 3 4 5 6 7 8 9 10 11 12 13	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638	14 14 1579 1458 1523 1674 2314 3001 2820 2969 2795 2511 2332 2346	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761 1699	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304	681 722 726 743 861 900 769 733 761 864 1463 1629 1478	1168 997 906 864 938 847 815 804 765 787 896 806	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910	583 635 648 663 681 639 605 601 553 544 505	761 771 8 10 779 758 758 757 759 755 759 738 743	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
3 4 5 6 7 8 9 10 11 12 13 14 15	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2516	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2 166 2 054	19 10 1780 1728 1864 1808 1896 1822 1728 16 10 1666 2710 42 10 3426 4884	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284	2472 2104 1798 1620 1476 14 10 1406 1354 1310 1316 1274 1266 1297 1275	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668	2 3 4 5 6 7 8 9 10 11 12 13 14 15	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699	14 14 1579 1458 1523 1674 2314 3001 2820 2969 2795 2511 2332 2346 2609	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761 1699 1650	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441	1168 997 906 864 938 847 815 804 765 787 896 806	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850	583 635 648 663 681 639 605 601 553 544 505 525	761 771 8 10 779 758 758 757 759 755 769 738 743	99 11: 14: 15: 15: 15: 15: 15: 15: 15: 15: 15: 15
3 4 5 6 7 8 9 10 11 12 13 14 15 16	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2516 2456	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1924 1846 2 166 2 054 2 442	19 10 1780 1728 1864 1896 1822 1728 16 10 1666 2710 42 10 3426 4884 4476	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699	14 14 1579 14 58 1523 1674 2314 3001 2820 2969 2795 2511 2332 2346 2609 2296	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186 4106	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761 1699 1650 1661	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818	583 635 648 663 681 639 605 601 553 544 505 525 533	761 771 8 10 779 758 758 757 759 755 759 738 743 751	99 11: 14: 14: 15: 15: 15: 15: 15: 15: 15: 15: 15: 15
3 4 5 6 7 8 9 10 11 12 13 14 15 16	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2516 2456 2476	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2 166 2 054 2 4 4 2 2 6 10	19 10 1780 1728 1864 1808 1896 1822 1728 1610 1666 2710 4210 3426 4884 4476 4528	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029	14 14 1579 14 58 1523 1674 23 14 3001 28 20 29 69 27 95 25 11 23 32 23 46 26 09 22 96 22 96	2360 2103 1847 1869 2021 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761 1699 1650 1661 1617	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1149	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 783	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823	761 771 8 10 779 758 758 757 759 755 759 738 743 751 740 749	11 11 11 11 11 11 11 11 11 11 11 11 11
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830	2868 2814 2742 2688 2688 26770 2918 3628 3304 3060 2834 2616 2516 2456 2476 2520	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2166 2054 2442 2610 2076	19 10 1780 1728 1864 1808 1896 1822 1728 16 10 1666 2710 42 10 3426 4884 4476 4528 4028	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452 1446	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029	14 14 1579 1458 1523 1674 2314 3001 2820 2969 2795 2511 2332 2609 2296 2081	2360 2103 1847 1869 2021 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761 1699 1650 1661 1617	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1149 1192	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 783 767	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823	761 771 810 779 758 758 759 755 759 738 743 751 740 749	99 99 99
3 4 5 6 7 8 9 110 111 112 113 114 115 116 117 118 119	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2516 2456 2476 2520 2602	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746 2530	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148 2106 2044	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2 166 2 054 2 442 2 6 10 2 076 1888	19 10 1780 1728 1864 1808 1896 1822 1728 16 10 1666 2710 42 10 3426 4884 4476 4528 4028 3758	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452 1446 1404	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028	14 14 1579 1458 1523 1674 2314 3001 2820 2969 2795 2511 2332 2346 2609 2296 2081 1909 1808	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761 1699 1650 1661 1617 1625 1622	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1149 1192	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040 1033	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 763 767	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823 1187	761 771 8 10 779 758 758 759 755 759 738 743 751 740 749 777	99 99 88
3 4 5 6 7 8 9 110 111 122 133 144 115 116 117 118 119 120	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278 2314 2274	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002 7718	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2516 2456 2476 2520 2602 2410	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746 2530 2468	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148 2106 2044 2042	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2 166 2 054 2 442 2 4610 2 076 1888 1708	19 10 1780 1728 1864 1808 1896 1822 1728 16 10 1666 2710 42 10 3426 4884 4476 4528 4028 3758	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874 1582	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452 1446 1404	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298 1928	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198 1188	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790 2276	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028 4260	14 14 1579 1458 1523 1674 23 14 3001 2820 2969 2795 2511 2332 2346 2609 2296 2081 1909 1808	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393 2248	2096 2109 2516 2470 2121 1981 19 12 1832 1761 1761 1699 1650 1661 1617 1625 1622	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311 1269	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1149 1192 1068 1100	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077 1057	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040 1033 850	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 783 767 747 681	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823 1187 1443 3461	761 771 8 10 779 758 758 758 759 755 759 738 743 751 740 749 777 798 8 10	99 11: 14: 15: 12: 12: 14: 15: 15: 15: 15: 15: 15: 15: 15: 15: 15
3 4 5 6 7 8 8 9 10 11 12 3 3 4 4 115 16 17 18 9 9	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278 2314 2274	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002 7718 5498	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2456 2456 2476 2520 2602 2410 2420	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746 2530 2468 2490	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148 2106 2044 2042 2124	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2 166 2 054 2 442 2 460 2 076 1888 1708 1686	19 10 1780 1780 1728 1864 1808 1896 1822 1728 16 10 1666 2710 42 10 34 26 48 84 44 76 45 28 40 28 3758 3594 30 54	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874 1582 2060	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452 1446 1404	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298 1928	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198 1188	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790 2276 1910	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028 4260 2747	14 14 1579 1458 1523 1674 23 14 3001 2820 2969 2795 2511 2332 2346 2609 2296 2081 1909 1808 1821	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393 2248 2291	2096 2109 2516 2470 2121 1981 1912 1832 1761 1661 1661 1617 1625 1622 1628 1631	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311 1269 1379	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1149 1192 1068 1100	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077 1057 1110	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040 1033 850 731	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 787 747 681 681	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823 1187 1443 3461 3213	761 771 8 10 779 758 758 758 757 759 755 759 738 743 751 740 749 777 798 8 10 8 82	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
3 4 5 6 7 8 9 9 10 11 11 12 13 14 15 16 17 18 19 2 0 2 1	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278 2314 2274 2230 2286	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002 7718 5498 4914	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2456 2476 2456 2476 2520 2602 2410 2420 3084	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746 2530 2468 2490 2742	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148 2106 2044 2042 2124 2114	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2 166 2 054 2 4 4 2 2 4 4 2 2 6 10 2 0 7 6 1888 1708 1686 1858	19 10 1780 17780 1728 1864 1808 1896 1822 1728 16 10 1666 2710 4210 3426 4884 4476 4528 4028 3758 3594 3054 2398	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874 1582 2060 1894	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452 1446 1404 1398 1376 1272	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298 1928 1572	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198 1188 1187	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790 2276 1910 1942	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028 4260 2747 2182	14 14 1579 1458 1523 1674 2314 3001 2820 2969 2795 2511 2332 2346 2609 2296 2081 1909 1808 1821 1772	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393 2248 2291 2121	2096 2109 2516 2470 2121 1981 1912 1832 1761 1661 1661 1661 1667 1622 1628 1631 1593 1603	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311 1269 1379 1302	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1149 1192 1068 1100 1057 1125 1302	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077 1057	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1063 1040 1033 850 731 659	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 783 767 747 681 681 698	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823 1187 1443 3461 3213 2090	761 771 8 10 779 758 758 758 757 759 755 759 738 743 751 740 749 777 798 8 10 8 8 2 8 5 4	\$\\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
3 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 2 2 3	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278 2314 2274	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002 7718 5498	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2456 2456 2476 2520 2602 2410 2420	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746 2530 2468 2490	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148 2106 2044 2042 2124	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2 166 2 054 2 442 2 460 2 076 1888 1708 1686	19 10 1780 1780 1728 1864 1808 1896 1822 1728 16 10 1666 2710 42 10 34 26 48 84 44 76 45 28 40 28 3758 3594 30 54	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874 1582 2060	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452 1446 1404 1398 1376	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298 1928	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198 1188	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790 2276 1910	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028 4260 2747	14 14 1579 1458 1523 1674 23 14 3001 2820 2969 2795 2511 2332 2346 2609 2296 2081 1909 1808 1821	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393 2248 2291	2096 2109 2516 2470 2121 1981 1912 1832 1761 1661 1661 1617 1625 1622 1628 1631	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311 1269 1379	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1149 1192 1068 1100	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077 1057 1110	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040 1033 850 731	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 787 747 681 681	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823 1187 1443 3461 3213	761 771 8 10 779 758 758 758 757 759 755 759 738 743 751 740 749 777 798 8 10 8 82	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
3 4 5 6 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 12 2 1 12 2 13 14 15 16 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278 2314 2274 2230 2286 2450	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002 7718 5498 4914	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2516 2456 2476 2520 2602 2410 2420 3084 4684	3342 3126 2950 2822 2880 2716 2612 2526 2440 2662 3280 4912 5080 4042 3518 3018 2746 2530 2468 2490 2742 2616	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148 2106 2044 2042 2124 2114 1984	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2054 2442 2610 2076 1888 1708 1686 1858	1910 1780 1728 1864 1808 1896 1822 1728 1610 1666 2710 4210 3426 4884 4476 4528 4028 3758 3594 3054 2398 2140	1726 1850 1956 1802 1558 14406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874 1582 2060 1894 2250	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452 1446 1404 1398 1376 1272	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298 1928 1572 1398 1313	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198 1188 1187 1185 1162	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790 2276 1910 1942 2294	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028 4260 2747 2182	14 14 1579 14 58 1523 1674 2314 3001 2820 2969 2795 2511 2332 2346 2609 2296 2081 1909 1808 1808 1871 1772	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393 2248 2291 2121	2096 2109 2516 2470 2121 1981 1912 1832 1761 1669 1650 1661 1617 1625 1622 1628 1631 1593 1603	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311 1269 1379 1302 1233	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1225 1149 1192 1068 1100 1057 1125 1302	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077 1057 1110 1527 1844	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040 1033 850 731 659 670	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 783 767 747 681 681 698 766	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823 1187 1443 3461 3213 2090	761 771 8 10 779 758 758 758 757 759 755 759 738 743 751 740 749 777 798 8 10 8 8 2 8 5 4 7 8 0	\$\\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278 2314 2274 2230 2286 2450 2318	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002 7718 5498 4914 4404	2868 2814 2742 2688 2688 2688 3304 3060 2834 2616 2456 2476 2520 2602 2410 2420 3084 4684 3550	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746 2530 2468 2490 2742 2616 2482	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148 2106 2044 2042 2124 2114 1984 2012	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 16 72 1924 1846 2 166 2 054 2 4 4 2 2 6 10 2 0 76 1888 1708 1686 1858 1776 1606	1910 1780 1728 1864 1808 1896 1822 1728 1610 1666 2710 4210 3426 4884 4476 4528 4028 3758 3594 3054 2398 2140 2138	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874 1582 2060 1894 2250 1750	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452 1446 1404 1398 1376 1272 1274	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298 1928 1572 1398 13 13	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198 1188 1187 1185 1162	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790 2276 1910 1942 2294 2214	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028 4260 2747 2182 1726	14 14 1579 14 58 1523 1674 23 14 3001 28 20 29 69 27 95 25 11 23 32 26 09 22 96 20 81 19 09 18 08 18 21 17 72 18 71 21 14	2360 2103 1847 1869 2021 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393 2248 2291 2121 2059 2017	2096 2109 2516 2470 2121 1981 1912 1832 1761 1699 1650 1661 1617 1625 1622 1628 1631 1593 1603 1682	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311 1269 1379 13002 1233 1223	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1225 1149 1192 1068 1100 1057 1125 1302 1207 975	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077 1057 1110 1527 1844 2523	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040 1033 850 731 659 670 685	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 783 767 747 681 681 688 698 766 725	583 635 648 663 681 639 605 601 553 544 505 525 525 533 571 823 1187 1443 3461 3213 2090 1710	761 771 810 779 758 758 759 755 759 738 743 751 740 749 777 798 810 882 854 780 724	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
3 4 5 6 7 8 9 110 111 112 13 144 15 16 17 18 19 2 0 2 0 2 2 1 2 2 2 2 2 3 2 4 2 2 5	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278 2314 2274 2230 2286 2450 2318 2278	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002 7718 5498 4914 4404 3630 3322	2868 2814 2742 2688 2688 26770 2918 3628 3304 3060 2834 2616 2456 2476 2520 2602 2410 2420 3084 4684 3550 3292	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746 2630 2468 2490 2742 2616 2482 2360	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2106 2044 2042 2124 2114 1984 2012 2408	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2166 2054 2442 26 10 2076 1888 1708 1686 1858 1776 1606	1910 1780 1728 1864 1808 1896 1896 1822 1728 1610 1666 2770 4210 3426 4884 4476 4528 4028 3758 3594 3054 2398 2140 2138	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874 1582 2060 1894 2250 1750 1610	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1446 1404 1398 1376 1272 1244 1277 1279	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298 1928 1572 1398 1313 1261	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198 1188 1187 1185 1162 1132	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790 2276 1910 1942 2294 2214 1756	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028 4260 2747 2182 1726 1417	14 14 1579 1458 1523 1674 2314 3001 2820 2969 2795 2511 2332 2346 2609 2296 2081 1909 1808 1821 1772 1871 2114	2360 2103 1847 1869 2021 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393 2248 2291 2121 2059 2017 2071	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761 1699 1650 1661 1617 1625 1622 1628 1631 1593 1603 1682 1648	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311 1269 1379 1302 1233 1223 1203	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1149 1192 1068 1100 1057 1125 1302 1207 975 883	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077 1057 1110 1527 1844 2523 2574	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040 1033 850 731 659 670 685 694	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 783 767 747 681 681 698 766 725 687	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823 1187 1443 3461 3213 2090 1710 1602 1431	761 771 810 779 758 758 758 759 755 759 738 743 743 740 749 777 798 810 882 854 780 724	\$\\\ \text{S}\$\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
3 4 5 6 7 8 9 110 111 112 113 144 115 116 117 118 119 2 0 2 0 2 1 2 2 2 2 2 2 2 2 3 2 4 2 2 5 6 6 7	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278 2314 2274 2230 2286 2450 2318 2278	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002 7718 5498 4914 4404 3630 3322 3196	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2516 2456 2476 2520 2602 2410 2420 3084 4684 3550 3292	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746 2530 2468 2490 2742 2616 2482 2360 2270	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2106 2044 2042 2124 2114 1984 2040 2408 2040	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2166 2054 2442 2610 2076 1888 1708 1686 1858 1776 1606 1800 2620	1910 1780 1780 1728 1864 1808 1896 1822 1728 1610 1666 2710 4210 3426 4884 4476 4528 4028 3758 3594 3054 2398 2440 2138 2002	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874 1582 2060 1894 2250 1750 1610 1472	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1446 1404 1398 1376 1272 1244 1277 1279 1155	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298 1928 1572 1398 1313 1261 1252	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198 1188 1187 1185 1162 1132 1199 1461	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790 2276 1910 1942 2294 2214 1756 1584	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028 4260 2747 2182 1726 1417 1342 1267	14 14 1579 1458 1523 1674 2314 3001 2820 2969 2795 2511 2332 2346 2609 2296 2081 1909 1808 1821 1772 1871 2114 1902 1785	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393 2248 2291 2121 2059 2017 2071 2187	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761 1699 1650 1661 1617 1625 1622 1628 1631 1593 1603 1682 1648 1669 1885	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311 1269 1379 1302 1233 1223 1203 1170 1125	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1149 1192 1068 1100 1057 1125 1302 1207 975 883 853	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077 1057 1110 1527 1844 2523 2574 2849	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040 1033 850 731 659 670 685 694 773	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 763 767 747 681 681 698 766 725 687 643	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823 1187 1443 3461 3213 2090 1710 1602 1431 1107	761 771 8 10 779 758 758 758 759 755 759 738 743 751 740 749 777 798 8 10 8 8 2 8 5 4 7 8 0 7 2 4 7 0 3 6 8 5	\$\\\ \text{S}\$\$\\\ \text{11}\$\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
3 4 5 6 7 8 9 10 11 12 13 14 15 16	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2308 2266 2278 2314 2274 2230 2286 2450 2450 2318 2278	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002 7718 5498 4914 4404 3630 3322 3196 3284	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2516 2456 2476 2520 2602 2410 2420 3084 4684 3550 3292 3258 2938	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746 2530 2468 2490 2774 2616 2482 2360 2270 2344	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148 2106 2044 2042 2114 1984 2040 1950	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2166 2054 22442 2610 2076 1888 1708 1686 1858 1858 1766 1800 2620 2104	1910 1780 1780 1728 1864 1808 1896 1822 1728 1610 1666 2770 4210 3426 4884 4476 4528 4028 3758 3594 3054 2398 2140 2138 2002	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874 1582 2060 1894 2250 1750 1610 1472 1344	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1404 1398 1376 1272 1244 1277 1279 1155	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298 1928 1572 1398 1313 1261 1252	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198 1188 1187 1185 1162 1139 1461 1388 1293	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790 2276 1910 1942 2294 2214 1756 1584 1948	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028 4260 2747 2182 1726 1417 1342 1267 1212	14 14 1579 1458 1523 1674 2314 3001 2820 2969 2795 2511 2332 2346 2609 2296 2081 1909 1808 1821 1772 1871 2114 1902 1785 1624 1812	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393 2248 2291 2121 2059 2017 2071 2187 2201	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761 1699 1650 1661 1617 1625 1622 1628 1631 1593 1603 1682 1648 1669 1885	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311 1269 1379 1302 1233 1223 1170 1125	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1149 1192 1068 1100 1057 1125 1302 1207 975 883 853 775	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077 1057 1110 1527 1844 2523 2574 2849 3217	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040 1033 850 731 659 670 685 694 773 1060	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 767 747 681 681 681 698 766 725 687 643 624	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823 1187 1443 3461 3213 2090 1710 1602 1431 1107 972	761 771 8 10 779 758 758 759 755 759 738 743 741 740 749 777 798 8 10 8 8 2 8 5 4 7 8 0 7 2 2 4 7 0 3 6 8 5 7 4 5	99 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
3 4 5 6 7 8 8 9 10 11 11 12 13 14 15 16 11 17 18 19 2 2 0 2 1 1 2 2 2 3 2 4 2 2 3 2 3 2 3 2 3 3 4 3 2 3 3 3 3	2086 7132 15662 13456 7790 7864 6530 4554 3208 2634 2500 2430 2430 2308 2266 2278 2314 2274 2230 2286 2450 2318 2278 2190 2192 2388	3926 5026 4976 4160 3866 3472 4558 7698 6732 5226 4694 3936 3550 4432 5518 4830 6002 7718 5498 4914 4404 3630 3322 3196 3284	2868 2814 2742 2688 2688 2770 2918 3628 3304 3060 2834 2616 2456 2456 2456 2456 2420 3084 4684 3550 3292 3258 2938	3342 3126 2950 2822 2880 2716 2612 2526 2440 2562 3280 4912 5080 4042 3518 3018 2746 2530 2468 2490 2742 2616 2482 2360 2270 2344 2660	5334 4508 3768 3280 2948 2802 2648 2656 2652 2650 2552 2412 2314 2248 2184 2148 2106 2044 2042 2124 2114 1984 2012 2408 2040 1950 2016	2 120 1886 1760 1690 1770 16 12 1600 1628 1604 1672 1924 1846 2166 2054 22410 2076 1888 1708 1686 1858 1776 1606 1800 2620 2104	1910 1780 1780 1728 1864 1808 1896 1822 1728 1610 1666 2710 4210 3426 4884 4476 4528 4028 3758 3594 3054 2398 2140 2138 2002 1764 1688 1612	1726 1850 1956 1802 1558 1406 1342 1336 1307 1283 1246 1240 1208 1185 1180 1621 3067 1874 1582 2060 1894 2250 1750 16 10 1472 1344 1408	1259 1221 932 5347 10397 5624 3660 3636 2480 1696 1614 1522 1486 1452 1446 1404 1398 1376 1272 1244 1277 1279 1155 1167	1066 1070 1049 1076 1296 1268 1156 1151 1103 1130 1753 1286 1284 1907 3235 3004 2298 1928 1572 1398 1313 1261 1252 1311	2472 2104 1798 1620 1476 1410 1406 1354 1310 1316 1274 1266 1297 1275 1234 1216 1198 1188 1187 1185 1162 1132 1199 1461 1388 1293 1267	1160 1142 1139 1120 1132 1194 1342 1251 1286 1444 1459 1638 1668 1592 1612 1448 1632 2790 2276 1910 1942 2294 2214 1756 1584 1948 1642	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1837 2063 2055 2071 1962 1904 1785 1611 1547 1679 1614 1714 1638 1699 1788 2029 2689 3028 4260 2747 2182 1726 1417 1342 1267 1212 1271	14 14 1579 1458 1523 1674 2314 3001 2820 2969 2795 2511 2332 2346 2609 2296 2081 1909 1808 1821 1772 1871 2114 1902 1785 1624 1812	2360 2103 1847 1869 2021 2371 2763 2648 2382 3404 3979 7639 10364 6186 4106 3208 2696 2393 2248 2291 2121 2059 2017 2071 2187 2201 2675	2096 2109 2516 2470 2121 1981 1912 1832 1761 1761 1699 1650 1661 1617 1625 1622 1628 1631 1593 1603 16682 1648 1669 1885	2259 1992 1680 1510 1384 1325 1304 1328 1337 1406 1525 1514 1564 1425 1276 1311 1269 1379 1302 1233 1223 1203 1170 1125 1065	1754 2398 4215 4817 2674 2093 1837 2321 1758 1589 1344 1251 1304 1225 1100 1057 1125 1302 1207 975 883 853 775	681 722 726 743 861 900 769 733 761 864 1463 1629 1478 1441 1670 1481 1163 1077 1057 1110 1527 1844 2523 2574 2849 3217	1168 997 906 864 938 847 815 804 765 787 896 806 859 1230 1063 1081 1040 1033 850 731 659 670 685 694 773 1060 1191	1229 914 1438 1935 2314 2812 3070 2310 1471 1169 1000 910 850 818 783 767 747 681 681 698 766 725 687 643 624 623	583 635 648 663 681 639 605 601 553 544 505 525 533 571 823 1187 1443 3461 3213 2090 1710 1602 1431 1107 972 914	761 771 8 10 779 758 758 758 757 759 755 759 738 743 751 740 749 777 798 8 10 8 82 8 54 7 80 7 24 7 703 6 85 7 45 7 777	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

CORPS OF ENGINEERS U. S. ARMY

						19	951												19	52					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	959	1517	1058	3472	1937	950	2216	701	313	576	1552	734	1	1820	2350	2524	3533	2293	1561	890	693	790	527	517	860
3	964 948	1982 1647	1151 1197	2998 3485	18 17 18 10	908 858	2724 2287	604 557	380 374	529 515	1805 1349	971 1113	3	1774 1860	2362 2910	3160 3567	3502 3079	2147 2028	1404 1342	846 800	698 661	743 700	508 480	528 543	933 1250
4	10 13	1404	1295	2770	1712	806	2139	505	320	493	1073	1761	4	1867	4013	8478	2835	1950	1320	819	594	600	450	533	1107
5	1006	1395	2298	2565	1620	877	1926	483	292	456	1057	2672	5	2384	3624	6396	2805	1975	1290	822	992	516	455	552	1070
6	961	1444	2779	2461	1559	942	1297	575	288	411	1029	1826	6	2389	2927	4092	2731	1832	2379	805	1099	515	506	526	1177
7 8	960 1059	1672 1861	3895 5861	2458 3481	1480 1451	955 1167	10 19 882	570 896	240 242	420 426	1256 1412	1390 1208	7 8	2076 1790	2451 2243	2986 3719	2625 2514	1754 1800	1723 14 17	784 829	2159 3665	505 472	506 545	506 556	108 134
9	1027	1652	3804	3260	1448	14 14	822	1008	240	384	1102	1169	9	1732	2109	5303	2529	1792	1552	737	3142	468	634	599	1428
10	1053	1444	2604	2683	14 17	1311	758	972	254	422	922	1260	10	1858	1997	7435	2499	1713	1683	709	2110	566	793	661	240
11	1107	1299	2064	2350	1399	1236	745	870	439	436	838	1204	11	1944	1990	16200	2553	1768	1756	695	1344	576	699	805	342
12 13	1192 1446	1185 1213	2017 2158	2692 2504	1425 1365	119 1 168 7	749 789	891 599	735 734	387 416	859 941	1227 1505	12 13	1752 1675	1987 1960	170 16 7434	2519 2589	1778 1640	1879 1693	676 709	964 809	594 1145	640 585	8 11 670	221 150
14	1645	12 18	2044	2210	13 12	1628	716	576	1031	434	1085	1710	14	1602	2225	4582	2652	1583	1466	808	716	1184	583	600	122
15	2019	1154	18 18	2030	1275	1335	684	658	1347	381	1359	4716	15	154 1	2241	3317	2453	1556	1363	799	760	1249	578	597	105
16	2003	1145	1771	1874	1279	1263	667	630	915	401	1584	3972	16	1545	2295	2945	2360	1569	1500	791	832	1620	544	594	997
17 18	1696 1382	1241	18 14 18 4 4	2267 2469	1234	1449 1885	629 582	559 499	556 480	398 391	1514 1249	2830 3689	17 18	1517 1533	2463 2160	2808 2766	2279 2261	1672 1745	1567 1439	783 744	853 803	1234 771	524 527	766 810	985 971
19	1260	1348	2030	2925	1225	1473	677	433	487	455	1028	6333	19	1555	1976	4467	2181	1788	1385	613	743	679	507	1146	915
20	1265	1438	2308	4504	1202	1126	714	404	712	510	927	7373	20	1822	1887	6228	2141	2184	13 18	584	677	860	491	2787	9 13
21	114 1	16 59	2074	4190	12 14	1034	632	374	783	541	885	14209	21	2064	1836	9341	2074	1989	1451	641	666	775	472	1490	100
22	1098 1054	1821 1582	1807 1633	5230 4700	1203 1194	972 906	608 601	362 337	1032 1984	770 827	831 821	14 14 2 64 16	22	2477 3785	176 1 1756	14340 23851	2080 2243	1692 1618	1401 1199	695 623	554 582	701 772	483 497	1048 907	993 929
24	1095	1378	1544	3909	1206	834	646	347	1368	832	787	4489	24	2762	1932	21936	3023	1672	1142	630	542	699	513	839	10 19
25	1058	1249	1539	2800	1138	790	710	335	19 14	1158	823	3581	25	2264	1994	10525	4272	1824	1058	608	506	571	537	807	992
26	1005	1199	1557	2378	1108	773	965	326	1229	920	792	5234	26	2569	2044	6380	4506	1701	1068	586	453	547	541	878	890
27	968 963	1155 1097	2955 3481	2229 2163	1433 1238	812 886	1024 1145	3 13 3 14	12 19 1117	783 948	820 797	4727 3733	27	2783 3914	2484 2325	4904 4412	5516 4403	1632 1587	1046	50 1 52 2	587 613	539 531	555 550	1107 947	866 982
29	972	1037	7351	2101	1082	1070	1075	338	841	1151	771	2684	29	4342	2196.985	4174	3126	1586	1380	489	723	528	559	881	129
30	1175		8717	2130	1047	1730	1045	343	631	12 13	701	2183	30	3412		3896	2507	1875	10 16	523	837	521	528	854	148
31	1280		5656		977		1023	3 19		1299		1979	3 1	2649		3603		1799		579	898		520		2816
	1280		5656		977	10		319		1299						3603		1799	10		898		520		2816
	_	Feb		Apr			953		Sen		Nov	1979		2649	Feb		Apr		19	54	_	Sen		Nov	
	Jan 3203	Feb	5656 Mar 2702	Apr 1732	977 May 4196	19 Jun 959		3 19 Aug 677	Sep 314	1299 Oct 685	Nov 532				Feb	3603 Mar 2315	Apr 4863	1799 May 1923	19 Jun ¹¹⁶⁷		898 Aug 394	Sep	520 Oct 269	Nov 325	De
31	Jan		Mar	_	May	Jun	953 Jul	Aug		Oct		1979 De c	31	2649 Jan		Mar		Мау	Jun	54 Jul	Aug	-	Oct		De (
1 2 3	Jan 3203 2456 2405	1468 1420 1389	Mar 2702 3689 4070	1732 1664 1654	May 4196 3626 3005	Jun 959 898 874	953 Jul 888 947 1059	Aug 677 639 658	3 14 4 57 5 59	Oct 685 621 572	532 530 556	1979 De c 645 726 764	1 2 3	2649 Jan 1656 1468 1327	1684 1660 1621	Mar 2315 2092 1879	4863 3979 3170	May 1923 1898 2092	Jun 1167 1386 1395	54 Jul 544 570 644	Aug 394 416 387	297 261 269	Oct 269 244 250	325 352 362	De 6 708 619 625
1 2 3 4	Jan 3203 2456 2405 1998	1468 1420 1389 1458	Mar 2702 3689 4070 4332	1732 1664 1654 1678	May 4196 3626 3005 4773	Jun 959 898 874 883	953 Jul 888 947 1059 1001	Aug 677 639 658 599	3 14 4 57 5 59 5 9 5	Oct 685 621 572 534	532 530 556 538	1979 De c 645 726 764 1160	1 2 3 4	Jan 1656 1468 1327 1298	1684 1660 1621 1509	Mar 2315 2092 1879 1814	4863 3979 3170 2422	May 1923 1898 2092 2536	Jun 1167 1386 1395 1508	54 Jul 544 570 644 634	Aug 394 416 387 332	297 261 269 274	Oct 269 244 250 236	325 352 362 394	De (708 619 625 609
31 1 2 3	Jan 3203 2456 2405	1468 1420 1389	Mar 2702 3689 4070	1732 1664 1654	May 4196 3626 3005	Jun 959 898 874	953 Jul 888 947 1059	Aug 677 639 658	3 14 4 57 5 59	Oct 685 621 572	532 530 556	1979 De c 645 726 764	1 2 3	2649 Jan 1656 1468 1327	1684 1660 1621	Mar 2315 2092 1879	4863 3979 3170	May 1923 1898 2092	Jun 1167 1386 1395	54 Jul 544 570 644	Aug 394 416 387	297 261 269	Oct 269 244 250	325 352 362	De (708 619 625 609 693
31 1 2 3 4 5 6 7	Jan 3203 2456 2405 1998 1656 2088 2777	1468 1420 1389 1458 1416 1450	Mar 2702 3689 4070 4332 4276 3413 2835	1732 1664 1654 1678 1651 1644 1785	May 4196 3626 3005 4773 5157	Jun 959 898 874 883 915 947	953 Jul 888 947 1059 1001 1403 1032 808	Aug 677 639 658 599 558	314 457 559 595 885 1031 597	Oct 685 621 572 534 503 494 485	532 530 556 538 510 506 519	1979 De C 645 726 764 1160 1540	3 1 1 2 3 4 5	Jan 1656 1468 1327 1298 1230 1198 1160	1684 1660 1621 1509 1509 1468 1452	Mar 2315 2092 1879 1814 1621	4863 3979 3170 2422 2119 2029 1956	May 1923 1898 2092 2536 2200	Jun 1167 1386 1395 1508 1295 1087 1019	54 Jul 544 570 644 634 616	Aug 394 416 387 332 350	297 261 269 274 256 247 313	Oct 269 244 250 236 234 212 200	325 352 362 394 435 484 425	De (708 619 625 609 693 1748 134
1 2 3 4 5 6 7	Jan 3203 2456 2405 1998 1656 2088 2777 3996	1468 1420 1389 1458 1416 1450 1650	Mar 2702 3689 4070 4332 4276 3413 2835 2463	1732 1664 1654 1678 1651 1644 1785	May 4196 3626 3005 4773 5157 5716 6358 5087	Jun 959 898 874 883 915 947 981 1011	953 Jul 888 947 1059 1001 1403 1032 808 825	Aug 677 639 658 599 558 588 560	314 457 559 595 885 1031 597 453	Oct 685 621 572 534 503 494 485 467	532 530 556 538 510 506 519 497	1979 De C 645 726 764 1160 1540 1176 1504	31 1 2 3 4 5 6 7 8	Jan 1656 1468 1327 1298 1300 1198 1160 1114	1684 1660 1621 1509 1509 1468 1452 1440	Mar 23 15 20 92 18 79 18 14 16 21 15 63 14 59 14 16	4863 3979 3170 2422 2119 2029 1956 1933	May 1923 1898 2092 2536 2200 1829 1606	Jun 1167 1386 1395 1508 1295 1087 1019 964	54 Jul 544 570 644 634 616 630 625 569	Aug 394 416 387 332 350 318 386 360	297 261 269 274 256 247 313 331	Oct 269 244 250 236 234 212 200 207	325 352 362 394 435 484 425 412	De 6 708 619 625 609 693 1748 846
1 2 3 4 5 6 7 8	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459	1468 1420 1389 1458 1416 1450 1650 1624 1491	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422	1732 1664 1654 1678 1651 1644 1785 1720	May 4196 3626 3005 4773 5157 5716 6358 5087 3251	Jun 959 898 874 883 915 947 981 1011 925	953 Jul 888 947 1059 1001 1403 1032 808 825 960	Aug 677 639 658 599 558 588 560 544	314 457 559 595 885 1031 597 453 408	Oct 685 621 572 534 503 494 485 467 468	532 530 556 538 510 506 519 497 532	1979 De C 645 726 764 1160 1540 1176 1504 1558 2181	31 1 2 3 4 5 6 7 8	Jan 1656 1468 1327 1298 1230 1198 1160 1114	1684 1660 1621 1509 1509 1468 1452 1440 1492	Mar 2315 2092 1879 1814 1621 1663 1459 1416 1340	4863 3979 3170 2422 2119 2029 1956 1933 2402	May 1923 1898 2092 2536 2200 1829 1606 1528	Jun 1167 1386 1395 1508 1295 1087 1019 964 930	54 Jul 544 570 644 634 616 630 625 569 550	Aug 394 416 387 332 350 318 386 360 634	297 261 269 274 256 247 313 331 329	Oct 269 244 250 236 234 212 200 207 218	325 352 362 394 435 484 425 412 381	De 0 708 619 625 609 693 1748 846 813
31 1 2 3 4 5 6 7 8	Jan 3203 2456 2405 1998 1656 2088 2777 3996	1468 1420 1389 1458 1416 1450 1650	Mar 2702 3689 4070 4332 4276 3413 2835 2463	1732 1664 1654 1678 1651 1644 1785	May 4196 3626 3005 4773 5157 5716 6358 5087	Jun 959 898 874 883 915 947 981 1011	953 Jul 888 947 1059 1001 1403 1032 808 825	Aug 677 639 658 599 558 588 560	314 457 559 595 885 1031 597 453	Oct 685 621 572 534 503 494 485 467	532 530 556 538 510 506 519 497	1979 De C 645 726 764 1160 1540 1176 1504	31 1 2 3 4 5 6 7 8	Jan 1656 1468 1327 1298 1300 1198 1160 1114	1684 1660 1621 1509 1509 1468 1452 1440	Mar 23 15 20 92 18 79 18 14 16 21 15 63 14 59 14 16	4863 3979 3170 2422 2119 2029 1956 1933	May 1923 1898 2092 2536 2200 1829 1606	Jun 1167 1386 1395 1508 1295 1087 1019 964	54 Jul 544 570 644 634 616 630 625 569	Aug 394 416 387 332 350 318 386 360	297 261 269 274 256 247 313 331	Oct 269 244 250 236 234 212 200 207	325 352 362 394 435 484 425 412	De (708 619 625 609 693 1748 134 846 813
1 2 3 4 5 6 7 8 9 10 11 12	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958	1468 1420 1389 1458 1416 1450 1650 1650 1624 1491 1519 1661 2633	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516	1732 1664 1654 1678 1651 1644 1785 1720 1614 1813	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089	Jun 959 898 874 883 915 947 981 1011 925 900 871 865	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549	Aug 677 639 658 599 558 588 560 544 544 541 464	314 457 559 595 885 1031 597 453 408 369 338 328	Oct 685 621 572 534 503 494 485 467 468 488 516 506	532 530 556 538 510 506 519 497 532 530 552 493	1979 De C 645 726 764 1160 1540 1176 1504 1558 2181 4759 2830 2400	31 1 2 3 4 5 6 7 8 9 10	Jan 1656 1468 1327 1298 1230 1198 1160 1095 1081 1124	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028	54 Jul 544 570 644 634 616 630 625 569 550 994 675 654	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273	297 261 269 274 256 247 313 331 329 371 337 282	Oct 269 244 250 236 234 212 200 207 218 220 247 278	325 352 362 394 435 484 425 412 381 402 393 372	De 6 708 619 625 609 693 1748 846 846 888
1 2 3 4 5 6 7 8 9 10 11 12 13	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755	1468 1420 1389 1458 1416 1450 1650 1650 1624 1491 1519 1661 2633 3188	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417	1732 1664 1654 1654 1657 1651 1644 1785 1720 1614 1813 1839 2054 2379	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532	Aug 677 639 658 599 558 588 560 544 544 541 464 476	314 457 559 595 885 1031 597 453 408 369 338 328 312	Oct 685 621 572 534 503 494 485 467 468 488 516 506	532 530 556 538 510 506 519 497 532 530 552 493 492	1979 De C 645 726 764 1160 1540 1176 1504 1558 2 181 4759 2830 2400 2877	31 1 2 3 4 5 6 7 8 9 10 11 12 13	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361 1349	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610	Jun 1167 1386 1395 1508 1295 1087 10 19 964 930 883 882 1028 997	54 Jul 544 570 644 634 616 630 625 569 550 994 675 654 659	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298	297 261 269 274 256 247 313 331 329 371 337 282 247	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279	325 352 362 394 435 484 425 412 381 402 393 372 381	De 6 708 619 625 609 693 1748 846 813 1106 898 751
31 1 2 3 4 5 6 7 8 9 10 11 12 13 14	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123	1468 1420 1389 1458 1416 1450 1650 1624 1491 1519 1661 2633 3188 2870	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203	1732 1664 1654 1657 1651 1651 1644 1785 1720 1614 1813 1839 2054 2379	May 4 196 3626 3005 4 773 5157 5716 6358 5087 3251 24 19 2089 1946 1787	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594	Aug 677 639 658 599 558 588 560 544 544 544 464 476 452 458	314 457 559 595 885 1031 597 453 408 369 338 328 312	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516	532 530 556 538 510 506 519 497 532 530 552 493 492 477	1979 De C 645 726 764 1160 1540 1176 1504 1558 2181 4759 2830 2400 2877 2846	3 1 2 3 4 5 6 7 8 9 10 11 12 13 14	Jan 1656 1468 1327 1298 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338 3701	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557 1441	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1382 1361 1349 1357	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997	54 Jul 544 570 644 634 616 630 625 569 550 994 675 654 659 666	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416	297 261 269 274 256 247 313 331 329 371 337 282 247	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283	325 352 362 394 435 484 425 412 381 402 393 372 381 410	De 708 619 708 619 629 609 693 1744 846 813 1106 898 755 775 932
1 2 3 4 5 6 7 8 9 10 11 12 13	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755	1468 1420 1389 1458 1416 1450 1650 1650 1624 1491 1519 1661 2633 3188	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417	1732 1664 1654 1654 1657 1651 1644 1785 1720 1614 1813 1839 2054 2379	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532	Aug 677 639 658 599 558 588 560 544 544 541 464 476	314 457 559 595 885 1031 597 453 408 369 338 328 312	Oct 685 621 572 534 503 494 485 467 468 488 516 506	532 530 556 538 510 506 519 497 532 530 552 493 492	1979 De C 645 726 764 1160 1540 1176 1504 1558 2 181 4759 2830 2400 2877	31 1 2 3 4 5 6 7 8 9 10 11 12 13	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361 1349	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610	Jun 1167 1386 1395 1508 1295 1087 10 19 964 930 883 882 1028 997	54 Jul 544 570 644 634 616 630 625 569 550 994 675 654 659	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298	297 261 269 274 256 247 313 331 329 371 337 282 247	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279	325 352 362 394 435 484 425 412 381 402 393 372 381	De 6 708 619 625 609 693 17448 846 813 1106 898 755 775 932
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768	1468 1420 1389 1458 1416 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2103	1732 1664 1654 1654 1651 1644 1785 1720 1614 1813 1839 2054 2379 1990 1689	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787 1710 1669	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121 1129 1073 1257	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985	Aug 677 639 658 599 558 588 560 544 541 464 476 452 458 452 490 523	314 457 559 595 885 1031 597 453 408 369 338 312 297	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545	1979 De C 645 726 764 1160 1540 1176 1558 2181 4759 2830 2400 2877 2846 2646 1899 1508	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693	Mar 2315 2092 1879 1814 1621 1663 1459 1416 1340 1382 1361 1357 1933	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118	54 Jul 544 570 6444 634 616 630 625 569 550 994 675 654 659 666 772	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418	De 708 6 15 6 25 6 6 9 3 174 1 134 4 8 4 6 8 13 1106 8 9 8 9 3 3 9 3 3 9 9 6 3 10 2 5 6 10 2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1716 1969	1468 1420 1389 1458 14 16 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2103 2108 2041 2083	1732 1664 1654 1654 1651 1644 1785 1720 1614 1813 1839 2054 2379 1990 1689 1637 1561	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787 1710 1669 1604 1688 1755	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121 1129 1073 1257 1109	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985 1089	Aug 677 639 658 599 558 588 560 544 541 464 476 452 458 452 490 523 591	314 457 559 595 885 1031 597 453 408 369 338 328 312 297 297 314 487 512	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 535	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545	1979 De C 645 726 764 1160 1540 1176 1504 1558 2 181 4759 2830 2400 2877 2846 2646 1899 1508	3 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912 9214	1684 1660 1621 1509 1509 1468 14452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361 1349 1357 1933 1602 1427 1495	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467	54 Jul 544 570 644 634 616 630 625 569 550 994 675 654 659 666 772 786 662 618	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637	De 708 615 625 600 693 174 134 844 813 1100 898 755 775 932 963 1021 1600
1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1716 1969 2137	1468 1420 1389 1458 1416 1450 1650 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2103 2108 2041 2083 2458	1732 1664 1654 1654 1651 1644 1785 1720 1614 1813 1839 2054 2379 1990 1689 1637 1561 1540 1641	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787 1710 1669 1604 1688 1755	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121 1129 1073 1257 1109 939	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985 1089 1257	Aug 677 639 658 599 558 588 560 544 541 464 476 452 458 452 490 523 591 603	314 457 559 595 885 1031 597 453 408 369 338 328 312 297 297 314 487 512	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 635	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545 569 574	1979 De C 645 726 764 1160 1540 1176 1504 1558 2181 4759 2830 2400 2877 2846 2646 1899 1508 1239	3 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912 9214 4635	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759 1783	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361 1349 1357 1933 1602 1427 1495 1543	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172 1723	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497 1476 1552	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467 1121	54 Jul 544 570 644 634 616 630 625 569 550 994 675 654 659 666 772 786 662 618	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533 644	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288 289 301	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244 269	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637 557	De 6 708 619 625 609 693 1748 846 843 1106 898 751 775 932 936 1023 1609
1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1716 1969	1468 1420 1389 1458 14 16 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2103 2108 2041 2083	1732 1664 1654 1654 1651 1644 1785 1720 1614 1813 1839 2054 2379 1990 1689 1637 1561	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787 1710 1669 1604 1688 1755	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121 1129 1073 1257 1109	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985 1089	Aug 677 639 658 599 558 588 560 544 541 464 476 452 458 452 490 523 591	314 457 559 595 885 1031 597 453 408 369 338 328 312 297 297 314 487 512	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 535	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545	1979 De C 645 726 764 1160 1540 1176 1504 1558 2 181 4759 2830 2400 2877 2846 2646 1899 1508	3 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912 9214	1684 1660 1621 1509 1509 1468 14452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361 1349 1357 1933 1602 1427 1495	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467	54 Jul 544 570 644 634 616 630 625 569 550 994 675 654 659 666 772 786 662 618	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637	De 0 708 619 625 609 1744 134 846 898 751 776 932 933 1022 1609
3 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1969 2137 2035	1468 1420 1389 1458 1416 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737 2958 3762	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2103 2108 2041 2083 2458 2341	1732 1664 1654 1654 1651 1651 1644 1785 1720 1614 1813 1839 2054 2379 1990 1689 1637 1561 1540	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787 1710 1669 1669 1604 1688 1755	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121 1129 11073 1257 1109 939 852	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985 1089 1257	Aug 677 639 658 599 558 588 560 544 541 464 476 452 458 452 458 452 591 603 664	314 457 559 595 885 1031 597 453 408 369 328 312 297 297 297 314 487 512 541	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 535 516 526	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545 569 574 643	1979 De C 645 726 764 1160 1540 1176 1504 1558 2181 4759 2830 2400 2877 2846 2646 1899 1508 1239 1231	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912 9214 4635 4281	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759 1783 2204	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361 1349 1357 1933 1602 1427 1495 1543 1652 2448	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172 1723 1598	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497 1476 1552 1405	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467 1121	54 Jul 544 570 644 634 616 630 625 569 550 994 675 654 659 666 772 786 662 618 581	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533 644 721	297 261 269 274 256 247 313 331 329 371 387 282 247 234 238 287 288 289 301 273	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244 269 279	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637 557 619	De 708 619 708 619 629 693 1744 846 813 1100 898 963 102 1609 1777 1244 936
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 2 3	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1716 1969 2137 2035 2667 2563 2456	1468 1420 1389 1458 1416 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737 2958 3762 7864 7253 4841	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2108 2041 2083 2458 2341 2256 2488 2787	1732 1664 1654 1658 1651 1644 1785 1720 1614 1813 1839 2054 2379 1990 1689 1637 1561 1540 1641 1523 1491 1456 1486	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787 1710 1669 1604 1688 1755 18444 1980 1711 1491	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 865 865 1121 1129 1073 1257 1109 939 852 956 1018	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985 1089 1257 1884 1934 2257 3633	Aug 677 639 658 599 558 588 560 544 541 464 476 452 458 452 490 523 591 603 664 575	314 457 559 595 885 1031 597 453 408 369 338 328 312 297 297 314 487 512 541 1035 940 505 711	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 535 516 526 505 477 474	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545 569 574 643 719 821 1113	1979 De C 645 726 764 1160 1540 1176 1558 2181 4759 2830 2400 2877 2846 2646 1899 1508 1239 1231 1303 1424 1956 2186	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Jan 1656 1468 1327 1298 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912 9214 4635 4281 5223 8608 9543	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759 1783 2204 3415 2458 2034	Mar 2315 2092 1879 18 14 1621 1563 14 59 14 16 1340 1382 1361 1349 1357 1933 1602 1427 1495 1543 1652 2448 2086 1799	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172 1723 1598 1566 1559 1661	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497 1476 1552 1405 1324 1254	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467 1121 968 848 807	54 Jul 544 570 6444 634 616 630 625 569 550 994 675 654 6659 666 772 786 662 618 581 459 433 658 633	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533 644 721 643 565	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288 289 301 273 260 257 265	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244 269 279 305 306 295	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637 557 619 644 524 477	De (708 619 625 609 693 1748 1344 846 813 1106 898 751 752 932 938 963 1022 1609 1773 1248 9306 782
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 2 2 3 2 4	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1716 1969 2137 2035 2667 2563 2456 3292	1468 1420 1389 1458 14 16 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737 2958 3762 7864 7253 4841 3926	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2103 2108 2041 2083 2458 2341 2256 2488 2787 2780	1732 1664 1654 1654 1651 1644 1785 1720 1614 1813 1839 2054 2379 1990 1689 1637 1561 1540 1641 1523 1491 1456 1486 1468	May 4 196 3626 3005 4773 5157 5716 6358 5087 3251 24 19 2089 1946 1787 1710 1669 1604 1688 1755 1844 1980 1711 1491 1359	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121 1129 1073 1257 1109 939 852 956 1018	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985 1089 1257 1884 1934 2257 3633 2454	Aug 677 639 658 599 558 588 560 544 541 464 476 452 458 452 490 523 591 603 664 575 510	314 457 559 595 885 1031 597 453 408 369 338 328 312 297 297 314 487 512 541 1035 940 505 711 933	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 535 516 526 505 477	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545 569 574 643 719 821 1113 939	1979 De C 645 726 764 1160 1540 1176 1558 2181 4759 2830 2400 2877 2846 2646 1899 1508 1239 1231 1303 1424 1956 2186	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912 9214 4635 4281 5223 8608 9543 5127	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759 1783 2204 3415 2458 2034 1790	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361 1349 1357 1933 1602 1427 1495 1543 1652 2448 2086 1799 1751 2002	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172 1723 1598 1566 1559 1661 2085	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497 1476 1552 1405 1324 1254 1195	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467 1121 968 848 807 792 756	54 Jul 544 570 6444 634 616 630 625 569 550 994 675 654 659 666 772 786 662 618 581 459 433 658 633 625	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533 644 721 643 565 530 521	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288 289 301 273 260 257 265 251	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244 269 279 305 306 295 305	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637 557 619 644 477 477	De 708 6 15 6 25 6 6 25 6 6 25 6 6 25 6 6 25 6 6 25 6 6 25 6
1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 3 2 4 2 5	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1716 1969 2137 2035 2667 2563 2456 3292 2740	1468 1420 1389 1458 14 16 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737 2958 3762 7864 7253 4841 3926 3492	Mar 2702 3689 4070 4332 4276 3413 2835 2422 2341 2395 2516 2417 2203 2108 2041 2083 2458 2341 2256 2488 2787 2780 2448	1732 1664 1654 1678 1651 1644 1785 1720 1614 1813 1839 2054 2379 1990 1689 1637 1561 1540 1641 1523 1491 1456 1486 1468 1476	May 4 196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787 1710 1669 1604 1688 1755 1844 1980 1711 1491 1359 1270 1185	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121 1129 1073 1257 1109 939 852 956 1018 921 981	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985 1089 1257 1884 1934 1934 2257 3633 2454 1298	Aug 677 639 658 599 558 588 560 544 541 464 476 452 458 452 490 523 591 603 664 575 510 491	314 457 559 595 885 1031 597 453 408 369 338 328 312 297 297 314 487 512 541 1035 940 505 711 933 1486	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 535 516 526 505 477 474 514 536	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545 569 574 643 719 821 1113 939 763	1979 De C 645 726 764 1160 11540 1176 1504 1558 2 181 4759 2830 2400 2877 2846 2646 1899 1508 1239 1231 1303 1424 1956 2186 1865	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912 9214 4635 4281 5223 8608 9543 5127 3545	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759 1783 2204 3415 2458 2034 1790 1721	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361 1349 1357 1933 1602 1427 1495 1543 1652 2448 2086 1799 1751 2002 2747	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172 1723 1598 1566 1559 1661 2085 2334	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497 1476 1552 1405 1324 1254 1195 1136 1123	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467 1121 968 848 807 792 756 752	54 Jul 544 570 6444 634 616 630 625 569 550 994 675 654 659 666 772 786 662 618 581 459 433 658 633 625 629	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533 644 721 643 5665 530 521	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288 289 301 273 260 257 265 251	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244 269 279 305 306 295 305 304	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637 557 619 644 524 477 477	De 708 619 629 609 693 174 1344 844 844 844 812 1106 898 963 102 160 177 124 930 65 655 605
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1716 1969 2137 2035 2667 2563 2456 3292	1468 1420 1389 1458 14 16 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737 2958 3762 7864 7253 4841 3926	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2103 2108 2041 2083 2458 2341 2256 2488 2787 2780	1732 1664 1654 1654 1651 1644 1785 1720 1614 1813 1839 2054 2379 1990 1689 1637 1561 1540 1641 1523 1491 1456 1486 1468	May 4 196 3626 3005 4773 5157 5716 6358 5087 3251 24 19 2089 1946 1787 1710 1669 1604 1688 1755 1844 1980 1711 1491 1359	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121 1129 1073 1257 1109 939 852 956 1018	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985 1089 1257 1884 1934 2257 3633 2454	Aug 677 639 658 599 558 588 560 544 541 464 476 452 458 452 490 523 591 603 664 575 510	314 457 559 595 885 1031 597 453 408 369 338 328 312 297 297 314 487 512 541 1035 940 505 711 933	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 535 516 526 505 477	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545 569 574 643 719 821 1113 939	1979 De C 645 726 764 1160 1540 1176 1558 2181 4759 2830 2400 2877 2846 2646 1899 1508 1239 1231 1303 1424 1956 2186	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912 9214 4635 4281 5223 8608 9543 5127	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759 1783 2204 3415 2458 2034 1790	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361 1349 1357 1933 1602 1427 1495 1543 1652 2448 2086 1799 1751 2002	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172 1723 1598 1566 1559 1661 2085	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497 1476 1552 1405 1324 1254 1195	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467 1121 968 848 807 792 756	54 Jul 544 570 6444 634 616 630 625 569 550 994 675 654 659 666 772 786 662 618 581 459 433 658 633 625	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533 644 721 643 565 530 521	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288 289 301 273 260 257 265 251	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244 269 279 305 306 295 305	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637 557 619 644 477 477	De 6 708 619 625 609 693 1748 846 813 1106 898 751 775 932 1609 1773 1248 930 782 726 657
31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1716 1969 2137 2035 2667 2563 2456 3292 2740 2254	1468 1420 1389 1458 1416 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737 2958 3762 7864 7253 4841 3926 3492	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2108 2041 2083 2458 2341 2256 2488 2787 2780 2448 2154	1732 1664 1654 1657 1651 1644 1785 1720 1614 1813 2054 2379 1990 1689 1637 1561 1540 1641 1523 1491 1456 1486 1468 1476 1555	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787 1710 1669 1604 1688 1755 1844 1980 1711 1491 1359 1270 1185	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121 1129 1073 1257 1109 939 852 956 1018 921 981 1042	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985 1089 1257 1884 1934 2257 3633 2454 1298 948	Aug 677 639 658 599 558 588 560 544 541 464 476 452 458 452 490 523 591 603 664 575 510 491 466 415	314 457 559 595 885 1031 597 453 408 369 338 328 312 297 297 297 314 487 512 541 1035 940 505 711 933 1486 2424	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 535 516 526 505 477 474 514 536 518	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545 569 574 643 719 821 1113 939 763 721	1979 De C 645 726 764 1160 1540 1176 1504 1558 2181 4759 2830 2400 2877 2846 2646 1899 1508 1239 1231 1303 1424 1956 2186 1865 1529 1377	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	Jan 1656 1468 1327 1298 1230 1198 1160 1114 1095 1081 1199 1338 3701 4677 13125 18912 9214 4635 4281 5223 8608 9543 5127 3545 2715	1684 1660 1621 1509 1509 1468 14468 14452 14440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759 1783 2204 3415 2458 2034 1790 1721	Mar 2315 2092 1879 1814 1621 1563 1459 1416 1340 1382 1361 1349 1357 1933 1602 1427 1495 1543 1652 2448 2086 1799 1751 2002 2747 3353	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172 1723 1598 1566 1559 1661 2085 2334 2226	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497 1476 1552 1405 1324 1254 1195 1136 1123 1079	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467 1121 968 848 807 792 756 752 689	54 Jul 544 570 644 634 616 630 625 569 994 675 654 659 666 772 786 662 618 581 459 433 658 633 625 629 628	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533 644 721 643 565 530 521 460 485	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288 289 301 273 260 257 265 251 262 231	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244 269 279 305 306 295 305 304 335	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637 557 619 644 524 477 477 475 511	De (708 619 625 609 693 1748 846 813 1106 898 751 775 932 939 963 1023 1249 930 782 726 605 591
31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1716 1969 2137 2035 2667 2563 2456 3292 2740 2254 1956 1877	1468 1420 1389 1458 1416 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737 2958 3762 7864 7253 4841 3926 3492 3249	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2108 2041 2083 2458 2341 2256 2488 2787 2780 2448 2154 2013 1936 1857	1732 1664 1654 1654 1651 1664 1785 1720 1614 1813 1839 2054 2379 1990 1689 1637 1561 1540 1641 1523 1491 1456 1468 1468 1476 1555 1470 2069 2314	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787 1710 1669 1604 1688 1755 1844 1980 1711 1491 1359 1270 1185 1127 1073 1029	Jun 959 898 874 883 915 947 981 1011 925 900 871 865 822 1121 1129 1073 1257 1109 939 852 956 1018 921 981 1042 946 953 1007	953 Jul 888 947 1059 1001 1403 1032 808 825 960 748 614 549 532 594 607 801 985 1089 1257 1884 1934 2257 3633 2454 1298 948 841 777 702	Aug 677 639 658 599 558 588 560 544 544 541 464 476 452 458 452 490 523 591 603 664 575 510 491 466 415 408 382 360 362	314 457 559 595 885 1031 597 453 408 369 338 328 312 297 297 314 487 512 541 1035 940 505 711 933 1486 2424 2996 2081 1297	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 535 516 526 505 477 474 514 536 518 560 713 659	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545 569 574 643 719 821 1113 939 763 721 620 590 568	1979 De C 645 726 764 1160 1540 1176 1504 1558 2181 4759 2830 2400 2877 2846 2646 1899 1508 1239 1231 1303 1424 1956 2186 1865 1529 1377 1454 1498 1832	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 29 29 20 20 20 20 20 20 20 20 20 20	Jan 1656 1468 1327 1298 1298 1198 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912 9214 4635 4281 5223 8608 9543 5127 3545 2716 2410 2205	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759 1783 2204 3415 2458 2034 1790 1721 1703 1723	Mar 2315 2092 1879 18 14 1621 1563 1459 14 16 1340 1382 1361 1349 1357 1933 1602 1427 1495 1543 1652 2448 2086 1799 1751 2002 2747 3353 3784 5571 4473	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172 1723 1598 1566 1559 1661 2085 2334 2226 1915 1778 1890	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497 1476 1552 1405 1324 1254 1195 1136 1123 1079 1073 1075	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467 1121 968 848 807 792 756 752 689 636 612 567	54 Jul 544 570 644 634 616 630 625 569 550 994 675 654 659 666 772 786 662 618 581 459 433 658 633 625 629 628 592 622 513	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533 644 721 643 565 530 521 460 485 451 425	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288 289 301 273 260 257 265 251 262 231 264 268 245	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244 269 279 305 306 295 305 304 335 340 359 355	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637 557 619 644 524 477 477 477 551 684 1175	De 6 708 619 625 609 693 1748 1344 846 813 1106 898 751 775 932 939 963 1023 1609 1773 1774 657 605 669
31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 18 19 20 21 22 23 24 25 25 26 27 28 28 29 20 20 20 20 20 20 20 20 20 20	Jan 3203 2456 2405 1998 1656 2088 2777 3996 8459 10716 6852 3958 2755 2123 1834 1768 1716 1969 2137 2035 2667 2563 2456 3292 2740 2254 1956 1877	1468 1420 1389 1458 1416 1450 1650 1624 1491 1519 1661 2633 3188 2870 3872 3964 3211 2737 2958 3762 7864 7253 4841 3926 3492 3249	Mar 2702 3689 4070 4332 4276 3413 2835 2463 2422 2341 2395 2516 2417 2203 2103 2108 2041 2083 2458 2341 2256 2488 2787 2780 2448 2254 2488 2780 2448 2254 2488 2780 2448 2548 2654 2654 2780 2	1732 1664 1654 1658 1651 1644 1785 1720 1614 1813 1839 2054 2379 1990 1689 1637 1561 1540 1641 1523 1491 1456 1468 1468 1476 1555 1470 2069	May 4196 3626 3005 4773 5157 5716 6358 5087 3251 2419 2089 1946 1787 1710 1669 1604 1688 1755 1844 1980 1711 1491 1359 1270 1185 1127	Jun 959 898 874 883 915 981 1011 925 900 871 865 822 1121 1129 1073 1257 1109 939 852 956 1018 921 981 1042 946 953	953 Jul 888 947 1059 1001 1403 808 825 960 748 614 549 532 594 607 801 985 1089 1257 1884 1934 2257 3633 2454 1298 948 841 777	Aug 677 639 658 599 558 560 544 544 541 464 476 452 490 523 591 603 664 575 510 491 466 415 408 382 360	314 457 559 595 885 1031 597 453 408 369 338 328 312 297 297 314 487 512 541 1035 940 505 711 933 1486 2424 2996 2081	Oct 685 621 572 534 503 494 485 467 468 488 516 506 514 516 524 553 560 535 516 526 505 477 474 514 536 518	532 530 556 538 510 506 519 497 532 530 552 493 492 477 489 495 545 569 574 643 719 821 1113 939 763 721 620 590	1979 De C 645 726 764 1160 1540 1176 1504 1558 2181 4759 2830 24400 2877 2846 2646 1899 1508 1239 1231 1303 1424 1956 2186 1865 1529 1377 1454	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	Jan 1656 1468 1327 1298 1298 1160 1114 1095 1081 1124 1199 1338 3701 4677 13125 18912 9214 4635 4281 5223 8608 9543 5127 3545 2715 2410 2205	1684 1660 1621 1509 1509 1468 1452 1440 1492 1489 1500 1557 1441 1471 1450 1533 1693 1759 1783 2204 3415 2458 2034 1790 1721 1703 1723	Mar 2315 2092 1879 1814 1621 1663 1459 1416 1340 1382 1361 1349 1357 1933 1602 1427 1495 1543 1652 2448 2086 1799 1751 2002 2747 3353 3784 5571	4863 3979 3170 2422 2119 2029 1956 1933 2402 1724 1688 1744 1666 1727 1816 2031 2377 2172 1723 1598 1566 1559 1661 2085 2334 2226 1915 1778	May 1923 1898 2092 2536 2200 1829 1606 1528 1461 1393 1436 1547 1610 1970 1904 1676 1497 1476 1552 1405 1324 1254 1195 1136 1123 1079 1073	Jun 1167 1386 1395 1508 1295 1087 1019 964 930 883 882 1028 997 963 1049 1118 1232 1467 1121 968 848 807 792 756 752 689 636 612	54 Jul 544 570 6444 634 616 630 625 569 550 994 675 654 659 666 772 786 662 618 581 459 433 658 633 625 629 628	Aug 394 416 387 332 350 318 386 360 634 1523 1011 273 298 416 415 436 459 533 644 721 643 565 530 521 460 485 451	297 261 269 274 256 247 313 331 329 371 337 282 247 234 238 287 288 289 301 273 260 257 265 251 262 231 264 268	Oct 269 244 250 236 234 212 200 207 218 220 247 278 279 283 268 239 237 244 269 279 305 306 295 305 304 335 340 359	325 352 362 394 435 484 425 412 381 402 393 372 381 410 418 468 651 637 557 619 644 524 477 477 477 477 551 684	De 708 618 629 693 174 134 848 813 1100 898 775 933 936 102 1600 775 65 65 66 66 66 66 66 66 66 66 66 66 66

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	955	-											19	956					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1709	987	1627	18 10	1138	925	534	595	364	608	537	597	1	552	980	2369	1572	2513	996	1497	624	607	487	651	537
2	2907	1176	1721	2289	1130	900	526	682	371	657	510	665	2	563	1360	2199	1527	2955	942	1578	567	518	490	717	526
3	2037	1350	1548	3320	1069	889	579	821	349	535	542	729	3	558	2076	2336	1542	4606	940	1424	675	508	464	627	502
4	1478	2644	1737	2726	1098	890	808	852	342	399	446	745	4	545	3478	2047	2108	5100	899	1038	644	4 10	484	572	498
5 6	1197	3367 6849	1852 1826	2695 2506	1023 1022	952 923	9 17 10 0 5	1005 994	329 361	409 430	445 393	792 793	5 6	53 1 510	4298 4437	1744 1568	2466 4135	4088 3610	878 866	1155 1203	599 510	547 778	506 487	615 597	516 526
7	982	15132	2096	2663	987	950	1048	868	340	434	408	717	7	496	4907	1475	6720	4336	895	12 13	467	1634	443	617	540
8	1147	11330	1943	2596	959	1029	1005	798	328	488	461	708	8	474	3143	1408	3873	3759	879	1538	4 12	1063	463	769	547
9	1257	4306	1667	2590	925	976	940	787	300	563	474	658	9	470	2319	1404	2743	2907	8 10	1808	391	672	392	771	548
10	1462	2851	1534	2322	1006	899	984	805	281	397	443	634	10	362	1855	13 12	2331	2410	787	1565	397	475	395	591	661
11 12	2 14 8 19 11	1965 1717	1598 1621	3181 4598	1034 1068	1048 1052	1104 1279	641 572	273 270	326 320	502 534	630 610	11 12	387 401	1573 1517	1374 1562	2321 2457	2135 1890	801 867	1387 1021	409 420	426 397	387 370	571 557	707 959
13	1446	1437	1524	3603	13 19	860	13 14	531	256	321	525	585	13	405	1353	2052	2407	1744	1023	1001	413	379	344	555	1452
14	1206	1399	1568	3555	1655	790	1098	1061	259	323	548	623	14	380	1320	3663	2720	1633	946	1109	397	371	347	542	1991
15	1098	1378	1536	3098	1202	788	930	1096	265	325	621	587	15	497	1277	5151	3048	1529	1050	1150	397	3 19	367	633	2820
16	1269	1387	1467	2511	1096	746	997	1115	254	335	633	6 13	16	494	1442	8391	7698	1395	1037	1435	397	265	384	644	3606
17 18	1234	154.5 152.9	1485 1498	2051 1845	1406 1362	714 709	945 778	1135 1136	257 246	351 350	673 652	6 19 719	17 18	540 584	1688 2668	8314 5117	5848 3601	1329 1317	973 842	13 17 112 6	466 432	272 269	4 14 4 3 7	699 817	1896 1425
19	1511	1351	1486	1794	1301	763	665	526	261	347	741	882	19	741	2299	3218	2688	1274	874	814	494	303	629	757	1180
20	1549	1397	1768	1704	1309	857	656	496	264	365	928	859	20	1077	2250	2196	2258	1225	865	711	927	301	732	615	1145
21	1307	18 10	1841	1782	1378	832	1009	540	264	358	882	727	21	944	2362	18 19	2059	12 16	9 10	783	985	311	878	590	1492
22	1220	2008	3670	19 19	1866	774	1331	547	254	308	667	702	22	835	1973	1644	1959	1177	768	724	616	306	1841	588	2234
23	1106	4968 4144	3647	1944	3071	796 810	1386 1493	469 447	253	283	821 1520	663	23	797	1669	1564	1886 1783	1137	799 914	717 1108	506	533	1490	544	3663 5982
25	1058	3001	2536 2018	1851 1693	2535 2666	8 10 8 4 5	1577	386	247 287	276 280	1520 1229	632 647	24	927 931	1520 1767	1465 1434	1783	1087	848	874	442 416	588 735	9 15 708	514 517	5982 4236
26	964	2175	1737	1490	2122	918	1224	355	386	459	1145	636	26	852	2127	1431	1696	114 1	781	696	4 10	1561	615	516	2666
27	925	1835	1545	1356	1576	805	963	348	338	490	1032	591	27	732	2348	1440	1630	1151	720	646	4 12	1118	572	526	1776
28	902	1695	14 18	1326	1279	693	771	355	396	543	731	575	28	723	3270	1462	1654	1136	686	596	475	620	529	595	1405
29	843		1366	1244	1131	601	712	369	472	757	633	573 574	29	735	2854.503	1841	1695	1058	938	535	495	562	547	588	1235
30	816 934	 	1296 1442	1191	1067 989	581	686 616	358 377	576	861 542	596	574 561	3 0	788 810		2240 1768	1864	1152 1115	1030	503 592	603 632	520	580 584	570	1151 1055
			.=										_												
			_	_		10	957										_		10	958					
				_			<i>331</i>	_	_						_			_		-	_	_			
	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	966	8135	2799	2104	1719	Jun 959	Jul 1234	413	227	1007	614	1430	1	1448	1589	3660	2270	2023	Jun 1206	Jul 658	1531	491	2458	693	795
2	966 1090	8 13 5 70 14	2799 2278	2104 4230	1719 1753	Jun 959 1020	Jul 1234 1174	4 13 4 17	227 204	1007 842	614 641	1430 1310	2	1448 1385	1589 1601	3660 2591	2270 2259	2023 1972	Jun 1206 1190	Jul 658 655	1531 1289	491 457	2458 2521	693 891	795 750
3	966 1090 1362	8 13 5 70 14 52 53	2799 2278 2044	2104 4230 6662	1719 1753 1777	Jun 959 1020 1043	Jul 1234 1174 1067	4 13 4 17 3 78	227 204 200	1007 842 1047	614 641 620	1430 1310 1270	3	1448 1385 1245	158 9 16 0 1 14 7 1	3660 2591 2095	2270 2259 2206	2023 1972 2043	Jun 1206 1190 1153	Jul 658 655 641	1531 1289 1081	491 457 391	2458 2521 1929	693 891 782	795 750 712
2	966 1090	8 13 5 70 14	2799 2278	2104 4230	1719 1753	Jun 959 1020	Jul 1234 1174	4 13 4 17	227 204	1007 842	614 641	1430 1310	2	1448 1385	1589 1601	3660 2591	2270 2259	2023 1972	Jun 1206 1190	Jul 658 655	1531 1289	491 457	2458 2521	693 891	795 750
3 4	966 1090 1362 1571	8 13 5 70 14 52 53 516 2	2799 2278 2044 1847	2104 4230 6662 8548	1719 1753 1777 1934	Jun 959 1020 1043 1089	Jul 1234 1174 1067 980	4 13 4 17 3 78 3 72	227 204 200 193	1007 842 1047 1538	614 641 620 639	1430 1310 1270 1224	2 3 4	1448 1385 1245 1234	1589 1601 1471 1694	3660 2591 2095 1809	2270 2259 2206 2497	2023 1972 2043 2121	Jun 1206 1190 1153 1097	Jul 658 655 641 652	1531 1289 1081 982	491 457 391 391	2458 2521 1929 1070	693 891 782 619	795 750 712 739
2 3 4 5	966 1090 1362 1571 3496	8 135 70 14 52 53 5162 46 15 4441 3701	2799 2278 2044 1847 1919 1845 1828	2104 4230 6662 8548 17885 18020 8835	1719 1753 1777 1934 1805 1663 1489	Jun 959 1020 1043 1089 1324 1467 1547	Jul 1234 1174 1067 980 900	413 417 378 372 385	227 204 200 193 185	1007 842 1047 1538 966	614 641 620 639 652	1430 1310 1270 1224 1367 1551	2 3 4 5	1448 1385 1245 1234 1183 1155 1198	1589 1601 1471 1694 1906	3660 2591 2095 1809 1812	2270 2259 2206 2497 2641 3063 3116	2023 1972 2043 2121 2145 2811 2977	Jun 1206 1190 1153 1097 1129 1063 1025	Jul 658 655 641 652 707 1234 1630	1531 1289 1081 982 889 1042 901	491 457 391 391 413	2458 2521 1929 1070 846	693 891 782 619 597 588 583	795 750 712 739 701 649 613
2 3 4 5 6 7 8	966 1090 1362 1571 3496 2760 2121 1657	8135 7014 5253 5162 4615 4441 3701 3013	2799 2278 2044 1847 1919 1845 1828 2237	2 104 4230 6662 8548 17885 18020 8835 5127	1719 1753 1777 1934 1805 1663 1489	959 1020 1043 1089 1324 1467 1547	Jul 1234 1174 1067 980 900 803 731 656	413 417 378 372 385 364 294 306	227 204 200 193 185 271 308 326	1007 842 1047 1538 966 722 638 549	614 641 620 639 652 725 714 775	1430 1310 1270 1224 1367 1551 1690 2901	2 3 4 5 6 7 8	1448 1385 1245 1234 1183 1155 1198	1589 1601 1471 1694 1906 2155 3096 3106	3660 2591 2095 1809 1812 1818 1941 2163	2270 2259 2206 2497 2641 3063 3116 2596	2023 1972 2043 2121 2145 2811 2977 2405	Jun 1206 1190 1153 1097 1129 1063 1025	Jul 658 655 641 652 707 1234 1630 1996	1531 1289 1081 982 889 1042 901 846	491 457 391 391 413 408 409 397	2458 2521 1929 1070 846 741 663 584	693 891 782 619 597 588 583 547	795 750 712 739 701 649 613 637
2 3 4 5 6 7 8 9	966 1090 1362 1571 3496 2760 2121 1657	8135 7014 5253 5162 4615 4441 3701 3013 2512	2799 2278 2044 1847 1919 1845 1828 2237 2150	2 104 4230 6662 8548 17885 18020 8835 5127 4031	1719 1753 1777 1934 1805 1663 1489 1529 1686	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496	Jul 1234 1174 1067 980 900 803 731 656 619	413 417 378 372 385 364 294 306 293	227 204 200 193 185 271 308 326 399	1007 842 1047 1538 966 722 638 549	614 641 620 639 652 725 714 775 910	1430 1310 1270 1224 1367 1551 1690 2901 3268	2 3 4 5 6 7 8 9	1448 1385 1245 1234 1183 1155 1198 1192 1110	1589 1601 1471 1694 1906 2155 3096 3106 2440	3660 2591 2095 1809 1812 1818 1941 2163 2483	2270 2259 2206 2497 2641 3063 3116 2596 2312	2023 1972 2043 2121 2145 2811 2977 2405 2231	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990	Jul 658 655 641 652 707 1234 1630 1996 3579	1531 1289 1081 982 889 1042 901 846 812	491 457 391 391 413 408 409 397 392	2458 2521 1929 1070 846 741 663 584 548	693 891 782 619 597 588 583 547 575	795 750 712 739 701 649 613 637
2 3 4 5 6 7 8 9	966 1090 1362 1571 3496 2760 2121 1657	8135 7014 5253 5162 4615 4441 3701 3013 2512 2206	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884	2 104 4230 6662 8548 17885 18020 8835 5127 4031 2885	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203	Jul 1234 1174 1067 980 900 803 731 656 619 589	413 417 378 372 385 364 294 306 293 312	227 204 200 193 185 271 308 326	1007 842 1047 1538 966 722 638 549	614 641 620 639 652 725 714 775 910 852	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411	2 3 4 5 6 7 8 9	1448 1385 1245 1234 1183 1155 1198 1192 1110	1589 1601 1471 1694 1906 2155 3096 3106	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944	Jul 658 655 641 652 707 1234 1996 3579 3364	1531 1289 1081 982 889 1042 901 846 812 795	491 457 391 391 413 408 409 397	2458 2521 1929 1070 846 741 663 584 548	693 891 782 619 597 588 583 547 575 594	795 750 712 739 701 649 613 637 638
2 3 4 5 6 7 8 9	966 1090 1362 1571 3496 2760 2121 1657 1442	8135 7014 5253 5162 4615 4441 3701 3013 2512	2799 2278 2044 1847 1919 1845 1828 2237 2150	2 104 4230 6662 8548 17885 18020 8835 5127 4031	1719 1753 1777 1934 1805 1663 1489 1529 1686	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496	Jul 1234 1174 1067 980 900 803 731 656 619	413 417 378 372 385 364 294 306 293	227 204 200 193 185 271 308 326 399 576	1007 842 1047 1538 966 722 638 549 502 474	614 641 620 639 652 725 714 775 910	1430 1310 1270 1224 1367 1551 1690 2901 3268	2 3 4 5 6 7 8 9	1448 1385 1245 1234 1183 1155 1198 1192 1110	1589 1601 1471 1694 1906 2155 3096 3106 2440	3660 2591 2095 1809 1812 1818 1941 2163 2483	2270 2259 2206 2497 2641 3063 3116 2596 2312	2023 1972 2043 2121 2145 2811 2977 2405 2231	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990	Jul 658 655 641 652 707 1234 1630 1996 3579	1531 1289 1081 982 889 1042 901 846 812	491 457 391 391 413 408 409 397 392 455	2458 2521 1929 1070 846 741 663 584 548	693 891 782 619 597 588 583 547 575	795 750 712 739 701 649 613 637
2 3 4 5 6 7 8 9 10 11 12	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149	8 135 70 14 5253 5162 46 15 4441 3701 30 13 2512 2206 20 12 1823 1716	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2343	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518	413 417 378 372 385 364 294 306 293 312 360 441 473	227 204 200 193 185 271 308 326 399 576 494 399	1007 842 1047 1538 966 722 638 549 502 474 444 446 454	614 641 620 639 652 725 714 775 910 852 668 662	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548	2 3 4 5 6 7 8 9 10 11 12	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830 2460 2260 2319	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 9944 899 878 1000	Jul 658 655 641 652 707 1234 1630 1996 3364 2140 2077	1531 1289 1081 982 889 1042 901 846 812 795 800 880	491 457 391 391 413 408 409 397 392 455 440 530 690	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553	693 891 782 619 597 588 583 547 575 594 565 554	795 750 712 739 701 649 613 637 638 619 625 695
2 3 4 5 6 7 8 9 10 11 12 13	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2343 2261	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095	Jul 1234 1174 1067 980 900 803 731 656 619 589 518 550 547	413 417 378 372 385 364 294 306 293 312 360 441 473 528	227 204 200 193 185 271 308 326 399 576 494 399 353 379	1007 842 1047 1538 966 722 638 549 502 474 444 446 454	614 641 620 639 652 725 714 775 910 852 668 662 664 819	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374	2 3 4 5 6 7 8 9 10 11 12 13	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616	3660 2591 2095 1809 1812 18 18 1941 2163 2483 2830 2460 2260 2319 2684	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179	491 457 391 391 413 408 409 397 392 455 440 530 690 613	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553	693 891 782 619 597 588 583 547 575 594 565 554 560 555	795 750 712 739 701 649 613 637 638 619 625 695
2 3 4 5 6 7 8 9 10 11 12 13 14	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180	8 135 70 14 52 53 516 2 46 15 44 441 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 15 8 5	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2343 2261 2232	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499	227 204 200 193 185 271 308 326 399 576 494 399 353 379	1007 842 1047 1538 966 722 638 549 502 474 444 446 454	614 641 620 639 652 725 714 775 910 852 668 662 664 819	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318	2 3 4 5 6 7 8 9 10 11 12 13 14	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292 1779	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1616 1585 1567	3660 2591 2095 1809 1812 18 18 1941 2163 2483 2830 2460 2260 2319 2684 2502	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2485 2042 1784	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585	795 750 712 739 701 649 613 637 638 619 625 695 648 751
2 3 4 5 6 7 8 9 10 11 12 13 14 15	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105	8 135 70 14 52 53 516 2 46 15 44 441 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 15 8 5 16 4 8	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576 1556	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2343 2261 2232 2247 2127	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486	227 204 200 193 185 271 308 326 399 576 494 399 353 379 380 435	1007 842 1047 1538 966 722 638 549 502 474 444 446 454 475 559	614 641 620 639 652 725 714 775 910 852 668 662 664 819	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318	2 3 4 5 6 7 8 9 10 11 12 13 14 15	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 12 10 1292 1779 1724 1453	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978 985	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776 2008	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598	795 750 712 739 701 649 613 637 638 619 625 695
2 3 4 5 6 7 8 9 10 11 12 13 14	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180	8 135 70 14 52 53 516 2 46 15 44 441 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 15 8 5	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2343 2261 2232	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499	227 204 200 193 185 271 308 326 399 576 494 399 353 379	1007 842 1047 1538 966 722 638 549 502 474 444 446 454	614 641 620 639 652 725 714 775 910 852 668 662 664 819	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318	2 3 4 5 6 7 8 9 10 11 12 13 14	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292 1779	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1616 1585 1567	3660 2591 2095 1809 1812 18 18 1941 2163 2483 2830 2460 2260 2319 2684 2502	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2485 2042 1784	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585	795 750 712 739 701 649 613 637 638 619 625 695 648 751 815
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105	8135 7014 5253 5162 4615 4441 3701 3013 2512 2206 2012 1823 1716 1627 1585 1648 1607	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576 1556 1518	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2343 2261 2232 2247 2127 2019	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627 659	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420	227 204 200 193 185 271 308 326 399 576 494 399 353 379 380 435	1007 842 1047 1538 966 722 638 549 502 474 444 446 454 475 559 560	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1318 1312 1331	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 12 10 12 10 12 12 1779 1724 1453 1327	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365 2284	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828 4274	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659 1641	Jun 1206 1190 1153 1097 1129 1063 1000 990 944 899 878 1000 9985 1076 1031	Jul 658 655 641 652 707 1234 1996 3579 3364 2140 2077 1971 2390 2776 2008	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598 597	795 750 712 739 701 649 613 637 638 619 625 695 648 751 815 771
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 20 6 20 12 18 23 17 16 16 27 158 5 16 48 16 07 15 30 15 6 7 16 75	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576 1556 1518 1541 1527 2007	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2241 2232 2247 2127 2129 2279 2445 2376	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 1415	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989 976 898 828 776	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627 659 824 723 636	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510	227 204 200 193 185 271 308 326 399 576 494 399 353 379 380 435 585 534 494	1007 842 1047 1538 966 722 638 549 502 474 444 446 454 475 559 560 586 989 982 632	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2158 2454 3924	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292 1779 1724 1453 1327 1217	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1616 1585 1567 1577 1577 1221 1270 1357	3660 2591 2095 1809 1812 18 18 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365 2284 2776 2991 2478	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828 4274 3333 2626 2417	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659 1641 1607 1629 1585	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978 985 1076 1031 864 845	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 753 801	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563 563 563 563	693 891 782 619 597 588 583 547 575 594 565 555 585 598 597 612 578 555	795 750 712 739 701 649 613 637 638 619 625 695 648 751 815 771 717 725 680 654
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 158 5 16 4 8 16 0 7 15 3 0 15 6 7 16 7 5 15 4 7	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1770 1694 1576 1556 1518 1541 1527 2007 1944	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2261 2232 2247 2127 2019 2279 2445 2376 2278	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 1415	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989 976 889 888 828 776 798	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627 659 824 723 636 600	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510 437	227 204 200 193 185 271 308 326 399 576 494 399 353 379 380 435 585 534 494 501	1007 842 1047 1538 966 722 638 549 502 474 444 446 454 475 569 560 586 989 982 632	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2854 3924 5544	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722 5624	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292 1779 1724 1453 1327 1217 1185 1210 1344	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577 1333 1221 1270 1357	3660 2591 2095 1809 1812 18 18 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365 2284 2776 2991 2478 2238	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828 4274 3333 2626 2417 2314	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659 1641 1607 1629 1585 1603	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978 985 1076 1031 864 845 993	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305 1292 1377 1493	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612 608	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 753 801 1154	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563 563 583 563 583 563 584	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598 597 612 578 555 535	795 750 712 739 701 649 613 637 638 619 625 695 648 751 815 771 717 725 680 654
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934 840 1003	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 22 06 20 12 182 3 1716 16 27 158 5 16 4 8 16 0 7 153 0 156 7 16 75 154 7 14 75	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576 1556 1518 1541 1527 2007 1944 1773 1984	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2243 2247 2127 2019 2279 2445 2378 2457	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 14 15 1320 1352	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989 976 898 898 876 798 953	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627 659 824 723 636 600 544	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510 437 386	227 204 200 193 185 271 308 326 399 576 494 399 353 379 380 435 585 534 494 501 496 467	1007 842 1047 1538 966 722 638 549 502 474 444 446 454 475 559 560 586 989 982 632 558	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2854 3924 5544 3937 2418	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722 5624 3403	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	1448 1385 1245 1234 1183 1165 1198 1192 1110 1118 1164 1210 1292 1779 1724 1453 1327 1217 1185 1210 1344 1850	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577 1333 1221 1270 1357	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365 2284 2776 2991 2478 2238	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828 4274 3333 2626 2417 2314	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659 1641 1607 1629 1585 1603 1451	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978 985 1076 1031 864 845 993	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305 1392 1377 1493 2143	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612 608	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 753 801 1154 2134	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563 583 563 583 563 583 563 583 563 583 563	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598 597 612 578 555 535	795 750 750 760 7712 739 701 649 613 637 638 619 625 695 648 751 815 771 717 725 680 654 654 703
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 158 5 16 4 8 16 0 7 15 3 0 15 6 7 16 7 5 15 4 7	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1770 1694 1576 1556 1518 1541 1527 2007 1944	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2261 2232 2247 2127 2019 2279 2445 2376 2278	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 1415	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989 976 889 888 828 776 798	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627 659 824 723 636 600	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510 437	227 204 200 193 185 271 308 326 399 576 494 399 353 379 380 435 585 534 494 501	1007 842 1047 1538 966 722 638 549 502 474 444 446 454 475 569 560 586 989 982 632	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2854 3924 5544	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722 5624	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292 1779 1724 1453 1327 1217 1185 1210 1344	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577 1333 1221 1270 1357	3660 2591 2095 1809 1812 18 18 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365 2284 2776 2991 2478 2238	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828 4274 3333 2626 2417 2314	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659 1641 1607 1629 1585 1603	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978 985 1076 1031 864 845 993	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305 1292 1377 1493	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612 608	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 753 801 1154	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563 563 583 563 583 563 584	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598 597 612 578 555 535	795 750 712 739 701 649 613 637 638 619 625 695 648 751 815 771 717 725 680 654
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934 840 1003 1740	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 15 85 16 48 16 07 15 30 15 67 16 75 16 75	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576 1556 1518 1541 1527 2007 1944 1773 1984 2120	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2343 2261 2232 2247 2127 2019 2279 2445 2376 2278	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 1415 1320 1352	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989 976 898 828 776 798 953	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627 659 824 723 636 600 544 529	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510 437 386 340	227 204 200 193 185 271 308 326 399 576 494 399 353 379 380 435 585 534 494 501 496 467 430	1007 842 1047 1538 966 722 638 549 502 474 444 446 475 559 560 586 989 982 632 558 541	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2854 3924 5544 3937 2418	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722 5624 3403 2504	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 12 10 12 92 1779 1724 1453 1327 12 17 1185 12 10 13 44 18 50 18 69	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577 1333 1221 1270 1357 1300	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365 2284 2776 2991 2478 2238 2084 2278	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828 4274 3333 2626 2417 2314 2361	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659 1641 1607 1629 1585 1603 1451 1346	Jun 1206 1190 1153 1097 1129 1063 1000 990 944 899 878 1000 978 985 1076 1031 864 845 993 947 900	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305 1292 1377 1493 2143	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612 608 725 720	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 753 801 1154 2134	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563 563 563 583 563 584 548 519	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598 597 612 578 655 578 655 578 655 578 655 656 657 657 658 659 659 659 659 659 659 659 659	795 750 750 712 739 701 649 613 637 638 619 625 695 648 751 815 771 717 725 680 654 664 703 753
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934 840 1003 1740 2330	8 135 70 14 5253 5162 46 15 44441 3701 30 13 2512 2206 20 12 1823 1716 1627 1585 1648 1607 1530 1567 1675 1547 1475 1482 1590	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576 1556 1518 1541 1527 2007 19444 1773 1984 2120 2023	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2343 2261 2232 2247 2127 2019 2279 2445 2278 2457 2348 2483	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 1415 1320 1352 1351	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989 976 898 828 776 798 953 1174 1434	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627 659 824 723 636 600 544 529 503	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510 437 386 340 319	227 204 200 193 185 271 308 326 399 576 494 399 576 494 399 353 379 380 435 585 534 494 501 496 467 430 366	1007 842 1047 1538 966 722 638 549 502 474 444 446 454 475 559 560 586 989 982 632 558 541 529	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2854 3924 5544 3937 24 18 1975 2318	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722 5624 3403 2504 2023	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 12 10 12 10 12 12 1779 1724 1453 1327 12 17 1185 13 27 12 17 1185 13 27 12 10 13 44 18 50 18 69 2 14 6	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577 1333 1221 1270 1357 1300 1371 1380	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365 2284 2776 2991 2478 2238 2084 2278 2663	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828 4274 3333 2626 2417 2314 2361 2589 2261	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659 1641 1607 1629 1585 1603 1451 1346 1332	Jun 1206 1190 1153 1097 1129 1063 1000 990 944 899 878 1000 9985 1076 1031 864 845 993 9447 900 907	Jul 658 655 641 652 707 1234 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305 1292 1377 1493 2143 1854	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612 608 725 720	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 753 801 1154 2134 1204 748	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563 583 563 583 563 514 548 519 513 510 500	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598 597 612 578 555 535 541 561 563	795 750 712 739 701 649 613 637 638 619 625 695 648 751 815 771 717 725 680 654 654 654 703 753 859
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934 840 1003 1740 2330 2023 2610 2512	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 158 5 16 48 16 07 15 30 15 6 7 16 75 15 47 14 75 14 8 2 17 33 2 13 7 2 5 4 3	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1770 1694 1576 1556 1518 1541 1527 2007 1944 1773 1984 2120 2023 2453 2358 2001	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2331 2261 2232 2247 2127 2019 2279 2445 2376 2278 2457 2348 2483 2493 1968 1826	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 1415 1320 1352 1351 1403 14451 1374	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 11095 1125 1067 989 976 888 828 776 798 953 1174 1434 1752 1532	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627 659 824 723 636 600 544 529 503 540 556	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510 437 386 340 319 297 292 283	227 204 200 193 185 271 308 326 399 576 494 399 353 379 380 435 585 534 494 501 496 467 430 366 366 365 565	1007 842 1047 1538 966 722 638 549 502 474 444 446 454 475 559 560 586 989 982 632 558 541 529 598 870 725 620	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2854 3924 5544 3937 24 18 1975 23 18 23 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 2	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722 5624 3403 2504 2023 1847 2037 2114	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292 1779 1724 1453 1327 1217 1185 12 10 1344 1850 1869 2465 2482	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577 1333 1221 1270 1357 1300 1371 1380 1371 1380 2485 3870 5233	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365 2284 2776 2991 2478 2238 2084 2278 2663 3964 4536 5196	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828 4274 3333 2626 2417 2314 2361 2589 2261 2169 2113 2038	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659 1641 1629 1585 1603 1451 1346 1332 1291 1350 1253	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978 985 1076 1031 864 845 993 947 900 907 1008 869 891	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305 1292 1377 1493 2143 1854 1971 3167 2008	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612 608 725 720 777 1222 973 669	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 753 801 1154 2134 1204 748 623 544 561	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563 563 563 513 510 500 479 486	693 891 782 619 597 588 583 547 575 594 565 585 585 598 597 612 578 555 535 541 561 563 590 738 819	795 750 750 712 739 701 649 613 637 638 619 625 695 648 751 815 771 717 725 680 654 654 654 703 753 859 1016 951
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 20 21 22 23 24 25 26 27 28	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934 840 1003 1740 2330 2023 2610 2512	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 158 5 16 48 16 07 15 30 15 6 7 16 75 15 4 7 14 75 14 8 2 15 90 17 3 3 2 13 7	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1770 1694 1576 1556 1518 1541 1527 2007 1944 1773 1984 2120 2023 2453 2358 2001 1817	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2261 2232 2247 2127 2019 2279 2445 2376 2278 2483 2483 2483 2483 2193 1968 1826 1731	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 1415 1320 1352 1351 1403 1451 1374 1235	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989 976 898 828 776 798 953 1174 1434 1752 1532 1245	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 671 627 659 824 723 636 600 544 529 503 540 556 451 461	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510 437 386 340 319 297 292 283 279	227 204 200 193 185 271 308 326 399 576 494 494 399 353 379 380 435 585 534 494 501 496 467 430 366 565 664 763	1007 842 1047 1538 966 722 638 549 502 474 444 454 475 559 560 586 989 982 632 558 541 529 598 870 725 620	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2854 3937 2418 1975 2318 2388 2888 2898 2760	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722 5624 3403 2504 2023 1847 2037 2114 1858	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292 1779 1724 1453 1327 1217 1185 12 10 1344 1850 1869 2146 3216 2656 2182 1804	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577 1333 1221 1270 1357 1300 1371 1380 1768 2485 3870	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830 2460 2319 2684 2502 2365 2284 2776 2991 2478 2238 2084 2278 2663 3964 4536 5196 4025	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828 4274 3333 2626 2417 2314 2361 2589 2261 2169 2113 2038 2021	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2485 2042 1784 1659 1641 1607 1629 1585 1603 1451 1346 1332 1291 1350 1253 1190	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978 985 1076 1031 864 845 993 947 900 907 1008 869 891 1155	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305 1292 1377 1493 2143 1854 1971 3167 2008 1617	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612 608 725 720 772 1222 973 669 622	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 753 801 1154 2134 1204 748 623 544 561 530	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563 563 583 563 583 563 57 563 583 583 583 583 583 583 584 548 519 513 510 500 479 486 495 510	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598 597 612 578 555 541 561 563 590 738 819 796	795 750 750 712 739 701 649 613 637 638 619 625 695 648 751 815 771 717 725 680 654 654 703 753 859 1016 951 916
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934 840 1003 1740 2330 2023 2610 2512 2808	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 158 5 16 48 16 07 15 30 15 6 7 16 75 15 47 14 75 14 8 2 17 33 2 13 7 2 5 4 3	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576 1556 1518 1541 1527 2007 1944 1773 1984 2120 2023 2453 2358 2001 1817	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2247 2127 2019 2279 2247 2279 2457 2348 2483 2483 2193 1968 1826 1731	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 14 15 1320 1352 1351 1403 1451 1374 1235 1162	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989 976 898 828 776 798 953 1174 1434 1752 1245 1109	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627 659 824 723 636 600 544 529 503 540 556 451 461	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510 437 386 340 319 297 292 283 279 259	227 204 200 193 185 271 308 326 399 576 494 399 353 379 380 435 585 534 494 501 496 467 430 366 365 565 664 763 1084	1007 842 1047 1538 966 722 638 549 502 474 444 446 454 475 559 560 586 989 982 632 558 541 529 598 870 725 620	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2854 3924 15544 3924 1975 2318 2388 2898 2760 2410	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722 5624 3403 2504 2023 1847 2037 2114 1858 1793	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292 1779 1724 1453 1327 1217 1217 1210 1344 1850 1869 2146 3216 2656 2182 1804 1664	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577 1333 1221 1270 1357 1300 1371 1380 1371 1380 2485 3870 5233	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365 2284 2776 2991 2478 2238 2084 2278 2663 3964 4536 5196 4025 3288	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 24433 2880 3404 5828 4274 3333 2626 2417 2314 2361 2589 2261 2169 2113 2038 2021	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659 1641 1607 1629 1585 1603 1451 1346 1332 1291 1350 1253 1190 1213	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978 985 1076 1031 864 845 993 947 900 907 1008 869 891 1155	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305 1292 1377 1493 2143 1854 1971 3167 2008 1617 1339 1210	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612 608 725 720 772 1222 973 669 622 585	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 420 43 449 469 558 569 554 569 554 569 554 569 569 575 801 1154 2134 1204 748 623 544 556 569 569 564 561 561 561 561 563 564 565 565 565 566 567 568 569 569 569 569 569 569 569 569	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563 583 563 583 563 583 560 479 486 495 510 530	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598 597 612 578 555 535 541 561 563 590 738 819 796	795 750 712 739 701 649 613 637 638 619 625 695 648 751 815 771 717 725 680 654 654 703 753 859 1016 951 916 1385
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 20 21 22 23 24 25 26 27 28	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934 840 1003 1740 2330 2023 2610 2512	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 158 5 16 48 16 07 15 30 15 6 7 16 75 15 47 14 75 14 8 2 17 33 2 13 7 2 5 4 3	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1770 1694 1576 1556 1518 1541 1527 2007 1944 1773 1984 2120 2023 2453 2358 2001 1817	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2261 2232 2247 2127 2019 2279 2445 2376 2278 2483 2483 2483 2483 2193 1968 1826 1731	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 1415 1320 1352 1351 1403 1451 1374 1235	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989 976 898 828 776 798 953 1174 1434 1752 1532 1245	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 671 627 659 824 723 636 600 544 529 503 540 556 451 461	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510 437 386 340 319 297 292 283 279	227 204 200 193 185 271 308 326 399 576 494 494 399 353 379 380 435 585 534 494 501 496 467 430 366 565 664 763	1007 842 1047 1538 966 722 638 549 502 474 444 454 475 559 560 586 989 982 632 558 541 529 598 870 725 620	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2854 3937 2418 1975 2318 2388 2888 2898 2760	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722 5624 3403 2504 2023 1847 2037 2114 1858	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292 1779 1724 1453 1327 1217 1185 12 10 1344 1850 1869 2146 3216 2656 2182 1804	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577 1333 1221 1270 1357 1300 1371 1380 1371 1380 2485 3870 5233	3660 2591 2095 1809 1812 1818 1941 2163 2483 2830 2460 2319 2684 2502 2365 2284 2776 2991 2478 2238 2084 2278 2663 3964 4536 5196 4025	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 2433 2880 3404 5828 4274 3333 2626 2417 2314 2361 2589 2261 2169 2113 2038 2021	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2485 2042 1784 1659 1641 1607 1629 1585 1603 1451 1346 1332 1291 1350 1253 1190	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978 985 1076 1031 864 845 993 947 900 907 1008 869 891 1155	Jul 658 655 641 652 707 1234 1630 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305 1292 1377 1493 2143 1854 1971 3167 2008 1617	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612 608 725 720 772 1222 973 669 622	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 753 801 1154 2134 1204 748 623 544 561 530	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 563 563 583 563 583 563 57 563 583 583 583 583 583 583 584 548 519 513 510 500 479 486 495 510	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598 597 612 578 555 541 561 563 590 738 819 796	795 750 750 712 739 701 649 613 637 638 619 625 695 648 751 815 771 717 725 680 654 654 703 753 859 1016 951 916
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	966 1090 1362 1571 3496 2760 2121 1657 1442 1337 1246 1149 1180 1096 1105 1126 1083 983 892 934 840 1003 1740 2330 2023 2610 2512 2808 3566 5321	8 135 70 14 52 53 516 2 46 15 44 44 1 370 1 30 13 25 12 22 06 20 12 18 23 17 16 16 27 158 5 16 48 16 07 15 30 15 6 7 16 75 15 47 14 75 14 8 2 17 33 2 13 7 2 5 4 3	2799 2278 2044 1847 1919 1845 1828 2237 2150 1884 1810 1710 1694 1576 1556 1556 1518 1541 1527 2007 1944 1773 1984 2120 2023 2453 2358 2001 1817 1678	2104 4230 6662 8548 17885 18020 8835 5127 4031 2885 2531 2247 2127 2019 2279 2247 2279 2457 2348 2483 2483 2193 1968 1826 1731	1719 1753 1777 1934 1805 1663 1489 1529 1686 1765 2113 2422 2112 1878 1920 1733 1439 1396 1403 14 15 1320 1352 1351 1403 1451 1374 1235 1162 1005	Jun 959 1020 1043 1089 1324 1467 1547 1363 1496 1203 1143 1130 1095 1125 1067 989 976 898 828 776 798 953 1174 1434 1752 1245 1109	Jul 1234 1174 1067 980 900 803 731 656 619 589 539 518 550 547 571 627 659 824 723 636 600 544 529 503 540 556 451 461 494 429	413 417 378 372 385 364 294 306 293 312 360 441 473 528 499 486 420 494 543 510 437 386 340 319 297 292 283 279 259 246	227 204 200 193 185 271 308 326 399 576 494 399 353 379 380 435 585 534 494 501 496 467 430 366 365 565 664 763 1084	1007 842 1047 1538 966 722 638 549 502 474 444 446 454 475 559 560 586 989 982 632 558 541 529 598 870 725 620 589 602	614 641 620 639 652 725 714 775 910 852 668 662 664 819 1685 2158 2854 3924 15544 3924 1975 2318 2388 2898 2760 2410	1430 1310 1270 1224 1367 1551 1690 2901 3268 2411 1840 1548 1374 1321 1318 1312 1331 1675 1951 3722 5624 3403 2504 2023 1847 2037 2114 1858 1793 1636	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	1448 1385 1245 1234 1183 1155 1198 1192 1110 1118 1164 1210 1292 1779 1724 1453 1327 1217 1185 1210 1344 1450 1869 2146 3216 2656 2182 1804 1664 1594	1589 1601 1471 1694 1906 2155 3096 3106 2440 1972 1744 1622 1616 1585 1567 1577 1333 1221 1270 1357 1300 1371 1380 1371 1380 2485 3870 5233	3660 2591 2095 1809 1812 18 18 1941 2163 2483 2830 2460 2260 2319 2684 2502 2365 2284 2776 2991 2478 2238 2084 2278 2663 3964 4536 5196 4025 3288 2701	2270 2259 2206 2497 2641 3063 3116 2596 2312 2210 2369 2121 24433 2880 3404 5828 4274 3333 2626 2417 2314 2361 2589 2261 2169 2113 2038 2021	2023 1972 2043 2121 2145 2811 2977 2405 2231 2270 2268 2619 2485 2042 1784 1659 1641 1607 1629 1585 1603 1451 1346 1332 1291 1350 1253 1190 1213 1183	Jun 1206 1190 1153 1097 1129 1063 1025 1000 990 944 899 878 1000 978 985 1076 1031 864 845 993 947 900 907 1008 869 891 1155	Jul 658 655 641 652 707 1234 1996 3579 3364 2140 2077 1971 2390 2776 2008 1373 1305 1292 1377 1493 2143 1854 1971 3167 2008 1339 1210	1531 1289 1081 982 889 1042 901 846 812 795 800 880 1179 1144 972 836 967 815 692 612 608 725 720 772 1222 973 669 622 585	491 457 391 391 413 408 409 397 392 455 440 530 690 613 469 558 569 554 420 43 449 469 558 569 554 569 554 569 554 569 569 575 801 1154 2134 1204 748 623 544 556 569 569 564 561 561 561 561 563 564 565 565 565 566 567 568 569 569 569 569 569 569 569 569	2458 2521 1929 1070 846 741 663 584 548 549 568 532 553 587 563 583 563 583 563 583 563 57 563 583 584 548 519 510 500 479 486 495 510 530 635	693 891 782 619 597 588 583 547 575 594 565 554 560 555 585 598 597 612 578 555 535 541 561 563 590 738 819 796	795 750 750 7712 739 701 649 613 637 638 619 625 695 648 751 815 771 771 7725 680 654 654 654 703 753 859 1016 951 916 1385 1726

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	959												19	60					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1072	1107	1172	2090	1364	7108	858	475	1297	307	835	766	1	1289	5936	2019	4 176	1868	917	621	489	622	1377	1025	551
3	1275 1189	1164 1213	1148 1302	2900 2524	1360 1257	4665 3065	850 846	467 488	864 670	294 279	792 778	782 843	3	1497 2923	4112 2993	2061 2388	3958 4819	1826 1634	897 1001	601 559	407 477	825 698	998 913	938 753	519 503
4	1005	14 15	1568	2093	1207	2090	895	500	582	370	702	838	4	3157	2486	2178	7856	1574	986	549	435	587	927	683	507
5	935	1724	1806	1789	1136	1648	816	511	537	426	733	833	5	2367	2647	1905	5874	1621	1031	536	496	507	961	616	500
6	843	1599	3258	1627	1077	1676	738	489	509	673	8 14	839	6	2158	3357	1892	4310	1569	1254	608	518	456	1507	649	554
8	873 909	1376 1245	2963 2257	1486 1424	1043 1036	18 55 15 17	721 702	502 545	497 736	2508 2900	903 781	885 876	7 8	2221 2153	2677 2541	2030	3386 2969	1637 1909	1103 1089	799 1269	549 520	400 397	1841 1699	648 602	603 569
9	1003	1194	1865	1583	1044	1300	628	476	746	3351	754	870	9	1832	2407	2298	2676	1742	1340	987	737	365	2050	586	659
10	981	13 15	1660	1871	110 1	1173	576	484	723	3043	705	896	10	1634	2448	2471	2494	1564	1007	939	808	331	19 19	611	697
11	917	2085	16 14	2521	12 11	113.4	613	509	624	2964	692	954	11	1475	4287	2671	2340	1495	879	10 16	786	347	1501	632	938
12 13	929 971	2533 6070	2 177 2 559	3523 3916	12 10 12 75	1132 1085	815 720	482 504	765 666	2475 2162	685 694	1177 2061	12 13	1426 1440	3450 3062	2536 2669	2274 2190	1457 1424	881 829	116.4 770	933 1468	333 319	1164 1004	601 547	1924 1424
14	1042	6725	2514	2979	13 15	1066	679	514	675	2704	709	1527	14	1454	3471	2734	2 155	1387	823	628	1205	336	914	543	1084
15	1080	4142	4097	2311	1137	997	707	435	742	3005	667	1282	15	1561	3040	2969	2 110	1376	837	554	871	570	863	547	1001
16	1286	3040	4320	2084	987	940	907	523	693	2091	688	1390	16	1771	2620	3307	2113	1340	794	492	788	690	830	547	9 10
17 18	1299	2276 1944	3 114 2328	2027 2092	968 1599	867 836	1023 1157	528 423	555 521	1351 1063	722 739	1403 1688	17 18	1704 2054	2473 2439	3721 3595	2091 2058	1333 1254	802 834	493 490	802 532	1102 2102	802 828	518 512	831 864
19	1113	1709	1922	2960	1673	823	994	537	454	991	689	2351	19	2034	2887	3245	2044	12 11	761	486	596	1198	8 14	503	927
20	1476	1506	1769	3137	2036	836	10 18	598	440	855	720	19 12	20	1715	2599	2798	1993	1186	701	579	732	738	864	509	904
21	18 19	1441	1760	2540	2539	1082	1083	467	430	961	712	1448	21	1577	2474	2563	1957	1152	679	814	662	547	913	570	972
22	5428 3531	1373 1391	1718 1567	2180 1963	2242 1565	1385 1456	904 787	489 446	402 416	1066 1085	725 692	1299 1202	22	1358 1249	2495 2412	2301 2204	2097 2037	1127 1089	752 785	682 686	780 1105	488 440	790 695	616 675	1102 939
24	2416	1459	1530	1784	1476	1676	790	378	401	1106	779	1093	24	1246	2251	2175	1897	1140	765	706	1120	484	656	1037	868
2 5	1773	1331	1469	1688	1448	1998	795	378	374	1164	977	1057	25	1345	2239	2143	1822	1114	859	653	747	674	648	854	864
26	14 19	1246	1476	1735	1506	1697	947	363	355	945	851	1047	26	1429	2313	2078	1804	1089	830	509	639	921	667	711	864
27	12.52 1175	1234 1160	1651 1764	1706 1678	1393 2249	1142 971	820 673	352 348	351 401	883 759	806 856	1033 1052	27	1788 3010	2081 1978	2152 2469	1764 18 12	1130 1188	789 776	515 854	531 499	1699 3944	672 687	636 603	874 906
29	1128	1.00	16 14	1673	3424	886	532	349	380	712	896	1276	29	3653	2087.148	2661	1709	1043	712	980	479	3943	764	588	932
30	1086		1965	1567	4226	883	517	366	331	871	8 15	1245	30	4687		4236	1711	966	715	700	522	1990	757	606	1028
31	1162		2093		6197		501	582		898		1109	3 1	74 19		5226		977		564	538		790		1112
					-	19	961												19	62					
	Jan	Feb	Mar	Apr	Мау	19 Jun	961 Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	Мау	19 Jun	62 Jul	Aug	Sep	Oct	Nov	Dec
1	Jan	Feb 943	Mar 4570	Apr 6121	May 2548	1		Aug 942	Sep 959	Oct 466	Nov 503	De c 520	1	Jan 1380	Feb 2681	Mar 2897	Apr 4717	May 2448			Aug 755	Sep	Oct 698	Nov 437	De c 921
2	1453 1589	943 943	4570 3642	6 12 1 4712	2548 3119	Jun 1243 1187	Jul 1640 1516	942 909	959 948	466 450	503 544	520 518	2	1380 1319	2681 2431	2897 2650	4717 3819	2448 2159	Jun 1594 1422	Jul 800 892	755 610	295 300	698 827	437 438	921 919
2	1453 1589 1291	943 943 925	4570 3642 3234	6121 4712 3473	2548 3119 2563	Jun 1243 1187 1240	Jul 1640 1516 1374	942 909 881	959 948 853	466 450 495	503 544 545	52 0 518 50 6	3	1380 1319 1064	2681 2431 2161	2897 2650 2376	4717 3819 3115	2448 2159 2033	Jun 1594 1422 1512	Jul 800 892 866	755 610 688	295 300 291	698 827 1090	437 438 409	921 919 909
2	1453 1589	943 943	4570 3642	6 12 1 4712	2548 3119	Jun 1243 1187	Jul 1640 1516	942 909	959 948	466 450	503 544	520 518	2	1380 1319	2681 2431	2897 2650	4717 3819	2448 2159	Jun 1594 1422	Jul 800 892	755 610	295 300	698 827	437 438	921 919
3 4	1453 1589 1291 1126	943 943 925 929	4570 3642 3234 3128	6121 4712 3473 2776	2548 3119 2563 2172	Jun 1243 1187 1240 1272	Jul 1640 1516 1374 1314	942 909 881 974	959 948 853 791	466 450 495 652	503 544 545 529	520 518 506 568	2 3 4	1380 1319 1064 1078	2681 2431 2161 2041	2897 2650 2376 2240	4717 3819 3115 2959	2448 2159 2033 2010	Jun 1594 1422 1512 1651	Jul 800 892 866 1142	755 610 688 673	295 300 291 319	698 827 1090 1350	437 438 409 430	921 919 909 892
2 3 4 5 6	1453 1589 1291 1126 1051 962 932	943 943 925 929 933 970 1084	4570 3642 3234 3128 3313 4017 4660	6121 4712 3473 2776 2358 2182 2185	2548 3119 2563 2172 2003 1949 2003	Jun 1243 1187 1240 1272 1569 1795 1557	Jul 1640 1516 1374 1314 1308 1258 1231	942 909 881 974 951 844 939	959 948 853 791 729 688 697	466 450 495 652 610 516 506	503 544 545 529 586 533 511	520 518 506 568 590 660 681	2 3 4 5 6 7	1380 1319 1064 1078 1221 1682 2383	2681 2431 2161 2041 1989 2012 1820	2897 2650 2376 2240 2159 2117 2110	4717 3819 3115 2959 3214 3596 4975	2448 2159 2033 2010 1983 1913	Jun 1594 1422 1512 1651 1577 1560 1362	Jul 800 892 866 1142 1435 1999 2673	755 610 688 673 633 673 672	295 300 291 319 457 541	698 827 1090 1350 1006 759 667	437 438 409 430 405 605 809	921 919 909 892 938 905 850
2 3 4 5 6 7 8	1453 1589 1291 1126 1051 962 932 894	943 943 925 929 933 970 1084 1539	4570 3642 3234 3128 3313 4017 4660 5679	6121 4712 3473 2776 2358 2182 2185 2220	2548 3119 2563 2172 2003 1949 2003 2038	Jun 1243 1187 1240 1272 1569 1795 1557 1481	Jul 1640 1516 1374 1314 1308 1258 1231 1270	942 909 881 974 951 844 939 1003	959 948 853 791 729 688 697 695	466 450 495 652 610 516 506 490	503 544 545 529 586 533 511 489	520 518 506 568 590 660 681	2 3 4 5 6 7 8	1380 1319 1064 1078 1221 1682 2383 2137	2681 2431 2161 2041 1989 2012 1820	2897 2650 2376 2240 2159 2117 2110 2342	4717 38 19 3115 29 59 32 14 3596 49 75 44 11	2448 2159 2033 2010 1983 1913 1951 1883	Jun 1594 1422 1512 1651 1577 1560 1362 1227	300 892 866 1142 1435 1999 2673 1736	755 610 688 673 633 673 672 746	295 300 291 319 457 541 730	698 827 1090 1350 1006 759 667 617	437 438 409 430 405 605 809 889	921 919 909 892 938 905 850 795
2 3 4 5 6	1453 1589 1291 1126 1051 962 932	943 943 925 929 933 970 1084	4570 3642 3234 3128 3313 4017 4660	6121 4712 3473 2776 2358 2182 2185	2548 3119 2563 2172 2003 1949 2003	Jun 1243 1187 1240 1272 1569 1795 1557	Jul 1640 1516 1374 1314 1308 1258 1231	942 909 881 974 951 844 939	959 948 853 791 729 688 697	466 450 495 652 610 516 506	503 544 545 529 586 533 511	520 518 506 568 590 660 681	2 3 4 5 6 7	1380 1319 1064 1078 1221 1682 2383	2681 2431 2161 2041 1989 2012 1820	2897 2650 2376 2240 2159 2117 2110	4717 3819 3115 2959 3214 3596 4975	2448 2159 2033 2010 1983 1913	Jun 1594 1422 1512 1651 1577 1560 1362	Jul 800 892 866 1142 1435 1999 2673	755 610 688 673 633 673 672	295 300 291 319 457 541	698 827 1090 1350 1006 759 667	437 438 409 430 405 605 809	921 919 909 892 938 905 850
3 4 5 6 7 8 9 10	1453 1589 1291 1126 1051 962 932 894 867 815	943 943 925 929 933 970 1084 1539 1565 1312	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281	942 909 881 974 951 844 939 1003 1039	959 948 853 791 729 688 697 695 645 609	466 450 495 652 610 516 506 490 503 501 488	503 544 545 529 586 533 511 489 453 444	520 518 506 568 590 660 681 911 1525 5671	2 3 4 5 6 7 8 9 10	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685	2681 2431 2161 2041 1989 2012 1820 1841 1861 1877	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003	4717 38 19 3 115 29 59 32 14 3596 49 75 44 11 40 55 46 74 58 86	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058	755 610 688 673 633 673 672 746 706 585	295 300 291 319 457 541 730 1335 760 564 483	698 827 1090 1350 1006 759 667 617 694 608	437 438 409 430 405 605 809 889 1212 1828	921 919 909 892 938 905 850 795 772 720 712
3 4 5 6 7 8 9 10 11	1453 1589 1291 1126 1051 962 932 894 867 815 867	943 943 925 929 933 970 1084 1539 1565 1312 1194	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281	942 909 881 974 951 844 939 1003 1039 1000 899	959 948 853 791 729 688 697 695 645 609 613	466 450 495 652 610 516 506 490 503 501 488 481	503 544 545 529 586 533 511 489 453 444 473 506	520 518 506 568 590 660 681 911 1525 5671 9023	2 3 4 5 6 7 8 9 10 11	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618	2681 2431 2161 2041 1989 2012 1820 1841 1861 1877 1680	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196	4717 38 19 3 115 29 59 32 14 3596 49 75 44 11 40 55 46 74 58 86	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058	755 610 688 673 633 673 672 746 706 585 524	295 300 291 319 457 541 730 1335 760 564 483 551	698 827 1090 1350 1006 759 667 617 694 608 513	437 438 409 430 405 605 809 889 1212 1828 1264	921 919 909 892 938 905 850 795 772 720 712 691
2 3 4 5 6 7 8 9 10 11 12	1453 1589 1291 1126 1051 962 932 894 867 815 867 891	943 943 925 929 933 970 1084 1539 1565 1312 1194 1062	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831	942 909 881 974 951 844 939 1003 1039 1000 899 941	959 948 853 791 729 688 697 695 645 609 613 655 626	466 450 495 652 610 516 506 490 503 501 488 481	503 544 545 529 586 533 511 489 453 444 473 506	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497	2 3 4 5 6 7 8 9 10 11 12	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618	2681 2431 2161 2041 1989 2012 1820 1841 1861 1877 1680 1681	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882	4717 38 19 3115 29 59 32 14 3596 49 75 44 11 40 55 46 74 58 86 10 74 4 99 39	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907	755 610 688 673 633 673 672 746 706 585 524 503	295 300 291 319 457 541 730 1335 760 564 483 551	698 827 1090 1350 1006 759 667 617 694 608 513 522	437 438 409 430 405 605 809 889 1212 1828	921 919 909 892 938 905 850 795 772 720 712 691
3 4 5 6 7 8 9 10 11	1453 1589 1291 1126 1051 962 932 894 867 815 867	943 943 925 929 933 970 1084 1539 1565 1312 1194	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281	942 909 881 974 951 844 939 1003 1039 1000 899	959 948 853 791 729 688 697 695 645 609 613	466 450 495 652 610 516 506 490 503 501 488 481	503 544 545 529 586 533 511 489 453 444 473 506	520 518 506 568 590 660 681 911 1525 5671 9023	2 3 4 5 6 7 8 9 10 11	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618	2681 2431 2161 2041 1989 2012 1820 1841 1861 1877 1680	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196	4717 38 19 3 115 29 59 32 14 3596 49 75 44 11 40 55 46 74 58 86	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058	755 610 688 673 633 673 672 746 706 585 524	295 300 291 319 457 541 730 1335 760 564 483 551	698 827 1090 1350 1006 759 667 617 694 608 513	437 438 409 430 405 605 809 889 1212 1828 1264 1012	921 919 909 892 938 905 850 795 772 720 712 691
2 3 4 5 6 7 8 9 10 11 12 13 14 15	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415	943 943 925 929 933 970 1084 1539 1194 1062 1011 984 972 1038	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1598 1833	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229	942 909 881 974 951 844 939 1003 1000 899 941 789 820 791 790	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423	503 544 545 529 586 533 511 489 463 444 473 506 574 613 735 814	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900	2 3 4 5 6 7 8 9 10 11 12 13 14 15	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 1619 1702	2681 2431 2161 2041 1989 2012 1820 1841 1861 1680 1681 1693 1647 1665	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645	4717 38 19 3115 29 59 32 14 3596 49 75 44 11 40 55 46 74 58 86 10 74 4 99 39 66 55 47 25 38 09	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568	295 300 291 319 457 541 730 1335 760 564 483 551 514 613 733 871	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980	921 919 909 892 938 905 850 795 772 720 712 691 705 718 782 843
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415 1257	943 943 925 929 933 970 1084 1539 1565 1312 1194 1062 1011 984 972 1038	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588 2624	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1598 1833	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229	942 909 881 974 951 844 939 1003 1039 1000 899 941 789 820 791 790 749	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423 426	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 16 19 1702 1928	2681 2431 2161 2041 1989 2012 1820 1841 1861 1687 1680 1681 1693 1647 1665 1701	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645	4717 38 19 3115 29 59 32 14 35 96 49 75 44 11 40 55 46 74 58 86 10 74 4 99 39 66 55 47 25 38 09 32 51	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488	295 300 291 319 457 541 730 1335 760 564 483 551 544 613 733 871 2643	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495 486	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991	921 919 909 892 938 905 850 795 772 720 712 691 705 718 782 843
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415 1257 1245	943 943 925 929 933 970 1084 1539 1565 1194 1062 1011 984 972 1038 1371 2031	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588 2624 2667	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493 3094 2670	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1598 1833 1633	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229 2262 1962	942 909 881 974 951 844 939 1003 1039 1000 899 941 789 820 791 790 749 680	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423 426 424	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814 923 696	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135 15335	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 1619 1702 1928 1915	2681 2431 2161 2041 1989 2012 1820 1841 1861 1680 1681 1693 1647 1665 1701	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645 2451	4717 38 19 3115 2959 32 14 3596 4975 4411 4055 4674 5886 10744 9939 6655 4725 3809 3251 30 14	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026 972 1016	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897 884 777	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488 532 520	295 300 291 319 457 541 730 1335 760 564 483 551 514 613 733 871 2643 1807	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495 486 475	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991 1285	921 919 909 892 938 905 850 795 772 712 691 705 718 782 843 843 805
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415 1257	943 943 925 929 933 970 1084 1539 1565 1312 1194 1062 1011 984 972 1038	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588 2624	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1598 1833	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229	942 909 881 974 951 844 939 1003 1039 1000 899 941 789 820 791 790 749	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423 426	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 16 19 1702 1928	2681 2431 2161 2041 1989 2012 1820 1841 1861 1687 1680 1681 1693 1647 1665 1701	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645	4717 38 19 3115 29 59 32 14 35 96 49 75 44 11 40 55 46 74 58 86 10 74 4 99 39 66 55 47 25 38 09 32 51	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488	295 300 291 319 457 541 730 1335 760 564 483 551 544 613 733 871 2643	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495 486	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991	921 919 909 892 938 905 850 795 772 720 712 691 705 718 782 843
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 1415 1257 1245 1098 1087 1190	943 943 925 929 933 970 1084 1539 1194 1062 1011 984 972 1038 1371 2031 8186 10568 20454	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588 2624 2667 2875 2857	6121 4712 3473 2776 2358 2182 2185 2220 3934 5431 6513 5046 3728 3493 3094 2670 2342 2250 2176	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815 1660 1610 1639 1722	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 16 18 1598 1833 1633 1514 1460 14444 2529	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229 2262 1962 1783 1981 1795	942 909 881 974 951 844 939 1003 1000 899 941 789 820 791 790 749 680 679 819 897	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534 549 573 597	466 450 495 652 610 516 506 490 503 501 488 481 464 423 423 426 424 430 412 415	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814 923 696 583 565 772	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135 15335 14952 7278 3830	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 1619 1702 1928 1915 1951 2086 2299 2244	2681 2431 2161 2041 1989 2012 1820 1841 1661 1681 1693 1665 1701 1802 1646 2121 4295	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645 2451 2387 2410 2359	4717 38 19 3115 29 59 32 14 3596 49 75 44 11 40 55 46 74 58 86 10 74 4 99 39 66 55 47 25 38 09 32 51 30 14 28 06 26 76 26 03	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501 1548 1460 1414 1349	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026 972 1016 968 962 1011	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897 884 777 661 626 627	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488 532 520 505 527	295 300 291 319 457 541 730 1335 760 564 483 551 514 613 733 871 2643 1807 988 691	698 827 1090 1350 1350 1006 759 667 617 694 608 513 522 533 524 495 486 475 454 477 480	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991 1285 2274 2276 2896	921 919 909 892 938 905 850 795 727 720 712 691 705 782 843 843 805 796 781 813
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415 1257 1245 1098 1087 1190	943 943 925 929 933 970 1084 1539 1565 1312 1194 1062 1011 984 972 1038 1371 2031 8186 10568 20454 24907	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588 2624 2667 2875 2557 2322 1996	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493 3094 2670 2342 2250 2176 2099	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815 1660 1610 1639 1722 1730 1750	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1633 1633 1644 1444 2529	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229 2262 1962 1783 1981 1795 1925	942 909 881 974 951 844 939 1003 1000 899 941 789 820 791 790 749 680 679 819 897 1062	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534 549 573 597 589	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423 424 430 412 415 419	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814 923 696 583 5665 772 809	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135 15335 14952 7278 3830 2751	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 1619 1702 1928 1915 1951 2086 2299 2244 2117	2681 2431 2161 2041 1989 2012 1820 1841 1861 1681 1693 1647 1665 1701 1802 1646 2121 4295 5494	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645 2451 2387 2410 2359 2809	4717 38 19 3115 29 59 32 14 35 96 49 75 44 11 40 55 46 74 58 86 10 74 4 99 39 66 55 47 25 38 09 32 51 30 14 28 06 26 76 26 03 25 74	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501 1548 1460 1414 1349 1326	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026 972 1016 968 968 1011	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897 884 777 661 626 627 596	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488 532 520 505 527 514	295 300 291 319 457 541 730 1335 760 564 483 551 514 613 733 871 2643 1807 988 691 535 478	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495 486 476 454 477 480	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991 1285 2274 2276 2896 5098	921 919 909 892 938 905 850 795 772 720 712 691 705 718 782 843 843 805 796 781 813
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415 1257 1245 1098 1087 1190 1157 1072	943 943 943 925 929 933 970 1084 1539 1565 1194 1062 1011 984 972 1038 1371 2031 8186 10568 20454 24907 21316	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588 2624 2667 2875 2557 2322 1996 1669	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493 3094 2670 2342 2250 2176 2099 2055	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815 1660 1610 1639 1722 1730 1750 2099	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1598 1833 1633 1514 1460 14444 25529 3279 2142	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229 2262 1962 1783 1981 1795 1925	942 909 881 974 951 844 939 1003 1039 1000 899 941 789 820 791 790 749 680 679 819 897 1062	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534 549 573 597 589 595	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423 426 424 430 412 415 419 434	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814 923 696 583 565 772 809 957	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135 15335 14952 7278 3830 2751 2337	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 1619 1702 1928 1915 1951 2086 2299 2244 2117 2141	2681 2431 2161 2041 1989 2012 1820 1841 1861 1680 1681 1693 1647 1665 1701 1802 1646 2121 4295 5494 11246	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645 2451 2387 2410 2359 2809 3110 2715	4717 38 19 3115 2959 32 14 3596 4975 44 11 4055 4674 5886 10744 9939 6655 4725 3809 3251 3014 2806 2676 2603 2574 2500	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501 1548 1460 1414 1349 1326 1268	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026 972 1016 968 962 1011 944	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897 884 777 661 626 627 596	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488 532 520 505 527 514 511	295 300 291 319 457 541 730 1335 760 564 483 551 514 613 733 871 2643 1807 988 691 535 478	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495 486 477 480 457	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991 1285 2274 2276 2896 5098 3185	921 919 909 892 938 905 850 795 772 712 691 705 718 782 843 843 805 796 781 813 964
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415 1257 1245 1098 1087 1190	943 943 925 929 933 970 1084 1539 1565 1312 1194 1062 1011 984 972 1038 1371 2031 8186 10568 20454 24907	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588 2624 2667 2875 2557 2322 1996	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493 3094 2670 2342 2250 2176 2099	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815 1660 1610 1639 1722 1730 1750	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1633 1633 1644 1444 2529	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229 2262 1962 1783 1981 1795 1925	942 909 881 974 951 844 939 1003 1000 899 941 789 820 791 790 749 680 679 819 897 1062	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534 549 573 597 589	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423 424 430 412 415 419	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814 923 696 583 5665 772 809	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135 15335 14952 7278 3830 2751	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 1619 1702 1928 1915 1951 2086 2299 2244 2117	2681 2431 2161 2041 1989 2012 1820 1841 1861 1681 1693 1647 1665 1701 1802 1646 2121 4295 5494	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645 2451 2387 2410 2359 2809	4717 38 19 3115 29 59 32 14 35 96 49 75 44 11 40 55 46 74 58 86 10 74 4 99 39 66 55 47 25 38 09 32 51 30 14 28 06 26 76 26 03 25 74	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501 1548 1460 1414 1349 1326	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026 972 1016 968 968 1011	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897 884 777 661 626 627 596	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488 532 520 505 527 514	295 300 291 319 457 541 730 1335 760 564 483 551 514 613 733 871 2643 1807 988 691 535 478	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495 486 476 454 477 480	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991 1285 2274 2276 2896 5098	921 919 909 892 938 905 850 795 772 720 712 691 705 718 782 843 843 805 796 781 813
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415 1257 1245 1098 1087 1190 1157 1072	943 943 943 925 929 933 970 1084 1539 1565 1312 1194 1062 1011 984 972 1038 1371 2031 8186 10568 20454 24907 21316 16344	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588 2624 2667 2875 2557 2322 1996 1669 1613	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493 3094 2670 2342 2250 2176 2099 2055 2174	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815 1660 1610 1639 1722 1730 1750 2099	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1598 1833 1633 1514 1460 1444 2529 3279 2142 2243	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229 2262 1962 1783 1981 1795 1925 1676 1579	942 909 881 974 951 844 939 1003 1039 1000 899 941 789 820 791 790 749 680 679 8 19 897 1062 1169 1365	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534 549 573 597 589 595 559 543	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423 426 424 430 412 415 419 434 421 415	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814 923 696 583 565 772 809 957 1520	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135 15335 14952 7278 3830 2751 2337 2190	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 1619 1702 1928 1915 1951 2086 2299 2244 2117 2141 2475	2681 2431 2161 2041 1989 2012 1820 1841 1861 1877 1680 1681 1693 1647 1665 1701 1802 1646 2121 4295 5494 11246 11516 8820	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645 2451 2387 2410 2359 2809 3110 2715	4717 38 19 3115 2959 3214 3596 4975 4411 4055 4674 5886 10744 9939 6655 4725 3809 3251 3014 2806 2676 2603 2574 2500 2548	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501 1548 1460 1414 1349 1426 1268 1240	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026 972 1016 968 962 1011 944 870	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897 884 777 661 626 627 596 623 696	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488 532 520 505 527 511 605 498	295 300 291 319 457 541 730 1335 760 564 483 551 514 613 733 871 2643 1807 988 691 535 478 520	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495 486 475 454 477 480 457 486 468	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991 1285 2274 2276 2896 5098 3185 1982	921 919 909 892 938 905 850 795 772 720 712 691 705 718 782 843 843 805 796 781 813 964 1324 1349
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415 1257 1245 1098 1087 1190 1157 1072 1033 1020 1011	943 943 943 925 929 933 970 1084 1539 1565 1312 1194 1062 1011 984 972 1038 1371 2031 8186 10568 20454 24907 21316 16344 19946 24320 13977	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588 2624 2667 2875 2557 2322 1996 1669 1613 1584 1678 1766	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493 3094 2670 2342 2250 2176 2099 2055 2174 2621 2839 3354	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815 1660 1610 1639 1722 1730 1750 2099 1971 1771 1724 1643	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1633 1633 1644 1440 2529 3279 2142 2243 1961 1913 2111	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229 2262 1962 1783 1981 1795 1925 1676 1579 1374 1156	942 909 881 974 951 844 939 1003 1000 899 941 789 820 791 790 749 680 679 819 897 1062 1169 1365 1365 1334 1196 1246	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534 549 573 597 589 595 543 518 502 492	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423 426 424 430 412 415 419 434 421 415 407 424 386	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814 923 696 583 565 772 809 957 1520 1264 797 666	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135 15335 14952 7278 3830 2751 2337 2190 2040 2032 2119	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 1619 1702 1928 1915 1951 2086 2299 2244 2117 2141 2475 3169 5376 4438	2681 2431 2161 2041 1989 2012 1820 1841 1861 1877 1680 1681 1693 1647 1665 1701 1802 1646 2121 4295 5494 11246 11516 8820 6517 4591	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645 2451 2387 2410 2359 2809 3110 2715 2566 2511 2849 2803	4717 38 19 3115 29 59 32 14 35 96 49 75 44 11 40 55 46 74 58 86 10 74 4 99 39 66 55 47 25 38 09 32 51 30 14 28 06 26 76 26 03 25 74 25 00 25 48 24 78 24 39 25 82	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501 1548 1460 1414 1349 1326 1268 1240 1248 1202 1224	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026 972 1016 968 968 1011 944 870 960 971 950 1258	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897 884 777 661 626 627 596 623 696 874 1055	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488 532 520 505 527 514 511 605 498 433 421	295 300 291 319 457 541 730 1335 760 564 483 551 514 613 733 871 2643 1807 988 691 535 478 520 517 511 521	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495 486 475 486 477 480 457 486 468 421 380 413	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991 1285 2274 2276 2896 5098 3185 1982 1497 1213 1087	921 919 909 892 938 905 850 795 772 720 712 691 705 718 782 843 843 805 796 781 813 964 1324 1349 2009 3167 2391
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415 1257 1245 1098 1087 1157 1072 1033 1020 1011 1032 1097	943 943 943 925 929 933 970 1084 1539 1194 1062 1011 984 972 1038 1371 2031 8186 10568 20454 24907 21316 16344 19946 24320	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2834 2987 2588 2624 2667 2875 2557 2322 1996 1669 1613 1584 1678 1766	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493 3094 2670 2342 2250 2176 2099 2055 2174 2621 2839 3354 3440	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815 1660 1610 1639 1722 1730 1750 2099 1971 1771 1774 1643 1515	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1598 1833 1633 1514 1460 14444 2529 3279 2142 2243 1961 1913 2111	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229 2262 1962 1783 1981 1795 1925 1676 1579 1374 1156 1083	942 909 881 974 951 844 939 1003 1039 1000 899 941 789 820 791 790 749 680 679 819 897 1062 1169 1365 1334 1196 1246 1072	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534 549 573 597 589 595 543 518 502 492	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423 426 424 430 412 415 419 434 421 436 437 424 386 383	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814 923 696 583 565 772 809 957 1520 1264 797 666 621	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135 15335 14952 7278 3830 2751 2337 2190 2040 2032 2119 2230	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 1619 1702 1928 1915 1951 2086 2299 2244 2117 2141 2475 3169 5376 4438 5489	2681 2431 2161 2041 1989 2012 1820 1841 1661 1877 1680 1681 1693 1693 1701 1802 1646 1701 1802 1646 11516 8820 6517 4591	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645 2451 2387 2410 2359 2809 3110 2715 2566 2511 2849 2803 2483	4717 38 19 3115 29 59 32 14 35 96 49 75 44 11 40 55 46 74 58 86 10 74 4 99 39 66 55 47 25 38 09 32 51 30 14 28 06 26 76 26 03 25 74 25 00 25 48 24 78 24 39 25 82 25 77	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501 1548 1460 1414 1349 1326 1268 1240 1248 1202 1224 1203 1387	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026 972 1016 968 962 1011 944 870 960 971 950 1258 1258	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897 884 777 661 623 626 627 596 623 696 874 1055 863 830	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488 532 520 505 527 514 511 605 498 433 421 400 378	295 300 291 319 457 541 730 1335 760 564 483 551 514 613 733 871 2643 1807 988 691 535 478 520 517 511 521 572	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495 486 477 486 457 486 468 421 380 413	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991 1285 2274 2276 2896 5098 3185 1982 1497 1213 1087 1025	921 919 909 892 938 905 850 795 772 712 691 705 718 843 805 796 781 813 964 1324 1324 1329 2009 3167 2391 2015
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1453 1589 1291 1126 1051 962 932 894 867 815 867 891 899 893 1415 1257 1245 1098 1087 1190 1157 1072 1033 1020 1011	943 943 943 925 929 933 970 1084 1539 1565 1312 1194 1062 1011 984 972 1038 1371 2031 8186 10568 20454 24907 21316 16344 19946 24320 13977	4570 3642 3234 3128 3313 4017 4660 5679 6479 5191 3542 2710 2834 2987 2892 2588 2624 2667 2875 2557 2322 1996 1669 1613 1584 1678 1766	6121 4712 3473 2776 2358 2182 2185 2220 2359 4102 3934 5431 6513 5046 3728 3493 3094 2670 2342 2250 2176 2099 2055 2174 2621 2839 3354	2548 3119 2563 2172 2003 1949 2003 2038 2241 2366 2539 2493 2280 1986 1826 1815 1660 1610 1639 1722 1730 1750 2099 1971 1771 1724 1643	Jun 1243 1187 1240 1272 1569 1795 1557 1481 1379 1591 1544 1519 1558 1618 1633 1633 1644 1440 2529 3279 2142 2243 1961 1913 2111	Jul 1640 1516 1374 1314 1308 1258 1231 1270 1234 1257 1281 1533 2831 2785 2127 2229 2262 1962 1783 1981 1795 1925 1676 1579 1374 1156	942 909 881 974 951 844 939 1003 1000 899 941 789 820 791 790 749 680 679 819 897 1062 1169 1365 1334 1196 1246	959 948 853 791 729 688 697 695 645 609 613 655 626 604 704 675 534 549 573 597 589 595 543 518 502 492	466 450 495 652 610 516 506 490 503 501 488 481 464 439 423 426 424 430 412 415 419 434 421 415 407 424 386	503 544 545 529 586 533 511 489 453 444 473 506 574 613 735 814 923 696 583 565 772 809 957 1520 1264 797 666	520 518 506 568 590 660 681 911 1525 5671 9023 17124 25497 15262 6254 6900 8135 15335 14952 7278 3830 2751 2337 2190 2040 2032 2119	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1380 1319 1064 1078 1221 1682 2383 2137 1911 1800 1685 1618 1587 1619 1702 1928 1915 1951 2086 2299 2244 2117 2141 2475 3169 5376 4438	2681 2431 2161 2041 1989 2012 1820 1841 1861 1877 1680 1681 1693 1647 1665 1701 1802 1646 2121 4295 5494 11246 11516 8820 6517 4591	2897 2650 2376 2240 2159 2117 2110 2342 2959 3663 6003 7196 4882 3725 3022 2645 2451 2387 2410 2359 2809 3110 2715 2566 2511 2849 2803	4717 38 19 3115 29 59 32 14 35 96 49 75 44 11 40 55 46 74 58 86 10 74 4 99 39 66 55 47 25 38 09 32 51 30 14 28 06 26 76 26 03 25 74 25 00 25 48 24 78 24 39 25 82	2448 2159 2033 2010 1983 1913 1951 1883 1785 1800 1768 1696 1637 1572 1570 1501 1548 1460 1414 1349 1326 1268 1240 1248 1202 1224	Jun 1594 1422 1512 1651 1577 1560 1362 1227 1135 1439 1528 1682 1864 1641 1141 1026 972 1016 968 968 1011 944 870 960 971 950 1258	Jul 800 892 866 1142 1435 1999 2673 1736 1974 1388 1058 907 941 935 917 897 884 777 661 626 627 596 623 696 874 1055	755 610 688 673 633 673 672 746 706 585 524 503 522 626 568 488 532 520 505 527 514 511 605 498 433 421	295 300 291 319 457 541 730 1335 760 564 483 551 514 613 733 871 2643 1807 988 691 535 478 520 517 511 521	698 827 1090 1350 1006 759 667 617 694 608 513 522 533 524 495 486 475 486 477 480 457 486 468 421 380 413	437 438 409 430 405 605 809 889 1212 1828 1264 1012 1338 1054 950 980 991 1285 2274 2276 2896 5098 3185 1982 1497 1213 1087	921 919 909 892 938 905 850 795 772 720 712 691 705 718 782 843 843 805 796 781 813 964 1324 1349 2009 3167 2391

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	963												19	64					
	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1805	2246	1538	1709	20665	1403	2876	1845	706	1830	676	1721	1	3555	2769	3321	4200	8242	2582	1164	1462	658	3994	10 13	1284
2	1507 13 14	2376 3467	2012 1928	1653 1624	9127 5086	1322 1240	2288 1870	1509 1294	8 15 79 4	1196	868	1255 1140	2	3172 2473	2520 2323	4 117 7152	4018 4133	8345 13847	2684 2675	1242 1450	14 12 13 2 4	640 628	3831 3572	985 974	1482 1706
4	1183	3125	2375	1693	3331	1265	16 19	1095	808	962 889	829 707	1108	4	2120	2323	7 i52 56 11	6683	10896	2411	1568	13 13	633	5870	964	2119
5	1106	2644	3203	1664	2705	12 19	1546	1053	820	846	691	961	5	1887	2416	5990	9226	7596	2452	1268	1572	650	9328	936	2827
6	1064	2186	9922	1739	2385	1135	1602	1008	824	785	743	965	6	1855	3949	4721	15798	5064	2587	1239	13 13	646	6162	941	2367
7	1008 1054	18 54 1755	8183 4469	1909 1824	1956 1747	1127 1107	1725 1641	912 866	605 619	765 737	764 649	923 920	8	2259 2426	3494 2915	3908 3473	22817 28517	4365 4261	2483 2192	1244 1275	1200 1017	625 605	3077 1958	960 957	19 12 16 3 6
9	1148	1607	3373	1631	1676	10 10	1355	892	567	679	629	1275	9	3985	2475	3121	22106	3953	2000	1389	977	588	1383	938	1515
10	1372	1558	5652	1634	1547	962	1193	801	636	651	638	1699	10	4591	2297	3125	10910	4240	18 10	1558	981	580	1203	938	1570
11	16 12	1507	7168	1532	1498	911	1055	8 11	594	692	617	2190	11	3112	2297	2934	7454	4095	1895	1767	1189	611	1066	932	1573
12	3170 2631	1550 1551	12009 22749	1493 1418	1651 1680	848 820	1054 1105	782 771	694 858	674 660	590 570	4104 3792	12 13	2550 2755	2320 2434	2946 4680	6668 7190	4206 4027	19 18 23 16	1588 1987	1295 1106	821 760	1061 1228	916 907	1809 2057
14	2016	14 50	170 14	1407	2453	965	1265	823	10 17	680	600	3125	14	2286	3413	5855	7763	3686	2034	1600	1080	655	2071	927	1828
15	1626	1349	6919	1348	2220	1364	1330	795	1254	676	596	2650	15	2010	3195	13625	6187	3359	18 12	13 14	1129	603	2419	890	1605
16 17	1446 1810	1293 1453	4692 4249	1337 1301	1837 1652	1476 2138	13 17 14 12	739 768	871 612	641 642	637 660	1987 1675	16	1860 1721	4390 4158	14980 8432	5191 4597	3226 3152	1584 1530	1376 1742	1478 2208	556 551	4374 3913	899 933	1530 1462
18	2412	1516	4123	1357	1613	2284	1540	774	553	661	684	1456	17 18	1715	4736	5395	4667	2963	1495	1515	1614	570	2937	933	1622
19	3161	1865	3259	1377	1582	2496	1491	756	546	646	667	13 15	19	1686	5031	4091	4209	2789	14 55	1532	1332	578	1902	939	1734
20	7293	2137	2743	1440	1527	2607	14 13	741	540	662	659	1251	20	1763	4103	3776	4 111	2607	1407	1583	1273	663	1431	999	1895
21	4933 3412	19 13 16 2 1	2415 1827	1428 1336	1504 1412	3892 4520	1772 1911	755 900	532 491	653 628	642 647	12 16 119 9	21	2007 2976	3348 2833	3671 3405	4090 3719	2552 2832	1394 1434	2142 2284	1381 1408	6 17 557	12 16 118 3	10 12 10 6 3	2377 2158
23	2550	1487	1663	1244	1388	4120	1509	818	470	631	690	12 10	23	4689	2576	5566	3905	2726	1431	2727	1371	503	1154	1471	2220
24	2071	1437	1750	1178	1363	3963	2047	749	404	6 15	9 15	1386	24	7093	2491	8618	4782	2636	1549	1862	1284	488	1125	1766	2494
25	1739	1446	1903	1117	1493	2912	1854	870	391	616	803	1243	25	19232	2508	114 10	5077	2552	1657	1652	1113	440	1092	3873	4025
26	1654 1619	1381 1409	2056 2191	1574 3376	1891 2235	2734 3731	2186 1880	863 970	1246 1762	6 14 58 0	823 1136	1239 1187	26 27	18506 7834	2670 2487	27113 26922	6285 7976	2294 2144	1562 1487	14 12 12 15	896 822	462 526	1096 1068	3573 2475	4169 4898
28	1521	14 12	2004	5861	2548	3907	1762	997	3127	568	13 14	1168	28	4735	2390	13871	9067	2124	1329	1106	864	1182	1082	1798	3837
29	1465		1850	12301	2788	3514	2142	999	6913	582	2370	1205	29	3484	2917.236	6860	8 112	2222	1278	1075	842	1590	1065	16 16	3042
30	1706 2 154		1775 1734	25767	2224 1653	3 177	2027 2253	955 792	3283	594 599	2917	1450 1638	30	2927		5142 4492	7332	2443 2459	1193	1080 1337	804 751	3832	1038 1076	1432	2416 2161
					1000							1000	31	2744		4492		2.00							
					1000	19	965			333		1000	31	2744		4492		2.100	19						
	Jan	Feb	Mar	Apr	May	Jun	965 Jul	Aug	Sep	Oct	Nov	Dec	31	Jan	Feb	Mar	Apr	Мау	Jun	66 Jul	Aug	Sep	Oct	Nov	Dec
1	2000	1932	Mar 2461	3461	May 2285	Jun 1179	965 Jul 1106	Aug 767	708	Oct 1890	485	De c 673	1	Jan 693	931	Mar 3952	1447	May 3819	Jun 1979	66 Jul 1323	Aug 818	519	Oct 761	913	887
1 2 3	2000 1914	1932 2130	Mar 2461 2922	3461 3387	May 2285 2149	Jun 1179 1187	965 Jul 1106 1171	Aug 767 739		Oct 1890 2096	485 503	De c 673 621		Jan 693 729	931 1048	Mar 3952 6578	1447 1674	May 3819 3655	Jun 1979 1881	Jul 1323 1425	Aug 818 688	519 560	Oct 761	913 954	887 962
1 2 3 4	2000	1932	Mar 2461	3461	May 2285	Jun 1179	965 Jul 1106	Aug 767	708 795	Oct 1890	485	De c 673	1	Jan 693	931	Mar 3952	1447	May 3819	Jun 1979	66 Jul 1323	Aug 818	519	Oct 761	913	887
1 2 3 4 5	2000 1914 2068 1934 1788	1932 2130 2123 2017 2537	Mar 2461 2922 3690 3642 3935	3461 3387 3367 3698 3676	May 2285 2149 2069 1994 1900	Jun 1179 1187 1235 1285 1734	965 Jul 1106 1171 1219 1342 1326	Aug 767 739 684 703 733	708 795 847 813 590	Oct 1890 2096 1301 905 738	485 503 512 477 423	De c 673 621 658 633 624	1 2 3 4 5	Jan 693 729 947 1158 1332	931 1048 1066 1008 956	Mar 3952 6578 7120 18960 22276	1447 1674 1723 2357 2396	May 3819 3655 3015 2522 2214	Jun 1979 1881 1881 1804 1750	1323 1425 1407 1340 1311	Aug 818 688 708 799 816	519 560 557 588 596	Oct 761 777 661 567 549	913 954 1205 1090 898	887 962 863 808 842
1 2 3 4 5	2000 1914 2068 1934 1788 1709	1932 2130 2123 2017 2537 2807	Mar 2461 2922 3690 3642 3935 3463	3461 3387 3367 3698 3676 3455	May 2285 2149 2069 1994 1900 1846	Jun 1179 1187 1235 1285 1734 1998	965 Jul 1106 1171 12 19 13 4 2 13 2 6 12 6 5	Aug 767 739 684 703 733 873	708 795 847 813 590 523	Oct 1890 2096 1301 905 738 677	485 503 512 477 423 534	De c 673 621 658 633 624 597	1 2 3	Jan 693 729 947 1158 1332 2852	931 1048 1066 1008 956 938	Mar 3952 6578 7120 18960 22276 10328	1447 1674 1723 2357 2396 1856	May 3819 3655 3015 2522 2214 2175	Jun 1979 1881 1881 1804 1750	1323 1425 1407 1340 1311 1233	Aug 8 18 6 88 7 08 7 99 8 16 8 9 4	519 560 557 588 596 542	Oct 761 777 661 567 549 512	913 954 1205 1090 898 861	887 962 863 808 842 824
1 2 3 4 5 6 7	2000 1914 2068 1934 1788	1932 2130 2123 2017 2537	Mar 2461 2922 3690 3642 3935	3461 3387 3367 3698 3676	May 2285 2149 2069 1994 1900	Jun 1179 1187 1235 1285 1734	965 Jul 1106 1171 1219 1342 1326	Aug 767 739 684 703 733	708 795 847 813 590	Oct 1890 2096 1301 905 738	485 503 512 477 423	De c 673 621 658 633 624	1 2 3 4 5	Jan 693 729 947 1158 1332	931 1048 1066 1008 956	Mar 3952 6578 7120 18960 22276	1447 1674 1723 2357 2396	May 3819 3655 3015 2522 2214	Jun 1979 1881 1881 1804 1750	1323 1425 1407 1340 1311	Aug 818 688 708 799 816	519 560 557 588 596	Oct 761 777 661 567 549	913 954 1205 1090 898	887 962 863 808 842
3 4 5 6 7 8 9	2000 1914 2068 1934 1788 1709	1932 2130 2123 2017 2537 2807 4362	Mar 2461 2922 3690 3642 3935 3463 2979	3461 3387 3367 3698 3676 3455 3113 2869 2723	May 2285 2149 2069 1994 1900 1846 1859	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597	965 Jul 1106 1171 12 19 1342 1326 1265 1178	Aug 767 739 684 703 733 873 1094	708 795 847 813 590 523 506	Oct 1890 2096 1301 905 738 677 689	485 503 512 477 423 534 530 749	De c 673 621 658 633 624 597 626 597	1 2 3 4 5 6	Jan 693 729 947 1158 1332 2852 2020	931 1048 1066 1008 956 938 923 946 1007	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187	1447 1674 1723 2357 2396 1856 1589	May 3819 3655 3015 2522 2214 2175 2036	Jun 1979 1881 1881 1804 1750 1743	66 Jul 1323 1425 1407 1340 1311 1233 1158	Aug 818 688 708 799 816 894 1419	519 560 557 588 596 542 472	Oct 761 777 661 567 549 512 508	913 954 1205 1090 898 861 958	887 962 863 808 842 824 855 1094
3 4 5 6 7 8 9	2000 1914 2068 1934 1788 1709 1677 1669 1693	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906	May 2285 2149 2069 1994 1900 1846 1859 1853 1899	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226	965 Jul 1106 1171 12 19 13 42 13 26 12 65 1178 12 58 1174 10 73	Aug 767 739 684 703 733 873 1094 1594 1258 1043	708 795 847 813 590 523 506 530 538 703	Oct 1890 2096 1301 905 738 677 689 791 717	485 503 512 477 423 534 530 749 795 862	De c 673 621 658 633 624 597 626 597 607	1 2 3 4 5 6 7 8 9	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956	931 1048 1066 1008 956 938 923 946 1007	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744	1447 1674 1723 2357 2396 1856 1589 1475 1418	May 38 19 3655 30 15 2522 22 14 2175 2036 2041 1926 1875	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802	66 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900	Aug 818 688 708 799 816 894 1419 1083 1140	519 560 557 588 596 542 472 427 406 424	Oct 761 777 661 567 549 512 508 556 575	913 954 1205 1090 898 861 958 1154 1432 2023	887 962 863 808 842 824 855 1094 1149
3 4 5 6 7 8 9	2000 1914 2068 1934 1788 1709 1677 1669 1693	1932 2130 2123 2017 2537 2807 4362 5300 4046	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527	3461 3387 3367 3698 3676 3455 3113 2869 2723	May 2285 2149 2069 1994 1900 1846 1859 1853	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597	965 Jul 1106 1171 12 19 1342 1326 1265 1178 1258 1174	Aug 767 739 684 703 733 873 1094 1594	708 795 847 813 590 523 506 530 538	Oct 1890 2096 1301 905 738 677 689 791	485 503 512 477 423 534 530 749	De c 673 621 658 633 624 597 626 597 607 659 646	1 2 3 4 5 6 7 8	Jan 693 729 947 1158 1332 2852 2020 1427 1163	931 1048 1066 1008 956 938 923 946 1007	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187	1447 1674 1723 2357 2396 1856 1589 1475 1418	May 3819 3655 3015 2522 2214 2175 2036 2041 1926	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802	66 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023	Aug 8 18 6 88 7 08 7 99 8 16 8 94 14 19 10 8 3 114 0	519 560 557 588 596 542 472 427 406	Oct 761 777 661 567 549 512 508 556 575	913 954 1205 1090 898 861 958 1154 1432	887 962 863 808 842 824 855 1094
3 4 5 6 7 8 9 10	2000 1914 2068 1934 1788 1709 1677 1669 1693 1771 2065	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186	965 Jul 1106 1171 12 19 1342 1326 1265 1178 1258 1174 1073 1127	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843	708 795 847 813 590 523 506 530 538 703 798	Oct 1890 2096 1301 905 738 677 689 791 717 629 592	485 503 512 477 423 534 530 749 795 862 711	De c 673 621 658 633 624 597 626 597 607	1 2 3 4 5 6 7 8 9 10 11	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900	931 1048 1066 1008 956 938 923 946 1007 1377 3949	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404	1447 1674 1723 2357 2396 1856 1856 1475 1418 1359	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681	66 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879	Aug 818 688 708 799 816 894 1419 1083 1140 1767	519 560 557 588 596 542 472 427 406 424 483	Oct 761 777 661 567 549 512 508 556 575 756 845	913 954 1205 1090 898 861 958 1154 1432 2023 3250	887 962 863 808 842 824 855 1094 1149 1268
3 4 5 6 7 8 9 10 11 12 13	2000 1914 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2525 2523 2661 2947 2779	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656	965 Jul 1106 1171 12 19 13 4 2 13 2 6 12 6 5 1178 12 5 8 1174 10 7 3 11 2 7 10 6 9 9 4 2 8 8 4	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 719	708 795 847 813 590 523 506 530 538 703 798 975 1170	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563	485 503 512 477 423 534 530 749 795 862 711 660 491 492	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785	1 2 3 4 5 6 7 8 9 10 11 12 13	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522	931 1048 1066 1008 956 938 923 946 1007 1377 33749 5025 13780 21004	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021	1447 1674 1723 2357 2357 2396 1856 1589 1475 1418 1359 1367 1326 1333 1332	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546	666 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 813 860	Aug 818 688 708 799 816 894 1419 1083 1140 1767 1680 1907 1896	519 560 557 588 596 542 472 427 406 424 483 473 542 880	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130
3 4 5 6 7 8 9 10 11 12 13 14	2000 1914 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704 1603	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3267 3673 3282 2927	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818 1655 1532	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2701 2656 2650	965 Jul 1106 1171 12 19 1342 1326 1265 1178 1258 1174 1073 1127 1069 942 884 867	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 749 719 661	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699	De c 673 621 658 633 624 597 626 597 607 669 646 633 716 785	1 2 3 4 5 6 7 8 9 10 11 12 13 14	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2404 2074 2021 2025	1447 1674 1723 2357 2356 1856 1589 1475 1418 1359 1367 1326 1333 1332	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974 4532	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546 1544 1568	66 Jul 1323 1425 1407 1340 1311 1333 1158 1136 1023 900 879 879 843 813 860 962	Aug 8 18 6 88 7 08 7 99 8 16 8 94 14 19 10 83 114 0 1767 16 80 19 07 18 96 16 28	519 560 557 588 596 542 472 427 406 424 483 473 542 880 762	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073
3 4 5 6 7 8 9 10 11 12 13	2000 1914 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2525 2523 2661 2947 2779	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656	965 Jul 1106 1171 12 19 13 4 2 13 2 6 12 6 5 1178 12 5 8 1174 10 7 3 11 2 7 10 6 9 9 4 2 8 8 4	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 719	708 795 847 813 590 523 506 530 538 703 798 975 1170	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563	485 503 512 477 423 534 530 749 795 862 711 660 491 492	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785	1 2 3 4 5 6 7 8 9 10 11 12 13	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522	931 1048 1066 1008 956 938 923 946 1007 1377 33749 5025 13780 21004	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021	1447 1674 1723 2357 2357 2396 1856 1589 1475 1418 1359 1367 1326 1333 1332	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546	666 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 813 860	Aug 818 688 708 799 816 894 1419 1083 1140 1767 1680 1907 1896	519 560 557 588 596 542 472 427 406 424 483 473 542 880	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	2000 1914 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704 1603 1555 1558 1554 1469	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 2927 2723	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818 1655 1532 1563	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720	965 Jul 1106 1171 12 19 13 42 13 26 12 65 1178 12 58 1174 10 73 112 7 10 69 94 2 88 4 86 7 89 0	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 719 661 667	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021 2025 2188	1447 1674 1723 2357 2396 1856 1589 1475 1418 1359 1367 1326 1333 1332 1337	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974 4532 3772	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546 1546 1568 1632	66 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 860 962 1085	Aug 818 688 708 799 816 894 1449 1083 1140 1767 1680 1907 1896 1628 1409 1174	519 560 557 588 596 542 472 427 406 424 483 473 542 880 752 703 829 886	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2000 1914 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704 1603 1555 1558 1554 1469 1465	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 227 2723 2802 2885 2662	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549 2413 2438 2681 2506	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634 2651 2492 2495	May 2285 2149 2069 1994 1900 1846 1859 1863 1899 1896 1839 1818 1655 1532 1563 1537 1476 1601 1687	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720 2204 1717 1439	965 Jul 1106 1171 12 19 1342 1326 1265 1178 1258 1174 1073 1127 1069 942 884 867 890 839 772 738	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 719 661 667 625 572 565	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721 754 699 608	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552 552 529 538	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806 897 532 444	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751 820 774 693	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709 1335	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207 5267	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021 2025 2188 2063 1919 1807	1447 1674 1723 2357 2396 1856 1856 1589 1475 1418 1359 1367 1326 1333 1332 1337 1319 1290 1234 1404	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974 4532 3772 4167 3699 3493	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546 1544 1568 1632 1587 1706	66 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 813 860 962 1085 1490 1482 1124	Aug 818 688 708 799 816 894 1419 1083 1140 1767 1680 1907 1896 1628 1409 1174 1024 1119 992	519 560 557 588 596 542 472 427 406 424 483 473 542 880 752 703 829 886 1095	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688 1241 1810 2173 4591	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005 962	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939 932
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0	2000 19 14 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704 1603 1555 1558 1554 1469 1465	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 2927 2723 2885 2662 2409	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549 2413 2438 2681 2506 2310	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634 2651 2492 2495 2636	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818 1655 1532 1563 157 1476 1601 1687	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720 2204 1717 1439 1288	965 Jul 1106 1171 1219 1342 1326 1265 1178 1258 1174 1073 1127 1069 942 884 867 890 839 772 738 753	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 719 661 667 667 565 567	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721 754 699 608 600	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552 552 552 552 538 537 521	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806 897 532 444 508	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751 820 774 693 671	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709 1335 1184	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207 5267 3668	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021 2025 2188 2083 1919 1807 1694	1447 1674 1723 2357 2396 1856 1589 1475 1418 1359 1367 1326 1333 1332 1337 1319 1290 1234 1404 3162	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974 4532 3772 34167 3699 3493 3137	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546 1546 1532 1587 1706 1640 1518	666 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 813 860 962 1085 1482 1124 986	Aug 818 688 708 799 816 894 1419 1083 1140 1767 1680 1907 1896 1628 1409 1174 1024 1119 992 890	519 560 557 588 596 542 472 427 406 424 483 473 542 880 752 703 829 886 1095 1373	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688 1241 1810 2173 4591	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005 962 921	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939 932 917
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2000 1914 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704 1603 1555 1558 1554 1469 1465	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 227 2723 2802 2885 2662	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549 2413 2438 2681 2506	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634 2651 2492 2495	May 2285 2149 2069 1994 1900 1846 1859 1863 1899 1896 1839 1818 1655 1532 1563 1537 1476 1601 1687	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720 2204 1717 1439	965 Jul 1106 1171 12 19 1342 1326 1265 1178 1258 1174 1073 1127 1069 942 884 867 890 839 772 738	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 719 661 667 625 572 565	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721 754 699 608	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552 552 529 538	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806 897 532 444	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751 820 774 693	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709 1335	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207 5267	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021 2025 2188 2063 1919 1807	1447 1674 1723 2357 2396 1856 1856 1589 1475 1418 1359 1367 1326 1333 1332 1337 1319 1290 1234 1404	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974 4532 3772 4167 3699 3493	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546 1544 1568 1632 1587 1706	66 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 813 860 962 1085 1490 1482 1124	Aug 818 688 708 799 816 894 1419 1083 1140 1767 1680 1907 1896 1628 1409 1174 1024 1119 992	519 560 557 588 596 542 472 427 406 424 483 473 542 880 752 703 829 886 1095	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688 1241 1810 2173 4591	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005 962	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939 932
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	2000 19 14 20 68 19 34 178 8 1709 16 77 16 69 16 93 1771 20 65 18 43 1704 16 03 15 55 15 58 15 54 14 69 14 65 14 51 22 43 28 38 37 47	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 2927 2723 2802 2885 2662 2409 2267 2253 2311	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549 2413 2438 2681 2506 2310 2188 3207 3966	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634 2651 2492 2495 2636 2364 2225 2146	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818 1655 1532 1563 1537 1476 1601 1687 1924 1994 3084 2452	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720 2204 1717 1439 1288 1244 1166 1106	965 Jul 1106 1171 12 19 13 42 13 26 12 65 1178 12 58 1174 10 73 112 7 10 69 8 39 772 738 753 713 697 8 48	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 719 661 667 625 572 565 557 579 620 724	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721 754 699 608 600 611 616 587	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552 552 529 538 537 521 574 650 642	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806 897 532 444 508 762 1302	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751 820 774 693 671 667 664 638	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709 1335 1184 1111 1114 1297	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207 5267 3668 2953 2545 2271	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021 2025 2188 2063 1919 1807 1694 1752 1793 1763	1447 1674 1723 2357 2396 1856 1589 1475 1418 1359 1367 1326 1333 1332 1337 1319 1290 1234 1404 3162 3719 9101 10429	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974 4532 3772 4167 3699 3493 3137 2776 2764 2821	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546 1546 1546 15587 1706 1640 1518 1384 1320 1247	666 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 813 860 962 1085 1490 1482 1124 986 859 799 742	Aug 818 688 708 799 816 894 1419 1083 1140 1767 1680 1907 1896 1628 1409 1174 1024 1119 992 890 947 822 899	519 560 557 588 596 542 472 427 406 424 483 473 542 880 752 703 829 886 1095 1373 1035 765 662	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688 1241 1810 2173 4591 3010 2107	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005 962 921 892 883 894	887 962 863 808 842 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939 932 917 947 931 950
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	2000 19 14 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704 1603 1555 1558 1554 1469 1465 1451 2243 2838 3747 6044	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 2927 2723 2802 2885 2662 2409 2267 2253 2311 2460	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549 2413 2438 2681 2506 2310 2188 3207 3966 6932	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634 2651 2492 2495 2636 2364 2225 2146 2180	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818 1655 1532 1563 1537 1476 1601 1687 1924 1994 3084 2452	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720 2204 1717 1439 1288 1244 1166 1106	965 Jul 1106 1171 12 19 13 42 13 26 12 65 1178 12 58 1174 10 73 112 7 10 69 94 2 88 4 86 7 89 0 83 9 77 2 73 8 75 3 71 3 69 7 84 8 86 2	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 749 719 661 667 625 572 565 557 579 620 724 715	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721 754 699 608 600 611 616 587	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552 529 538 537 521 574 650 642 591	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806 897 532 444 508 762 1302 1759 1380	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751 820 774 693 671 667 664 638	1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709 1335 1184 1111 1114 1297	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207 5267 3668 2953 2545 2271 2202	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021 2025 2188 2063 1919 1807 1694 1752 1793 1763 2096	1447 1674 1723 2357 2396 1856 1589 1475 1418 1359 1367 1326 1333 1332 1337 1319 1290 1234 1404 3162 3779 9101 10429 5892	May 38 19 36 55 30 15 25 22 22 14 21 75 20 36 20 41 19 26 18 75 23 60 27 79 38 08 59 74 45 32 37 72 41 67 36 99 34 93 31 37 27 76 27 64 28 21 24 14	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546 1544 1568 1632 1587 1706 1640 1518 1384 1320 1247 1188	66 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 813 860 962 1085 1490 1482 1124 986 859 799 742 714	Aug 818 688 708 799 816 894 1449 1083 1140 1767 1680 1907 1896 1628 1409 1174 1024 1119 992 890 947 822 899 771	519 560 557 588 596 542 472 427 406 424 483 473 542 880 752 703 829 886 1095 1373 1035 765 662 647	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688 1241 1810 2173 4591 3010 2107 1595	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005 962 921 892 883 894 884	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939 932 917 947 931 950 1035
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	2000 1914 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704 1603 1555 1558 1554 1469 1465 1451 2243 2838 3747 6044 4509	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 2927 2723 2802 2885 2662 2409 2267 2253 2311 2460 3499	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2623 2661 2947 2779 2549 2413 2438 2681 2506 2310 2188 3207 3966 6932 10615	3461 3387 3367 3698 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634 2651 2492 2495 2636 2364 2225 2146 2180 2973	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818 1655 1532 1563 1537 1476 1601 1687 1924 1994 3084 2452	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720 2204 1717 1439 1288 1244 1166 1106 1089 1265	965 Jul 1106 1171 12 19 13 42 13 26 12 65 1178 12 58 1174 10 73 112 7 10 69 9 42 8 84 8 67 8 90 8 39 7 72 7 38 7 53 7 13 6 97 8 48 8 62 8 92	Aug 767 739 684 703 733 873 1094 1258 1043 843 749 719 661 667 625 572 565 557 579 620 724 715 724	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721 754 699 608 600 611 616 587 672	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552 529 538 537 521 574 650 642 591 550	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806 897 532 444 508 762 1302 1759 1380 988	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751 820 774 693 671 667 664 638 666 676	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709 1335 1184 1111 1114 1297 1212 1081	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207 5267 3668 2953 2545 2271 2202 1965	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021 2025 2188 2063 1919 1807 1694 1752 1793 1763 2096 2067	1447 1674 1723 2357 2356 1856 1589 1475 1418 1359 1367 1326 1333 1332 1337 1319 1290 1234 1404 3162 3719 9101 10429 5892 4478	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974 4532 3772 4167 3699 3493 3137 2776 2764 2821 2414	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546 1544 1568 1632 1587 1706 1640 1518 1384 1320 1247 1188	66 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 813 860 962 1085 1490 1482 1124 986 859 799 742 714 697	Aug 818 688 708 799 816 894 1419 1083 1140 1767 1680 1907 1896 1628 1409 1174 1024 1119 992 890 947 822 899 771 620	519 560 557 588 596 542 472 427 406 424 483 473 542 880 752 703 829 886 1095 1373 1035 662 647 600	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688 1241 1810 2173 4591 3010 2107 1595 1585	913 954 1205 1090 888 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005 962 921 892 883 894 884 873	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939 932 917 947 931 950 1035 1074
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	2000 19 14 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704 1603 1555 1558 1554 1469 1465 1451 2243 2838 3747 6044	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 2927 2723 2802 2885 2662 2409 2267 2253 2311 2460	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549 2413 2438 2681 2506 2310 2188 3207 3966 6932	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634 2651 2492 2495 2636 2364 2225 2146 2180	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818 1655 1532 1563 1537 1476 1601 1687 1924 1994 3084 2452	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720 2204 1717 1439 1288 1244 1166 1106	965 Jul 1106 1171 12 19 13 42 13 26 12 65 1178 12 58 1174 10 73 112 7 10 69 94 2 88 4 86 7 89 0 83 9 77 2 73 8 75 3 71 3 69 7 84 8 86 2	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 749 719 661 667 625 572 565 557 579 620 724 715	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721 754 699 608 600 611 616 587	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552 529 538 537 521 574 650 642 591	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806 897 532 444 508 762 1302 1759 1380	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751 820 774 693 671 667 664 638	1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709 1335 1184 1111 1114 1297	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207 5267 3668 2953 2545 2271 2202	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021 2025 2188 2063 1919 1807 1694 1752 1793 1763 2096	1447 1674 1723 2357 2396 1856 1589 1475 1418 1359 1367 1326 1333 1332 1337 1319 1290 1234 1404 3162 3779 9101 10429 5892	May 38 19 36 55 30 15 25 22 22 14 21 75 20 36 20 41 19 26 18 75 23 60 27 79 38 08 59 74 45 32 37 72 41 67 36 99 34 93 31 37 27 76 27 64 28 21 24 14	Jun 1979 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546 1544 1568 1632 1587 1706 1640 1518 1384 1320 1247 1188	66 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 813 860 962 1085 1490 1482 1124 986 859 799 742 714	Aug 818 688 708 799 816 894 1449 1083 1140 1767 1680 1907 1896 1628 1409 1174 1024 1119 992 890 947 822 899 771	519 560 557 588 596 542 472 427 406 424 483 473 542 880 752 703 829 886 1095 1373 1035 765 662 647	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688 1241 1810 2173 4591 3010 2107 1595	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005 962 921 892 883 894 884	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939 932 917 947 931 950 1035
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	2000 1914 2068 1934 1788 1709 1667 1669 1693 1771 2065 1843 1704 1603 1555 1558 1554 1469 1465 1451 2243 2838 3747 6044 4509 3212 2408 2116	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 2927 2723 2885 2662 2409 2267 2253 2409 3499 3322	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549 2413 2438 2681 2506 2310 2188 3207 3966 6932 10615 8265 7914 5603	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634 2651 2492 2495 2636 2364 2225 2146 2180 2973 2985 4191 3798	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818 1655 1532 1563 1537 1476 1601 1687 1924 1994 3084 2452 1995 1574 1587	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720 2204 1717 1439 1288 1244 1166 1106 1089 1197 1117	965 Jul 1106 1171 1219 1342 1326 1265 1178 1258 1174 1073 1127 1069 942 884 867 890 839 772 738 753 713 697 848 862 892 1132 1232 1151	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 719 661 667 625 572 565 557 579 620 724 715 724 808 771 610	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721 754 699 608 600 611 616 587 672 752 664 591 689	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552 552 529 538 537 521 574 650 642 591 5550 541	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806 897 532 444 508 762 1302 1759 1380 988 735 789	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751 820 774 693 671 667 664 638 666 676 735 681 658	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709 1335 1184 1111 1114 1297 1212 1063 1063 1059 985	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207 5267 3668 2953 2545 2271 2202 1965 2208	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021 2025 2188 2063 1919 1807 1694 1752 1793 1763 2096 2067 1799 1724 1595	1447 1674 1723 2357 2396 1856 1589 1475 1418 1359 1367 1333 1332 1337 13 19 1290 1234 1404 3162 3719 9101 10429 5892 4478 4478 4478	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974 4532 3772 4167 3699 3493 3137 2776 2764 2821 2414 2242 2693 4946 5432	Jun 1979 1881 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1544 1568 1632 1587 1706 1640 1518 1384 1320 1247 1188 1144 1140 1116	666 Jul 1323 1425 1407 1340 1311 1313 1158 1136 1023 900 879 843 813 860 962 1085 1490 1482 1124 986 859 799 742 714 697 673 643 704	Aug 8 18 6 88 708 799 8 16 894 14 19 1083 1140 1767 1680 1907 1896 1628 1409 1174 1024 1119 992 890 947 822 899 771 620 631 630 576	519 560 557 588 596 542 472 427 406 424 483 473 542 880 762 703 829 886 1095 1373 1035 765 662 647 600 605 626 681	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688 1241 1810 2173 4591 3010 2107 1595 1585 1798 1899 1709 1341 1097	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005 921 892 883 894 884 873 902 887 960	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939 932 917 947 931 950 1035 1074 1088 1268 1268
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	2000 1914 2068 1934 1788 1709 1677 1669 1693 1771 2065 1843 1704 1603 1555 1558 1554 1469 1465 1451 2243 2838 3747 6044 4509 3212 2408 2116 1991	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 2927 2723 2802 2802 2409 2267 2253 2311 2460 3499 3322 2770	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549 2413 2438 2681 2506 2310 2188 3207 3966 6932 10615 8265 7914 5603 4880	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634 2651 2492 2495 2636 2364 2225 2146 2180 2973 2985 4191 3798 2879	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818 1655 1532 1563 1537 1476 1601 1687 1924 1994 3084 2452 1995 1574 1587 1412 1363	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720 2204 1717 1439 1288 1244 1166 1106 1089 1265 1197 1118	965 Jul 1106 1171 1219 1342 1326 1265 1178 1258 1174 1073 1127 1069 942 884 867 890 839 772 738 753 713 697 848 862 892 1132 1232 1151 1345	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 749 661 667 625 572 565 577 620 724 715 724 808 771 610 567	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721 754 699 608 600 611 616 587 672 752 664 591 689	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552 529 538 537 521 574 650 642 591 550 541 490	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806 897 532 444 508 762 1302 1759 1380 988 735 789 780 735	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751 820 774 693 667 664 638 666 676 735 681 658	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709 1335 1184 1111 1114 1297 1212 1081 1063 1059 985	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207 5267 3668 2953 2545 2271 2202 1965 2208 2226	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2021 2025 2188 2063 1919 1807 1694 1752 1793 1763 2096 2067 1799 1724	1447 1674 1723 2357 2396 1856 1856 1475 1418 1359 1367 1326 1333 1332 1337 1319 1290 1234 1404 3162 3719 9101 10429 5892 4478 4478 4478 5921 7040 5651	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974 4532 3772 4167 3699 3493 3137 2776 2764 2821 2414 2242 2693 4946 5432 3567	Jun 1979 1881 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1546 1546 1544 1568 1632 1587 1706 1640 1518 1384 1320 1247 1188 1144 1140 1116 1172	666 Jul 1323 1425 1407 1340 1311 1233 1158 1136 1023 900 879 843 813 860 962 1085 1490 1482 1124 986 859 799 742 714 697 673 643 704	Aug 8 18 6 88 7 08 7 99 8 16 8 94 14 19 10 83 1140 1767 16 80 19 07 18 96 16 28 14 09 1174 10 24 1119 9 9 2 8 9 0 9 4 7 8 2 2 8 9 9 771 6 2 0 6 3 1 6 3 0 5 7 6 5 5 6	519 560 557 588 596 542 472 427 406 424 483 473 542 880 752 703 829 886 1095 1373 1035 765 662 647 600 605 626 681 812	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688 1241 1810 2173 4591 3010 2107 1595 1585 1798 1899 1709 1341 1097 982	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005 962 921 892 883 894 884 873 900 887 960 961	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939 932 917 947 931 950 1035 1074 1088 1268 1268 1268 1268 1309 1074
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	2000 1914 2068 1934 1788 1709 1667 1669 1693 1771 2065 1843 1704 1603 1555 1558 1554 1469 1465 1451 2243 2838 3747 6044 4509 3212 2408 2116	1932 2130 2123 2017 2537 2807 4362 5300 4046 3425 3219 3354 3673 3282 2927 2723 2802 2802 2409 2267 2253 2311 2460 3499 3322 2770	Mar 2461 2922 3690 3642 3935 3463 2979 2704 2527 2525 2523 2661 2947 2779 2549 2413 2438 2681 2506 2310 2188 3207 3966 6932 10615 8265 7914 5603	3461 3387 3367 3698 3676 3455 3113 2869 2723 2906 2907 3191 3249 2914 2523 2634 2651 2492 2495 2636 2364 2225 2146 2180 2973 2985 4191 3798	May 2285 2149 2069 1994 1900 1846 1859 1853 1899 1896 1839 1818 1655 1532 1563 1537 1476 1601 1687 1924 1994 3084 2452 1995 1574 1587	Jun 1179 1187 1235 1285 1734 1998 2098 2787 2597 2226 2186 2514 2701 2656 2650 2720 2204 1717 1439 1288 1244 1166 1106 1089 1197 1117	965 Jul 1106 1171 1219 1342 1326 1265 1178 1258 1174 1073 1127 1069 942 884 867 890 839 772 738 753 713 697 848 862 892 1132 1232 1151	Aug 767 739 684 703 733 873 1094 1594 1258 1043 843 749 719 661 667 625 572 565 557 579 620 724 715 724 808 771 610	708 795 847 813 590 523 506 530 538 703 798 975 1170 1025 760 721 754 699 608 600 611 616 587 672 752 664 591 689	Oct 1890 2096 1301 905 738 677 689 791 717 629 592 565 563 556 552 552 529 538 537 521 574 650 642 591 5550 541	485 503 512 477 423 534 530 749 795 862 711 660 491 492 699 806 897 532 444 508 762 1302 1759 1380 988 735 789	De c 673 621 658 633 624 597 626 597 607 659 646 633 716 785 732 751 820 774 693 671 667 664 638 666 676 735 681 658	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	Jan 693 729 947 1158 1332 2852 2020 1427 1163 956 900 896 1207 1522 1902 3311 2388 1709 1335 1184 1111 1114 1297 1212 1063 1063 1059 985	931 1048 1066 1008 956 938 923 946 1007 1377 3949 5025 13780 21004 12616 12235 14260 8207 5267 3668 2953 2545 2271 2202 1965 2208 2226	Mar 3952 6578 7120 18960 22276 10328 5445 4090 3187 2744 2404 2194 2074 2021 2025 2188 2063 1919 1807 1694 1752 1793 1763 2096 2067 1799 1724 1595	1447 1674 1723 2357 2396 1856 1589 1475 1418 1359 1367 1333 1332 1337 13 19 1290 1234 1404 3162 3719 9101 10429 5892 4478 4478 4478	May 3819 3655 3015 2522 2214 2175 2036 2041 1926 1875 2360 2779 3808 5974 4532 3772 4167 3699 3493 3137 2776 2764 2821 2414 2242 2693 4946 5432	Jun 1979 1881 1881 1881 1804 1750 1743 1760 1666 1802 1764 1681 1544 1568 1632 1587 1706 1640 1518 1384 1320 1247 1188 1144 1140 1116	666 Jul 1323 1425 1407 1340 1311 1313 1158 1136 1023 900 879 843 813 860 962 1085 1490 1482 1124 986 859 799 742 714 697 673 643 704	Aug 8 18 6 88 708 799 8 16 894 14 19 1083 1140 1767 1680 1907 1896 1628 1409 1174 1024 1119 992 890 947 822 899 771 620 631 630 576	519 560 557 588 596 542 472 427 406 424 483 473 542 880 762 703 829 886 1095 1373 1035 765 662 647 600 605 626 681	Oct 761 777 661 567 549 512 508 556 575 756 845 670 640 674 688 1241 1810 2173 4591 3010 2107 1595 1585 1798 1899 1709 1341	913 954 1205 1090 898 861 958 1154 1432 2023 3250 2368 1848 1405 1259 1138 1047 1005 921 892 883 894 884 873 902 887 960	887 962 863 808 842 824 855 1094 1149 1268 1766 1432 1209 1130 1073 1041 991 939 932 917 947 931 950 1035 1074 1088 1268 1268

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	67												19	68					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	De
1	2419	1385	2185	1296	16 14	2626	2016	1249	2222	1203	4690	2717	1	2805	2552	2277	2140	2497	1830	1062	1343	1147	607	588	10
	2509	1380 1399	1922 1752	1250	1539 1499	3687 3799	2107 2291	1853 1576	2148	1152 1142	7748	2456 3082	2	2969 3041	2718 2986	2127	2205	2128	1753	1085	1034 1110	1362 895	506 492	727 749	12
	2062 1742	1432	1752	1251 1237	1718	6658	1932	1512	2031 1844	1105	4767 2819	2893	3 4	3670	2719	2226 2134	3616 4046	1888 1845	1896 1641	1174 1247	1020	773	593	996	10
	1556	1503	1854	1197	2474	6683	1750	2051	1764	1110	1970	2438	5	4136	2560	2063	7788	1767	1431	1273	1032	973	531	1194	1
	1943	16 13	1865	1162	2581	4766	2468	1321	1650	1105	1638	2171	6	4141	2407	1944	7750	1688	1587	1223	874	1373	566	893	1;
	2291	2034	2627	1165	2960	2832	5104	12 18	16 11	1128	1508	2024	7	5609	2389	1885	5432	16 19	1636	1204	751	1045	732	834	1
	4352	2009 1890	2703	1131	3584	2206	7044	1201	1675 18 10	1088	1402	1970	8	6351	2384	1934	3578	1597	1830	1080	688	787	792	854	1
	4669 3281	1865	2403 2308	1080 1091	2702 1746	18 58 16 11	5930 4769	1110 1110	1978	1138 1202	1301 1275	2346 3092	9 10	6521 10448	2287 2229	2238 3588	2957 2734	1623 1873	1994 1889	1163 1238	626 635	639 665	642 615	882 1132	+-
ı	2447	1878	2719	1114	1625	1491	3959	1245	1790	1124	1275	5509	11	14321	2213	4773	2719	1961	1548	1297	608	664	640	1170	1
!	1949	2193	2604	1078	1685	14 13	3517	1157	1736	10 54	1200	5343	12	8777	2 154	9707	2635	2517	1393	1282	612	556	634	1058	
	1761	1945	2229	1067	3068	1286	3098	1066	1447	1049	1166	4002	13	5941	2090	12 13 0	2446	2780	1361	1515	635	528	653	989	
_	1920	1721	1973	1166	2508	1153	4061	1052	14 19	10.55	1277	3148	14	4652	2102	6107	2480	2930	1295	1301	660	534	662	854	_
•	2032 1788	1637 1723	1753 1644	114.4 10.77	2069 2019	1143 1119	3181 2205	10 14 935	1440 1347	1040 1022	1197 1185	2623 2396	15 16	4058 3496	2107 2078	4140 3487	2691 2661	3286 3245	1303 1303	1113 1033	627 663	56 1 570	691 604	906 1330	-
,	1649	1880	1555	10 11	1693	1112	1775	923	1354	1027	1200	2461	17	3282	2067	3445	2367	3201	13 17	1023	660	604	623	1589	
	1540	3022	1549	958	1650	1209	1665	958	1398	1134	12 16	2877	18	3080	2012	3064	2300	2827	1347	935	625	763	675	2959	
	14 16	2929	1596	894	1600	1287	1571	933	1305	1098	1152	3465	19	2916	1979	2713	2780	2290	1303	1003	603	1576	765	2894	
	1429	2833	1604	906	1878	1226	1532	1199	1233	10 15	1323	5464	20	2843	1943	2681	2454	1902	1258	979	736	1603	714	1999	-
<u> </u>	1372 1323	3375 2782	1687 1771	1053 1265	2088 2380	1254 1313	1871 1737	1997 4060	1249 1259	1008	1553 3045	4952 4636	21	2829 2872	1933 1877	2503 2573	2232 2217	1645 1582	1248 1193	950 850	704 568	1137 886	627 574	1343 1114	3
	1278	2247	1638	1535	2920	1371	1561	6755	1202	1046	3283	4941	23	2907	1879	2926	2231	1557	1260	817	542	715	529	10 13	i
	13 13	1963	1490	2968	2620	1288	1509	14 13 2	1171	1103	3185	3896	24	3354	1886	2709	2400	2106	1445	780	495	739	481	925	-
5	1388	1764	1482	3318	1937	1251	1726	19196	1146	1299	5136	3288	25	3280	1846	2376	2530	2239	1230	770	486	659	537	934	:
-	1452	1745	1500	4438	1620	1163	1553	13601	1220	14 18	3823	2910	26	3058	1895	2304	2413	2745	1142	864	436	656	503	882	2
_	1948 2206	1808 2069	1479 1490	6935 4424	1458 1429	1387 1444	1585 1532	5914 4942	1221 1327	1170 1088	2939 2306	2775 2884	27	2863 2673	1976 2054	2 157 2 114	2500 2610	4116 3347	118 1 110 9	900 893	400 361	734 688	494 526	860 859	2
<u>. </u>	1828	2009	1516	2700	1296	1562	1429	3614	1485	1151	2142	3458	29	2592	2178.224	2100	2683	2262	994	950	424	545	539	959	1 2
)	1576		1445	1853	16 18	2496	1485	2915	13 16	18 55	2436	3072	30	2578		2072	2830	2149	1037	1128	497	606	516	933	2
1	1449		1349		1669		1395	2481		2432		2843	31	2529		2093		2022		1442	566		519		1
						4.0																			
	_		1	1 .		19	969		l	1 -									19	70					_
	Jan	Feb										_		_			_		_		_	_			
		0000	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	_
	1823	3628 6568	19 19	1756	1802	13 12	754	739	953	794	972	781	1 2	2697	1537	1154	2010	1667	1507	608	708	425	292	2022	
	1823 1529 1513	3628 6568 10929			_			_					1 2 3												
	1529	6568	19 19 18 74	1756 1732	1802 1771	13 12 14 3 0	754 726	739 841	953 1098	794 759	972 2033	781 793	2	2697 1953	153 <i>7</i> 1703	1154 1125	2010 3164	1667 1775	1507 2050	608 581	708 701	425 413	292 270	2022 1401	
	1529 1513 1434 1324	6568 10929 8195 5240	19 19 18 74 1771 18 6 4 18 15	1756 1732 1837 1923 2209	1802 1771 1735 1710 1657	13 12 14 3 0 15 9 6 13 7 9 13 13	754 726 687 684 659	739 841 2358 2367 1579	953 1098 987 964 933	794 759 852 749 765	972 2033 1350 1103 989	781 793 778 819 825	2 3 4 5	2697 1953 1675 1459 1344	1537 1703 1796 1543 1443	1154 1125 1101 1113 1137	2010 3164 3209 2500 2135	1667 1775 2001 2465 2296	1507 2050 3655 5216 4836	608 581 539 527 507	708 701 639 660 661	425 413 452 549 853	292 270 276 278 244	2022 1401 1273 1087 913	
	1529 1513 1434 1324 1264	6568 10929 8195 5240 4375	19 19 18 74 1771 18 6 4 18 15 19 0 9	1756 1732 1837 1923 2209 3351	1802 1771 1735 1710 1657 1957	13 12 14 3 0 15 9 6 13 7 9 13 13 12 6 0	754 726 687 684 659	739 841 2358 2367 1579	953 1098 987 964 933 884	794 759 852 749 765 744	972 2033 1350 1103 989 794	781 793 778 819 825 900	2 3 4 5	2697 1953 1675 1459 1344 1359	1537 1703 1796 1543 1443 1373	1154 1125 1101 1113 1137 1109	2010 3164 3209 2500 2135 1937	1667 1775 2001 2465 2296 1878	1507 2050 3655 5216 4836 3274	608 581 539 527 507 480	708 701 639 660 661 507	425 413 452 549 853 1144	292 270 276 278 244 274	2022 1401 1273 1087 913 870	
	1529 1513 1434 1324 1264 1238	6568 10929 8195 5240 4375 4650	19 19 1874 1771 1864 1815 1909 2201	1756 1732 1837 1923 2209 3351 2781	1802 1771 1735 1710 1657 1957 2209	13 12 14 3 0 15 9 6 13 7 9 13 13 12 6 0 12 2 6	754 726 687 684 659 634 707	739 841 2358 2367 1579 1073 779	953 1098 987 964 933 884 949	794 759 852 749 765 744 742	972 2033 1350 1103 989 794 802	781 793 778 819 825 900	2 3 4 5 6 7	2697 1953 1675 1459 1344 1359 1383	1537 1703 1796 1543 1443 1373 1340	1154 1125 1101 1113 1137 1109 1063	2010 3164 3209 2500 2135 1937 1820	1667 1775 2001 2465 2296 1878 1585	1507 2050 3655 5216 4836 3274 2251	608 581 539 527 507 480 450	708 701 639 660 661 507 583	425 413 452 549 853 1144 824	292 270 276 278 244 274 280	2022 1401 1273 1087 913 870 938	
	1529 1513 1434 1324 1264 1238 1179	6568 10929 8195 5240 4375	19 19 18 74 1771 18 6 4 18 15 19 0 9	1756 1732 1837 1923 2209 3351 2781 2347	1802 1771 1735 1710 1657 1957	13 12 14 3 0 15 9 6 13 7 9 13 13 12 6 0	754 726 687 684 659 634 707 776	739 841 2358 2367 1579	953 1098 987 964 933 884	794 759 852 749 765 744 742	972 2033 1350 1103 989 794	781 793 778 819 825 900	2 3 4 5 6 7 8	2697 1953 1675 1459 1344 1359 1383 1203	1537 1703 1796 1543 1443 1373	1154 1125 1101 1113 1137 1109	2010 3164 3209 2500 2135 1937	1667 1775 2001 2465 2296 1878	1507 2050 3655 5216 4836 3274	608 581 539 527 507 480	708 701 639 660 661 507	425 413 452 549 853 1144 824 685	292 270 276 278 244 274 280 303	2022 1401 1273 1087 913 870	
	1529 1513 1434 1324 1264 1238	6568 10929 8195 5240 4375 4650 3967	19 19 1874 1771 1864 1815 1909 2201 2130	1756 1732 1837 1923 2209 3351 2781	1802 1771 1735 1710 1657 1957 2209 2295	13 12 14 3 0 15 9 6 13 7 9 13 13 12 6 0 12 2 6 118 5	754 726 687 684 659 634 707	739 841 2358 2367 1579 1073 779 699	953 1098 987 964 933 884 949	794 759 852 749 765 744 742	972 2033 1350 1103 989 794 802 807	781 793 778 819 825 900 1111	2 3 4 5 6 7	2697 1953 1675 1459 1344 1359 1383	1537 1703 1796 1543 1443 1373 1340 1319	1154 1125 1101 1113 1137 1109 1063 1054	2010 3164 3209 2500 2135 1937 1820 1679	1667 1775 2001 2465 2296 1878 1585 1393	1507 2050 3655 5216 4836 3274 2251 1631	608 581 539 527 507 480 450 538	708 701 639 660 661 507 583 898	425 413 452 549 853 1144 824	292 270 276 278 244 274 280	2022 1401 1273 1087 913 870 938 973	
	1529 1513 1434 1324 1264 1238 1179 1162 1160	6568 10929 8195 5240 4375 4650 3967 4197 3474	19 19 18 74 1771 18 64 18 15 19 09 2 2 0 1 2 13 0 2 0 4 8 2 0 8 7 18 55	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14	754 726 687 684 659 634 707 776 812 802 767	739 841 2358 2367 1579 1073 779 699 681 600 543	953 1098 987 964 933 884 949 905 837 742 672	794 759 852 749 765 744 742 809 799 717	972 2033 1350 1103 989 794 802 807 767 791 886	781 793 778 8 19 825 900 1111 1579 1234 1085 1115	2 3 4 5 6 7 8 9 10	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364	608 581 539 527 507 480 450 538 493 552	708 701 639 660 661 507 583 898 1033 2124 2296	425 413 452 549 853 1144 824 685 631 505	292 270 276 278 244 274 280 303 323 386 507	2022 1401 1273 1087 913 870 938 973 1035 1349	
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616	19 19 1874 1771 1864 1815 1909 2201 2130 2048 2087 1855 1752	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866	13 12 1430 1596 13 79 13 13 1260 1226 1185 12 11 1262 13 14 12 16	754 726 687 684 659 634 707 776 812 802 767 698	739 841 2358 2367 1579 1073 779 699 681 600 543 542	953 1098 987 964 933 884 949 905 837 742 672 619	794 759 852 749 765 744 742 809 799 717 741	972 2033 1350 1103 989 794 802 807 767 791 886 843	781 793 778 8 19 825 900 1111 1579 1234 1085 1115	2 3 4 5 6 7 8 9 10 11	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1443	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440	608 581 539 527 507 480 450 538 493 552 577	708 701 639 660 661 507 583 898 1033 2124 2296 1434	425 413 452 549 853 1144 824 685 631 505 474 498	292 270 276 278 244 274 280 303 323 386 507 568	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220	
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568	19 19 1874 1771 1864 1815 1909 2201 2130 2048 2087 1855 1752 1659	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2	754 726 687 684 659 634 707 776 812 802 767 698 670	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556	953 1098 987 964 933 884 949 905 837 742 672 619 680	794 759 852 749 765 744 742 809 799 717 741 705	972 2033 1350 1103 989 794 802 807 767 791 886 843	781 793 778 8 19 825 900 1111 1579 1234 1085 1115 1050 956	2 3 4 5 6 7 8 9 10 11 12	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946	2010 3164 3209 2500 2135 1937 1820 1679 1585 1585 1443 1433	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376	608 581 539 527 507 480 450 538 493 552 577 534 456	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980	425 413 452 549 853 1144 824 685 631 505 474 498	292 270 276 278 244 274 280 303 323 386 507 568	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080	
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616	19 19 1874 1771 1864 1815 1909 2201 2130 2048 2087 1855 1752	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866	13 12 1430 1596 13 79 13 13 1260 1226 1185 12 11 1262 13 14 12 16	754 726 687 684 659 634 707 776 812 802 767 698	739 841 2358 2367 1579 1073 779 699 681 600 543 542	953 1098 987 964 933 884 949 905 837 742 672 619	794 759 852 749 765 744 742 809 799 717 741	972 2033 1350 1103 989 794 802 807 767 791 886 843	781 793 778 8 19 825 900 1111 1579 1234 1085 1115	2 3 4 5 6 7 8 9 10 11	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1443	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440	608 581 539 527 507 480 450 538 493 552 577	708 701 639 660 661 507 583 898 1033 2124 2296 1434	425 413 452 549 853 1144 824 685 631 505 474 498	292 270 276 278 244 274 280 303 323 386 507 568	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220	
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324	19 19 18 74 1771 18 64 18 15 19 09 2 2 0 1 2 13 0 2 0 4 8 2 0 8 7 18 55 17 5 2 16 5 9 16 4 8	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789	13 12 1430 1596 13 79 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2 117 6	754 726 687 684 659 634 707 776 812 802 767 698 670	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853	953 1098 987 964 933 884 949 905 837 742 619 680	794 759 852 749 765 744 742 809 799 717 741 705 703	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801	781 793 778 8 19 825 900 1111 1579 1234 1085 1050 956 890	2 3 4 5 6 7 8 9 10 11 12 13	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1443 1433 1435	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344	608 581 539 527 507 480 450 538 493 552 577 534 456	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889	425 413 452 549 853 1144 824 685 631 505 474 498 504	292 270 276 278 244 274 280 303 323 386 507 568 476	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958	
1	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088 1063 1049 1015	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461	19 19 18 74 1771 18 64 18 15 19 09 2 2 0 1 2 13 0 2 0 4 8 2 0 8 7 18 55 17 52 16 59 16 4 8 15 79 19 6 8 2 2 5 1	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2 117 6 17 6 4 18 4 6 13 8 5	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351	953 1098 987 964 933 884 949 905 837 742 672 619 680 656 670 679 778	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680	781 793 778 819 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1555 1443 1433 1435 1360 1356	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 476 466	292 270 276 278 244 280 303 323 386 507 568 476 474 621 593	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 862	
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088 1063 1049 10 15 1373 2 174	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303	19 19 18 74 1771 18 64 18 15 19 09 22 01 2 13 0 2 04 8 2 08 7 18 55 17 52 16 59 16 4 8 15 79 19 6 8 2 2 5 1 2 6 6 0	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258 2542	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2 117 6 118 2 13 14 12 16 118 2 13 14 12 16 118 2 13 14 12 16 118 2 12 17 17 17 17 17 17 17 17 17 17 17 17 17	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828	953 1098 987 964 933 884 949 905 837 742 672 619 680 656 670 679 778	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809	781 793 778 819 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316 1368 1668	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1555 1443 1433 1435 1360 1356	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 991 981	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 476 466 422 410	292 270 276 278 244 274 280 303 323 386 507 568 476 474 621 593 437	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 862 905	
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088 1063 1049 10 15 1373 2 174 2 794	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303 2374	19 19 18 74 1771 18 64 18 15 19 09 22 01 2 13 0 2 04 8 2 08 7 18 55 17 52 16 59 16 48 15 79 19 68 2 2 51 2 6 6 0 4 6 2 2	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265 6211	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258 2542 2774 3574	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2 117 6 17 64 18 4 6 13 8 5 12 2 0 115 8	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468 671	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828	953 1098 987 964 933 884 949 905 837 742 672 619 680 656 670 679 778 728	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658 745	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809	781 793 778 819 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834 830 924	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316 1368 1668	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155 4871	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1443 1433 1435 1360 1356 1591	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133 1204 1137	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 991 981 890	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565 810	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 476 476 422 410 399	292 270 276 278 244 274 280 303 323 386 507 568 476 474 621 593 437 587 695	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 862 905	1
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088 1063 1049 1015 1373 2174 2794 8696	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303 2374 2302	19 19 1874 1771 1864 1815 1909 2201 2130 2048 2087 1855 1752 1659 1648 1579 1968 2251 2660 4622 3610	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265 6211 4533	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258 2774 3574 3993	13 12 1430 1596 1379 1260 1226 1185 1211 1262 1186 1216 1182 1176 1764 1846 1846 1385 1220 1158	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468 671 709	739 841 2358 2367 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828 1527	953 1098 987 964 933 884 949 905 837 742 619 680 656 670 679 778 728 769	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658 745	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809	781 793 778 8 19 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834 830 924	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	2697 1953 1675 1459 1384 1359 1383 1203 1063 1011 1427 1575 1465 1380 1316 1368 1668 1591	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627 1437	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155 4871	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1443 1433 1435 1360 1356 1591 1548 1708	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133 1204 1137	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 991 981 890 867	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565 810 1178	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868 974 882	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 476 476 466 422 410 399 413	292 270 276 278 244 274 280 303 323 386 507 568 476 474 621 593 437 587 695	2022 1401 1273 1087 938 973 1035 1349 1557 1220 1080 958 909 892 892 905 935 1043	
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088 1063 1049 10 15 1373 2 174 2 794	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303 2374	19 19 18 74 1771 18 64 18 15 19 09 22 01 2 13 0 2 04 8 2 08 7 18 55 17 52 16 59 16 48 15 79 19 68 2 2 51 2 6 6 0 4 6 2 2	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265 6211	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258 2542 2774 3574	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2 117 6 17 64 18 4 6 13 8 5 12 2 0 11 5 8	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468 671	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828	953 1098 987 964 933 884 949 905 837 742 672 619 680 656 670 679 778 728	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658 745	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809	781 793 778 819 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834 830 924	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316 1368 1668	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155 4871	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1443 1433 1435 1360 1356 1591	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133 1204 1137	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 991 981 890	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565 810	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 476 476 422 410 399	292 270 276 278 244 274 280 303 323 386 507 568 476 474 621 593 437 587 695	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 862 905	
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088 1063 1049 1015 1373 2174 2794 8696 9081	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303 2374 2302 2212	19 19 1874 1771 1864 1815 1909 2201 2130 2048 2087 1855 1752 1659 1648 1579 1968 2251 2660 4622 3610 2936	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265 6211 4533 3369	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258 2542 2774 3574	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2 117 6 176 4 18 46 13 85 12 10 11 58 11 17 11 50	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468 671 709 825	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828 1527 3092 2308	953 1098 987 964 933 884 949 905 837 742 672 619 680 656 670 679 778 728 769 1112	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658 745 756	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809 867	781 793 778 8 19 8 25 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834 830 924 917	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316 1368 1668 1591 1428	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627 1437 1318	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155 4871 9966 8546	2010 3164 3209 2500 2500 2500 1679 1591 1585 1555 1443 1433 1435 1360 1356 1591 1548 1708	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133 1204 1137 1001 971	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 991 981 890 867 856	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565 810 1178	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868 974 882	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 476 422 410 399 413	292 270 276 278 244 274 280 303 323 386 507 568 476 474 621 593 437 687 695	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 862 905 935 1043 1236	1
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088 1063 1049 1015 1373 2174 2794 8696 9081 4912 3678 3493	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303 2374 2302 2212 2145 2305 2277	19 19 18 74 1771 18 64 18 15 19 09 22 01 2 13 0 2 04 8 2 08 7 18 55 175 2 16 59 16 48 15 79 19 68 2 25 1 2 66 0 4 6 2 2 3 6 1 0 2 9 3 6 2 6 2 0 2 6 0 6 3 6 7 9	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265 6211 4533 3369 2745 2350 2179	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258 2542 2774 3574 3993 2600 2056 1812 1716	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2 1176 176 4 18 4 6 13 8 5 12 2 0 11 5 8 11 17 7 11 5 0 10 8 7 10 2 6 10 16	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468 671 709 825 1234 1265 1147	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828 1527 3092 2308 3917 11250 3843	953 1098 987 964 933 884 949 905 837 742 672 619 680 656 670 679 778 728 769 1112 1647 1731 2285 2695	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658 745 756 880 931 722 612	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809 867 1220 1072 951 918 898	781 793 778 819 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834 830 924 917 956 1158 1333	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316 1368 1668 1591 1428 1360 1195	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627 1437 1318 1213 1182 1212	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155 4871 9966 8546 8976 5609 3801	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1555 1443 1433 1435 1360 1356 1591 1548 1708 1619 1479 1184	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133 1204 1137 1001 971 931 892 872	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 991 981 890 867 856 855 817 789	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565 810 1178 1672 1900 2196 1884	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868 974 882 852 757 763 911	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 477 466 422 410 399 413 442 398 455	292 270 276 278 244 280 303 323 386 507 568 476 474 621 593 437 587 695 1511 2536 1622 1196 1143	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 862 905 935 1043 1236 1085 958 901	
	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088 1063 1049 1015 1373 2174 2794 8696 9081 4912 3678 3493 3266	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303 2374 2302 2212 2145 2305 2277 2121	19 19 18 74 1771 18 64 18 15 19 09 22 01 2 13 0 2 04 8 2 08 7 18 55 17 52 16 59 16 48 15 79 19 68 2 2 5 1 2 6 6 0 4 6 2 2 3 6 1 0 2 9 3 6 2 6 2 0 2 6 0 6 3 6 7 9 3 6 4 3	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265 6211 4533 3369 2745 2350 2179 2170	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258 2542 2774 3574 3993 2600 2056 1812 1716 1631	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2 117 6 176 4 18 4 6 13 8 5 12 2 0 11 5 8 11 17 7 10 10 8 7 10 2 6 10 16 99 7	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468 671 709 825 1234 1265 1147 1411	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828 1527 3092 2308 3917 11250 3843 2482	953 1098 987 964 933 884 949 905 837 742 672 619 680 656 670 679 778 728 769 1112 1647 1731 2285 2695	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658 745 756 880 931 722 612 671	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809 867 1220 1072 951 918 898 884	781 793 778 819 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834 830 924 917 956 1158 1333 1242	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316 1368 1668 1591 1428 1360 1195 1222 1271 1286	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627 1437 1318 1213 1182 1212 1212	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155 4871 9966 8546 8976 5609 3801 2738	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1555 1443 1433 1435 1360 1356 1591 1548 1708 16 19 1479 1184 1102 2424 2894	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133 1204 1137 1001 971 931 892 872	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 991 981 890 867 856 855 817 789 754	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565 810 1178 1672 1900 2196 1884 1447	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868 974 882 852 757 763 911 716	425 413 452 549 853 11144 824 685 631 505 474 498 504 476 477 466 422 410 399 413 442 398 455 446 408	292 270 276 278 244 274 280 303 323 386 507 568 476 474 621 593 437 587 695 1511 2536 1622 1196 1143 1503	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 862 905 935 1043 1236 1085 958 901 830	
	1529 1513 1434 1324 1264 1263 1179 1162 1160 1126 1094 1088 1063 1049 1015 1373 2174 2794 8696 9081 4912 3678 3493 3266 2717	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303 2374 2302 2212 2145 2305 2277 2121 2057	19 19 1874 1771 1864 1815 1909 2201 2130 2048 2087 1855 1752 1659 1648 1579 1968 2251 2660 4622 3610 2936 2620 2606 3679 3643 2831	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265 6211 4533 3369 2745 2350 2179 2170	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258 2774 3574 3993 2600 2056 1812 1716 1631 1610	13 12 1430 1596 1379 1313 1260 1226 1185 1211 1262 1314 1216 1182 1176 1764 1846 1846 1846 1846 1158 1117 1150 1087 1016 1016 1016 1016 1016 1017 1016	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468 671 709 825 1234 1265 1147 1411 1300 967	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828 1527 3092 2308 3917 11250 3843 2482 2045	953 1098 987 964 933 884 949 905 837 742 619 680 656 670 679 778 728 769 1112 1647 1731 2285 2695 1709	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658 745 756 880 931 722 612 671	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809 867 1220 1072 951 918 898 884 914	781 793 778 8 19 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834 830 924 917 966 1158 1333 1242 1303 2071	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316 1368 1668 1591 1428 1360 1195 1222 1271 1286 1456	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627 1437 1318 1213 1182 1212 1212	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155 4871 9966 8546 8976 5609 3801 2738	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1443 1433 1435 1360 1356 1591 1548 1708 1619 1479 1184 1102 2424 2894 2259	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133 1204 1137 1001 971 931 892 872 886 853 897	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 981 890 867 856 855 817 789 754	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565 810 1178 1672 1900 2196 1884 1447 1104	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868 974 882 852 757 763 911 716 609	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 477 466 422 410 399 413 442 398 455 446 408	292 270 276 278 244 274 280 303 323 386 507 568 476 474 621 593 475 695 1511 2536 1622 1196 1143 1503	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 892 905 935 1043 1236 1085 958 901 830 818	1
1 1 2 3 1 5 5 7	1529 1513 1434 1324 1264 1238 1179 1162 1160 1126 1094 1088 1063 1049 1015 1373 2174 2794 8696 9081 4912 3678 3493 3266 2717 2397	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303 2374 2302 2212 2145 2305 2277 2121 2057	19 19 1874 1771 1864 1815 1909 2201 2130 2048 2087 1855 1752 1659 1648 1579 1968 2251 2660 4622 3610 2936 2620 2606 3679 3643 2831	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265 6211 4533 3369 2745 2350 2179 2170	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258 2542 2774 3574 3993 2600 2056 18 12 17 16 16 31 16 10 1559	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2 117 6 176 4 18 4 6 13 8 5 12 10 11 15 0 10 16 7 99 7 90 3 88 8	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468 671 709 825 1234 1265 1147 1411 1300 967	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828 1527 3092 2308 3917 11250 32482 2045	953 1098 987 964 933 884 949 905 837 742 619 680 656 670 679 778 728 769 1112 1647 1731 2285 2695 1709	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658 745 756 880 931 722 612 671 664 664 6622	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809 867 1220 1072 951 918 898 884 914	781 793 778 8 19 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834 830 924 917 956 1158 1333 1242 1303 2071	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316 1368 1668 1591 1428 1360 1195 1222 1271 1286 1456 1827	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627 1437 1318 1213 1182 1212 1212 1212 1267 1398 1294	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155 4871 9966 8546 8976 5609 3801 2738 2307	2010 3164 3209 2500 2500 2500 1679 1591 1585 1443 1433 1435 1360 1356 1591 1548 1708 1619 1479 1184 1102 2424 2894 2259 3406	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133 1204 1137 1001 971 931 892 872 886 863 897 925	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 991 981 890 867 856 855 817 789 754 747	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565 810 1178 1672 1900 2196 1884 1447 1104 931	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868 974 882 852 757 763 911 716 609 564	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 422 410 399 413 442 398 455 408 411 433	292 270 276 278 244 274 280 303 323 386 507 568 476 474 621 593 437 587 695 1511 2536 1622 1196 1143 1503	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 862 905 935 1043 1236 1085 958 901 830 848	
5 7 3 3 4 5 5 6 7 7 8	1529 1513 1434 1324 1264 1263 1179 1162 1160 1126 1094 1088 1063 1049 1015 1373 2174 2794 8696 9081 4912 3678 3493 3266 2717	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303 2374 2302 2212 2145 2305 2277 2121 2057	19 19 1874 1771 1864 1815 1909 2201 2130 2048 2087 1855 1752 1659 1648 1579 1968 2251 2660 4622 3610 2936 2620 2606 3679 3643 2831	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265 6211 4533 3369 2745 2350 2179 2170	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1866 1699 1789 1946 2258 2774 3574 3993 2600 2056 1812 1716 1631 1610	13 12 1430 1596 1379 1313 1260 1226 1185 1211 1262 1314 1216 1182 1176 1764 1846 1846 1846 1846 1158 1117 1150 1087 1016 1016 1016 1016 1016 1017 1016	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468 671 709 825 1234 1265 1147 1411 1300 967	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828 1527 3092 2308 3917 11250 3843 2482 2045	953 1098 987 964 933 884 949 905 837 742 619 680 656 670 679 778 728 769 1112 1647 1731 2285 2695 1709	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658 745 756 880 931 722 612 671	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809 867 1220 1072 951 918 898 884 914	781 793 778 8 19 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834 830 924 917 966 1158 1333 1242 1303 2071	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316 1368 1668 1591 1428 1360 1195 1222 1271 1286 1456	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627 1437 1318 1213 1182 1212 1212	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155 4871 9966 8546 8976 5609 3801 2738	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1443 1433 1435 1360 1356 1591 1548 1708 1619 1479 1184 1102 2424 2894 2259	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133 1204 1137 1001 971 931 892 872 886 853 897	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 981 890 867 856 855 817 789 754	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565 810 1178 1672 1900 2196 1884 1447 1104	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868 974 882 852 757 763 911 716 609	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 477 466 422 410 399 413 442 398 455 446 408	292 270 276 278 244 274 280 303 323 386 507 568 476 474 621 593 475 695 1511 2536 1622 1196 1143 1503	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 892 905 935 1043 1236 1085 958 901 830 818	77 66 66 67 77 77 77 77 85 85 85 85 85 85 85 85 85 85 85 85 85
5 5 7 1 1 2 2 3 3 4 4 5 6 6 7 8 9 9	1529 1513 1434 1324 1238 1179 1162 1160 1126 1094 1088 1063 1049 1015 1373 2174 2794 8696 9081 4912 3678 3493 3266 2717 2397	6568 10929 8195 5240 4375 4650 3967 4197 3474 2922 2616 2568 2324 2308 2508 2461 2303 2374 2302 2212 2145 2305 2277 2121 2057	19 19 18 74 1771 18 64 18 15 19 09 2 20 1 2 13 0 2 0 48 2 0 8 7 18 55 17 52 16 59 16 48 15 79 19 68 2 25 1 2 66 0 4 6 2 2 3 6 1 0 2 9 3 6 2 6 2 0 2 6 0 6 3 6 7 9 3 6 4 3 2 8 3 1 2 4 2 5 2 0 4 9	1756 1732 1837 1923 2209 3351 2781 2347 2097 1999 2147 2152 2392 2739 4220 6654 5111 6265 6211 4533 3369 2745 2350 2179 2170 2072 2027 1989	1802 1771 1735 1710 1657 1957 2209 2295 3103 2901 2244 1666 1699 1789 1946 2258 2542 2774 3574 3993 2600 2056 1812 1716 1631 1610 1559 1409	13 12 14 30 15 96 13 79 13 13 12 60 12 26 118 5 12 11 12 62 13 14 12 16 118 2 117 6 176 4 18 4 6 13 8 5 12 2 0 115 8 111 7 115 0 10 8 7 10 2 6 10 16 10 1	754 726 687 684 659 634 707 776 812 802 767 698 670 578 536 514 468 671 709 825 1234 1265 1147 1411 1300 967 932 889	739 841 2358 2367 1579 1073 779 699 681 600 543 542 556 853 1242 4038 3351 1828 1527 3092 2308 3917 11250 3843 2482 2045 1527 1165	953 1098 987 964 933 884 949 905 837 742 672 619 680 656 670 679 778 728 769 1112 1647 1731 2285 2695 1709 1184	794 759 852 749 765 744 742 809 799 717 741 705 703 719 664 614 637 658 745 756 880 931 722 612 671 664 622 682	972 2033 1350 1103 989 794 802 807 767 791 886 843 827 801 747 680 762 809 867 1220 1072 951 918 898 898 894 914 906 859	781 793 778 819 825 900 1111 1579 1234 1085 1115 1050 956 890 880 846 834 830 924 917 956 1158 1333 1242 1303 2071 1821	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	2697 1953 1675 1459 1344 1359 1383 1203 1063 1011 1214 1427 1575 1465 1380 1316 1368 1668 1591 1428 1360 1195 1222 1271 1271 1286 1456 1827	1537 1703 1796 1543 1443 1373 1340 1319 1316 1339 1287 1199 1146 1225 1283 1412 1726 1627 1437 1318 1213 1182 1212 1212 1212 1267 1398 1294	1154 1125 1101 1113 1137 1109 1063 1054 1028 1001 979 937 946 920 959 949 1924 3155 4871 9966 8546 8976 5609 3801 2738 2307 1954 1812	2010 3164 3209 2500 2135 1937 1820 1679 1591 1585 1555 1443 1433 1435 1360 1356 1591 1581 1708 1619 1479 1184 1102 2424 2894 2259 3406 2791	1667 1775 2001 2465 2296 1878 1585 1393 1314 1298 1244 1170 1128 1155 1139 1133 1204 1137 1001 971 931 892 872 886 853 897 925	1507 2050 3655 5216 4836 3274 2251 1631 1485 1364 1440 1376 1344 1181 1138 1071 991 981 890 867 856 855 817 789 754 747 751 702	608 581 539 527 507 480 450 538 493 552 577 534 456 500 474 446 478 565 810 1178 1672 1900 2196 1884 1447 1104 931 844	708 701 639 660 661 507 583 898 1033 2124 2296 1434 980 889 831 774 790 868 974 882 852 757 763 911 716 609 564 524	425 413 452 549 853 1144 824 685 631 505 474 498 504 476 474 466 422 410 399 413 442 398 455 446 408 411 433 376	292 270 276 278 244 274 280 303 323 386 507 568 476 474 621 593 437 587 695 1511 2536 1622 1196 1143 1332 1420 1708	2022 1401 1273 1087 913 870 938 973 1035 1349 1557 1220 1080 958 909 892 862 905 935 1043 1236 1085 958 901 830 818 824 826	DD 77 77 77 77 77 77 77 77 77 77 77 77 7

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						. 19	71				•								19	72					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	De
1	1333	1778	4850	2956	2474	1236	1721	6212	1797	816	1079	14 10	1	1872	2754	2180	2807	1624	1694	1149	1878	526	885	844	142
!	1431	1799	6227	2806	2 114	1105	14 18	5357	2108	783	1455	1489	2	3339	2596	2255	2602	1570	16 14	1152	1936	695	665	854	13
_	1479	2304	7755	2732	1972	1035	1347	5234	1760	779	1659	18 19	3	4453	2783	2633	2377	1704	1555	1342	1451	874	614	1512	119
5	1571 4614	2675 5286	6677 4913	2670	1792 1742	1081	1283 1354	4007 3692	12 18 1009	800	1780 1247	2500	4	7006 13887	3107 2981	2433 2160	2336	1797 1705	1569 1542	13 18 13 2 7	1226 1149	907 1068	58.4 55.1	1634 1171	118
,	3737	5515	3632	2619 2657	1632	1072 1086	1688	2872	933	812 860	1046	3075 3551	5 6	8418	2875	2128	2321 2466	1592	1557	1328	2177	1149	695	1066	12
'	2196	4395	3335	2760	1595	986	2095	2222	850	801	929	5202	7	5024	3204	2115	2446	1702	1708	1143	1508	844	649	1056	13
3	1740	4247	3021	2522	1603	1037	1710	2115	808	702	873	5587	8	5658	3013	2326	2871	1946	1595	1036	1225	647	550	1980	12
,	1677	4049	2662	2361	1706	10 14	1879	2021	8 13	672	886	3400	9	6911	2722	2382	2768	2803	1502	958	1091	600	503	1641	12
,	1544	3210	2553	2247	1784	974	1479	1963	795	673	860	2658	10	11756	2696	2221	2580	2144	1477	923	1043	581	497	1200	12
1	1393	2615	2665	2133	1715	1021	1272	1987	787	686	8 12	2266	11	19108	2726	2101	2260	2914	1394	906	1072	541	516	1349	12
2	1350	2363	2474	2068	1797	1056	1243	2029	827	681	868	2053	12	16060	2850	2043	2281	4360	1330	872	1000	535	464	1462	16
3	13 11	2320	2482	2112	2355	1059	1385	1668	8 13	697	888	2036	13	8705	3726	1949	2184	58 11	1246	876	940	539	477	1524	29
	1325	2190	2558	1983	2520	1129	1451	1506	754	701	834	2071	14	7091	3541	2098	2083	15551	1203	872	1135	551	539	2543	3
5	1470	2019	2456	1832	2283	1118	1569	1270	963	693	828	2082	15	5291	3070	2084	1968	12523	1209	962	953	600	555	2394	93
<u>, </u>	1690	1925	2593	1847	2526	10 16	19 13	1204	1188	720	836	2192	16	4231	2808	2137	19 16	6208	1195	1104	817	673	535	1703	12
<u> </u>	1481 1365	178 7 18 10	2461 2284	1828 1799	2236 1989	10 14 113 5	1761 1447	118 0 1178	1431 2294	856 743	822 800	2967 2772	17 18	3442 3091	2690 2734	2344 2221	18 13 1776	3609 2785	13 19 19 55	1105 1220	774 782	710 886	499 512	1290 1122	6
<u>-</u>	1180	1901	2426	1923	1783	1301	955	1112	2089	726	798	2355	19	2840	2823	2160	1764	2705	2105	1110	786	893	486	1131	32
,	1184	2593	2668	1854	1649	1258	957	1173	1524	706	867	2387	20	2766	2582	2357	1884	2610	2500	1009	775	689	498	1716	3
1	1324	3038	2393	2528	1582	1229	1100	1236	1221	730	883	3861	21	2714	2443	2385	1926	2649	2827	869	804	565	537	1558	5
:	1496	4574	2197	2876	1554	1097	18 59	1227	1103	899	895	2713	22	2657	2386	4136	2161	2752	2276	796	751	551	596	1329	7
,	19 10	5961	2659	3196	1465	906	2274	1300	1052	1541	873	2220	23	2604	2289	3655	2454	2565	1534	817	702	522	619	1262	5
ı	3103	4617	3398	3751	1403	840	6264	1261	951	1544	1051	2005	24	2472	2240	2982	2075	2183	1280	807	667	573	1094	1228	3
5	6081	3927	3814	3093	1452	880	4097	1058	954	1464	14 13	1824	25	2374	2284	2562	1834	2032	1194	1067	691	591	1115	1285	2
;	5546	3986	6520	2631	14 10	931	3926	900	946	1119	1250	1737	26	2242	2293	2608	1676	2069	1187	1164	737	606	813	1632	2
_	3755	4974	5628	2481	12 10	933	2421	899	925	935	1108	1718	27	2275	2309	2562	1626	1937	1153	1367	806	667	870	1628	2
)	2833	4820	5004 4082	3917	1244	1198 1561	2045 1796	866 866	890 857	840 814	1134	1745	28	2471	2190	3105	1562 1562	1852	1155 12 13	2321 2408	663	825	1646 1480	1437	19
<u>'</u>	2305 2022	 	3938	3556 3001	1251 1113	1667	2100	1205	845	877	1125 1372	1564 1624	30	2547 2952	2255.858	3318 3386	1528	1831 1813	1248	2859	620 560	722 838	983	1296	2
1	1922		3294	3001	1119	1007	3736	1390	043	976	1372	1964	31	2831		2950	1320	1772	1240	2106	542	030	981	1230	3
		*		*	•	19	973		•		•	*			•		•		19	974	,	,		,	
	Jan	Feb	Mar	1		_			1							_									
				I Anr	I Mav	I Jun	I Just	Διια	Sen	Oct	Nov	Dec		.lan	Feb	Mar	Anr	Mav	.lun	Jul	Διια	Sen	Oct	Nov	Ιп
	3475	3638		Apr 8893	May 3287	Jun 3581	Jul 2046	Aug 1433	Sep	Oct 2942	Nov 1036	De c	1	Jan	Feb 3065	Mar 2605	Apr 3686	May	Jun 2162	Jul 1086	Aug 783	Se p	Oct	Nov	_
	3475 3074	3638 8771	1872	8893	3287	3581 3172	2046 1943	1433	901	2942	1036	16 19	1 2	12350	Feb 3065 2859	2605	3686	1962	Jun 2162 2417	1086	783 848	Se p 1343 1291	Oct 604 590	608	2
	3475 3074 2730		1872			3581	2046								3065			_	2162		783	1343	604		2
	3074	8771	1872 1889	8893 6335	3287 3027	3581 3172	2046 1943	1433 1627	901 873	2942 3062	1036 1024	16 19 14 2 2	2	12350 8200	3065 2859	2605 2573	3686 6654	1962 1982	2162 2417	1086 1128	783 848	1343 1291	604 590	608 577	2 1 1
	3074 2730	8771 6786	1872 1889 2062	8893 6335 4510	3287 3027 2989	3581 3172 2912	2046 1943 1942	1433 1627 1423	901 873 833	2942 3062 2208	1036 1024 892	16 19 14 2 2 172 9	3	12350 8200 5853	3065 2859 3095	2605 2573 2517	3686 6654 7677	1962 1982 2251	2162 2417 2310	1086 1128 1270	783 848 1041	1343 1291 1178	604 590 544	608 577 615	2 19 10 10
	3074 2730 3216	8771 6786 4861	1872 1889 2062 2241	8893 6335 4510 3570	3287 3027 2989 3014	3581 3172 2912 3111 3113 4571	2046 1943 1942 1845 1793 1749	1433 1627 1423 1351	901 873 833 801	2942 3062 2208 1503	1036 1024 892 853	16 19 14 2 2 17 2 9 19 0 7 4 7 2 3 4 6 6 8	2 3 4	12350 8200 5853 5146	3065 2859 3095 3050	2605 2573 2517 2437	3686 6654 7677 12345	1962 1982 2251 2430	2162 2417 2310 2012	1086 1128 1270 1722 2639 2004	783 848 1041 1518	1343 1291 1178 1094	604 590 544 562	608 577 615 603 635 732	2 1: 1: 1 10 12
	3074 2730 3216 3331 3727 3736	8771 6786 4861 3614 3131 3024	1872 1889 2062 2241 2325 2388 2536	8893 6335 4510 3570 4419 4950 6366	3287 3027 2989 3014 2799 3604 4044	3581 3172 2912 3111 3113 4571 5249	2046 1943 1942 1845 1793 1749	1433 1627 1423 1351 1290 1242 1293	901 873 833 801 782 760 759	2942 3062 2208 1503 1215 1043 1030	1036 1024 892 853 819 788 765	16 19 14 22 17 29 19 07 4 72 3 4 66 8 2 9 6 6	2 3 4 5	12350 8200 5853 5146 4636 4143 5076	3065 2859 3095 3050 2920 2919 3422	2605 2573 2517 2437 2409 2341 2261	3686 6654 7677 12345 15190 8826 5145	1962 1982 2251 2430 2368 3173 2379	2162 2417 2310 2012 1773 1637 1911	1086 1128 1270 1722 2639 2004 2237	783 848 1041 1518 1653 1590	1343 1291 1178 1094 983 958 1076	604 590 544 562 576 599 610	608 577 615 603 635 732 664	2 15 15 10 10 12
	3074 2730 3216 3331 3727 3736 3885	8771 6786 4861 3614 3131 3024 2992	1872 1889 2062 2241 2325 2388 2536 2812	8893 6335 4510 3570 4419 4950 6366 9139	3287 3027 2989 3014 2799 3604 4044 5687	3581 3172 2912 3111 3113 4571 5249 3931	2046 1943 1942 1845 1793 1749 1764 1854	1433 1627 1423 1351 1290 1242 1293 1334	901 873 833 801 782 760 759	2942 3062 2208 1503 1215 1043 1030 1022	1036 1024 892 853 819 788 765 746	16 19 14 22 17 29 19 07 4 72 3 4 66 8 2 9 6 6 2 0 4 6	2 3 4 5 6 7 8	12350 8200 5853 5146 4636 4143 5076 4626	3065 2859 3095 3050 2920 2919 3422 4022	2605 2573 2517 2437 2409 2341 2261 2229	3686 6654 7677 12345 15190 8826 5145 3831	1962 1982 2251 2430 2368 3173 2379 2051	2162 2417 2310 2012 1773 1637 1911 2091	1086 1128 1270 1722 2639 2004 2237 2340	783 848 1041 1518 1653 1590 1675 2050	1343 1291 1178 1094 983 958 1076 1014	604 590 544 562 576 599 610	608 577 615 603 635 732 664 584	2 1 1 1 10 12 14
	3074 2730 3216 3331 3727 3736 3885 3348	8771 6786 4861 3614 3131 3024 2992 3448	1872 1889 2062 2241 2325 2388 2536 2812 3310	8893 6335 4510 3570 4419 4950 6366 9139 6599	3287 3027 2989 3014 2799 3604 4044 5687 7607	3581 3172 2912 3111 3113 4571 5249 3931 3168	2046 1943 1942 1845 1793 1749 1764 1854	1433 1627 1423 1351 1290 1242 1293 1334 1343	901 873 833 801 782 760 759 742	2942 3062 2208 1503 1215 1043 1030 1022 964	1036 1024 892 853 819 788 765 746 815	16 19 14 22 17 29 19 07 4 72 3 4 66 8 2 9 6 6 2 0 4 6 16 3 4	2 3 4 5 6 7 8	12350 8200 5853 5146 4636 4143 5076 4626 4165	3065 2859 3095 3050 2920 2919 3422 4022 3553	2605 2573 2517 2437 2409 2341 2261 2229 2181	3686 6654 7677 12345 15190 8826 5145 3831 3805	1962 1982 2251 2430 2368 3173 2379 2051	2162 2417 2310 2012 1773 1637 1911 2091 1907	1086 1128 1270 1722 2639 2004 2237 2340 1932	783 848 1041 1518 1653 1590 1675 2050 3178	1343 1291 1178 1094 983 958 1076 1014 907	604 590 544 562 576 599 610 585	608 577 615 603 635 732 664 584 662	2 18 11 10 10 12 14 2
	3074 2730 3216 3331 3727 3736 3885 3348 2882	8771 6786 4861 3614 3131 3024 2992 3448 3024	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913	2046 1943 1942 1845 1793 1749 1764 1854 1923	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345	901 873 833 801 782 760 759 742 751	2942 3062 2208 1503 1215 1043 1030 1022 964 925	1036 1024 892 853 819 788 765 746 815	16 19 14 22 17 29 19 07 4 72 3 4 66 8 29 66 20 46 16 34 14 48	2 3 4 5 6 7 8 9	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155	1962 1982 2251 2430 2368 3173 2379 2051 1909	2 162 24 17 23 10 20 12 1773 1637 19 11 20 91 19 07	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764	783 848 1041 1518 1653 1590 1675 2050 3178 2097	1343 1291 1178 1094 983 958 1076 1014 907	604 590 544 562 576 599 610 585 590 607	608 577 615 603 635 732 664 584 662 673	2 18 11: 10 10 12 14 2 2
	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470	8771 6786 4861 3614 3131 3024 2992 3448	1872 1889 2062 2241 2325 2388 2536 2812 3310	8893 6335 4510 3570 4419 4950 6366 9139 6599	3287 3027 2989 3014 2799 3604 4044 5687 7607	3581 3172 2912 3111 3113 4571 5249 3931 3168	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772	1433 1627 1423 1351 1290 1242 1293 1334 1343	901 873 833 801 782 760 759 742	2942 3062 2208 1503 1215 1043 1030 1022 964	1036 1024 892 853 819 788 765 746 815	16 19 14 22 17 29 19 07 4 72 3 4 66 8 2 9 6 6 2 0 4 6 16 3 4	2 3 4 5 6 7 8	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896	3065 2859 3095 3050 2920 2919 3422 4022 3553	2605 2573 2517 2437 2409 2341 2261 2229 2181	3686 6654 7677 12345 15190 8826 5145 3831 3805	1962 1982 2251 2430 2368 3173 2379 2051	2162 2417 2310 2012 1773 1637 1911 2091 1907	1086 1128 1270 1722 2639 2004 2237 2340 1932	783 848 1041 1518 1653 1590 1675 2050 3178	1343 1291 1178 1094 983 958 1076 1014 907	604 590 544 562 576 599 610 585	608 577 615 603 635 732 664 584 662	2 15 15 10 10 12 14 2 2 4 18
	3074 2730 3216 3331 3727 3736 3885 3348 2882	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694	2046 1943 1942 1845 1793 1749 1764 1854 1923	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345	901 873 833 801 782 760 759 742 751 731	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927	1036 1024 892 853 819 788 765 746 815 850	16 19 14 22 1729 1907 4723 4668 2966 2046 1634 1448	2 3 4 5 6 7 8 9 10	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056	2162 2417 2310 2012 1773 1637 1911 2091 1907 1744 1883	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764	783 848 1041 1518 1653 1590 1675 2050 3178 2097	1343 1291 1178 1094 983 958 1076 1014 907 903 876	604 590 544 562 576 599 610 585 590 607 594	608 577 615 603 635 732 664 584 662 673 698	2 1! 1: 1 10 10 12 2 2 1: 14 14 14 15 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18
	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682	1433 1627 1423 1351 1290 1242 1293 1334 1345 1521 1457	901 873 833 801 782 760 759 742 751 731 1049	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884	1036 1024 892 853 819 788 765 746 815 850 801	16 19 14 22 1729 1907 4723 4668 2966 2046 1634 14 48 1304	2 3 4 5 6 7 8 9 10 11	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435	2162 2417 2310 2012 1773 1637 1911 2091 1907 1744 1883 1580	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898	604 590 544 562 576 599 610 585 590 607 594	608 577 615 603 635 732 664 584 662 673 698 863	22 11: 11: 10: 10: 14: 22: 14: 14: 14: 14: 14: 14: 14: 14: 14: 14
	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2629	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682 1614	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345 1521 1457	901 873 833 801 782 760 759 742 751 731 1049 1294	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867	1036 1024 892 853 819 788 765 746 815 850 801 761	16 19 14 22 1729 1907 4 723 4 668 2966 2046 1634 1448 1304 1286	2 3 4 5 6 7 8 9 10 11 12	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2087	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604	2162 2417 2310 2012 1773 1637 1911 2091 1907 1744 1883 1580	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310	604 590 544 562 576 599 610 585 590 607 594 560 600	608 577 615 603 635 732 664 584 662 673 698 863 899	2 18 11 10 12 14 2 2 4 11 14 11 12 11 12 11 11 11
	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2629 2782 2763 2736	2046 1943 1942 1845 1793 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345 1521 1457 1721 1491 1581	901 873 833 801 782 760 759 742 751 731 1049 1294 1598 4482 3106 1938	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754	16 19 14 22 17 29 19 07 4 7 23 4 6 6 8 2 9 6 6 2 0 4 6 16 3 4 14 4 8 13 0 4 12 8 6 12 9 7 13 4 7 13 3 1 13 8 8	2 3 4 5 6 7 8 9 10 11 12 13 14 15	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2087 2016 2019	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930	2 162 24 17 23 10 20 12 1773 1637 19 11 20 91 19 07 1744 18 83 1580 1527 14 49 13 60 13 54	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910	783 848 1041 1518 1653 1690 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012	608 577 615 603 635 732 664 584 662 673 698 863 869 781 803 890	2 18 10 10 12 14 2 2 18 14 15 16 17 18 18 18 18 18 18 18 18 18 18
	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2629 2782 2763 2736 2713	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051 2017	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345 1521 1457 1721 1491 1581 1426	901 873 833 801 782 760 759 742 751 731 1049 1294 1294 4482 3106 1938	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861	16 19 14 22 17 29 19 07 4 7 23 4 6 6 8 2 9 6 6 2 0 4 6 16 3 4 14 4 8 13 0 4 12 8 6 12 9 7 13 4 7 13 3 1 13 8 8 12 8 3	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2087 2019 1982 2008	3686 6654 7677 12345 15190 8826 5145 3831 3805 3156 3312 3356 4774 4879 4847 3545 2989	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884	2162 2417 2310 2012 1773 1637 1911 2091 1907 1744 1883 1580 1527 1449 1360 1354 1256	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913	2 18 11 12 12 11 11 11 11 11 11 11 11 11 11
	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2096 1984 2236 2612	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2629 2782 2763 2736 2713 2600	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051 2017	1433 1627 1423 1351 1290 1242 1293 1334 1345 1521 1457 1721 1491 1581 1426 1464 2339	901 873 833 801 782 760 759 742 751 731 1049 1294 1598 4482 3106 1938 1491 1315	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861 977	16 19 14 22 17 29 19 07 4 72 3 4 66 8 29 66 20 46 16 34 14 48 13 04 12 86 12 97 13 47 13 31 13 88 12 83 12 27	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859	2605 2573 2517 2437 2409 2341 2229 2181 2090 2143 2176 2087 2016 2019 1982 2008 2046	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761	2162 2417 2310 2012 1773 1637 1911 2091 1907 1744 1883 1580 1527 1449 1360 1354 1256 1211	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913	2 18 11 10 12 14 2 2 4 18 14 12 11 12 11 11 11 11 11 11 11 11
) 	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092 6394	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2629 2782 2763 2736 2713 2600 2255	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051 2017 2055 1975	1433 1627 1423 1351 1290 1242 1293 1334 1345 1521 1457 1721 1491 1581 1426 1464 2339 2059	901 873 833 801 782 760 759 742 751 731 1049 1294 1598 4482 3106 1938 1491 1315 1285	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746 744	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861 977 889	16 19 14 22 1729 1907 4723 4668 2966 2046 1634 1448 1304 1286 1297 1347 1331 1388 1283 1227 1215	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035	2605 2573 2517 2437 2409 2341 2229 2181 2090 2143 2176 2087 2016 2019 1982 2008 2046 2220	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761	2162 2417 2310 2012 1773 1637 1911 2091 1907 1744 1883 1580 1527 1449 1360 1354 1256 1211 1192	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913 1254	2 15 10 10 12 2 2 2 4 18 14 12 12 11 12 12 14 15 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18
	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098 3671	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252 2175 2153	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092 6394 4745	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780 2915	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958 5585	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2629 2782 2763 2713 2600 2255 2347	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051 2017 2055 1975	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345 1345 1457 1721 1491 1581 1426 1464 2339 2059 1504	901 873 833 801 760 759 742 751 731 1049 1294 1598 4482 3106 1938 1491 1315	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746 744	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861 977 889	16 19 1422 1729 1907 4723 4668 2966 2046 1634 1448 1304 1286 1297 1347 1331 1388 1283 1227 12 15	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964 3025	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2087 2016 2019 1982 2008 2046 2220 2464	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555 2520	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761 1668	2162 2417 2310 2012 1773 1637 1911 2091 1907 1744 1883 1580 1527 1449 1360 1354 1256 1211 1192 1154	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836 1379	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715 651	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913 1254 1524 2538	2 18 10 10 12 14 2 2 4 18 14 12 14 15 16 17 18 18 18 18 18 18 18 18 18 18
5	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098 3671 5007	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 13092 6394 4745 5087	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780 2915	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2629 2782 2763 2736 2713 2600 2255 2347 2764	2046 1943 1942 1845 1793 17749 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051 2017 2055 1975 1851 1726	1433 1627 1423 1351 1290 1242 1293 1334 1345 1521 1457 1721 1491 1581 1426 1464 2339 2059	901 873 833 801 782 760 759 742 751 731 1049 1294 1598 4482 3106 1938 1491 1315 1285	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746 744 746	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861 977 889 977	16 19 1422 1729 1907 4723 4668 2966 2046 1634 1448 1304 1286 1297 1347 1331 1388 1283 1227 1215 1282	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964 3025 3937	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2087 2016 2019 1982 2008 2046 2220 2464 2793	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555 2520 2466	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761	2162 2417 2310 2012 1773 1637 1911 2091 1907 1744 1883 1580 1527 1449 1360 1354 1256 1211 1192	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913 1254	2 15 15 10 10 12 14 14 12 14 15 16 17 16 17 17 17 17 17 17 17 17 17 17 17 17 17
5	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098 3671	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252 2175 2153 2083	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092 6394 4745	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780 2915	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958 5585 5018	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2629 2782 2763 2713 2600 2255 2347	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051 2017 2055 1975	1433 1627 1423 1351 1290 1242 1293 1334 1345 1521 1457 1721 1491 1581 1426 1464 2339 2059 1504 1418	901 873 833 801 782 760 759 742 751 731 1049 1294 1598 4482 3106 1938 1491 1315 1285 1093 998	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746 744	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861 977 889	16 19 1422 1729 1907 4723 4668 2966 2046 1634 1448 1304 1286 1297 1347 1331 1388 1283 1227 12 15	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964 3025	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035 4016 3927	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2087 2016 2019 1982 2008 2046 2220 2464	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555 2520	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761 1668 1815	2 162 24 17 23 10 20 12 1773 1637 19 11 20 91 19 07 17 44 18 83 15 80 15 27 14 49 13 60 13 54 12 56 12 11 11 92 11 54 11 69	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798 789	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836 1379 1161	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794 752 735	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715 651 595	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913 1254 1524 2538 2472	22 18 18 18 18 18 18 18 18 18 18 18 18 18
5 7 3 1 5 5 6 7 7 1 1 2 2 3 3 1 1 2 2 3 3 3 3 3 3 3 3 3 3	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098 3671 5007	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252 2175 2153 2083	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092 6394 4745 5087 4269	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780 2915 2679	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958 5585 5018 4411	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2694 2762 2763 2773 2600 2255 2347 2764 3361	2046 1943 1942 1845 1793 17749 1764 1854 1923 1772 1757 1682 16 14 1502 2017 2051 2017 2055 1975 1861 1726 1525	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345 1521 1457 1721 1491 1581 1426 14464 2339 2059 1504 1418	901 873 833 801 782 760 759 742 751 731 1049 1598 4482 3106 1938 1491 1315 1285 1093 998	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746 744 746 777 766	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861 977 889 977 1081	16 19 14 22 17 29 19 07 4 7 23 4 6 6 8 2 9 6 6 2 0 4 6 16 3 4 14 4 8 13 0 4 12 9 7 13 4 7 13 3 1 13 8 8 12 8 7 12 2 7 12 15 12 8 2 16 2 1 15 14	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964 3025 3937 3712	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035 4016 3927 5408	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2087 2016 2019 1982 2008 2046 2220 2464 2793 2911	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555 2520 2466 2433	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761 1668 1815	2 162 24 17 23 10 20 12 1773 1637 19 11 20 91 1907 1744 1883 1580 1527 1449 1360 1354 1256 1211 1192 1154 1169 1227	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798 789 860 919	783 848 1041 1518 1653 1690 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836 1379 1161 1068	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794 752 735 728	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715 651 595 606	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913 1254 2538 2472 1671	22 18 18 11 11 11 11 11 11 11 11 11 11 11
1 2 3	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098 3671 5007 5832 4478	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252 2175 2153 2083 2024	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092 6394 4745 5087 4269 3700	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780 2915 2679 2928 3784	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958 5585 5018 4411 3231	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2782 2763 2773 2600 2255 2347 2764 3361 2770	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051 2017 2055 1975 1851 1726 1525 1659	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345 1521 1457 1721 1491 1581 1426 1464 2339 2059 1504 1418 1218 1078	901 873 833 801 782 760 759 742 751 731 1049 1294 1598 4482 3106 1938 1491 1315 1285 1093 998 940 908	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 818 806 746 744 746 777 766 781	1036 1024 892 853 819 765 746 815 850 801 761 863 772 754 861 977 889 977 1081 1495 2521	16 19 14 22 17 29 19 07 4 7 23 4 6 6 8 2 9 6 6 2 0 4 6 16 3 4 14 4 8 13 0 4 12 8 6 12 9 7 13 4 7 13 3 1 13 8 8 12 2 7 12 15 12 8 2 16 2 1 15 14 13 8 7	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964 3025 3937 3712 3405	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035 4016 3927 5408 5046	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2016 2019 1982 2008 2046 2220 2464 2793 2911 2503	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555 2520 2466 2433 2525	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761 1668 1815 1916 1886 2882	2 162 24 17 23 10 20 12 1773 1637 19 11 20 91 19 07 1744 18 83 1580 1527 14 49 13 60 13 54 12 56 12 11 11 92 11 54 11 69 12 27 11 45	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798 789 860 919	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836 1379 1161 1068 1013	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794 752 735 728 713	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715 651 595 606 625	608 577 615 603 635 732 664 584 662 673 698 863 863 899 781 803 890 913 1254 1524 2538 2472 1671 1200	22 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
7733	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098 3671 5007 5832 4478	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252 2175 2153 2083 2024	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092 6394 4745 5087 4269 3700 3256	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780 2915 2679 2928 3784 4715	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958 5585 5018 4411 3231 3753	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2629 2782 2763 2713 2600 2255 2347 2764 3361 2770 2410	2046 1943 1942 1845 1793 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051 2017 2055 1975 1851 1726 1525 1659 1807	1433 1627 1423 1351 1290 1242 1293 1334 1345 1521 1457 1721 1491 1581 1426 1464 2339 2059 1504 1418 1218 1078 1095	901 873 833 801 782 760 759 742 751 731 1049 1294 1294 4482 3106 1938 1491 1315 1285 1093 998 940 908 904	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746 744 746 777 766 781 755	1036 1024 892 853 819 765 746 815 850 801 761 803 772 754 861 977 889 977 1081 1495 2521 1675	16 19 14 22 17 29 19 07 47 23 46 68 29 66 20 46 16 34 14 48 13 04 12 86 12 97 13 47 13 31 13 88 12 83 12 27 12 15 12 15 12 15 14 15 14 15 16 16 16 17 16 17 16 18 16 18 16 18 16 18 17 18 1	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964 3025 3937 3712	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035 4016 3927 5408	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2019 1982 2008 2046 2220 2464 2279 2911 2503 2213	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555 2520 2466 2433 2525 2347	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761 1668 1815 1916 1886 2882 3002	2162 2417 2310 2012 1773 1637 1911 2091 1907 1744 1883 1580 1527 1449 1360 1354 1256 1211 1192 1154 1169 1227 1145 1141	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798 860 919	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836 1379 1161 1068 1013 959	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794 752 735 728 713 707	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715 651 595 606 625 634	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913 1254 1524 2538 2472 1671 1200 926	22 18 18 18 18 18 18 18 18 18 18 18 18 18
) 11 22 33 41 55 67 77	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098 3671 5007 5832 4478 4237 3230	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252 2175 2153 2083 2024 2081 2021	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092 6394 4745 5087 4269 3700 3256 3150	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780 2915 2679 2928 3784 4715 8336	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958 5585 5018 4411 3231 3753 3763	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2629 2782 2763 2713 2600 2255 2347 2764 3361 2770 2410 2142	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051 2017 2055 1975 1851 1726 1525 1659 1807 2000	1433 1627 1423 1351 1290 1242 1293 1334 1345 1521 1457 1721 1491 1581 1426 1464 2339 2059 1504 1418 1218 1078 1095 1047	901 873 833 801 782 760 759 742 751 731 1049 1294 1598 4482 3106 1938 1491 1315 1285 1093 998 940 908 904 902	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746 744 776 781 755 758	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861 977 1081 1495 2521 1675 1362 1193	16 19 14 22 1729 1907 4723 4668 2966 2046 1634 1448 1304 1286 1297 1331 1388 1283 1227 1215 1282 1621 1514 1387 1693	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964 3025 3937 3712 3405 3222 3668	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035 4016 3927 5408 5046 4228	2605 2573 2517 2437 2409 2341 2229 2181 2090 2143 2176 2087 2016 2019 1982 2008 2046 2220 2464 2220 2464 2793 2911 2503 2213	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555 2520 2466 2433 2525 2347 2227	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761 1668 1815 1916 1886 2882 3002 2503	2162 2417 2310 2012 1773 1637 1911 2091 1907 1744 1883 1580 1527 1449 1360 1354 1256 1211 1192 1154 1169 1227 1145 1141 1136	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798 789 860 919 932 1208 1506	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836 1379 1161 1068 1013 959 896	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794 752 735 728 713 707 700 720	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715 651 595 606 625 634 622	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913 1254 1524 2538 2472 1671 1200 926 822	2 19 10 10 12 24 18 14 12 12 11 12 14 15 16 17 17 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18
) 1 1 2 2 3 4 5 5 6 7 7 3 3	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098 3671 5007 5832 4478 4237 3230 2814 2934	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252 2175 2153 2083 2024 2081 2021	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092 6394 4745 5087 4269 3700 3256 3150 3280 3051 2852	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780 2915 2679 2928 3784 4715 8336 8102 9905 7291	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958 5585 5018 4411 3231 3753 4361 4414 9162	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2694 2763 2776 2773 2600 2255 2347 2764 3361 2770 2410 2442 2442 2069 2098	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682 16 14 1502 2017 2051 2017 2055 1975 1851 1726 1525 1659 1807 2000 2229 2032 1833	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345 1521 1457 1721 1491 1581 1426 1464 2339 2059 1504 1418 1218 1078 1095 1047 1006 971 954	901 873 833 801 782 760 759 742 751 731 1049 1598 4482 3106 1938 1491 1315 1285 1093 998 940 908 904 902 854 872 1633	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746 744 746 777 766 781 755 758 822 842	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861 977 889 977 1081 1495 2521 1675 1362 1193 1198 1315	16 19 1422 1729 1907 4723 4668 2966 2046 1634 1448 1304 1286 1297 1347 1331 1388 1283 1227 1215 1282 1621 1514 1387 1693 1993 28 10 5057	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 20 21 22 23 24 25 26 27 28	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964 3025 3937 3712 3405 3222 3668 3998 5919 5133	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035 4016 3927 5408 5046 4228 3365 2975	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2087 2016 2019 1982 2008 2046 2220 2464 2793 2911 2503 2213 2047 2003 2409 2709	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555 2520 2466 2433 2525 2347 2227 2176 2081	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761 1668 1815 1916 1886 2882 3002 2503 2150 2855 2591	2 162 24 17 23 10 20 12 1773 1637 19 11 20 91 1907 1744 1883 1580 1527 1449 1360 1354 1256 12 11 1192 1154 1169 12 27 1145 1141 1136 10 31 993 1175	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798 789 860 919 932 1208 1506 1665 1638	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836 1379 1161 1068 1013 959 896 804 1016	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794 752 735 728 713 707 700 720 733 732	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715 651 595 606 625 634 622 631 627 637	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913 1254 1524 2538 2472 1671 1200 926 822 815 714	2 15 13 10 10 14 2 2 4 18 14 12 12 11 12 14 15 16 17 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18
5 5 1 1 2 2 3 3 1 5 5 6 7 7 8 9 9	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098 3671 5007 5832 4478 4237 3230 2814 2934 2545	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252 2175 2153 2083 2024 2081 2021 1957	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092 6394 4745 5087 4269 3700 3256 3150 3280 3051 2852	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780 2915 2679 2928 3784 4715 8336 8102 9905 7291 5252	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958 5585 5018 4411 3231 3753 3763 4361 4414 9162 10082	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2569 2782 2763 2773 2600 2713 2600 2713 2600 2714 2410 2410 2142 2069 2098 2681	2046 1943 1942 1845 1793 17749 1764 1854 1923 1772 1757 1682 1614 1502 2017 2051 2017 2055 1975 1851 1726 1525 1659 1807 2000 2229 2032 1833	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345 1521 1457 1721 1491 1581 1426 1464 2339 2059 1504 1418 1078 1095 1047 1006 971 954 924	901 873 833 801 782 760 759 742 751 731 1049 1294 1598 4482 3106 1938 1491 1315 1285 1093 998 940 908 904 902 854 872 1633 2309	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746 744 746 777 766 781 755 758 822 842 1088	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861 977 889 977 1081 1495 2521 1675 1362 1193 1198 1315 2579	16 19 14 22 17 29 19 07 47 23 46 68 29 66 20 46 16 34 14 48 13 04 12 86 12 97 13 47 13 31 13 88 12 83 12 27 12 15 12 82 16 21 15 14 13 87 16 93 19 93 28 10 50 57 35 21	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964 3025 3937 3712 3405 3222 3698 5919 5133 4989	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035 4016 3927 5408 5046 4228 3365 2975 2793	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2087 2016 2019 1982 2008 2046 2793 2911 2503 2213 2047 2003 2409 2709 3726	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555 2520 2466 2433 2525 2347 2227 2176 2081 1999	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761 1668 1815 1916 1886 2882 3002 2503 2150 2855 2591 2014	2 162 24 17 23 10 20 12 1773 1637 19 11 20 91 19 07 1744 18 83 1580 1527 14 49 13 60 13 54 12 56 12 11 119 2 1154 116 9 12 27 114 5 114 1 113 6 10 3 1 9 9 3 117 5 10 6 6	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798 789 860 919 932 1208 1506 1665 1638 1510	783 848 1041 1518 1653 1690 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836 1379 1161 1068 1013 959 896 804 1016 1069 1108	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794 752 735 728 713 707 700 720 733 732 777	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715 651 595 606 625 634 622 631 627 637 614	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913 1254 2538 2472 1671 1200 926 822 815 714 1029	19 19 19 19 19 19 19 19 19 19 19 19 19 1
	3074 2730 3216 3331 3727 3736 3885 3348 2882 2470 2280 2151 2096 2080 1984 2236 2612 3098 3671 5007 5832 4478 4237 3230 2814 2934	8771 6786 4861 3614 3131 3024 2992 3448 3024 2783 2541 2491 2607 2901 2602 2450 2252 2175 2153 2083 2024 2081 2021 1957	1872 1889 2062 2241 2325 2388 2536 2812 3310 3592 3544 4607 3799 4309 5256 6721 13304 9092 6394 4745 5087 4269 3700 3256 3150 3280 3051 2852	8893 6335 4510 3570 4419 4950 6366 9139 6599 4658 3471 3134 3019 2817 2753 2730 2729 2675 2780 2915 2679 2928 3784 4715 8336 8102 9905 7291	3287 3027 2989 3014 2799 3604 4044 5687 7607 5859 4063 3638 3058 2769 2540 2360 2637 3771 3958 5585 5018 4411 3231 3753 4361 4414 9162	3581 3172 2912 3111 3113 4571 5249 3931 3168 2913 2694 2694 2763 2776 2773 2600 2255 2347 2764 3361 2770 2410 2442 2442 2069 2098	2046 1943 1942 1845 1793 1749 1764 1854 1923 1772 1757 1682 16 14 1502 2017 2051 2017 2055 1975 1851 1726 1525 1659 1807 2000 2229 2032 1833	1433 1627 1423 1351 1290 1242 1293 1334 1343 1345 1521 1457 1721 1491 1581 1426 1464 2339 2059 1504 1418 1218 1078 1095 1047 1006 971 954	901 873 833 801 782 760 759 742 751 731 1049 1598 4482 3106 1938 1491 1315 1285 1093 998 940 908 904 902 854 872 1633	2942 3062 2208 1503 1215 1043 1030 1022 964 925 927 884 867 850 867 818 806 746 744 746 777 766 781 755 758 822 842	1036 1024 892 853 819 788 765 746 815 850 801 761 803 772 754 861 977 889 977 1081 1495 2521 1675 1362 1193 1198 1315	16 19 1422 1729 1907 4723 4668 2966 2046 1634 1448 1304 1286 1297 1347 1331 1388 1283 1227 1215 1282 1621 1514 1387 1693 1993 28 10 5057	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 20 21 22 23 24 25 26 27 28	12350 8200 5853 5146 4636 4143 5076 4626 4165 4047 3896 4249 3508 3168 3712 3372 3017 2749 2964 3025 3937 3712 3405 3222 3668 3998 5919 5133	3065 2859 3095 3050 2920 2919 3422 4022 3553 3078 2871 2729 2967 3626 4773 5861 6343 4859 4035 4016 3927 5408 5046 4228 3365 2975 2793	2605 2573 2517 2437 2409 2341 2261 2229 2181 2090 2143 2176 2087 2016 2019 1982 2008 2046 2220 2464 2793 2911 2503 2213 2047 2003 2409 2709	3686 6654 7677 12345 15190 8826 5145 3831 3805 3155 3312 3356 4774 4879 4847 3545 2989 2679 2555 2520 2466 2433 2525 2347 2227 2176 2081	1962 1982 2251 2430 2368 3173 2379 2051 1909 1976 2056 2435 2604 2156 1930 1927 1884 1761 1668 1815 1916 1886 2882 3002 2503 2150 2855 2591	2 162 24 17 23 10 20 12 1773 1637 19 11 20 91 1907 1744 1883 1580 1527 1449 1360 1354 1256 12 11 1192 1154 1169 12 27 1145 1141 1136 10 31 993 1175	1086 1128 1270 1722 2639 2004 2237 2340 1932 1764 1654 1073 1014 1006 943 910 906 853 798 789 860 919 932 1208 1506 1665 1638	783 848 1041 1518 1653 1590 1675 2050 3178 2097 1711 1732 1759 1649 1480 1693 1976 2253 1836 1379 1161 1068 1013 959 896 804 1016	1343 1291 1178 1094 983 958 1076 1014 907 903 876 898 1310 1049 908 845 832 794 752 735 728 713 707 700 720 733 732	604 590 544 562 576 599 610 585 590 607 594 560 600 723 775 1012 1238 922 715 651 595 606 625 634 622 631 627 637	608 577 615 603 635 732 664 584 662 673 698 863 899 781 803 890 913 1254 1524 2538 2472 1671 1200 926 822 815 714	22 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 3 3 3 3

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						1975												19	76					
	Jan	Feb	Mar A	pr Ma	y Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
1	2855	2088	2657 4	332 26	3 1996	1771	1598	747	2535	905	2359	1	5785	2989	1661	24672	2309	2483	2232	1038	663	707	1137	
:	2332	2758		093 35		1964	1572	710	5051	945	2360	2	4162	3220	1603	13457	2414	2307	2067	976	691	492	743	
	2025	3936		338 28			1298	558	3089	916	2082	3	3553	2886	1662	7061	2084	2169	2149	898	723	509	690	1
-	2077 2009	5226 8623		253 29 970 275			1110 1363	547 653	2029 1679	908 1045	1673 1511	4 5	3546 3049	2602 2358	1663 1690	5451 4566	1831 1770	2267 1995	2829 5326	978 1057	751 844	470 612	649 579	1
,	1870	6501		773 275		1280	1372	758	1667	1097	1445	6	2883	2304	1925	3918	1792	1843	3983	1104	796	671	596	1
,	18 10	4651		835 534		1244	1466	869	1600	1346	1400	7	2966	2183	2111	3523	1808	1669	3728	1243	728	862	572	1
	1856	3350		933 462		1306	1460	2053	1657	1851	13 17	8	4604	2098	1901	3234	2041	1604	2630	1196	655	1297	568	
•	2300	2846	2421 2	942 340	3 1758	1195	1528	1338	1714	1556	1309	9	3592	2045	1974	2963	1958	1526	2070	985	605	1370	572	
0	2731	2684	2502	065 29	7 1793	1066	1491	990	1456	1736	1280	10	2865	1941	2858	2735	1795	1589	1807	871	563	1117	596	
1	4951	2587		396 239			1478	1330	1197	1979	1196	11	2526	1889	3633	2686	1772	1540	1539	823	541	8 12	557	
2	4623	3527		777 21			14 58	1100	1063	2234	1173	12	2388	1874	4714	2626	2061	1480	1377	765	545	672	712	₩
<u>. </u>	5684	3457		755 21			1232	1075	952	4012	1165	13	2290	1838	12375	2520	2938 3490	1448	1382	784	509	629	772	-
5	4024 3033	3192 3178		728 208 670 219		903 857	964 888	948 807	936 1092	2856 1992	1225 1259	14 15	2437 2376	1782 1605	10450 9415	2398 2302	8599	14 16 13 12	1275 1247	748 745	478 480	606 586	701 778	-
6	2422	3737		661 288		981	837	730	1306	1585	1355	16	2158	1855	15738	2262	7574	1322	1203	891	482	583	770	1
7	2104	5274		567 25		879	786	743	2232	1404	1495	17	2023	1867	16962	2161	4875	1393	1265	867	442	566	728	
3	1904	4706	4820 2	149 25	7 1366	903	742	977	4748	1427	1396	18	1906	2020	8629	2161	3 171	1848	1240	741	456	522	669	
•	1862	6606	5515 2	389 21	3 14 13	949	721	1088	2736	14 15	1260	19	1794	2695	5473	2133	2378	2391	1182	696	470	530	664	
0	1804	4375		346 19		929	684	965	1952	14 15	1183	20	1735	2470	4358	2120	2084	3577	1226	639	466	538	660	
1	1776	3617		268 176		932	659	1032	1484	1930	12 19	21	1672	2111	4707	2198	1952	2996	14 13	603	514	561	682	1
2	1713	3646		236 169			651	1037	13 18	1993	1200	22	1704	2908	4337	2182	1878	2311	1188	582	508	553	660	1
3 4	2463 2888	3801 5271		200 164 206 158			630 686	1539 2076	1174 114 1	1644 1675	1253 1285	23	1637 4002	2718 2289	3672 3042	2 158 2 16 7	1824 1786	1746 1662	113 <i>7</i> 1119	610 686	461 460	620 588	637 679	\vdash
5	5039	52.15		185 154		1249	686	1709	1119	1534	1384	25	4945	2080	2794	2188	1799	1627	1235	838	434	706	694	1
6	5664	4270		126 179		1244	709	1292	1097	1445	1803	26	9206	1954	2846	2133	2022	1672	1300	731	447	10 11	962	1
7	4077	3236		069 21		1058	853	1140	1066	1382	1983	27	12485	1860	2893	2124	2253	2 158	150 1	955	586	904	1196	
В	2798	2830	3870 2	014 20	5 1240	990	853	1034	1048	1510	1679	28	79 18	1797	4581	1988	3097	1969	2078	1103	603	773	1522	
9	2315		4283 2	038 212	2 1420	948	842	1394	1028	1667	2044	29	4595	1687.908	7489	1988	5200	1830	1540	1032	602	734	2136	
0	2104			052 23		1228	777	1602	957	1761	2453	3 0	3429		15004	2056	4144	1920	1270	8 19	695	715	1930	
1	1886		6134	199	'	13 19	723		977		4478	31	3062		22693		3103		1133	784		10 12		_
						1977												19	78					
	Jan	Feb	Mar A	pr Ma	y Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
1	13 19	1209		178 194		946	498	310	846	919	2461	1	2073	3087	1989	1631	2435	1144	646	953	563	468	327	
	1201	1176	1872 9	276 210	9 1098	1268	463	306	2536	1751	2627	2	1947	2957	1960	1623	2545	1143	601	722	574	503	339	
	1255	1168	1669 1	062 20	5 1040	1104	402	277	2247	3865	1988	3	1800	2854	2078	1607	2315	1124	600	715	620	443	362	
		1.00			0 1049	798	387	268	13 14	4840	2 117	4	1920	2704	2240	1557	2196	1123	561	1523	609		347	
	1336	1172		556 220								_										368		
5	1457	1172 1114	2234 1	419 200		741	324	305	1058	10496	1826	5	2150	2588	2066	1536	2462	1278	502	3548	565	3 15	368	_
5	1457 1557	1172 1114 1106	2234 1 2334 1	419 200 409 183	5 910	596	408	397	992	20481	1826 1768	6	2150 3052	2527	1947	1473	3275	1587	467	2875	565 529	315 297	354	
,	1457 1557 2679	1172 1114 1106 1011	2234 1 2334 1 2559 6	419 200 409 183 233 169	5 910 9 988	596 585	408 374	397 635	992 2722	20481 13931	1826 1768 1804	6 7	2150 3052 4307	2527 2423	1947 2255	1473 1438	3275 3764	1587 1785	467 497	2875 4748	565 529 496	315 297 303	354 378	
; ;	1457 1557 2679 3571	1172 1114 1106 1011 1002	2234 1 2334 1 2559 6 2339 4	419 200 409 183 233 169 522 16	5 910 9 988 7 917	596 585 517	408 374 434	397 635 1213	992 2722 3242	20481 13931 5573	1826 1768 1804 1525	6 7 8	2150 3052 4307 5048	2527 2423 2380	1947 2255 2905	1473 1438 1409	3275 3764 4548	1587 1785 2444	467 497 572	2875 4748 3859	565 529 496 475	315 297 303 308	354 378 391	
5	1457 1557 2679	1172 1114 1106 1011	2234 1 2334 1 2559 6 2339 4 1980 4	419 200 409 183 233 169	5 910 9 988 7 917 3 807	596 585	408 374	397 635	992 2722	20481 13931	1826 1768 1804	6 7	2150 3052 4307	2527 2423	1947 2255	1473 1438	3275 3764	1587 1785	467 497	2875 4748	565 529 496	315 297 303	354 378	
	1457 1557 2679 3571 4087	1172 1114 1106 1011 1002 991	2234 1 2334 1 2559 6 2339 4 1980 4 2158 3	419 200 409 183 233 169 622 16 133 152	9 9 10 9 88 7 9 17 8 807 3 841	596 585 517 510	408 374 434 866	397 635 1213 1059	992 2722 3242 9188	20481 13931 5573 3955	1826 1768 1804 1525 1680	6 7 8 9	2150 3052 4307 5048 8411	2527 2423 2380 2344	1947 2255 2905 3636	1473 1438 1409 1476	3275 3764 4548 6940	1587 1785 2444 3076	467 497 572 583	2875 4748 3859 3145	565 529 496 475 482	315 297 303 308 303	354 378 391 408	
)	1457 1557 2679 3571 4087 7823 5099 3514	1172 1114 1106 1011 1002 991 1056 1152 1303	2234 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2	4419 200 409 183 233 169 622 16 133 152 447 138 037 126 725 12	5 910 9 988 7 917 3 807 3 841 0 835 5 864	596 585 517 510 587 529 508	408 374 434 866 817 611	397 635 1213 1059 873 772 551	992 2722 3242 9188 6765 4359 2050	20481 13931 5573 3955 2911 2125 1761	1826 1768 1804 1525 1680 1881 1472 1461	6 7 8 9 10 11	2150 3052 4307 5048 8411 5560 3949 2951	2527 2423 2380 2344 2317 2259 2267	1947 2255 2905 3636 6553 5040 3945	1473 1438 1409 1476 1463 1569 1848	3275 3764 4548 6940 5063 3273 2358	1587 1785 2444 3076 2265 1753	467 497 572 583 641 691 623	2875 4748 3859 3145 4828 2853 2290	565 529 496 475 482 475 491 552	315 297 303 308 303 325 413 358	354 378 391 408 375 391 375	
)	1457 1557 2679 3571 4087 7823 5099 3514 2608	1172 1114 1106 1011 1002 991 1056 1152 1303 1635	2234 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2 7780 2	4419 200 409 183 233 165 522 16 333 152 4447 138 037 126 725 123 505 132	5 910 9 988 7 917 8 807 3 841 0 835 5 864 6 871	596 585 517 510 587 529 508 519	408 374 434 866 817 611 611 541	397 635 1213 1059 873 772 561 553	992 2722 3242 9188 6765 4359 2050 1352	20481 13931 5573 3955 2911 2125 1761 1552	1826 1768 1804 1525 1680 1881 1472 1461	6 7 8 9 10 11 12 13	2150 3052 4307 5048 8411 5560 3949 2951 2690	2527 2423 2380 2344 2317 2259 2267 2296	1947 2255 2905 3636 6553 5040 3945 3055	1473 1438 1409 1476 1463 1569 1848	3275 3764 4548 6940 5063 3273 2358 2083	1587 1785 2444 3076 2265 1753 1528 1459	467 497 572 583 641 691 623 760	2875 4748 3859 3145 4828 2853 2290 1894	565 529 496 475 482 475 491 552 546	3 15 297 303 308 303 325 413 358 407	354 378 391 408 375 391 375 378	
0 1 2 3 4	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652	2234 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2 7780 2	419 200 409 18: 233 169 522 16 133 152 447 138 037 126 725 12: 505 132 245 129	5 910 9 988 7 917 8 807 3 841 0 835 5 864 6 871 3 864	596 585 517 510 587 529 508 519	408 374 434 866 817 611 611 541	397 635 1213 1059 873 772 551 553 817	992 2722 3242 9188 6765 4359 2050 1352 1002	20481 13931 5573 3955 2911 2125 1761 1552 1381	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636	6 7 8 9 10 11 12 13	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583	2527 2423 2380 2344 2317 2259 2267 2296 2385	1947 2255 2905 3636 6553 5040 3945 3055 2716	1473 1438 1409 1476 1463 1569 1848 1719	3275 3764 4548 6940 5063 3273 2358 2083 2023	1587 1785 2444 3076 2265 1753 1528 1459	467 497 572 583 641 691 623 760 831	2875 4748 3859 3145 4828 2853 2290 1894 1607	565 529 496 475 482 475 491 552 546	315 297 303 308 303 325 413 358 407 555	354 378 391 408 375 391 375 378 391	
1 2 3 4 5	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652 1447	2234 1 2334 1 2559 6 2339 4 1980 2 2158 3 2776 3 3230 2 7780 2 5706 2	4419 200 409 18: 233 169 522 16 133 152 4447 138 6037 126 725 12: 505 132 245 129 154 136	5 910 9 988 7 917 3 807 3 841 0 835 5 864 6 871 3 864 1 898	596 585 517 510 587 529 508 519 528 489	408 374 434 866 817 611 611 541 555 828	397 635 1213 1059 873 772 551 553 817 960	992 2722 3242 9188 6765 4359 2050 1352 1002 914	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636	6 7 8 9 10 11 12 13 14 15	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431	2527 2423 2380 2344 2317 2259 2267 2296 2385 2181	1947 2255 2905 3636 6553 5040 3945 3055 2716 2637	1473 1438 1409 1476 1463 1569 1848 1719 1598	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206	467 497 572 583 641 691 623 760 831	2875 4748 3859 3145 4828 2853 2290 1894 1607	565 529 496 475 482 475 491 552 546 544	315 297 303 308 303 325 413 358 407 555 467	354 378 391 408 375 391 375 378 391 485	
5 7 1 1 2 2 3 3 4 5 6	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652 1447	2234 1 2334 1 2559 6 2339 4 1980 2 158 3 2776 3 3230 2 7780 2 5706 2 3861 3	4419 200 409 18: 233 169 522 16 133 152 447 138 037 126 725 12: 505 132 245 129 154 136 971 13:	5 910 9 988 7 917 3 807 3 841 0 835 5 864 6 871 3 864 1 898 3 870	596 585 517 510 587 529 508 519 528 489 529	408 374 434 866 817 611 611 541 555 828 834	397 635 1213 1059 873 772 551 553 817 960 808	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957	6 7 8 9 10 11 12 13 14 15	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431 2563	2527 2423 2380 2344 2317 2259 2267 2296 2385 2181 2176	1947 2255 2905 3636 6553 5040 3945 3055 2716 2637 2405	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206	467 497 572 583 641 691 623 760 831 1061 1693	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333	565 529 496 475 482 475 491 552 546 544 574	315 297 303 308 303 325 413 358 407 555 467 342	354 378 391 408 375 391 375 378 391 485 490	
5 7 9 10 11 12 15 15 16 17	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652 1447	2234 1 2334 1 2559 6 2339 4 1980 2 2158 3 2776 3 3230 2 7780 2 5706 2 3861 3	4419 200 409 18: 233 169 522 16 133 152 4447 138 6037 126 725 12: 505 132 245 129 154 136	5 910 9 988 7 917 3 807 3 841 0 835 5 864 6 871 3 864 1 898 3 870 2 876	596 585 517 510 587 529 508 519 528 489 529 552	408 374 434 866 817 611 611 541 555 828	397 635 1213 1059 873 772 551 553 817 960	992 2722 3242 9188 6765 4359 2050 1352 1002 914	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636	6 7 8 9 10 11 12 13 14 15	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431	2527 2423 2380 2344 2317 2259 2267 2296 2385 2181	1947 2255 2905 3636 6553 5040 3945 3055 2716 2637	1473 1438 1409 1476 1463 1569 1848 1719 1598	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206	467 497 572 583 641 691 623 760 831	2875 4748 3859 3145 4828 2853 2290 1894 1607	565 529 496 475 482 475 491 552 546 544	315 297 303 308 303 325 413 358 407 555 467	354 378 391 408 375 391 375 378 391 485	
5 6 7 0 0 1 1 2 2 3 3 4 4 5 6 7 8	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652 1447 1287	2234 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2 7780 2 5706 2 3861 3 2673 2187 7	4419 200 409 18: 233 16: 522 16: 133 15: 447 13: 6037 12: 7725 12: 505 13: 245 12: 154 13: 971 13:	5 910 9 988 7 917 3 807 3 841 0 835 5 864 6 871 3 864 1 898 3 870 2 876	596 585 517 510 587 529 508 519 528 489 529 552 547	408 374 434 866 817 611 611 541 555 828 834 878	397 635 1213 1059 873 772 551 553 817 960 808 1338	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000	6 7 8 9 10 11 12 13 14 15 16	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431 2563 2954	2527 2423 2380 2344 2317 2259 2267 2296 2385 2181 2176 2042	1947 2255 2905 3636 6553 5040 3945 3055 2716 2637 2405	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028	467 497 572 583 641 691 623 760 831 1061 1693	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164	565 529 496 475 482 475 491 552 546 544 574 594	315 297 303 308 303 325 413 358 407 555 467 342 389	354 378 391 408 375 391 375 378 391 485 490 533	
5 7 11 22 5 5 6 7 3	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652 1447 1287 1163	2234 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2 7780 2 5706 2 3861 3 2673 2187 2	4419 200 409 183 233 166 522 16 532 16 533 15 544 7 13 544 13	5 910 9 988 7 917 3 807 5 841 0 835 5 864 6 871 3 864 1 898 3 870 2 876 3 1012	596 585 517 510 587 529 508 519 528 489 529 552 547	408 374 434 866 817 611 611 541 555 828 834 878 1174	397 635 1213 1059 873 772 551 553 817 960 808 1338 1204	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742 686	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000 2566	6 7 8 9 10 11 12 13 14 15 16 17	2150 3052 4307 5048 4311 5560 3949 2951 2690 2583 2431 2563 2954 3956	2527 2423 2380 2344 2317 2259 2267 2296 2385 2481 2176 2042 2031	1947 2255 2905 3636 6553 5040 3945 3055 2776 2637 2405 2224 2116	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576 1935 2149	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606 1616	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028 1022	467 497 572 583 641 691 623 760 831 1061 1693 1249	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164 1058	565 529 496 475 482 475 491 552 546 544 574 594 549	315 297 303 308 303 325 413 358 407 555 467 342 389 348	354 378 391 408 375 391 375 378 391 485 490 533 782	
5 7 11 22 33 14 5 6 7 7 3 9	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026 1581	1172 1114 1106 10 11 1002 991 1056 1152 1303 1635 1652 1447 1287 1163 1126 1112	2234 1 2334 1 2559 6 2339 4 1980 2 2158 3 2776 3 3230 2 7780 2 5706 2 3861 3 2673 2 2187 2 2013 2	4419 200 409 18: 233 169 522 16 522 16 725 12: 725 12: 505 13: 245 12: 506 13: 246 13: 626 13: 629 13:	5 910 9 988 7 917 3 807 5 841 0 835 5 864 6 871 3 864 1 898 3 870 2 876 3 1012	596 585 517 510 587 529 508 519 528 489 529 552 547 459	408 374 434 866 817 611 611 541 555 828 834 878 1174 940	397 635 1213 1059 873 772 551 553 817 960 808 1338 1204	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742 686 653	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806 1940	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000 2566 2496	6 7 8 9 10 11 12 13 14 15 16 17 18	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431 2431 2954 3956 3777	2527 2423 2380 2344 2259 2267 2296 2385 2181 2176 2042 2031	1947 2255 2905 3636 6553 5040 3945 3055 2776 2637 2405 2224 2116	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576 1935 2149 4218	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606 1616	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028 1022 1091	467 497 572 583 641 691 623 760 831 1061 1693 1249 787 661	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164 1058 969	565 529 496 475 482 475 491 552 546 544 574 594 549	315 297 303 308 303 325 413 358 407 555 467 389 348 411	354 378 391 408 375 391 375 378 391 485 490 533 782 804	
5 5 7 10 10 11 12 22 33 44 55 66 77 73 33 90 11	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026 1581 1426 1409 1406 1483	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652 1447 1287 1163 1126 1112 1075 1100 1522	2234 1 2334 1 2559 6 2339 4 1980 2 158 3 2776 3 3230 2 7780 2 5706 2 3861 2673 2187 2013 2 2187 2013 2 2497 2	4419 200 4409 18: 233 166 522 16 133 152 632 16 133 152 605 132 245 126 154 136 971 13: 626 13: 626 13: 629 13: 609 13 6061 13:	5 910 9 988 7 917 3 807 3 841 0 835 5 864 6 871 8 864 1 898 3 870 2 876 8 1012 1 1004 3 901 5 953 5 896	596 585 517 510 587 529 508 519 528 489 529 552 547 459 419 348 313	408 374 434 866 817 611 541 555 828 834 878 1174 940 565 552 516	397 635 1213 1059 873 772 551 553 817 960 808 1338 1204 1079 1094 993 662	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742 686 653 622 629	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806 1940 1673 1474 1452	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000 2566 2496 2195 1840	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431 2563 2954 3956 3777 5649 4774	2527 2423 2380 2344 2317 2259 2267 2296 2385 2181 2176 2042 2031 1978 2004 1879	1947 2255 2905 3636 6553 5040 3945 3055 2716 2637 2405 2224 2067 2014 1965	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576 1935 24218 3412 2510	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606 1616 1577 1485 1555 1482	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028 1022 1091 1003 997 1006	467 497 572 583 641 691 623 760 831 1061 1693 1249 787 661 572 581 562	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164 1058 969 875 821	565 529 496 475 482 475 491 552 546 544 574 594 549 549 449 430 407	315 297 303 308 303 325 413 358 407 555 467 342 389 348 411 362 383 363	354 378 391 408 375 391 375 378 391 485 490 533 782 804 514 512 446	
7 0 11 12 2 3 3 14 5 5 6 6 7 7 1 1 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026 1581 1426 1409 1406 1483	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652 1447 1287 1163 1126 1112 1075 1100 1522 1705	2234 1 2334 1 2559 6 2339 4 1980 2 2158 3 2776 3 3230 2 7780 2 5706 2 3861 2 673 2187 2 2013 2 2013 2 2497 2 2497 2 2497 2	4419 200 4409 18: 233 169 522 16 133 152 4447 138 037 126 725 12: 505 13: 245 125 154 13: 971 13: 926 13: 929 13: 9017 13: 969 13 961 13: 988 14:	5 910 9 988 7 917 3 807 3 841 1 835 5 864 6 871 8 864 1 898 8 870 2 876 3 1012 1 1004 3 901 5 953 5 896	596 585 517 510 587 529 508 519 528 489 529 552 547 459 419 348 313	408 374 434 866 817 611 541 555 828 834 878 1174 940 565 552 516 520	397 635 1213 1059 873 772 551 553 817 960 808 1338 1204 1079 1094 993 662 578	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742 686 653 622 629 629	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806 1940 1673 1474 1452 1547 1506	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000 2566 2496 2195 1840	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431 2563 2954 3956 3777 5649 4774 3902	2527 2423 2380 2344 2317 2259 2267 2296 2385 2181 2176 2042 2031 1978 2004 1879 1895	1947 2255 2905 3636 6553 5040 3945 3055 2716 2637 2405 2224 2116 2067 2014 1965 1949	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576 1935 2149 4218 3412 2510 1938 2004	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606 1616 1577 1485 1555 1482 1414	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028 1022 1091 1003 997 1006 937 812	467 497 572 583 641 691 623 760 831 1061 1693 1249 787 661 572 581 562 599	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164 1058 969 875 821 702 640	565 529 496 475 482 475 491 552 546 544 574 594 549 449 449 430 407 447	315 297 303 308 303 325 413 358 407 555 467 342 389 348 411 362 383 363 394	354 378 391 408 375 391 375 378 391 485 490 533 782 804 514 512 446 511	
5 5 7 5 7 7 7 7 7 7 8 9 9 0 1 1 2 2 3 3 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026 1581 1426 1409 1406 1483 1492	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652 1447 1287 1163 1126 1112 1075 1100 1522 1705 2590	2234 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2 5706 2 3861 2 673 2187 2 2187 2 2013 2 2997 2 2497 2 2736 2 4446 3 3720 2 2859 2	4419 200 409 183 233 168 522 16 333 152 4447 138 037 126 725 127 505 132 245 128 154 130 971 133 926 133 929 133 067 133 069 133 061 133 088 14 539 152	5 910 9 988 7 917 3 807 3 841 1 00 835 5 864 6 871 3 864 1 898 3 870 2 876 3 1012 1 1004 1 1004 1 5 953 5 896 4 757 7 875	596 585 517 510 587 529 508 519 528 489 529 552 547 459 419 348 313 421 438	408 374 434 866 817 611 611 541 555 828 834 878 1174 940 565 552 516 520 588	397 635 1213 1059 873 772 551 553 817 960 808 1338 1204 1079 1094 993 662 578 639	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742 686 653 622 629 629 1219 1686	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806 1940 1673 1474 1452 1547 1506 1528	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000 2566 2496 2195 1840 1684 1767	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	2150 3052 4307 5048 4111 5560 3949 2951 2690 2583 2431 2563 2954 3956 3777 5649 4774 3902 4768	2527 2423 2380 2344 2317 2259 2267 2296 2385 2181 2176 2042 2031 1978 2004 1879 1895	1947 2255 2905 3636 6553 5040 3945 3055 2716 2637 2405 2224 2116 2067 2014 1965 1949	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576 1935 2149 4218 3412 2510 1938 2004	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606 1616 1577 1485 1555 1482 1414 1469	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028 1022 1091 1003 997 1006 937 812 833	467 497 572 583 641 691 623 760 831 1061 1693 1249 787 661 572 581 562 599 688	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164 1058 969 875 821 702 640 586	565 529 496 475 482 475 491 552 546 544 574 594 549 449 430 407 447	315 297 303 308 303 325 413 358 407 555 467 342 389 348 411 362 383 363 394	354 378 391 408 375 391 375 378 391 485 490 533 782 804 514 512 446 511 600	
5 7 9 00 11 22 33 34 4 5 5 5 6 7 7 3 3 4 4 5 5 5 5 7 7 7 7 7 7 8 7 8 7 8 7 8 7 8 7	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026 1581 1426 1409 1406 1483 1492 1518	1172 1114 1106 10 11 10 02 9 9 1 10 56 1152 13 03 16 35 16 52 14 4 7 12 8 7 116 3 112 6 1112 10 7 5 110 0 15 2 2 17 0 5 25 9 0 29 3 1	2234 1 2334 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2 7780 2 3861 3 2673 2187 6 2013 2097 6 2497 2497 2736 2 2487 22736 2 2487 22736 2 2487 22736 2	4419 200 409 18: 233 16s 522 16 522 16 333 152 4447 138 037 12c 725 12: 505 13: 245 12: 154 13: 921 13: 922 13: 929 13: 929 13: 969 13 969 13 968 14 539 15: 121 14:	5 910 9 988 7 917 3 807 5 864 6 871 3 864 1 898 3 864 1 1 898 3 870 2 876 3 1012 1 1004 3 901 5 953 6 875 7 875 2 822	596 585 517 510 587 529 508 519 528 489 529 552 547 459 419 348 313 421 438	408 374 434 866 817 611 611 541 555 828 834 878 1174 940 565 552 516 520 588 801	397 635 1213 1059 873 772 551 553 817 960 808 1338 1204 1079 1094 993 662 578 639 673	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742 686 653 622 629 1219 1686 2092	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806 1940 1673 1474 1452 1547 1506 1528	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000 2566 2496 2195 1840 16684 1767 1849 3657	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431 2563 2954 3956 3777 5649 4774 3902 4768 5778 9440	2527 2423 2380 2344 2259 2267 2296 2385 2181 2042 2031 1978 2004 1879 1861 1874	1947 2255 2905 3636 6553 5040 3945 3055 2776 2637 22405 2224 2116 2067 2014 1965 1928 1792	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576 1935 2149 4218 3412 2510 1938 2004	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606 1616 1577 1485 1555 1482 1414 1469 1400	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028 1022 1091 1003 997 1006 937 812 833 802	467 497 572 583 641 691 623 760 831 1061 1693 1249 787 661 572 581 562 599 688 717	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164 1058 969 875 821 702 640 586 632	565 529 496 475 482 475 491 552 546 544 574 594 549 449 449 440 407 447 468	315 297 303 308 303 325 413 358 407 555 467 342 389 348 411 362 383 363 394 336	354 378 391 408 375 391 375 378 391 485 490 533 782 804 514 512 446 511 600 670	
5 5 7 10 11 22 33 44 5 5 6	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026 1581 1426 1409 1406 1483 1492 1518	1172 1114 1106 10 11 1002 991 1056 1152 1303 1635 1652 1447 1287 1163 1126 1112 1075 1100 1522 1705 2590 2931 2565	2234 1 2334 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2 7780 2 3861 3 2673 2187 2 2013 1 2097 2497 2736 2 4446 2 3720 2 2859 2 279 2	4419 200 4409 183 233 168 522 16 522 16 333 152 447 138 037 126 725 123 245 129 154 136 971 133 926 133 929 133 9017 132 969 13 961 131 988 144 539 152 121 141 728 164	5 910 9 988 7 917 3 807 5 864 6 871 3 864 1 898 3 870 2 876 3 1012 1 1004 3 901 5 953 5 896 4 757 7 875 2 822 4 727	596 585 517 510 587 529 508 519 528 489 529 552 547 459 419 348 313 421 438 456 547	408 374 434 866 817 611 611 541 555 828 834 878 1174 940 565 552 516 520 588 801 606	397 635 1213 1059 873 772 551 553 817 960 808 1338 1204 1079 1094 993 662 578 639 673 713	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742 686 653 622 629 629 1219 1686 2092 5102	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806 1940 1673 1474 1452 1547 1506 1528 1508	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000 2566 2496 2195 1840 1684 1767 1849 3657 3459	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431 2563 2954 3956 3777 5649 4774 3902 4768 5778 9440 16394	2527 2423 2380 2344 2259 2267 2296 2385 2181 2176 2042 2031 1978 2004 1879 1895 1861 1874 1791	1947 2255 2905 3636 6553 5040 3945 3055 2776 2637 2405 2224 2116 2067 2014 1965 1949 1928 1792 1764	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576 1935 2149 4218 3412 2510 1938 2004 1933 2217 2469	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606 1616 1577 1485 1555 1482 1414 1469 1400 1235	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028 1028 1022 1091 1003 997 1006 937 812 833 802 753	467 497 572 583 641 691 623 760 831 1061 1693 1249 787 661 572 581 562 599 688 717	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164 1058 969 875 821 702 640 586 632 624	565 529 496 475 482 475 491 552 546 544 574 594 549 449 430 407 447 468 488 488	315 297 303 308 303 325 413 358 407 555 467 342 389 348 411 362 383 363 394 336	354 378 391 408 375 391 375 378 391 485 490 533 782 804 514 512 446 511 600 670 557	
5 6 7 3 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 7 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026 1581 1426 1409 1406 1483 1492 1518 1520	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652 1447 1287 1163 1126 1112 1075 1100 1522 1705 2590 2931 2565 2258	2234 1 2334 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2 7780 2 3861 3 2673 2187 7 2013 2 2187 7 2497 2 2736 2 4446 2 3720 2 2859 2 2279 2 100 4730	4419 200 4409 183 233 168 522 16 333 152 4447 138 037 126 725 123 245 129 154 134 971 133 926 133 929 133 9017 132 9069 13 9061 133 908 14 9539 152 121 147 728 164 614 18	5 910 9 988 7 917 3 807 6 835 5 864 6 871 8 864 1 898 8 870 8 1012 1 1004 3 901 5 953 5 896 4 757 7 875 2 822 4 727	596 585 517 510 587 529 508 519 528 489 529 552 547 459 419 348 313 421 438 456 547 652	408 374 434 866 817 611 611 541 555 828 834 878 1174 940 565 552 516 520 588 801 606	397 635 1213 1059 873 772 551 553 817 960 808 1338 1204 1079 1094 993 662 578 639 673 713	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742 686 653 622 629 629 1219 1686 2092 5102 3388	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806 1940 1673 1474 1452 1547 1506 1528 1508 1569 1521	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000 2566 2496 2195 1840 1684 1767 1849 3657 3459	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431 2563 2954 3956 3777 5649 4774 3902 4768 5778 9440 16394 11497	2527 2423 2380 2344 2317 2259 2267 2296 2385 2181 2176 2042 2031 1978 2004 1879 1895 1861 1874 1791 1866	1947 2255 2905 3636 6553 5040 3945 3055 2716 2637 2405 2224 2116 2067 2014 1965 1949 1928 1792 1764 1801	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576 1935 2149 4218 3412 2510 1938 2004 1933 2217 2469 2165	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606 1616 1577 1485 1555 1482 1414 1469 1400 1235 1252	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028 1022 1091 1003 997 1006 937 812 833 802 753 743	467 497 572 583 641 691 623 760 831 1061 1693 1249 787 661 572 581 562 599 688 717 695	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164 1058 969 875 821 702 640 586 632 624 664	565 529 496 475 482 475 491 552 546 544 574 594 549 449 430 407 447 468 488 483 505	315 297 303 308 303 325 413 358 407 555 467 342 389 348 411 362 383 363 394 336 383 364 376	354 378 391 408 375 391 375 378 391 485 490 533 782 804 514 512 446 511 600 670 557 708	
4 5 6 7 7 3 9 0 1 1 2 3 4 4 5 6 6 7 7 8 9 0 1 1 2 2 3 3 4 4 4 5 6 7 7 8 8 9 9 0 1 1 2 1 2 3 3 4 4 4 8 9 9 9 0 1 1 2 1 2 3 3 3 3 4 4 4 5 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026 1581 1426 1409 1406 1483 1492 1518	1172 1114 1106 10 11 1002 991 1056 1152 1303 1635 1652 1447 1287 1163 1126 1112 1075 1100 1522 1705 2590 2931 2565	2234 1 2334 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2 7780 2 5706 3 3861 3 2187 2 2187 2 2187 2 2497 2 2497 2 2736 2 4446 2 3720 2 2859 2 2279 2 100 4730 7518	4419 200 4409 183 233 168 522 16 522 16 333 152 447 138 037 126 725 123 245 129 154 136 971 133 926 133 929 133 9017 132 969 13 961 131 988 144 539 152 121 141 728 164	5 910 9 988 7 917 3 807 5 864 6 871 8 864 1 898 3 870 2 876 3 1012 1 1004 3 901 5 953 5 896 4 757 7 875 2 822 4 727 0 719 3 749	596 585 517 510 587 529 508 519 528 489 529 552 547 459 419 348 313 421 438 456 547	408 374 434 866 817 611 611 541 555 828 834 878 1174 940 565 552 516 520 588 801 606	397 635 1213 1059 873 772 551 553 817 960 808 1338 1204 1079 1094 993 662 578 639 673 713	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742 686 653 622 629 629 1219 1686 2092 5102	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806 1940 1673 1474 1452 1547 1506 1528 1508	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000 2566 2496 2195 1840 1684 1767 1849 3657 3459	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431 2563 2954 3956 3777 5649 4774 3902 4768 5778 9440 16394	2527 2423 2380 2344 2259 2267 2296 2385 2181 2176 2042 2031 1978 2004 1879 1895 1861 1874 1791	1947 2255 2905 3636 6553 5040 3945 3055 2776 2637 2405 2224 2116 2067 2014 1965 1949 1928 1792 1764	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576 1935 2149 4218 3412 2510 1938 2004 1933 2217 2469	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606 1616 1577 1485 1555 1482 1414 1469 1400 1235	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028 1028 1022 1091 1003 997 1006 937 812 833 802 753	467 497 572 583 641 691 623 760 831 1061 1693 1249 787 661 572 581 562 599 688 717	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164 1058 969 875 821 702 640 586 632 624	565 529 496 475 482 475 491 552 546 544 574 594 549 449 430 407 447 468 488 488	315 297 303 308 303 325 413 358 407 555 467 342 389 348 411 362 383 363 394 336	354 378 391 408 375 391 375 378 391 485 490 533 782 804 514 512 446 511 600 670 557	
5 6 7 3 9 0 1 1 2 3 3 4 4 5 5 6 6 7 8 8	1457 1557 2679 3571 4087 7823 5099 3514 2608 2390 3052 2508 2026 1581 1426 1409 1406 1483 1492 1518 1520 1431 1467	1172 1114 1106 1011 1002 991 1056 1152 1303 1635 1652 1447 1287 1163 1126 1112 1075 1100 1522 1705 2590 2931 2565 2258	2234 1 2334 1 2334 1 2559 6 2339 4 1980 4 2158 3 2776 3 3230 2 7780 2 3861 2 673 2187 2 2187 2 2187 2 2497 2 2497 2 2497 2 2497 2 2497 2 2497 2 2497 2 2497 2 2497 2 2497 2 2497 2 2497 2 2497 3 2100 4730 7518 1 12703	4419 200 4409 183 233 168 522 16 133 152 725 123 505 132 245 129 154 136 971 133 926 133 927 132 926 133 927 132 928 133 929 133 969 13 969 13 969 13 961 134 978 124 141 147 728 164 614 18 694 173	5 910 9 988 7 917 3 807 3 841 0 835 5 864 6 871 8 864 1 898 3 870 2 876 8 1012 1 1004 3 901 5 953 5 896 4 757 7 875 7 875 7 875 9 822 4 727 0 719 3 749 1 824	596 585 517 510 587 529 508 519 528 489 529 552 547 459 419 348 313 421 438 456 547 652 511	408 374 434 866 817 611 611 541 555 828 834 878 1174 940 565 552 516 520 588 801 606 531 482	397 635 1213 1059 873 772 551 553 817 960 808 1338 1204 1079 1094 993 662 578 639 673 713 760	992 2722 3242 9188 6765 4359 2050 1352 1002 914 812 742 686 653 622 629 629 1219 1686 2092 5102 3388 2177	20481 13931 5573 3955 2911 2125 1761 1552 1381 1437 1463 1806 1940 1673 1474 1452 1547 1506 1528 1508 1569 1521 1716	1826 1768 1804 1525 1680 1881 1472 1461 1562 1636 1957 1992 2000 2566 2496 2195 1840 1684 1767 1849 3657 3459 2658	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	2150 3052 4307 5048 8411 5560 3949 2951 2690 2583 2431 2563 2954 3956 3777 5649 4774 3902 4768 5778 9440 16394 11497 6614	2527 2423 2380 2344 2317 2259 2267 2296 2385 2181 2176 2042 2031 1978 2004 1879 1895 1861 1874 1791 1866	1947 2255 2905 3636 6553 5040 3945 3055 2716 2637 2405 2224 2116 2067 2014 1965 1949 1928 1792 1764 1801	1473 1438 1409 1476 1463 1569 1848 1719 1598 1490 1576 1935 2149 4218 3412 2510 1938 2004 1933 2217 2469 2165 1763	3275 3764 4548 6940 5063 3273 2358 2083 2023 1862 1702 1606 1616 1577 1485 1555 1482 1414 1469 1400 1235 1252 1258	1587 1785 2444 3076 2265 1753 1528 1459 1383 1206 1028 1022 1091 1003 997 1006 937 812 833 802 753 743 697	467 497 572 583 641 691 623 760 831 1061 1693 1249 787 661 572 581 562 599 688 717 695 659 675	2875 4748 3859 3145 4828 2853 2290 1894 1607 1342 1333 1164 1058 969 875 821 702 640 586 632 624 664 672	565 529 496 475 482 475 491 552 546 544 574 594 549 449 430 407 447 468 488 488 483 505 434	315 297 303 308 303 325 413 358 407 555 467 342 389 348 411 362 383 363 394 336 383 364 376	354 378 391 408 375 391 375 378 391 485 490 533 782 804 514 512 446 511 600 670 557 708 947	

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	979												19	80					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	De
ı	2332	1374	3407	4762	2385	5487	1263	995	1637	1747	2164	1508	1	1301	2629	1580	4644	2460	2098	14 14	773	928	2827	902	8:
2	2559	1397	6280	6 176	2082	4318	1086	957	1543	1576	2788	1432	2	1280	2252	1680	4288	2235	2069	1246	739	754	2005	803	7
3	2739	1247	6514	14037	2056	3406	1008	927	1398	1393	3234	1394	3	1204	2 110	1994	4048	2210	2011	1277	721	584	1144	747	74
<u> </u>	1979	150 1	13073	15688	2300	2912	951	901	1585	1390	2386	1321	4	1201	1885	2336	3644	2101	1929	1195	667	565	845	700	6
5 6	1736	1646	19618	10505	2226	2414	890	870	1323	1969	153 1	1289	5	1348	1821	3674	3581	2118	1885	1166	711	475	654	687	6
, 7	1788 2 171	1736 2 197	12210 5794	5972 4337	2084 2067	2108 2095	1165 1197	8 11 8 15	1006 885	1720 1303	1179 1098	1297 1303	6 7	1306 1298	1795 2093	7504 7514	3464 3353	1944 1984	1890 1789	1116 1100	691 625	445 468	6 10 557	626 648	6 7:
<u>.</u> 8	5246	2312	4779	3879	1965	2172	1202	761	780	1106	1282	1284	8	14 11	2408	16560	3086	1990	1690	1058	602	4 17	535	650	7:
9	3510	2203	4011	5171	2037	1951	1449	982	720	1021	1569	1236	9	1719	2699	16580	3441	1976	1567	1009	635	373	514	641	6
0	2488	1961	3403	5448	2673	1846	1696	1090	696	979	2207	1202	10	2 176	3414	9501	3748	2015	1462	1004	602	375	522	616	7:
11	1894	1729	3169	9390	2789	174 1	1666	1174	714	8 11	2777	1266	11	2495	3252	6875	5107	2015	1364	1003	646	343	543	629	7
2	1601	16 18	2855	9835	2997	1603	1624	1394	671	851	2612	1169	12	4139	2722	6624	5691	2060	1358	964	780	308	494	572	6
3	1647	1484	2433	19038	2958	1502	1679	1265	723	886	2149	1254	13	3093	2255	11025	7783	2004	1380	9 19	716	3 10	484	639	6
4	1566	1422	2166	27367	2938	1430	1368	936	1000	823	1687	1300	14	2637	2214	7702	11884	1983	1387	884	645	307	490	725	6
5 6	1354 1253	1448 1450	2152 2003	16939 6897	2109 1899	1383 1362	118 <i>7</i> 1110	744 693	1022 974	781 801	1385 1321	1242 1110	15 16	2292 3022	2216 2492	6442 5604	8145 4806	2189 2529	1479 1550	856 813	614 638	339 342	488 653	743 973	6
7	1228	1499	1805	5350	1809	1352	993	670	984	781	1306	1156	17	3810	2865	7144	3971	3452	1679	789	675	399	941	938	6
8	1646	1565	1842	4315	1837	1339	114 1	658	1105	766	1278	1059	18	5493	2517	16094	3510	5142	1863	736	636	676	1174	776	5
9	2133	1727	1822	3714	1794	1323	1530	657	1329	796	1234	1073	19	5510	2236	13397	3241	5196	1863	727	601	588	2350	671	6
0	2992	19 17	1827	3592	1963	1240	2016	822	1148	828	12 13	1099	20	4588	2139	9334	3216	5957	1634	722	626	492	1643	688	6
1	8028	2550	1838	2970	2354	1260	2750	858	1005	891	1258	1089	21	3815	2040	14487	2935	5852	1691	695	564	540	1117	742	Ę
2	5350	4436	2024	2748	2582	1290	3132	858	1467	887	1460	1128	22	3507	1995	13930	2782	4797	1892	688	525	582	733	777	5
3	4242	5694	2064	2724	2463	13 18	3265	1137	1360	904	1641	1120	23	5718	1984	8352	2665	5106	2472	767	520	570	695	827	6
4 5	3749 3162	8562 10461	2316 2195	3005 3037	2656 2644	1225 1294	2521 2083	1264 1435	1071 1180	941 835	2210 2731	1163 1384	24	4201 3388	1787 1704	6438 6779	2579 2712	5238 4371	3818 4650	939 1075	494 574	525 686	660 748	1066 1236	-
6	2705	8691	2007	3663	2083	1256	1918	16 17	1615	765	4007	1290	26	2704	1627	6449	2967	3440	3249	1242	555	12 14	947	1077	
7	2238	4976	1836	3982	2036	1185	1658	1734	1844	842	3191	1193	27	2258	1605	6334	3 159	2748	2625	13 15	493	1025	969	1020	_
3	1864	3704	1760	3212	2013	113 1	1427	1369	2887	991	2392	1173	28	2074	1592	7258	2996	2419	1757	1386	552	1557	1151	1127	6
9	1767		1726	2477	2633	1124	1206	1187	3020	1102	1941	1171	29	1978	1604.383	12539	2760	2292	1557	1151	616	2294	1351	10 10	6
0	1539		1732	2327	3482	118 1	1186	1228	2414	1554	1676	1245	3 0	2072		7924	2525	2436	1469	900	767	3028	1147	925	6
1	1427	<u> </u>	1902		3943		1113	1246		2346		1375	31	2555	<u> </u>	6067		2208		762	796	<u> </u>	1009		6
						19	981		1										19	82					
	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	_
	607	848	1208	3624	880	Jun 2339	Jul 504	287	485	110	355	1329	1	7077	9319	3044	1461	2385	Jun 1613	Jul 1171	1285	776	437	887	4
2	607 596	848 1158	1208 1353	3624 2409	880 714	Jun 2339 2886	Jul 504 580	287 334	485 521	110 127	355 349	1329 1581	2	7077 6838	9319 11521	3044 2738	1461 1538	2385 2194	Jun 16 13 1755	Jul 1171 912	1285 1159	776 921	437 451	887 953	4
2	607 596 585	848 1158 1385	1208 1353 1272	3624 2409 2104	880 714 675	Jun 2339 2886 2799	Jul 504 580 727	287 334 419	485 521 575	110 127 115	355 349 345	1329 1581 1128	3	7077 6838 8925	9319 11521 28726	3044 2738 2312	1461 1538 1918	2385 2194 2116	Jun 1613 1755 1479	Jul 1171 912 812	1285 1159 884	776 921 965	437 451 421	887 953 1067	4 5 4
2 3	607 596 585 588	848 1158 1385 1124	1208 1353 1272 1314	3624 2409 2104 1875	880 714 675 677	Jun 2339 2886 2799 3060	Jul 504 580 727 723	287 334 419 375	485 521 575 511	110 127 115 86	355 349 345 320	1329 1581 1128 842	2 3 4	7077 6838 8925 17126	9319 11521 28726 29035	3044 2738 2312 2286	1461 1538 1918 2092	2385 2194 2116 1983	Jun 16 13 1755 14 79 14 77	Jul 1171 9 12 8 12 755	1285 1159 884 757	776 921 965 829	437 451 421 409	887 953 1067 1478	4 5 4
2 3 1	607 596 585	848 1158 1385	1208 1353 1272 1314 1615	3624 2409 2104 1875 1908	880 714 675 677 701	Jun 2339 2886 2799 3060 3726	Jul 504 580 727	287 334 419	485 521 575	110 127 115 86 118	355 349 345 320 294	1329 1581 1128 842 615	2 3 4 5	7077 6838 8925	9319 11521 28726	3044 2738 2312 2286 2586	1461 1538 1918	2385 2194 2116 1983 1785	Jun 1613 1755 1479	Jul 1171 912 812 755 809	1285 1159 884 757 681	776 921 965 829 682	437 451 421 409 605	887 953 1067	4; 5 4; 4;
2 3 1 5	607 596 585 588 583	848 1158 1385 1124 929	1208 1353 1272 1314	3624 2409 2104 1875	880 714 675 677	Jun 2339 2886 2799 3060	Jul 504 580 727 723 661	287 334 419 375 624	485 521 575 511 624	110 127 115 86	355 349 345 320	1329 1581 1128 842	2 3 4	7077 6838 8925 17126 13075	9319 11521 28726 29035 12889	3044 2738 2312 2286	1461 1538 1918 2092 2117	2385 2194 2116 1983	Jun 16 13 1755 1479 1477 1585	Jul 1171 9 12 8 12 755	1285 1159 884 757	776 921 965 829	437 451 421 409	887 953 1067 1478 1284	4 5 4 4 4 7
1	607 596 585 588 583 571	848 1158 1385 1124 929 830	1208 1353 1272 1314 1615 1678	3624 2409 2104 1875 1908 2157	880 714 675 677 701 664	Jun 2339 2886 2799 3060 3726 2763	Jul 504 580 727 723 661 740	287 334 419 375 624 673	485 521 575 511 624 524	110 127 115 86 118	355 349 345 320 294 327	1329 1581 1128 842 615 543	2 3 4 5 6	7077 6838 8925 17126 13075 5877	9319 11521 28726 29035 12889 6366	3044 2738 2312 2286 2586 2722	1461 1538 1918 2092 2117 2691	2385 2194 2116 1983 1785 2215	Jun 1613 1755 1479 1477 1585	Jul 1171 912 812 755 809 768	1285 1159 884 757 681 809	776 921 965 829 682 633	437 451 421 409 605 789	887 953 1067 1478 1284 986	4 4 4 7 4
	607 596 585 588 583 571 619	848 1158 1385 1124 929 830 803	1208 1353 1272 1314 1615 1678	3624 2409 2104 1875 1908 2157 1897	880 714 675 677 701 664 639	Jun 2339 2886 2799 3060 3726 2763 2278	Jul 504 580 727 723 661 740 744	287 334 419 375 624 673 884	485 521 575 511 624 524 374	110 127 115 86 118 180 184	355 349 345 320 294 327 338	1329 1581 1128 842 615 543 486	2 3 4 5 6 7	7077 6838 8925 17126 13075 5877 3609	9319 11521 28726 29035 12889 6366 4799	3044 2738 2312 2286 2586 2722 3623	1461 1538 1918 2092 2117 2691 2599	2385 2194 2116 1983 1785 2215 2257	Jun 1613 1755 1479 1477 1585 1401 1207	Jul 1171 912 812 755 809 768 751	1285 1159 884 757 681 809 908	776 921 965 829 682 633 546	437 451 421 409 605 789 901	887 953 1067 1478 1284 986 838	4 4 4 7 4 3
	607 596 585 588 583 571 619 675 627 543	848 1158 1385 1124 929 830 803 1583 2692 3435	1208 1353 1272 1314 1615 1678 1367 1267 1114	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402	880 714 675 677 701 664 639 756 666 636	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530	Jul 504 580 727 723 661 740 744 695 523 419	287 334 419 375 624 673 884 1070 875 586	485 521 575 511 624 524 374 907 547 398	110 127 115 86 118 180 184 177 224 273	355 349 345 320 294 327 338 325 311	1329 1581 1128 842 615 543 486 439 393 382	2 3 4 5 6 7 8 9	7077 6838 8925 17126 13075 5877 3609 2727 1999	9319 11521 28726 29035 12889 6366 4799 3916 3518	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077	Jul 1171 9 12 8 12 755 8 09 768 751 8 6 0 1107	1285 1159 884 757 681 809 908 1299 1748 2404	776 921 965 829 682 633 546 510 497	437 451 421 409 605 789 901 1633 2014	887 953 1067 1478 1284 986 838 785 786 851	4 4 4 4 7 7 4 3 3 3
)	607 596 585 588 583 571 619 675 627 543	848 1158 1385 1124 929 830 803 1583 2692 3435 7237	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293	880 714 675 677 701 664 639 756 666 636	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211	Jul 504 580 727 723 661 740 744 695 523 419 401	287 334 419 375 624 673 884 1070 875 586 571	485 521 575 511 624 524 374 907 547 398 357	110 127 115 86 118 180 184 177 224 273 324	355 349 345 320 294 327 338 325 311 321 318	1329 1581 1128 842 615 543 486 439 393 382 391	2 3 4 5 6 7 8 9 10	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009	Jul 1171 9 12 8 12 755 8 09 768 751 8 60 1107 1608	1285 1159 884 757 681 809 908 1299 1748 2404 3002	776 921 965 829 682 633 546 510 497 524	437 451 421 409 605 789 901 1633 2014 1480 2659	887 953 1067 1478 1284 986 838 785 786 851	4 4 4 4 7 4 3 3 3 3 4
	607 596 585 588 583 571 619 675 627 543 504	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174	880 714 675 677 701 664 639 756 666 636 684 834	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035	Jul 504 580 727 723 661 740 744 695 523 419 401 362	287 334 419 375 624 673 884 1070 875 586 571	485 521 575 511 624 524 374 907 547 398 357 297	110 127 115 86 118 180 184 177 224 273 324 239	355 349 345 320 294 327 338 325 311 321 318 303	1329 1581 1128 842 615 543 486 439 393 382 391 482	2 3 4 5 6 7 8 9 10 11	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075	Jul 1171 9 12 8 12 755 8 09 768 751 860 1107 1608 2391	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359	776 921 965 829 682 633 546 510 497 524 626	437 451 421 409 605 789 901 1633 2014 1480 2659 2957	887 953 1067 1478 1284 986 838 785 786 851 808 915	4 4 4 4 7 7 4 4 3 3 3 4 8
)	607 596 585 588 583 571 619 675 627 543 504 535	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174	880 714 675 677 701 664 639 756 666 636 684 834	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315	287 334 419 375 624 673 884 1070 875 586 571 582 441	485 521 575 511 624 524 374 907 547 398 357 297 312	110 127 115 86 118 180 184 177 224 273 324 239 214	355 349 345 320 294 327 338 325 311 321 318 303 282	1329 1581 1128 842 615 543 486 439 393 382 391 482 529	2 3 4 5 6 7 8 9 10 11 12	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1865	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540	776 921 965 829 682 633 546 510 497 524 626 884	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337	4 4 4 4 7 4 4 3 3 3 4 8 5
) 11 22 33	607 596 585 588 583 571 619 675 627 543 504 535 574	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101	880 714 675 677 701 664 639 756 666 636 684 834 683	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318	287 334 419 375 624 673 884 1070 875 586 571 582 441	485 521 575 511 624 524 374 907 547 398 357 297 312 368	110 127 115 86 118 180 184 177 224 273 324 239 214	355 349 345 320 294 327 338 325 311 321 318 303 282 304	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661	2 3 4 5 6 7 8 9 10 11 12 13	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151	93 19 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2442 2109 2111 2088	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1865 1437	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540	776 921 965 829 682 633 546 510 497 524 626 884 886	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337	4 4 4 4 7 3 3 3 3 4 8 8 5
5 5 7 1 1 2 2 3 3 4	607 596 585 588 583 571 619 675 627 543 504 535	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174	880 714 675 677 701 664 639 756 666 636 684 834	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315	287 334 419 375 624 673 884 1070 875 586 571 582 441	485 521 575 511 624 524 374 907 547 398 357 297 312	110 127 115 86 118 180 184 177 224 273 324 239 214	355 349 345 320 294 327 338 325 311 321 318 303 282	1329 1581 1128 842 615 543 486 439 393 382 391 482 529	2 3 4 5 6 7 8 9 10 11 12	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1865	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540	776 921 965 829 682 633 546 510 497 524 626 884	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337	44 44 44 43 33 34 44 45 55 44 33
2 3 3 5 5 7 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	607 596 585 588 583 571 619 675 627 543 504 535 574 605	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101	880 714 675 677 701 664 639 756 666 636 684 834 683 727	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350	485 521 575 511 624 524 374 907 547 398 357 297 312 368 363	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159	355 349 345 320 294 327 338 325 311 321 318 303 282 304 285	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895	2 3 4 5 6 7 8 9 10 11 12 13 14	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161	93 19 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 1120	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1437 1296 1127	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327	776 921 965 829 682 633 546 510 497 524 626 884 886 1123	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056	44 44 44 43 33 33 34 44 86 43 33 33 33 34 33 34 33 34 35 36 36 37 37 37 37 37 37 37 37 37 37 37 37 37
2 3 3 1 5 5 7 7 3 3 9 0 0 1 1 2 2 3 4 5 6 7 7 8 8 8 8 8 8 9 8 9 8 9 8 8 8 9 8 8 8 8	607 596 585 588 583 571 619 675 627 543 504 535 574 667 605 606	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338	485 521 575 511 624 374 907 547 398 357 297 312 368 363 502	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159	355 349 345 320 294 327 338 325 311 321 318 303 282 304 285 288	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895	2 3 4 5 6 7 8 9 10 11 12 13 14 15	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 1120 998	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1865 1437 1296 1127	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184	44 44 44 44 48 48 32 33 38 80 60 55 55 55 55 55 55 55 55 55 5
2 3 5 7 7 1 1 2 2 3 3 4 4 5 6 6 7 7 8 8 9 9	607 596 585 588 583 571 619 675 627 543 504 535 574 567 605 606 624 599 627	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904 967 1012 994 1185	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761 730 709 898 994	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691 649 613 591	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338 316 377 786	485 521 575 511 624 524 374 907 547 398 357 297 312 368 363 502 620 426 272	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358	355 349 345 320 294 327 338 325 311 321 318 303 282 304 285 288 287 257 236	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 628	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1149	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122 3289 3385 3185	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 1120 998 968 945 936	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1865 1437 1296 1127 1121 1195 1265 995	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 585 562	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 1219 1392 1769	4 4 4 4 4 4 33 3 3 4 4 86 5 5 5 5 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3
2 3 3 4 5 5 7 3 9 0 1 5 5 7 7 7 8 8 9 9	607 596 585 588 583 571 619 675 627 543 504 535 574 605 606 606 624 599 627 673	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801 5310	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904 967 1012 994 1185	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071 1038 1052	880 714 675 677 701 664 639 756 666 636 638 834 683 727 761 730 898 994	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 649 613 591 568	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513 400 323	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338 316 377 786 728	485 521 575 511 624 524 374 907 547 398 357 297 312 368 363 502 620 426 272 179	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358 353	355 349 345 320 327 338 325 311 321 303 282 304 285 288 288 257 266 276	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 628 498	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1149 1178	93 19 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600 2165	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961 2481	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122 3289 3385 3185 2948	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647 1956	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 1120 998 968 945 936	Jul 1171 9 12 8 12 755 8 09 768 751 8 60 1107 1608 2 3 9 1 18 6 5 14 3 7 12 9 6 11 2 7 11 2 1 11 9 5 12 6 5 9 9 5 9 4 4	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636 1513	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 562 547 558	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916 861	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 1219 1392 1769 1654	44 44 44 44 48 48 48 48 49 41 41 41 41 42 43 43 44 45 46 47 47 47 48 48 49 49 49 49 49 49 49 49 49 49
5 5 7 11 22 7 7 3 3 9 0	607 596 585 588 583 571 619 675 627 543 504 535 574 605 606 624 599 627 673 791	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801 5310 3681	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904 967 1012 994 1185 1146 1010	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071 1038 1052	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761 730 709 898 994 1121	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691 649 649 649 658	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513 400 323 341	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338 316 377 786 728 802	485 521 576 511 624 524 374 907 547 398 357 297 312 368 363 502 620 426 272 179	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358 353 364	355 349 345 320 294 327 338 325 311 321 318 303 282 304 285 288 287 236 276 313	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 428 428 488	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1178 1556 2479	93 19 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600 2165	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961 2481 2140	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122 3289 3385 3185 2948 2708	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647 1956 1863 2364	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 1120 998 968 945 936 930	Jul 1171 9 12 8 12 7 55 8 09 7 68 7 51 8 60 1107 16 08 2 3 9 1 14 3 7 12 9 6 11 2 7 11 2 1 11 9 5 12 6 5 9 9 5 9 4 4 8 6 7	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636 1513 1095	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 585 562 547	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916 861 832	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 12 19 13 92 1769 1654 1366	44 44 44 43 32 33 34 44 43 32 33 33 32 42 22 24
2 3 5 5 7 7 3 0 0 1 1 2 2 3 3 4 4 7 8 9 9 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	607 596 585 588 583 571 619 675 627 543 504 535 574 567 605 606 624 599 627 673 791	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801 5310 3681 2440	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904 967 1012 994 1185 1146 1010 970	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071 1038 1052 1043	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761 730 709 898 994 1121 1058	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691 649 613 591 568 587	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513 400 323 341 281	287 334 419 375 624 673 884 1070 875 586 571 350 338 316 377 786 728 802 869	485 521 575 511 624 524 374 907 547 398 357 297 312 368 363 502 620 426 272 179 102 37	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358 353 364 346	355 349 345 320 294 327 338 325 311 321 318 303 282 304 285 288 287 257 257 276 313 302	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 628 498 488 684	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1149 1178 1556 2479 3568	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600 2165 1897	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961 2481 2140 2069	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122 3289 3385 3185 2948 2708	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647 1956 1863 2364 2267	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 918 968 945 936 930 914	Jul 1171 912 812 755 809 768 761 860 1107 1608 2391 1865 1437 1296 1127 1121 1195 1265 995 944 867 866	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636 1513 1095 966	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 585 562 547 558 470 453	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916 861 832 833	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 12 19 1392 1769 1654 1366 1309	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
2 3 3 4 5 5 6 7 7 8 8 9 9 0 1 1 2 2 3 3 4 5 6 7 7 7 7 8 8 8 8 9 9 9 9 9 9 9 9 1 1 1 1 1 1 2 1 2 3 9 9 9 9 9 9 9 9 1 1 1 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	607 596 585 588 583 571 619 675 627 543 504 535 574 567 605 606 624 599 627 673 791 790 719	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801 5310 3681 2440 2005	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904 967 1012 994 1185 1146 1010 970 1009	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071 1038 1052 1043 1036	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761 730 709 898 994 1121 1058 870 663	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691 649 613 591 568 587 530 605	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513 400 323 341 281	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338 316 377 786 728 802 869 822	485 521 575 511 624 374 907 547 398 357 297 312 368 363 502 620 426 272 179 102 37	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358 353 364 346 528	355 349 345 320 294 327 338 325 311 321 318 303 282 304 285 288 287 257 236 276 313 302 329	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 628 498 488 684 572	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1149 1178 1556 2479 3568 2737	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600 2165 1897 1785	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961 2481 2140 2069 1896	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122 3289 3385 3185 2948 2708	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647 1956 1863 2364 2267	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 1120 998 968 945 936 936 930 914	Jul 1171 9 12 8 12 755 8 09 768 751 8 60 1107 16 08 2 3 9 1 18 6 5 112 7 112 1 119 5 12 6 5 9 9 5 9 4 4 8 6 7 8 6 6 11 5 6	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636 1513 1095 966 852	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 585 562 547 558 470 453	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916 861 832 833 731	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 1219 1392 1769 1654 1366 1309 1373	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
5 5 7 11 22 33 44 5 66 7 7 3 9 9 0 0 1 1 2 2 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	607 596 585 588 583 571 619 675 627 543 504 535 574 567 605 606 624 599 627 673 791 790 719 674	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801 5310 3681 2440 2005 1732	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904 967 1012 994 1185 1146 1010 970 1009 987	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071 1038 1052 1043 1036 971	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761 730 709 898 994 1121 1058 870 653 1518	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691 649 613 591 568 587 530 605 524	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513 400 323 341 281 281	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338 316 377 786 728 802 869 822 380	485 521 575 511 624 524 374 907 547 398 357 297 312 368 363 502 620 426 272 179 102 37 23 52	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358 353 364 346 528 750	355 349 345 320 294 338 327 338 325 311 321 318 303 282 304 285 288 287 257 236 276 313 302 329 422	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 628 498 488 488 684 572 953	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1149 1178 1556 2479 3568 2737 2661	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600 2165 1897 1785 1638 1703	3044 2738 2312 2286 2586 2772 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961 2481 2140 2069 1896 1771	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122 3289 3385 3185 2948 2708 2377 3107 4137	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647 1956 1863 2364 2267 2320 2880	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 998 968 945 936 936 936 930 914 938 973	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1865 1437 1296 1127 1121 1195 1265 995 944 867 866 1156 1033	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636 1513 1095 966 852 835	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 585 562 547 558 470 453 479 483	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916 861 832 833 731 705	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 1219 1392 1769 1654 1366 1309 1373 1196	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
2 3 3 1 5 5 7 3 9 0 0 1 2 2 3 4 5 6 7 7 8 8 9 9 0 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	607 596 585 588 583 571 619 675 627 543 504 535 574 567 605 606 624 599 627 673 791 790 719 674 689	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801 5310 3681 2440 2005	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904 967 1012 994 1185 1146 1010 970 1009 987 908	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071 1038 1052 1043 1036 971	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761 730 709 898 994 1121 1058 870 653 1518 2989	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691 649 613 591 568 587 530 605 524	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513 400 323 341 281 281 257 252	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338 316 377 786 728 802 869 822 380 341	485 521 575 511 624 524 374 907 547 398 357 297 312 368 363 502 620 426 272 179 102 37 23 52 117	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358 353 364 346 528 750 786	355 349 345 320 294 327 338 325 311 321 318 303 282 304 285 287 257 236 276 313 302 329 422 524	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 628 498 488 684 572 953 1291 1583	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1149 1178 1556 2479 3568 2737 2661 2162	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600 2165 1897 1785 1638 1703 1863	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961 2481 2140 2069 1896 1771 1689	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122 3289 3385 3185 2948 2708	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647 1956 1863 2364 2267 2320 2880 2452	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 1120 998 968 945 936 936 936 936 936 931 914 938 973	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1865 1437 1296 1127 1121 1195 1265 995 944 867 866 1156 1033 1005	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636 1513 1095 966 852 835 809	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 585 562 547 558 470 453 479 483	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916 861 832 833 731 705 703	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 1219 1392 1769 1654 1366 1309 1373 1196 1134	44 44 44 44 48 32 33 33 34 44 45 55 22 22 24 21 21 21 21 21 21 21 21 21 21 21 21 21
2 3 1 5 5 3 3 9 0 0 1 2 2 3 4 5 5 6 7 7 8 8 9 0 0 1 1 2 2 3 3 4 4 0 1 1 2 3 3 4 4 0 1 1 2 3 3 4 4 4 5 5 6 1 1 2 3 3 4 4 4 5 5 5 6 6 6 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8	607 596 585 588 583 571 619 675 627 543 504 535 574 567 605 606 624 599 627 673 791 790 719 674	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801 5310 3681 2440 2005 1732 1483	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904 967 1012 994 1185 1146 1010 970 1009 987	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071 1038 1052 1043 1036 971	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761 730 709 898 994 1121 1058 870 653 1518	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691 649 613 591 568 587 530 605 524	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513 400 323 341 281 281 257 252 220	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338 316 377 786 728 802 869 822 380	485 521 575 511 624 524 374 907 547 398 357 297 312 368 363 502 620 426 272 179 102 37 23 52	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358 353 364 346 528 750	355 349 345 320 294 338 327 338 325 311 321 318 303 282 304 285 288 287 257 236 276 313 302 329 422	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 628 498 488 488 684 572 953	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1149 1178 1556 2479 3568 2737 2661 2162	9319 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600 2165 1897 1785 1638 1703	3044 2738 2312 2286 2586 2772 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961 2481 2140 2069 1896 1771	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122 3289 3385 3185 2948 2708 2377 3107 4137 5704	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647 1956 1863 2364 2267 2320 2880	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 998 968 945 936 936 936 930 914 938 973	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1865 1437 1296 1127 1121 1195 1265 995 944 867 866 1156 1033	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636 1513 1095 966 852 835	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 585 562 547 558 470 453 479 483	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916 861 832 833 731 705	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 1219 1392 1769 1654 1366 1309 1373 1196	48 41 42 43 44 45 46 47 48 80 80 43 43 44 43 44 45 46 47 47 47 48 49 49 49 49 49 49 49 49 49 49
2 3 4 5 6 7 3 9 0 11 2 3 4 15 6 17 8 9 0 11 2 3 4 15 6 17 8 9 18 19 19 19 19 19 19 19 19 19 19	607 596 585 588 583 571 619 675 627 543 504 535 574 567 605 606 624 599 627 673 791 790 719 674 689 650	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801 5310 3681 2440 2005 1732 1483 1366	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904 967 1012 994 1185 1146 1010 970 1009 987 908	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071 1038 1052 1043 1036 971 1042 1001 859	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761 730 898 994 1121 1058 870 653 1518	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691 649 613 591 568 587 530 605 524 506	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513 400 323 341 281 281 257 252	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338 316 377 786 728 802 869 822 380 341 286	485 521 575 511 624 524 374 907 547 398 357 297 312 368 363 502 620 426 272 179 102 37 52 117 164	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358 353 364 346 528 750 786 892	355 349 345 320 294 327 338 325 311 321 303 282 304 285 288 287 257 236 276 313 302 329 422 524 487	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 628 498 488 684 572 953 1291 1583 1901	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1149 1178 1556 2479 3568 2737 2661 2162	93 19 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600 2165 1897 1785 1638 1703 1863 2143	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961 2481 2140 2069 1896 1771 1689 1691	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2828 3097 4687 4543 4122 3289 3385 3185 2948 2708 2377 4137 5704	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647 1956 1863 2364 2267 2320 2880 2452	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 1120 998 968 945 936 936 930 914 938 973 1006 1019	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1865 1437 1296 1127 1121 1195 1265 995 944 867 866 1156 1033 1005 993	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636 1513 1095 966 852 835 809 733	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 562 547 558 470 453 479 483 505	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916 861 832 833 731 705 703 702	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 1392 1769 1654 1366 1309 1373 1196 1134 1132	48 48 42 44 48 44 48 48 48 48 48 48 48
11 22 33 44 55 66 77 8 9 0 0 11 12 2 3 3 4 4 15 6 6 17 8 9 9 0 0 11 12 12 13 14 14 15 16 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	607 596 585 588 583 571 619 675 627 543 504 535 574 605 606 624 599 627 673 791 790 719 689 650 650	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801 5310 3681 2440 2005 1483 1366 1247	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 936 959 977 904 967 1012 994 1185 1146 1010 970 1009 987 908 921 884	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071 1038 1052 1043 1036 971 1042 1001 859	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761 730 709 898 994 1121 1058 870 653 1518 2989 3348 5554	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691 649 613 591 568 587 530 605 524 506 494	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513 400 323 341 281 257 252 220 172	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338 316 728 802 869 822 869 822 380 341 286 265	485 521 575 511 624 524 374 907 547 398 357 297 312 368 363 502 620 426 272 179 102 37 23 52 117 164 214	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358 353 364 346 528 750 786 892 1103	355 349 349 345 320 294 327 338 325 311 321 318 303 282 304 285 288 287 257 236 276 313 302 329 422 524 487 506	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 628 498 488 684 572 953 1291 1583 1901 1578	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1149 1178 1556 2479 3568 2737 2661 2162 1765	93 19 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600 2165 1897 1785 1638 1703 1863 2143 2685	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961 2481 2140 2069 1896 1691 1689 1691	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122 3289 3385 3185 2948 2708 2377 3107 4137 5704	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647 1956 1863 2364 2267 2320 2452 2024	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 1120 998 968 945 936 936 930 914 938 938 938 914 938 1006 1019	Jul 1171 9 12 8 12 7 55 8 09 7 68 7 51 8 60 1107 1608 2 3 9 1 14 3 7 12 9 6 112 7 112 1 119 5 12 6 5 9 9 5 9 4 4 8 6 7 8 6 6 11 5 6 10 3 3 10 0 5 9 9 3 8 4 4	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636 1513 1095 966 852 809 733 687	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 585 562 547 558 470 453 479 483 505	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916 861 832 833 731 705 703 702 655	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 12 19 13 92 1769 1654 13 66 13 09 13 73 119 6 113 4 113 2 14 60	48 48 43 44 48 32 31 38 45 50 50 43 32 28 24 21 20 18 18 19 19 20 20 20 20 20 20 20 20 20 20
2 3 4 5 6 7 3 0 1 2 2 3 4 5 6 7 8 9 0 1 2 2 3 4 4 5 6 6 7 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	607 596 585 588 583 571 619 675 627 543 504 535 574 567 605 606 624 599 627 673 791 790 719 674 689 650 650 650 671	848 1158 1385 1124 929 830 803 1583 2692 3435 7237 5571 3580 2105 1804 2133 2923 4437 6801 5310 3681 2440 2005 1483 1366 1247	1208 1353 1272 1314 1615 1678 1367 1267 1114 1092 997 904 967 1012 994 1185 1146 1010 970 1009 987 908 921 884	3624 2409 2104 1875 1908 2157 1897 1609 1444 1402 1293 1174 1101 1070 992 984 990 1071 1038 1052 1043 1036 971 1042 1001 859 926 919	880 714 675 677 701 664 639 756 666 636 684 834 683 727 761 730 709 898 994 1121 1058 870 653 1518 2989 3348 5554 5644	Jun 2339 2886 2799 3060 3726 2763 2278 1938 1530 1211 1143 1035 997 1042 921 691 649 613 591 568 587 530 605 524 506 494 524 356	Jul 504 580 727 723 661 740 744 695 523 419 401 362 315 318 348 292 300 513 400 323 341 281 287 257 252 220 172 221	287 334 419 375 624 673 884 1070 875 586 571 582 441 357 350 338 316 728 802 869 822 380 341 286 265 280	485 521 575 511 624 524 374 907 547 398 357 297 312 368 363 502 620 426 272 179 102 37 23 52 117 164 214	110 127 115 86 118 180 184 177 224 273 324 239 214 207 159 192 262 296 358 353 364 346 528 750 786 892 1103 785	355 349 349 345 320 294 327 338 325 311 321 318 303 282 304 285 288 287 257 236 276 313 302 329 422 427 487 506 753	1329 1581 1128 842 615 543 486 439 393 382 391 482 529 661 895 853 694 628 498 488 684 572 953 1291 1583 1901 1578 1158	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	7077 6838 8925 17126 13075 5877 3609 2727 1999 1527 1203 1137 1151 1226 1161 1112 1095 1149 1178 1556 2479 3568 2737 2661 2162 1765 1492 1301	93 19 11521 28726 29035 12889 6366 4799 3916 3518 3536 2923 2434 2171 2153 2257 2555 3529 3277 2600 2165 1897 1785 1638 1703 1863 2143 2685	3044 2738 2312 2286 2586 2722 3623 3656 3081 2443 2142 2109 2111 2088 2552 3330 3242 3256 2961 2481 2140 2069 1896 1771 1689 1691 1606 1546	1461 1538 1918 2092 2117 2691 2599 2279 2747 2526 2128 2828 3097 4687 4543 4122 3289 3385 3185 2948 2708 2377 3107 4137 5704 9047 8482 5820	2385 2194 2116 1983 1785 2215 2257 2887 2621 2415 1774 1659 1547 1542 1481 1525 1541 1647 1956 1863 2364 2267 2320 2880 2452 2024 1753	Jun 1613 1755 1479 1477 1585 1401 1207 1114 1077 1009 1075 1072 1241 1209 998 968 945 936 930 914 938 973 1006 1019 1175	Jul 1171 912 812 755 809 768 751 860 1107 1608 2391 1865 1437 1296 1127 1121 1195 1265 995 944 867 866 1156 1033 1005 993 844 847	1285 1159 884 757 681 809 908 1299 1748 2404 3002 2359 1540 1327 1662 1724 2455 3121 2636 1513 1095 966 852 835 809 733 687 702	776 921 965 829 682 633 546 510 497 524 626 884 886 1123 883 699 585 562 547 558 470 453 479 483 505 572 645	437 451 421 409 605 789 901 1633 2014 1480 2659 2957 4369 4871 3109 1823 1256 962 916 861 832 833 731 705 703 702 655 684	887 953 1067 1478 1284 986 838 785 786 851 808 915 1337 1174 1056 1184 12 19 1392 1769 1654 1366 1309 1373 1196 1134 1132 1460 1767	20 222 28 25 26 26 26 26 26 26 26 26 26 26 26 26 26

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	983												19	84					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2929	4 114	2163	3 175	2242	1739	1518	931	1186	552	531	3477	1	2580	2197	3974	3192	5168	2 150	2501	8303	1331	791	757	1552
3	3591 3883	8 19 5 7110	2063 2146	3142 3386	2291 2181	1738 1644	1528 1448	1245 1054	1574 2053	532 551	467 549	4127 6646	3	2299 2021	2125 2075	3272 2873	3181 3655	5756 8520	1959 1793	1908 1539	8512 5811	1170 1187	802 888	762 765	1427 2464
4	3476	5516	2941	3162	2197	2013	1238	1021	2082	546	696	15550	4	2045	2189	2682	4211	10592	1738	1640	4276	1157	883	781	2621
5	2683	3675	3 176	3133	2064	2293	1375	856	1725	572	772	12468	5	1953	2076	2563	4605	7226	1714	1658	3091	1070	880	856	2477
6 7	2381 2166	3 172 3 4 5 0	5245 4897	5096 6514	1945 1843	2488 2394	1664 1254	788 744	1379 1445	594 549	668 677	16788 15041	6	1896 1840	1944 1965	2621 2360	3791 3421	4829 3807	1584 1531	2160 2670	2373 2016	977 959	907 907	869 790	3296 264
8	2112	3108	3976	8388	1853	2266	1072	720	1184	513	553	9521	8	2123	2009	2238	3165	4 119	1559	2524	1689	954	751	804	1718
9	1978	2728	2897	12875	1832	1969	1043	735	737	528	519	5693	9	2257	1889	2 176	3379	4470	1529	1684	1521	954	753	905	14 17
10 11	19 17 19 10	2551 2649	2459 2258	12026 7261	1807 1780	173.4 158.0	928 978	636 547	755 802	488 676	509 526	4730 5683	10 11	2869 4365	1994 2476	2173 2122	3993 3367	3647	150 6 156 8	1430 1248	16 18 18 15	971 965	753 691	873 1151	12.59
12	1765	2448	2121	5050	1748	1481	881	584	787	724	570	8501	12	3379	2754	2176	3005	3212 2806	1532	1350	1905	974	656	12 17	107
13	1731	2317	2113	4143	18 16	1396	860	557	870	1106	646	5706	13	2707	3260	2124	2782	2487	1504	1362	2128	924	670	1008	100
14 15	1752	2291	2116	3698	2120	1359	839	524	920	1221	699	3793	14	2349	5624	2252	2771	2294	1407	1588	2168	910	638	822	978
16	1728 1649	2205 2092	1948 1902	3398 3221	2198 2598	1338 1317	8 11 772	496 505	839 657	989 745	1075 1917	2730 2276	15 16	2113 2330	4411 3446	2227 2398	2535 2550	2252 2103	1322 1256	1637 2093	1797 1533	911 878	647 651	792 768	944
17	1696	2072	1931	2995	3653	1433	800	486	622	679	1197	1973	17	2353	2758	2598	2530	1995	1237	2006	1487	833	631	793	864
18	1736	1954	2157	2812	4296	1665	809	482	619	641	1257	1862	18	2713	2465	3462	3171	2025	1147	4131	1515	855	617	743	882
19 2 0	1691 1707	1952 2094	2414 2530	2682 2584	5103 7559	1790 1791	837 722	474 462	684 765	631 600	1396 1749	173 1 1833	19 2 0	3712 3162	2279 2314	4026 4737	3313 4022	2055 2015	1174 1253	3099 2302	1466 1368	856 835	683 747	736 775	837
21	1929	2388	3509	2692	5879	1651	764	432	12 17	653	2910	19 17	21	2592	2257	7795	4305	2027	1254	1622	1349	834	807	786	854
22	2544	2773	3316	2733	4260	1459	719	410	1341	687	3594	2225	22	2812	2268	5598	4107	2300	1685	1503	1294	830	861	755	976
23	2415 2281	4056 3461	2949 2985	2925 3426	3332 2760	14 18 1388	628 622	392 408	939 727	825 1291	3264 6524	2552 2282	23	2863 4635	2847 2996	4206 3008	4227 3538	2172 2066	1567 1461	2888 1810	1200 1161	792 756	966 862	750 758	93
25	2153	2989	3999	3237	2244	1283	809	412	624	975	5513	18 13	25	6299	3335	2852	3085	2131	1432	1539	1190	784	796	766	913
26	1974	2481	4108	2781	2071	1291	858	442	569	767	3243	2886	26	4585	3578	3106	3026	2369	1296	19 13	1268	760	780	1006	894
27	1925 1949	2227 2154	6425 6081	2512 2335	1960 1827	1276 1398	766 696	443 427	561 573	659 667	1882 3404	3521 6444	27	3575 3052	5177 6586	3134 4233	3114 3287	3540 3830	1420 1792	2711 4113	1788 2039	719 733	775 738	1074 1303	843
29	1886	2 154	4464	2358	1820	1683	691	517	541	595	3554	7793	29	2677	5455.744	5751	3517	4637	2483	5061	1994	743	896	1758	905
30	2008		3472	2291	1801	1548	702	547	529	549	2426	5472	30	2459		4610	3602	4000	4454	7286	2 152	744	960	1714	909
31	3605		3205		1727		706	890		515		3383	31	2283		3509		3348		10202	1831		797		980
						46	985									J			10	86	J.				
						18	100												13	,00					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	De
1	1209	7049	2273	1225	1489	Jun 809	Jul 862	1760	868	921	684	2898	1	1463	820	842	872	542	Jun 863	Jul 422	254	375	236	691	1738
2	1209 1268	7049 7312	2273 2085	1225 1177	1489 1727	Jun 809 737	Jul 862 881	1760 1335	868 844	921 1289	684 1282	2898 2257	2	1463 1244	820 813	842 797	872 869	542 490	Jun 863 706	Jul 422 522	254 226	375 852	236 247	691 646	1738 207
	1209	7049	2273	1225	1489	Jun 809	Jul 862	1760	868	921	684	2898		1463	820	842	872	542	Jun 863	Jul 422	254	375	236	691	1738 207 1998
2 3 4 5	1209 1268 1516 1886 1818	7049 7312 6260 4578 4105	2273 2085 1925	1225 1177 1198 1489 1434	1489 1727 2378 2015 1407	Jun 809 737 702	Jul 862 881 1066 1232 1534	1760 1335 1153	868 844 697	921 1289 1231	684 1282 971 818 754	2898 2257 1580 1190 1073	3	1463 1244 1020 960 884	820 813 820 823 904	842 797 806	872 869 822	542 490 463	Jun 863 706 621 560 503	Jul 422 522 474 384 354	254 226 181 136 98	375 852 1283 1569 1147	236 247 225 182 158	691 646 615 629 628	1738 2079 1998 1590 1326
2 3 4 5	1209 1268 1516 1886 1818 1414	7049 7312 6260 4578 4105 5332	2273 2085 1925 1696 1724 1604	1225 1177 1198 1489 1434 1898	1489 1727 2378 2015 1407 1390	Jun 809 737 702 734 834 914	Jul 862 881 1066 1232 1534 1863	1760 1335 1153 926 673 626	868 844 697 661 662 609	921 1289 1231 881 674 554	684 1282 971 818 754 655	2898 2257 1580 1190 1073 971	2 3 4 5 6	1463 1244 1020 960 884 839	820 813 820 823 904 944	842 797 806 815 762 762	872 869 822 804 807 867	542 490 463 454 453 463	Jun 863 706 621 560 503 496	Jul 422 522 474 384 354 247	254 226 181 136 98 75	375 852 1283 1569 1147 1104	236 247 225 182 158	691 646 615 629 628 604	1738 207 1998 1590 1326 119
2 3 4 5	1209 1268 1516 1886 1818	7049 7312 6260 4578 4105	2273 2085 1925 1696 1724	1225 1177 1198 1489 1434	1489 1727 2378 2015 1407	Jun 809 737 702 734 834	Jul 862 881 1066 1232 1534	1760 1335 1153 926 673	868 844 697 661 662	921 1289 1231 881 674	684 1282 971 818 754	2898 2257 1580 1190 1073	2 3 4 5	1463 1244 1020 960 884	820 813 820 823 904	842 797 806 815 762	872 869 822 804 807	542 490 463 454 453	Jun 863 706 621 560 503	Jul 422 522 474 384 354	254 226 181 136 98	375 852 1283 1569 1147	236 247 225 182 158	691 646 615 629 628	1738 207 1998 1590 1326 119
2 3 4 5 6	1209 1268 1516 1886 18 18 14 14	7049 7312 6260 4578 4105 5332 4258	2273 2085 1925 1696 1724 1604 1528	1225 1177 1198 1489 1434 1898 1816	1489 1727 2378 2015 1407 1390 1315	Jun 809 737 702 734 834 914	Jul 862 881 1066 1232 1534 1863	1760 1335 1153 926 673 626 661	868 844 697 661 662 609 578	921 1289 1231 881 674 554 489	684 1282 971 818 754 655 591	2898 2257 1580 1190 1073 971 931	2 3 4 5 6 7	1463 1244 1020 960 884 839 765	820 813 820 823 904 944 968	842 797 806 815 762 762 793	872 869 822 804 807 867 838	542 490 463 454 453 463 521	Jun 863 706 621 560 503 496 542	Jul 422 522 474 384 354 247 207	254 226 181 136 98 75 155	375 852 1283 1569 1147 1104 771	236 247 225 182 158 136 171	691 646 615 629 628 604	1733 207 1993 1590 1320 119 1104
2 3 4 5 6 7 8 9	1209 1268 1516 1886 18 18 14 14 1273 1097 957 940	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172	2273 2085 1925 1696 1724 1604 1528 1487 1486	1225 1177 1198 1489 1434 1898 18 16 1491 1081	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111	Jun 809 737 702 734 834 914 931 1336 1353	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632	1760 1335 1153 926 673 626 661 686 656 760	868 844 697 661 662 609 578 542 536 487	921 1289 1231 881 674 554 489 455 448 396	684 1282 971 818 754 655 591 611 588	2898 2257 1580 1190 1073 971 931 871 870	2 3 4 5 6 7 8 9	1463 1244 1020 960 884 839 765 755 743	820 813 820 823 904 944 968 962 856 832	842 797 806 815 762 762 793 789 765	872 869 822 804 807 867 838 850 1024	542 490 463 454 453 463 521 560 499 471	Jun 863 706 621 560 503 496 542 529 560 538	Jul 422 522 474 384 354 247 207 182 154 93	254 226 181 136 98 75 155 224 266 266	375 852 1283 1569 1147 1104 771 541 458 476	236 247 225 182 158 136 171 323 287 518	691 646 615 629 628 604 602 664 690	1738 207 1998 1590 1326 119 1104 1183 1406
2 3 4 5 6 7 8 9	1209 1268 1516 1886 18 18 14 14 1273 1097 957 940 957	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1133	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549	Jun 809 737 702 734 834 914 931 1336 1353 1001 847	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558	1760 1335 1153 926 673 626 661 686 656 760 757	868 844 697 661 662 609 578 542 536 487 590	921 1289 1231 881 674 554 489 455 448 396 411	684 1282 971 818 754 655 591 611 588 566 552	2898 2257 1580 1190 1073 971 931 871 870 924 1015	2 3 4 5 6 7 8 9 10	1463 1244 1020 960 884 839 765 755 743 752	820 813 820 823 904 944 968 962 856 832	842 797 806 815 762 762 793 789 765 829 1057	872 869 822 804 807 867 838 850 1024 927 764	542 490 463 454 453 463 521 560 499 471 453	Jun 863 706 621 560 503 496 542 529 560 538	Jul 422 522 474 384 354 247 207 182 154 93	254 226 181 136 98 75 155 224 266 266 274	375 852 1283 1569 1147 1104 771 541 458 476	236 247 225 182 158 136 171 323 287 518	691 646 615 629 628 604 602 664 690 647	1734 207 1994 1594 1324 119 1104 118 1404 1724 201
2 3 4 5 6 7 8 9	1209 1268 1516 1886 18 18 14 14 1273 1097 957 940	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172	2273 2085 1925 1696 1724 1604 1528 1487 1486	1225 1177 1198 1489 1434 1898 18 16 1491 1081	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111	Jun 809 737 702 734 834 914 931 1336 1353	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632	1760 1335 1153 926 673 626 661 686 656 760	868 844 697 661 662 609 578 542 536 487	921 1289 1231 881 674 554 489 455 448 396	684 1282 971 818 754 655 591 611 588	2898 2257 1580 1190 1073 971 931 871 870	2 3 4 5 6 7 8 9	1463 1244 1020 960 884 839 765 755 743	820 813 820 823 904 944 968 962 856 832	842 797 806 815 762 762 793 789 765	872 869 822 804 807 867 838 850 1024	542 490 463 454 453 463 521 560 499 471	Jun 863 706 621 560 503 496 542 529 560 538	Jul 422 522 474 384 354 247 207 182 154 93	254 226 181 136 98 75 155 224 266 266	375 852 1283 1569 1147 1104 771 541 458 476	236 247 225 182 158 136 171 323 287 518	691 646 615 629 628 604 602 664 690	173; 207 199; 159; 132; 119 1104 118; 140; 172; 201 218;
2 3 4 5 6 7 8 9 10 11 12 13	1209 1268 1516 1886 1818 14 14 1273 1097 957 940 957 906 930	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1317	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1113 1117 1305	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 866 856	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656	1760 1335 1153 926 673 626 661 686 656 760 757 640 544	868 844 697 661 662 609 578 542 536 487 590 544 534	921 1289 1231 881 674 554 489 455 448 396 411 461 444	684 1282 971 818 754 655 591 611 588 566 552 562 549	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442	2 3 4 5 6 7 8 9 10 11 12 13	1463 1244 1020 960 884 839 765 755 743 752 753 764 714	820 813 820 823 904 944 968 962 856 832 904 1004 951	842 797 806 815 762 762 793 789 765 829 1057 1329 1677 2752	872 869 822 804 807 867 838 850 1024 927 764 772 753 728	542 490 463 453 463 521 560 499 471 453 399 391 460	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134	254 226 181 136 98 75 155 224 266 266 274 202 144	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096	691 646 615 629 628 604 602 664 690 647 653 657 706	173i 207 1994 1590 132i 1191 1104 1118 1400 172i 218i 177 1463
2 3 4 5 6 7 8 9 10 11 12 13 14	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1317 1244 1219	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1133 1117 1305 1315	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 866 856 843	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665	1760 1335 1153 926 673 626 661 686 656 760 757 640 544 502	868 844 697 661 662 609 578 542 536 487 590 544 534 528	921 1289 1231 881 674 554 489 455 448 396 411 461 444 455	684 1282 971 818 754 655 591 611 588 566 552 562 549	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442 1536	2 3 4 5 6 7 8 9 10 11 12 13 14	1463 1244 1020 960 884 839 765 755 743 752 753 764 714 732	820 813 820 823 904 944 968 962 856 832 904 1004 951	842 797 806 815 762 762 793 789 765 829 1057 1677 2752 2484	872 869 822 804 807 867 838 850 1024 927 764 772 753 728	542 490 463 454 453 463 521 560 499 471 453 399 391 460 425	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393 359	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141	254 226 181 136 98 75 155 224 266 266 274 202 144 158	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844	691 646 615 629 628 604 602 664 690 647 653 657 706 678	1734 207 1998 1590 1321 1102 1104 118 1400 1722 201 2186 1463 1300
2 3 4 5 6 7 8 9 10 11 12 13	1209 1268 1516 1886 1818 14 14 1273 1097 957 940 957 906 930	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1317	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1113 1117 1305	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 866 856	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656	1760 1335 1153 926 673 626 661 686 656 760 757 640 544	868 844 697 661 662 609 578 542 536 487 590 544 534	921 1289 1231 881 674 554 489 455 448 396 411 461 444	684 1282 971 818 754 655 591 611 588 566 552 562 549	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442	2 3 4 5 6 7 8 9 10 11 12 13	1463 1244 1020 960 884 839 765 755 743 752 753 764 714	820 813 820 823 904 944 968 962 856 832 904 1004 951	842 797 806 815 762 762 793 789 765 829 1057 1329 1677 2752	872 869 822 804 807 867 838 850 1024 927 764 772 753 728	542 490 463 453 463 521 560 499 471 453 399 391 460	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134	254 226 181 136 98 75 155 224 266 266 274 202 144	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096	691 646 615 629 628 604 602 664 690 647 653 657 706	1738 207. 1998 1599 1320 1199 1100 1180 1400 1722 201 2186 1406 1406 177. 1406 1306 1306 1306
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967 971 951 1071	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894 1773 1736	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1317 1244 1219 1203 1213	1225 1177 1198 1489 1434 1898 18 16 1491 1063 1133 1117 1305 1315 1471 1852 1604 1245	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872 1480 1186 1112	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 867 886 856 843 835 910 898	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665 685 698	1760 1335 1153 926 673 626 661 686 656 760 757 640 544 502 875 945 1637 2541	868 844 697 661 662 609 578 542 536 487 590 544 528 533 404 388 394	921 1289 1231 881 674 554 489 455 448 396 411 461 444 455 500 474	684 1282 971 818 754 655 591 611 588 566 552 562 549 525 542 559 573 571	2898 2257 1580 1190 1073 971 931 870 924 1015 1154 1442 1536 1247 1029 939 877	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1463 1244 1020 960 884 839 765 755 743 752 753 764 714 712 723 790 802 850	820 813 820 823 904 944 968 962 856 832 904 1004 951 1039 1291 1327 1237	842 797 806 815 762 762 793 789 765 829 1057 1329 1677 2752 2484 2020 1672 1573	872 869 822 804 807 867 838 850 1024 927 764 772 753 728 721 690 622 670	542 490 463 454 453 463 521 560 499 471 453 399 391 460 425 466 656 595	Jun 863 706 621 560 503 496 542 529 560 538 629 478 443 393 359 364 318 282	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141 142 175	254 226 181 136 98 75 155 224 266 266 274 202 144 158 148 158	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331 284 290 283	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844 1368 646 512	691 646 615 629 628 604 602 664 690 647 653 657 706 678 709 723 758	1734 207. 1998 1599 1326 119 1102 118: 1406 201 218: 177. 1463 1300 124 114: 126:
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967 971 951 1071	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894 1773 1736 1682 1676	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1317 1244 1219 1203 1213 1177 1250	1225 1177 1198 1489 1434 1898 1816 1491 1063 1133 1117 1305 1315 1471 1852 1604 1245 1171	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872 1480 1186 1112	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 867 886 856 843 835 910 898	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665 685 698 509	1760 1335 1153 926 673 626 661 686 656 760 757 640 544 502 875 945 1637 2541 1647	868 844 697 661 662 609 578 542 536 487 590 544 534 528 533 404 388 394	921 1289 1231 881 674 554 489 455 448 396 411 461 444 455 500 474 405 418	684 1282 971 818 754 655 591 611 588 566 552 562 549 525 542 559 573 571 631	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442 1536 1247 1029 939 877 825	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	1463 1244 1020 960 884 839 765 755 743 752 753 764 714 732 723 790 802 850	820 813 820 823 904 944 968 962 856 832 904 1004 951 1039 1291 1327 1237 1552 1708	842 797 806 815 762 762 793 789 765 829 1057 1329 1677 2752 2484 2020 1672 1573 1684	872 869 822 804 807 867 838 850 1024 927 764 772 753 728 721 690 622 670 698	542 490 463 454 453 463 521 560 499 471 453 399 391 460 425 466 656 595 615	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393 359 364 318 282	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141 142 175 142 158	254 226 181 136 98 75 155 224 266 266 274 202 144 158 148 158 170 170 158	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331 284 290 283 290	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844 1368 646 512 424	691 646 615 629 628 604 602 664 690 647 653 657 706 678 709 723 758 886	1734 207 1998 1599 1326 119 1102 1103 1400 1728 201 1777 1463 1300 1244 1149 1269 1253
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967 971 951 1071	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894 1773 1736	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1317 1244 1219 1203 1213	1225 1177 1198 1489 1434 1898 18 16 1491 1063 1133 1117 1305 1315 1471 1852 1604 1245	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872 1480 1186 1112	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 867 886 856 843 835 910 898	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665 685 698	1760 1335 1153 926 673 626 661 686 656 760 757 640 544 502 875 945 1637 2541	868 844 697 661 662 609 578 542 536 487 590 544 528 533 404 388 394	921 1289 1231 881 674 554 489 455 448 396 411 461 444 455 500 474	684 1282 971 818 754 655 591 611 588 566 552 562 549 525 542 559 573 571	2898 2257 1580 1190 1073 971 931 870 924 1015 1154 1442 1536 1247 1029 939 877	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1463 1244 1020 960 884 839 765 755 743 752 753 764 714 712 723 790 802 850	820 813 820 823 904 944 968 962 856 832 904 1004 951 1039 1291 1327 1237	842 797 806 815 762 762 793 789 765 829 1057 1329 1677 2752 2484 2020 1672 1573	872 869 822 804 807 867 838 850 1024 927 764 772 753 728 721 690 622 670	542 490 463 454 453 463 521 560 499 471 453 399 391 460 425 466 656 595	Jun 863 706 621 560 503 496 542 529 560 538 629 478 443 393 359 364 318 282	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141 142 175	254 226 181 136 98 75 155 224 266 266 274 202 144 158 148 158	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331 284 290 283	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844 1368 646 512	691 646 615 629 628 604 602 664 690 647 653 657 706 678 709 723 758	1734 207 1998 1599 1326 110-4 110-4 118-3 1400 201 2186 1463 1300 1444 1144 1144 1146 1269 1255 1098
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967 971 951 1071 1189	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894 1773 1736 1682 1676 1759	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1317 1244 1219 1203 1213 1177 1250 1304	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1117 1305 1315 1471 1852 1604 1245 1171	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872 1480 1186 1112 1026 962	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 867 886 856 843 835 910 898 829	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665 665 698 509 446 421	1760 1335 1153 926 673 626 661 686 656 760 757 640 544 502 875 945 1637 2541 1647 995	868 844 697 661 662 609 578 542 536 487 590 544 534 528 533 404 388 394 372	921 1289 1231 881 674 554 489 455 448 396 411 461 444 455 500 474 405 418	684 1282 971 818 754 665 591 611 588 566 552 562 549 525 542 559 573 571 613 637 727	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442 1536 1247 1029 939 877 825 845 871 828	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	1463 1244 1020 960 884 839 765 743 752 753 764 714 732 723 790 802 850 1060 1084	820 813 820 823 904 944 968 962 856 832 904 1004 951 1039 1291 1327 1237 1552 1708	842 797 806 815 762 762 793 789 765 829 1057 1329 1677 2752 2484 2020 1672 1573 1684 2131	872 869 822 804 807 867 867 838 850 1024 927 764 772 753 728 721 690 622 670 698 710	542 490 463 454 453 521 560 499 471 453 399 391 460 425 466 656 595 615 989	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393 359 364 318 282 267	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141 142 175 142 158	254 226 181 136 98 75 155 224 266 266 274 202 144 158 148 158 170 170 158 371 503	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331 284 290 283 290 322 318	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844 1368 646 512 424	691 646 615 629 628 604 602 664 690 647 653 657 706 678 709 723 758 886 993	173: 207 199: 159: 132: 110- 110- 118 140: 172: 201 146: 130: 124 114: 126: 126: 126: 109: 114-
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967 971 1189 1071 1189 1052 887 834 822 848	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894 1773 1736 1682 1676 1759 1850 1713	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1219 1203 1213 1177 1250 1304 1328 1596 1825	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1133 1117 1305 1315 1471 1852 1604 1245 1171 1103 1091 1101	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872 1480 1186 1112 1026 962 925 919 865 993	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 867 886 843 835 910 898 829 858 805 695 631	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665 685 698 509 446 421 430 611 1049	1760 1335 1153 926 673 626 661 686 656 760 757 640 544 502 875 945 1637 2541 1647 995 796 1113 1351	868 844 697 661 662 609 578 542 536 487 590 544 534 528 533 404 388 394 372 390 403 424	921 1289 1231 881 674 554 489 455 448 396 411 461 444 455 500 474 405 418 494 540 614 774	684 1282 971 818 754 655 591 611 588 566 552 562 542 549 525 542 559 573 571 613 637 727 852	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442 1536 1247 1029 939 877 825 845 871 828 789	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1463 1244 1020 960 884 839 765 755 743 752 753 764 714 732 723 790 802 850 1060 1084 893 843	820 813 820 823 904 944 968 962 856 832 904 1004 951 1039 1291 1327 1237 1552 1708 1550 1243 1075 968	842 797 806 815 762 762 793 789 765 829 1057 1329 1677 2752 2484 2020 1672 1573 1684 2131 1905 1545	872 869 822 804 807 867 838 850 1024 927 764 772 753 728 721 690 622 670 698 710 736 765 681	542 490 463 454 453 463 521 560 499 471 453 399 391 460 425 466 656 595 615 989 779 497 522	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393 359 364 318 282 267 251 185 239 250	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141 142 175 142 158 175 154 89 82 41	254 226 181 136 98 75 155 224 266 266 274 202 144 158 148 158 170 170 158 371 503 430 364	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331 284 290 283 290 322 318 303	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844 1368 646 512 424 369 365 373 663	691 646 615 629 628 604 690 647 653 657 706 678 709 723 758 886 993 1066 1809	173: 207 199: 159: 132: 110: 118: 140: 172: 201 218: 130: 124: 114: 126: 125: 114: 112: 112: 112:
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967 971 1071 1189 1052 887 834 822 848 918	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894 1773 1736 1682 1676 1759 1850 1713 1909	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1317 1244 1219 1203 1213 1177 1250 1304 1328 1596 1825	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1133 1117 1305 13 15 1471 1852 1604 1245 1171 1103 1091 1101 1137	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872 1480 1186 1112 1026 962 925 919 865 993 1082	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 867 886 856 843 835 910 898 829 858 805 695 631 614	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665 685 698 509 446 421 430 611 1049 1618	1760 1335 1153 926 673 626 661 686 656 760 757 640 502 875 945 1637 2541 1647 995 796 1113 1351 1599	868 844 697 661 662 609 578 542 536 487 590 544 528 533 404 388 394 372 390 403 424 443 644	921 1289 1231 881 674 554 489 455 448 396 411 461 444 455 500 474 405 418 494 540 614 774 897 817	684 1282 971 818 754 655 591 611 588 566 552 562 542 549 525 542 559 573 571 631 613 637 727 852 732	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442 1536 1247 1029 939 877 825 845 871 828 789	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	1463 1244 1020 960 884 839 765 743 752 753 764 714 732 723 790 802 850 1060 1084 893 843 845 814	820 813 820 823 904 944 968 962 856 832 904 1004 951 1039 1291 1327 1237 1552 1708 1550 1243 1075 968 988	842 797 806 815 762 763 789 765 829 1057 1329 1677 2752 2484 2020 1672 1573 1684 2131 1905 1545 1297 1153	872 869 822 804 807 867 838 850 1024 927 764 772 753 728 721 690 622 670 698 710 736 765 681 547	542 490 463 454 453 463 521 560 499 471 453 399 471 460 425 466 656 595 615 989 779 497 522 496	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393 359 364 318 282 267 251 185 239 250 248	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141 142 175 142 158 175 154 89 82 41	254 226 181 136 98 75 155 224 266 266 274 202 144 158 148 158 170 170 158 371 503 430 364 306	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331 284 290 283 290 322 318 303 288 274	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844 1368 646 512 424 369 365 373 663 1498	691 646 615 629 628 604 602 664 690 647 653 657 706 678 709 723 758 886 993 1066 1809 1604 1319	173: 207 199: 159: 132: 1199: 1199: 1100: 118: 1400: 172: 201: 218: 1300: 124: 114: 126: 109: 114: 114: 112: 126: 185:
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967 971 1189 1071 1189 1052 887 834 822 848	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894 1773 1736 1682 1676 1759 1850 1713	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1219 1203 1213 1177 1250 1304 1328 1596 1825	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1133 1117 1305 1315 1471 1852 1604 1245 1171 1103 1091 1101	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872 1480 1186 1112 1026 962 925 919 865 993	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 867 886 843 835 910 898 829 858 805 695 631	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665 685 698 509 446 421 430 611 1049	1760 1335 1153 926 673 626 661 686 656 760 757 640 544 502 875 945 1637 2541 1647 995 796 1113 1351	868 844 697 661 662 609 578 542 536 487 590 544 534 528 533 404 388 394 372 390 403 424	921 1289 1231 881 674 554 489 455 448 396 411 461 444 455 500 474 405 418 494 540 614 774	684 1282 971 818 754 655 591 611 588 566 552 562 542 549 525 542 559 573 571 613 637 727 852	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442 1536 1247 1029 939 877 825 845 871 828 789	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1463 1244 1020 960 884 839 765 755 743 752 753 764 714 732 723 790 802 850 1060 1084 893 843	820 813 820 823 904 944 968 962 856 832 904 1004 951 1039 1291 1327 1237 1552 1708 1550 1243 1075 968	842 797 806 815 762 762 793 789 765 829 1057 1329 1677 2752 2484 2020 1672 1573 1684 2131 1905 1545	872 869 822 804 807 867 838 850 1024 927 764 772 753 728 721 690 622 670 698 710 736 765 681	542 490 463 454 453 463 521 560 499 471 453 399 391 460 425 466 656 595 615 989 779 497 522	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393 359 364 318 282 267 251 185 239 250	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141 142 175 142 158 175 154 89 82 41	254 226 181 136 98 75 155 224 266 266 274 202 144 158 148 158 170 170 158 371 503 430 364	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331 284 290 283 290 322 318 303	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844 1368 646 512 424 369 365 373 663	691 646 615 629 628 604 690 647 653 657 706 678 709 723 758 886 993 1066 1809	173: 207 199: 159: 132: 110: 118: 140: 172: 201: 218: 177 124: 126: 125: 109: 114: 112: 122: 185:
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967 971 951 1071 1189 1052 887 834 822 848 918 978	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894 1773 1736 1682 1676 1759 1850 1713 1909 1948 2250 3759 3303	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1317 1244 1219 1203 1213 1117 1250 1304 1328 1596 1825 1405 1367 1250	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1133 1117 1305 1315 1471 1852 1604 1245 1171 1103 1091 1101 1101 11068 1040 965	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872 1480 1186 1112 1026 962 925 919 865 993 1082 917 872 843	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 867 886 856 843 835 910 898 829 858 805 695 631 614 614 598 585	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665 665 685 698 509 446 421 430 611 1049 1618 1755	1760 1335 1153 926 673 626 661 686 656 760 757 640 544 502 875 945 1637 2541 1647 995 796 1113 1351 1599 2731	868 844 697 661 662 609 578 542 536 487 590 544 534 528 533 404 388 394 372 390 403 424 443 644 729 536 494	921 1289 1231 881 674 554 489 455 448 396 411 461 444 455 500 474 405 418 494 540 614 774 897 817 726 718 636	684 1282 971 818 754 655 591 611 588 566 552 562 549 525 542 559 573 571 631 613 637 727 852 732 676 744 832	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442 1536 1247 1029 939 877 825 845 871 828 789 762 669 610 604	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1463 1244 1020 960 884 839 765 755 743 752 753 764 714 732 723 790 802 850 1060 1084 893 843 845 814 854 950	820 813 820 823 904 944 968 962 856 832 904 1004 951 1039 1291 1327 1237 1552 1708 1550 1243 1075 968 988 774 880 879	842 797 806 815 762 793 789 765 829 1057 1329 1677 2752 2484 2020 1672 1573 1684 2131 1905 1545 1297 1153 1083 1002 980	872 869 822 804 807 867 838 850 1024 927 764 772 753 728 721 690 622 670 698 710 736 765 681 547 603 657 669	542 490 463 453 463 521 560 499 471 453 399 391 460 425 466 656 656 659 615 989 779 497 522 496 580 1102 1802	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393 359 364 318 282 267 251 185 239 250 248 269 288	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141 142 175 142 158 175 154 89 82 41 107 557	254 226 181 136 98 75 155 224 266 266 274 202 144 158 148 158 170 170 158 371 503 430 364 306 305 323 337	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331 284 290 322 318 303 288 274 232 213	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844 1368 646 512 424 369 365 373 663 1498 3344 7351 3613	691 646 615 629 628 604 602 664 690 647 653 657 706 678 709 723 758 886 993 1066 1809 1604 1319 1490 1884 2687	1738 207 1998 1590 1199 1104 118 1400 1728 201 146 1300 124 1148 125 126 126 126 126 127 1142 1122 1122 1124 1122 1124 1125 1124 1125 1126 1126 1126 1126 1126 1126 1126
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967 971 951 1071 1189 1052 887 834 822 848 918 978 990 986	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894 1773 1736 1682 1676 1759 1850 1713 1909 1948 2250 3759	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1317 1244 1219 1203 1213 1177 1250 1304 1328 1596 1825 1584 1405 1367 1250 1227	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1133 1117 1305 13 15 1471 1852 1604 1245 1171 1103 1091 1101 1137 1110 1068 1040 965 953	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872 1480 1186 1112 1026 962 925 919 865 993 1082 917 872 843 874	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 867 886 856 843 835 910 898 829 858 805 695 631 614 598 585	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665 685 698 509 446 421 430 611 1049 1618 1755 1684 1558 2096	1760 1335 1153 926 673 626 661 686 656 760 757 640 544 502 875 945 1637 2541 1647 995 796 1113 1351 1599 2731 2679	868 844 697 661 662 609 578 542 536 487 590 544 534 528 533 404 388 394 372 390 403 424 443 644 729 536 494 515	921 1289 1231 881 674 554 489 455 448 396 411 441 455 500 474 405 418 494 540 614 774 897 817 7726 718 636 625	684 1282 971 818 754 655 591 611 588 566 552 549 525 542 559 573 571 631 613 637 727 852 732 676 744 832 1116	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442 1536 1247 1029 939 877 825 845 871 828 789 762 669 610 604 776	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1463 1244 1020 960 884 839 765 743 752 753 764 714 732 723 790 802 850 1060 1084 893 843 845 814 950 992 791	820 813 820 823 904 944 968 962 856 832 904 1004 951 1039 1291 1327 1237 1552 1708 1550 1243 1075 968 988 774 880	842 797 806 815 762 762 793 789 765 829 1057 1677 2752 2484 2020 1672 1573 1684 2131 1905 1545 1297 1153 1002 980 942	872 869 822 804 807 867 838 850 1024 927 764 772 753 728 721 690 622 670 698 710 736 765 681 547 603 657 669 659	542 490 463 454 453 463 521 560 499 471 453 399 391 460 425 466 656 595 615 989 779 497 522 496 580 1102 1802 2499	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393 359 364 318 282 267 251 185 239 250 248 269 288 269 288	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141 142 175 142 158 89 82 41 107 551 551 444	254 226 181 136 98 75 155 224 266 266 274 202 144 158 148 158 170 170 158 371 503 430 364 306 305 323 337	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331 284 290 283 290 322 318 303 288 274 232 213	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844 1368 646 512 424 369 365 373 663 1498 3344 7351 3613	691 646 615 629 628 604 602 664 690 647 653 657 706 678 709 723 758 886 993 1066 1809 1604 1319 1490 1884 2687 3999 2701	De C 1738 1590 1590 1326 1191 1104 1187 1201 201 2186 2186 1241 1463 1265 1257 1099 1144 1129 1224 1855 2241 1834 1586
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1209 1268 1516 1886 1818 1414 1273 1097 957 940 957 906 930 967 971 951 1071 1189 1052 887 834 822 848 918 978	7049 7312 6260 4578 4105 5332 4258 3193 2540 2172 1996 2467 2412 2046 1894 1773 1736 1682 1676 1759 1850 1713 1909 1948 2250 3759 3303	2273 2085 1925 1696 1724 1604 1528 1487 1486 1476 1405 1344 1317 1244 1219 1203 1213 1117 1250 1304 1328 1596 1825 1405 1367 1250	1225 1177 1198 1489 1434 1898 1816 1491 1081 1063 1133 1117 1305 1315 1471 1852 1604 1245 1171 1103 1091 1101 1101 11068 1040 965	1489 1727 2378 2015 1407 1390 1315 1403 1984 2111 2549 2259 2195 1872 1480 1186 1112 1026 962 925 919 865 993 1082 917 872 843	Jun 809 737 702 734 834 914 931 1336 1353 1001 847 867 886 856 843 835 910 898 829 858 805 695 631 614 614 598 585	Jul 862 881 1066 1232 1534 1863 1884 1267 808 632 558 507 634 656 665 665 685 698 509 446 421 430 611 1049 1618 1755	1760 1335 1153 926 673 626 661 686 656 760 757 640 544 502 875 945 1637 2541 1647 995 796 1113 1351 1599 2731	868 844 697 661 662 609 578 542 536 487 590 544 534 528 533 404 388 394 372 390 403 424 443 644 729 536 494	921 1289 1231 881 674 554 489 455 448 396 411 461 444 455 500 474 405 418 494 540 614 774 897 817 726 718 636	684 1282 971 818 754 655 591 611 588 566 552 562 549 525 542 559 573 571 631 613 637 727 852 732 676 744 832	2898 2257 1580 1190 1073 971 931 871 870 924 1015 1154 1442 1536 1247 1029 939 877 825 845 871 828 789 762 669 610 604	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1463 1244 1020 960 884 839 765 755 743 752 753 764 714 732 723 790 802 850 1060 1084 893 843 845 814 854 950	820 813 820 823 904 944 968 962 856 832 904 1004 951 1039 1291 1327 1237 1552 1708 1550 1243 1075 968 988 774 880 879	842 797 806 815 762 793 789 765 829 1057 1329 1677 2752 2484 2020 1672 1573 1684 2131 1905 1545 1297 1153 1083 1002 980	872 869 822 804 807 867 838 850 1024 927 764 772 753 728 721 690 622 670 698 710 736 765 681 547 603 657 669	542 490 463 453 463 521 560 499 471 453 399 391 460 425 466 656 656 659 615 989 779 497 522 496 580 1102 1802	Jun 863 706 621 560 503 496 542 529 560 538 529 478 443 393 359 364 318 282 267 251 185 239 250 248 269 288	Jul 422 522 474 384 354 247 207 182 154 93 135 140 134 141 142 175 142 158 175 154 89 82 41 107 557	254 226 181 136 98 75 155 224 266 266 274 202 144 158 148 158 170 170 158 371 503 430 364 306 305 323 337	375 852 1283 1569 1147 1104 771 541 458 476 462 606 767 505 331 284 290 322 318 303 288 274 232 213	236 247 225 182 158 136 171 323 287 518 832 1131 1092 2096 1844 1368 646 512 424 369 365 373 663 1498 3344 7351 3613	691 646 615 629 628 604 602 664 690 647 653 657 706 678 709 723 758 886 993 1066 1809 1604 1319 1490 1884 2687	1738 2075 1998 1590 1326 1191 1104 1104 1187 1400 1728 2016 1300 1241 1145 1265 1265 1265 1265 1265 127 1144 1129 1224 1124 1129 1129

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	987												19	88					
	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1079	1752	16073	2897	1143	951	1073	289	107	334	228	382	1	1160	1294	743	799	855	373	159	199	139	1251	475	6 13
3	1117 1057	1895 2116	9108 5328	2597 2589	1258 1189	1007 922	1351 1509	337 400	119 119	302 214	2 11 153	366 317	3	1425 1234	1747 2519	758 757	1130 1180	857 833	350 322	163 146	193 545	305 354	2131 2990	475 596	579 565
4	1029	1884	3737	2834	1164	970	1257	756	117	181	182	339	4	1129	2995	815	1148	809	303	213	575	577	3258	605	531
5	969	1695	2900	2532	118 1	823	1262	984	121	149	172	358	5	1139	3306	893	1234	891	263	274	889	1114	1686	942	50 1
6	947	16 19	2613	2 156	1100	743	984	10 13	272	164	191	336	6	809	2485	851	1059	823	277	263	912	739	809	1233	501
7 8	936 908	1641 1641	2389 2174	1998 1928	979 1024	659 644	870 728	890 890	431 561	18 0 158	204 340	329 397	7 8	752 1443	18 16 14 57	861 904	964 870	741 794	272 269	202 174	982 885	414 326	641 536	988 643	465 426
9	874	1491	2294	1854	1053	631	583	706	496	174	331	399	9	875	1278	1024	1040	797	238	171	715	298	465	597	456
10	924	1348	2 170	1753	1037	620	556	517	427	186	555	482	10	688	1156	1399	1668	813	241	192	348	375	371	546	440
11	998 883	13 14 13 2 1	1882 1837	1725 1761	1087 1389	626 684	566 508	439 410	322 349	192 165	762 541	599 551	11	783 807	1077 1026	1457 1228	2111 4742	855 796	207 220	200 251	317 304	533 749	385 362	480 483	429 445
12	887	1387	1800	1725	1454	938	455	307	499	149	372	547	12	851	999	1169	3990	679	205	339	234	1567	296	498	425
14	907	1378	1776	1831	1438	1066	457	279	448	125	363	563	14	1001	959	1144	2885	663	232	308	151	859	274	479	402
15	935	1436	1772	2324	1525	1081	465	248	338	153	585	836	15	1167	1022	987	1979	688	223	255	170	699	324	478	4 12
16 17	2079 3355	1529 1703	1860 1959	2261 2005	1377 1169	1357 1217	401 410	220 327	307 314	173 170	667 1028	1332 906	16 17	1397 1779	1071 1030	910 873	150 9 1557	636 589	218 270	248 223	161 132	570 684	307 356	493 489	408 392
18	4860	1513	2037	1866	1095	1497	443	344	246	196	1463	678	18	5345	991	870	1584	559	291	189	188	1075	425	551	403
19	9232	1395	2392	1696	1191	1320	395	320	285	195	975	637	19	5727	10 12	903	1989	522	322	199	187	848	545	540	420
20	6979	1376	2284	1590	1165	1486	353	291	318	180	596	602	20	11457	1034	929	19 17	493	363	409	240	610	608	583	445
21	4734 3243	1355 1351	2062 1832	1485 1415	1120 1047	1609 1682	353 338	281 181	348 242	166 181	488 366	623 801	21	7948 5175	979 903	830 810	1668 1361	496 517	313 248	751 916	360 405	546 419	635 670	757 731	440 469
23	3199	1633	1730	1367	1009	14 12	337	161	206	172	365	824	23	2595	886	858	1275	505	245	1836	323	333	616	645	459
24	3353	16 14	1661	1351	952	1167	364	195	191	2 19	392	847	24	1801	838	838	1485	548	204	1261	301	312	478	588	551
25	3709	1933	1927	1264	925	996	360	199	181	230	391	1157	25	1448	796	892	1377	567	204	873	238	268	476	582	774
26	5482 4255	3926 5652	19 13 18 74	1335 1253	854 834	1124 1007	307 303	192 193	189 195	227 252	441 555	1494 1473	26	1223 1050	777 781	1063 1015	1167 1060	547 464	185 277	499 441	211 188	219 229	387 330	640 731	725 578
28	3066	11388	2315	1270	936	753	255	180	260	311	561	2863	28	923	764	872	934	441	160	412	149	210	315	1047	640
29	2249		2305	1270	878	915	235	140	254	298	503	2648	29	938	751.9108	812	874	406	147	429	149	175	404	947	704
3 0	1985		2391 3095	1188	935 941	975	185 226	181	304	268 277	480	1807 1269	3 0 3 1	935 1079		803 785	866	401 384	156	345 225	161 136	750	376	746	975 1457
31	1903		3093		941		220	156		211		1209	31	1079		765		364		225	130		398		1437
			,		,	19	989												19	90				,	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2293	842	5643			733	1401	1492	9 19	25688	963	1433		4.770	0001										
2				1551	1436								1	4776	3024	4351	3186	2344	1502	648	785	543	551	774	
2	2218	796	4217	1623	1763	742	1435	1903	795	30111	962	1384	2	3443	3620	52 17	3 119	2048	1686	630	675	452	582	743	1022
3 4	2218 2299 2107																								1022 1161
	2299	796 824	4217 4046	1623 2122	1763 1572	742 923	1435 2535	1903 1732	795 725	30111 15197	962 980	1384 1371	3	3443 2957	3620 3790	52 17 8475	3119 3143	2048 2013	1686 1699	630 672	675 722	452 431	582 567	743 755	1022 1161 1960
4 5 6	2299 2107 1575 1432	796 824 815 993 1486	4217 4046 3958 8428 6313	1623 2122 2471 3465 3493	1763 1572 1311 1349 1753	742 923 1106 1343 1508	1435 2535 5426 6005 6572	1903 1732 1354 1147 1024	795 725 709 697 706	30111 15197 6332 4283 2972	962 980 1085 1340 1508	1384 1371 1392 1412 1674	2 3 4 5 6	3443 2957 3191 3596 4085	3620 3790 5265 5711 4686	52 17 84 75 62 16 478 4 4 19 2	3119 3143 3089 2964 2827	2048 2013 1961 2016 1944	1686 1699 1771 1646 1577	630 672 580 557	675 722 727 721 758	452 431 355 345 302	582 567 553 667 670	743 755 735 759 844	1022 1161 1960 1658 1262
4 5 6 7	2299 2107 1575 1432 1474	796 824 815 993 1486 1641	4217 4046 3958 8428 6313 4844	1623 2122 2471 3465 3493 3210	1763 1572 1311 1349 1753 1840	742 923 1106 1343 1508 1330	1435 2535 5426 6005 6572 6881	1903 1732 1354 1147 1024 954	795 725 709 697 706 804	30111 15197 6332 4283 2972 2246	962 980 1085 1340 1508	1384 1371 1392 1412 1674 1976	2 3 4 5 6 7	3443 2957 3191 3596 4085 4070	3620 3790 5265 5711 4686 4057	52 17 8475 62 16 4784 4192 4220	3119 3143 3089 2964 2827 2859	2048 2013 1961 2016 1944 1964	1686 1699 1771 1646 1577 1355	630 672 580 557 577 544	675 722 727 721 758 728	452 431 355 345 302 326	582 567 553 667 670 590	743 755 735 759 844 925	1022 1161 1960 1658 1262
4 5 6	2299 2107 1575 1432	796 824 815 993 1486	4217 4046 3958 8428 6313	1623 2122 2471 3465 3493	1763 1572 1311 1349 1753	742 923 1106 1343 1508	1435 2535 5426 6005 6572	1903 1732 1354 1147 1024	795 725 709 697 706	30111 15197 6332 4283 2972	962 980 1085 1340 1508	1384 1371 1392 1412 1674	2 3 4 5 6	3443 2957 3191 3596 4085	3620 3790 5265 5711 4686	52 17 84 75 62 16 478 4 4 19 2	3119 3143 3089 2964 2827	2048 2013 1961 2016 1944	1686 1699 1771 1646 1577	630 672 580 557	675 722 727 721 758	452 431 355 345 302	582 567 553 667 670	743 755 735 759 844	1022 1161 1960 1658 1262 1049
4 5 6 7 8 9	2299 2107 1575 1432 1474 1319 1406 1841	796 824 815 993 1486 1641 1558 1338	4217 4046 3958 8428 6313 4844 3203 2511 2126	1623 2122 2471 3465 3493 3210 2968 3743 3117	1763 1572 1311 1349 1753 1840 1720 2105 2515	742 923 1106 1343 1508 1330 1050 1020 1178	1435 2535 5426 6005 6572 6881 5168 2450	1903 1732 1354 1147 1024 954 894 837 831	795 725 709 697 706 804 794 741	30111 15197 6332 4283 2972 2246 1838 1462 1253	962 980 1085 1340 1508 1891 2173 1972 1647	1384 1371 1392 1412 1674 1976 2835 3474 3602	2 3 4 5 6 7 8 9	3443 2957 3191 3596 4085 4070 3817 3211 2718	3620 3790 5265 5711 4686 4057 4958 5482 10575	52 17 8475 62 16 4784 4 192 4220 4547 5748 6222	3119 3143 3089 2964 2827 2859 2816 2706 2647	2048 2013 1961 2016 1944 1964 2086 2344 3427	1686 1699 1771 1646 1577 1355 1335 1268	630 672 580 557 577 544 483 596 610	675 722 727 721 758 728 892 1033 1516	452 431 355 345 302 326 326 369 413	582 567 553 667 670 590 652 772 963	743 755 735 759 844 925 894 1030	10 2 2 116 1 1960 1658 12 6 2 10 4 9 9 7 0 8 9 9 8 5 0
4 5 6 7 8 9 10	2299 2107 1575 1432 1474 1319 1406 1841 2437	796 824 815 993 1486 1641 1558 1338 1121	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170	742 923 1106 1343 1508 1330 1050 1020 1178 1050	1435 2535 5426 6005 6572 6881 5168 2450 1798	1903 1732 1354 1147 1024 954 894 837 831	795 725 709 697 706 804 794 741 718	30111 15197 6332 4283 2972 2246 1838 1462 1253	962 980 1085 1340 1508 1891 2173 1972 1647 1458	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307	2 3 4 5 6 7 8 9 10	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975	1686 1699 1771 1646 1577 1355 1335 1268 1264	630 672 580 557 577 544 483 596 610	675 722 727 721 758 728 892 1033 1516	452 431 355 345 302 326 326 369 413 1014	582 567 553 667 670 590 652 772 963	743 755 735 759 844 925 894 1030 1438	1022 1161 1960 1658 1262 1049 970 899 850
4 5 6 7 8 9 10 11 12	2299 2107 1575 1432 1474 1319 1406 1841	796 824 815 993 1486 1641 1558 1338	4217 4046 3958 8428 6313 4844 3203 2511 2126	1623 2122 2471 3465 3493 3210 2968 3743 3117	1763 1572 1311 1349 1753 1840 1720 2105 2515	742 923 1106 1343 1508 1330 1050 1020 1178	1435 2535 5426 6005 6572 6881 5168 2450	1903 1732 1354 1147 1024 954 894 837 831 810	795 725 709 697 706 804 794 741	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138	962 980 1085 1340 1508 1891 2173 1972 1647	1384 1371 1392 1412 1674 1976 2835 3474 3602	2 3 4 5 6 7 8 9 10 11	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270	3620 3790 5265 5711 4686 4057 4958 5482 10575	5217 8475 6216 4784 4192 4220 4547 5748 6222 4772 4017	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502	1686 1699 1771 1646 1577 1355 1335 1268	630 672 580 557 577 544 483 596 610	675 722 727 721 758 728 892 1033 1516	452 431 355 345 302 326 326 369 413	582 567 553 667 670 590 652 772 963	743 755 735 759 844 925 894 1030	1022 1161 1960 1658 1262 1049 970 899 850 822
4 5 6 7 8 9 10	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408	796 824 815 993 1486 1641 1558 1338 1121 1011 989	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107	1763 1572 1311 1349 1753 1840 1720 2 105 2 515 2 170 1743	742 923 1106 1343 1508 1330 1050 1020 1178 1050 978	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558	1903 1732 1354 1147 1024 954 894 837 831	795 725 709 697 706 804 794 741 718 707	30111 15197 6332 4283 2972 2246 1838 1462 1253	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307 3676	2 3 4 5 6 7 8 9 10	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975	1686 1699 1771 1646 1577 1355 1335 1268 1264 1202	630 672 580 557 577 544 483 596 610	675 722 727 721 758 728 892 1033 1516 1250	452 431 355 345 302 326 326 326 369 413 1014 2043	582 567 553 667 670 590 652 772 963 1449	743 755 735 759 844 925 894 1030 1438 1333 1057	10 2 2 116 1 19 6 0 16 5 8 12 6 2 10 4 9 9 70 8 9 9 8 50 8 2 2 77 9
4 5 6 7 8 9 10 11 12 13 14 15	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336	742 923 1106 1343 1050 1050 1020 1178 1050 978 1701 2302 3537	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120	1903 1732 1354 1147 1024 954 894 837 831 8 10 874 9 10 9 63 1159	795 725 709 697 706 804 794 741 718 707 712 856 860 866	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772	2 3 4 5 6 7 8 9 10 11 12 13 14	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2473 2270 2203 2072	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004	1686 1699 1771 1646 1577 1355 1335 1268 1264 1202 1110 1133 1105	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718	675 722 727 721 758 728 892 1033 1516 1250 1041 790 670 638	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840	743 755 736 759 844 925 894 1030 1438 1333 1057 949 830 772	1022 1161 1960 1658 1262 1049 970 899 850 822 779 733 781
4 5 6 7 8 9 10 11 12 13 14 15 16	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1330	742 923 1106 1343 1508 1330 1050 1020 1178 1050 978 1701 2302 3537 4669	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159	795 725 709 697 706 804 794 741 718 707 712 856 860 866 987	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1362 1399 1963 2372 3923	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765	1686 1699 1771 1646 1577 1355 1268 1264 1202 1110 1133 1105 1114	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756	675 722 727 721 758 728 892 1033 1516 1250 1041 790 670 638 562	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786	1022 116 1 1966 1658 1262 1249 9700 899 850 822 779 7811 809 818
4 5 6 7 8 9 10 11 12 13 14 15 16	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397 1359	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888 1854	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1330 1247	742 923 1106 1343 1508 1330 1050 1020 1178 1050 978 1701 2302 3537 4669 4400	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120 2262 2855	1903 1732 1354 1147 1024 894 837 831 8 10 874 9 10 9 63 1159 1481	795 725 709 697 706 804 794 741 718 707 712 856 860 866 987	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040 1124	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372 3923 3159	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349 2013	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949 1977	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502 10000 13308	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299 30562	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557 2441	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765 1697	1686 1699 1771 1646 1577 1355 1268 1264 1202 1110 1133 1105 1114 1249	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756 1808	675 722 727 721 758 892 1033 1516 1250 1041 790 670 638 562 518	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478 1155	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900 896	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786 773	1022 1161 1960 1655 1262 1262 970 899 850 822 779 733 781 8099 818
4 5 6 7 8 9 10 11 12 13 14 15	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1330	742 923 1106 1343 1508 1330 1050 1020 1178 1050 978 1701 2302 3537 4669	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159	795 725 709 697 706 804 794 741 718 707 712 856 860 866 987	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1362 1399 1963 2372 3923	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765	1686 1699 1771 1646 1577 1355 1268 1264 1202 1110 1133 1105 1114	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756	675 722 727 721 758 728 892 1033 1516 1250 1041 790 670 638 562	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786	1022 116 1960 1658 1262 1049 9700 899 850 822 779 733 781 8099 818 865
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080 1675 1432 1266 1133	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918 938 1257 2251	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397 1359 1350 1544 1647	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888 1854 1718 1608 1489	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1330 1247 1098 1035 1035	742 923 1106 1343 1508 1330 1050 1020 1178 1050 978 1701 2302 3537 4669 4400 3438 4201 6705	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120 2262 2855 3135 2832 3063	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159 1481 1217 1054 924 890	795 725 709 697 706 804 794 741 718 707 712 856 860 866 987 1020 714 653 742	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040 1124 992 1120	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372 3923 3159 2543 1801 1855	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349 2013 1869 1725 1555	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949 1977 2498 3598 4030	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502 10000 13308 9747 8776 7394	5217 8475 6216 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299 30562 30443 13747 7755	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557 2441 2314 2396 2480	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765 1697 1763 1876 1939	1686 1699 1771 1646 1577 1355 1335 1268 1264 1202 1110 1133 1105 1114 1249 1154 1059 994	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756 1808 1349 1392 1498	675 722 727 721 758 728 892 1033 1516 1250 1041 790 670 638 562 518 523 495 478	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478 1155 825 717 771	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900 896 1269 1784 1713	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 746 773 747	1022 1161 1960 1655 1262 1049 970 899 850 822 779 733 781 809 865 1039 1196
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080 1675 1432 1266 1133 1088	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918 938 1257 2251 2945	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397 1359 1350 1544 1647 2327	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888 1854 1718 1608 1489 1372	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1330 1247 1098 1035 1035 1206 1296	742 923 1106 1343 1050 1050 1020 1178 1050 978 1701 2302 3537 4669 4400 3438 4201 6705	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120 2262 2855 3135 2832 3063 3136	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159 1481 1217 1054 924 890 851	795 725 709 697 706 804 794 741 718 707 712 856 860 987 1020 714 653 742	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040 1124 992 1120 1161 1141	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372 3923 3159 2543 1801 1855 2280	1384 1371 1392 14 12 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349 2013 1869 1725 1555 1262	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949 1977 2498 3598 4030 8382	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502 10000 13308 9747 8776 7394 6181	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299 30562 30443 13747 7755 6297	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557 2441 2314 2396 2480 2543	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765 1697 1763 1876 1939 2457	1686 1699 1771 1646 1577 1355 1335 1268 1264 1202 1110 1133 1105 1114 1249 1154 1059 994 966 893	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756 1808 1349 1392 1498 1633 1784	675 722 727 721 758 728 892 1033 1516 1250 1041 790 670 638 562 518 523 495 478 602	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478 1155 825 717 771	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900 896 1269 1784 1713 1826	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786 773 747 748	1022 1161 1966 1658 1262 970 899 850 822 733 781 809 818 865 1196 1172
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080 1675 1432 1266 1133 1088 982	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918 938 1257 2251 2945 4450 4880	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397 1359 1350 1544 1647 2327 2670	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888 1854 1718 1608 1489 1372	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1330 1247 1098 1035 1035 1206 1296 1164	742 923 1106 1343 1508 1330 1050 1020 1178 1050 978 1701 2302 3537 4669 4400 3438 4201 6705 11989 10988	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120 2262 2855 3135 2832 3063 3136 2808	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159 1481 1217 1054 890 851 940	795 725 709 697 706 804 794 741 718 707 712 856 860 866 987 1020 714 653 742 774	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040 1124 992 1120 1161 1141 986	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372 3923 3159 2543 1801 1855 2280 2564	1384 1371 1392 14 12 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349 2013 1869 1725 1555 1262 1262	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949 1977 2498 3598 4030 8382 6436	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502 10000 13308 9747 8776 7394 6181 5213	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299 30562 30443 13747 7755 6297 5530	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557 2441 2314 2396 2480 2543 2624	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765 1697 1763 1876 1939 2457 2100	1686 1699 1771 1646 1577 1355 1335 1268 1264 1202 1110 1133 1105 1114 1249 1154 1059 994 966 893	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756 1808 1349 1349 1498 1633 1784 1446	675 722 727 721 758 892 1033 1516 1250 1041 790 670 638 562 518 523 495 478 602 676	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478 1155 825 717 771 777 2123	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900 896 1269 1784 1713 1826 2280	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786 773 747 748 743 717	1022 1161 1960 1658 1262 1262 1049 899 850 822 779 818 809 818 865 1039 1196 1172
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080 1675 1432 1266 1133 1088	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918 938 1257 2251 2945	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397 1359 1350 1544 1647 2327	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888 1854 1718 1608 1489 1372	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1330 1247 1098 1035 1035 1206 1296	742 923 1106 1343 1050 1050 1020 1178 1050 978 1701 2302 3537 4669 4400 3438 4201 6705	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120 2262 2855 3135 2832 3063 3136	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159 1481 1217 1054 924 890 851	795 725 709 697 706 804 794 741 718 707 712 856 860 987 1020 714 653 742	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040 1124 992 1120 1161 1141	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372 3923 3159 2543 1801 1855 2280	1384 1371 1392 14 12 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349 2013 1869 1725 1555 1262	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949 1977 2498 3598 4030 8382	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502 10000 13308 9747 8776 7394 6181	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299 30562 30443 13747 7755 6297	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557 2441 2314 2396 2480 2543	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765 1697 1763 1876 1939 2457	1686 1699 1771 1646 1577 1355 1335 1268 1264 1202 1110 1133 1105 1114 1249 1154 1059 994 966 893	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756 1808 1349 1392 1498 1633 1784	675 722 727 721 758 728 892 1033 1516 1250 1041 790 670 638 562 518 523 495 478 602	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478 1155 825 717 771	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900 896 1269 1784 1713 1826	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786 773 747 748	1022 1161 1966 1658 1262 1262 1262 9700 899 850 822 779 733 7811 809 818 865 1039 1196 1482 1762
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 23 24 25	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080 1675 1432 1266 1133 1088 982 959 918	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918 938 1257 2251 2945 4450 4880 3443 2281	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397 1359 1350 1544 1647 2327 2670 2725 3305 2771	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888 1854 1718 1608 1489 1372 1368 1322 1253 1231	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1330 1247 1098 1035 1035 1206 1296 1164 1158 1326 1015	742 923 1106 1343 1508 1300 1050 1020 1178 1050 978 1701 2302 3537 4669 4400 3438 4201 6705 11989 10988 8314 5375 3334	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120 2262 2855 3135 2832 3063 3136 2808 2246 1887	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159 1481 1217 1054 924 890 851 940 907 1050 1328	795 725 709 697 706 804 794 741 718 707 712 856 860 866 987 1020 714 653 742 774 1521 2341 1877	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040 1124 992 1120 1161 1141 986 1031 1000 1011	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372 3923 3159 2543 1801 1855 2280 2564 4557 3657 2849	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349 2013 1869 1725 1555 1262 1262 1243 1233 1374	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949 1977 2498 3598 4030 8382 6436 6828 6316 10547	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502 10000 13308 9747 8776 7394 6181 5213 5295 4591 3697	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299 30562 30443 13747 7755 6297 5530 4936 4490 4028	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557 2441 2314 2396 2480 2543 2624 2603 2425	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765 1697 1763 1876 1939 2457 2100 1850 1603	1686 1699 1771 1646 1577 1355 1268 1264 1202 1110 1133 1105 1114 1249 1154 1059 994 966 893 900 947 961 864	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756 1808 1349 1392 1498 1633 1784 1446 1245 1176 919	675 722 727 721 758 728 892 1033 1516 1250 1041 790 670 638 562 518 523 495 478 602 676 774 693 731	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478 1155 825 717 771 777 2123 1682 1091 817	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900 896 1269 1784 1713 1826 2280 4395 3158 2156	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786 773 747 748 743 741 719 742 735 715	1022 1161 1960 1658 1262 1049 899 850 822 779 733 781 8099 818 865 1039 1172 1482 1482 1482 1482 1482 1482 1482 148
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080 1675 1432 1266 1133 1088 982 959 918 889 839	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918 938 1257 2251 2945 4450 4880 3443 2281 1760 2422	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397 1359 1350 1544 1647 2327 2670 2725 3305 2771 2208	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888 1854 1718 1608 1489 1372 1368 1322 1253 1231 1186	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1336 1330 1247 1098 1035 1035 1206 1296 1164 1158 1326 1015 943	742 923 1106 1343 1508 1330 1050 1020 1178 1050 978 1701 2302 3537 4669 4400 3438 4201 6705 11989 10988 8314 5375 3334 2367	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120 2262 2855 3135 2832 3063 3136 2808 2246 1887 1597	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159 1481 1217 1054 924 890 851 907 1050 1328 1587	795 725 709 697 706 804 794 741 718 707 712 856 860 866 987 1020 714 653 742 774 1521 2341 1877 1822 3456	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040 1124 992 1120 1161 1141 986 1031 1000 1011 988 988	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372 3923 3159 2543 1801 1855 2280 2564 4557 3657 2849 2148	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349 2013 1869 1725 1555 1262 1262 1262 1243 1233 1374 1520	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949 1977 2498 3598 4030 8382 6436 6828 6316 10547 10184	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502 10000 13308 9747 8776 7394 6181 5213 5295 4591 3697 3473	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299 30562 30443 13747 7755 6297 5530 4936 4490 4028 3849	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557 2441 2314 2396 2480 2543 2624 2603 2425 2227	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765 1697 1763 1876 1939 2457 2100 1850 1603 1671 1876	1686 1699 1771 1646 1577 1335 1268 1264 1202 1110 1133 1105 1114 1249 1154 1059 994 966 893 900 947 961 864 853	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756 1808 1349 1392 1498 1633 1784 1446 1245 1176 919 748	675 722 727 721 758 728 892 1033 1516 1250 1041 790 670 638 562 518 523 495 478 602 676 774 693 731	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478 1155 825 717 771 777 2123 1682 1091 817 687	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900 896 1269 1784 1713 1826 2280 4395 3158 2156 1459	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786 773 747 748 743 717 719 742 735 715	1022 1161 1960 1655 1262 1049 970 899 850 822 779 733 781 809 818 865 1039 1196 1172 1482 1762 3873 3043
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080 1675 1432 1266 1133 1088 982 959 918 889 839 882	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918 938 1257 2251 2945 4450 4880 3443 2281	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397 1359 1350 1544 1647 2327 2670 2725 3305 2771 2208 1822	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888 1854 1718 1608 1489 1372 1368 1322 1253 1253 1186 1149	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1330 1247 1098 1035 1206 1296 1164 1158 1326 1015 943 938	742 923 1106 1343 1050 1050 1020 1178 1050 978 1701 2302 3537 4669 4400 3438 4201 6705 11989 10988 8314 5375 3334 2367	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120 2262 2855 3135 2832 3063 3136 2808 2246 1887 1597	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159 1481 1217 1054 924 890 851 940 907 1050 1328	795 725 709 697 706 804 794 741 718 707 712 856 860 866 987 1020 714 653 742 774 1521 2341 1877	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040 1124 992 1120 1161 1141 986 1031 1000 1011 988 988	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372 3923 3159 2543 1801 1855 2280 2564 4557 3657 2849	1384 1371 1392 14 12 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349 2013 1669 1725 1262 1262 1262 1243 1374 1520 1515	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949 1977 2498 3598 4030 8382 6436 6828 6828 610547 10184 7220	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502 10000 13308 9747 8776 7394 6181 5213 5295 4591 3697	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299 30562 30443 13747 7755 6297 5530 4936 4490 4028 3849 3909	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557 2441 2314 2396 2480 2543 2624 2603 2425	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765 1697 1763 1876 1939 2457 2100 1850 1603 1671 1876 2061	1686 1699 1771 1646 1577 1355 1335 1268 1264 1202 1110 1133 1105 1114 1249 1154 1059 994 966 893 900 947 961 864 853 875	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756 1808 1349 1349 1392 1498 1633 1784 1446 1245 1176 9 19 748	675 722 727 721 758 728 892 1033 1516 1250 1041 790 670 638 562 518 523 495 478 602 676 774 693 731 597	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478 1155 825 717 771 777 2123 1682 1091 817	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900 896 1784 1713 1826 2280 4395 3158 2156 1459 1128	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786 773 747 748 743 717 719 742 735 715	1022 1161 1960 1658 1262 1262 1262 1262 1262 1262 1272 1283 1284 1284 1284 1284 1284 1284 1284 1284
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080 1675 1432 1266 1133 1088 982 959 918 889 839	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918 938 1257 2251 2945 4450 4880 3443 2281 1760 2422 2712	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397 1359 1350 1544 1647 2327 2670 2725 3305 2771 2208	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888 1854 1718 1608 1489 1372 1368 1322 1253 1231 1186	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1336 1330 1247 1098 1035 1035 1206 1296 1164 1158 1326 1015 943	742 923 1106 1343 1508 1330 1050 1020 1178 1050 978 1701 2302 3537 4669 4400 3438 4201 6705 11989 10988 8314 5375 3334 2367	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120 2262 2855 3135 2832 3063 3136 2808 2246 1887 1597	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159 1481 1217 1054 924 890 851 940 907 1050 1328 1587 1983	795 725 709 697 706 804 794 741 718 707 712 856 860 866 987 1020 714 653 742 774 1521 2341 1877 1822 3456 3325	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040 1124 992 1120 1161 1141 986 1031 1000 1011 988 988	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372 3923 3159 2543 1801 1855 2280 2564 4557 3657 2849 2148 1891	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349 2013 1869 1725 1555 1262 1262 1262 1243 1233 1374 1520	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949 1977 2498 3598 4030 8382 6436 6828 6316 10547 10184	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502 10000 13308 9747 8776 7394 6181 5213 5295 4591 3697 3473 3186	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299 30562 30443 13747 7755 6297 5530 4936 4490 4028 3849	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557 2441 2314 2396 2480 2543 2624 2603 2425 2227 2326 2413	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765 1697 1763 1876 1939 2457 2100 1850 1603 1671 1876	1686 1699 1771 1646 1577 1335 1268 1264 1202 1110 1133 1105 1114 1249 1154 1059 994 966 893 900 947 961 864 853	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756 1808 1349 1392 1498 1633 1784 1446 1245 1176 919 748	675 722 727 721 758 728 892 1033 1516 1250 1041 790 670 638 562 518 523 495 478 602 676 774 693 731	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478 1155 825 717 771 777 2123 1682 1091 817 687 645	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900 896 1269 1784 1713 1826 2280 4395 3158 2156 1459	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786 773 747 748 743 717 719 742 735 715 772 758	1022 1161 1960 1658 1262 1049 970 899 850 822 779 818 809 818 865 1039 1172 1482 1762 1923 3872 3872 3043 1947
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	2299 2107 1575 1432 1474 1319 1406 1841 2437 3408 3582 3164 2551 2080 1675 1432 1266 1133 1088 982 959 918 889 889 889 889	796 824 815 993 1486 1641 1558 1338 1121 1011 989 939 885 866 918 938 1257 2251 2945 4450 4880 3443 2281 1760 2422 2712	4217 4046 3958 8428 6313 4844 3203 2511 2126 1888 1810 1683 1536 1445 1397 1359 1350 1544 1647 2327 2670 2725 3305 2771 2208 1822 1763	1623 2122 2471 3465 3493 3210 2968 3743 3117 2538 2107 1862 1811 1888 1854 1718 1608 1489 1372 1368 1322 1253 1231 1186 1149 1073 1122	1763 1572 1311 1349 1753 1840 1720 2105 2515 2170 1743 1499 1336 1330 1247 1098 1035 1035 1206 1296 1164 1158 1326 1015 943 938 914	742 923 1106 1343 1106 1343 1050 1020 1178 1050 978 1701 2302 3537 4669 4400 3438 4201 6705 11989 10988 8314 5375 3334 2367 1720 1409	1435 2535 5426 6005 6572 6881 5168 2450 1798 1558 1388 1345 1817 2120 2262 2855 3135 2832 3063 3136 2808 2246 1887 1597 1437	1903 1732 1354 1147 1024 954 894 837 831 810 874 910 963 1159 1481 1217 1054 890 851 940 907 1050 1328 1587 1983 1644	795 725 709 697 706 804 794 741 718 707 712 856 860 866 987 1020 714 653 742 774 1521 2341 1877 1822 3456 3325 4683	30111 15197 6332 4283 2972 2246 1838 1462 1253 1138 1186 1112 1072 1040 1124 992 1120 1161 1141 986 1031 1000 1011 988 988 1024 1091	962 980 1085 1340 1508 1891 2173 1972 1647 1458 1352 1399 1963 2372 3923 3159 2543 1801 1855 2280 2564 4557 3657 2849 2148 1891 1714	1384 1371 1392 1412 1674 1976 2835 3474 3602 3307 3676 4404 3351 2772 2349 2013 1869 1725 1555 1262 1243 1233 1374 1520 1515 1563	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 20 21 22 23 24 25 26 27 28	3443 2957 3191 3596 4085 4070 3817 3211 2718 2473 2270 2203 2072 2033 1949 1977 2498 3598 4030 8382 6436 6828 6316 10547 10184 7220 4732	3620 3790 5265 5711 4686 4057 4958 5482 10575 9028 6518 4699 5911 6502 10000 13308 9747 8776 7394 6181 5213 5295 4591 3697 3473 3186	52 17 8475 62 16 4784 4192 4220 4547 5748 6222 4772 4017 3629 6946 10389 14299 30562 30443 13747 7755 6297 5530 4936 4490 4028 3849 3909 3567	3119 3143 3089 2964 2827 2859 2816 2706 2647 2957 2822 2673 2573 2606 2557 2441 2314 2396 2480 2543 2624 2603 2425 2227 2326 2413 2555	2048 2013 1961 2016 1944 1964 2086 2344 3427 2975 2502 2180 2004 1930 1765 1697 1763 1876 1939 2457 2100 1850 1603 1601 1876 2061	1686 1699 1771 1646 1577 1355 1335 1268 1264 1202 1110 1133 1105 1114 1249 1154 1059 994 966 893 900 947 961 864 863 875 783	630 672 580 557 577 544 483 596 610 1020 1534 1890 2718 2756 1808 1349 1349 1498 1633 1784 1446 1245 1176 919 748 597 713	675 722 727 721 758 892 1033 1516 1250 1041 790 670 638 562 518 523 495 478 602 676 774 693 731 597	452 431 355 345 302 326 326 369 413 1014 2043 4780 5049 3876 2478 1155 825 717 771 777 2123 1682 1091 817 687 645 597	582 567 553 667 670 590 652 772 963 1449 1523 1411 1100 840 900 896 1269 1784 1713 1826 2280 4395 3 158 2 156 1459 1128 984	743 755 735 759 844 925 894 1030 1438 1333 1057 949 830 772 786 773 747 748 743 717 719 742 735 715 772 758 804	

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	91												19	92					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	De
1	2088	2932	3722	3490	4053	1798	1656	1670	18 55	944	9 18	1555	1	2184	1507	2681	2571	1470	1259	1721	887	1038	804	10 17	24
2	1878	2306	6422	2678	3144	1879	1699	1635	2890	890	1343	1869	2	2332	1445	2396	2271	1436	1292	3973	806	893	1177	1902	23
3	1737	1946	5765	2408	3 158	1943	1908	1077	2114	870	1062	2593	3	3338	1437	2213	2179	1355	1348	7426	719	1006	1256	3220	2
4	18 13 16 77	1715 1542	5164 3711	2236 2159	4221 6196	1755 1530	1865 2122	928 894	1782 1332	862 826	794 744	3284 2544	4	3604 2981	14 16 1385	2314 2414	2154 2097	1409 1456	2124 2532	3719 2762	589 516	1155 1835	1951	2893 3603	20 19
5 6	1529	1487	3034	2360	7947	1438	2008	930	1195	829	659	1826	5 6	2225	1383	2720	2064	1490	1768	1826	482	1651	2721 2197	3007	19
7	1437	1528	2791	2351	5800	1427	16 18	1081	12 12	842	661	1577	7	1879	1363	4102	2081	1561	1453	1494	549	14 17	1375	1794	19
8	1454	14 13	2596	2467	4365	14 17	1294	1250	1139	820	683	1390	8	1623	13 12	3678	2096	1827	1269	1135	575	12 16	1072	1294	20
9	1686	1344	2553	2881	3228	1348	1271	1576	1081	8 19	663	13 16	9	1552	1268	3268	2246	1834	2106	954	583	1229	1132	1105	18
10	1926	13 10	2269	3293	3250	1367	1139	2796	1049	793	653	1500	10	1566	1262	3324	2272	1680	1756	879	627	1077	1039	1359	18
11	3097	1353	2261	2749	3024	13 18	1154	2758	1005	770	697	1399	11	158 1	1232	3553	2316	1488	1574	978	977	1048	1023	1631	21
12 13	4108 3207	1348 1352	2337 2984	2562 2395	3530 3496	1368 1507	1377 1157	4545 4041	977 969	719 800	720 685	1279 1315	12 13	1471 1531	1247 1833	3014 2589	2557 2479	1439 1333	1719 1933	916 895	996 1667	954 884	1023 939	2464 4604	19
14	2516	1826	3289	2309	2979	1936	1068	2939	968	806	670	1433	14	1735	2372	2194	2131	1393	1727	839	2651	780	784	3011	23
15	2061	1856	2807	2115	2554	1800	1115	1953	908	877	709	1607	15	1686	3884	2121	2019	1288	1790	854	1744	742	774	2198	43
16	18 19	16 17	2468	1978	2376	1718	1391	1570	906	999	714	1420	16	1461	5532	2208	2102	1267	16 16	1290	1432	688	779	1631	58
17	1755	1639	2199	19 18	3818	1657	1827	1209	1115	864	710	1280	17	1400	4203	2525	1900	1179	1479	1327	1177	669	780	1446	13.5
18	16 14	3548	2171	1905	3918	1526	2671	1062	1109	763	701	1206	18	1374	3628	2735	1851	1180	1339	1539	1129	704	731	1379	112
19	1554	4239	2199	2058	3886	1598	3174	1045	1322	771	1368	1166	19	1346	3043	4316	2047	1125	1328	1479	1163	761	727	1444	78
20 21	1631 1533	7045 7463	1958 1891	2656 2185	3765 3665	1752 1766	2391 1825	1096 1118	1515 1246	783 749	2503 3261	118.4 12.19	20	1345 2140	2708 2667	4156 3943	2149 2536	1139 1157	13 13 1150	14 17 119 3	1268 1279	821 880	698 704	1702 2090	68 68
21	1389	5865	1821	1906	2459	1702	1405	1001	1101	813	5760	12 19	22	2676	2534	3581	2641	1071	953	1345	1884	1970	697	3862	51
2 3	1341	4324	1850	1807	2215	1803	1229	899	1695	802	4826	1272	23	3923	3937	4785	2285	10 16	885	1364	1901	1597	731	6200	42
2 4	1378	3433	1707	1733	2128	1956	1120	9 17	1706	720	3206	1700	24	4497	5723	4160	1885	993	875	1268	1586	1194	743	6694	36
25	1467	2876	1680	1829	2 159	1947	1246	1049	2328	745	1738	1631	25	3677	6138	3689	1773	1020	830	1006	1155	1002	785	9277	35
26	1464	2378	1958	2061	2294	2509	1282	1547	2408	778	1233	16 16	26	2601	9332	3172	1626	1033	8 18	887	1189	936	9 13	10241	36
27	1469	2529	2728	2872	2355	2940	1429	3069	1831	749	1154	1699	27	1945	6613	2871	1630	1049	893	829	1281	942	934	6583	40
2 8 2 9	1816 2074	3237	3560 5466	4131 4868	2880 2586	3089 2400	1492 1831	2124 1987	1045 994	714 737	1073 1095	2012 3033	28	1930 1787	4695 3480.948	2745 2649	1580 1502	10 12 10 6 9	857 913	853 841	2839 2936	1068 1192	977 940	4464 3278	59 52
30	2467		7166	5277	2129	1951	1733	2202	962	815	1043	2431	30	1669	3480.948	2612	1482	1294	1132	826	1828	10 14	911	2904	40
31	3482		4809	02	1829		1663	2123	002	805	.00	1956	31	1564		2830		1256	2	831	1302		973	200.	34
						19	993												19	94					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	De
1	2989	2872	3090	2715	2024	1861	1191	453	282	181	1154	863	1	1127	1453	3729	3105	1791	1000	1634	1439	893	622	888	13
_	2778	2753	0.400	2591	2240	1584	1131	428	263	205	783	885	2	1287	1304	6734	2656	1787	958	1201	1689	988	703	979	13:
		2753	3486	2001		13 15	997	501	269	235	743	872	3	1430	1333	6522	2401	1836	928	1091	1733	1031	004	887	12
3	2663	2634	3784	2733	2407																		894		
3 4	2619	2634 2649	3784 5156	2733 2756	2758	1258	883	8 16	306	244	932	1030	4	2205	1332	4687	2563	2227	890	114.1	1705	885	1132	786	
3 4 5	2619 3076	2634 2649 2618	3784 5156 4713	2733 2756 3231	2758 3110	1258 1221	883 815	8 16 1111	306 333	244 217	932 1684	1030 1811	4 5	2205 2302	1332 1423	3274	2568	2047	890 929	1298	1705 1627	885 763	1132 854	700	19
3 4 5 6	2619 3076 3502	2634 2649 2618 2797	3784 5156 4713 3990	2733 2756 3231 3477	2758 3110 2475	1258 1221 1182	883 815 778	8 16 1111 1117	306 333 324	244 217 224	932 1684 2249	1030 1811 1826	4 5 6	2205 2302 1913	1332 1423 2029	3274 2472	2568 3188	2047 1833	890 929 1150	1298 1884	1705 1627 1483	885 763 922	1132 854 668	700 1059	19 18 (
3 4 5 6 7	2619 3076	2634 2649 2618	3784 5156 4713	2733 2756 3231	2758 3110	1258 1221	883 815	8 16 1111	306 333	244 217	932 1684	1030 1811	4 5	2205 2302	1332 1423	3274	2568	2047	890 929	1298	1705 1627	885 763	1132 854	700	19 18 (12
3 4 5 6 7 8	2619 3076 3502 3364	2634 2649 2618 2797 2881	3784 5156 4713 3990 3173	2733 2756 3231 3477 3223	2758 3110 2475 2116	1258 1221 1182 1135	883 815 778 768	8 16 1111 1117 1257	306 333 324 306	244 217 224 236	932 1684 2249 1393	1030 1811 1826 1277	4 5 6 7	2205 2302 1913 1619	1332 1423 2029 2006	3274 2472 2311	2568 3188 3527	2047 1833 1716	890 929 1150 1393	1298 1884 1586	1705 1627 1483 1266	885 763 922 1033	1132 854 668 582	700 1059 1118	19 180 12 129
3 4 5 6 7 8 9	26 19 3076 3502 3364 3939	2634 2649 2618 2797 2881 3234	3784 5156 4713 3990 3173 2803	2733 2756 3231 3477 3223 3005	2758 3110 2475 2116 1907	1258 1221 1182 1135 1087	883 815 778 768 690	8 16 1111 1117 12 57 13 6 4	306 333 324 306 348	244 217 224 236 235	932 1684 2249 1393 978	1030 1811 1826 1277 1090	4 5 6 7 8	2205 2302 1913 1619 1618	1332 1423 2029 2006 2222	3274 2472 2311 2284	2568 3188 3527 2987	2047 1833 1716 1741	890 929 1150 1393 1556	1298 1884 1586 1554	1705 1627 1483 1266 1088	885 763 922 1033 1013	1132 854 668 582 637	700 1059 1118 1162	190 180 120 120 13
3 4 5 6 7 8 9 10	2619 3076 3502 3364 3939 4790 7386 9049	2634 2649 2618 2797 2881 3234 3134 3077 2858	3784 5156 4713 3990 3173 2803 2636 2535 2984	2733 2756 3231 3477 3223 3005 3052 4115 3421	2758 3110 2475 2116 1907 1783 1723	1258 1221 1182 1135 1087 1000 1057 1091	883 815 778 768 690 687 707	8 16 1111 1117 1257 1364 1067 768 651	306 333 324 306 348 319 276 273	244 217 224 236 235 244 231 201	932 1684 2249 1393 978 671 575	1030 1811 1826 1277 1090 982 1103	4 5 6 7 8 9 10	2205 2302 1913 1619 1618 1623 1462 1420	1332 1423 2029 2006 2222 3053 3208 3911	3274 2472 2311 2284 2388 4051 3632	2568 3188 3527 2987 2514 2321 2737	2047 1833 1716 1741 1691 1534 1418	890 929 1150 1393 1556 1500 1622 1300	1298 1884 1586 1554 1586 1547 1547	1705 1627 1483 1266 1088 996 1004 923	885 763 922 1033 1013 1033 1137 986	1132 854 668 582 637 621 901	700 1059 1118 1162 1184 1254 1037	199 180 129 129 13 129 218
3 4 5 6 7 8 9 10 11	26 19 3076 3502 3364 3939 4790 7386 9049 15164	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978	2758 3110 2475 2116 1907 1783 1723 1827 1857	1258 1221 1182 1135 1087 1000 1057 1091 1136	883 815 778 768 690 687 707 707 633	816 1111 1117 1257 1364 1067 768 651 610	306 333 324 306 348 319 276 273	244 217 224 236 235 244 231 201 202	932 1684 2249 1393 978 671 575 530	1030 1811 1826 1277 1090 982 1103 1482 1361	4 5 6 7 8 9 10 11	2205 2302 1913 1619 1618 1623 1462 1420	1332 1423 2029 2006 2222 3053 3208 3911 4960	3274 2472 2311 2284 2388 4051 3632 2666	2568 3188 3527 2987 2514 2321 2737 2778	2047 1833 1716 1741 1691 1534 1418	890 929 1150 1393 1556 1500 1622 1300	1298 1884 1586 1554 1586 1547 1547 1547	1705 1627 1483 1266 1088 996 1004 923 905	885 763 922 1033 1013 1033 1137 986 876	1132 854 668 582 637 621 901 927 1285	700 1059 1118 1162 1184 1254 1037	19 180 121 121 13 12 210 20
3 4 5 6 7 8 9 10 11 12	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813	2758 3110 2475 2116 1907 1783 1723 1827 1857	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459	883 815 778 768 690 687 707 707 633 698	8 16 1111 1117 1257 1364 1067 768 651 610 586	306 333 324 306 348 319 276 273 224 204	244 217 224 236 235 244 231 201 202 216	932 1684 2249 1393 978 671 575 530 531	1030 1811 1826 1277 1090 982 1103 1482 1361	4 5 6 7 8 9 10 11 12 13	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478	3274 2472 2311 2284 2388 4051 3632 2666 2240	2568 3188 3527 2987 2514 2321 2737 2778 4764	2047 1833 1716 1741 1691 1534 1418 1355 1484	890 929 1150 1393 1556 1500 1622 1300 1250 1246	1298 1884 1586 1554 1586 1547 1547 1547 1428 1436	1705 1627 1483 1266 1088 996 1004 923 905 943	885 763 922 1033 1013 1033 1137 986 876 840	1132 854 668 582 637 621 901 927 1285 1647	700 1059 1118 1162 1184 1254 1037 1031 868	19 181 12 12: 13 12 21: 20
3 4 5 6 7 8 9 10 11 12 13	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973 3015	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520	883 815 778 768 690 687 707 707 633 698 729	8 16 1111 1117 1257 1364 1067 768 651 610 586 642	306 333 324 306 348 319 276 273 224 204 259	244 217 224 236 235 244 231 201 202 216 298	932 1684 2249 1393 978 671 575 530 531 573 587	1030 1811 1826 1277 1090 982 1103 1482 1361 1147	4 5 6 7 8 9 10 11 12 13 14	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813	2047 1833 1716 1741 1691 1534 1418 1355 1484	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358	1298 1884 1586 1554 1586 1547 1547 1428 1436 1592	1705 1627 1483 1266 1088 996 1004 923 905 943 1143	885 763 922 1033 10 13 1033 1137 986 876 840 820	1132 854 668 582 637 621 901 927 1285 1647 2458	700 1059 1118 1162 1184 1254 1037 1031 868 886	19 181 12 12: 13 13 12 21: 20 15
3 4 5 6 7 8 9 10 11 12 13 14	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813	2758 3110 2475 2116 1907 1783 1723 1827 1857	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459	883 815 778 768 690 687 707 707 633 698	8 16 1111 1117 1257 1364 1067 768 651 610 586	306 333 324 306 348 319 276 273 224 204	244 217 224 236 235 244 231 201 202 216	932 1684 2249 1393 978 671 575 530 531	1030 1811 1826 1277 1090 982 1103 1482 1361	4 5 6 7 8 9 10 11 12 13	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478	3274 2472 2311 2284 2388 4051 3632 2666 2240	2568 3188 3527 2987 2514 2321 2737 2778 4764	2047 1833 1716 1741 1691 1534 1418 1355 1484	890 929 1150 1393 1556 1500 1622 1300 1250 1246	1298 1884 1586 1554 1586 1547 1547 1547 1428 1436	1705 1627 1483 1266 1088 996 1004 923 905 943	885 763 922 1033 1013 1033 1137 986 876 840	1132 854 668 582 637 621 901 927 1285 1647	700 1059 1118 1162 1184 1254 1037 1031 868	19 18 12 12 13 12 21 20 15 13
3 4 5 6 7 8 9 10 11 12 13 14 15 16	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 6016	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288 4025	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520 1342	883 815 778 768 690 687 707 707 633 698 729 679	8 16 1111 1117 1257 1364 1067 768 651 610 586 642 654	306 333 324 306 348 319 276 273 224 204 259 280	244 217 224 236 235 244 231 201 202 216 298 342	932 1684 2249 1393 978 671 575 530 531 573 587 632	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186	4 5 6 7 8 9 10 11 12 13 14 15	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276	1298 1884 1586 1554 1586 1547 1547 1428 1436 1592	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508	885 763 922 1033 10 13 10 33 1137 986 876 840 820 863	1132 854 668 582 637 621 901 927 1285 1647 2458 2747	700 1059 1118 1162 1184 1254 1037 1031 868 886 862	19 18 12 12 13 12 21 20 15 13 12 11
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 6016 4554	2634 2649 2648 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288 4025 3776	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520 1342 1235	883 815 778 768 690 687 707 707 633 698 729 679	8 16 1111 1117 1257 1364 1067 768 651 610 586 642 654 508	306 333 324 306 348 319 276 273 224 204 259 280 339	244 217 224 236 235 244 231 201 202 216 298 342 524	932 1684 2249 1393 978 671 575 530 531 573 587 632 713	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127	4 5 6 7 8 9 10 11 12 13 14 15	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636 1507	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175	1298 1884 1586 1554 1586 1547 1547 1428 1436 1592 1514 1358	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956	885 763 922 1033 10 13 10 33 1137 986 876 840 820 863 940	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793	700 1059 1118 1162 1184 1254 1037 1031 868 886 862 821	19 18 12 12 13 13 12 21 15 15 15 11 11 12
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 6016 4554 4003 3582 3635	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288 4025 3776 3904 4121	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231 2983 2646 2475	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520 1342 1235 1100 1011	883 815 778 768 690 687 707 707 633 698 729 679 676 737 665	8 16 1111 1117 1257 1364 1067 768 651 610 586 642 654 508 511 453 380	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636 1507 1451 1956	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692 1624 1616	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866 5952 4210 2900	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175 1104 975	1298 1884 1586 1554 1547 1547 1428 1436 1592 1514 1358 1285 1153 1223	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272	885 763 922 1033 1013 1033 1137 986 876 840 820 863 940 1131 1362 1116	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951	700 1059 1118 1162 1184 1254 1037 1031 868 886 862 821 773 668 811	19 181 121 129 13 14 201 15 15 11 11 11 11 18
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 60 16 4554 4003 3582 3635 3650	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712 2689	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288 4025 3776 3904 4121 3844 3341	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231 2983 2646 2475 2335	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520 1342 1235 1100 1011	883 815 778 768 690 687 707 707 633 698 729 679 676 737 665	8 16 1111 1117 1257 1364 1067 768 651 6 10 586 642 654 508 511 453 380 367	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405 411	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521 522	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682 611	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019 1014	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636 1507 1451 1956 1628	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501 1475	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692 1624 1616	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866 5952 4210 2900 2455	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342 1261 1196	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175 1104 975 868 846	1298 1884 1586 1554 1586 1547 1547 1428 1436 1592 1514 1358 1285 1153 1223 1265	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272	885 763 922 1033 1013 1033 1137 986 876 840 820 863 940 1131 1362 1116 845	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951	700 1059 1118 1162 1184 1254 1037 1031 868 886 862 821 773 668 811 818	19 180 121 122 133 122 248 200 15 131 120 118 120 118 120 118 120 118 110 10
3 4 5 6 7 8 9 110 111 122 133 144 15 166 17 18 19 20 21	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 6016 4554 4003 3582 3635 3650 4267	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712 2689 2893	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288 4025 3776 3904 4121 3844 3341 3078	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231 2983 2646 2475 2335 2302	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018 2105	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520 1342 1235 1001 1011 1022 1003 1001	883 815 778 768 690 687 707 707 633 698 729 679 676 737 665 515	816 1111 1117 1257 1364 1067 768 651 610 586 642 654 508 511 453 380 367 367	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405 411 930	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521 522 438	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682 611	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019 1014 1257	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636 1507 1451 1956 1628 1516	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501 1475 1496 2474	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692 1624 1616 1610	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866 5952 4210 2900 2455 2124	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342 1261 1196 1174	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175 1104 975 868 846 767	1298 1884 1586 1554 1586 1547 1547 1428 1436 1592 1514 1358 1285 1153 1223 1265 1176	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272 1910 1812	885 763 922 1033 10 13 1033 1137 986 876 840 820 863 940 1131 1362 1116 845 715	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951 1002 1302	700 1059 1118 1162 1184 1254 1037 1031 868 886 862 821 773 668 811 818	19 18 18 12 12 13 13 12 21 15 15 11 11 11 10 11 11 11 11 11 11 11 11 11
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 6016 4554 4003 3582 3635 3650 4267 5777	2634 2649 2648 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712 2689 2893 3822	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4228 4025 3776 3904 4121 3844 3341 3078	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231 2983 2646 2475 2335 2302 2272	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018 2105	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520 1342 1235 1100 1011 1022 1003 1001 1134	883 815 778 768 690 687 707 707 633 698 729 679 676 737 665 515 482 424	8 16 1111 1117 1257 1364 1067 768 651 6 10 586 642 654 508 511 453 380 367 367 347	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405 411 930 921	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521 522 438 478	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682 611 547	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019 1014 1257 1336	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636 1507 1451 1956 1628 1516	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501 1475 1496 2474 3174	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692 1624 1616 1610 1542 1521	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866 5952 4210 2900 2455 2124	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342 1261 1196 1174 1161	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175 1104 975 868 846 767 751	1298 1884 1586 1554 1586 1547 1547 1428 1436 1592 1514 1358 1285 1223 1265 1176 1355	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272 1910 1812	885 763 922 1033 10 13 10 33 1137 986 876 840 820 863 940 1131 1362 1116 845 715 706	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951 1002 1302 1210	700 1059 1118 1162 1184 1254 1037 1031 868 886 862 821 773 668 811 818	19 180 121 122 133 122 218 200 155 133 126 115 100 111 110
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 60 16 4554 4003 3582 3635 3650 4267 5777 5481	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712 2689 2893	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288 4025 3776 3904 4121 3844 3341 3078 2948 3012	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231 2983 2646 2475 2335 2302 2272 2191	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018 2015 1906 1625 1608	1258 1221 1182 1135 1000 1057 1091 1136 1459 1520 1342 1235 1100 1011 1022 1003 1001 1134 1173	883 815 778 768 690 687 707 707 633 698 729 679 676 737 665 515	8 16 1111 1117 1257 1364 1067 768 651 610 586 642 654 508 511 453 380 367 367 347	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405 411 930 921 486	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521 438 478 582	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682 611 547 503	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019 1014 1257 1336 1135	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	2205 2302 19 13 16 19 16 18 1623 14 62 14 20 19 02 22 64 15 07 14 51 19 56 16 28 16 28 13 98 12 89 11 63	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501 1475 1496 2474 3174 4365	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692 1624 1616 1610 1542 1521 1875 2612	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866 5952 4210 2900 2455 2124 1996 1899	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342 1261 1196 1174 1161	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175 1104 975 868 846 767	1298 1884 1586 1554 1586 1547 1428 1436 1592 1514 1358 1285 1153 1223 1265 1176 1355 1537	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272 1910 1812 1774	885 763 922 1033 1033 1137 986 876 840 863 940 1131 1362 1116 845 715 706 740	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951 1002 1302 1210	700 1059 1118 1162 1184 1254 1037 1031 868 886 862 821 773 668 811 818	19 18 18 12 12 13 13 12 21 15 15 13 12 11 11 11 10 10 11 11 18
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 32 4	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 6016 4554 4003 3582 3635 3650 4267 5777	2634 2649 2648 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712 2689 2893 3822 3418	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4228 4025 3776 3904 4121 3844 3341 3078	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231 2983 2646 2475 2335 2302 2272	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018 2105	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520 1342 1235 1100 1011 1022 1003 1001 1134	883 815 778 768 690 687 707 707 633 698 729 679 676 737 665 515 482 424 389 415	8 16 1111 1117 1257 1364 1067 768 651 6 10 586 642 654 508 511 453 380 367 367 347	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405 411 930 921	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521 522 438 478	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682 611 547	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019 1014 1257 1336	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636 1507 1451 1956 1628 1516	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501 1475 1496 2474 3174	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692 1624 1616 1610 1542 1521	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866 5952 4210 2900 2455 2124	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342 1261 1196 1174 1161	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175 1104 975 868 846 767 751	1298 1884 1586 1554 1586 1547 1547 1428 1436 1592 1514 1358 1285 1223 1265 1176 1355	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272 1910 1812	885 763 922 1033 10 13 10 33 1137 986 876 840 820 863 940 1131 1362 1116 845 715 706	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951 1002 1302 1210	700 1059 1118 1162 1184 1254 1037 1031 868 886 862 821 773 668 811 818 825	19 18 18 12 12 12 13 13 12 21 20 15 13 12 11 11 11 11 11 10 11 11 11 11 11 11 11
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 6016 4554 4003 3582 3635 3650 4267 5777 5481 6588	2634 2649 2648 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712 2689 2893 3822 3418 3145	3784 5156 4713 3990 3173 2636 2535 2984 3149 4071 4288 4025 3776 3904 4121 3844 3341 3078 2948 3012 3273	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231 2983 2646 2475 2335 2302 2272 2191 2344	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018 2105 1906 1625 1608	1258 1221 1182 1135 1000 1057 1091 1136 1459 1520 1342 1235 1100 1011 1022 1003 1001 1134 1173 1066	883 815 778 768 690 687 707 707 633 698 729 679 676 737 665 515 482 424 389 415 519	8 16 1111 1117 1257 1364 1067 768 651 610 586 642 654 508 511 453 380 367 367 347	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405 411 930 921 486 415	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521 522 438 478 582 549	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682 611 547 503 501	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019 1014 1257 1336 1135	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	2205 2302 19 13 16 19 16 18 1623 1462 1420 1902 2264 1875 1636 1507 1451 1956 1628 1516 1398 1289 1163	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501 1475 1496 2474 3174 4365 5726	3274 2472 2311 2284 4051 3632 2666 2240 1910 1962 1692 1692 1616 1610 1542 1875 2612 2890	2568 3188 3527 2987 2987 2514 2321 2737 2778 4764 5813 7866 5952 4210 2900 2455 2124 1996 1899	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342 1261 1196 1174 1161 1157 1192	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175 1104 975 868 846 767 751 771 819	1298 1884 1586 1554 1547 1547 1428 1436 1592 1436 1592 1285 1153 1223 1265 1355 1537 1224	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272 19 10 18 12 1774 14 23 1115	885 763 922 1033 1013 1033 1137 986 876 840 820 863 940 1131 1362 1116 845 715 706 740 851	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951 1002 1302 1210 1291	700 1059 1118 1162 1184 1254 1037 1031 868 862 821 773 668 811 8 18 825 935	19 180 121 129 131 122 21k 200 155 133 122 11k 115 100 111 111 101 101 101
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 22 22 23 24 25 26 27	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 6016 4554 4003 3582 3635 3650 4267 5777 5481 6588 7933	2634 2649 2648 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712 2689 2893 3822 3418 3145 3044	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288 4025 3776 3904 4121 3844 3341 3078 2948 3012 3273 3449	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 3231 2983 2646 2475 2335 2302 2272 2191 2344 2356	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018 2105 1906 1625 1608 1556	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520 1342 1235 1100 1011 1022 1003 1001 1134 1173 1066 1209	883 815 778 768 690 687 707 707 633 698 729 679 676 737 665 515 482 424 389 415 519	8 16 1111 1117 1257 1364 1067 768 651 610 586 642 654 508 511 453 380 367 367 347 338 342 395	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405 411 930 921 486 415 369	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521 522 438 478 582 549 389	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682 611 547 503 501 591	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019 1014 1257 1336 1135 1024 941	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636 1507 1451 1956 1628 1516 1398 1289 1163	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501 1475 1496 2474 3174 4365 5726 4243	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692 1624 1616 1650 1542 1521 1875 2612 2890 6461	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866 5952 4210 2900 2455 2124 1996 1899 1870 1860	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342 1261 1196 1174 1161 1157 1192 1260	890 929 1150 1393 1556 1600 1622 1300 1250 1246 1358 1276 1175 1104 975 868 846 767 761 771 819 2156	1298 1884 1586 1554 1586 1547 1547 1428 1436 1592 1514 1358 1285 1153 1223 1265 1176 1355 1537 1224 1495	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272 1910 1812 1774 1423 1115	885 763 922 1033 1013 1033 1137 986 876 840 820 840 1131 1362 1116 845 715 706 740 851 895	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951 1002 1302 1210 1291 1307	700 1059 1118 1162 1184 1254 1037 1031 868 868 862 821 773 668 811 818 825 935 960 740 787	190 180 122 128 13 122 20 153 126 115 115 116 117 117 117 117 117 117 119 109
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 60 16 4554 4003 3582 3635 3650 4267 5777 5481 6588 7933 5813 4423 3660	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712 2689 2893 3822 3418 3145 3044 3200	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288 4025 3776 3904 4121 3844 3341 3078 2948 3012 3273 3449 3244 4041 3602	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231 2983 2646 2475 2335 2302 2272 2191 2344 2356 2634 2491 2226	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018 2105 1906 1625 1608 1556 1556 1555 1654 1538	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520 1342 1235 1100 1011 1022 1003 1001 1134 1173 1066 1209 1417 1445 1285	883 815 778 768 690 687 707 707 707 633 698 729 679 676 737 665 515 482 424 389 415 519 571 662 661 580	816 1111 1117 1257 1364 1067 768 651 610 586 642 654 508 511 453 380 367 367 347 338 342 395 379 349 340	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405 411 930 921 486 415 369 346 316 294	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521 522 438 478 582 549 389 423 469 783	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682 611 547 503 501 591 824 1087 3003 2845	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019 1014 1257 1336 1135 1024 941 909 960 1005	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636 1507 1451 1956 1628 1516 1398 1289 1163 1229 1221 1408	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501 1475 1496 2474 3174 4365 5726 4243 2852	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692 1624 1616 1610 1542 1521 1875 2612 2890 6461 5825 5047 7216	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866 5952 4210 2900 2455 2124 1996 1899 1870 1860 1868 1863 1858	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342 1261 1196 1174 1161 1157 1192 1260 1259 1481 1409	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175 1104 975 868 846 767 751 771 819 2156 2547 7026 6973	1298 1884 1586 1554 1586 1547 1547 1428 1436 1592 1514 1358 1223 1265 1176 1355 1537 1224 1495 2035 2475 3806	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272 1910 1812 1774 1423 1115 1018 993 951 892	885 763 922 1033 10 13 1033 1137 986 876 840 820 863 940 1131 1362 1116 845 715 706 740 851 895 819 706 614	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951 1002 1302 1210 1291 1307 1142 966 782 664	700 1059 1118 1162 11184 1254 1037 1031 868 886 862 821 773 668 811 818 825 935 960 740 787 1334 1716 2170	15 190 180 180 180 180 180 180 180 180 180 18
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 26 27 28 29	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 60 16 4554 4003 3582 3635 3650 4267 5777 5481 6588 7933 5813 4423 3660 3303	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712 2689 2893 3822 3418 3145 3044 3200 3463	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288 4025 3776 3904 4121 3844 3341 3078 2948 3012 3273 3449 3244 4041 3602 3234	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231 2983 2646 2475 2335 2302 2272 2191 2344 2356 2634 2491 2226 1970	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018 2016 1625 1608 1556 1556 1555 1654 1538 1435	1258 1221 1182 1135 1000 1057 1091 1136 1459 1342 1235 1100 1011 1022 1003 1001 1134 1173 1066 1209 1417 1445 1285 1477	883 815 778 768 690 687 707 707 633 698 729 676 737 665 515 482 424 389 415 519 571 662 661 580 473	8 16 1111 1117 1257 1364 1067 768 651 610 586 642 654 508 511 453 380 367 367 347 338 342 395 379 349 340 350	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405 411 930 921 486 415 369 346 316 294 234	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521 438 478 582 549 389 423 469 783	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682 611 547 503 501 591 824 1087 3003 2845	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019 1014 1257 1336 1135 1024 941 909 960 1005 1170	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636 1507 1451 1956 1628 1289 1163 1229 1221 1408 1757 2242 2700	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501 1475 1496 2474 3174 4365 5726 4243 2852 2441	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692 1624 1616 1610 1542 1521 1875 2612 2890 6461 5825 5047 7216 6981	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866 5952 4210 2900 2455 2124 1996 1899 1870 1860 1868 1863 1858	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342 1261 1196 1174 1161 1157 1192 1260 1259 1481 1409 1198	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175 1104 975 868 868 868 867 751 771 8 19 2 156 2 547 7026 6 973 3 937	1298 1884 1586 1554 1586 15547 1547 1428 1436 1592 1514 1358 1223 1265 1176 1355 1537 1224 1495 2035 2475 3806 2590	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272 1910 1812 1774 1423 1115 1018 993 9951 892 857	885 763 922 1033 1033 1137 986 876 840 863 940 1131 1362 1116 740 851 895 819 706 614 561	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951 1002 1302 1210 1291 1307 1142 966 782 664 737	700 1059 1118 1162 1184 1254 1037 1031 868 886 862 821 773 668 811 818 825 935 960 740 787 1334 1716 2170 2851	190 180 129 129 13 128 2 18 2 2 18 13 12 2 113 12 116 113 103 114 110 103 117 117 119 119 119 119 119 119 119 119
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	26 19 3076 3502 3364 3939 4790 7386 9049 15164 13282 9630 60 16 4554 4003 3582 3635 3650 4267 5777 5481 6588 7933 5813 4423 3660	2634 2649 2618 2797 2881 3234 3134 3077 2858 3152 2973 3015 2932 3173 3300 2984 2712 2689 2893 3822 3418 3145 3044 3200 3463	3784 5156 4713 3990 3173 2803 2636 2535 2984 3149 4071 4288 4025 3776 3904 4121 3844 3341 3078 2948 3012 3273 3449 3244 4041 3602	2733 2756 3231 3477 3223 3005 3052 4115 3421 2978 2813 2765 2726 3231 2983 2646 2475 2335 2302 2272 2191 2344 2356 2634 2491 2226	2758 3110 2475 2116 1907 1783 1723 1827 1857 1962 2164 2016 1837 1941 1947 2018 2105 1906 1625 1608 1556 1556 1555 1654 1538	1258 1221 1182 1135 1087 1000 1057 1091 1136 1459 1520 1342 1235 1100 1011 1022 1003 1001 1134 1173 1066 1209 1417 1445 1285	883 815 778 768 690 687 707 707 707 633 698 729 679 676 737 665 515 482 424 389 415 519 571 662 661 580	816 1111 1117 1257 1364 1067 768 651 610 586 642 654 508 511 453 380 367 367 347 338 342 395 379 349 340	306 333 324 306 348 319 276 273 224 204 259 280 339 446 522 405 411 930 921 486 415 369 346 316 294	244 217 224 236 235 244 231 201 202 216 298 342 524 762 674 521 522 438 478 582 549 389 423 469 783	932 1684 2249 1393 978 671 575 530 531 573 587 632 713 666 663 682 611 547 503 501 591 824 1087 3003 2845	1030 1811 1826 1277 1090 982 1103 1482 1361 1147 1080 1186 1127 1008 988 1019 1014 1257 1336 1135 1024 941 909 960 1005	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	2205 2302 1913 1619 1618 1623 1462 1420 1902 2264 1875 1636 1507 1451 1956 1628 1516 1398 1289 1163 1229 1221 1408	1332 1423 2029 2006 2222 3053 3208 3911 4960 3478 2521 1945 1731 1533 1501 1475 1496 2474 3174 4365 5726 4243 2852 2441	3274 2472 2311 2284 2388 4051 3632 2666 2240 1910 1782 1692 1624 1616 1610 1542 1521 1875 2612 2890 6461 5825 5047 7216	2568 3188 3527 2987 2514 2321 2737 2778 4764 5813 5203 7866 5952 4210 2900 2455 2124 1996 1899 1870 1860 1868 1863 1858	2047 1833 1716 1741 1691 1534 1418 1355 1484 1464 1784 1940 1638 1342 1261 1196 1174 1161 1157 1192 1260 1259 1481 1409	890 929 1150 1393 1556 1500 1622 1300 1250 1246 1358 1276 1175 1104 975 868 846 767 751 771 819 2156 2547 7026 6973	1298 1884 1586 1554 1586 1547 1547 1428 1436 1592 1514 1358 1223 1265 1176 1355 1537 1224 1495 2035 2475 3806	1705 1627 1483 1266 1088 996 1004 923 905 943 1143 1508 2956 4782 3023 2272 1910 1812 1774 1423 1115 1018 993 951 892	885 763 922 1033 10 13 1033 1137 986 876 840 820 863 940 1131 1362 1116 845 715 706 740 851 895 819 706 614	1132 854 668 582 637 621 901 927 1285 1647 2458 2747 1793 1053 1106 951 1002 1302 1210 1291 1307 1142 966 782 664	700 1059 1118 1162 11184 1254 1037 1031 868 886 862 821 773 668 811 818 825 935 960 740 787 1334 1716 2170	190 180 122 129 13 120 20 15 13 120 115 115 100 111 110 100 100 100 97

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	95												19	96					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
	862	1555	4550	1506	1494	944	1100	354	580	715	1517	1109	1	1298	7746	2014	3602	3010	1277	760	1041	595	839	791	
4	850	1384	4025	14 12	1888	1937	1239	346	564	1991	1699	1145	2	1469	10391	1952	3220	2686	1234	692	1023	6 13	747	995	
4	883	1328	3388	1392	1766	4016	938	347	519	3964	3014	1176	3	1627	13901	1903	2878	2286	12 13	677	1059	639	619	860	-
╁	987	1307 1216	3001 2902	1391 1399	153 1 150 4	2834 1670	908 876	380 514	426 424	7002 15442	2364 3186	1248 1187	4 5	1849 1537	8603 5329	4091 6919	2674 2552	2261 2149	1237 1182	661 622	840 810	685 588	575 573	732 549	+
+	1223	1200	4806	1323	1442	1393	750	641	411	13784	3815	1201	6	2364	4 114	15176	2269	2032	1271	670	800	614	527	869	+
T	1931	1193	5377	1349	1261	112 1	646	632	363	6187	7351	1395	7	4018	3585	23761	2418	1985	13 19	732	785	649	459	1043	
	1765	1342	8359	13 10	1171	940	6 14	802	322	3318	12233	1235	8	3502	3324	18423	2394	2060	1430	735	611	675	451	1906	
_	1476	1849	7850	1384	1132	9 15	593	850	397	2 155	6662	1496	9	2682	3197	9352	2359	1909	2815	717	801	692	443	2148	
+	1248	2184	5696	14 11	1112	922	558	617	367	1684	4373	1737	10	2673	2977	5663	2234	1861	3091	705	1462	709	423	16 15	_
+	1145	3278 3018	3728 2935	1464 1685	903	935 1167	546 471	545 532	400 554	1290 1236	5708 8 110	16 16 13 8 4	11 12	1920 1847	2710 2547	4434 3775	2212 2175	1979 2256	2297 2031	596 484	1510 1731	780 622	411 469	1037 775	╁
7	2368	2508	2573	1725	1770	1369	433	447	670	1129	4308	1528	13	1854	2371	3917	2666	1962	1745	683	2147	509	456	730	+
T	2343	3222	2359	1475	2 114	989	396	303	1038	1158	2904	1360	14	1748	2330	3778	2766	1753	1527	798	1632	635	471	699	
	3024	4909	2228	1356	2547	813	432	273	1436	1575	2 172	1374	15	1706	2163	3819	2706	1745	1582	863	735	8 14	476	608	
	3136	7305	2122	1255	2487	745	423	247	1100	1045	1825	1359	16	1726	1998	4012	2666	1752	1528	10 56	631	846	462	679	
_	2285	13728	2001	1275	1939	779	426	208	1118	870	16 50	1694	17	2065	2563	4633	2599	1624	1381	1139	624	1253	4 15	705	_
\dashv	1855 1742	9328 7158	1966 1914	1255 1764	1443 1154	742 797	382 401	221 277	1042 789	822 711	1518 1438	2097 3897	18 19	2025 3304	2670 2711	4 16 9 53 56	2657 3130	1569 1518	1346 1429	894 859	628 611	1242 841	582 552	703 978	+
+	1986	4445	1906	2080	1159	837	337	320	686	710	1441	3649	20	3376	3338	4910	3977	1400	1167	828	617	524	521	1021	+
+	1840	3373	1873	2859	1051	819	351	470	609	840	1385	2718	21	2615	3808	4 174	6290	1402	1130	764	633	756	538	812	\top
1	1566	2592	1862	3047	930	826	365	427	707	765	1307	2 111	22	2187	2698	3315	4650	1325	1059	839	543	840	516	8 19	
J	1442	2143	1729	2812	856	881	4 13	437	925	668	12 17	1624	23	2062	2475	3067	3446	13 10	1046	832	541	887	484	883	
4	1349	1947	1663	2582	805	901	407	1946	814	765	1242	1516	24	3899	2311	2898	2798	13 13	869	738	575	763	515	814	\bot
+	1247 1619	1868 1982	1578 1577	2293 1804	829 798	1036 1203	560 581	2594 2894	688 713	8 10 73 9	1266 1201	1370 1269	25	6766 7937	2181 2120	2954 3063	2589 2401	1379 1598	916 892	684 858	632 725	784 704	595 632	867 1111	+
+	18 10	2510	1580	1504	889	14 19	664	6608	615	639	1177	1252	27	21754	2155	3022	2618	1686	786	932	973	764	671	1171	+
7	2540	3320	1670	14 11	1085	1248	671	4444	525	1135	1153	1133	28	22225	2153	3406	2411	2012	734	808	720	893	868	928	+
7	3 178		1589	14 13	1132	978	660	1998	451	1082	1105	1148	29	10054	2114.658	3803	2343	2127	769	8 13	639	1433	783	1565	
	2494		1501	1461	10 10	9 19	470	967	484	9 18	1080	1220	3 0	6209		3383	3016	16 13	794	999	563	1206	737	980	
_	1883		1478		887		392	778		1184		1242	31	7292		3268		1343		974	590		775		
-						4.0	997												40	98					
		_																							
		Eah	Mar	Anr	May	1	1	Aug	l ean	Oot	Nov	Doo		lan	Eab	Mar	Anr	May			Aa	Son	Oot	Nov	
+	Jan	Fe b	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan 1504	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
1	1305	2142	15785	1782	3672	Jun 3320	Jul 1515	2003	528	1117	1600	1499	1 2	1594	3478	2833	4216	5752	Jun 2679	Jul 1156	810	550	719	382	+
						Jun	Jul						1 2 3	1					Jun	Jul					
	1305 1086	2142 2018	15785 10476	1782 1722	3672 3652	Jun 3320 3100	Jul 1515 1539	2003 1368	528 521	1117 847	1600 1934	1499 1429		1594 1426	3478 5924	2833 2478	4216 4979	5752 4868	Jun 2679 2445	Jul 1156 1106	8 10 79 5	550 601	719 611	382 382	
	1305 1086 1316 1386 1664	2142 2018 1966 1975 1920	15785 10476 6524 4215 3461	1782 1722 1657 2418 1945	3672 3652 6483 6573 4699	Jun 3320 3100 2260 1606 1459	Jul 1515 1539 1223 1063 976	2003 1368 1116 1028 878	528 521 481 458 391	1117 847 795 759 678	1600 1934 1765 1398 1293	1499 1429 1342 1467 1361	3 4 5	1594 1426 1571 1575 2556	3478 5924 9380 18532 16552	2833 2478 2366 2379 3039	4216 4979 5970 8164 6235	5752 4868 4247 3794 3406	Jun 2679 2445 2638 2678 2478	Jul 1156 1106 1031 991 964	810 795 715 685 583	550 601 601 559 591	719 611 634 641 799	382 382 393 403 393	
	1305 1086 1316 1386 1664 2007	2142 2018 1966 1975 1920	15785 10476 6524 4215 3461 3151	1782 1722 1657 2418 1945 2132	3672 3652 6483 6573 4699 2808	Jun 3320 3100 2260 1606 1459 1414	Jul 1515 1539 1223 1063 976 984	2003 1368 1116 1028 878 810	528 521 481 458 391 396	1117 847 795 759 678 646	1600 1934 1765 1398 1293 1273	1499 1429 1342 1467 1361 1350	3 4 5 6	1594 1426 1571 1575 2556 3380	3478 5924 9380 18532 16552 9126	2833 2478 2366 2379 3039 5829	4216 4979 5970 8164 6235 4371	5752 4868 4247 3794 3406 4423	Jun 2679 2445 2638 2678 2478 2611	Jul 1156 1106 1031 991 964 947	810 795 715 685 583 552	550 601 601 559 591 594	719 611 634 641 799 772	382 382 393 403 393 395	
	1305 1086 1316 1386 1664 2007 2780	2142 2018 1966 1975 1920 1915	15785 10476 6524 4215 3461 3151 2878	1782 1722 1657 2418 1945 2132 2717	3672 3652 6483 6573 4699 2808 2180	Jun 3320 3100 2260 1606 1459 1414 1369	Jul 1515 1539 1223 1063 976 984 919	2003 1368 1116 1028 878 810 822	528 521 481 458 391 396 411	1117 847 795 759 678 646 629	1600 1934 1765 1398 1293 1273 1458	1499 1429 1342 1467 1361 1350 1258	3 4 5 6 7	1594 1426 1571 1575 2556 3380 6073	3478 5924 9380 18532 16552 9126 5592	2833 2478 2366 2379 3039 5829 7159	4216 4979 5970 8164 6235 4371 4723	5752 4868 4247 3794 3406 4423 4475	Jun 2679 2445 2638 2678 2478 2478 2611 2176	Jul 1156 1106 1031 991 964 947 924	8 10 795 715 685 583 552 607	550 601 601 559 591 594 538	719 611 634 641 799 772 704	382 382 393 403 393 395 465	
	1305 1086 1316 1386 1664 2007	2142 2018 1966 1975 1920	15785 10476 6524 4215 3461 3151	1782 1722 1657 2418 1945 2132	3672 3652 6483 6573 4699 2808	Jun 3320 3100 2260 1606 1459 1414 1369 1452	Jul 1515 1539 1223 1063 976 984 919	2003 1368 1116 1028 878 810	528 521 481 458 391 396	1117 847 795 759 678 646	1600 1934 1765 1398 1293 1273	1499 1429 1342 1467 1361 1350	3 4 5 6	1594 1426 1571 1575 2556 3380	3478 5924 9380 18532 16552 9126	2833 2478 2366 2379 3039 5829	4216 4979 5970 8164 6235 4371	5752 4868 4247 3794 3406 4423	Jun 2679 2445 2638 2678 2478 2611	Jul 1156 1106 1031 991 964 947	8 10 795 715 685 583 552 607 727	550 601 601 559 591 594	719 611 634 641 799 772	382 382 393 403 393 395	
	1305 1086 1316 1386 1664 2007 2780 2891	2142 2018 1966 1975 1920 1915 1679	15785 10476 6524 4215 3461 3151 2878 2382	1782 1722 1657 2418 1945 2132 2717 2236	3672 3652 6483 6573 4699 2808 2180 1854	Jun 3320 3100 2260 1606 1459 1414 1369	Jul 1515 1539 1223 1063 976 984 919	2003 1368 1116 1028 878 810 822 884	528 521 481 458 391 396 411 463	1117 847 795 759 678 646 629 615	1600 1934 1765 1398 1293 1273 1458 1401	1499 1429 1342 1467 1361 1350 1258 1202	3 4 5 6 7 8	1594 1426 1571 1575 2556 3380 6073 10971	3478 5924 9380 18532 16552 9126 5592 4265	2833 2478 2366 2379 3039 5829 7159 14349	42 16 49 79 59 70 8 16 4 62 35 43 71 47 23 45 84	5752 4868 4247 3794 3406 4423 4475 7118	Jun 2679 2445 2638 2678 2478 2611 2176 1676	Jul 1156 1106 1031 991 964 947 924 956	8 10 795 715 685 583 552 607	550 601 601 559 591 594 538 488	719 611 634 641 799 772 704	382 382 393 403 393 395 465 620	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212	1782 1722 1657 2418 1945 2132 2717 2236 1271 1793 1808	3672 3652 6483 6573 4699 2808 2180 1854 1700	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791	2003 1368 1116 1028 878 810 822 884 944 1152 1231	528 521 481 458 391 396 411 463 470 564 698	1117 847 795 759 678 646 629 615 558 589	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439	3 4 5 6 7 8 9 10	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374	42 16 49 79 59 70 8 16 4 62 35 43 71 47 23 45 84 63 90 55 56 46 65	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941	Jun 2679 2445 2638 2678 2478 2478 2611 2176 1676 1541 1585	Jul 1156 1106 1031 991 964 947 924 956 1061 1051 938	810 795 715 685 583 552 607 727 832 1091 2002	550 601 601 559 591 594 538 488 447 413	719 611 634 641 799 772 704 847 896 611 587	382 382 393 403 393 395 465 620 776 1013	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537	1782 1722 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817	2003 1368 1116 1028 878 810 822 884 944 1152 1231	528 521 481 458 391 396 411 463 470 564 698 675	1117 847 795 759 678 646 629 615 558 589 579 610	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407	3 4 5 6 7 8 9 10 11	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987 2840	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339	Jun 2679 2445 2638 2678 2478 2478 2611 2176 1676 15841 1585 1764 1665	Jul 1156 1106 1031 991 964 947 924 956 1061 1051 938 883	8 10 795 715 685 583 552 607 727 832 1091 2002 1285	550 601 601 559 591 594 538 488 447 413 373 330	719 611 634 641 799 772 704 847 896 611 587	382 382 393 403 393 395 465 620 776 1013 1341 1521	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897	2142 2018 1966 1975 1920 1915 1679 2147 2100 2030 1999 2264 2553	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796	1782 1722 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 14 16 1387	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115	528 521 481 458 391 396 411 463 470 564 698 675 548	1117 847 795 759 678 646 629 615 558 589 579 610	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379	3 4 5 6 7 8 9 10 11 12 13	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987 2840 2632	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669	Jun 2679 2445 2638 2678 2478 2478 2611 2176 1676 15841 1585 1764 1665	Jul 1156 1106 1031 991 964 947 924 956 1061 1051 938 883 867	8 10 795 715 685 583 552 607 727 832 1091 2002 1285 1017	550 601 601 559 591 594 538 488 447 413 373 330 321	719 611 634 641 799 772 704 847 896 611 587 571	382 382 393 403 393 395 465 620 776 1013 1341 1521 1263	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162	1782 1722 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617 2157	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101	528 521 481 458 391 396 411 463 470 564 698 675 548 469	1117 847 795 759 678 646 629 615 558 589 579 610 577	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486 1626	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1407 1379 1259	3 4 5 6 7 8 9 10 11 12 13 14	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987 2840 2632 2514	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637	42 16 49 79 59 70 8 16 4 62 35 43 71 47 23 45 84 63 90 55 56 46 65 32 39 30 11 32 55	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1556	Jul 1156 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017	550 601 601 559 591 594 538 488 447 413 373 330 321 408	719 611 634 641 779 772 704 847 896 611 503 475	382 382 393 403 393 395 465 620 776 1013 1521 1263 1298	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897	2142 2018 1966 1975 1920 1915 1679 2147 2100 2030 1999 2264 2553	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796	1782 1722 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 14 16 1387	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115	528 521 481 458 391 396 411 463 470 564 698 675 548	1117 847 795 759 678 646 629 615 558 589 579 610	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379	3 4 5 6 7 8 9 10 11 12 13	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987 2840 2632	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669	Jun 2679 2445 2638 2678 2478 2478 2611 2176 1676 15841 1585 1764 1665	Jul 1156 1106 1031 991 964 947 924 956 1061 1051 938 883 867	8 10 795 715 685 583 552 607 727 832 1091 2002 1285 1017	550 601 601 559 591 594 538 488 447 413 373 330 321	719 611 634 641 799 772 704 847 896 611 587 571	382 382 393 403 393 395 465 620 776 1013 1341 1521 1263	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162 4679	1782 17722 1657 2418 1945 2132 2717 2236 1271 1793 1808 2647 2157 1833	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438 1325	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2221 2874 3642	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101 1041	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438	1117 847 795 759 678 646 629 615 558 589 579 610 577 557	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1270 1486 1626 1604	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379 1259	3 4 5 6 7 8 9 10 11 12 13 14	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987 2840 2632 2514	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1556 1561	Jul 1156 1106 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887	550 601 601 559 591 594 538 488 447 413 373 330 321 408	719 611 634 641 799 772 704 847 896 611 587 571 503 475	382 382 393 403 393 395 465 620 776 1013 1341 1521 1263 1298 2138	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404	1782 1782 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617 2157 1833 1714 1674 1602	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438 1325 1325 1323	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3173	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101 1041 1069 971 935 824	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438 463 457 362	1117 847 795 759 678 646 629 615 558 589 579 610 577 563 542 531 602	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486 1626 1604 1412 1211 1259	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379 1259 1196 1170 1126 1108	3 4 5 6 7 8 9 10 11 12 13 14 15	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987 2840 2632 2514 2904 3301 4492 5069	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276 3324 8160 9319	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2319 2261	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1556 1561 1497 1446 1563 1619	Jul 1156 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1879 1743	550 601 601 559 591 594 538 488 447 413 373 330 321 408 408 446 480 453	719 611 634 641 799 772 704 847 896 611 587 571 503 475 423 390 410 427	382 382 393 403 393 395 465 620 776 1013 1341 1521 1263 1298 2015 1682 1206	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895 1639	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164 2100	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404	1782 1782 1722 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617 2157 1833 1714 1674 1602 1613	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438 1325 1335 1323 1347	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3173 2382	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715 666 698	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101 1069 971 935 824 787	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438 463 457 362 373	1117 847 795 759 678 646 629 615 558 589 579 610 577 563 542 531 602	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486 1626 1604 1412 1211 1259 1415	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379 1259 1196 1170 1126 1108	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131 2885	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987 2840 2632 2514 2904 3301 4492 5069 3990	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815 2861	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276 3324 8160 9319 6305	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2356 2319 2261 2121	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1556 1561 1497 1446 1563 1619	Jul 1156 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765 759	8 10 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1879 1743 1233	550 601 601 559 591 594 538 488 447 413 373 330 321 408 408 456 480 453 450	719 611 634 641 799 772 704 847 896 611 587 571 503 475 423 390 410 427 469	382 382 393 403 393 395 465 620 776 1013 1341 1521 1263 1298 2015 1682 1206 834	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895 1639 1517	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164 2100 2071	15785 10476 6524 4215 3461 3451 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404 2299	1782 17722 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617 2157 1833 1714 1602 1613	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438 1325 1335 1323 1347 1355 1387	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3173 2382	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715 666 698 730	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101 1041 1069 971 935 824 787	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438 463 457 362 373 371	1117 847 795 759 678 646 629 615 558 589 610 577 567 563 542 531 602 598	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1299 1486 1626 1604 1412 1211 1259 1415 1620	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1407 1379 1259 1196 1170 1170 1108 1191	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131 2885 2756	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 22840 2632 2514 2904 3301 4492 5069 3990 3308	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815 2861	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276 3324 8160 9319 6305 6562	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2356 2356 2356 2356 2421 2098	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1561 1497 1446 1563 1619 1544 1821	Jul 1156 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765 759	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1145 1879 1743 1233 1035	550 601 601 559 591 594 538 488 447 413 373 330 321 408 408 456 480 453 450 575	719 611 634 641 779 772 704 847 896 611 503 475 423 390 410 427 469	382 382 393 403 393 395 465 620 776 1013 1263 1298 2138 2015 1206 834 768	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895 1639 1517	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164 2100 2071	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404 2299 2266 2081	1782 17722 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617 2157 1833 1714 1674 1602 1613 1983	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438 1325 1335 1323 1347 1355 1387 1545	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3293 2645 32382 1770 1447	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715 666 698 730 2275	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101 1041 1069 971 935 824 787	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438 463 457 373 371 341	1117 847 795 759 678 646 629 615 558 589 579 610 577 563 542 531 602 598	1600 1934 1765 1398 1293 1473 1458 1401 1226 1217 1270 1299 1486 1626 1604 1412 1211 1259 1415 1620 1744	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379 1259 1196 1170 1126 1108 1191 1223	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131 2885 2756 2655	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987 2840 2632 2514 2904 3301 4492 5069 3990 3308 3056	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815 2861 2980	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276 3324 8160 9319 6305 6562 5368	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2356 2319 2261 2121 2098 1979	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1556 1561 1497 1446 1563 1619 1544 1821	Jul 1156 1106 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765 759 711 855	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1879 1233 1035 1728	550 601 601 559 591 594 538 488 447 413 373 330 321 408 408 456 480 453 450 575 527	719 611 634 641 799 772 704 847 896 611 587 571 503 475 423 390 410 427 469 489	382 382 393 403 393 395 465 620 776 1013 1341 1521 1263 1298 2138 2015 1682 1206 834 768 727	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895 1639 1517	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164 2100 2071	15785 10476 6524 4215 3461 3451 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404 2299	1782 17722 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617 2157 1833 1714 1602 1613	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438 1325 1335 1323 1347 1355 1387	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3173 2382	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715 666 698 730	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101 1041 1069 971 935 824 787	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438 463 457 362 373 371	1117 847 795 759 678 646 629 615 558 589 610 577 567 563 542 531 602 598	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1299 1486 1626 1604 1412 1211 1259 1415 1620	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1407 1379 1259 1196 1170 1170 1108 1191	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131 2885 2756	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 22840 2632 2514 2904 3301 4492 5069 3990 3308	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815 2861	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276 3324 8160 9319 6305 6562	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2356 2356 2356 2356 2421 2098	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1561 1497 1446 1563 1619 1544 1821	Jul 1156 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765 759	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1145 1879 1743 1233 1035	550 601 601 559 591 594 538 488 447 413 373 330 321 408 408 456 480 453 450 575	719 611 634 641 779 772 704 847 896 611 503 475 423 390 410 427 469	382 382 393 403 393 395 465 620 776 1013 1263 1298 2138 2015 1206 834 768	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895 1639 1517 1514	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164 2100 2071 2123	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404 2299 2266 2081	1782 1782 1772 1657 2418 1945 2132 2777 2236 1271 1793 1808 2045 2617 2157 1833 1714 1674 1602 1613 1983 1998 1952	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1438 1325 1335 1323 1347 1355 1355 1367 1545	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3173 2382 1770 1447	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715 666 698 730 2275 2972	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1101 1041 1069 971 935 824 787 747 837 674	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438 463 457 362 373 371 341 420	1117 847 795 759 678 646 629 615 558 589 579 610 577 563 542 531 602 598 594	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486 1626 1604 1412 1211 1259 1415 1620 1744 3049	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379 1259 1196 1170 1126 1108 1191 1223 1304	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131 2885 2756 2655 2381	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987 2840 2632 2514 2904 3301 4492 5069 3990 3308 3056 2903	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815 2861 2980 3079 2785	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276 3324 8160 9319 6305 6562 5368 4903	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2356 2319 2261 2121 2098 1979 1931	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1566 1561 1497 1446 1563 1619 1544 1821 1630 1399	Jul 1156 1106 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765 759 711 855	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1879 1743 1233 1035 1728	550 601 601 559 591 594 538 488 447 413 373 330 321 408 408 456 480 453 450 575 527 622	719 611 634 641 799 772 704 847 896 611 587 571 503 475 423 390 410 427 469 489	382 382 393 403 393 395 465 620 776 1013 1341 1521 1263 1298 2138 2015 1682 1206 344 768 727 710	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895 1639 1517 1514 1584 2276	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164 2100 2071 2123 2698 2365	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404 2299 2266 2081 1882	1782 1782 1772 1657 2418 1945 2132 2777 2236 1271 1793 1808 2045 2617 2157 1833 1714 1674 1602 1613 1998 1998 1952 2055	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 14.16 1387 14.38 13.25 13.35 13.23 13.47 13.55 13.87 14.36 14.36 12.88 12.00	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3173 2382 1770 1447 1350 1323	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715 666 698 730 2275 2972 5328	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101 1041 1069 971 935 824 787 747 837 674 642	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438 463 457 362 373 371 341 420 2430	1117 847 795 759 678 646 629 615 558 589 579 610 577 557 563 542 531 602 598 594 598	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486 1626 1604 1412 1211 1259 1415 1620 1744 3049 2571	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379 1259 1196 1170 1126 1108 1191 1223 1304 1990 2580	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 2 3	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131 2885 2756 2655 2381 3072	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2987 2840 2632 2514 2904 3301 4492 5069 3990 3308 3056 2903 3246	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815 2861 2980 3079 2785 2637	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276 3324 8160 9319 6305 6562 5368 4903 4411	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2356 2319 2261 2121 2098 1979 1931 1882	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1566 1561 1497 1446 1563 1619 1544 1821 1630 1399 1259	Jul 1156 1106 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765 759 711 855 896	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1879 1743 1233 1035 1728 1835 1144	550 601 601 559 591 594 538 488 447 413 373 330 321 408 408 456 480 453 450 575 527 622 1022	719 611 634 641 799 772 704 847 896 611 587 571 503 475 423 390 410 427 469 489 477 415	382 382 393 403 393 395 465 620 776 1013 1341 1521 1263 1298 2138 2015 1682 1206 834 768 727 710 655	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895 1639 1517 1514 1584 2276 2187 4938 4878	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164 2100 2071 2123 2698 2365 2093 2340 5050	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404 2299 2266 2081 1882 1882 1864 1894	1782 17782 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617 2157 1833 1714 1602 1613 1983 1998 1952 2055 2018 2015	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438 1325 1335 1323 1347 1355 1387 1545 1436 1288 1288 1200 1244	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3173 2382 1770 1447 1350 1323 1231 1229	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715 666 698 730 2275 2972 5328 5780 3903 2013	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101 1041 1069 971 935 824 787 747 837 674 642 632 623 621	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438 463 457 362 373 371 341 420 2430 2917 4293 4871	1117 847 795 759 678 646 629 615 558 589 579 610 577 563 542 531 602 598 594 598 680 1266 2698 4246	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486 1626 1604 1412 1211 1259 1415 1620 1744 3049 2571 1953 1596 1484	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1407 1379 1259 1196 1170 1126 1108 1191 1223 1304 1990 2580 3333 5700 4000	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 3 2 4 2 5 2 6	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131 2885 2756 2655 2381 3072 3004 2863 2804	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2632 2514 2904 3301 4392 5069 3990 3308 3056 2903 3246 3279 3110 2888	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815 2861 2980 3079 2785 2643 2549 2367	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 3239 3011 3255 3276 3324 8160 9319 6305 6562 5368 4903 4411 3800 3271 2843	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2356 2356 2356 2356 2359 2221 2098 1979 1931 1882 1860 1812 1830	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1556 1561 1497 1446 1563 1619 1544 1821 1630 1399 1259 1179 1038 1028	Jul 1156 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765 759 711 855 896 959 1209	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1233 1035 1728 1835 1728 1835 1013 1013 1013 1013 1013 1014 1013 1014 1015 1016 1017	550 601 601 559 591 594 538 488 447 413 373 330 321 408 408 456 450 575 527 622 1022 747 474 452	719 611 634 641 779 772 704 847 896 611 503 475 423 390 475 423 390 477 469 489 477 415 418 401 355	382 382 383 403 393 395 465 620 776 1013 1341 1521 1263 1298 2138 2015 1682 1206 834 768 727 710 655 752 645 578	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895 1639 1517 1514 1584 2276 2487 4938 4878 3845	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164 2100 2071 2123 2698 2365 2093 2340 5050 6890	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404 2299 2266 2081 1882 1872 1894 1997	1782 1782 1772 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617 2157 1833 1714 1674 1602 1613 1983 1998 1952 2055 2018 2015 2015 2016 2016 2017	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438 1325 1335 1323 1347 1355 1387 1545 1436 1288 1200 1244 1309 1422	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3290 2645 3231 1229 1279 1614	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715 666 698 730 2275 2972 5328 5780 3903 2013	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101 1041 1069 971 935 824 787 747 837 674 642 632 623 621 629	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438 463 457 362 373 371 341 420 2430 2430 2493 4871 4265	1117 847 795 759 678 646 629 615 558 589 579 610 577 563 542 531 602 598 680 1266 2698 4246 12043	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486 1626 1604 1412 1211 1259 1415 1620 1744 3049 2571 1953 1596 1484 1338	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379 1259 1196 1170 1126 1108 1191 1223 1304 1990 2580 3333 5700 4000 3308	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131 2885 2756 2655 2381 3072 2863 2804 3537	3478 5924 9380 18532 16552 16552 9126 5592 4265 3910 3263 2987 2840 2632 2514 2904 3301 4492 5069 3990 3308 3056 2903 3246 3279 3110 2888 3376	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815 2861 2980 3079 2785 2637 2643 2549 2367 2366	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276 3324 8160 9319 6305 6562 5368 4903 4411 3800 3271 2843 2705	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2356 2319 2261 2121 2098 1979 1931 1882 1882 1810 1812 1830 1773	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1556 1561 1497 1446 1563 1619 1544 1821 1630 1399 1259 1179 1038 1028	Jul 1156 1106 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765 759 711 855 896 959 1209 1159 1049 973	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1879 1743 1233 1035 1728 1835 1144 1013 814 709 625	550 601 601 559 591 594 538 488 447 413 373 330 321 408 408 456 450 575 527 622 1022 747 474 452 403	719 611 634 641 799 772 704 847 896 611 587 571 503 475 423 390 410 427 469 489 477 415 418 401 355 350 405	382 382 383 393 403 393 395 465 620 776 1013 1341 1521 1263 1298 2138 2015 1682 1682 768 770 655 752 645 578 581	
	1305 1086 1316 1386 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895 1639 1517 1514 1584 2276 2187 4938 4878 3845	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164 2100 2071 2123 2698 2365 2093 2340 5050	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404 2299 2266 2081 1882 1872 1864 1997 2077	1782 1782 1772 1657 2418 1945 2132 2717 2236 1271 1793 1808 2617 2157 1833 1714 1674 1602 1613 1983 1998 1952 2055 2018 2015 2371 2672 3874	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438 1325 1335 1323 1347 1355 1387 1545 1436 1288 1200 1244 1309 1422 1373 1361	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3173 2382 1770 1447 1350 1323 1231 1229 1279 1614 1831	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715 666 698 730 2275 2972 5328 5780 32013 1191 1063	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1101 1041 1069 971 935 824 787 747 837 674 642 632 623 621 629 561	528 521 481 458 391 396 411 463 470 564 698 469 438 469 438 463 457 362 373 371 341 420 2430 2917 4293 4871 4265 2313	1117 847 795 759 678 646 629 615 558 589 579 610 577 563 542 531 602 598 598 680 1266 2698 4246 12043 15634 6906	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486 1626 1604 1412 1211 1259 1415 1620 1744 3049 2571 1953 1963 1978 1983 1984 1985	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379 1259 1196 1170 1126 1108 1191 1223 1304 1990 2580 3333 3333 5700 4000 3308 2881	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 2 3 2 4 2 5 2 6 2 7 2 8	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131 2885 2756 2655 2381 3072 3004 2863 2804 3537 3999	3478 5924 9380 18532 16552 9126 5592 4265 3910 3263 2632 2514 2904 3301 4392 5069 3990 3308 3056 2903 3246 3279 3110 2888	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815 2861 2980 3079 2785 2637 2643 2549 2366 2338	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276 3324 8160 9319 6305 6562 5368 4903 4411 3800 3271 2843 2705 2764	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2356 2319 2261 2421 2098 1979 1931 1882 1860 1873 1874	Jun 2679 2445 2638 2678 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1556 1561 1497 1446 1563 1619 1544 1821 1630 1399 1259 1179 1038 1028 1040 996	Jul 1156 1106 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765 759 711 855 896 959 1209 1049 973	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1879 1743 1233 1035 1728 1835 1144 10 13 814 709 625 601	550 601 601 601 559 591 594 538 488 447 413 373 330 321 408 408 456 480 453 450 575 527 622 1022 747 474 452 403 439	719 611 634 641 799 772 704 847 896 611 587 571 503 475 423 390 410 427 469 489 477 415 418 401 355 350 405	382 382 383 393 403 393 395 465 620 776 1013 1341 1263 1298 2138 2015 1682 1206 834 768 727 710 655 752 645 578 581 620	
	1305 1086 1316 1386 1664 2007 2780 2891 5125 5265 3598 2360 1897 1817 1751 2101 2251 1895 1639 1517 1514 1584 2276 2487 4938 4878 3845	2142 2018 1966 1975 1920 1915 1679 1947 2100 2030 1999 2264 2553 3466 3706 3253 2601 2164 2100 2071 2123 2698 2365 2093 2340 5050 6890	15785 10476 6524 4215 3461 3151 2878 2382 2263 2150 2212 2537 2796 5162 4679 3557 2820 2404 2299 2266 2081 1882 1872 1894 1997	1782 1782 1772 1657 2418 1945 2132 2717 2236 1271 1793 1808 2045 2617 2157 1833 1714 1674 1602 1613 1983 1998 1952 2055 2018 2015 2015 2016 2016 2017	3672 3652 6483 6573 4699 2808 2180 1854 1700 1541 1416 1387 1438 1325 1335 1323 1347 1355 1387 1545 1436 1288 1200 1244 1309 1422	Jun 3320 3100 2260 1606 1459 1414 1369 1452 1421 1349 1395 2072 2221 2874 3642 3290 2645 3290 2645 3231 1229 1279 1614	Jul 1515 1539 1223 1063 976 984 919 967 922 817 791 817 741 723 756 767 715 666 698 730 2275 2972 5328 5780 3903 2013	2003 1368 1116 1028 878 810 822 884 944 1152 1231 1115 1101 1041 1069 971 935 824 787 747 837 674 642 632 623 621 629	528 521 481 458 391 396 411 463 470 564 698 675 548 469 438 463 457 362 373 371 341 420 2430 2430 2493 4871 4265	1117 847 795 759 678 646 629 615 558 589 579 610 577 563 542 531 602 598 680 1266 2698 4246 12043	1600 1934 1765 1398 1293 1273 1458 1401 1226 1217 1270 1299 1486 1626 1604 1412 1211 1259 1415 1620 1744 3049 2571 1953 1596 1484 1338	1499 1429 1342 1467 1361 1350 1258 1202 1412 1585 1439 1407 1379 1259 1196 1170 1126 1108 1191 1223 1304 1990 2580 3333 5700 4000 3308	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1594 1426 1571 1575 2556 3380 6073 10971 6816 4425 3184 2695 2476 2412 2746 3740 3857 3131 2885 2756 2655 2381 3072 2863 2804 3537	3478 5924 9380 18532 16552 16552 9126 5592 4265 3910 3263 2987 2840 2632 2514 2904 3301 4492 5069 3990 3308 3056 2903 3246 3279 3110 2888 3376	2833 2478 2366 2379 3039 5829 7159 14349 16913 10778 6374 4611 4005 3637 3270 3100 2880 2815 2861 2980 3079 2785 2637 2643 2549 2367 2366	4216 4979 5970 8164 6235 4371 4723 4584 6390 5556 4665 3239 3011 3255 3276 3324 8160 9319 6305 6562 5368 4903 4411 3800 3271 2843 2705	5752 4868 4247 3794 3406 4423 4475 7118 5656 5292 3941 3339 2669 2500 2356 2356 2319 2261 2121 2098 1979 1931 1882 1882 1810 1812 1830 1773	Jun 2679 2445 2638 2678 2478 2611 2176 1676 1541 1585 1764 1665 1556 1561 1497 1446 1563 1619 1544 1821 1630 1399 1259 1179 1038 1028	Jul 1156 1106 1106 1031 991 964 947 924 956 1061 1051 938 883 867 830 804 722 771 765 759 711 855 896 959 1209 1159 1049 973	810 795 715 685 583 552 607 727 832 1091 2002 1285 1017 887 1021 1145 1879 1743 1233 1035 1728 1835 1144 1013 814 709 625	550 601 601 559 591 594 538 488 447 413 373 330 321 408 408 456 450 575 527 622 1022 747 474 452 403	719 611 634 641 799 772 704 847 896 611 587 571 503 475 423 390 410 427 469 489 477 415 418 401 355 350 405	382 382 383 393 403 393 395 465 620 776 1013 1341 1521 1263 1298 2138 2015 1682 1682 768 770 655 752 645 578 581	

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						19	999												20	00					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1103	6011	2054	1864	974	606	1714	382	217	386	779	549	1	614	1209	1055	2587	1023	488	726	1513	2766	322	292	759
3	1238 1360	5731 3785	1983 2602	19 52 16 52	891 913	638 744	14.85 1119	300 332	184 194	330 245	1299 1467	505 498	3	721 791	1114 1009	1043 934	3678 8546	1099 1166	469 449	556 628	1598 1746	3054 2773	336 376	236 245	728 68
4	14 13	2817	2969	1524	1285	664	647	299	213	380	1122	537	4	826	893	992	10772	1332	520	544	1378	1169	391	249	619
5	1275	2271	2412	1398	1580	672	675	285	220	789	648	592	5	1000	986	1072	6750	1548	555	476	833	8 15	362	309	606
6	1113	2082	2065	1368	2538	574	899	335	207	494	609	692	6	990	958	942	4239	1162	618	462	554	438	345	437	528
7 8	933	1766 1771	1858 1699	1370 1300	3825 3443	517 488	1108 1250	322 311	287 291	350 741	498 471	750 665	8	959 1829	925 971	852 917	2743 2104	1046 933	634 517	428 270	426 360	336 349	366 329	1794 2422	48 ⁻ 521
9	1204	1730	1749	1164	2468	541	1398	372	328	1033	476	691	9	2280	10 19	1121	1573	922	437	317	395	328	236	3985	545
10	1337	1644	1832	1137	1766	479	1458	361	392	2482	475	610	10	5961	862	1130	1421	859	431	303	457	322	275	5512	534
11	1306	1572	1688	1074	14 16	524	1920	310	401	5927	430	783	11	5179	931	1290	1344	854	358	473	465	337	415	3487	58
12 13	1109 1425	1578 1397	1747 1774	1027 995	1237 1162	831 1003	2070 2158	313 291	397 362	2504 1705	424 438	982 1036	12 13	3464 2075	1460 1717	1732 1574	1285 1318	791 783	327 333	564 551	552 438	301 178	368 388	1720 968	52: 64
14	1476	1359	1915	995	1288	918	1582	239	297	1230	412	1409	14	1450	2 115	1521	1366	729	330	465	322	103	449	823	723
15	3440	1518	2039	1024	1131	12 12	1050	284	289	887	4 10	1563	15	1209	2742	1350	1274	590	345	424	156	98	422	731	104
16	3034	1634	1829	1084	1062	1429	805	252	290	661	430	1227	16	1176	2208	1461	1187	604	4 17	206	105	95	262	686	116
17 18	2354 1719	1870 3213	1560 1489	10 15 9 19	965 1006	1420 1166	680 744	2 12 16 5	176 164	652 540	406 389	9 59 9 10	17 18	1079 1092	1487 1296	2246 2806	1123 991	618 621	548 609	132 175	136 41	188 235	297 294	961 1127	233 191
19	1714	2988	1478	911	1047	832	621	181	205	534	403	881	19	1165	1343	2465	862	644	686	254	420	1000	260	1051	146
20	13 16	2502	1399	937	968	605	629	170	195	537	407	8 14	20	1276	1169	4498	886	782	676	289	478	18 10	267	1181	1112
21	1762	2053	1441	991	796	540	660	189	204	606	445	772	21	1347	1042	4085	910	859	559	334	577	3178	322	1005	93
22	2124 3292	1746 1562	1496 1381	884 905	844 760	640 692	1272 953	213 337	184 207	517 523	435 682	840 837	22	1436 1766	1064 1020	3097 1912	1041 1071	886 988	349 398	330 313	6 10 704	3442 2833	295 302	880 923	85 77
24	4883	1497	13 10	895	778	800	871	666	195	452	888	756	24	2648	10 11	16 18	1113	856	339	386	355	1980	314	937	73
25	3654	14 16	1306	967	734	1142	773	1185	190	434	1152	711	25	2204	1120	1457	1323	892	280	484	554	1985	310	1145	81
26	2447	1459 1461	1296	993	680	1321	715	632	195	433	2263	743	26	1751	1151	1311	1342	885	359	318	605	1597	359	1637 1347	752
27 28	1806 1753	1682	1277 1233	1112 1159	612 642	114 1 13 5 5	351 521	478 336	251 281	478 389	1953 1226	653 605	27	1434	1177 1285	1293 1279	1054 1077	888 780	596 644	308 271	609 588	1028 648	394 380	1032	70 750
29	1861		1273	1068	605	1500	438	310	456	403	859	581	29	1114	1199.21	1137	110 1	866	683	290	642	491	344	887	79
30	2256		1370	982	657	1408	439	280	485	416	706			40.40	1	1074	1026	684	953	496	2014	395	339	764	717
				962		1408			400		700	608	30	1240			1026		933			393		704	
3 1	3774		14 19	962	593	1408	446	230	403	797	700	554	31	13 13		1482	1026	488	933	1100	2278	393	306	704	612
31	3774			962					400		700						1026					393		704	
31	3774 Jan	Feb		Apr			446		Sep		Nov				Feb		Apr			1100		Sep		Nov	6 12
31		Fe b	14 19		593	20	446	230		797		554		13 13	Feb 1245	1482		488	20	1100 02	2278		306		6 12 De
1 2	Jan 583 517	1518 1133	14 19 Mar 1935 2124	Apr 2387 2397	593 May 932 930	20 Jun 3323 4981	446 001 Jul 2819 1982	230 Aug 879 670	Se p 10 14 1183	797 Oct 302 276	Nov 454 442	554 De c 691 553	1 2	1313 Jan 686 660	1245 1163	Mar 1234 1414	Apr 7321 4553	488 May 1532 3085	20 Jun 644 668	1100 02 Jul 552 566	2278 Aug 153 133	Sep 108 87	306 Oct 696 652	Nov 1064 1019	De 829
1 2 3	Jan 583 517 500	1518 1133 1026	Mar 1935 2124 2198	Apr 2387 2397 3097	593 May 932 930 860	20 Jun 3323 4981 3660	446 001 Jul 2819 1982 2858	230 Aug 879 670 764	Se p 10 14 1183 1233	797 Oct 302 276 248	Nov 454 442 437	554 De c 691 553 519	1 2 3	13 13 Jan 686 660 649	1245 1163 1132	Mar 1234 1414 1950	Apr 7321 4553 2585	May 1532 3085 3411	20 Jun 644 668 874	1100 02 Jul 552 566 598	2278 Aug 153 133 89	Se p 108 87 42	Oct 696 652 685	Nov 1064 1019 1234	De 828 828 2190
1 2	Jan 583 517	1518 1133	14 19 Mar 1935 2124	Apr 2387 2397	593 May 932 930	20 Jun 3323 4981	446 001 Jul 2819 1982	230 Aug 879 670	Se p 10 14 1183	797 Oct 302 276	Nov 454 442	554 De c 691 553	1 2	1313 Jan 686 660	1245 1163	Mar 1234 1414	Apr 7321 4553	488 May 1532 3085	20 Jun 644 668	1100 02 Jul 552 566	2278 Aug 153 133	Sep 108 87	306 Oct 696 652	Nov 1064 1019	612 De 829 829 219 260
1 2 3 4 5 6	Jan 583 517 500 553 697 870	1518 1133 1026 1000 985 970	Mar 1935 2124 2198 2833 2693 2234	Apr 2387 2397 3097 4112 3176 2662	593 May 932 930 860 792 881 877	20 Jun 3323 4981 3660 2854 3472 2411	446 D01 Jul 2819 1982 2858 3116 2748 2130	230 Aug 879 670 764 819 812 891	Sep 1014 1183 1233 1311 1204 930	797 Oct 302 276 248 426 524 1040	Nov 454 442 437 393 412 382	554 De c 691 553 519 592 438 328	1 2 3 4	13 13 Jan 686 660 649 788 752 815	1245 1163 1132 1336 1510	Mar 1234 1414 1950 1801 1386 1210	Apr 7321 4553 2585 2093 1835 1563	May 1532 3085 3411 4753 5188 3898	20 Jun 644 668 874 984 1292 1303	1100 02 Jul 552 566 598 572 581 470	2278 Aug 153 133 89 100 91 111	Se p 108 87 42 74 62 55	Oct 696 652 685 614 814 878	Nov 1064 1019 1234 1705 2105 4472	828 828 2196 2600 677 5182
1 2 3 4 5 6	Jan 583 517 500 553 697 870 892	1518 1133 1026 1000 985 970 1018	Mar 1935 2124 2198 2833 2693 2234 1725	Apr 2387 2397 3097 4112 3176 2662 2319	593 May 932 930 860 792 881 877 872	20 Jun 3323 4981 3660 2854 3472 2411 1928	446 D01 Jul 2819 1982 2858 3116 2748 2130 1701	230 Aug 879 670 764 819 812 891 888	Sep 1014 1183 1233 1311 1204 930 760	797 Oct 302 276 248 426 524 1040 1331	Nov 454 442 437 393 412 382 441	554 De c 691 553 519 592 438 328 444	3 1 1 2 3 4 5 6	1313 Jan 686 660 649 788 752 815 932	1245 1163 1132 1336 1510 1709 2659	Mar 1234 1414 1950 1801 1386 1210	Apr 7321 4553 2585 2093 1835 1553 1295	May 1532 3085 3411 4753 5188 3898 2092	20 Jun 644 668 874 984 1292 1303 1162	1100 02 Jul 552 566 598 572 581 470 417	2278 Aug 153 133 89 100 91 111 63	Se p 108 87 42 74 62 55	306 Oct 696 652 685 614 814 878 740	Nov 1064 1019 1234 1705 2105 4472 3104	B28 828 2196 2600 677 5182 398
1 2 3 4 5 6 7	Jan 583 517 500 553 697 870 892 1029	1518 1133 1026 1000 985 970 1018 1008	Mar 1935 2124 2198 2833 2693 2234 1725 1567	Apr 2387 2397 3097 4112 2662 2319 2014	May 932 930 860 792 881 877 872 875	20 Jun 3323 4981 3660 2854 2854 2411 1928 1895	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217	Aug 879 670 764 819 891 888 801	Se p 10 14 1183 1233 1311 1304 930 760 730	797 Oct 302 276 248 426 524 1040 1331 1006	Nov 454 442 437 393 412 382 441 374	De c 691 553 519 592 438 328 444 499	31 1 2 3 4 5 6 7 8	Jan 686 660 649 788 752 815 932 972	1245 1163 1132 1336 1510 1709 2659 2509	Mar 1234 1414 1950 1801 1861 1210 1178	Apr 7321 4553 2585 2093 1835 1553 1295 1321	May 1532 3085 3411 4753 5188 3898 2092 1536	20 Jun 644 668 874 984 1292 1303 1162 922	1100 02 Jul 552 566 598 572 581 470 417 328	2278 Aug 153 133 89 100 91 111 63 49	Se p 108 87 42 74 62 55 91 101	Oct 696 652 685 614 814 878 740 635	Nov 1064 1019 1234 1705 2405 4472 3104 2081	De 829 826 219 260 677 518 398 269
1 2 3 4 5 6	Jan 583 517 500 553 697 870 892	1518 1133 1026 1000 985 970 1018	Mar 1935 2124 2198 2833 2693 2234 1725	Apr 2387 2397 3097 4112 3176 2662 2319	593 May 932 930 860 792 881 877 872	20 Jun 3323 4981 3660 2854 3472 2411 1928	446 D01 Jul 2819 1982 2858 3116 2748 2130 1701	230 Aug 879 670 764 819 812 891 888	Sep 1014 1183 1233 1311 1204 930 760	797 Oct 302 276 248 426 524 1040 1331	Nov 454 442 437 393 412 382 441	554 De c 691 553 519 592 438 328 444	3 1 1 2 3 4 5 6	1313 Jan 686 660 649 788 752 815 932	1245 1163 1132 1336 1510 1709 2659	Mar 1234 1414 1950 1801 1386 1210	Apr 7321 4553 2585 2093 1835 1553 1295	May 1532 3085 3411 4753 5188 3898 2092	20 Jun 644 668 874 984 1292 1303 1162	1100 02 Jul 552 566 598 572 581 470 417	2278 Aug 153 133 89 100 91 111 63	Se p 108 87 42 74 62 55	306 Oct 696 652 685 614 814 878 740	Nov 1064 1019 1234 1705 2105 4472 3104	B29 828 2196 2600 677 5182 398- 2693 2992
1 2 3 4 5 6 7 8 9	Jan 583 517 500 553 697 870 892 1029 1128 1116 954	1518 1133 1026 1000 985 970 1018 1008 1087 1185	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815	593 May 932 930 860 792 881 877 872 875 889 900 924	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954	230 Aug 879 670 764 819 812 891 888 801 704 773 816	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553	Nov 454 442 437 393 412 382 441 374 410 395 467	554 De c 691 553 519 592 438 328 444 499 421 620 811	31 1 2 3 4 5 6 7 8 9 10	13 13 Jan 686 660 649 788 752 815 932 972 810 760 706	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587	1482 Mar 1234 1414 1950 1801 1386 1210 1178 1151 1113 1229 1187	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359	May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227	20 Jun 644 668 874 984 1292 1303 1162 922 617 541 497	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434	2278 Aug 153 133 89 100 91 111 63 49 50 54	Se p 108 87 42 74 62 55 91 101 85 113 73	306 Oct 696 652 685 614 814 878 740 635 618 390 357	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351	612 Be 829 829 260 677 518 398 269 292 313 623
1 2 3 4 5 6 7 8 9 10 11	Jan 583 517 500 553 697 870 892 1029 1128 1116 954	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228	Mar 1935 2124 2198 2833 2693 2234 1725 1567 14 18 1828 2357 2833	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532	593 May 932 930 860 792 881 877 872 875 889 900 924 997	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846	879 670 764 819 812 891 888 801 704 773 816	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686 578	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521	Nov 454 442 437 393 412 382 441 374 410 395 467 380	554 De c 691 553 519 592 438 328 444 499 421 620 811 843	31 1 2 3 4 5 6 7 8 9 10	13 13 Jan 686 660 649 788 752 815 932 972 810 760 706	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210	1482 Mar 1234 14 14 1950 1801 1386 12 10 1178 1151 1113 1229 1187 1225	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480	May 1532 3085 3411 4763 5188 3898 2092 1536 1276 1372 1227 1126	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434 499	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42	Se p 108 87 42 74 62 55 91 101 85 113 73 233	306 Oct 696 652 685 614 814 878 740 635 618 390 357 448	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859	612 Be 829 829 260 677 518 398 269 292 313 623 481
1 2 3 4 5 6 7 8 9 10 11 12 13	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815	593 May 932 930 860 792 881 877 872 875 889 900 924	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954	230 Aug 879 670 764 819 812 891 888 801 704 773 816 799 881	Se p 1014 1183 1233 1311 1204 930 760 730 718 761 686 578 528	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382	554 De c 691 553 519 592 438 328 444 499 421 620 811	31 1 2 3 4 5 6 7 8 9 10 11 12 13	1313 Jan 686 660 649 788 752 815 932 972 810 760 706 709 671	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587	1482 Mar 1234 1414 1950 1801 1386 1210 1178 1151 1113 1229 1187	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359	May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337	306 Oct 696 652 685 614 814 878 740 635 618 390 357	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859 2535	612 B29 829 260 677 518 398 269 292 313 623 481 398
1 2 3 4 5 6 7 8 9 10 11	Jan 583 517 500 553 697 870 892 1029 1128 1116 954	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357 2833 6007	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611	593 May 932 930 860 792 881 877 872 875 889 900 924 997 917	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737	879 670 764 819 812 891 888 801 704 773 816	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686 578	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521	Nov 454 442 437 393 412 382 441 374 410 395 467 380	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811	31 1 2 3 4 5 6 7 8 9 10	13 13 Jan 686 660 649 788 752 815 932 972 810 760 706	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210	1482 Mar 1234 1414 1950 1801 1386 1210 1178 1151 1113 1229 1187 1225 1592	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604	May 1532 3085 3411 4763 5188 3898 2092 1536 1276 1372 1227 1126	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42	Se p 108 87 42 74 62 55 91 101 85 113 73 233	306 Oct 696 652 685 614 814 878 740 635 618 390 357 448 548	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859	6 12 8 2 9 8 2 9 2 19 9 2 6 0 6 77 7 5 18 3 9 8 2 6 9 2 9 2 3 13 3 6 3 4 8 1 1 3 9 8 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357 2833 6007 4972 5792 5398	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846	593 May 932 930 860 792 881 877 872 875 889 900 924 997 917 884 721 621	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549	230 Aug 879 670 764 819 812 891 888 801 704 773 816 799 881 1192 970 812	Se p 10 14 1183 1233 13 11 12 04 930 760 730 718 761 686 578 528 435 396 475	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811 911 1009 1055	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1313 Jan 686 660 649 788 752 815 932 972 810 760 706 709 671 628 570 552	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037	1482 Mar 1234 1414 1950 1801 1386 1178 1151 1113 1229 1187 1225 1592 1745 1436 1361	Apr 7321 4553 2585 2093 1835 1563 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280	488 May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055 1055 1022 879 912	20 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546	306 Oct 696 652 685 614 814 878 740 635 618 390 357 448 548 948 1071	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984	612 B29 829 249 260 677 518 398 269 292 313 623 481 398 363 305 227
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014 1386 2819	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508 1493 1766	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357 2833 6007 4972 5792 5398 3908	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846	May 932 930 860 792 881 877 872 875 889 900 924 997 917 884 721 621 679	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029 956	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549 562	230 Aug 879 670 764 819 812 888 801 704 773 816 799 881 1192 970 812 757	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686 578 528 435 396 475 487	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609 498	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344 404	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811 911 1009 1055	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	1313 Jan 686 660 649 788 752 815 932 972 810 760 706 709 671 628 570 552 1221	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037 983	1482 Mar 1234 1414 1950 1801 1386 1151 1113 1229 1187 1225 1592 1745 1436 1361 1217	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280	488 May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055 1022 879 912 908	20 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648 548	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565 393	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333 373	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546 944 808	306 Oct 696 652 685 614 814 878 740 635 618 390 357 448 548 948 1071 1938	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984 3496	6 12 8 2 8 2 8 2 8 2 8 2 8 2 8 2 8 2 8 2 8 2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357 2833 6007 4972 5792 5398	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846	593 May 932 930 860 792 881 877 872 875 889 900 924 997 917 884 721 621	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549	230 Aug 879 670 764 819 812 891 888 801 704 773 816 799 881 1192 970 812	Se p 10 14 1183 1233 13 11 12 04 930 760 730 718 761 686 578 528 435 396 475	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811 911 1009 1055	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	1313 Jan 686 660 649 788 752 815 932 972 810 760 706 709 671 628 570 552	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037	1482 Mar 1234 1414 1950 1801 1386 1178 1151 1113 1229 1187 1225 1592 1745 1436 1361	Apr 7321 4553 2585 2093 1835 1563 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280	488 May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055 1055 1022 879 912	20 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546	306 Oct 696 652 685 614 814 878 740 635 618 390 357 448 548 948 1071	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984	611 De 82: 82: 219 260 677 518 398 269 292 313 623 481 398 305 305 227 202 216
1 2 3 4 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014 1386 28 19 3996	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508 1493 1766	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357 2833 6007 4972 5792 5398 3908 3316	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846	593 May 932 930 860 792 881 877 872 875 889 900 924 997 917 884 721 621 679 720	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029 956 886	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549 562 565	230 Aug 879 670 764 819 812 891 888 801 704 773 816 799 881 1192 970 812 757 642	Se p 1014 1183 1233 1311 1204 930 760 730 718 761 686 578 528 435 396 475 487	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609 498 420	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344 404 449	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811 911 1009 1055 1075 1418	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	13 13 Jan 686 660 649 788 752 815 932 972 810 760 706 709 671 628 570 552 1221	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037 983 947	1482 Mar 1234 1414 1950 1801 1386 1210 1178 1151 1113 1229 1187 1225 1592 1745 1436 1361 1217	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280 1195	488 May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055 1022 879 912 908 966	20 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648 548 539	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565 393 278	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333 373 513	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546 944 808 845	306 Oct 696 652 685 614 814 878 740 635 618 390 357 448 548 948 1071 1938 1787	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984 3496 2772	Be 12
1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014 1386 28 19 3996 8131 10679 5914	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508 1493 1766 1771 1556 1790 1860	14 19 Mar 1935 2124 2198 2833 2693 2234 1725 1567 14 18 1828 2357 2833 6007 4972 5792 5398 3908 3361 33755 3983	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846 1600 1368 1261 1243 1297	593 May 932 930 860 792 881 877 872 875 889 900 924 997 917 884 721 621 679 720 702 902 1046	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029 956 886 768 864 829	446 DO1 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549 562 565 730 882 810	230 Aug 879 670 764 819 881 891 888 801 704 773 816 799 881 1192 970 812 757 642 546 467	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686 578 528 435 396 475 487 487 480 610 538	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609 498 420 378 471 412	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344 404 449 452 431 476	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811 911 1009 1055 1075 1075 1148 1337 1006 959	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	1313 Jan 686 660 649 788 752 815 932 972 810 760 706 709 671 628 570 552 1221 1926 2991 5770 4738	1245 1163 1132 1336 1510 1779 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037 983 947 953 981 942	1482 Mar 1234 1414 1950 1801 1801 1178 1151 1113 1229 1187 1225 1592 1745 1436 1361 1217 1164 1287 1244 1615	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280 1195 1116 1060 1025 1011	488 May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055 1022 879 912 908 966 903 888 814	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648 548 539 527 462 431	1100 02 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565 393 278 254 256 305	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333 373 513 593 376 264	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546 944 808 845 1199 1330 1162	306 Oct 696 652 685 614 878 740 635 618 390 357 448 548 948 1071 1938 1787 1431 1104 938 916	Nov 1064 1019 1234 1705 2405 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984 3496 2772 2219 1786 2024	6 12 8 29 8 29 2 29 2 29 2 3 13 6 23 4 8 1 3 9 8 3 6 3 3 0 5 2 2 7 2 0 2 2 11 2 11 3 3 9 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
1 2 3 4 5 6 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 2	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014 1386 2819 3996 8131 10679 5914 3430	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508 1493 1766 1771 1556 1790 1860 2246	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357 2833 6007 4972 5792 5398 3908 3316 3361 3755 3983 4004	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846 1600 1368 1261 1243 1297	593 May 932 930 860 792 881 877 872 875 889 900 924 997 917 884 721 621 679 720 702 902 1046 1084	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1018 1019 992 1014 1029 956 886 768 864 829 785	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549 562 565 730 882 810 793	230 Aug 879 670 764 819 812 891 888 801 704 773 816 799 881 1192 970 812 757 642 547 546 467 406	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686 528 435 396 475 487 430 610 538 541	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609 498 420 378 471 412 494	Nov 454 442 437 393 412 382 441 374 410 395 467 380 385 385 385 344 404 449 452 431 476 492	554 De c 691 553 519 592 438 328 444 499 421 620 811 1009 1055 1075 1418 1337 1006 959 946	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	1313 Jan 686 660 649 788 752 815 932 972 810 760 706 671 628 570 552 1221 1926 2991 5770 4738 4315	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037 983 947 953 981 942 1013	1482 Mar 1234 1414 1950 1801 1386 1210 1178 1151 1113 1229 1187 1255 1592 1745 1436 1361 1217 1164 1287 1244 1615 1717	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280 1195 1116 1060 1025 1011	488 May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055 1022 879 912 908 966 903 888 814 750	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648 548 539 527 462 431 421	1100 02 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565 393 278 254 256 305 291	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 2 61 152 233 333 373 513 593 376 264 186	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546 944 808 845 1199 1330 1162 1586	306 Oct 696 652 685 614 814 878 740 635 618 390 357 448 548 948 1071 1938 1787 1431 1104 938 916 980	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984 3496 2772 2219 1786 2024 2415	6 12 8 29 8 28 2 2 19 2 60 6 77 5 18; 3 9 8 2 6 9 2 9 2 3 13; 6 23 4 8 1; 3 9 8 3 6 3 3 0 5 2 2 7 2 0 2 2 16 2 11 2 11 3 3 9 3 3 3 2 4 11 3 3 3 2 4 11 4 11
1 2 3 4 5 6 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 2 2 3	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014 1386 28 19 3996 8131 10679 5914	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508 1493 1766 1771 1556 1790 1860	14 19 Mar 1935 2124 2198 2833 2693 2234 1725 1567 14 18 1828 2357 2833 6007 4972 5792 5398 3908 3361 33755 3983	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846 1600 1368 1261 1243	593 May 932 930 860 792 881 877 872 875 889 900 924 997 917 884 721 621 679 720 702 902 1046	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029 956 886 768 864 829	446 DO1 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549 562 565 730 882 810	230 Aug 879 670 764 819 881 891 888 801 704 773 816 799 881 1192 970 812 757 642 546 467	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686 578 528 435 396 475 487 487 480 610 538	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609 498 420 378 471 412	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344 404 449 452 431 476	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811 911 1009 1055 1075 1075 11418 1337 1006	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	1313 Jan 686 660 649 788 752 815 932 972 810 760 706 709 671 628 570 552 1221 1926 2991 5770 4738	1245 1163 1132 1336 1510 1779 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037 983 947 953 981 942	1482 Mar 1234 1414 1950 1801 1801 1178 1151 1113 1229 1187 1225 1592 1745 1436 1361 1217 1164 1287 1244 1615	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280 1195 1116 1060 1025 1011	488 May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055 1022 879 912 908 966 903 888 814	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648 548 539 527 462 431	1100 02 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565 393 278 254 256 305	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333 373 513 593 376 264	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546 944 808 845 1199 1330 1162	306 Oct 696 652 685 614 878 740 635 618 390 357 448 548 948 1071 1938 1787 1431 1104 938 916	Nov 1064 1019 1234 1705 2405 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984 3496 2772 2219 1786 2024	612 829 829 260 677 518 398 269 292 313 623 481 398 363 305 227 202 216 2110 339 341 4412 428
1 2 3 4 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19 2 0 2 1 2 2 2 2 3 2 4	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014 1386 2819 3996 8131 10679 5914 3430 2019	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508 1493 1766 1771 1556 1790 1860 2246 3291	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357 2833 6007 4972 5792 5398 3908 3316 3361 3755 3983 4004 2698	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846 1600 1368 1261 1243 1297 1276	593 May 932 930 860 792 881 877 872 875 889 900 924 997 917 884 721 621 679 720 702 902 1046 1084 1263	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029 956 886 768 8864 829 785 871	446 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549 562 565 730 882 810 793 1773	230 Aug 879 670 764 819 812 891 888 801 704 773 816 799 881 1192 970 812 757 642 547 546 467 406 331	Se p 10 14 1183 1233 13 11 12 04 93 0 76 0 73 0 718 76 1 68 6 578 52 8 43 5 39 6 47 5 48 7 43 0 61 0 53 8 54 1 62 3 58 4	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609 498 420 378 471 412 494 456	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344 404 449 452 431 476 492 526	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811 1009 1055 1075 1418 1337 1006 959 946	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	1313 Jan 686 660 649 788 752 815 932 972 810 760 706 709 671 628 570 552 1221 1926 2991 5770 4738 4315 4156	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037 983 947 953 981 942 1013 967	1482 Mar 1234 1414 1950 1801 1386 1151 1113 1229 1187 1225 1592 1745 1436 1361 1217 1164 1287 1244 1615 1717	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280 1195 1116 1060 1025 1011 1005	488 May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055 1022 879 912 908 966 903 888 814 750 679	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648 548 539 527 462 431 421	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565 393 278 254 256 305 291	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333 373 513 593 376 264 186	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546 944 808 845 1199 1330 1162 1586	306 Oct 696 652 685 614 814 878 740 635 618 390 357 448 548 948 1071 1938 1787 1431 1104 938 916 980 899	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984 3496 2772 2219 1786 2024 2415 1855	611 De 82 82 219 260 677 518 398 269 292 313 623 481 398 202 216 211 339 411 428 734
1 2 3 4 5 6 7 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014 1386 2819 3996 8131 10679 5914 3430 2019 1394 1367 1279	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508 1493 1766 1771 1556 1790 1860 2246 3291 3188 3088 4413	14 19 Mar 1935 2 124 2 198 2 833 2 693 2 234 1725 1567 14 18 18 28 2 357 2 833 6 007 4 972 5 792 5 398 3 336 3 361 3 755 3 983 4 004 2 698 2 031 1924 18 43	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846 1600 1368 1261 1243 1297 1276 1221 1230 1196 1179	593 May 932 930 860 792 881 877 872 875 889 900 924 997 917 884 721 621 621 679 720 702 902 1046 1084 1263 1121 1467	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029 9956 886 768 864 829 785 871 895 879 1716	446 D01 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549 562 565 730 882 810 793 1773 1892 2452 3666	230 Aug 879 670 764 819 812 891 888 801 704 773 816 799 811 1192 970 812 757 642 547 546 467 406 331 366 623 658	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686 578 528 435 396 475 487 430 610 538 541 623 584 810 1020 768	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609 498 420 378 471 412 494 456 501 462 473	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344 404 449 452 431 476 492 526 656 893 868	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811 911 1009 1055 1075 1418 1337 1006 959 946 936 1310 1346	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	1313 Jan 686 660 649 788 752 815 932 972 810 760 706 709 671 628 570 552 1221 1926 2991 5770 4738 4315 4156 4117 7843	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037 983 947 953 981 942 1013 967 922 873 900	1482 Mar 1234 1414 1950 1801 1386 1210 1178 1151 1113 1229 1187 1225 1592 1745 1436 1361 1217 1164 1287 1244 1615 1717 1453 1269 1305	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280 1195 1116 1060 1025 1011 1005 1086 957 1037	488 May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055 1022 879 912 908 966 903 888 814 750 679 738 706 715	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648 548 539 527 462 431 421 435 455 470 534	1100 02 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565 393 278 254 256 305 291 294 327 373 364	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333 373 513 593 376 264 186 159 154 195 219	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546 944 808 845 1199 1330 1162 1586 1586 1087	306 Oct 696 652 685 614 814 878 740 635 618 390 357 448 548 948 1071 1938 1787 1431 1104 938 916 980 899 606 537 814	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984 3496 2772 2219 1786 2024 2415 1855 1283 1184 1099	612 829 829 260 677 518 398 269 292 313 363 305 227 216 2116 339 332 4112 428 734 843 579
1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014 1386 28 19 39 96 8 131 106 79 59 14 34 30 20 19 13 94 13 67 12 79 1176	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508 1493 1766 1771 1556 1790 1860 2246 3291 3088 4413 3260	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357 2833 6007 4972 5792 5398 3908 3316 33561 3755 3983 4004 2698 2698 1924 1843	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846 1600 1368 1261 1243 1297 1276 1221 1230 1196 1179 1110	593 May 932 930 860 792 875 889 900 924 997 917 884 721 621 679 720 702 902 1046 1084 1263 1121 1467 1693	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029 956 886 768 864 829 785 871 871 879 1716 2682	446 DO1 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549 562 565 730 882 810 793 1773 1892 2452 3666 2765	230 Aug 879 670 764 819 888 801 704 773 816 799 881 1192 970 812 757 642 546 467 406 331 366 623 658 662	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686 578 528 435 396 475 487 430 610 538 541 623 584 810 1020 768 529	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609 498 420 378 471 412 494 456 501 462 473 445	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344 404 449 452 431 476 492 526 656 893 868 825	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811 911 1009 1055 1075 1418 1337 1006 959 946 936 1310 1346 1064 943	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1313 Jan 686 660 649 788 782 972 810 760 706 709 671 628 570 552 1221 1926 2991 5770 4738 4315 4156 4157 7843 5324 3718	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037 983 947 953 981 942 1013 967 922 873 900 874	1482 Mar 1234 1414 1950 1801 1801 1178 1151 1113 1229 1745 1436 1361 1217 1164 1287 1244 1615 1717 1453 1269 1305	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280 1195 1116 1060 1025 1011 1005 1086 957 1037 1042	488 May 1532 3085 3411 4753 3898 2092 1536 1276 1372 1227 1126 1055 1022 879 912 908 966 903 888 814 750 679 738 706 715 672	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648 548 539 527 462 431 421 435 470 534	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565 393 278 254 256 305 291 294 327 373 364 354	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333 373 513 593 376 264 186 159 154 195 219 251	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546 944 808 845 1199 1330 1162 1586 1715 1263 1087	306 Oct 696 652 685 614 874 635 618 390 357 448 548 948 1071 1938 1787 1431 1104 938 916 980 899 606 537 814 1134	Nov 1064 1019 1234 1705 2405 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984 3496 2772 2219 1786 2024 2415 1853 1184 1099 966	6 12 8 29 8 29 2 199 2 600 6 777 5 18: 3 98 2 69 2 92 3 13: 6 23 3 305 2 277 2 02 2 116 2 116 3 39 3 32 4 112 4 28 4 34 4 4 4 3 4 5 7 9 3 6 4 4 4 4 3 5 7 9 3 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
1 2 3 4 5 6 6 7 7 8 9 110 111 12 13 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014 1386 28 19 3996 8 131 10679 59 14 34 30 20 19 1394 1367 1279 1176 1381	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508 1493 1766 1771 1556 1790 1860 2246 3291 3188 3088 4413	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357 2833 6007 4972 5792 5398 3908 3316 3351 3755 3983 4004 2698 2031 1924 1843 1923	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846 1600 1368 1261 1243 1297 1276 1221 1230 1196 1179 1110	593 May 932 930 860 792 881 877 872 875 889 900 924 997 917 884 721 621 679 720 702 902 1046 1084 1263 1121 1467 1693 1814	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029 956 886 768 864 829 785 871 895 871 895 879 1716 2682 5432	446 DO1 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549 562 565 730 882 810 793 1773 1892 2452 3666 2765 1378	230 Aug 879 670 764 819 812 891 888 801 704 773 816 799 881 1192 970 812 757 642 647 406 331 366 623 658 662 685	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686 578 528 435 396 475 487 430 610 538 541 623 584 810 1020 768	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 551 536 494 609 498 420 378 471 412 494 456 501 462 473 445 506	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344 404 449 452 431 476 492 526 656 893 868 825 727	554 De c 691 553 519 592 438 328 444 499 421 620 811 1009 1055 1075 1418 1337 1006 959 946 936 1310 1346 1064 943 845	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1313 Jan 686 660 649 788 752 815 932 972 810 760 706 709 671 628 570 552 1221 1926 2991 5770 4738 4315 4156 4117 7843 5324 3718	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037 983 947 953 981 942 1013 967 922 873 900	1482 Mar 1234 1414 1950 1801 1386 1210 1178 1151 1113 1229 1187 1225 1592 1745 1436 1361 1217 1164 1287 1244 1615 1717 1453 1269 1305	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280 1195 1116 1060 1025 1011 1005 1086 957 1037 1042 1050 1035	488 May 1532 3085 3411 4753 5188 3898 2092 1536 1276 1372 1227 1126 1055 1022 879 912 908 966 903 888 814 750 679 738 706 715 672 703	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648 548 539 527 462 431 421 435 455 470 534 577 551	1100 02 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565 393 278 254 256 305 291 294 327 373 364 358	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333 373 593 376 264 186 159 154 195 219 251 238	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546 944 808 845 1199 1330 1162 1586 1586 1087	306 Oct 696 652 685 614 814 878 740 635 618 390 357 448 548 948 1071 1938 1787 1431 1104 938 916 980 899 606 537 814	Nov 1064 1019 1234 1705 2105 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984 3496 2772 2219 1786 2024 2415 1855 1283 1184 1099 966 862	Be (829 828 2196 2606 677 5182 3984 2693 3134 623 3056 2277 2022 2167 3392 4112 428 7342 843 5796
1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	Jan 583 517 500 553 697 870 892 1029 1128 1116 954 1044 1111 1068 1014 1386 28 19 39 96 8 131 106 79 59 14 34 30 20 19 13 94 13 67 12 79 1176	1518 1133 1026 1000 985 970 1018 1008 1087 1185 1228 1233 1269 1275 1508 1493 1766 1771 1556 1790 1860 2246 3291 3088 4413 3260	Mar 1935 2124 2198 2833 2693 2234 1725 1567 1418 1828 2357 2833 6007 4972 5792 5398 3908 3316 33561 3755 3983 4004 2698 2698 1924 1843	Apr 2387 2397 3097 4112 3176 2662 2319 2014 1962 1815 1661 1532 1611 1654 1769 1846 1600 1368 1261 1243 1297 1276 1221 1230 1196 1179 1110	593 May 932 930 860 792 875 889 900 924 997 917 884 721 621 679 720 702 902 1046 1084 1263 1121 1467 1693	20 Jun 3323 4981 3660 2854 3472 2411 1928 1895 1581 1362 1250 1088 1019 992 1014 1029 956 886 768 864 829 785 871 871 879 1716 2682	446 DO1 Jul 2819 1982 2858 3116 2748 2130 1701 1217 1040 996 954 846 737 668 593 549 562 565 730 882 810 793 1773 1892 2452 3666 2765	230 Aug 879 670 764 819 888 801 704 773 816 799 881 1192 970 812 757 642 546 467 406 331 366 623 658 662	Se p 10 14 1183 1233 1311 1204 930 760 730 718 761 686 578 528 435 396 475 487 430 610 538 541 623 584 810 1020 768 529	797 Oct 302 276 248 426 524 1040 1331 1006 845 704 553 521 535 536 494 609 498 420 378 471 412 494 456 501 462 473 445	Nov 454 442 437 393 412 382 441 374 410 395 467 380 382 385 385 344 404 449 452 431 476 492 526 656 893 868 825	554 De c 691 553 519 592 438 328 444 499 421 620 811 843 811 911 1009 1055 1075 1418 1337 1006 959 946 936 1310 1346 1064 943	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	1313 Jan 686 660 649 788 782 972 810 760 706 709 671 628 570 552 1221 1926 2991 5770 4738 4315 4156 4157 7843 5324 3718	1245 1163 1132 1336 1510 1709 2659 2509 1957 1587 1396 1210 1160 1103 1076 1037 983 947 953 981 942 1013 967 922 873 900 874	1482 Mar 1234 1414 1950 1801 1386 1210 1178 1151 1113 1229 1187 1225 1592 1745 1436 1361 1217 1164 1287 1244 1615 1717 1453 1269 1305 1234 1402 3072	Apr 7321 4553 2585 2093 1835 1553 1295 1321 1245 1270 1359 1480 1604 1554 1364 1280 1195 1116 1060 1025 1011 1005 1086 957 1037 1042	488 May 1532 3085 3411 4753 3898 2092 1536 1276 1372 1227 1126 1055 1022 879 912 908 966 903 888 814 750 679 738 706 715 672	200 Jun 644 668 874 984 1292 1303 1162 922 617 541 497 551 477 532 629 648 548 539 527 462 431 421 435 470 534	1100 O2 Jul 552 566 598 572 581 470 417 328 308 289 434 499 657 683 768 565 393 278 254 256 305 291 294 327 373 364 354	2278 Aug 153 133 89 100 91 111 63 49 50 54 4 42 61 152 233 333 373 513 593 376 264 186 159 154 195 219 251	Se p 108 87 42 74 62 55 91 101 85 113 73 233 337 398 546 944 808 845 1199 1330 1162 1586 1715 1263 1087 1312 1675	306 Oct 696 652 685 614 874 635 618 390 357 448 548 948 1071 1938 1787 1431 1104 938 916 980 899 606 537 814 1134	Nov 1064 1019 1234 1705 2405 4472 3104 2081 1851 1880 2351 2859 2535 2402 2310 2984 3496 2772 2219 1786 2024 2415 1853 1184 1099 966	Be (829 828 2196 2606 677 5182 3984 2693 3134 6237 3056 2277 2022 2110 3392 4112 428 843 5796

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						20	003												20	004					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2006	2491	3548	1724	2102	1481	5583	2890	1130	863	767	1451	1	1132	156 1	1441	1363	1467	1252	2018	681	683	798	901	1648
3	2109 2036	2308 1956	2962 2765	1682 1597	2096 2371	1426 1637	12032 8044	2450 2590	1079 986	829 713	725 686	1331 1157	3	1146 1254	16 18 2020	1590 2037	1188 1077	1650 1947	1082 830	2364 1942	691 736	931 944	801 774	1092 1814	1750 1495
4	1905	2069	5512	1634	4 174	1848	4808	3307	977	776	823	1080	4	1240	2786	1962	1076	1651	765	1738	825	793	726	2701	1950
5	16 15	2288	6141	1768	5613	2126	3381	3000	1177	747	788	1107	5	13 13	3043	1838	1078	1250	783	1893	807	1690	601	3055	2232
6 7	1496 1365	2217 2655	14502 13000	2027 2062	9986 13826	2028 2524	2767 2443	2340 2059	1129 1001	797 795	864 925	1052 933	7	1540 1445	4345 6389	2010 2091	1000 910	1111 1027	796 764	16 16 13 4 6	920 905	2086 3052	643 560	1996 1463	3378 5290
8	1363	2738	8416	2195	11121	3090	2446	1860	993	832	888	1198	8	1308	4287	1881	919	948	803	1240	653	4948	621	1114	5395
9	14 14	2468	4568	2114	6275	2377	2348	16 17	987	751	709	1369	9	1376	2921 2434	1597	1005	971	841	1062	506	3788	723	1059 1044	5873
10 11	1518 1610	2272 2212	3476 2912	2 154 2 19 2	4210 3390	2076 2079	2421 5694	1626 1705	883 735	883 855	639 590	1885 3289	10 11	1366 1274	2323	1480 1358	1026 2558	1087 1452	725 661	873 894	843 771	1947 1270	960 936	1037	7516 5132
12	1535	1948	2617	1899	2766	2301	4424	1668	779	896	565	2379	12	1227	2474	1305	2965	1535	8 11	780	14 17	927	967	1346	3533
13 14	14 79 14 13	1699 1819	2397 2374	1758 1670	2603 2447	3060 3459	4225 4254	16 14 1526	871 838	890 852	563 561	1987 1977	13	1188 1132	2698 2541	1456 1555	5892 4883	1678 1712	1001 996	754 828	1536 1152	788 2565	1028 895	2085 1478	2678 2160
15	1437	2062	2339	1750	2356	4139	3927	1456	916	1059	720	2027	14 15	1134	2425	1546	3760	1508	1086	1283	662	5581	772	1275	1881
16	1384	2374	2259	1830	3076	4053	2825	1394	822	1009	1198	1659	16	1200	2725	1540	1975	1534	1394	983	628	9351	774	1157	1691
17	1423	3305	2411	1823	3376	8056	2734	13 55	785	948	2667	1741	17	1195	2470	1531	1507	1632	1139	972	535	20390	1143	1087	1556
18 19	1393 1347	2735 2280	2628 2537	2217 2207	3459 3660	5883 7740	2232 1923	14 19 14 0 7	661 613	1009	3204 7580	1627 1577	18 19	1261 1375	2071 1847	1294 1162	1396 1348	158 8 16 15	934 820	998 853	544 484	14823 9502	1091 1377	904	1532 1419
20	1447	2828	2692	1852	3680	4087	1745	1350	908	732	5464	1490	20	1247	1728	1237	1233	1582	809	724	469	5103	1866	1145	1458
21	1403	3109	2761	1830	2986	2840	1782	1253	10 12	733	3689	14 14	21	1171	1658	1216	1148	1168	903	586	545	2861	1507	18 18	1609
22	1393 1339	5429 6200	2351 2151	2329 2576	3124 3653	2050 1866	1846 2015	1288 1165	1204 2598	647 525	1949 1492	1458 1480	22	1134 1862	1538 1647	1343 1209	1135 1170	973 993	1220 1561	535 487	640 784	2266 1720	961 1024	3423 3635	1742 2338
24	1247	4353	1994	2728	3065	1640	1723	1004	1746	674	1270	18 14	24	2437	1674	1174	1351	888	1765	698	950	1355	875	4884	3066
25	1139	3233	1951	3420	2483	1594	1594	985	114 1	820	1460	1730	25	3021	1637	1073	1483	865	2095	863	1004	911	937	5939	2348
26	1222 1402	2776 3745	1847 1851	4087 3410	2242 1874	153.5 1573	1554 1390	1032 967	1064 990	907 1506	1547 1600	16 18 1553	26	4959 3806	1565 1724	1117 994	1855 2118	786 777	2757 2566	1026 1302	1002 1026	854 779	954 980	4 196 2233	1977 1768
28	1629	5069	1808	2417	1597	1642	1338	971	1044	1322	2041	1405	28	2645	1563	1187	1602	703	2766	1173	898	1757	852	2214	1705
29	2105		1869	1987	1248	3067	1524	1139	1024	933	2174	1305	29	1786	1509.477	1271	1268	871	2762	839	965	1300	922	1942	1587
3 0	3137 2922		1882 1895	1763	1361 1290	4081	14 56 16 74	1142 1244	877	727 785	1764	1383 1342	3 0	1687 1633		13 17 14 4 0	13 16	934 1055	2337	879 799	940 852	1122	949 898	1599	1436 1443
		•		•	1	20	005												20	06					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	14 78 14 10	1998 2211	3272 2830	7473 6755	3149 2484	1821 2201	1094 1021	1400 1353	13 19 10 75	562 544	468 420	1000 1066	2	1250 1410	1663 1510	16 17 1514	1697 1878	1179 1098	717 680	370 402	370 356	1041	201 164	753 723	1236 1260
3	1380	2914	2217	5134	2 112	1951	1078	1159	894	466	385	1532	3	2075	1655	1441	1681	1225	741	380	391	1150	112	656	1067
4	1408	2963	2137	3812	1849	2054	1331	1091	955	702	482	1912	4	1751	2305	1383	16 18	12 19	708	419	409	769	96	564	901
5 6	1332 1228	2472 2053	2122 2345	3276 3089	1832 1864	2277 2471	2699 2951	1037 1214	868 849	707 907	524 519	3697 3175	6	1475 1303	2951 2736	1308 1284	1429 1388	1273 1269	728 640	493 627	304 320	571 494	77 270	591 583	780 717
7	1350	1781	2303	3268	1889	4001	5151	1435	774	1476	548	2039	7	1204	3080	1297	1512	1323	638	574	350	444	244	656	667
8	1466	1672	2806	4201	1694	4226	5092	2813	791	1578	513	1252	8	1199	2701	1589	1712	1300	582	499	267	527	219	834	644
9 10	1506 1502	1569 1569	2743 2355	3981 3167	1671 1511	3570 3185	9808 10210	3124 2621	712 754	1206 974	469 416	1150 1143	9 10	1136 1036	2453 1887	1678 2175	1884 1687	14 14 12 55	582 502	430 377	250 442	579 449	184 196	936 757	591 620
11	1627	1521	1968	2774	1428	3091	14528	3075	720	852	470	1054	11	1354	1839	2228	1520	1235	506	479	542	876	189	695	637
12	1927	16 13	1969	2421	1385	3217	17974	2201	694	759	571	10 15	12	1697	19 12	2072	1353	1236	512	420	554	906	225	670	693
13 14	2083 2750	1728 2136	1886 2232	2330 2290	1457 1444	3 12 4 2 4 13	15526 7371	2207 2374	676 627	692 588	502 628	1252 1326	13 14	1872 2613	1764 1546	1574 1516	1356 1246	1186 1038	477 499	445 520	56 1 514	1237 1869	235 316	1640 2483	721 822
15	2490	2733	2292	2164	1642	1845	5650	1695	662	604	613	1968	15	2592	1442	1377	12 12	1060	488	621	376	1328	433	4142	809
16	2213	2261	2625	2071	1724	1516	3988	1528	676	615	751	3481	16	2710	1405	13 12	1078	950	407	463	469	698	544	11582	8 15
		1857	2808	1937 1896	1565 1455	1259 1342	3169 2106	1322 1267	736 744	571 574	853 772	2470 1804	17 18	2832 5391	1362 1342	116 1 176 5	1154 1372	890 863	427 413	458 346	339 346	581 498	1230 3469	6143 3411	76 1 755
17	1849 1600	1760	2514	1030	1755		4		765	560	965	1440	19	4133	1390	2504	1504	853	393	287	404	527	1463	1947	707
	1849 1600 1501	1760 2667	2514 2117	1848	1448	2 112	1654	13 14	700						1536	2836	1985	770						1302	836
17 18 19 20	1600			1848 1841	1448 1457	2 112 12 19	1492	1306	656	1937	1171	1185	20	3043				770	379	320	627	503	1076	1002	
17 18 19 20 21	1600 1501 1507 1630	2667 3709 6212	2117 2266 2782	1841 2073	1457 1562	12 19 1115	1492 1334	1306 1147	656 611	1937 1931	1376	990	21	2549	2106	56 16	2689	768	406	535	533	413	913	969	878
17 18 19 20 21	1600 1501 1507	2667 3709	2117 2266	1841	1457	12 19 1115 110 1	1492	1306	656	1937		990 1044	21	2549 2639				768 813	406 365						878 1125 1864
17 18 19 20 21	1600 1501 1507 1630 1383	2667 3709 6212 10449	2117 2266 2782 2943	1841 2073 2210	1457 1562 1466	12 19 1115	1492 1334 1292	1306 1147 1080	656 611 650	1937 1931 1917	1376 2078	990	21	2549	2106 2321	56 16 450 6	2689 2859	768	406	535 445	533 574	413 390	9 13 72 4	969 813	1125 1864
17 18 19 20 21 22 23 24 25	1600 1501 1507 1630 1383 1305 1306	2667 3709 6212 10449 6599 5095 3798	2117 2266 2782 2943 4689 4255 3566	1841 2073 2210 2471 2478 2349	1457 1562 1466 1370 1269	12 19 1115 110 1 971 197 1224	1492 1334 1292 1028 890 902	1306 1147 1080 1094 1344 1129	656 611 650 587 636 638	1937 1931 1917 1918 1997 614	1376 2078 1626 1009 745	990 1044 1097 1207 1504	21 22 23 24 25	2549 2639 2806 3775 3036	2106 2321 2983 3109 2811	56 16 450 6 3 16 1 2 170 18 9 4	2689 2859 2404 2032 1553	768 813 838 688 697	406 365 535 482 911	535 445 629 612 535	533 574 650 476 360	413 390 451 492 695	913 724 654 547 962	969 813 790 802 767	1125 1864 1628 1378
17 18 19 20 21 22 23 24 25	1600 1501 1507 1630 1383 1305 1306 1298 1184	2667 3709 6212 10449 6599 5095 3798 3504	2117 2266 2782 2943 4689 4255 3566 3996	1841 2073 2210 2471 2478 2349 2115	1457 1562 1466 1370 1269 1120	12 19 1115 110 1 971 197 1224 1392	1492 1334 1292 1028 890 902 909	1306 1147 1080 1094 1344 1129 980	656 611 650 587 636 638 708	1937 1931 1917 1918 1997 614 573	1376 2078 1626 1009 745 774	990 1044 1097 1207 1504 1810	21 22 23 24 25 26	2549 2639 2806 3775 3036 2233	2106 2321 2983 3109 2811 2356	56 16 450 6 3 16 1 2 170 18 9 4 1551	2689 2859 2404 2032 1553 1436	768 813 838 688 697 788	406 365 535 482 911 2434	535 445 629 612 535 339	533 574 650 476 360 433	413 390 451 492 695 625	913 724 654 547 962 1203	969 813 790 802 767 739	1125 1864 1628 1378 1501
17 18 19 20 21 22 23 24 25	1600 1501 1507 1630 1383 1305 1306	2667 3709 6212 10449 6599 5095 3798	2117 2266 2782 2943 4689 4255 3566	1841 2073 2210 2471 2478 2349	1457 1562 1466 1370 1269	12 19 1115 110 1 971 197 1224	1492 1334 1292 1028 890 902	1306 1147 1080 1094 1344 1129	656 611 650 587 636 638	1937 1931 1917 1918 1997 614	1376 2078 1626 1009 745	990 1044 1097 1207 1504	21 22 23 24 25	2549 2639 2806 3775 3036	2106 2321 2983 3109 2811	56 16 450 6 3 16 1 2 170 18 9 4	2689 2859 2404 2032 1553	768 813 838 688 697	406 365 535 482 911	535 445 629 612 535	533 574 650 476 360	413 390 451 492 695	913 724 654 547 962	969 813 790 802 767	1125 1864 1628
17 18 19 20 21 22 23 24 25 26 27 28	1600 1501 1507 1630 1383 1305 1306 1298 1184 1393 1407 1471	2667 3709 6212 10449 6599 5095 3798 3504 2987	2117 2266 2782 2943 4689 4255 3566 3996 4323 8409 7394	1841 2073 2210 2471 2478 2349 2115 2414 2347 2300	1457 1562 1466 1370 1269 1120 1086 1109 1252 1264	12 19 1115 110 1 971 197 1224 1392 1584 1574 1465	1492 1334 1292 1028 890 902 909 879 1096 1191	1306 1147 1080 1094 1344 1129 980 1041 1094	656 611 650 587 636 638 708 737 749 674	1937 1931 1917 1918 1997 614 573 606 604 602	1376 2078 1626 1009 745 774 860 909 1283	990 1044 1097 1207 1504 1810 1496 1287 1158	21 22 23 24 25 26 27 28 29	2549 2639 2806 3775 3036 2233 1876 1711 1624	2106 2321 2983 3109 2811 2356 2070	56 16 450 6 3 16 1 2 170 18 9 4 155 1 157 1 14 9 5 14 6 6	2689 2859 2404 2032 1553 1436 1569 1458	768 813 838 688 697 788 737 665	406 365 535 482 911 2434 1374 874 755	535 445 629 612 535 339 311 234 301	533 574 650 476 360 433 510 713 922	413 390 451 492 695 625 522 455 444	913 724 654 547 962 1203 1813 3555 2366	969 813 790 802 767 739 675 675	1125 1864 1628 1378 1501 1310 1091 1313
17 18 19 20 21 22 23 24 25 26 27	1600 1501 1507 1630 1383 1305 1306 1298 1184 1393	2667 3709 6212 10449 6599 5095 3798 3504 2987	2117 2266 2782 2943 4689 4255 3566 3996 4323 8409	1841 2073 2210 2471 2478 2349 2115 2414 2347	1457 1562 1466 1370 1269 1120 1086 1109	12 19 1115 110 1 971 197 1224 1392 1584 1574	1492 1334 1292 1028 890 902 909 879 1096	1306 1147 1080 1094 1344 1129 980 1041	656 611 650 587 636 638 708 737	1937 1931 1917 1918 1997 614 573 606 604	1376 2078 1626 1009 745 774 860 909	990 1044 1097 1207 1504 1810 1496	21 22 23 24 25 26 27 28	2549 2639 2806 3775 3036 2233 1876 1711	2106 2321 2983 3109 2811 2356 2070	56 16 450 6 3 16 1 2 170 18 9 4 155 1 157 1 14 9 5	2689 2859 2404 2032 1553 1436 1569 1458	768 813 838 688 697 788 737 665	406 365 535 482 911 2434 1374 874	535 445 629 612 535 339 311 234	533 574 650 476 360 433 510 713	413 390 451 492 695 625 522 455	913 724 654 547 962 1203 1813 3555	969 813 790 802 767 739 675	1125 1864 1628 1378 1501 1310

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

						20	07	•										•	20	80			_		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	D
	5160	1759	2784	1195	651	341	612	440	355	41	144	357	1	1493	1840	998	967	823	692	333	490	408	76	219	7
	3537	2063	5224	1448	626	317	812	352	212	59	150	358	2	951	2304	1367	1148	837	632	243	441	378	85	226	
	2438	1899	3794	1422	869	424	660	355	151	71	158	375	3	703	1735	1649	1506	799	614	207	365	363	85	2 12	
	1901	1580	2772	1464	1029	380	436	331	120	91	149	383	4	601	1447	2433	1794	820	520	314	339	3 19	10 1	209	
_	2530 4096	1379 1251	2038 1699	1395 1190	1199 1206	314 339	392 377	316 276	134 114	88 109	135 135	341 307	5	556 557	1404 1276	4545 3483	2234 2309	768 677	487 460	495 589	302 242	361 348	98 299	210 225	+
\vdash	5606	1044	1556	1020	1030	400	405	247	98	116	119	307	7	556	1197	3060	1891	634	540	924	242	382	394	206	+
	9573	10 13	1441	1003	811	424	429	199	88	118	135	291	8	594	1061	3213	1358	691	532	1247	303	400	569	200	+
	58 15	1009	1378	929	626	497	496	165	87	84	152	287	9	623	910	2652	1178	778	515	1893	257	422	9 18	204	1
,	3866	941	1303	896	687	547	651	158	81	73	169	301	10	676	827	1904	1102	840	486	2335	167	392	846	203	
1	2389	1008	1222	904	690	454	737	150	128	88	175	303	11	8 11	750	1466	1184	1124	493	1874	163	357	425	2 19	
2	1850	1139	12 17	976	826	468	666	119	190	75	235	302	12	983	755	1301	1382	1269	536	1204	139	295	279	262	
8	1602	1188	12 10	989	8 14	454	564	108	197	62	252	388	13	754	786	1836	1247	976	501	956	153	265	210	298	
4	1450	1284	1271	984	773	384	511	109	215	102	309	477	14	675	8 19	2329	1035	877	434	1133	196	252	169	380	
5	1464	1281	1332	1137	650	4 18	486	143	244	94	380	548	15	690	939	4227	947	933	448	834	167	236	191	4 12	1
6	1391	1136	1533	1182	641	574	586	139	243	98	4 13	731	16	701	1142	4965	925	1150	431	494	120	227	240	357	-
7 8	1324	1103	1515	964	659	510	672	152	114	97	375	813	17	8 19	1408	3153	956	1165	303	387	114	246	247	290	
•	12 19 12 4 3	1079 1339	1296 1156	892 888	647 597	464 544	737 720	156 14.4	105 105	100 122	326 300	625 502	18 19	10 10 933	2100 2030	2250 2050	920 951	971 946	241 227	321 256	94 63	216 198	225 243	223 181	+
<u>"</u>	1278	1466	1092	830	586	644	718	91	121	211	357	479	20	786	1832	2356	970	904	262	252	50	178	214	208	╁
1	1529	1611	1023	795	561	489	546	101	136	341	372	511	21	699	18 15	2035	869	868	295	236	47	165	191	237	1
2	2147	1713	10 15	845	475	345	493	85	150	4 11	405	525	22	670	2290	1607	769	846	296	246	196	146	229	232	
3	1974	1670	1005	798	518	436	287	106	143	526	522	633	23	732	2436	1308	747	759	320	268	363	140	271	265	
4	1745	14 19	990	792	516	392	238	124	151	675	513	812	24	727	2006	1152	742	752	308	322	1396	108	293	277	
5	1570	1522	10 10	854	463	464	162	170	153	617	394	842	25	652	1555	1099	777	713	283	258	2042	112	334	263	
6	1445	1823	10 11	794	411	735	305	150	128	4 15	408	873	26	603	1508	10 15	877	629	253	264	3768	116	387	285	
7	1432	1702	981	911	432	636	380	269	112	299	457	897	27	601	1554	1067	918	569	332	292	4742	108	289	426	-
8 9	1346 1274	1996	958 954	845 708	370 273	538 737.6	499 578	374 395	109 88	235 209.3	469 385	1148 1414	28	659 769.5	13 19 10 8 1	1076 1075	10 12 10 4 0	572 592.8	331 348	316 302	2634 1138.8	119 122	223 208	489 559	+-
0	1405		1006	617	299	757.0	709	406	77	189.8	369	1708	30	1093.7	1001	1128	903	703.7	344	299	683.4	105	208	663	+
1	1551		1067	0	323	7 00.7	498	445.8		163.9		1927.6	31	1333.1		1082.5	000	683	<u> </u>	424.7	483.4	.00	214		+
_						20	09												20	10					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
1	875	861	4847	2455	1638	1047	347	871	847	16 14	2376	3279	1	2627	2941	2873	2200	2694	2112	944	555	3 19	556	452	
	852	886	4309	2434	2245	1115	328	934	606	1591	2092	4991	2	2374	3093	3149	2143	3248	1966	979	578	286	508	429	
	965	877	2774	2567	2637	1169	357	763	380	1905	1769	6840	3	2208	4411	3393	2136	4684	1989	1026	588	291	382	455	
	3347	851 794	1997	2433	3210	1263	381	546	320	19 16	1667	4725	4	2172	6363	3069	2052	4691	1741	935	545	261	357	481	-
5	5934		16 15	2045	4124	1438 1388	4 14 54 6	395 318	270 261	2451 2736	154.5 14.9.7	3299 2703	5 6	2136 2125	10561 8850	2713 2494	2052 2193	3578 2416	1517 1490	753 6 16	620 676	254 273	310 295	501 439	+
	12.552		13.8.4	1760		1300	540	3 10	201	2/30	1437	2103			0000		2 133		1430	0 10	070			433	+
7	12552 14883	786	1384	1760 1594	4460 4287	1175	625	280	302	3382	1430	3223	7		7892	2399	2280		1524	597	715			3 11	
,	12552 14883 8870		1384 1270 1203	1760 1594 1715	4460 4287 3445	1175 1086	625 570	280 239	302 318	3382 2996	1430 3457	3223 4354	7	2206	7892 5760	2399 4131	2280 2497	1974 1808	1524 1309	597 588	715 681	284	282 297	311 277	1
,	14883	786 775	1270	1594	4287								7 8 9										282		
, , ,	14883 8870	786 775 790	1270 1203	1594 1715	4287 3445	1086	570	239	3 18	2996	3457	4354		2206 2248	5760	4131	2497	1808	1309	588	681	284 283	282 297	277	
0	14883 8870 5152	786 775 790 796	1270 1203 1135	1594 1715 2029	4287 3445 2725	1086 1072	570 559	239 200	318 405	2996 2255	3457 6084	4354 8073	9	2206 2248 2165	5760 4331	4131 5482	2497 2970	1808 1663	1309 1237	588 585	681 592	284 283 366	282 297 273	277 269	
1	14883 8870 5152 3406 2987 2451	786 775 790 796 816 858 922	1270 1203 1135 1061 1060 1093	1594 1715 2029 2810 4988 3806	4287 3445 2725 2028 1661 1427	1086 1072 1056 1160 1218	570 559 557 608 655	239 200 222 224 227	318 405 647 640 463	2996 2255 3599 4777 8388	3457 6084 9126 16016 12347	4354 8073 7250 4918 3540	9 10 11 12	2206 2248 2165 2109 2109 2038	5760 4331 4006 3590 3341	4131 5482 7276 9295 8156	2497 2970 2519 2199 2002	1808 1663 1652 1698 1730	1309 1237 1334 1339 1241	588 585 652 802 874	681 592 482 447 391	284 283 366 389 409 493	282 297 273 295 295 306	277 269 258 300 374	
1 2 3	14883 8870 5152 3406 2987 2451	786 775 790 796 816 858 922 912	1270 1203 1135 1061 1060 1093 1530	1594 1715 2029 2810 4988 3806 3769	4287 3445 2725 2028 1661 1427 1274	1086 1072 1056 1160 1218 1119	570 559 557 608 655 814	239 200 222 224 227 258	318 405 647 640 463 791	2996 2255 3599 4777 8388 9831	3457 6084 9126 16016 12347 7466	4354 8073 7250 4918 3540 3053	9 10 11 12 13	2206 2248 2165 2109 2109 2038 2000	5760 4331 4006 3590 3341 3196	4131 5482 7276 9295 8156 6869	2497 2970 2519 2199 2002 1917	1808 1663 1652 1698 1730	1309 1237 1334 1339 1241 1187	588 585 652 802 874 895	681 592 482 447 391 366	284 283 366 389 409 493 529	282 297 273 295 295 306 287	277 269 258 300 374 493	
1 2 3	14883 8870 5152 3406 2987 2451 1928 1520	786 775 790 796 816 858 922 912 905	1270 1203 1135 1061 1060 1093 1530 2069	1594 1715 2029 2810 4988 3806 3769 3516	4287 3445 2725 2028 1661 1427 1274 1283	1086 1072 1056 1160 1218 1119	570 559 557 608 655 814 802	239 200 222 224 227 258 276	318 405 647 640 463 791 1133	2996 2255 3599 4777 8388 9831 7953	3457 6084 9126 16016 12347 7466 4289	4354 8073 7250 4918 3540 3053 2994	9 10 11 12 13 14	2206 2248 2165 2109 2109 2038 2000 2081	5760 4331 4006 3590 3341 3196 3042	4 13 1 5482 7276 9295 8 156 6869 4812	2497 2970 2519 2199 2002 1917 1861	1808 1663 1652 1698 1730 1686 1665	1309 1237 1334 1339 1241 1187 1219	588 585 652 802 874 895 937	681 592 482 447 391 366 403	284 283 366 389 409 493 529 384	282 297 273 295 295 306 287 295	277 269 258 300 374 493 522	
1 2 3 4	14883 8870 5152 3406 2987 2451 1928 1520	786 775 790 796 816 858 922 912 905 880	1270 1203 1135 1061 1060 1093 1530 2069 3375	1594 1715 2029 2810 4988 3806 3769 3516 2914	4287 3445 2725 2028 1661 1427 1274 1283 1395	1086 1072 1056 1160 1218 1119 1026 986	570 559 557 608 655 814 802 678	239 200 222 224 227 258 276 226	318 405 647 640 463 791 1133 2372	2996 2255 3599 4777 8388 9831 7953 5767	3457 6084 9126 16016 12347 7466 4289 3315	4354 8073 7250 4918 3540 3053 2994 2800	9 10 11 12 13 14 15	2206 2248 2165 2109 2109 2038 2000 2081 2347	5760 4331 4006 3590 3341 3196 3042 2986	4 13 1 54 8 2 72 76 92 95 8 156 68 69 48 12 38 18	2497 2970 2519 2199 2002 1917 1861 1784	1808 1663 1652 1698 1730 1686 1665	1309 1237 1334 1339 1241 1187 1219	588 585 652 802 874 895 937 885	681 592 482 447 391 366 403 458	284 283 366 389 409 493 529 384 345	282 297 273 295 295 306 287 295 306	277 269 258 300 374 493 522 635	
1 2 3 4 5	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162	786 775 790 796 816 858 922 912 905 880 942	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406	1086 1072 1056 1160 1218 1119 1026 986 886	570 559 557 608 655 814 802 678 517	239 200 222 224 227 258 276 226 205	318 405 647 640 463 791 1133 2372 4280	2996 2255 3599 4777 8388 9831 7953 5767 4169	3457 6084 9126 16016 12347 7466 4289 3315 2768	4354 8073 7250 4918 3540 3053 2994 2800 3803	9 10 11 12 13 14 15 16	2206 2248 2165 2109 2109 2038 2000 2081 2347 2639	5760 4331 4006 3590 3341 3196 3042 2986 2935	4 13 1 54 8 2 72 7 6 92 9 5 8 15 6 68 6 9 48 12 38 18 32 7 9	2497 2970 2519 2199 2002 1917 1861 1784	1808 1663 1652 1698 1730 1686 1665 1890 2543	1309 1237 1334 1339 1241 1187 1219 1270	588 585 652 802 874 895 937 885 964	681 592 482 447 391 366 403 458	284 283 366 389 409 493 529 384 345 329	282 297 273 295 295 306 287 295 306 277	277 269 258 300 374 493 522 635 769	
1 2 3 4 5 6	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022	786 775 790 796 816 858 922 912 905 880 942 968	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441	1086 1072 1056 1160 1218 1119 1026 986 886 857	570 559 557 608 655 814 802 678 517	239 200 222 224 227 258 276 226 205 243	318 405 647 640 463 791 1133 2372 4280 3328	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574	9 10 11 12 13 14 15 16	2206 2248 2165 2109 2109 2038 2000 2081 2347 2639 3512	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983	2497 2970 2519 2199 2002 1917 1861 1784 1751	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009	1309 1237 1334 1339 1241 1187 1219 1270 1427	588 585 652 802 874 895 937 885 964 1299	681 592 482 447 391 366 403 458 406	284 283 366 389 409 493 529 384 345 329 262	282 297 273 295 295 306 287 295 306 277 234	277 269 258 300 374 493 522 635 769	
1 2 3 4 5 6 7	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022	786 775 790 796 816 858 922 912 905 880 942 968 1281	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377	1086 1072 1056 1160 1218 1119 1026 986 886 857 798	570 559 557 608 655 814 802 678 517 466 420	239 200 222 224 227 258 276 226 205 243 468	318 405 647 640 463 791 1133 2372 4280 3328 4524	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290	3457 6084 9126 16016 12347 7466 4289 3315 2768	4354 8073 7250 4918 3540 3053 2994 2800 3803	9 10 11 12 13 14 15 16 17	2206 2248 2165 2109 2109 2038 2000 2081 2347 2639 3512 3822	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705	2497 2970 2519 2199 2002 1917 1861 1784	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009 1705	1309 1237 1334 1339 1241 1187 1219 1270	588 585 652 802 874 895 937 885 964 1299	681 592 482 447 391 366 403 458	284 283 366 389 409 493 529 384 345 329 262 228	282 297 273 295 295 306 287 295 306 277	277 269 258 300 374 493 522 635 769	
1 2 3 4 5 6 7 3	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022	786 775 790 796 816 858 922 912 905 880 942 968	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203 1890 2154	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441	1086 1072 1056 1160 1218 1119 1026 986 886 857	570 559 557 608 655 814 802 678 517	239 200 222 224 227 258 276 226 205 243	318 405 647 640 463 791 1133 2372 4280 3328	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201	9 10 11 12 13 14 15 16	2206 2248 2165 2109 2109 2038 2000 2081 2347 2639 3512	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983	2497 2970 2519 2199 2002 1917 1861 1784 1751 1748	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009	1309 1237 1334 1339 1241 1187 1219 1270 1427 1421 1285	588 585 652 802 874 895 937 885 964 1299	681 592 482 447 391 366 403 458 406 464 826	284 283 366 389 409 493 529 384 345 329 262	282 297 273 295 295 306 287 295 306 277 234	277 269 258 300 374 493 522 635 769 759 586	
1 2 3 1 5 5 7 3	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022 1010	786 775 790 796 816 858 922 912 905 880 942 968 1281 2020	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110 1686	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203 1890 2154 2433	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377 1189	1086 1072 1056 1160 1218 1119 1026 986 886 857 798 775	570 559 557 608 655 814 802 678 517 466 420 354	239 200 222 224 227 258 276 226 205 243 468 691	318 405 647 640 463 791 1133 2372 4280 3328 4524 12371	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290 1850	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201 8190	9 10 11 12 13 14 15 16 17 18	2206 2248 2165 2109 2109 2038 2000 2081 2347 2639 3512 3822 3337	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753 2725	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705 2594	2497 2970 2519 2199 2002 1917 1861 1784 1751 1748 1776	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009 1705 1867	1309 1237 1334 1339 1241 1187 1219 1270 1427 1421 1285 1210	588 585 652 802 874 895 937 885 964 1299 1286	681 592 482 447 391 366 403 458 406 464 826	284 283 366 389 409 493 529 384 345 329 262 228 236	282 297 273 295 295 306 287 295 306 277 234 232	277 269 258 300 374 493 522 635 769 759 586 503	
1 2 3 4 5 6 7 3 9	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022 1010 1015 944	786 775 790 796 816 858 922 912 905 880 942 968 1281 2020 1602	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110 1686 1445	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203 1890 2154 2433 3384	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377 1189 987	1086 1072 1056 1160 1218 1119 1026 986 886 857 798 775	570 559 557 608 655 814 802 678 517 466 420 354 306	239 200 222 224 227 258 276 226 205 243 468 691 905	318 405 647 640 463 791 1133 2372 4280 3328 4524 12371 17251	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290 1850	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112 1930 1884	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201 8190 6129	9 10 11 12 13 14 15 16 17 18 19 2 0	2206 2248 2165 2109 2109 2038 2000 2081 2347 2639 3512 3822 3337 3066	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753 2725 2917	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705 2594 2532	2497 2970 2519 2199 2002 1917 1861 1778 1776 1748 1776	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009 1705 1867 1858	1309 1237 1334 1339 1241 1187 1219 1270 1427 1427 1421 1285 1210	588 585 652 802 874 895 937 885 964 1299 1286 1602	681 592 482 447 391 366 403 458 406 464 826 905	284 283 366 389 409 493 529 384 345 329 262 228 236 201	282 297 273 295 295 306 287 295 306 277 234 232 240	277 269 258 300 374 493 522 635 769 759 586 503	
1 2 3 3 4 5 6 6 7 8 9 0 1	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022 1010 1015 944 884	786 775 790 796 816 858 922 912 905 880 942 968 1281 2020 1602 1198	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110 1686 1445 1305	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203 1890 2154 2433 3384 2973	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377 1189 987 966	1086 1072 1056 1160 1218 1119 1026 986 886 857 798 775 811	570 559 557 608 655 814 802 678 517 466 420 354 306 343	239 200 222 224 227 258 276 226 205 243 468 691 905 1328	318 405 647 640 463 791 1133 2372 4280 3328 4524 12371 17251 26729	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290 1850 1707	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112 1930 1884	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201 8190 6129 4368	9 10 11 12 13 14 15 16 17 18 19 20 21	2206 2248 2165 2109 209 2038 2000 2081 2347 2639 3512 3822 3337 3066 3160	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753 2725 2917 2995	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705 2594 2532 2583	2497 2970 2519 2199 2002 1917 1861 1784 1751 1748 1776 1740 1718	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009 1705 1867 1858 2081	1309 1237 1334 1339 1241 1187 1219 1270 1427 1421 1285 1210 1192 1083	588 585 652 802 874 895 937 885 964 1299 1286 1602 1239 951	681 592 482 447 391 366 403 458 406 464 826 905 940 1267	284 283 366 389 409 493 529 384 345 329 262 228 236 201 163	282 297 273 295 295 306 287 295 306 277 234 232 240 227 228	277 269 258 300 374 493 522 635 769 759 586 503 441 459	
1 2 3 4 5 6 6 7 8 9 0 1 1 2 3 4	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022 1010 1015 944 884 877 850 847	786 775 790 796 816 858 922 912 905 880 942 968 1281 2020 1198 1044 966 909	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110 1686 1445 1305 1340 1409	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203 1890 2154 2433 3384 2973 2745 2232	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377 1189 987 966 1072 1134 1416	1086 1072 1056 1160 1218 1119 1026 986 886 857 798 775 811 767 736 782	570 559 557 608 655 814 802 678 517 466 420 354 306 343 335 317	239 200 222 224 227 258 276 226 205 243 468 691 905 1328 1282 883 557	318 405 647 640 463 791 1133 2372 4280 3328 4524 12371 17251 26729 27803 17111 8339	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290 1850 1707 1633 1561 1569	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112 1930 1884 1891 1987 2145	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201 8190 6129 4368 3365 3641 4006	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	2206 2248 2165 2109 2109 2038 2000 2081 2347 2639 3512 3822 3337 3066 3160 4444 5193 6728	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753 2725 2917 2995 3274 3210 2949	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705 2594 2532 2583 2771 2665 2509	2497 2970 2519 2199 2002 1917 1861 1784 1751 1748 1776 1740 1718 1697 2207 2574 3873	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009 1705 1867 1858 2081 2124 1919 1587	1309 1237 1334 1339 1241 1187 1219 1270 1427 1421 1285 1210 1192 1083 996 964 927	588 585 652 802 874 895 937 885 964 1299 1286 1602 1239 951 786 784	681 592 482 447 391 366 403 458 406 464 826 905 940 1267 1748 949 648	284 283 366 389 409 493 529 384 345 329 262 228 236 201 163 198 213 402	282 297 273 295 295 306 287 295 306 277 234 232 240 227 228 253 299 311	277 269 258 300 374 493 522 635 769 759 586 503 441 459 481 456 559	
1 2 3 4 5 6 6 7 8 9 0 1 1 2 3 4 4 5 5	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022 1010 1015 944 884 877 850 847	786 775 790 796 816 858 922 912 905 880 942 968 1281 2020 1602 1198 1044 966 909	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110 1686 1445 1305 1340 1409 1615 2189	1594 1715 2029 2810 4988 3806 3769 3616 2914 2203 1890 2154 2433 3384 2973 2745 2232 2014 1916	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377 1189 987 966 1072 1134 1416 1669	1086 1072 1056 1160 1218 1119 1026 986 886 857 798 775 811 767 736 782 733 583	570 559 557 608 655 814 802 678 517 466 420 354 306 343 335 317 354 348	239 200 222 224 227 258 276 226 205 243 468 691 905 1328 1282 883 557 520	318 405 647 640 463 791 1133 2372 4280 3328 4524 12371 17251 26729 27803 17111 8339 5636	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290 1850 1707 1633 1561 1569 1806 2070	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112 1930 1884 1891 1987 2145 2052	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201 8190 6129 4368 3365 3641 4006 5572	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	2206 2248 2165 2109 2109 2038 2000 2081 2347 2639 3512 3822 3337 3066 3160 4444 5193 6728 10491	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753 2725 2917 2995 3274 3210 2949 2627	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705 2594 2532 2583 2771 2665 2509 2397	2497 2970 2519 2199 2002 1917 1861 1784 1751 1748 1776 1740 1718 1697 2207 2574 3873 6977	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009 1705 1867 1858 2081 2124 1919 1587 1495	1309 1237 1334 1339 1241 1187 1219 1270 1427 1421 1285 1210 1192 1083 996 964 927 825	588 585 652 802 874 895 937 885 964 1299 1286 1602 1239 951 786 784 979 1125	681 592 482 447 391 366 403 458 406 464 826 905 940 1267 1748 949 648 571	284 283 366 389 409 493 529 384 345 329 262 228 236 201 163 198 213 402 481	282 297 273 295 295 306 287 295 306 277 234 232 240 227 228 253 299 311 718	277 269 258 300 374 493 522 635 769 759 586 503 441 459 481 456 559 561	
1 2 3 4 5 6 7 8 8 9 0 1 2 3 4 5 6 6 7 6 7 6 6 7 7 7 8 7 8 7 8 7 8 7 8 7	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022 1010 1015 944 884 877 850 847 844	786 775 790 796 816 858 922 912 905 880 942 968 1281 2020 1602 1198 1044 966 909 1129	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110 1686 1445 1305 1340 1409 1615 2189 3013	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203 1890 2154 2433 3384 2973 2745 2232 2014 1916 1701	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377 1189 987 966 1072 1134 1416 1669 1692	1086 1072 1056 1160 1218 1119 1026 986 886 857 798 775 811 767 736 782 733 583	570 559 557 608 655 814 802 678 517 466 420 354 306 343 335 317 354 348 310	239 200 222 224 227 258 276 226 205 243 468 691 905 1328 1282 883 557 520 722	318 405 647 640 463 791 1133 2372 4280 3328 4524 12371 17251 26729 27803 17111 8339 5636 5552	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290 1850 1707 1633 1561 1569 1806 2070 2247	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112 1930 1884 1891 1987 2145 2052 1874	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201 8190 6129 4368 3365 3641 4006 5572 5351	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	2206 2248 2165 2109 2038 2000 2081 2347 2639 3512 3822 3337 3066 3160 4444 5193 6728 10491 7064	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753 2725 2917 2995 3274 3210 2949 2627 2524	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705 2594 2532 2583 2771 2665 2509 2397 2426	2497 2970 2519 2199 2002 1917 1861 1784 1751 1748 1776 1740 1718 1697 2207 2574 3873 6977 4924	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009 1705 1867 1858 2081 2124 1919 1587 1495 1456	1309 1237 1334 1339 1241 1187 1219 1270 1427 1421 1285 1210 1192 1083 996 964 927 825 764	588 585 652 802 874 895 937 885 964 1299 1286 1602 1239 951 786 784 979 1125	681 592 482 447 391 366 403 458 406 464 826 905 940 1267 1748 949 648 571 561	284 283 366 389 409 493 529 384 345 329 262 228 236 201 163 198 213 402 481 639	282 297 273 295 295 306 287 295 306 277 234 232 240 227 228 253 299 311 718	277 269 258 300 374 493 522 635 769 759 586 503 441 459 481 456 559	
1 2 3 4 5 6 6 7 8 9 9 0 1 2 3 4 2 5 6 6 7 7	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022 1010 1015 944 884 877 850 847 844	786 775 790 796 816 858 922 912 905 880 942 968 1281 2020 1602 1198 1044 966 909 1129	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110 1686 1445 1305 1340 1449 1615 2189 3013	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203 1890 2154 2433 3384 2973 2745 2232 2014 1916 1701 1366	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377 1189 987 966 1072 1134 1416 1669 1692 1687	1086 1072 1056 1160 1218 1119 1026 986 886 857 798 775 811 767 736 782 733 583 558	570 559 557 608 655 814 802 678 517 466 420 354 306 343 335 317 354 348 310 325	239 200 222 224 227 258 276 226 205 243 468 691 905 1328 1282 883 557 520 722 788	318 405 647 640 463 791 1133 2372 4280 3328 4524 12371 17251 26729 27803 17111 8339 5636 5552 5972	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290 1850 1707 1633 1561 1569 1806 2070 2247 3083	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112 1930 1884 1891 1987 2145 2052 1874	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201 8190 6129 4368 3365 3641 4006 5572 5351 4313	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	2206 2248 2165 2109 2038 2000 2081 2347 2639 3512 3822 3337 3066 3160 4444 5193 6728 10491 7064 5108	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753 2725 2917 2995 3274 3210 2949 2627 2524 2485	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705 2594 2532 2583 2771 2665 2509 2397 2426	2497 2970 2519 2199 2002 1917 1861 1784 1751 1748 1776 1740 1718 1697 2207 2574 3873 6977 4924 3171	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009 1705 1867 1858 2081 2124 1919 1587 1495 1494	1309 1237 1334 1339 1241 1187 1219 1270 1427 1421 1285 1210 1192 1083 996 964 927 825 764 767	588 585 652 802 874 895 937 885 964 1299 1286 1602 1239 951 786 784 979 1125 1242	681 592 482 447 391 366 403 458 406 464 826 905 940 1267 1748 949 648 571 561 650	284 283 366 389 409 493 529 384 345 329 262 228 236 201 163 198 213 402 481 639 903	282 297 273 295 295 306 287 295 306 277 234 232 240 227 228 253 299 311 718 987	277 269 258 300 374 493 522 635 769 759 586 503 441 459 481 456 559 561 559	
1 2 3 4 15 6 7 8 8 9 0 1 1 2 3 4 4 5 6 7 8 8 9 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022 1010 10 15 944 884 877 850 847 844 842 844	786 775 790 796 816 858 922 912 905 880 942 968 1281 2020 1602 1198 1044 966 909 1129	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110 1686 1445 1305 1340 1409 1615 2189 3013 3993 4948	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203 1890 2154 2433 3384 2973 2745 2232 2014 1916 1701 1366 1232	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377 1189 987 966 1072 1134 1416 1669 1692 1687 1627	1086 1072 1056 1160 12 18 1119 1026 986 886 857 798 775 811 767 736 782 733 583 558 512 457	570 559 557 608 655 814 802 678 517 466 420 354 306 343 335 317 354 348 310 325 418	239 200 222 224 227 258 276 226 205 243 468 691 905 1328 1282 883 557 520 722 788 1136	318 405 647 640 463 791 1133 2372 4280 3328 4524 12371 17251 26729 27803 17111 8339 5636 5552 5972 4570	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290 1850 1707 1633 1561 1569 1806 2070 2247 3083 4970	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112 1930 1884 1891 1987 2145 2052 1874 1705	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201 8190 6129 4368 3365 3641 4006 5572 5351 4313 3240	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	2206 2248 2165 2109 2038 2000 2081 2347 2639 3512 3822 3337 3066 3160 4444 5193 6728 10491 7064 5108	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753 2725 2917 2995 3274 3210 2949 2627 2524	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705 2594 2532 2583 2771 2665 2509 2397 2426 2357 2341	2497 2970 2519 2199 2002 1917 1861 1784 1751 1748 1776 1740 1718 1697 2207 2574 3873 6977 4924 3171 2424	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009 1705 1867 1858 2081 2124 1919 1587 1495 1456 1494 1717	1309 1237 1334 1339 1241 1187 1219 1270 1427 1421 1285 1210 1192 1083 996 964 927 825 764 767 809	588 585 652 802 874 895 937 885 964 1299 1286 1602 1239 951 786 784 979 1125 1242 1328 1164	681 592 482 447 391 366 403 458 406 464 826 905 940 1267 1748 949 648 571 561 650 564	284 283 366 389 409 493 529 384 345 329 262 228 236 201 163 198 213 402 481 639 903	282 297 273 295 295 306 287 295 306 277 234 232 240 227 228 253 299 311 718 987 1426 1818	277 269 258 300 374 493 522 635 769 759 586 503 441 459 481 456 559 561 559	
6 7 3 9 0 1 1 2 3 4 4 5 6 6 7 8 9 0 1 1 2 3 4 4 5 6 6 7 8 8 9 9 0 1 1 1 2 8 8 9 9 0 0 1 1 8 8 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022 1010 1015 944 884 877 850 847 844 842 844 862 952	786 775 790 796 816 858 922 912 905 880 942 968 1281 2020 1602 1198 1044 966 909 1129	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110 1686 1445 1305 1340 1409 1615 2189 3013 3993 4948	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203 1890 2154 2433 3384 2973 2745 2232 2014 1916 1701 1366 1232 1331	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377 1189 987 966 1072 1134 1416 1669 1692 1687 1627	1086 1072 1056 1160 1218 1119 1026 986 886 857 798 775 811 767 736 782 733 583 558 512 457	570 559 557 608 655 814 802 678 517 466 420 354 306 343 335 317 354 348 310 325 418	239 200 222 224 227 258 276 226 205 243 468 691 905 1328 1282 883 557 520 722 788 1136 1449	318 405 647 640 463 791 1133 2372 4280 3328 4524 12371 17251 26729 27803 17111 8339 5636 5552 5972 4570 2850	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290 1850 1707 1633 1561 1569 1806 2070 2247 3083 4970 3684	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112 1930 1884 1891 1987 2145 2052 1874 1705 1617	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201 8190 6129 4368 3365 3641 4006 5572 5351 4313 3240 2823	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	2206 2248 2165 2109 209 2038 2000 2081 2347 2639 3512 3822 3337 3066 3160 4444 5193 6728 10491 7064 5108 3766 3289	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753 2725 2917 2995 3274 3210 2949 2627 2524 2485	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705 2594 2532 2583 2771 2665 2509 2397 2426 2357 2341 2410	2497 2970 2619 2199 2002 1917 1861 1784 1751 1748 1776 1718 1697 2207 2574 3873 6977 4924 3171 2424 2100	1808 1663 1652 1698 1730 1686 1686 1685 1890 2543 2009 1705 1867 1858 2081 2124 1919 1587 1495 1495 1494 1717 1729	1309 1237 1334 1339 1241 1187 1219 1270 1427 1421 1285 1210 1192 1083 996 964 927 825 764 767 809 1000	588 585 652 802 874 895 937 885 964 1299 1286 1602 1239 951 786 784 979 1125 1242 1328 1164 794	681 592 482 447 391 366 403 458 406 464 826 905 940 1267 1748 949 648 571 561 650 564 473	284 283 366 389 409 493 529 384 345 329 262 228 236 201 163 198 213 402 481 639 903 965 632	282 297 273 295 295 306 287 295 306 277 234 232 240 227 228 253 299 311 718 987 1426 1818	277 269 258 300 374 493 522 635 769 759 586 503 441 459 481 456 559 561 559 593 874	
1 2 3 3 4 5 6 7 3 3 3 4 4 5 6 7 7 8 9	14883 8870 5152 3406 2987 2451 1928 1520 1311 1162 1022 1010 10 15 944 884 877 850 847 844 842 844	786 775 790 796 816 858 922 912 905 880 942 968 1281 2020 1602 1198 1044 966 909 1129	1270 1203 1135 1061 1060 1093 1530 2069 3375 3813 2966 2110 1686 1445 1305 1340 1409 1615 2189 3013 3993 4948	1594 1715 2029 2810 4988 3806 3769 3516 2914 2203 1890 2154 2433 3384 2973 2745 2232 2014 1916 1701 1366 1232	4287 3445 2725 2028 1661 1427 1274 1283 1395 1406 1441 1377 1189 987 966 1072 1134 1416 1669 1692 1687 1627	1086 1072 1056 1160 12 18 1119 1026 986 886 857 798 775 811 767 736 782 733 583 558 512 457	570 559 557 608 655 814 802 678 517 466 420 354 306 343 335 317 354 348 310 325 418	239 200 222 224 227 258 276 226 205 243 468 691 905 1328 1282 883 557 520 722 788 1136	318 405 647 640 463 791 1133 2372 4280 3328 4524 12371 17251 26729 27803 17111 8339 5636 5552 5972 4570	2996 2255 3599 4777 8388 9831 7953 5767 4169 2994 2290 1850 1707 1633 1561 1569 1806 2070 2247 3083 4970	3457 6084 9126 16016 12347 7466 4289 3315 2768 2378 2112 1930 1884 1891 1987 2145 2052 1874 1705	4354 8073 7250 4918 3540 3053 2994 2800 3803 4574 6201 8190 6129 4368 3365 3641 4006 5572 5351 4313 3240	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	2206 2248 2165 2109 2038 2000 2081 2347 2639 3512 3822 3337 3066 3160 4444 5193 6728 10491 7064 5108	5760 4331 4006 3590 3341 3196 3042 2986 2935 2766 2753 2725 2917 2995 3274 3210 2949 2627 2524 2485	4131 5482 7276 9295 8156 6869 4812 3818 3279 2983 2705 2594 2532 2583 2771 2665 2509 2397 2426 2357 2341	2497 2970 2519 2199 2002 1917 1861 1784 1751 1748 1776 1740 1718 1697 2207 2574 3873 6977 4924 3171 2424	1808 1663 1652 1698 1730 1686 1665 1890 2543 2009 1705 1867 1858 2081 2124 1919 1587 1495 1456 1494 1717	1309 1237 1334 1339 1241 1187 1219 1270 1427 1421 1285 1210 1192 1083 996 964 927 825 764 767 809	588 585 652 802 874 895 937 885 964 1299 1286 1602 1239 951 786 784 979 1125 1242 1328 1164	681 592 482 447 391 366 403 458 406 464 826 905 940 1267 1748 949 648 571 561 650 564	284 283 366 389 409 493 529 384 345 329 262 228 236 201 163 198 213 402 481 639 903	282 297 273 295 295 306 287 295 306 277 234 232 240 227 228 253 299 311 718 987 1426 1818	277 269 258 300 374 493 522 635 769 759 586 503 441 459 481 456 559 561 559	

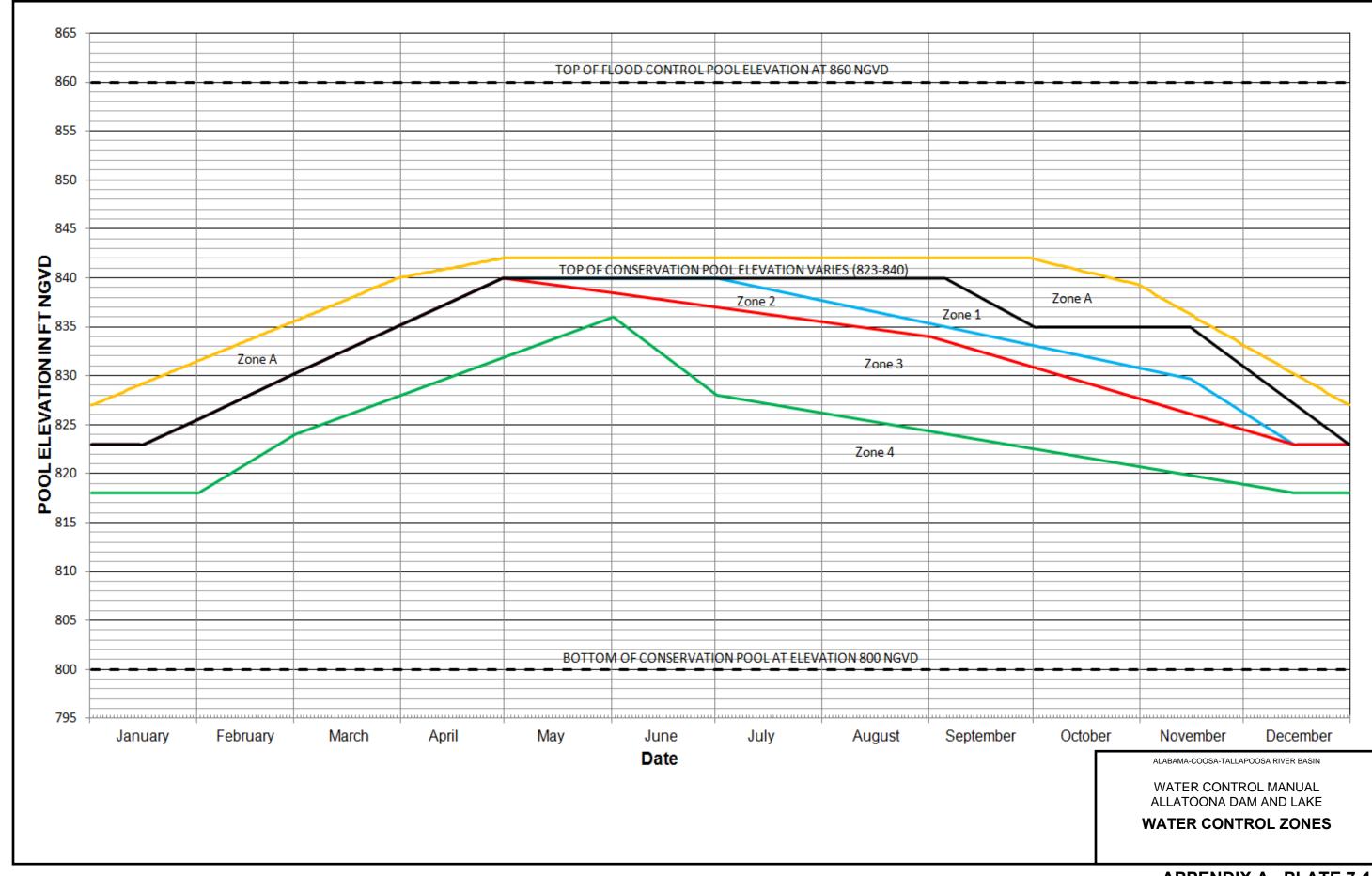
ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

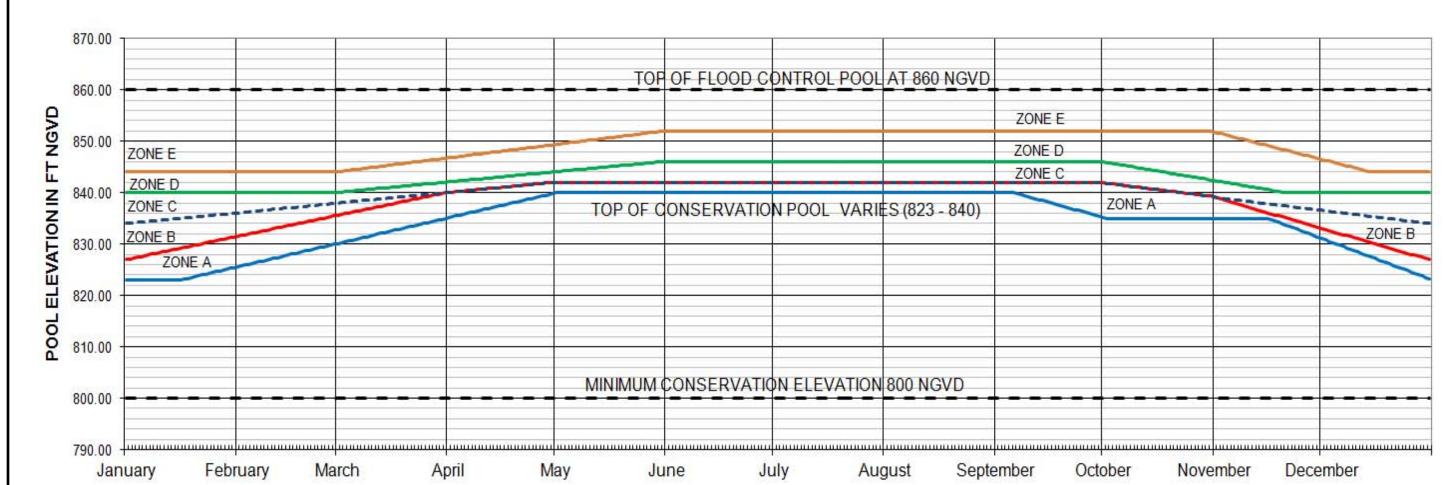
						20	11												20	12					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1387	1975	1778	2432	1539	598	365	4 18	46	190	287	962	1	10 17	1287	2129	1592	685	581	183	283	326	1251	173	242
2	2242	3742	1634	2038	14 17	523	484	551	90	169	354	742	2	927	14 19	2796	1290	671	586	269	435	318	3125	242	237
3	1870	3549	1343	2182	13 18	510	526	523	519	188	457	620	3	778	1438	4522	1180	656	667	296	433	313	2126	235	248
4	1270	3335	1365	2456	1247	496	564	572	689	161	544	657	4	710	1357	4613	1242	750	781	348	443	366	10 13	344	240
5	922	3721	1654	3573	1210	472	706	558	901	155	591	846	5	730	14 15	3226	1119	9 18	845	370	552	393	730	409	203
6	830	2908	2732	3133	1125	450	675	503	1372	138	453	1031	6	772	1486	1929	1052	1004	794	365	483	364	557	468	269
7	883	2045	4805	2509	1083	420	496	323	1248	126	361	16 19	7	824	1342	1664	1036	1459	667	266	398	305	450	502	315
8	851	1531	5033	1922	1048	4 17	439	385	693	154	317	1890	8	1030	1205	1688	949	1595	687	291	427	265	397	470	400
9	843	1240	7603	1717	1037	474	425	347	463	220	343	1332	9	1352	1157	2060	870	1118	782	338	616	240	369	343	491
10	951	1177	10319	1638	964	519	304	283	384	231	339	814	10	1480	1125	2274	854	835	904	472	743	238	307	298	585
11	965	1081	6566	1605	924	486	239	235	304	303	327	547	11	1584	1059	1869	830	1281	1067	748	939	226	309	305	735
12	839	944	3871	1575	889	482	204	206	255	360	318	437	12	1932	1002	1609	778	1435	1143	1103	745	216	278	340	712
13	776	912	2884	1756	914	684	212	181	214	367	307	297	13	1688	965	1544	740	2170	922	1487	635	231	276	330	494
14	770	902	2437	2347	971	764	217	211	234	300	551	322	14	13 17	991	1610	751	3467	709	1366	425	230	288	342	493
15	743	822	2631	2848	961	836	258	221	183	299	719	446	15	1140	984	1492	766	2575	602	988	4 14	239	313	340	538
16	748	789	2709	4442	926	975	280	233	191	254	1027	511	16	1116	1059	1557	1205	1384	496	815	367	351	273	270	609
17	775	837	2236	4079	876	994	292	191	182	318	1473	591	17	1267	1158	1556	14 10	1091	442	687	321	420	315	247	802
18	815	825	1742	2963	803	743	338	205	183	358	1112	679	18	1991	1190	1553	1970	1211	422	672	306	545	319	282	1167
19	868	767	1494	2110	765	595	468	218	141	407	663	633	19	2132	1180	14 19	2130	1110	395	735	377	705	303	263	1173
20	863	759	1325	1992	748	582	611	303	228	531	594	787	20	2148	1221	1334	1702	989	383	801	372	556	275	252	1732
21	803	758	1256	2065	700	811	690	268	314	455	645	1263	21	3171	1101	1404	1153	884	429	724	306	365	283	262	3273
22	753	713	1208	2026	693	10 10	664	275	777	295	733	1898	22	3876	1049	1355	1119	834	412	692	243	291	228	289	1889
23	774	764	1119	1931	673	1605	618	233	2005	249	957	3267	23	3838	1159	1484	1026	869	403	547	232	216	210	3 13	1347
24	784	831	1367	1855	753	1929	596	202	997	265	982	2781	24	4147	1107	1536	855	764	400	380	222	213	222	257	1877
25	872	850	1789	1724	810	1283	670	133	613	222	743	2235	25	3 154	10 17	1402	767	663	387	317	253	201	238	250	2743
26	1006	1090	2891	2054	990	831	641	111	425	249	821	1892	26	2438	960	1167	757	631	329	290	309	183	228	280	4040
27	1112	1355	4414	2046	1454	686	528	119	362	302	848	2144	27	2482	952	1098	762	582	278	304	297	173	308	250	3719
28	974	1435	4743	2800	1369	558	403	125	316	302	1103	2484	28	2190	985	1069	745	608	244	320	314	297	238	225	2672
29	906		4441	2445	956	462	348	79	260	297	1882	1846	29	1741	1087	1062	740	559	252	276	352	487	253	276	1861
30	1001		3932	1808	770	452	372	64	191	341	1554	1398	30	1403		1088	703	593	194	271	371	593	238	285	1516
31	1428		3193		652		433	59		300		1116	31	1339		14 13		612		232	309		218		985

ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE



CORPS OF ENGINEERS
U. S. ARMY



Flood Regulations Above Top of Conservation Pool

Zone E - Only minimum continuous release will ordinarily be made while Rome stage (USGS gauge 02388525) is above or expected to rise above 28 ft (moderate flood stage). However, if inflows are predicted to exceed flood control space before Rome has crested, powerhouse releases which are less than inflow may be made until either the stage at Rome has peaked or greater (surcharge) releases are required. Assuming that surcharge releases do not govern, after Rome has crested, peaking power will be made if the releases do not reverse the falling trend at Rome. Increasing releases will be made as the stage at Rome drops below 28 ft. Releases of channel capacity (about 9,500) cfs will be made whenever such a release does not reverse the falling trend at Rome. Surcharge Releases: Infrequently inflows into Allatoona will be of such magnitude that the stage at Rome does not govern the operation of Allatoona but rather the structural stability of the dam will govern. Whenever this happens, surcharge releases will be made. Figure 7-1 shows the relationship of the last 3-hour Allatoona inflow and the current pool elevation and also indicates the required release strategy. If a surcharge release is required then Plate 7-3 defines the required release (see also para. 7-05.a. and Table 7-4). This surcharge requirement is pertinent in Zones B, C, D, and E as a function of pool elevation and last 3-hour inflow.

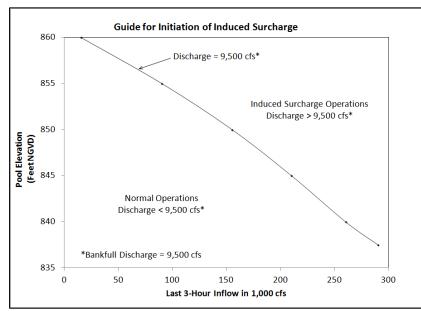
Zone D - Only minimum continuous release will ordinarily be made while Rome stage is above or expected to rise above 28 ft. However, if inflows are predicted to exceed flood control space before Rome has crested, powerhouse releases which are less than inflow may be made until either the stage at Rome has peaked or greater (surcharge) releases are required (see Flood Zone E). Once Rome has fallen below 28 ft, up to full channel capacity (about 9,500 cfs) will be discharged. The release of powerhouse capabilities (about 6,500 cfs) may follow if consideration of downstream conditions and expected weather conditions make this prudent.

Zone C - Only minimum continuous release will ordinarily be made while Rome stage is above or expected to rise above 28 ft. However, if inflows are predicted to exceed flood control space before Rome has crested, powerhouse releases which are less than inflow may be made until either the stage at Rome has peaked or greater (surcharge) releases are required (see Flood Zone E). After Rome has receded below 25 ft (flood stage), releases will be up to channel capacity (about 9,500 cfs). Generally, releases will be at turbine capacity (about 6,500 cfs). Scheduled peak power releases of less than 6,500 dsf/day may be used if the scheduled releases sufficiently lower the pool in light of expected weather conditions.

Zone B - Only minimum continuous release will ordinarily be made while Rome stage is above or expected to rise above 25 ft. However, if inflows are predicted to exceed flood control space before Rome has crested, powerhouse releases which are less than inflow and do not violate the Rome 25 foot stage may be made until either the stage a Rome has peaked or greater (surcharge) releases are required (see Flood Zone E) to protect the structure. Floodwaters will be evacuated by regular scheduled hydropower releases which do not violate bankfull flows.

Normally, the schedule will be to remove the floodwater within two weeks. A faster evacuation may be scheduled if additional rainfall is expected in the next several days.

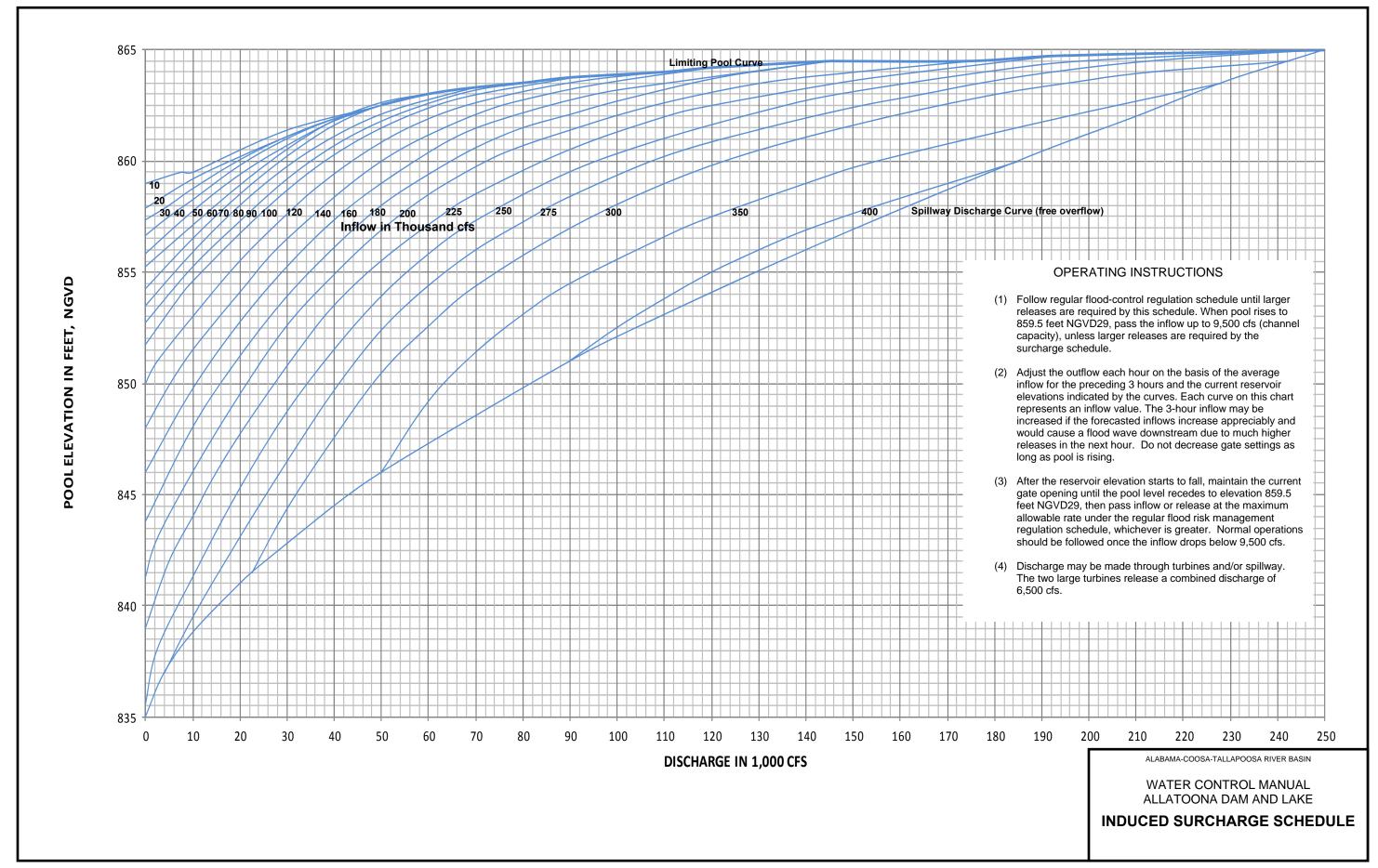
Zone A - This zone has the least urgency for being evacuated. During the winter/spring refill and summer months the pool may be allowed to rise to the top of Zone A on the weekends without releases above the minimum 240 cfs. During the fall step down period the pool may be held at the top of Zone A indefinitely if all project purposes are being met. Only minimum continuous releases will ordinarily be made while Rome stage is above or expected to rise above 25 feet.



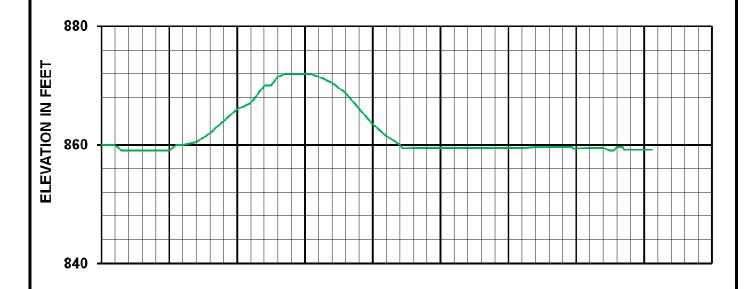
ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

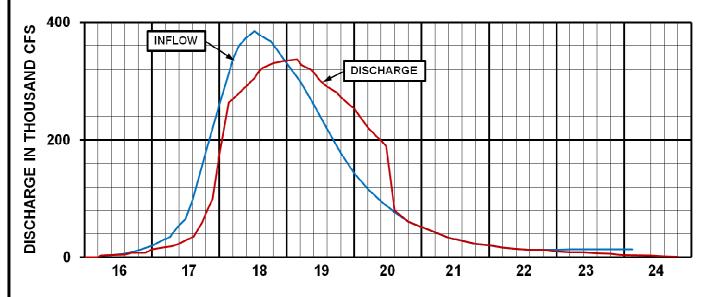
WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

FLOOD REGULATION ABOVE CONSERVATION POOL



FLOW, DISCHARGE, AND POOL FOR MAX PROBABLE FLOOD (SPILLWAY DESIGN FLOOD)



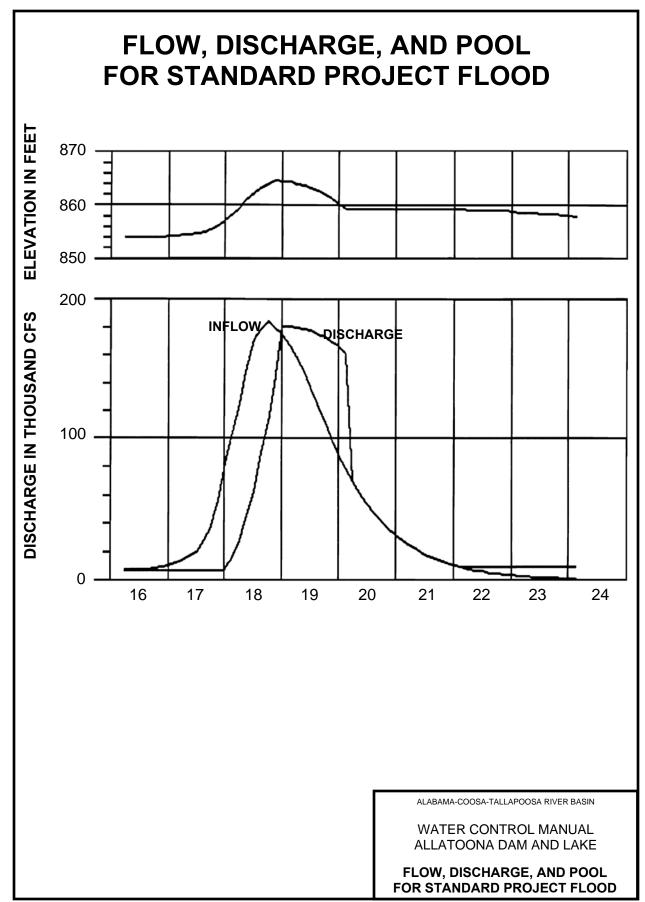


ALABAMA-COOSA-TALLAPOOSA RIVER BASIN

WATER CONTROL MANUAL ALLATOONA DAM AND LAKE

FLOW, DISCHARGE, AND POOL FOR MAX PROBABLE FLOOD

CORPS OF ENGINEERS U. S. ARMY



CORPS OF ENGINEERS

U. S. ARMY

