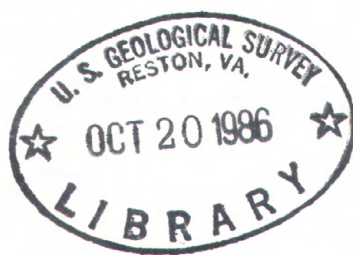


# Water Resources Data Virginia Water Year 1985



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-85-1  
Prepared in cooperation with the State of Virginia  
and with other agencies



# CALENDAR FOR WATER YEAR 1985

1984

O C T O B E R							N O V E M B E R							D E C E M B E R						
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# Water Resources Data Virginia Water Year 1985

by Byron J. Prugh, Jr., Fred J. Easton, and Dennis D. Lynch



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-85-1  
Prepared in cooperation with the State of Virginia  
and with other agencies



UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in Virginia write to

Office Chief, Water Resources Division  
U.S. Geological Survey  
3600 West Broad Street, Room 606  
Richmond, Virginia 23230

or

Virginia Water Control Board  
Suite 210, 1936 Arlington Blvd.  
Charlottesville, Virginia 22903

1986



## PREFACE

The annual hydrologic data report of Virginia is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey and the Virginia Water Control Board who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following offices contributed significantly to the preparation and completion of this report:

U.S. Geological Survey, Richmond, VA  
U.S. Geological Survey, Marion, VA  
U.S. Geological Survey, Charlottesville, VA  
Virginia Water Control Board, Charlottesville, VA

This report was prepared in cooperation with the State of Virginia and with other agencies under the general supervision of Herbert J. Freiburger, Chief of the Mid-Atlantic District, and Gary S. Anderson, Chief, Virginia Office.







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## WATER RESOURCES DATA - VIRGINIA, 1985

### INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of Virginia each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Virginia."

This report series includes records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This volume contains records for water discharge at 190 gaging stations; stage only at 1 gaging station; stage and contents at 10 lakes and reservoirs; water quality at 41 gaging stations and 1 well; and water levels at 58 observation wells. Also included are data for 78 crest-stage partial-record stations. Locations of these sites are shown on figures 6 and 7. Additional water data were collected at various sites not involved in the systematic data-collection program, such as, discharge-measurement data collected at 53 low-flow partial-record stations, and miscellaneous hydrologic data collected at 97 measuring sites and 12 water-quality sampling sites. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

This series of annual reports for Virginia began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Virginia were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 6A and 6B." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Books and Open-File Reports, Federal Center, Bldg. 41, Box 25425, Denver, CO 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report VA-85-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the Office Chief at the address given on the back of the title page or by telephone (804) 771-2427.

### COOPERATION

The U.S. Geological Survey and agencies of the State of Virginia have had cooperative agreements for the collection of water-resource records since 1930. Organizations that assisted in collecting the data in this report through cooperative agreement with the Survey are:

Virginia Water Control Board, Richard N. Burton, executive director.  
Virginia Department of Highways and Transportation, Harold C. King, commissioner.  
City of Alexandria, Douglas Harman, city manager.  
City of Newport News, C. C. Crowder, director, Department of Public Utilities.  
City of Roanoke, Kit B. Kiser, director, Utilities and Operations.  
Southeastern Public Service Authority, Durwood S. Curling, executive director.  
James City County, Wayland Bass, director, Department of Public Works.  
University of Virginia, Dr. James N. Galloway.  
Northern Virginia Planning District Commission, John W. Epling, executive director.

Assistance with funds or services was given by the U.S. Army Corps of Engineers in collecting records for 60 gaging stations and 4 water-quality stations throughout the State, and by the National Park Service in collecting records for 4 gaging stations and 13 water-quality stations in the Prince William Forest project.

Under a cooperative agreement covering the Tennessee River basin, the Tennessee Valley Authority provided financial assistance for the operation of 5 gaging stations, the records for which are published herein. Assistance was also provided by the Water Quality Office, Environmental Protection Agency. Agencies that aided in collecting records are the Appalachian Power Company, Virginia Power, City of Danville, and City of Radford.

Organizations that provided data are acknowledged in station descriptions.

#### RECORDS COLLECTED BY THE STATE OF VIRGINIA

In addition to data collected by the U.S. Geological Survey, there are included herein records for 98 gaging stations and 19 index wells operated by the Virginia Water Control Board. These records are published as provided and are acknowledged in the "COOPERATION" paragraph of each individual station. The Virginia Water Control Board is under the direction of Richard N. Burton, executive director. Published material for the gaging-station records and the ground-water wells is supplied, respectively, through the Division of Water Resources Planning and Management, William L. Woodfin, Jr., director of operations.

#### SUMMARY OF HYDROLOGIC CONDITIONS

Streamflows in Virginia were consistently below average for most of the 1985 water year. Flows for the year averaged less than 80 percent of normal in much of the State and less than 60 percent of normal in most of the northern and eastern Piedmont, the Coastal Plain, and the Eastern Shore (figure 1). Below-normal flows prevailed throughout the year. For the ten-month period October 1984 through July 1985, only one month--February--had above-normal streamflows (figure 2).

Beginning in October, average flows were below normal across most of the State except in the central Piedmont, along the South Fork Shenandoah River, and in the Big Sandy River basin. Some of the lowest flows for the year for streams in the Tennessee and Big Sandy River basins occurred in October before runoff, during the last week of the month, caused stream levels to rise slightly.

Streamflows in November were near normal in the northern and western part of the State but were below normal in the eastern part and along the Virginia-North Carolina State line.

In December, the area of the State with below-normal flows increased to include the Big Sandy, Tennessee, and New River basins in the southwest. Flows were near normal along the Shenandoah River and in the upper James River basin.

By January, the entire State was experiencing below-average streamflows except for a small area in the Chowan River basin in the southeast. Annual low flows were established for a number of streams in the upper New River and upper Roanoke River basins during January.

Due to runoff from three storms, streamflows for February were above average throughout most of the State for the first time in 5 months. In the Shenandoah River basin, flows were in the upper 25 percent of historical monthly flows for the month. Annual peak flows were recorded for most streams west of the Blue Ridge and in the northern part of the State during February. Snowmelt runoff contributed to the high flows in the western parts of the State.

By March, streamflows had dropped to below normal again and were in the lower 25 percent of historical monthly flows for March. New record low monthly flows were set in the Dan River basin. Many streams east of the Blue Ridge observed the second lowest flows of record for March, exceeded only by those observed during major droughts in the 1930's and early 1980's.

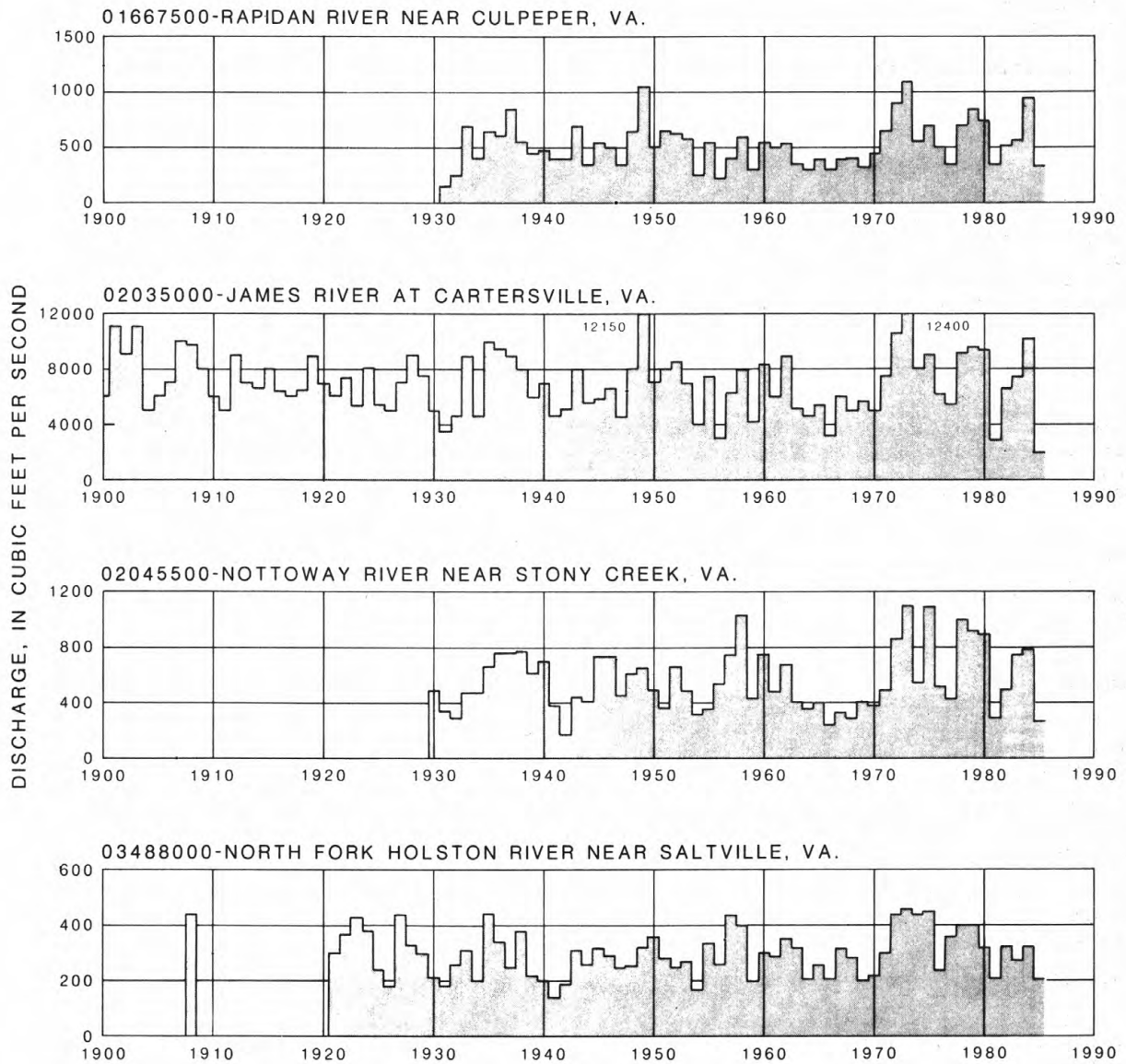


Figure 1.-- Annual mean discharge at selected gaging stations.



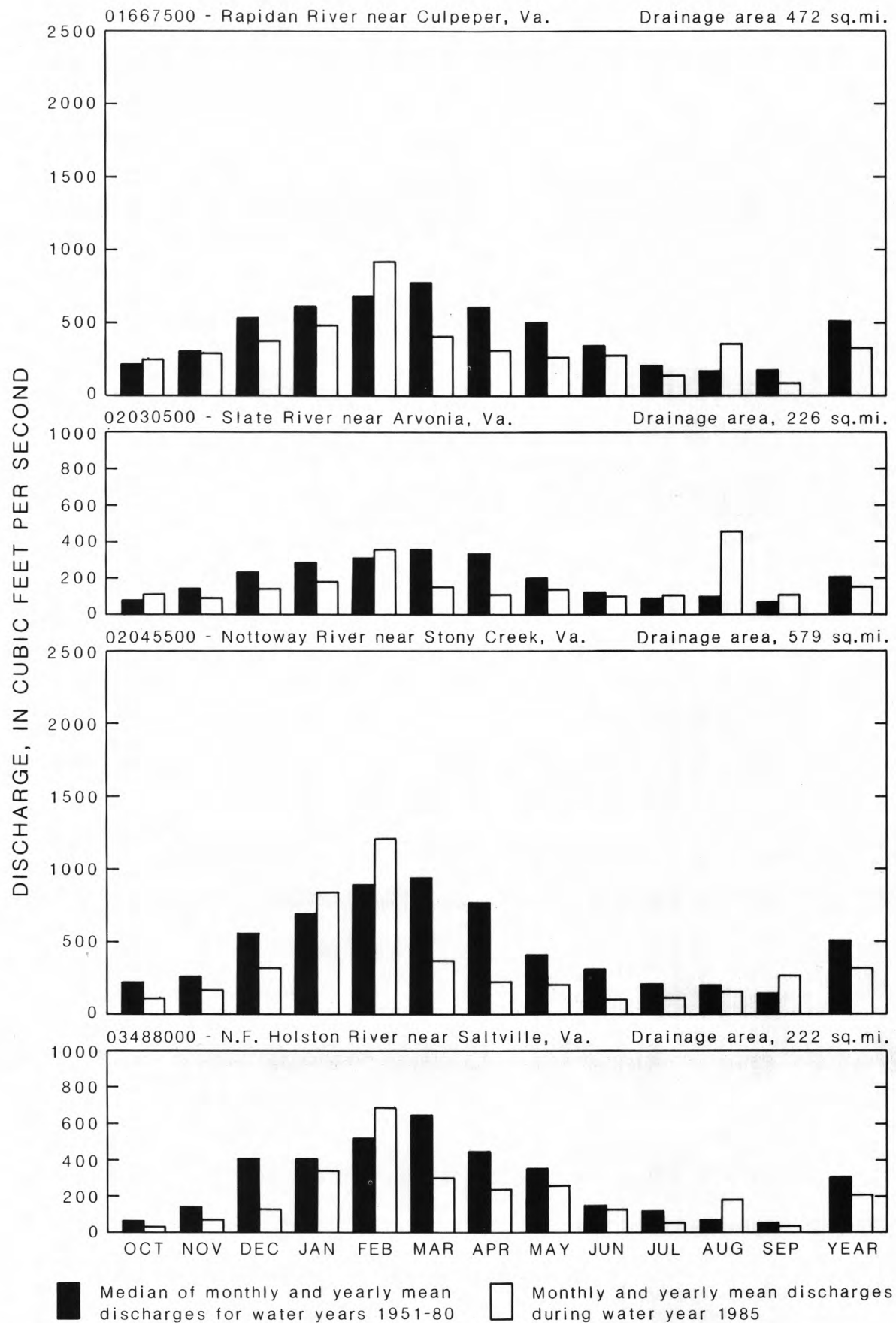


Figure 2.-- Discharge during 1985 water year compared with median discharge for period 1951-80 for four representative gaging stations.

<u>Gaging Station</u>	<u>Basin</u>	<u>Mean flow March 1985 (cfs)</u>	<u>Rank</u>	<u>Year record low occurred</u>	<u>Length of record (years)</u>
Dan River at Danville, Va.	Roanoke	1,240	1	1985	51
New River at Allisonia, Va.	New	2,285	2	1931	56
Rappahannock River at Remington, Va.	Rappahannock	460	2	1981	43
Slate River near Arvonnia, Va.	James	138	2	1981	59

April had no significant rainfall and most flows were in the lower 25 percent of historical monthly flows for the month. New record low monthly flows were again established for streams in the Dan River basin. Many streams in southern and eastern Virginia had the second lowest flows on record for April, exceeded only by those resulting from droughts in 1942, 1966, and 1981.

<u>Gaging Station</u>	<u>Basin</u>	<u>Mean flow April 1985 (cfs)</u>	<u>Rank</u>	<u>Year record low occurred</u>	<u>Length of record (years)</u>
Dan River at Danville, Va.	Roanoke	1,070	1	1985	51
New River at Allisonia, Va.	New	2,140	2	1942	56
Russell Fork near Haysi, Va.	Big Sandy	190	3	1942	59
Rappahannock River at Remington, Va.	Rappahannock	324	2	1981	43
Nottoway River near Sebrell, Va.	Chowan	473	2	1966	44

Streamflows in the Shenandoah Valley, upper James River basin, and along the eastern slopes of the Blue Ridge increased slightly in May, moving out of the lower quartile of monthly flows, but still below average for the month.

No significant rainfall occurred during June throughout most of the State. Flows in the lower Shenandoah River basin were above average for the first time since February, but in the remainder of the State, they were below normal for the fourth consecutive month. Flows in the southern Piedmont were the lowest for the month of June since 1964.

The dry conditions continued into July with most of the streams in the central, southern, and eastern parts of the State recording their lowest flows for the year. Streamflows in the upper James River, South Fork Shenandoah River, and Big Sandy River basins were slightly above average for the month. In the New and Tennessee River basins, however, flows for July were the lowest in 15 years.

A strong reversal in flow trends occurred in August in most of the State, except in a narrow band along the Virginia-Maryland State line when above-normal flows occurred because of heavy rains associated with Hurricane Danny. On the Piedmont, flows in tributaries to the James, Dan, and Roanoke Rivers were the highest for August since 1955. The average monthly flow in the James River was the highest since Hurricane Camille in 1969. In contrast, flows in the upper Rappahannock River basin averaged 75 percent below normal and were the lowest for August since 1966. Maximum annual peak flows of streams in the central and southern parts of the State occurred during August in response to Hurricane Danny. Just prior to the passage of Hurricane Danny, annual minimum flows occurred in streams in the central part of the State.

Flows decreased during September, except in southeastern Virginia where heavy rains associated with Hurricane Gloria raised streamflows to their highest levels since 1979. Flows in the southwest returned to below-normal conditions and reached their lowest levels for September since 1969. Annual minimum flows for most streams in northern and southeastern Virginia were observed before the arrival of Hurricane Gloria. Streams in the southeast increased from annual lows to annual highs as Gloria passed through.

In summary, streamflows during the 1985 water year in Virginia were characterized by below-normal flows interrupted occasionally by runoff from tropical storms. The following table shows annual flow conditions at six representative sites across the State:

<u>Gaging Station</u>	<u>Part of State</u>	<u>Annual mean flow for 1985 (cfs)</u>	<u>Percent of median annual flow</u>	<u>Length of record (years)</u>
S.F. Shenandoah River at Front Royal, Va.	Northwestern	1,120	78	62
Rapidan River near Culpeper, Va.	Northeastern	340	66	55
Slate River near Arvonnia, Va.	Central	162	73	59
James River at Buchanan, Va.	Western	1,990	81	87
N.F. Holston River near Saltville, Va.	Southwestern	195	65	66
Nottoway River near Stony Creek, Va.	Southeastern	316	63	56

Ground-water levels at the beginning of the 1985 water year were several feet above normal in shallow index wells in central and northern Virginia. In northern Virginia, the normal seasonal variation in water levels was superimposed on a downward trend, and by the end of the water year, water levels were about 1 foot below normal for that time of year. In central Virginia, a downward trend at the Tyler well was reversed by infiltration from heavy rainfall, especially that associated with Hurricane Danny in August (figure 3). Water levels in the Matoaka Manor well, on the southern Piedmont at Colonial Heights, did not show any significant recharge from either Hurricane Danny in August or Hurricane Gloria in September. Water levels in this well were 1 to 2 feet below normal for the entire water year (figure 3). No new record highs or lows were established in the shallow index wells during the 1985 water year.

Dissolved-solids concentrations at most surface-water stations were above normal in the 1985 water year due to below-normal flows. Specific conductance, an indicator of dissolved-solids concentration, was greater than the mean for the previous 10 years at three of the four index stations shown in the table below. Specific conductance was near normal at the fourth index station, James River at Buchanan.

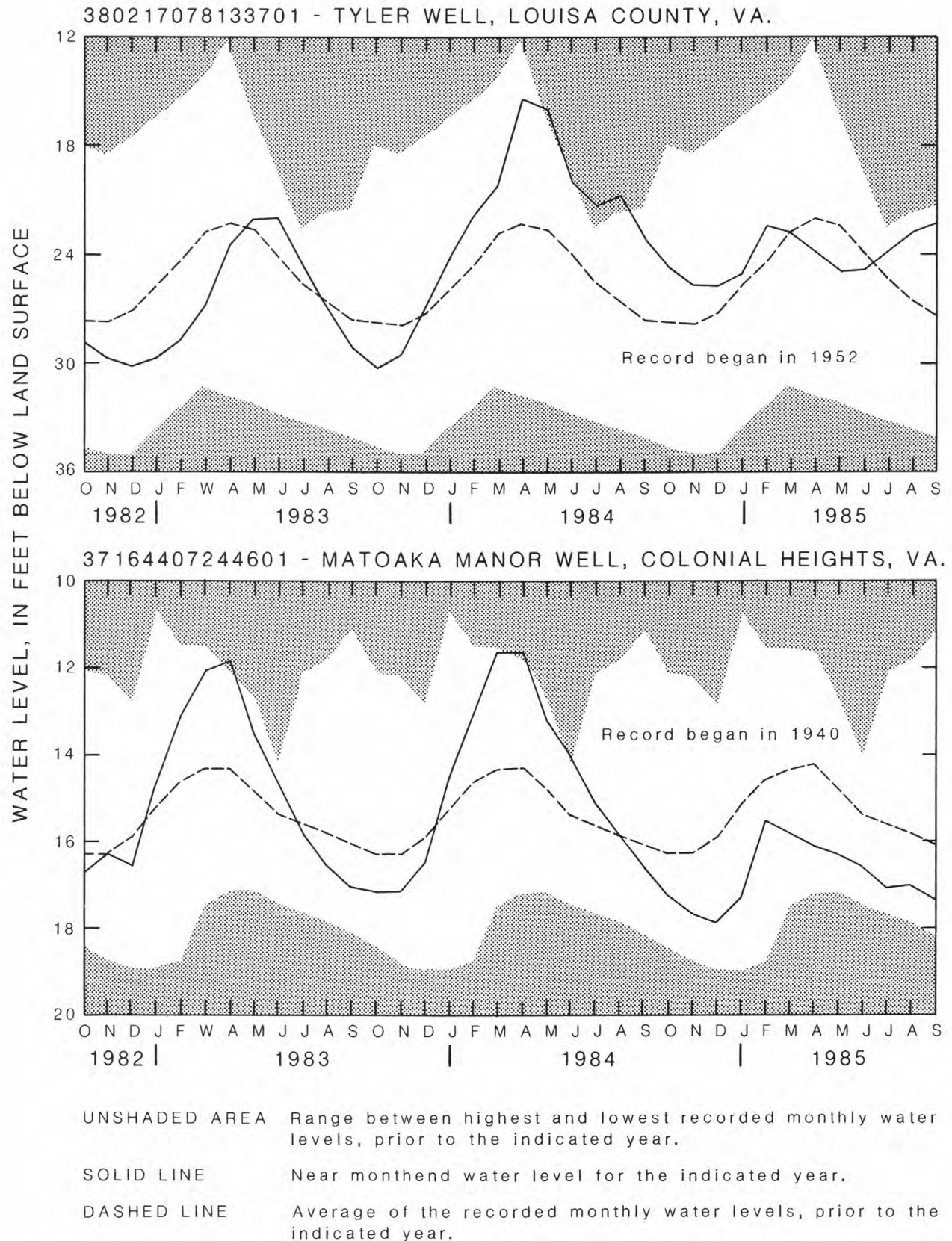


Figure 3.-- Monthly ground-water levels at key observation wells.



Gaging station	Mean discharge (cfs)		Annual suspended- sediment load (tons)		Mean specific conductance (uS/cm)		Mean water temperature (°C)	
	Previous 10 years	1985	Previous 10 years	1985	Previous 10 years	1985	Previous 10 years	1985
Rappahannock River at Remington, Va.	796	334	148,400	43,900	68	75	14.5	15.5
James River at Buchanan, Va.	2,590	1,987	---	---	285	280	14.5	15.5
New River at Glen Lyn, Va.	5,500	3,307	---	---	141	173	14.5	16.0
Roanoke River at Altavista, Va.	1,700	1,241	---	---	141	156	15.0	15.0

Surface-water temperatures at the four index stations in the 1985 water year averaged 1°C above the mean for the previous 10 years. Water temperatures equaled the 10-year mean at Roanoke River at Altavista and averaged 1.5 degrees above the 10-year mean at New River at Glen Lyn. The minimum temperature at the four index stations ranged from 0.0°C to 2.5°C and occurred in the month of January. The maximum temperature ranged from 26°C to 30°C and occurred in the months of July and August.

The suspended-sediment load at Rappahannock River at Remington was about 43,900 tons in the 1985 water year; this is 30 percent of the mean load for the previous 10 years and reflects the lower-than-normal flows during the year and the small number of storm events. Nearly half of the annual sediment load (21,100 tons) occurred on February 12 in association with the largest storm event of the year. Ninety percent of the annual load came during only two percent of the days.

The median concentration of total phosphorus as P (an essential nutrient for algal growth) at the 10 National Stream-Quality Accounting Network (NASQAN) stations throughout the State was 0.06 mg/L in water year 1985. Orthophosphorus as P had a median concentration of 0.03 mg/L. However, median concentrations of total phosphorus at James River at Cartersville and Dan River at Paces were 0.16 mg/L and 0.19 mg/L, respectively, which is five to six times greater than the median concentration at the other eight NASQAN stations. The high concentration of total phosphorus in the James River appears to be at least partly due to recent changes in point-source discharges or agricultural activities in the drainage basin. As seen in figure 4, and verified with a flow-adjusted seasonal Kendall test, the total phosphorus concentration has nearly doubled since 1974 and appears to be increasing at a rate of six percent a year. This upward trend may have consequences on the future quality of the tidal James River and parts of the Chesapeake Bay.

Dissolved oxygen averaged 91 percent of saturation at the 10 NASQAN stations during the year, with a mean concentration of 9.5 mg/L. Of the 78 dissolved oxygen measurements made at these 10 stations during the 1985 water year, only one value below 5.0 mg/L was recorded. This occurred on September 3 when a dissolved oxygen concentration of 4.7 mg/L was measured at Blackwater River near Franklin.

The concentrations of trace metals (including: arsenic, barium, cadmium, chromium, lead, mercury, silver, and selenium) in all samples collected from the 10 NASQAN stations were well below the U.S. Environmental Protection Agency standards for safe drinking water. In most cases, concentrations were less than one-tenth of the standards. However, concentrations of dissolved iron and dissolved manganese reached relatively high concentrations in several of these rivers. Dissolved iron concentrations in excess of 1,000 ug/L were measured, on at least one occasion, at Mattaponi River near Beulahville, Nottoway River near Sebrell, and Blackwater River near Franklin. Dissolved manganese concentrations in excess of 200 ug/L were also measured at the Mattaponi River and Blackwater River sites. Although these concentrations of iron and manganese in water do not present a human health problem, they can produce an objectionable taste and stain laundered clothes.

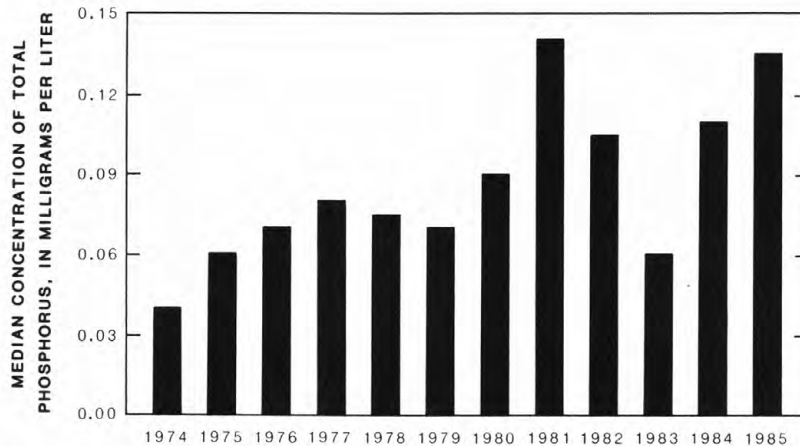


Figure 4.-- Annual median concentration of total phosphorus for period 1974-85 in James River at Cartersville, Va.

The median concentrations of fecal coliform and fecal streptococcal bacteria at the 10 NASQAN stations were 48 and 120 colonies per 100 milliliters, respectively. Of the 10 NASQAN stations, the Dan River had the highest concentrations of both bacteria. On December 6, 1984, the concentration of fecal coliform bacteria was 3,600 colonies per 100 milliliters and the concentration of fecal streptococcal bacteria was 4,500 colonies per 100 milliliters. Rappahannock River near Fredericksburg had the lowest concentrations of both bacteria, with median concentrations less than 20 colonies per 100 milliliters.

#### SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream-Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Radiochemical Program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

#### EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1985 water year that began October 1, 1984, and ended September 30, 1985. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 6 and 7. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

#### Station Identification Numbers

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. In Virginia, the "downstream order" system is used for surface-water stations and the "latitude-longitude" system is used for wells.

#### Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 03176500, which appears just to the left of the station name, includes the two-digit Part number "03" plus the six-digit downstream-order number "176500." The Part number designates the major river basin; for example, Part "03" is the Ohio River basin.

#### Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description.

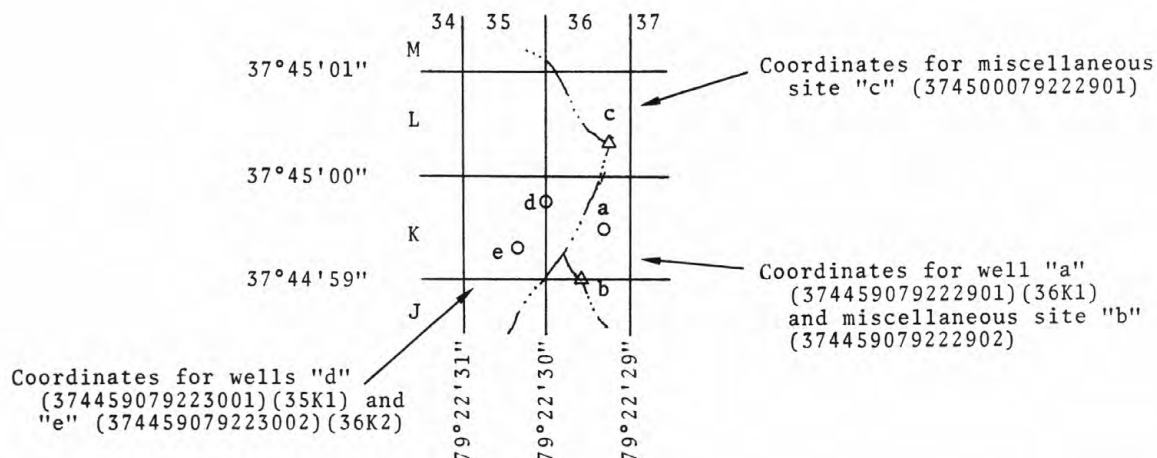


Figure 5. System for numbering wells and miscellaneous sites

A second well-numbering system used in Virginia utilizes 7 1/2-minute quadrangles within the State. The quadrangles are numbered from west to east, and lettered from south to north, omitting the letters "I" and "O." The designation for each quadrangle is determined by the method "Read Right, Up." Wells are numbered serially within each quadrangle. This local well number is shown immediately after the primary well number.

Well records furnished by the State of Virginia also include the well number that is based on an indexing system used by the Virginia Water Control Board.

#### Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device, and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figures 6 and 7.

#### Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.



Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adopted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow over dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations, the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relationship. Even when this is done, the contents computed may become increasingly in error as the lapsed time since the last survey increases. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as other stream discharges are computed.

For some gaging stations, there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

#### Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

**LOCATION.**--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

**DRAINAGE AREA.**--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

**PERIOD OF RECORD.**--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

**REVISED RECORDS.**--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

**GAGE.**--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

**REMARKS.**--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

**COOPERATION.**--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

**AVERAGE DISCHARGE.**--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development. The median of yearly mean discharges also is given under this heading for stations having 10 or more water years of record if the median differs from the average given by more than 10 percent.

**EXTREMES FOR PERIOD OF RECORD.**--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

**EXTREMES FOR CURRENT YEAR.**--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and equal to or greater than a selected base discharge are presented under this heading. The peaks equal to or greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

**REVISIONS.**--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the offices whose addresses are given on the back of the title page of this report to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

#### Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

#### Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of their true values; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft<sup>3</sup>/s; to the nearest tenth between 1.0 and 10 ft<sup>3</sup>/s; to whole numbers between 10 and 1,000 ft<sup>3</sup>/s; and to 3 significant figures for more than 1,000 ft<sup>3</sup>/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.



### Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables is on file in the Virginia Office of the Mid-Atlantic District. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the offices whose addresses are given on the back of the title page of this report.

### Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

### Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records", as used in this report, and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 6.

### Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

### On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed under "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" which appears at the end of the introductory text. Detailed information on collecting, treating, and shipping samples may be obtained from the Virginia Office of the Mid-Atlantic District.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals depends on flow conditions and other factors which must be evaluated by the collector.



Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the Virginia Office of the Mid-Atlantic District whose address is given on the back of the title page of this report.

#### Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at the time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the Virginia Office of the Mid-Atlantic District.

#### Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

#### Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratory in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratory are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

#### Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available,

instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily, are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

#### Remark Codes

The following remark codes may appear with the water-quality data in this report:

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

### Records of Ground-Water Levels

Only water-level data from a national network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Virginia are shown in figure 6.

### Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the 7 1/2-minute topographic map quadrangles within the State. (See page 11 for a more detailed explanation.)

Water-level records are obtained from direct measurements with a steel tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

### Data Presentation

Each well record consists of two parts, the station description and the data table of water levels observed during the water year. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings.

**LOCATION.**--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

**AQUIFER.**--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

**WELL CHARACTERISTICS.**--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

**INSTRUMENTATION.**--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

**DATUM.**--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) National Geodetic Vertical Datum of 1929 (NGVD of 1929); it is reported with a precision depending on the method of determination.

**REMARKS.**--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells and may be used to acknowledge the assistance of local (non-Survey) observers.



PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorders, only abbreviated tables are published; generally, only water-level lows are listed for every fifth day and at the end of the month (eom). The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

#### Records of Ground-Water Quality

Records of ground-water quality in this report differ from other types of records in that, for most sampling sites, they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes only slowly; therefore, for most general purposes, one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

#### Data Collection and Computation

The records of ground-water quality in this report were obtained mostly as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey Techniques of Water-Resources Investigations" manuals listed at the end of the introductory text. The values reported in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

#### Data Presentation

The records of ground-water quality are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water-level records. Data for quality of ground water are listed alphabetically by County and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

#### ACCESS TO WATSTORE DATA

The National WATER Data STorage and RETrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.



WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from the offices whose addresses are given on the back of the title page.

General inquiries about WATSTORE may be directed to:

Chief Hydrologist  
U.S. Geological Survey  
437 National Center  
Reston, Virginia 22092

#### DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also table for converting English units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C plus or minus 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C plus or minus 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C plus or minus 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter ( $\text{g/m}^3$ ), and periphyton and benthic organisms in grams per square meter ( $\text{g/m}^2$ ).

Dry mass refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile [ $(\text{ft}^3/\text{s})/\text{mi}^2$ ] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second ( $\text{ft}^3/\text{s}$ ) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic-foot-per-second day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to that material in a representative water sample which passes through a 0.45 um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ( $\text{CaCO}_3$ ).

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.



Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m<sup>2</sup>), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).



Particle-size classification used in this report agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (PC, pCi) is one trillionth ( $1 \times 10^{-12}$ ) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields  $3.7 \times 10^{10}$  disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [ $\text{mg C}/(\text{m}^2 \cdot \text{time})$ ] for periphyton and macrophytes and [ $\text{mg C}/(\text{m}^3 \cdot \text{time})$ ] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [ $\text{mg O}_2/(\text{m}^2 \cdot \text{time})$ ] for periphyton and macrophytes and [ $\text{mg O}_2/(\text{m}^3 \cdot \text{time})$ ] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN., in.) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture ( $\text{mg/L}$ ).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration ( $\text{mg/L}$ )  $\times$  discharge ( $\text{ft}^3/\text{s}$ )  $\times$  0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow ( $7 Q_{10}$ ) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water, per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emerged or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."



Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom.....	Animal
Phylum.....	Arthropoda
Class.....	Insecta
Order.....	Ephemeroptera
Family.....	Ephemeridae
Genus.....	Hexagenia
Species.....	<u>Hexagenia limbata</u>

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1985, is called the "1985 water year."



WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in reference to previously published reports.

#### PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Pickett St., Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods* by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 Pages.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

- 3-A9. *Measurement of time of travel and dispersion in streams by dye tracing*, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.
- 3-A10. *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P. E. Greenson, T. A. Ehrlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels* by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers* by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

#### SELECTED U.S. GEOLOGICAL SURVEY REPORTS ON WATER RESOURCES IN VIRGINIA

Listed below is a selection of reports on water resources in Virginia which are available through the Virginia Office of the Mid-Atlantic District at the U.S. Geological Survey, WRD, 3600 West Broad Street, Room 606, Richmond, Virginia 23230.

*An index of geophysical logging in Virginia by the U.S. Geological Survey*, by J. D. Mulheren, J. D. Larson, and H. T. Hopkins: U.S. Geological Survey Open-File Report 82-432. 1982. 34 pages.

*Availability and quality of ground water in the Piedmont Province of Virginia*, by J. D. Powell and J. M. Abe: U.S. Geological Survey Water-Resources Investigations Report 85-4235. 1985. 33 pages.

*Effects of fracturing on well yields in the coalfield areas of Wise and Dickenson Counties, southwestern Virginia*, by W. G. Wright: U.S. Geological Survey Water-Resources Investigations Report 85-4061. 1985. 21 pages.

*Ground-water availability along the Blue Ridge Parkway, Virginia*, by H. T. Hopkins: U.S. Geological Survey Water-Resources Investigations Report 84-4168. 1984. 154 pages.

*Guide to obtaining U.S. Geological Survey information*, by K. Dodd, H. K. Fuller, and P. F. Clarke: U.S. Geological Survey Circular 900. 1985. 35 pages.

*Hydrology and effects of mining in the upper Russell Fork basin, Buchanan and Dickenson Counties, Virginia*, by J. D. Larson and J. D. Powell: U.S. Geological Survey Water-Resources Investigations Report 85-4238. 1986. 63 pages.

*Hydrology of Area 16, Eastern Coal Province, Virginia and Tennessee*, by P. W. Hufschmidt and others: U.S. Geological Survey Water-Resources Investigations Report 81-204. 1981. 67 pages.

*Low flow of streams in Fairfax County, Virginia*, by E. H. Mohler, Jr., and G. F. Hagan: U.S. Geological Survey Open-File Report 81-63. 1981. 30 pages.

*Quality of ground water in southern Buchanan County, Virginia*, by S. M. Rogers and J. D. Powell: U.S. Geological Survey Water-Resources Investigations 82-4022. 1983. 36 pages.

*Relation between ground-water quality and mineralogy in the coal-producing Norton Formation of Buchanan County, Virginia*, by J. D. Powell and J. D. Larson: U.S. Geological Survey Water-Supply Paper 2274. 1985. 30 pages.

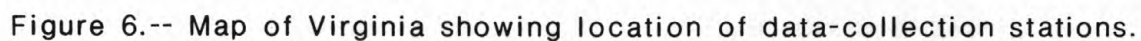
*Selected hydrologic data for the Powell River basin in Wise County, Virginia*, by J. D. Larson: U.S. Geological Survey Open-File Report 85-186. 1985. 22 pages.

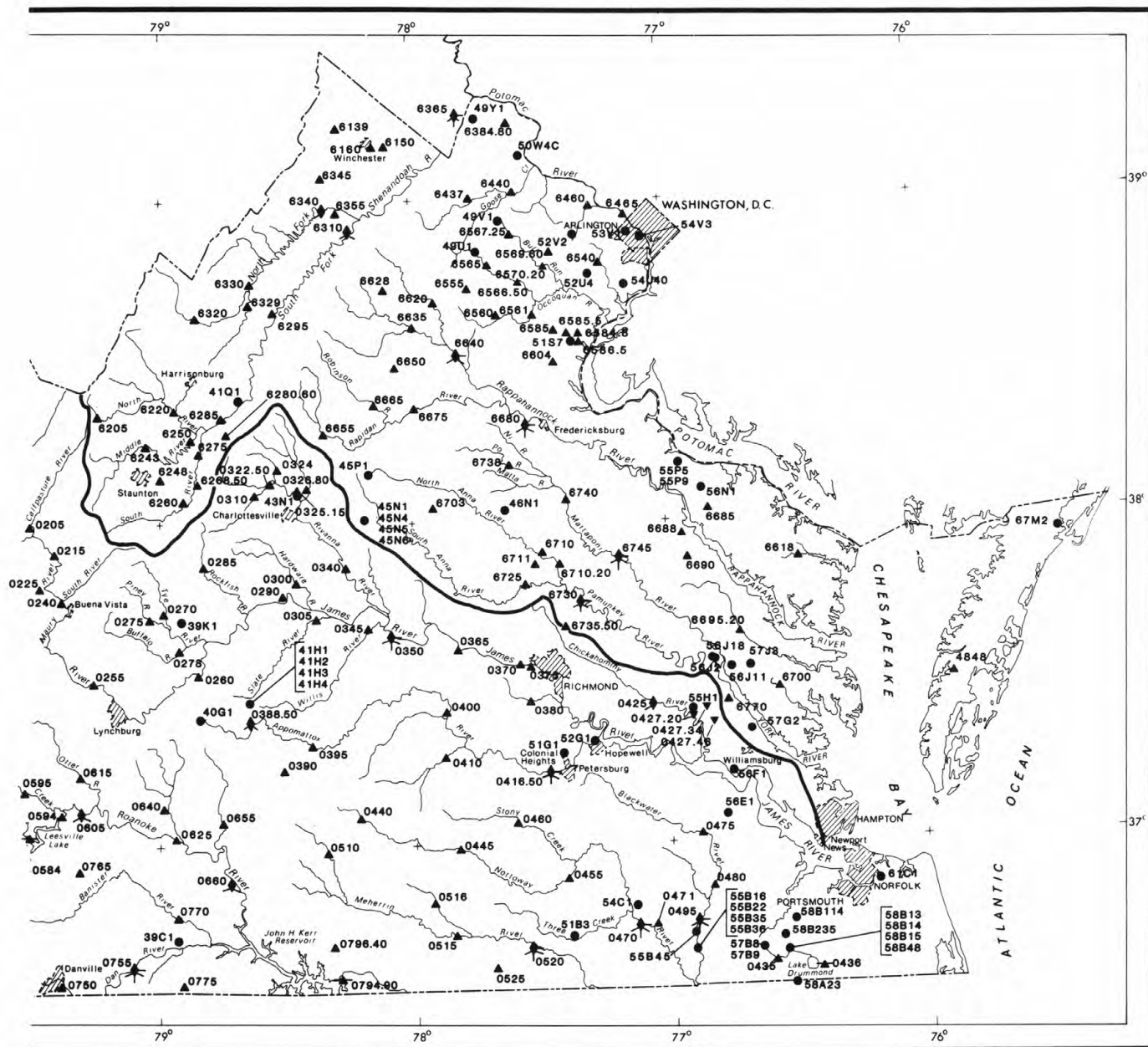
*Selected publications on the water resources of Virginia*, by N. R. Carrington: U.S. Geological Survey Open-File Report 86-418. 1986. 34 pages.

*Sensitivity of stream basins in Shenandoah National Park to acid deposition*, by D. D. Lynch and N. B. Dise: U.S. Geological Survey Water-Resources Investigations Report 85-4115. 1985. 61 pages.

*Water-level hydrographs for observation wells in Virginia*, by S. Farrington, N. R. Carrington, and W. V. Daniels: U.S. Geological Survey Open-File Report 84-134. 1984. 167 pages.







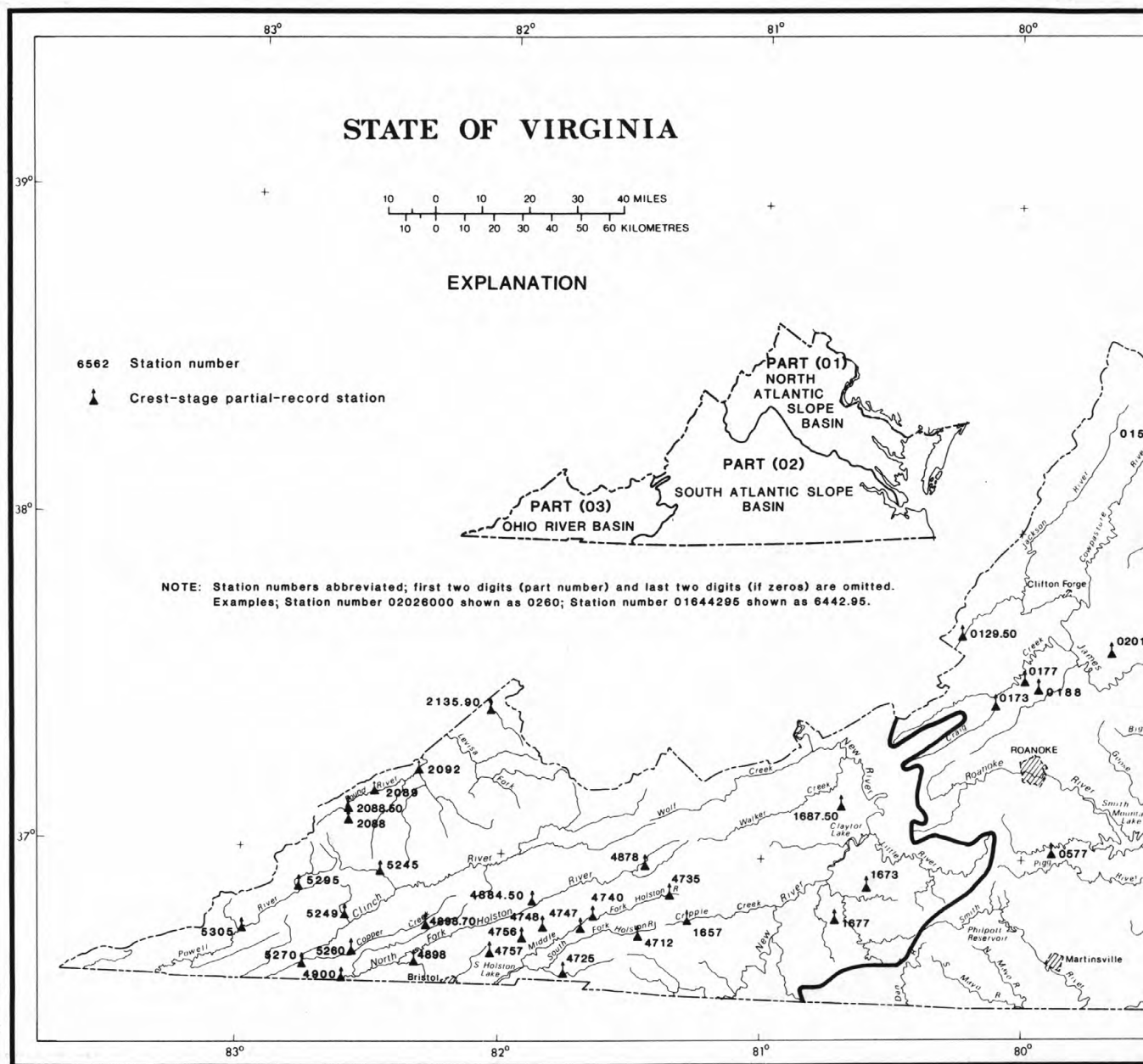
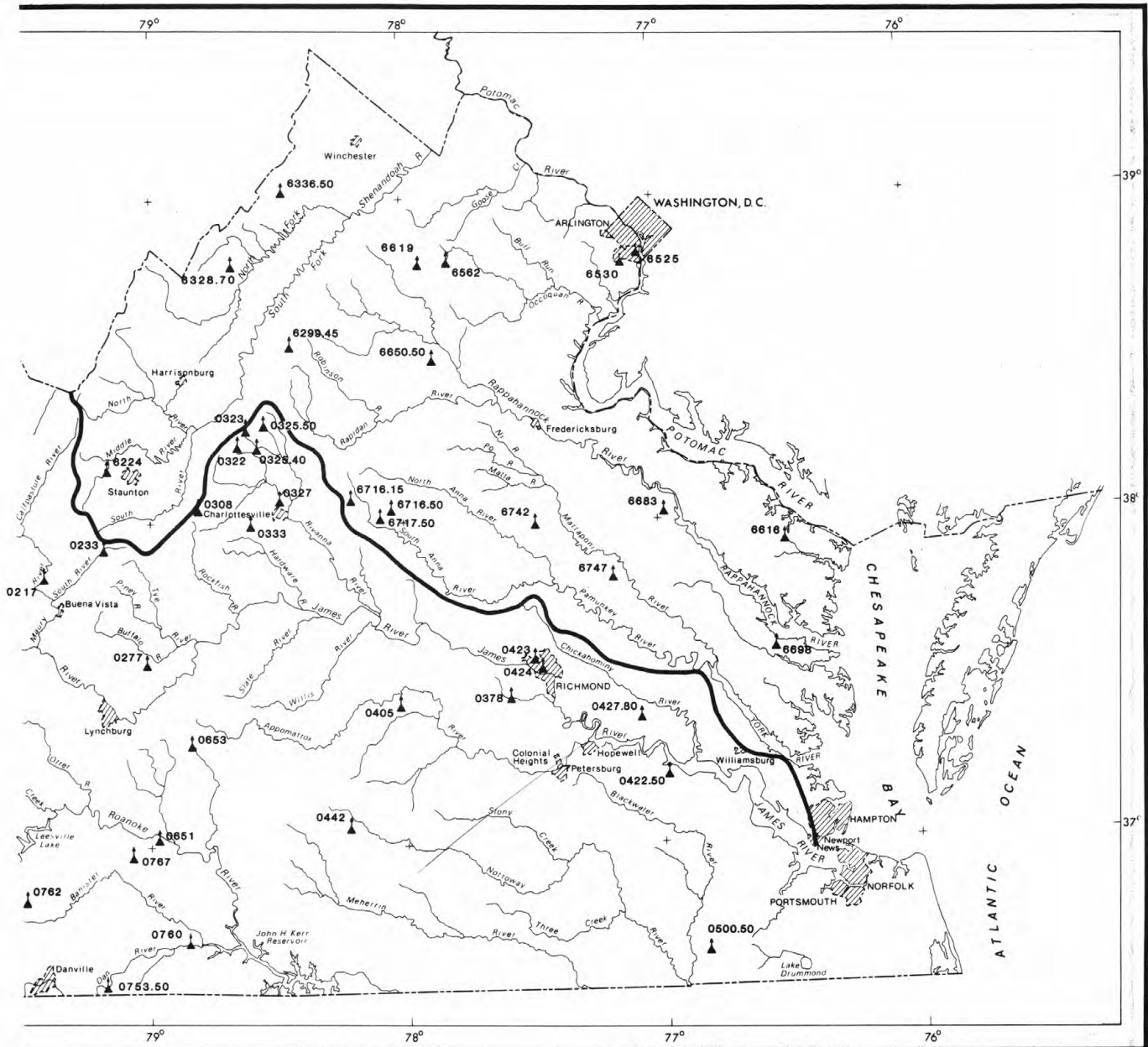


Figure 7.-- Map of Virginia showing location of partial-record stations.





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#### SURFACE-WATER RECORDS

REMARK CODES.--The following remark codes may appear with the water-quality data in this section:

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated value
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

## HYDROLOGIC-DATA STATION RECORDS

## NORTH ATLANTIC SLOPE BASINS

## NASSAWADOX CREEK BASIN

01484800 GUY CREEK NEAR NASSAWADOX, VA

LOCATION.--Lat 37°30'08", long 75°52'22", Northampton County, Hydrologic Unit 02080109, on left bank 25 ft upstream from bridge on State Highway 606, 1.9 mi northwest of Nassawadox, and 2.1 mi upstream from mouth.

DRAINAGE AREA.--1.72 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1963 to current year.

GAGE.--Water-stage recorder and wooden control. Datum of gage is 11.67 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 22-29. Records good except those for period of no gage-height record, Jan. 22-25, and period with ice effect, Jan. 26-29, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--21 years (water years 1965-85), 1.39 ft<sup>3</sup>/s, 10.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78 ft<sup>3</sup>/s, July 31, 1979, gage height, 5.28 ft; no flow at times in 1964, 1966, 1981, and 1983-85.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 20 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 27	0645	*13	*2.82	No peak equal to or greater than base discharge.			

No flow many days in July, August, and September, result of diversion for irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.58	.48	1.2	.44	1.2	1.1	1.2	.26	.17	.31	.57	.00
2	.52	.50	1.3	.43	1.6	1.4	1.1	.39	.05	.24	.32	.00
3	.46	.48	1.2	1.0	1.2	1.1	1.1	.66	.02	.33	.28	.00
4	.45	.49	.51	1.1	.96	1.1	.98	.63	.09	.29	.26	.00
5	.45	.54	.51	.74	.90	1.1	.95	.48	.31	.28	.27	.00
6	.44	.52	.94	.60	.96	.90	.92	.28	.48	.31	.27	.00
7	.43	.48	.51	.55	.90	.85	.88	.16	.33	.35	.27	.00
8	.41	.48	.46	.53	.84	.90	.95	.15	.44	.28	.26	.00
9	.38	.48	.43	.53	.82	.87	.90	.13	.35	.17	.30	.00
10	.27	.50	.43	.51	.82	.82	.73	.16	.29	.04	.33	.00
11	.22	.50	.43	.53	.81	.82	.57	.20	.29	.00	.32	.00
12	.23	.53	.41	.48	2.3	.91	.57	.67	.43	.00	.27	.00
13	.08	.52	.40	.48	1.8	.82	.61	.56	.68	.09	.00	.00
14	.20	.48	.39	.51	1.4	.79	.73	.44	.32	.27	.00	.00
15	.15	.48	.39	.50	1.2	.74	.68	.39	.28	.26	.00	.00
16	.06	.51	.42	.48	1.1	.74	.64	.37	.31	.29	.00	.00
17	.25	.50	.43	.54	1.1	.75	.53	.39	.29	.26	.00	.00
18	.11	.54	.41	.61	.98	.74	.47	.39	.27	.26	.01	.00
19	.08	.90	.40	.61	.98	.74	.38	.34	.25	.12	.19	.00
20	.17	.84	.39	.58	.91	.72	.38	.25	.25	.19	.34	.00
21	.25	.80	.39	.51	.90	.66	.47	.16	.24	.27	.34	.00
22	.05	.83	.39	.46	.90	.89	.47	.25	.22	.26	.33	.00
23	.42	.90	.39	.45	.90	2.6	.38	.33	.21	.27	.31	.00
24	.55	.88	.39	.43	.90	2.7	.48	.93	.26	.25	.29	.00
25	.53	.87	.39	.44	.83	2.3	.41	1.1	.23	.27	.29	.00
26	.53	.77	.39	.46	1.3	1.7	.26	.58	.20	.27	.25	.44
27	.52	.82	.42	.47	1.2	1.5	.30	.42	.12	.50	.00	4.1
28	.51	.97	.39	.48	1.0	1.4	.28	.36	.30	.47	.00	.47
29	.42	1.4	.39	.49	---	1.4	.32	.36	.32	.40	.00	.29
30	.43	1.2	.42	.48	---	1.4	.34	.34	.29	.31	.00	.28
31	.48	---	.43	.77	---	1.2	---	.33	---	.32	.00	---
TOTAL	10.63	20.19	15.95	17.19	30.71	35.66	18.98	12.46	8.29	7.93	6.07	5.58
MEAN	.34	.67	.51	.55	1.10	1.15	.63	.40	.28	.26	.20	.19
MAX	.58	1.4	1.3	1.1	2.3	2.7	1.2	1.1	.68	.50	.57	4.1
MIN	.05	.48	.39	.43	.81	.66	.26	.13	.02	.00	.00	.00
CFSM	.20	.39	.30	.32	.64	.67	.37	.23	.16	.15	.12	.11
IN.	.23	.44	.34	.37	.66	.77	.41	.27	.18	.17	.13	.12
CAL YR 1984	TOTAL	717.93	MEAN	1.96	MAX	32	MIN	.01	CFSM	1.14	IN.	15.53
WTR YR 1985	TOTAL	189.64	MEAN	.52	MAX	4.1	MIN	.00	CFSM	.30	IN.	4.10

01613900 HOGUE CREEK NEAR HAYFIELD, VA

LOCATION.--Lat 39°12'52", long 78°17'18", Frederick County, Hydrologic Unit 02070004, on right bank 15 ft upstream from bridge on State Highway 614, 0.8 mi upstream from Gap Run, and 1.3 mi southeast of Hayfield.

DRAINAGE AREA.--15.0 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 668.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 12-16, 19-29 and Feb. 3, 4, 12. Records good except those for period of no gage-height record, Feb. 12, and periods with ice effect, Jan. 12-16, 19-29 and Feb. 3, 4, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--25 years, 14.9 ft<sup>3</sup>/s, 13.49 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 ft<sup>3</sup>/s, June 22, 1972, gage height, 8.85 ft, from rating curve extended above 870 ft<sup>3</sup>/s; no flow for part of Sept. 14, 1968, cause unknown.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	2200	*1,010	*5.76	Feb. 12	Unknown	Unknown	Unknown

Minimum discharge, 0.65 ft<sup>3</sup>/s, Aug. 16, gage height, 0.60 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	2.6	20	5.8	8.4	16	45	5.1	16	1.9	1.5	1.0
2	2.9	2.4	14	8.6	15	15	30	5.6	8.9	2.1	1.4	1.1
3	2.1	3.5	12	8.4	12	13	24	11	6.6	2.2	1.1	1.1
4	1.8	3.2	9.8	9.7	10	12	20	8.0	5.8	1.8	1.1	1.1
5	1.7	4.1	8.7	25	8.4	12	18	6.8	11	1.9	1.0	.97
6	1.7	3.2	12	19	8.0	11	15	5.8	12	2.4	1.1	1.1
7	1.7	2.8	9.8	17	7.4	9.8	13	5.6	9.5	1.9	1.0	1.0
8	1.8	2.6	8.7	14	7.4	9.8	12	5.3	14	1.6	1.6	1.2
9	1.8	2.4	8.0	10	7.4	9.4	12	4.4	9.6	2.1	1.4	1.4
10	1.8	2.3	8.0	9.0	7.1	9.0	9.8	4.4	7.2	2.2	1.1	1.5
11	1.8	2.6	9.0	9.0	7.1	9.4	9.8	4.4	6.5	1.9	.94	1.3
12	1.8	4.4	8.4	8.4	250	9.0	8.7	12	6.0	1.9	.91	1.3
13	1.8	2.9	8.4	7.4	90	8.7	8.7	14	4.5	1.8	.89	1.1
14	2.1	2.1	7.4	7.1	42	8.4	8.7	7.7	3.8	1.6	.83	1.2
15	2.0	2.3	7.1	6.4	26	8.4	8.7	6.4	3.7	2.4	.83	1.2
16	2.0	2.1	6.8	6.1	21	8.0	9.0	5.8	3.8	1.7	1.0	1.2
17	2.0	2.0	6.4	5.3	18	7.7	9.0	11	3.7	1.4	1.6	1.2
18	2.4	2.4	6.1	5.3	16	7.4	8.0	16	3.2	1.5	1.7	1.2
19	2.8	4.1	6.4	5.2	17	6.8	7.7	9.4	2.9	1.4	1.6	1.2
20	3.1	3.6	6.4	5.2	17	6.8	7.4	7.1	2.8	1.2	1.2	1.2
21	2.0	3.2	8.0	4.2	17	6.4	6.8	5.6	2.7	1.2	1.4	1.2
22	3.3	2.9	9.4	3.3	20	6.8	6.4	5.1	2.6	1.2	1.2	1.3
23	5.8	2.8	8.7	3.3	25	17	6.4	36	2.4	1.1	1.1	1.5
24	5.3	2.6	8.0	3.3	25	28	6.4	28	2.3	1.1	1.4	1.6
25	3.9	2.4	8.0	3.7	22	31	6.4	14	2.2	1.9	2.3	1.6
26	3.9	2.4	6.8	3.8	23	22	6.1	8.7	2.0	3.1	1.9	1.7
27	2.4	2.6	6.8	3.8	20	18	6.1	6.3	1.9	3.3	1.6	4.0
28	3.1	209	6.4	3.9	17	16	5.8	5.7	1.8	1.8	1.3	2.1
29	5.1	178	6.4	4.0	---	15	5.6	5.6	1.6	1.4	1.1	1.7
30	3.4	42	6.1	4.1	---	17	5.1	4.9	1.6	1.4	1.1	1.7
31	2.9	---	5.8	4.6	---	26	---	25	---	1.3	1.1	---
TOTAL	84.8	505.5	263.8	233.9	764.2	400.8	345.6	300.7	162.6	55.7	39.30	41.97
MEAN	2.74	16.8	8.51	7.55	27.3	12.9	11.5	9.70	5.42	1.80	1.27	1.40
MAX	5.8	209	20	25	250	31	45	36	16	3.3	2.3	4.0
MIN	1.7	2.0	5.8	3.3	7.1	6.4	5.1	4.4	1.6	1.1	.83	.97
CFSM	.18	1.12	.57	.50	1.82	.86	.77	.65	.36	.12	.08	.09
IN.	.21	1.25	.65	.58	1.90	.99	.86	.75	.40	.14	.10	.10
CAL YR 1984	TOTAL	7761.9	MEAN	21.2	MAX	683	MIN	1.2	CFSM	1.41	IN.	19.25
WTR YR 1985	TOTAL	3198.87	MEAN	8.76	MAX	250	MIN	.83	CFSM	.58	IN.	7.93



## POTOMAC RIVER BASIN

01615000 OPEQUON CREEK NEAR BERRYVILLE, VA

LOCATION.--Lat 39°10'40", long 78°04'20", Frederick County, Hydrologic Unit 02070004, on left bank between the bridges on State Highway 7, 0.2 mi upstream from Abrams Creek, and 5.0 mi west of Berryville.

DRAINAGE AREA.--57.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1943 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-72-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 503.24 ft above National Geodetic Vertical Datum of 1929. Prior to July 26, 1949, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 12-14, 16-18, 21-29, Feb. 7, Apr. 22 to May 2, May 6-12, 15, 16, 21, 22, 28-30, and June 15-25. Records good except those for periods of no gage-height record, Apr. 22 to May 2, May 6-12, 15, 16, 21, 22, 28-30, and June 15-25, and periods with ice effect, Jan. 12-14, 16-18, 21-29 and Feb. 7, which are fair. Diurnal fluctuation at low flow caused by mills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--42 years, 42.5 ft<sup>3</sup>/s, 10.05 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft<sup>3</sup>/s, Nov. 13, 1970, gage height, 12.82 ft, from rating curve extended above 4,800 ft<sup>3</sup>/s; minimum daily, 0.20 ft<sup>3</sup>/s, Sept. 12, 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 18.4 ft, discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0100	1,990	7.60	Feb. 12	1430	*3,610	*9.51

Minimum daily discharge, 2.7 ft<sup>3</sup>/s, Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	10	68	13	50	29	53	8.2	59	4.4	8.0	4.4
2	16	10	47	24	160	27	42	8.2	27	17	5.2	4.9
3	11	9.9	38	43	86	23	35	16	17	15	4.6	4.9
4	9.9	9.7	29	87	64	21	30	13	14	8.4	4.1	3.8
5	9.4	32	24	90	49	21	26	11	24	6.4	3.8	3.8
6	9.1	27	47	83	41	19	22	9.5	48	5.8	3.8	3.3
7	8.9	16	60	68	35	17	19	8.6	24	5.7	3.8	3.8
8	8.9	13	39	52	30	17	18	8.0	32	5.2	7.5	3.3
9	8.9	12	32	36	27	17	17	8.0	22	5.6	8.0	4.4
10	8.9	12	28	30	32	15	15	8.0	16	5.9	4.8	3.8
11	8.7	12	27	27	33	15	15	8.4	13	6.1	4.4	3.8
12	8.2	12	25	24	1780	18	14	11	13	5.5	4.4	3.3
13	7.8	9.7	22	21	278	14	15	19	11	5.4	4.4	3.3
14	7.8	9.6	20	19	98	14	14	11	11	4.8	4.5	3.3
15	7.8	9.3	18	17	70	14	13	10	10	7.4	4.4	3.3
16	7.8	9.3	17	16	53	13	14	10	9.5	23	4.4	3.8
17	7.8	9.0	15	16	44	13	13	25	8.8	6.6	5.3	3.8
18	7.8	8.2	15	16	39	12	12	27	8.4	4.8	7.8	3.3
19	7.8	11	15	16	37	12	12	14	7.8	4.6	8.0	3.3
20	8.1	13	17	16	37	12	11	11	7.5	4.3	5.5	3.3
21	8.2	12	16	13	34	12	11	10	7.0	4.4	5.1	2.8
22	8.6	9.8	27	10	36	12	10	10	6.6	4.3	5.0	2.7
23	24	9.3	22	10	44	44	10	57	6.5	3.7	4.4	2.8
24	22	9.5	19	10	51	113	10	51	6.5	3.2	4.7	3.3
25	14	9.2	19	11	48	116	9.8	23	6.0	4.2	6.6	3.3
26	12	8.9	15	12	43	65	9.6	15	4.6	7.4	8.1	3.3
27	10	8.9	14	13	40	47	9.2	12	4.4	9.0	6.6	8.3
28	11	255	14	13	32	38	9.0	10	4.6	7.0	5.4	8.5
29	22	838	14	13	---	33	8.6	9.5	4.5	5.4	3.8	4.4
30	15	109	14	13	---	36	8.2	9.0	4.3	4.8	4.4	3.3
31	14	---	13	15	---	36	---	58	---	5.3	4.4	---
TOTAL	350.4	1524.3	790	847	3371	895	505.4	509.4	438.0	210.6	165.2	117.6
MEAN	11.3	50.8	25.5	27.3	120	28.9	16.8	16.4	14.6	6.79	5.33	3.92
MAX	24	838	68	90	1780	116	53	58	59	23	8.1	8.5
MIN	7.8	8.2	13	10	27	12	8.2	8.0	4.3	3.2	3.8	2.7
CFSM	.20	.89	.44	.48	2.09	.50	.29	.29	.25	.12	.09	.07
IN.	.23	.99	.51	.55	2.18	.58	.33	.33	.28	.14	.11	.08
CAL YR 1984	TOTAL	27586.0	MEAN	75.4	MAX	2970	MIN	7.8	CFSM	1.31	IN.	17.88
WTR YR 1985	TOTAL	9723.9	MEAN	26.6	MAX	1780	MIN	2.7	CFSM	.46	IN.	6.30

## POTOMAC RIVER BASIN

41

01616000 ABRAMS CREEK NEAR WINCHESTER, VA

LOCATION.--Lat 39°10'40", long 78°05'10", Frederick County, Hydrologic Unit 02070004, on right bank 1,000 ft upstream from bridge on State Highway 659, 0.9 mi upstream from mouth, and 4.4 mi east of Winchester.

DRAINAGE AREA.--16.5 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1949 to September 1960, June 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 526.46 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20-25, Feb. 9, 10, and May 22 to July 9. Records good except those for periods of no gage-height record, Jan. 20-25, Feb. 9, 10, and May 22 to July 9, which are fair. Slight diurnal fluctuation caused by sewage disposal plant upstream from station at Winchester. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--17 years, 21.2 ft<sup>3</sup>/s, 17.45 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 982 ft<sup>3</sup>/s, Feb. 14, 1984; maximum gage height, 6.16 ft, Dec. 4, 1950; minimum discharge, 3.5 ft<sup>3</sup>/s, Oct. 8, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 22	2200	220	2.56	May 12	1900	331	3.02
Nov. 28	2130	744	4.53	Aug. 26	2030	220	2.56
Feb. 12	0800	*829	*4.83				

Minimum discharge, 12 ft<sup>3</sup>/s, many days during April, July, August, and September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	19	29	18	30	23	39	16	40	16	18	15
2	20	19	26	23	27	22	37	22	32	35	17	15
3	19	18	26	22	21	21	26	37	28	30	16	15
4	19	19	23	24	20	22	24	23	25	25	16	16
5	18	34	24	26	19	22	21	21	28	21	16	15
6	17	23	30	23	19	22	19	21	45	19	17	15
7	16	21	26	23	19	22	19	21	35	19	17	15
8	17	21	23	22	19	22	19	20	37	18	29	14
9	17	20	22	21	18	21	18	20	31	18	17	16
10	17	20	22	20	19	21	19	20	28	18	17	16
11	17	19	22	20	19	22	19	19	26	15	16	15
12	17	19	21	18	310	29	18	50	25	17	16	15
13	16	19	21	18	55	37	17	23	24	16	16	14
14	15	19	20	18	33	41	18	20	23	15	16	14
15	16	19	18	18	30	41	18	19	22	23	15	14
16	19	18	18	19	27	39	19	21	21	17	16	14
17	19	18	18	19	24	36	18	39	20	17	17	15
18	19	18	19	18	24	39	18	31	20	17	24	15
19	19	23	20	18	24	37	16	21	19	17	17	15
20	19	19	19	17	24	37	16	20	19	16	17	14
21	18	18	21	17	23	37	15	20	18	16	19	14
22	33	18	22	16	23	39	15	18	18	16	16	14
23	34	18	20	16	23	48	16	60	17	16	16	15
24	27	17	20	16	24	41	16	25	17	16	20	16
25	23	17	19	17	24	34	16	23	17	20	19	17
26	20	17	20	18	26	27	16	22	16	26	32	17
27	19	18	20	19	26	24	15	21	16	20	20	39
28	22	212	19	21	23	22	15	20	16	17	16	15
29	27	99	19	21	---	23	16	19	16	17	16	14
30	21	34	18	21	---	27	16	18	16	17	15	15
31	20	---	19	23	---	36	---	60	---	18	15	---
TOTAL	634	873	664	610	973	934	574	790	715	588	554	473
MEAN	20.5	29.1	21.4	19.7	34.8	30.1	19.1	25.5	23.8	19.0	17.9	15.8
MAX	34	212	30	26	310	48	39	60	45	35	32	39
MIN	15	17	18	16	18	21	15	16	16	15	15	14
CFSM	1.24	1.76	1.30	1.19	2.11	1.82	1.16	1.55	1.44	1.15	1.08	.96
IN.	1.43	1.97	1.50	1.38	2.19	2.11	1.29	1.78	1.61	1.33	1.25	1.07
CAL YR 1984	TOTAL	13832	MEAN	37.8	MAX	564	MIN	15	CFSM	2.29	IN.	31.18
WTR YR 1985	TOTAL	8382	MEAN	23.0	MAX	310	MIN	14	CFSM	1.39	IN.	18.90

## POTOMAC RIVER BASIN

01620500 NORTH RIVER NEAR STOKESVILLE, VA

LOCATION.--Lat 38°20'15", long 79°14'25", Augusta County, Hydrologic Unit 02070005, George Washington National Forest, on left bank 575 ft upstream from highway bridge, 2.8 mi upstream from city of Staunton dam, 3.8 mi upstream from Broad Run, 5.0 mi west of Stokesville, and 7.8 mi upstream from Skidmore Fork.

DRAINAGE AREA.--17.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1903: 1960. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,054.57 ft above National Geodetic Vertical Datum of 1929. Prior to June 10, 1958, at site 575 ft downstream at datum 6.0 ft lower.

REMARKS.--Estimated daily discharges: Dec. 13-16, 18, 19, Jan. 19-25, and Feb. 1-6, 8-10, 15, 16. Records good except those for periods of doubtful gage-height record, Dec. 13-16, 18, 19 and Feb. 1-6, and periods with ice effect, Jan. 19-25 and Feb. 8-10, 15, 16, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--39 years, 25.7 ft<sup>3</sup>/s, 20.29 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft<sup>3</sup>/s, June 17, 1949, gage height, 10.9 ft, from flood-marks, site and datum then in use, from rating curve extended above 900 ft<sup>3</sup>/s on basis of computation of peak flow over dam; minimum, 0.10 ft<sup>3</sup>/s, Sept. 15, 16, 19-22, 1962, Sept. 7-13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 8.4 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	2145	*229	*3.42	May 3	0815	202	3.32

Minimum discharge, 0.86 ft<sup>3</sup>/s, Sept. 30, gage height, 1.75 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	3.8	47	20	23	53	27	5.4	12	1.5	8.4	13
2	5.2	3.6	35	24	70	44	27	10	10	1.9	8.7	11
3	3.8	3.5	30	32	54	36	27	159	9.0	1.8	6.8	9.3
4	2.9	3.6	26	37	40	32	26	100	8.0	1.6	5.7	8.0
5	2.3	5.9	22	46	30	28	23	66	8.0	1.4	5.1	6.8
6	1.9	7.0	20	47	20	25	21	48	7.0	1.4	4.6	5.9
7	1.8	7.1	18	46	15	22	20	36	6.9	1.3	4.4	5.4
8	1.6	7.1	16	38	14	20	19	31	6.9	1.2	8.5	5.1
9	1.5	6.7	15	33	13	20	17	24	6.0	1.9	6.8	4.6
10	1.4	6.1	14	30	12	19	16	20	5.3	4.4	5.6	4.1
11	1.4	6.7	15	26	11	18	15	18	4.9	4.3	4.9	3.8
12	1.4	6.1	17	24	19	19	13	16	7.5	13	5.7	3.7
13	1.3	5.6	19	21	22	19	13	14	7.6	15	9.7	3.2
14	1.2	5.2	20	19	19	19	12	13	6.9	10	7.4	2.9
15	1.1	4.8	19	18	17	19	12	11	6.0	7.3	6.0	2.6
16	1.2	4.7	18	16	15	18	12	10	6.2	5.7	5.2	2.3
17	1.1	4.5	17	14	14	18	10	11	5.6	4.5	5.0	2.1
18	1.2	4.5	16	13	13	17	9.5	9.8	4.6	3.7	41	1.9
19	1.2	6.7	16	12	13	16	8.9	8.8	3.9	3.0	79	1.8
20	1.1	9.0	17	10	14	15	8.4	7.4	3.4	2.4	58	1.6
21	1.1	9.6	20	9.5	17	14	8.0	6.5	3.1	2.1	77	1.5
22	1.1	9.7	31	8.5	22	14	7.6	6.2	2.8	1.8	67	1.4
23	1.3	9.5	33	8.0	36	22	7.4	9.6	2.4	1.6	48	1.3
24	2.1	9.0	33	7.5	71	37	7.2	20	2.1	1.4	35	1.3
25	3.5	8.4	34	6.5	102	43	7.5	33	1.9	2.3	32	1.3
26	3.1	7.8	34	7.1	107	39	6.9	32	1.6	18	30	1.2
27	2.6	6.9	33	7.3	94	36	6.6	27	1.4	20	27	1.1
28	2.6	64	32	6.1	69	33	6.6	22	1.3	17	24	1.1
29	3.9	150	28	5.8	---	30	6.3	19	1.3	14	21	.95
30	4.2	78	24	5.6	---	27	5.8	16	1.2	11	18	.93
31	4.0	---	22	5.7	---	26	---	14	---	8.7	15	---
TOTAL	69.4	465.1	741	603.6	966	798	406.7	823.7	154.8	185.2	680.5	111.18
MEAN	2.24	15.5	23.9	19.5	34.5	25.7	13.6	26.6	5.16	5.97	22.0	3.71
MAX	5.3	150	47	47	107	53	27	159	12	20	79	13
MIN	1.1	3.5	14	5.6	11	14	5.8	5.4	1.2	1.2	4.4	.93
CFSM	.13	.90	1.39	1.13	2.01	1.49	.79	1.55	.30	.35	1.28	.22
IN.	.15	1.01	1.60	1.31	2.09	1.73	.88	1.78	.33	.40	1.47	.24
CAL YR 1984	TOTAL	10633.70	MEAN	29.1	MAX	380	MIN	.63	CFSM	1.69	IN.	23.00
WTR YR 1985	TOTAL	6005.18	MEAN	16.5	MAX	159	MIN	.93	CFSM	.96	IN.	12.99

01622000 NORTH RIVER NEAR BURKETOWN, VA

LOCATION.--Lat 38°20'25", long 78°54'50", Rockingham County, Hydrologic Unit 02070005, on right bank 0.8 mi downstream from Pleasant Run, 2.8 mi northeast of Burkettown, and 8.5 mi upstream from Middle River.

DRAINAGE AREA.--379 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1925 to October 1972, May 1975 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1171: 1936(M). WSP 1302: 1928-29(M), 1932-34(M), 1937-38(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,103.49 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1938, nonrecording gage at site 3.0 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. At a point 26.8 mi upstream from station, there is an aqueduct tunnel diversion of about 3.1 ft<sup>3</sup>/s from Staunton Dam Reservoir by city of Staunton for industrial and municipal use. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--57 years, 371 ft<sup>3</sup>/s, 13.29 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,600 ft<sup>3</sup>/s, June 18, 1949, gage height, 36.3 ft, from flood-marks, from rating curve extended above 16,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 32.4 ft and 36.3 ft, and contracted-opening measurement at gage height 36.3 ft; minimum, 16 ft<sup>3</sup>/s, Nov. 23, 1985, result of temporary dam upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, that of June 18, 1949.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	1500	*4,890	*9.23	No other peak equal to or greater than base discharge.			

Minimum discharge, 56 ft<sup>3</sup>/s, Sept. 29, gage height, 1.89 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244	111	1050	295	790	979	389	127	336	99	109	159
2	162	109	759	321	846	798	370	133	306	96	109	144
3	133	101	550	397	490	638	370	1110	277	94	101	136
4	127	106	418	644	432	540	362	1330	252	90	96	127
5	122	153	366	764	397	475	343	1000	255	109	99	117
6	117	136	397	786	382	428	321	781	241	85	99	111
7	114	127	343	798	362	382	302	578	220	85	92	106
8	117	124	302	742	321	355	280	450	230	85	109	106
9	117	124	280	644	298	339	266	358	220	101	94	104
10	117	122	269	550	291	321	248	310	210	101	87	94
11	111	127	262	485	284	306	241	287	190	99	83	94
12	109	122	269	423	2220	306	227	284	448	366	85	90
13	106	122	277	386	827	291	210	366	262	150	85	87
14	109	114	277	358	594	284	204	328	217	124	78	85
15	109	114	273	328	485	269	200	302	184	124	76	85
16	109	119	269	291	423	259	194	291	178	114	74	83
17	109	114	266	291	393	255	190	355	165	104	80	80
18	109	111	255	269	366	248	172	351	147	99	224	78
19	104	139	255	255	355	241	165	317	142	94	266	78
20	101	133	248	238	366	234	156	284	133	90	376	78
21	101	124	273	197	370	220	159	259	122	90	351	76
22	104	124	347	220	418	220	153	255	119	90	397	76
23	114	119	386	204	535	298	142	287	128	80	339	78
24	150	122	393	204	924	450	142	540	156	78	273	78
25	114	122	397	197	1350	583	156	742	119	87	338	72
26	111	124	374	187	1460	588	142	737	106	119	362	74
27	104	122	362	181	1410	550	139	588	101	117	284	72
28	104	256	347	181	1180	500	142	455	101	119	244	72
29	164	1670	328	175	---	450	139	366	92	114	210	64
30	119	1430	310	172	---	423	127	317	90	109	187	70
31	111	---	302	175	---	393	---	313	---	109	172	---
TOTAL	3742	6641	11204	11358	18569	12623	6651	14201	5747	3421	5579	2774
MEAN	121	221	361	366	663	407	222	458	192	110	180	92.5
MAX	244	1670	1050	798	2220	979	389	1330	448	366	397	159
MIN	101	101	248	172	284	220	127	127	90	78	74	64
CFSM	.32	.58	.95	.97	1.75	1.07	.59	1.21	.51	.29	.47	.24
IN.	.37	.65	1.10	1.11	1.82	1.24	.65	1.39	.56	.34	.55	.27
CAL YR 1984	TOTAL	189846	MEAN	519	MAX	5660	MIN	96	CFSM	1.37	IN.	18.63
WTR YR 1985	TOTAL	102510	MEAN	281	MAX	2220	MIN	64	CFSM	.74	IN.	10.06



## POTOMAC RIVER BASIN

01624300 MIDDLE RIVER NEAR VERONA, VA

LOCATION.--Lat 38°14'36", long 79°02'08", Augusta County, Hydrologic Unit 02070005, on right bank at downstream side of bridge on State Highway 742, 2.7 mi downstream from Moffett Creek, and 3.2 mi northwest of Verona.

DRAINAGE AREA.--178 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,260.78 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 8-26, Jan. 22-30, and Feb. 6, 7, 10, 11. Records good except those for period of no gage-height record, Oct. 8-26, and periods with ice effect, Jan. 22-30 and Feb. 6, 7, 10, 11, which are fair. Diurnal fluctuation at low flow caused by mill above station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--18 years, 182 ft<sup>3</sup>/s, 13.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,650 ft<sup>3</sup>/s, Sept. 6, 1979, gage height, 14.17 ft, from rating curve extended above 6,500 ft<sup>3</sup>/s; minimum, 3.7 ft<sup>3</sup>/s, Jan. 30, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0230	1,500	5.35	Aug. 18	1930	*2,560	*7.39

Minimum discharge, 46 ft<sup>3</sup>/s, Sept. 28, gage height, 0.74 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	103	321	186	405	308	165	74	94	61	65	76
2	100	95	239	226	848	271	158	79	87	68	75	72
3	81	89	198	323	455	234	159	701	84	61	67	70
4	76	88	168	496	334	208	153	501	83	59	63	66
5	77	138	154	488	281	193	144	298	95	56	60	64
6	77	157	172	411	280	173	137	214	99	57	58	62
7	73	139	162	376	270	157	129	168	86	57	59	60
8	72	124	138	338	215	150	123	143	86	54	62	60
9	73	116	137	284	186	144	115	126	81	58	443	58
10	71	108	137	251	170	135	111	114	78	57	147	57
11	70	106	144	228	155	132	107	106	80	59	90	56
12	68	103	152	206	530	141	103	103	82	184	79	56
13	68	93	154	182	397	129	98	99	74	154	79	54
14	67	87	150	175	274	123	98	94	73	112	67	53
15	68	86	141	158	229	119	96	97	70	88	64	52
16	72	83	136	140	201	116	99	94	71	77	66	52
17	75	80	131	145	185	114	98	109	70	73	64	51
18	72	81	124	138	183	112	91	97	69	68	821	50
19	71	94	126	132	239	109	87	91	65	65	885	49
20	70	126	123	112	359	106	85	87	63	63	340	49
21	70	123	142	106	412	103	85	83	62	62	234	49
22	85	117	243	105	397	107	83	82	62	60	164	49
23	112	109	251	102	430	159	81	96	62	60	126	50
24	140	106	231	98	591	283	80	185	63	57	112	49
25	105	100	221	95	584	276	90	257	59	63	125	48
26	90	97	189	91	534	236	83	199	57	73	119	47
27	81	92	180	90	476	202	80	153	56	73	110	48
28	81	176	170	89	372	184	82	130	56	72	100	48
29	155	1050	159	87	---	171	79	116	57	67	90	47
30	130	483	148	86	---	175	76	107	56	65	83	48
31	113	---	165	96	---	161	---	100	---	61	80	---
TOTAL	2683	4549	5306	6040	9992	5231	3175	4903	2180	2244	4997	1650
MEAN	86.5	152	171	195	357	169	106	158	72.7	72.4	161	55.0
MAX	155	1050	321	496	848	308	165	701	99	184	885	76
MIN	67	80	123	86	155	103	76	74	56	54	58	47
CFSM	.49	.85	.96	1.10	2.01	.95	.60	.89	.41	.41	.90	.31
IN.	.56	.95	1.11	1.26	2.09	1.09	.66	1.02	.46	.47	1.04	.34

CAL YR 1984	TOTAL	84735	MEAN	232	MAX	2130	MIN	66	CFSM	1.30	IN.	17.71
WTR YR 1985	TOTAL	52950	MEAN	145	MAX	1050	MIN	47	CFSM	.81	IN.	11.07

## POTOMAC RIVER BASIN

45

01624800 CHRISTIANS CREEK NEAR FISHERSVILLE, VA

LOCATION.--Lat 38°07'42", long 78°59'41", Augusta County, Hydrologic Unit 02070005, on right bank at upstream side of bridge on State Highway 794, 2.2 mi northwest of Fishersville, and 5.6 mi upstream from mouth.

DRAINAGE AREA.--70.1 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,230 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 22-30 and Feb. 6, 7, 10, 11. Records good except those for periods with ice effect, Jan. 22-30 and Feb. 6, 7, 10, 11, which are fair. Some diurnal fluctuation caused by discharge of about 1.8 ft<sup>3</sup>/s from sewage treatment plant just upstream from station. Most of the water discharged from the treatment plant was diverted from another drainage basin for municipal supply. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--18 years, 71.4 ft<sup>3</sup>/s, 13.83 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,850 ft<sup>3</sup>/s, Oct. 5, 1972, gage height, 12.91 ft, from rating curve extended above 2,400 ft<sup>3</sup>/s; minimum, 3.8 ft<sup>3</sup>/s, Jan. 11, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	1700	1,270	6.09	July 12	1530	1,080	5.51
Feb. 2	1030	1,030	5.35	Aug. 18	1730	1,020	5.33
Feb. 12	1400	*1,490	*6.77				

Minimum discharge, 22 ft<sup>3</sup>/s, July 8, Sept. 25, 28, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	38	71	59	640	79	77	34	38	32	44	34
2	50	37	61	63	660	75	64	38	35	31	46	34
3	40	35	58	123	204	70	60	114	35	27	33	32
4	37	36	53	259	129	67	56	54	37	25	30	31
5	35	46	53	205	105	66	53	43	73	24	28	30
6	34	39	70	142	102	60	51	40	47	24	28	29
7	33	36	62	120	98	58	50	37	41	24	28	28
8	34	35	56	101	82	58	50	35	40	22	28	28
9	34	34	59	86	69	56	47	34	36	25	26	27
10	33	33	61	81	67	54	45	32	34	24	25	28
11	33	34	64	77	62	54	44	33	40	25	25	27
12	32	33	62	70	780	56	44	33	36	475	31	27
13	32	32	60	65	170	52	43	36	32	149	29	25
14	32	32	55	64	100	49	42	32	31	125	25	25
15	32	31	54	60	84	47	43	32	30	70	23	25
16	36	31	51	55	78	46	48	32	30	58	24	25
17	33	31	50	59	72	45	44	46	30	54	26	24
18	33	31	48	57	73	44	40	35	30	46	430	24
19	32	56	48	55	90	44	38	32	27	43	154	23
20	31	46	46	46	111	43	37	29	28	39	76	23
21	31	39	60	43	143	42	36	28	26	37	77	23
22	33	36	59	41	154	47	36	28	26	35	60	24
23	56	36	52	40	117	82	35	37	30	34	50	24
24	63	35	51	40	108	70	36	182	37	31	46	23
25	40	34	51	39	101	59	72	195	27	41	65	23
26	36	33	47	39	126	53	42	70	25	41	59	23
27	34	33	46	39	100	50	38	55	25	43	49	23
28	49	214	45	38	84	48	43	48	26	35	44	22
29	135	191	44	38	---	132	39	44	25	33	40	22
30	48	88	43	39	---	116	35	43	25	31	38	22
31	41	---	65	45	---	77	---	41	---	29	36	---
TOTAL	1325	1465	1705	2288	4709	1899	1388	1572	1002	1732	1723	778
MEAN	42.7	48.8	55.0	73.8	168	61.3	46.3	50.7	33.4	55.9	55.6	25.9
MAX	135	214	71	259	780	132	77	195	73	475	430	34
MIN	31	31	43	38	62	42	35	28	25	22	23	22
CFSM	.61	.70	.78	1.05	2.40	.87	.66	.72	.48	.80	.79	.37
IN.	.70	.78	.90	1.21	2.50	1.01	.74	.83	.53	.92	.91	.41

CAL YR 1984	TOTAL	41439	MEAN	113	MAX	1540	MIN	30	CFSM	1.61	IN.	21.99
WTR YR 1985	TOTAL	21586	MEAN	59.1	MAX	780	MIN	22	CFSM	.84	IN.	11.46

## POTOMAC RIVER BASIN

01625000 MIDDLE RIVER NEAR GROTTOS, VA

LOCATION.--Lat 38°15'42", long 78°51'44", Augusta County, Hydrologic Unit 02070005, on left bank at upstream side of bridge on State Highway 769 at Mount Meridian, 1.8 mi upstream from mouth, and 2.0 mi west of Grottoes.

DRAINAGE AREA.--375 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1927 to current year. Records for February 1925 to September 1926, published in WSP 601 and 621, are unreliable and should not be used.

REVISED RECORDS.--WSP 1051: 1928-29, 1930(M), 1932, 1935-37, 1938(M), 1940. WSP 1171: 1933. WSP 1302: 1928-29(M), 1931-34(M). WSP 2103: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,061.51 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 20-31 and Feb. 7, 10, 11. Records good except those for periods with ice effect, Jan. 20-31 and Feb. 7, 10, 11, which are fair. At a point 24.4 mi upstream from station, there is a discharge of about 4.5 ft<sup>3</sup>/s from sewage treatment plant. Most of water discharged from the treatment plant was diverted from another drainage basin for industrial and municipal supply. Small diurnal fluctuation at low flow caused by mills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--58 years, 310 ft<sup>3</sup>/s, 11.23 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft<sup>3</sup>/s, Mar. 18, 1936, gage height, 28.57 ft, from flood-marks, from rating curve extended above 15,000 ft<sup>3</sup>/s; minimum, 19 ft<sup>3</sup>/s, Jan. 12, 1981, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1877, that of Mar. 18, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	0430	*2,630	*9.43	No peak equal to or greater than base discharge.			

Minimum discharge, 92 ft<sup>3</sup>/s, Sept. 29, gage height, 3.42 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	303	214	541	325	762	468	315	153	177	109	120	161
2	281	202	418	346	1900	423	298	154	164	150	168	153
3	196	188	355	433	1030	384	279	449	155	128	146	146
4	169	179	314	839	610	352	275	738	155	114	126	139
5	161	208	286	869	501	334	261	439	171	108	117	133
6	153	260	327	755	452	312	246	333	210	103	113	128
7	147	249	349	641	450	290	237	276	174	106	111	124
8	148	228	300	578	406	278	234	235	164	102	115	121
9	152	215	293	503	342	273	224	211	156	104	255	120
10	149	206	289	446	320	259	213	193	153	124	332	119
11	145	200	299	415	300	251	208	180	159	114	182	117
12	141	196	304	387	1580	260	203	173	157	681	137	114
13	142	188	302	355	989	253	197	175	145	593	156	112
14	139	175	293	337	539	239	192	168	133	320	128	108
15	141	169	280	325	437	231	193	166	130	247	111	108
16	148	166	266	290	387	223	195	166	128	199	112	106
17	159	161	258	300	353	220	204	205	127	177	138	107
18	153	158	250	298	348	216	187	195	126	158	450	104
19	148	193	246	281	346	210	179	165	122	144	1650	103
20	147	248	245	265	480	207	174	154	119	135	712	102
21	142	236	261	240	505	203	170	148	115	128	529	101
22	152	222	332	225	557	205	167	144	115	124	353	99
23	220	211	362	220	547	286	163	159	112	119	276	101
24	299	202	348	210	629	374	160	268	133	116	234	104
25	247	197	334	205	707	407	213	548	120	116	256	100
26	200	188	314	200	675	366	194	379	107	171	279	97
27	183	185	289	190	647	325	168	287	101	154	243	97
28	176	244	284	190	542	298	164	238	98	146	216	97
29	306	1120	272	185	---	288	184	215	115	138	196	94
30	292	833	260	185	---	413	161	196	104	130	180	94
31	236	---	298	190	---	326	---	187	---	124	169	---
TOTAL	5775	7641	9569	11228	17341	9174	6258	7697	4145	5382	8310	3409
MEAN	186	255	309	362	619	296	209	248	138	174	268	114
MAX	306	1120	541	869	1900	468	315	738	210	681	1650	161
MIN	139	158	245	185	300	203	160	144	98	102	111	94
CFSM	.50	.68	.82	.97	1.65	.79	.56	.66	.37	.46	.71	.30
IN.	.57	.76	.95	1.11	1.72	.91	.62	.76	.41	.53	.82	.34
CAL YR 1984	TOTAL	161183	MEAN	440	MAX	5340	MIN	135	CFSM	1.17	IN.	15.99
WTR YR 1985	TOTAL	95929	MEAN	263	MAX	1900	MIN	94	CFSM	.70	IN.	9.52

## 01626000 SOUTH RIVER NEAR WAYNESBORO, VA

LOCATION.--Lat 38°03'27", long 78°54'30", Waynesboro City, Hydrologic Unit 02070005, on right bank 80 ft downstream from bridge on State Highway 664, 1.3 mi southwest of Waynesboro post office, and 2.4 mi downstream from Back Creek.

DRAINAGE AREA.--127 mi<sup>2</sup>, of which 41 mi<sup>2</sup> are above flood-detention structures.

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,296.20 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 22-31. Records good except those for period with ice effect, Jan. 22-31, which are fair. At a point 13.8 mi upstream from station, there is a diversion of about 1.8 ft<sup>3</sup>/s from Coles Run Reservoir, capacity 80,000,000 gal., by Augusta County Service Authority for industrial and municipal use. Flow from 41 mi<sup>2</sup> upstream from station slightly regulated by flood-detention reservoirs (sixteen of which were built by Soil Conservation Service between 1954 and 1961). Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--33 years, 140 ft<sup>3</sup>/s, 14.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 15.27 ft, from rating curve extended above 4,200 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 13.95 ft; minimum, 7.0 ft<sup>3</sup>/s, July 18, 1966; minimum daily, 17 ft<sup>3</sup>/s, Aug. 8, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 14.3 ft, from floodmarks, discharge, 14,500 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1730	*3,450	*8.24	No other peak equal to or greater than base discharge.			

Minimum discharge, 44 ft<sup>3</sup>/s, July 4, 8, Aug. 13, 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	59	218	96	218	227	179	91	121	58	63	129
2	85	56	168	95	432	210	163	91	107	65	97	118
3	67	54	147	120	379	188	156	144	101	58	73	108
4	60	54	129	203	236	172	148	148	102	53	63	100
5	56	66	120	212	189	165	139	135	159	51	58	93
6	54	67	131	194	172	150	133	125	115	50	55	87
7	53	61	117	194	166	140	128	113	101	50	54	82
8	53	57	106	184	140	138	128	105	98	47	57	77
9	52	55	103	162	124	136	118	97	89	48	53	75
10	52	54	105	149	121	127	112	90	81	50	50	72
11	52	55	110	142	117	123	108	89	97	54	48	70
12	52	54	115	132	513	129	105	90	87	147	48	67
13	52	52	116	122	481	118	101	94	77	164	47	65
14	52	51	110	120	321	115	100	84	72	121	46	64
15	51	50	105	114	226	109	105	83	69	86	45	62
16	53	50	103	102	185	104	110	83	68	70	46	61
17	54	49	101	108	163	103	105	112	67	69	48	59
18	53	50	97	107	160	101	95	115	65	61	1270	57
19	53	66	95	103	168	96	92	94	63	56	1260	56
20	52	74	93	90	196	94	89	84	64	53	712	55
21	51	64	97	79	187	92	87	77	59	51	599	54
22	52	61	103	90	197	99	85	75	57	49	444	54
23	57	58	94	83	220	174	83	94	56	48	348	55
24	77	58	90	80	254	228	84	258	66	46	290	54
25	64	56	90	78	269	222	111	542	58	77	313	52
26	58	55	86	75	303	198	97	353	54	127	367	50
27	54	54	83	74	292	180	90	248	53	82	266	50
28	56	220	83	74	254	165	95	198	51	76	220	50
29	99	587	83	73	---	164	98	167	50	67	187	49
30	72	322	80	72	---	185	94	148	50	62	161	48
31	63	---	95	77	---	170	---	135	---	56	145	---
TOTAL	1860	2669	3373	3604	6683	4622	3338	4362	2357	2152	7533	2073
MEAN	60.0	89.0	109	116	239	149	111	141	78.6	69.4	243	69.1
MAX	101	587	218	212	513	228	179	542	159	164	1270	129
MIN	51	49	80	72	117	92	83	75	50	46	45	48
CFSM	.47	.70	.86	.91	1.88	1.17	.87	1.11	.62	.55	1.91	.54
IN.	.54	.78	.99	1.06	1.96	1.35	.98	1.28	.69	.63	2.21	.61

CAL YR 1984	TOTAL	75859	MEAN	207	MAX	1750	MIN	47	CFSM	1.63	IN.	22.22
WTR YR 1985	TOTAL	44626	MEAN	122	MAX	1270	MIN	45	CFSM	.96	IN.	13.07



## POTOMAC RIVER BASIN

01626850 SOUTH RIVER NEAR DOOMS, VA

LOCATION.--Lat 38°05'19", long 78°52'38", Augusta County, Hydrologic Unit 02070005, on left bank at downstream side of Hopeman Parkway Road bridge, 1.1 mi downstream from Steele Run, and 1.6 mi southwest of Dooms.

DRAINAGE AREA.--149 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,247.04 ft above National Geodetic Vertical Datum of 1929 (Norfolk and Western Railway bench mark). Prior to Sept. 18, 1980, nonrecording gage at site 30 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 22-31. Records good except those for period with ice effect, Jan. 22-31, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--11 years, 203 ft<sup>3</sup>/s, 18.50 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 8,000 ft<sup>3</sup>/s, Mar. 19, 1975, gage height, 12.02 ft; minimum discharge, 42 ft<sup>3</sup>/s, Aug. 29, 30, 1981, gage height, 2.17 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	2230	1,050	5.01	Aug. 18	1830	*4,260	*10.20
Feb. 12	0800	1,540	6.11				

Minimum discharge, 55 ft<sup>3</sup>/s, Aug. 14, 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	86	257	119	300	267	219	113	142	73	91	149
2	117	84	200	118	522	248	203	114	125	77	110	136
3	94	80	175	162	430	227	193	175	118	71	89	123
4	86	84	154	253	283	208	184	175	119	67	78	115
5	82	92	145	263	229	200	175	161	202	66	73	108
6	79	94	165	241	210	184	167	151	135	65	69	101
7	78	85	141	238	199	173	158	137	116	64	68	95
8	78	81	127	226	172	169	160	125	114	63	70	91
9	78	81	123	203	153	166	147	117	105	68	68	89
10	77	80	123	183	151	157	140	110	97	64	65	86
11	77	80	129	174	144	153	136	115	109	67	63	82
12	77	79	136	163	979	159	131	109	102	190	62	80
13	77	78	137	149	573	147	126	113	90	184	59	77
14	78	77	131	148	375	142	124	103	86	130	57	75
15	80	77	128	140	277	137	129	99	81	101	58	74
16	90	77	124	131	231	132	139	99	81	83	69	72
17	84	76	122	133	203	128	130	140	82	80	60	70
18	82	79	119	129	197	126	120	133	80	73	1740	69
19	80	109	116	125	201	123	116	111	79	69	1620	68
20	78	109	114	115	228	120	112	100	77	65	824	67
21	78	95	122	110	219	117	110	94	74	63	671	66
22	82	91	125	105	227	135	108	91	70	62	476	66
23	94	88	115	97	249	227	105	118	71	61	367	66
24	102	86	111	96	281	285	110	327	76	59	312	66
25	91	85	112	92	301	274	139	637	69	106	360	63
26	84	84	106	90	333	246	122	392	66	154	401	63
27	80	83	104	89	329	226	112	285	64	101	304	63
28	107	339	103	88	293	207	123	228	63	93	254	63
29	137	721	102	87	---	211	120	192	63	85	215	62
30	105	371	100	86	---	228	116	172	62	78	187	62
31	92	---	119	92	---	210	---	158	---	71	168	---
TOTAL	2776	3731	4085	4445	8289	5732	4174	5194	2818	2653	9108	2467
MEAN	89.5	124	132	143	296	185	139	168	93.9	85.6	294	82.2
MAX	152	721	257	263	979	285	219	637	202	190	1740	149
MIN	77	76	100	86	144	117	105	91	62	59	57	62
CFSM	.60	.83	.89	.96	1.99	1.24	.93	1.13	.63	.57	1.97	.55
IN.	.69	.93	1.02	1.11	2.07	1.43	1.04	1.30	.70	.66	2.27	.62
CAL YR 1984	TOTAL	95597	MEAN	261	MAX	2790	MIN	76	CFSM	1.75	IN.	23.87
WTR YR 1985	TOTAL	55472	MEAN	152	MAX	1740	MIN	57	CFSM	1.02	IN.	13.85

## 01627500 SOUTH RIVER AT HARRISTON, VA

LOCATION.--Lat 38°13'07", long 78°50'13", Augusta County, Hydrologic Unit 02070005, on left bank 100 ft downstream from bridge on State Highway 778, 0.3 mi northwest of Harriston, 0.6 mi downstream from Paine Run, and 7.2 mi upstream from confluence with North River.

DRAINAGE AREA.--212 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1925 to September 1951, October 1968 to current year.

REVISED RECORDS.--WSP 1171: 1926(M), 1927-28, 1929-32(M), 1933, 1934(M), 1935, 1937. WSP 1302: 1937(M), 1938(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,129.87 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22, 23, 25-31. Records good except those for periods with ice effect, Jan. 22, 23, 25-31, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--43 years, 255 ft<sup>3</sup>/s, 16.33 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,100 ft<sup>3</sup>/s, Oct. 15, 1942, gage height, 17.2 ft, from rating curve extended above 10,000 ft<sup>3</sup>/s; minimum, 17 ft<sup>3</sup>/s, Nov. 14, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1870 and 1877 reached a stage of about 18.8 ft, from information by observer in 1925.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	0800	2,830	7.27	Aug. 19	0130	*3,550	*7.91

Minimum discharge, 79 ft<sup>3</sup>/s, Aug. 15, gage height, 2.38 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	202	113	352	157	379	370	312	158	200	102	107	213
2	166	110	264	158	651	347	292	158	178	112	150	196
3	127	107	218	180	600	319	275	212	166	106	126	182
4	113	105	190	319	423	297	263	231	163	98	109	169
5	108	120	173	364	339	286	247	211	233	94	101	159
6	105	123	216	350	310	265	235	201	202	92	98	150
7	102	112	206	348	298	248	222	186	167	90	96	142
8	102	107	187	335	269	241	223	175	162	88	97	135
9	103	105	180	302	231	238	207	162	151	97	97	130
10	102	105	178	274	229	226	196	155	140	94	93	127
11	100	105	182	259	217	218	188	157	145	93	90	121
12	100	104	187	242	1770	222	183	155	150	221	87	118
13	99	102	186	223	908	212	178	154	130	258	87	113
14	99	101	182	212	594	203	173	146	122	171	84	109
15	99	100	175	200	450	196	182	136	119	150	81	109
16	113	99	169	182	370	188	195	139	115	120	84	107
17	105	98	165	184	328	184	189	185	115	109	102	102
18	106	99	161	182	316	181	175	186	117	106	905	102
19	105	133	156	175	309	176	167	160	109	100	2100	100
20	100	132	153	164	321	171	162	140	113	95	1050	99
21	99	121	161	135	313	166	158	129	107	93	851	98
22	101	112	166	140	311	176	155	126	102	90	621	99
23	112	110	156	130	329	288	150	148	102	89	482	100
24	136	108	146	122	363	389	149	285	109	86	407	99
25	126	107	143	122	395	394	191	770	104	102	425	96
26	113	106	137	121	436	361	178	538	96	204	520	94
27	107	105	130	121	446	330	161	389	94	141	420	94
28	105	222	127	120	405	304	164	313	92	125	352	93
29	191	880	126	120	---	302	174	266	92	115	303	92
30	150	528	127	119	---	327	161	237	91	108	264	90
31	122	---	151	130	---	301	---	217	---	102	238	---
TOTAL	3618	4579	5450	6190	12310	8126	5905	6825	3986	3651	10627	3638
MEAN	117	153	176	200	440	262	197	220	133	118	343	121
MAX	202	880	352	364	1770	394	312	770	233	258	2100	213
MIN	99	98	126	119	217	166	149	126	91	86	81	90
CFSM	.55	.72	.83	.94	2.08	1.24	.93	1.04	.63	.56	1.62	.57
IN.	.63	.80	.96	1.09	2.16	1.43	1.04	1.20	.70	.64	1.86	.64
CAL YR 1984	TOTAL	131399	MEAN	359	MAX	3890	MIN	96	CFSM	1.69	IN.	23.06
WTR YR 1985	TOTAL	74905	MEAN	205	MAX	2100	MIN	81	CFSM	.97	IN.	13.14

## POTOMAC RIVER BASIN

01628060 WHITE OAK RUN NEAR GROTTOS, VA

LOCATION.--Lat 38°15'01", long 78°44'57", Rockingham County, Hydrologic Unit 02070005, Shenandoah National Park, on left bank 700 ft upstream from Madison Run, 0.2 mi south of Madison Run Forest Trail, 1.4 mi upstream from southwest boundary of Shenandoah National Park, and 4.3 mi southeast of Grottoes.

DRAINAGE AREA.--1.94 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,480 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--6 years, 2.42 ft<sup>3</sup>/s, 16.94 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 200 ft<sup>3</sup>/s, revised, Mar. 18, 1983, gage height, 3.90 ft; no flow many days in 1980-85.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 30 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	1845	*33	*2.14	No other peak equal to or greater than base discharge.			

No flow many days during October, July through September.

REVISIONS.--The peak discharges and annual maximum (\*) reported for water years 1983 and 1984 have been revised as shown in the following table. They supersede figures published in the reports for 1983 and 1984.

Water Year	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
1983	Feb. 3, 1983	0245	36	2.07
	Mar. 18, 1983	2315	*200	*3.90
	Apr. 2, 1983	2215	102	2.93
	Apr. 10, 1983	0830	52	2.31
	Apr. 24, 1983	1300	78	2.64
1984	Dec. 12, 1983	2215	53	2.32
	Feb. 14, 1984	1215	*197	*3.87
	Mar. 29, 1984	0345	77	2.67
	Apr. 5, 1984	0530	72	2.61

## POTOMAC RIVER BASIN

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01628060 WHITE OAK RUN NEAR GROTTOS, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.05	3.9	.55	.66	4.3	3.3	.53	.51	.07	.06	.21
2	.08	.04	2.3	1.0	3.2	3.6	3.1	.56	.39	.10	.06	.18
3	.04	.03	1.6	2.3	3.2	2.9	3.0	.80	.31	.10	.06	.15
4	.02	.03	1.2	3.5	2.3	2.4	2.7	.69	.42	.07	.04	.13
5	.00	.05	.94	4.0	2.0	2.2	2.4	.65	.68	.06	.03	.12
6	.00	.08	.90	3.5	1.8	1.7	2.2	.62	.40	.05	.02	.11
7	.00	.08	.77	3.7	1.4	1.3	1.8	.59	.31	.05	.02	.10
8	.00	.07	.66	3.4	1.1	1.3	1.6	.57	.29	.03	.02	.08
9	.00	.06	.60	2.7	.99	1.3	1.3	.52	.23	.06	.02	.08
10	.00	.05	.54	2.2	.91	1.2	1.2	.49	.75	.08	.02	.07
11	.00	.05	.59	2.0	.85	1.1	1.0	.46	3.5	.07	.01	.05
12	.00	.05	.67	1.6	9.7	1.2	.95	.46	3.0	.20	.00	.05
13	.00	.05	.70	1.3	8.2	1.2	.85	.40	2.0	.17	.00	.05
14	.00	.05	.69	1.2	4.8	1.1	.82	.35	1.4	.10	.00	.04
15	.00	.05	.65	1.0	3.5	1.0	.82	.30	.99	.06	.00	.03
16	.00	.06	.65	.78	2.6	.95	.81	.27	.82	.05	.00	.03
17	.00	.07	.65	.71	2.1	.95	.73	.42	.64	.04	.00	.03
18	.00	.07	.65	.74	1.6	.93	.63	.40	.50	.03	2.3	.02
19	.00	.13	.65	.68	1.4	.84	.59	.31	.40	.02	3.1	.02
20	.00	.26	.62	.65	1.3	.82	.56	.23	.34	.02	1.9	.02
21	.00	.26	.59	.65	1.1	.75	.52	.19	.26	.01	2.1	.01
22	.01	.22	.59	.55	1.1	.77	.50	.17	.21	.00	1.8	.00
23	.04	.19	.56	.43	1.5	2.9	.49	.23	.18	.00	1.4	.01
24	.17	.17	.54	.41	3.0	5.3	.45	.56	.16	.00	.96	.02
25	.12	.17	.54	.41	4.8	6.7	.73	1.1	.13	.47	.81	.02
26	.06	.17	.50	.38	5.8	6.7	.60	1.5	.11	.82	.67	.01
27	.03	.17	.45	.30	5.9	5.5	.54	1.4	.10	.25	.48	.00
28	.02	9.3	.45	.27	5.1	4.4	.54	1.2	.08	.15	.38	.00
29	.04	16	.45	.26	---	3.6	.54	.93	.08	.11	.32	.00
30	.10	7.4	.45	.23	---	3.1	.52	.71	.07	.09	.27	.00
31	.08	---	.53	.22	---	3.1	---	.61	---	.07	.24	---
TOTAL	.86	35.43	25.58	41.62	81.91	75.11	35.79	18.22	19.26	3.40	17.09	1.64
MEAN	.03	1.18	.83	1.34	2.93	2.42	1.19	.59	.64	.11	.55	.05
MAX	.17	16	3.9	4.0	9.7	6.7	3.3	1.5	3.5	.82	3.1	.21
MIN	.00	.03	.45	.22	.66	.75	.45	.17	.07	.00	.00	.00
CFSM	.01	.61	.43	.69	1.51	1.25	.61	.30	.33	.06	.28	.03
IN.	.02	.68	.49	.80	1.57	1.44	.69	.35	.37	.07	.33	.03
CAL YR 1984	TOTAL	1115.20	MEAN	3.05	MAX	199	MIN	.00	CFSM	1.57	IN.	21.38
WTR YR 1985	TOTAL	355.91	MEAN	.98	MAX	16	MIN	.00	CFSM	.51	IN.	6.82



## 01628500 SOUTH FORK SHENANDOAH RIVER NEAR LYNNWOOD, VA

LOCATION.--Lat 38°19'21", long 78°45'18", Rockingham County, Hydrologic Unit 02070005, on left bank 1.2 mi north-east of Lynnwood and 3.3 mi downstream from confluence of North and South Rivers.

DRAINAGE AREA.--1,084 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1930 to current year.

REVISED RECORDS.--WSP 1171: 1933(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,013.17 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 24, Jan. 21-25, and Jan. 28 to Feb. 18. Records good except those for periods of no gage-height record, Oct. 24 and Jan. 28 to Feb. 18, and period with ice effect, Jan. 21-25, which are fair. Diurnal fluctuation at low flow prior to 1960 caused by mill at Lynnwood. National Weather Service rain gage and gage-height telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--55 years, 1,001 ft<sup>3</sup>/s, 12.54 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,000 ft<sup>3</sup>/s, Oct. 15, 1942, gage height, 27.2 ft, from rating curve extended above 22,000 ft<sup>3</sup>/s on basis of computations of flow over dam at gage heights 23.60 ft and 27.2 ft; minimum, 32 ft<sup>3</sup>/s, Sept. 20, 1932, gage height, 1.63 ft; minimum daily, 93 ft<sup>3</sup>/s, Sept. 21, 29, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 15, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 7,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	Unknown	*9,450	*a10.84	No other peak equal to or greater than base discharge.			

a From high-water mark.

Minimum discharge, 294 ft<sup>3</sup>/s, Aug. 16, gage height, 2.32 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	719	473	2030	836	1800	1750	1050	462	757	338	375	636
2	717	453	1520	878	4000	1610	998	464	699	393	445	594
3	511	429	1220	1050	3500	1400	956	1250	645	375	433	555
4	451	419	1020	1960	2100	1230	940	2480	605	341	388	530
5	429	485	914	2140	1600	1140	893	1710	665	344	363	497
6	413	551	996	1970	1350	1050	841	1350	705	319	352	476
7	401	522	981	1810	1300	969	804	1100	607	315	346	459
8	399	486	844	1690	1200	914	785	920	583	310	351	446
9	401	468	808	1490	1100	887	744	790	563	323	398	434
10	401	458	784	1320	1000	846	701	699	571	366	650	425
11	388	455	784	1210	940	814	674	647	551	344	422	407
12	381	447	790	1110	7000	826	654	631	752	1190	361	400
13	375	432	799	1020	5000	801	625	707	614	1300	362	385
14	374	415	793	958	2100	765	608	687	525	692	350	378
15	380	404	768	911	1350	738	607	642	482	592	317	373
16	412	403	752	819	1200	707	609	626	462	520	308	369
17	412	398	734	806	1050	691	617	728	452	450	359	362
18	400	394	710	802	1000	677	580	787	434	413	1130	352
19	393	459	696	765	1060	656	541	691	416	389	4440	348
20	378	541	694	719	1190	642	522	621	404	369	2430	344
21	372	501	716	680	1250	628	511	571	385	354	2130	341
22	377	476	880	650	1320	625	508	568	376	345	1540	335
23	504	460	954	620	1390	843	487	580	368	333	1270	339
24	640	446	946	600	1780	1150	478	942	435	318	1070	341
25	518	444	933	570	2390	1360	556	1960	383	328	1050	333
26	452	433	901	557	2590	1320	562	1690	347	501	1330	321
27	420	430	846	553	2580	1230	497	1320	324	462	1110	322
28	410	638	826	550	2240	1140	486	1080	319	441	955	318
29	654	3670	794	560	---	1070	517	910	330	422	845	309
30	652	2990	765	560	---	1190	480	799	320	396	756	309
31	518	---	805	600	---	1060	---	738	---	379	687	---
TOTAL	14252	19580	28003	30764	56380	30729	19831	29150	15079	13962	27323	12038
MEAN	460	653	903	992	2014	991	661	940	503	450	881	401
MAX	719	3670	2030	2140	7000	1750	1050	2480	757	1300	4440	636
MIN	372	394	694	550	940	625	478	462	319	310	308	309
CFSM	.42	.60	.83	.92	1.86	.91	.61	.87	.46	.42	.81	.37
IN.	.49	.67	.96	1.06	1.93	1.05	.68	1.00	.52	.48	.94	.41
CAL YR 1984	TOTAL	520882	MEAN	1423	MAX	14000	MIN	369	CFSM	1.31	IN.	17.88
WTR YR 1985	TOTAL	297091	MEAN	814	MAX	7000	MIN	308	CFSM	.75	IN.	10.20

## 01629500 SOUTH FORK SHENANDOAH RIVER NEAR LURAY, VA

LOCATION.--Lat 38°38'46", long 78°32'06", Page County, Hydrologic Unit 02070005, on right bank between bridges on U.S. Highway 211, 1.2 mi downstream from Big Run, 2.2 mi upstream from Mill Creek, and 4.1 mi west of Luray.

DRAINAGE AREA.--1,377 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1925 to September 1930, October 1938 to September 1951, June 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 721.76 ft above National Geodetic Vertical Datum of 1929. April 1925 to September 1930, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-30, Feb. 8, and Mar. 15 to Apr. 10. Records good except those for period of no gage-height record, Mar. 15 to Apr. 10, and periods with ice effect, Jan. 22-30 and Feb. 8, which are fair. Diurnal fluctuation at low and medium flow caused by powerplant 10 mi upstream from station. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--24 years, 1,313 ft<sup>3</sup>/s, 12.95 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft<sup>3</sup>/s, Oct. 16, 1942, gage height, 25.7 ft; minimum, 70 ft<sup>3</sup>/s, Sept. 27, 1941, gage height, 2.15 ft; minimum daily, 135 ft<sup>3</sup>/s, Sept. 16, 1925, Sept. 28, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 23.6 ft, from floodmarks, discharge, 81,600 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 8,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 13	0300	*13,400	*9.98	No other peak equal to or greater than base discharge.			

Minimum discharge, 181 ft<sup>3</sup>/s, Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	663	634	2860	1070	989	2280	1400	641	1090	457	431	638
2	932	568	2090	1130	4830	2010	1300	634	1020	477	439	603
3	884	525	1710	1280	4000	1790	1250	748	948	511	485	515
4	648	518	1460	1790	2180	1590	1200	2290	868	491	493	520
5	583	511	1290	2450	1740	1470	1150	2150	916	457	438	526
6	547	597	1270	2450	1570	1360	1100	1720	1010	437	418	485
7	525	641	1350	2200	1490	1280	1070	1520	980	411	398	368
8	511	605	1230	2110	1380	1200	1040	1200	900	392	402	412
9	511	504	1130	1910	1230	1160	1020	1060	868	422	368	434
10	504	498	1110	1730	1150	1120	1010	940	916	418	456	396
11	504	632	1080	1580	1130	1070	884	860	876	451	650	391
12	491	605	1090	1480	6430	1080	876	860	1210	492	465	376
13	470	547	1100	1370	8540	1050	844	892	1130	1840	406	367
14	464	532	1110	1300	3240	1010	812	924	900	1150	362	356
15	477	511	1080	1230	2210	980	804	868	780	807	373	354
16	470	498	1060	1150	1820	940	804	828	740	683	297	353
17	511	484	1030	1100	1610	920	788	900	709	580	254	359
18	511	484	1020	1110	1460	900	788	980	702	521	427	352
19	504	511	980	1070	1380	880	748	964	626	493	4380	340
20	491	643	972	1020	1370	860	694	868	612	459	3810	343
21	484	678	980	788	1500	840	694	796	597	448	2590	340
22	470	619	1050	660	1510	820	678	748	568	438	1840	345
23	491	597	1160	680	1630	1000	702	772	554	433	1460	353
24	597	583	1220	700	1820	1400	656	868	561	409	1240	354
25	694	568	1200	720	2450	1700	702	1570	590	398	1060	354
26	641	568	1170	720	2940	1600	772	2150	525	448	1190	355
27	525	532	1120	700	3000	1500	725	1730	504	637	1290	357
28	518	632	1070	700	2710	1400	686	1450	437	573	1070	344
29	547	4000	1060	720	---	1400	678	1250	437	514	878	339
30	748	4580	1020	730	---	1500	709	1110	457	504	782	354
31	748	---	1010	732	---	1400	---	1280	---	474	698	---
TOTAL	17664	24405	38082	38380	67309	39510	26584	35571	23031	17225	29850	11983
MEAN	570	814	1228	1238	2404	1275	886	1147	768	556	963	399
MAX	932	4580	2860	2450	8540	2280	1400	2290	1210	1840	4380	638
MIN	464	484	972	660	989	820	656	634	437	392	254	339
CFSM	.41	.59	.89	.90	1.75	.93	.64	.83	.56	.40	.70	.29
IN.	.48	.66	1.03	1.04	1.82	1.07	.72	.96	.62	.47	.81	.32
CAL YR 1984	TOTAL	715055	MEAN	1954	MAX	25300	MIN	464	CFSM	1.42	IN.	19.32
WTR YR 1985	TOTAL	369594	MEAN	1013	MAX	8540	MIN	254	CFSM	.74	IN.	9.98

## POTOMAC RIVER BASIN

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA

LOCATION.--Lat 38°41'50", long 78°12'40", Warren County, Hydrologic Unit 02070005, on left bank 0.7 mi downstream from bridge on State Highway 619, 1.0 mi west of Front Royal, and 3.5 mi upstream from confluence with North Fork.

DRAINAGE AREA.--1,642 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1899 to September 1906, September 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1171: 1935(M), 1937(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 469.38 ft above National Geodetic Vertical Datum of 1929. June 1899 to July 1906, nonrecording gage at site 1.0 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Jan. 21-30. Records good except those for period with ice effect, Jan. 21-30, which are fair. Large diurnal fluctuation at low and medium flow caused by powerplants upstream from station prior to 1954; occasional large diurnal fluctuation thereafter. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--62 years, 1,597 ft<sup>3</sup>/s, 13.21 in./yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft<sup>3</sup>/s, Oct. 16, 1942, gage height, 34.8 ft, from floodmark in gage well, from rating curve extended above 92,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 59 ft<sup>3</sup>/s, Jan. 30, 1934, gage height, 0.56 ft; minimum daily, 103 ft<sup>3</sup>/s, Sept. 30, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 8,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 13	1230	*13,000	*8.39	No other peak equal to or greater than base discharge.			

Minimum discharge, 239 ft<sup>3</sup>/s, Aug. 19; minimum daily, 330 ft<sup>3</sup>/s, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	746	792	3900	997	964	2870	1580	743	1780	416	486	856
2	747	683	2810	1100	2830	2510	1410	719	1240	442	451	827
3	940	626	2170	1230	5030	2210	1390	787	1110	528	403	778
4	883	603	1750	1460	3180	1970	1320	865	999	542	407	702
5	680	626	1470	2410	2210	1810	1270	2770	952	534	515	641
6	584	588	1380	2770	1860	1710	1210	2150	1140	504	454	647
7	557	652	1350	2640	1690	1520	1140	1790	1170	421	415	656
8	545	711	1380	2440	1590	1330	1090	1490	1120	448	413	547
9	536	670	1210	2290	1550	1260	1060	1250	1030	425	401	504
10	536	598	1130	2060	1230	1230	1020	1100	881	431	382	580
11	515	554	1100	1830	1170	1210	955	1000	879	446	366	535
12	525	669	1080	1670	6730	1170	910	862	918	457	716	495
13	505	671	1090	1540	11700	1080	904	991	1290	499	538	480
14	500	602	1150	1450	5130	1130	865	956	1110	2040	465	466
15	483	583	1090	1270	3290	1050	844	974	843	1280	397	438
16	499	573	1040	1270	2520	999	822	925	763	898	364	432
17	496	559	1030	1170	2100	976	833	946	707	742	381	416
18	520	561	1000	1100	1830	962	814	1020	674	597	354	410
19	533	608	984	1120	1650	926	810	1050	643	517	360	412
20	524	630	964	984	1540	904	792	1000	623	483	5670	386
21	508	700	926	770	1560	876	728	910	548	438	3860	375
22	506	741	966	720	1700	870	726	838	534	415	3080	368
23	511	681	1030	670	1750	977	708	855	523	399	2290	363
24	542	633	1140	780	1940	1230	722	856	531	385	1900	367
25	621	633	1220	720	2370	1740	685	925	524	371	1670	368
26	718	618	1160	710	3110	2020	726	1860	529	413	1440	362
27	690	612	1130	720	3320	1950	780	2070	525	429	1640	405
28	584	773	1080	770	3240	1810	769	1700	462	575	1650	379
29	645	2810	1070	740	---	1680	732	1490	462	643	1400	348
30	608	5220	1030	800	---	1580	710	1210	392	534	1120	330
31	798	---	1020	816	---	1560	---	1320	---	523	1030	---
TOTAL	18585	25980	40850	41017	78784	45120	28325	37422	24902	17775	35018	14873
MEAN	600	866	1318	1323	2814	1455	944	1207	830	573	1130	496
MAX	940	5220	3900	2770	11700	2870	1580	2770	1780	2040	5670	856
MIN	483	554	926	670	964	870	685	719	392	371	354	330
CFSM	.37	.53	.80	.81	1.71	.89	.57	.74	.51	.35	.69	.30
IN.	.42	.59	.93	.93	1.78	1.02	.64	.85	.56	.40	.79	.34
CAL YR 1984	TOTAL	821209	MEAN	2244	MAX	35100	MIN	483	CFSM	1.37	IN.	18.60
WTR YR 1985	TOTAL	408651	MEAN	1120	MAX	11700	MIN	330	CFSM	.68	IN.	9.26

## POTOMAC RIVER BASIN

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01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949, 1953-56, 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1952 to September 1956, April 1968 to September 1977, October 1979 to August 1980.

WATER TEMPERATURE: October 1952 to September 1956, April 1968 to September 1977, October 1979 to August 1980.

SUSPENDED-SEDIMENT DISCHARGE: April 1953 to September 1956.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)
OCT 10...	08:30	537	368	366	8.7	8.7	17.5	755	<1	9.3
NOV 13...	13:30	644	362	366	8.8	8.7	8.0	750	5	14.1
DEC 18...	09:00	1000	324	311	8.2	8.2	10.0	750	<1	10.6
FEB 04...	15:15	2870	240	245	--	7.3	2.0	759	95	12.8
MAR 20...	11:00	906	279	281	8.7	8.6	9.5	746	10	12.7
MAY 08...	09:00	1480	172	172	7.8	7.6	17.0	750	10	7.6
JUN 19...	08:45	634	264	256	8.8	8.8	23.5	741	10	8.1
AUG 05...	10:45	528	317	312	9.1	9.1	25.0	753	15	10.2
SEP 17...	09:30	423	332	327	9.0	8.7	18.5	754	10	8.6

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT 10...	98	170	174	45	15	11	3.3	155	22
NOV 13...	121	180	177	46	15	12	2.8	159	23
DEC 18...	95	140	143	39	11	9.4	2.0	127	21
FEB 04...	93	96	96	27	6.9	6.2	8.8	77	17
MAR 20...	114	120	124	33	10	8.3	1.8	116	17
MAY 08...	80	73	73	20	5.6	4.4	1.7	64	14
JUN 19...	98	110	111	29	9.4	8.3	2.7	103	18
AUG 05...	125	160	155	39	14	8.3	2.6	147	17
SEP 17...	93	150	146	37	13	13	3.5	138	21



## POTOMAC RIVER BASIN

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT									
10...	12	<0.1	2.9	205	200	<0.01	1.80	0.18	8
NOV									
13...	13	0.1	3.0	202	120	<0.01	1.80	0.18	11
DEC									
18...	11	<0.1	0.4	159	170	<0.01	1.20	0.09	9
FEB									
04...	16	<0.1	4.2	167	130	0.04	1.50	0.63	85
MAR									
20...	8.7	0.1	0.2	163	150	<0.01	1.00	0.04	20
MAY									
08...	4.7	<0.1	6.5	109	96	0.09	1.00	0.14	35
JUN									
19...	8.5	0.1	4.8	165	140	<0.01	1.20	0.17	12
AUG									
05...	11	0.2	0.6	193	180	<0.01	0.61	0.23	9
SEP									
17...	13	0.1	0.1	189	180	<0.01	0.18	0.13	6

## 01632000 NORTH FORK SHENANDOAH RIVER AT COOTES STORE, VA

LOCATION.--Lat 38°38'13", long 78°51'11", Rockingham County, Hydrologic Unit 02070006, on right bank at Cootes Store, 300 ft upstream from bridge on State Highway 259, and 3.7 mi upstream from Linville Creek.

DRAINAGE AREA.--210 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1925 to current year.

REVISED RECORDS.--WSP 726: 1928-31. WSP 951: 1936, 1939(M). WSP 1171: 1935, 1937, 1938(M). WSP 1502: 1926, 1927-28(M), 1929, 1930-34(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,051.8 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 15, 1937, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 21-25. Records good except those for period with ice effect, Jan. 21-25, which are fair. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--60 years, 191 ft<sup>3</sup>/s, 12.35 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft<sup>3</sup>/s, Oct. 15, 1942, gage height, 25.3 ft, from flood-mark, from rating curve extended above 9,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; minimum, 0.20 ft<sup>3</sup>/s, Aug. 28, 29, Sept. 4, 1957, Sept. 7-10, 1966; minimum gage height, 1.74 ft, Sept. 7-10, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1836, that of Oct. 15, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	2330	3,570	7.77	May 31	1400	*4,850	*9.01

Minimum discharge, 1.8 ft<sup>3</sup>/s, Sept. 30, gage height, 1.89 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	23	306	87	135	363	204	31	1290	13	8.5	15
2	13	20	210	138	306	300	197	35	492	12	8.5	13
3	15	18	165	267	217	240	193	338	304	12	7.3	12
4	14	18	136	338	162	202	181	451	223	11	6.2	11
5	13	34	118	361	151	183	162	316	236	13	5.8	9.1
6	11	36	120	328	149	162	151	229	218	13	5.4	7.9
7	10	30	102	326	131	141	137	178	187	12	5.0	6.9
8	9.6	26	90	296	100	131	125	144	266	10	6.3	6.5
9	9.7	23	82	237	109	125	115	119	258	11	5.0	6.3
10	9.4	22	79	194	108	115	105	101	202	12	4.4	5.6
11	8.8	22	83	173	97	109	96	95	157	13	4.2	5.0
12	8.3	21	94	148	662	119	89	90	164	13	4.0	4.7
13	7.9	19	101	129	633	114	81	115	136	12	3.7	4.1
14	7.7	18	96	118	346	109	76	103	114	11	3.5	3.7
15	7.5	17	92	107	251	105	74	107	94	10	3.0	3.5
16	7.6	17	86	88	195	98	73	109	80	9.3	2.9	3.3
17	7.5	16	83	87	170	94	69	149	66	7.9	3.3	3.0
18	7.5	16	78	79	155	92	63	153	54	6.8	7.1	2.8
19	7.5	24	74	75	164	86	57	131	44	6.0	9.0	2.6
20	7.4	35	71	55	208	80	53	109	37	5.3	7.2	2.5
21	7.3	38	83	34	228	76	50	97	32	4.9	13	2.3
22	7.3	33	118	34	324	77	48	130	27	4.6	12	2.2
23	9.1	29	125	33	648	244	45	355	26	4.0	9.5	2.3
24	18	27	125	34	1160	490	42	663	26	3.5	8.8	2.1
25	13	25	124	35	1120	476	44	474	21	4.7	26	2.0
26	13	23	112	37	823	386	40	320	18	12	41	2.0
27	12	23	103	34	641	316	38	219	16	13	68	2.1
28	12	563	99	37	466	267	40	163	15	12	30	2.0
29	51	1580	94	33	---	237	38	131	14	11	21	2.0
30	32	521	91	28	---	219	34	108	13	9.0	18	1.9
31	26	---	90	32	---	199	---	2190	---	8.0	17	---
TOTAL	396.1	3317	3430	4002	9859	5955	2720	7953	4830	300.0	374.6	149.4
MEAN	12.8	111	111	129	352	192	90.7	257	161	9.68	12.1	4.98
MAX	51	1580	306	361	1160	490	204	2190	1290	13	68	15
MIN	7.3	16	71	28	97	76	34	31	13	3.5	2.9	1.9
CFSM	.06	.53	.53	.61	1.68	.91	.43	1.22	.77	.05	.06	.02
IN.	.07	.59	.61	.71	1.75	1.05	.48	1.41	.86	.05	.07	.03
CAL YR 1984	TOTAL	83930.3	MEAN	229	MAX	5140	MIN	2.6	CFSM	1.09	IN.	14.87
WTR YR 1985	TOTAL	43286.1	MEAN	119	MAX	2190	MIN	1.9	CFSM	.57	IN.	7.67

## 01632900 SMITH CREEK NEAR NEW MARKET, VA

LOCATION.--Lat 38°41'36", long 78°38'35", Shenandoah County, Hydrologic Unit 02070006, on left bank 25 ft upstream from bridge on State Highway 616, 3.6 mi north of New Market, and 4.4 mi upstream from mouth.

DRAINAGE AREA.--93.2 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 881.50 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 2, 1963, on right bank a short distance downstream, at datum 0.71 ft higher.

REMARKS.--Estimated daily discharges: Jan. 21-30 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 21-30 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--25 years, 73.3 ft<sup>3</sup>/s, 10.68 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft<sup>3</sup>/s, Oct. 6, 1972, gage height, 16.38 ft, from rating curve extended above 2,300 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; minimum, 4.5 ft<sup>3</sup>/s, Feb. 9, 1981, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 1, 1959, reached a stage of 10.7 ft, discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 650 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0330	1,030	6.25	Feb. 12	1500	*2,950	*10.11

Minimum discharge, 9.0 ft<sup>3</sup>/s, Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	34	87	38	248	69	53	28	83	20	18	17
2	44	33	73	52	341	67	50	28	54	21	19	16
3	30	31	64	72	133	63	48	56	46	23	18	15
4	27	30	57	90	96	60	48	52	42	23	17	15
5	25	42	53	95	81	58	46	39	43	24	16	14
6	24	36	58	94	75	54	45	34	46	23	16	13
7	24	33	59	89	72	52	44	31	42	23	16	13
8	25	30	53	85	62	52	44	29	52	20	17	14
9	26	30	52	77	56	51	43	28	42	25	17	14
10	26	29	52	71	52	49	42	28	37	27	16	13
11	26	30	54	68	52	48	42	27	34	26	16	12
12	26	29	56	64	1330	50	42	28	72	30	16	12
13	26	28	53	60	264	46	41	37	48	27	15	11
14	26	27	51	58	142	46	41	37	39	24	14	11
15	25	26	49	56	109	43	42	30	35	21	14	11
16	26	26	47	52	95	42	42	34	34	21	14	11
17	26	27	45	52	86	42	41	64	33	20	14	11
18	27	27	42	52	79	41	39	49	30	19	20	10
19	27	38	42	51	76	39	37	38	28	18	34	10
20	28	42	42	47	72	40	36	34	28	18	25	10
21	28	37	46	37	69	39	36	32	27	18	36	9.4
22	28	34	51	35	67	40	36	32	26	18	26	10
23	30	33	45	39	72	59	34	37	25	17	21	10
24	35	32	43	43	80	80	34	43	23	16	20	11
25	34	30	42	43	81	71	35	42	22	17	24	10
26	31	29	40	42	83	59	34	36	21	22	27	9.7
27	30	29	39	42	80	54	31	33	20	25	28	11
28	30	138	38	42	73	53	33	31	20	22	21	11
29	41	497	38	41	---	53	31	31	20	20	19	11
30	42	126	38	41	---	53	29	30	20	18	18	10
31	35	---	38	40	---	51	---	180	---	18	18	---
TOTAL	926	1613	1547	1768	4126	1624	1199	1258	1092	664	610	356.1
MEAN	29.9	53.8	49.9	57.0	147	52.4	40.0	40.6	36.4	21.4	19.7	11.9
MAX	48	497	87	95	1330	80	53	180	83	30	36	17
MIN	24	26	38	35	52	39	29	27	20	16	14	9.4
CFSM	.32	.58	.54	.61	1.58	.56	.43	.44	.39	.23	.21	.13
IN.	.37	.64	.62	.71	1.65	.65	.48	.50	.44	.27	.24	.14
CAL YR 1984	TOTAL	42846	MEAN	117	MAX	2510	MIN	24	CFSM	1.26	IN.	17.10
WTR YR 1985	TOTAL	16783.1	MEAN	46.0	MAX	1330	MIN	9.4	CFSM	.49	IN.	6.70

## 01633000 NORTH FORK SHENANDOAH RIVER AT MOUNT JACKSON, VA

LOCATION.--Lat 38°44'43", long 78°38'21", Shenandoah County, Hydrologic Unit 02070006, on right bank at upstream side of bridge on State Highway 698 at Mount Jackson and 0.4 mi downstream from Mill Creek.

DRAINAGE AREA.--506 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1943 to current year.

REVISED RECORDS.--WSP 1382: 1945, 1948-50(M), 1951-53(P), 1954(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 838.55 ft above National Geodetic Vertical Datum of 1929. Prior to July 1, 1976, nonrecording gage, and July 1, 1976, to Oct. 23, 1981, water-stage recorder, at site 400 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 3-5, Jan. 16, 20-29, and Feb. 9, 10. Records good except those for period of doubtful gage-height record, Dec. 3-5, and periods with ice effect, Jan. 16, 20-29 and Feb. 9, 10, which are fair. Some diversion during low flow by irrigation at points upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--42 years, 388 ft<sup>3</sup>/s, 10.41 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,500 ft<sup>3</sup>/s, Oct. 6, 1972, gage height, 18.10 ft, from rating curve extended above 18,000 ft<sup>3</sup>/s on basis of peak runoff for flood in October 1942 for stations at Cootes Store and near Strasburg; minimum observed, 7.0 ft<sup>3</sup>/s, Sept. 3, 1966, gage height, 1.97 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 20.2 ft, from floodmarks, discharge, about 80,000 ft<sup>3</sup>/s, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 5,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	1800	*6,960	*9.90	May 31	1830	5,210	8.69

Minimum discharge, 24 ft<sup>3</sup>/s, Sept. 26, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153	128	640	198	589	646	356	98	1970	69	61	57
2	187	121	451	228	1240	545	352	98	872	80	63	54
3	128	112	385	451	657	466	334	306	560	80	57	51
4	109	112	320	630	480	398	320	662	422	71	54	48
5	101	131	280	690	422	370	293	495	403	78	52	43
6	93	150	293	662	398	329	272	370	408	71	50	39
7	90	140	289	635	384	302	251	285	352	74	47	38
8	85	128	255	608	298	280	232	232	422	67	52	38
9	85	121	239	535	240	268	216	198	451	79	53	41
10	85	115	228	437	240	251	201	169	375	92	48	37
11	80	115	232	398	251	239	194	156	306	89	44	34
12	78	112	239	356	3720	243	183	150	412	101	44	34
13	78	107	247	316	1640	235	176	318	311	92	41	33
14	76	101	239	293	866	228	166	216	251	88	39	31
15	76	98	232	272	640	216	163	176	220	76	37	32
16	74	98	220	230	525	208	160	205	198	70	38	31
17	71	98	208	243	451	201	156	414	176	64	39	30
18	71	101	201	228	418	190	146	343	156	59	55	30
19	74	128	194	216	389	183	140	272	140	56	87	29
20	74	153	190	190	427	176	131	232	124	54	71	29
21	78	153	194	140	446	169	128	198	115	54	78	28
22	80	143	251	130	510	166	124	208	109	53	76	28
23	88	137	264	130	762	235	121	318	104	51	64	31
24	109	128	259	130	1320	723	118	902	101	48	60	29
25	112	128	259	140	1430	740	121	767	93	50	72	28
26	101	124	243	140	1180	630	115	545	80	75	121	25
27	96	118	224	130	1020	520	112	394	76	99	141	28
28	98	339	216	130	800	446	112	302	74	88	110	27
29	150	1740	212	130	---	398	109	251	71	75	80	27
30	173	1030	205	131	---	394	104	212	69	67	69	28
31	137	---	198	140	---	352	---	2090	---	61	60	---
TOTAL	3090	6409	8107	9287	21743	10747	5606	11582	9421	2231	1963	1038
MEAN	99.7	214	262	300	777	347	187	374	314	72.0	63.3	34.6
MAX	187	1740	640	690	3720	740	356	2090	1970	101	141	57
MIN	71	98	190	130	240	166	104	98	69	48	37	25
CFSM	.20	.42	.52	.59	1.54	.69	.37	.74	.62	.14	.13	.07
IN.	.23	.47	.60	.68	1.60	.79	.41	.85	.69	.16	.14	.08
CAL YR 1984	TOTAL	202568	MEAN	553	MAX	9830	MIN	71	CFSM	1.09	IN.	14.89
WTR YR 1985	TOTAL	91224	MEAN	250	MAX	3720	MIN	25	CFSM	.49	IN.	6.71



## 01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA

LOCATION.--Lat 38°58'36", long 78°20'11", Warren County, Hydrologic Unit 02070006, on right bank at downstream side of bridge on State Highway 55, 1.5 mi southeast of Strasburg, 2.2 mi upstream from Cedar Creek, and 10 mi upstream from confluence with South Fork.

DRAINAGE AREA.--768 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1925 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1001: 1931. WSP 1171: 1929(M), 1933(M), 1936-37. WSP 1302: 1928(M), 1930(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 494.03 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 21, 1930, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 20 to Feb. 10. Records good except those for period with ice effect, Jan. 20 to Feb. 10, which are fair. Large diurnal fluctuation at low and medium flow from unknown cause. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--60 years, 588 ft<sup>3</sup>/s, 10.40 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft<sup>3</sup>/s, Oct. 16, 1942, gage height, 31.2 ft, from high-water mark in well, from rating curve extended above 46,000 ft<sup>3</sup>/s; minimum, 6.0 ft<sup>3</sup>/s, Feb. 9, 1934, gage height, 1.52 ft; minimum daily, 41 ft<sup>3</sup>/s, Sept. 26, Oct. 1, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	----	Unknown	Ice jam	Feb. 13	0030	*7,720	*10.36

Minimum discharge, 39 ft<sup>3</sup>/s, Sept. 28, gage height, 1.61 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	219	225	1170	319	260	987	525	200	3330	127	89	135
2	213	210	801	299	1100	832	525	185	1810	142	131	163
3	291	199	620	358	1700	725	513	220	1040	141	110	101
4	253	164	528	611	860	640	492	255	729	160	77	150
5	212	215	456	839	700	569	476	732	605	172	115	97
6	178	191	438	893	680	526	447	585	571	137	129	125
7	186	190	413	837	620	481	414	467	559	140	87	108
8	169	196	422	792	560	443	395	390	496	136	111	118
9	168	203	350	746	480	417	369	343	535	158	98	114
10	169	193	345	653	410	402	332	322	583	158	118	92
11	173	181	349	580	482	387	329	226	502	151	110	65
12	164	179	319	532	2930	391	320	248	435	182	79	85
13	174	165	353	483	5190	363	299	261	463	158	110	100
14	114	173	349	444	1730	366	299	340	430	154	124	137
15	157	156	377	433	1140	352	270	338	346	172	100	88
16	161	142	308	454	884	342	276	271	339	160	83	59
17	163	158	319	365	735	334	263	286	289	158	112	61
18	155	149	332	341	652	314	272	470	283	170	116	121
19	153	206	288	347	609	291	253	445	261	105	114	87
20	164	191	266	300	575	292	245	373	223	107	133	59
21	253	164	322	260	606	289	216	334	210	86	140	73
22	202	105	303	240	616	282	219	272	208	106	199	152
23	160	179	305	230	701	315	250	295	179	127	163	152
24	171	208	372	280	1110	418	210	370	185	108	88	110
25	166	192	367	260	1670	968	209	976	178	86	161	109
26	174	234	357	230	1640	927	210	824	181	102	163	55
27	175	261	349	210	1430	787	210	632	133	173	107	65
28	170	293	338	240	1220	676	208	489	169	93	190	51
29	205	1780	291	220	---	614	185	407	156	155	204	81
30	185	2260	308	210	---	571	203	346	130	157	191	93
31	218	---	298	230	---	553	---	347	---	136	169	---
TOTAL	5715	9362	12413	13236	31290	15854	9434	12249	15558	4317	3921	3006
MEAN	184	312	400	427	1118	511	314	395	519	139	126	100
MAX	291	2260	1170	893	5190	987	525	976	3330	182	204	163
MIN	114	105	266	210	260	282	185	185	130	86	77	51
CFSM	.24	.41	.52	.56	1.46	.67	.41	.51	.68	.18	.16	.13
IN.	.28	.45	.60	.64	1.52	.77	.46	.59	.75	.21	.19	.15
CAL YR 1984	TOTAL	303609	MEAN	830	MAX	14300	MIN	105	CFSM	1.08	IN.	14.71
WTR YR 1985	TOTAL	136355	MEAN	374	MAX	5190	MIN	51	CFSM	.49	IN.	6.60

## POTOMAC RIVER BASIN

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01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1949, 1952, 1956, 1970 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1955 to September 1956.

WATER TEMPERATURE: October 1948 to September 1949, October 1955 to September 1956.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)
OCT										
10...	13:20	189	433	434	8.5	8.5	17.5	755	2	12.8
NOV										
13...	11:15	115	445	448	8.5	8.3	7.0	749	<1	13.2
DEC										
18...	12:45	333	406	393	8.3	8.1	10.0	750	5	12.2
MAR										
20...	09:45	282	333	339	8.2	8.1	8.0	746	10	11.7
MAY										
08...	14:45	383	212	217	8.4	8.2	19.0	749	10	10.2
JUN										
19...	08:45	267	303	297	8.9	8.9	24.0	741	5	12.0
AUG										
05...	15:00	76	339	337	9.1	9.0	25.0	751	10	13.4
SEP										
17...	13:15	64	418	405	8.7	8.6	18.0	752	10	13.9

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT									
10...	135	200	198	48	19	16	2.5	175	18
NOV									
13...	111	210	209	54	18	17	2.2	191	19
DEC									
18...	110	180	183	50	14	11	1.9	159	20
MAR									
20...	101	160	157	43	12	6.3	1.6	142	17
MAY									
08...	112	100	101	28	7.6	4.4	1.4	90	13
JUN									
19...	147	140	138	37	11	8.5	2.2	128	15
AUG									
05...	165	150	150	32	17	14	2.7	141	18
SEP									
17...	149	160	163	34	19	23	3.4	151	19

## POTOMAC RIVER BASIN

01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 10...	24	<0.1	0.5	224	230	<0.01	1.10	<0.01	9
NOV 13...	24	<0.1	1.1	254	250	<0.01	1.10	0.02	16
DEC 18...	17	<0.1	2.7	220	210	<0.01	1.90	0.07	10
MAR 20...	10	0.1	0.1	205	180	<0.01	1.10	0.02	17
MAY 08...	6.0	<0.1	4.7	128	120	<0.01	0.58	0.10	21
JUN 19...	12	<0.1	1.7	183	160	<0.01	0.93	0.10	11
AUG 05...	22	0.1	2.1	195	190	<0.01	<0.10	0.10	12
SEP 17...	32	0.1	1.4	221	220	<0.01	<0.10	0.02	10

## 01634500 CEDAR CREEK NEAR WINCHESTER, VA

LOCATION.--Lat 39°04'52", long 78°19'47", Frederick County, Hydrologic Unit 02070006, on left bank 0.2 mi upstream from Fawcett Run, 0.3 mi upstream from bridge on State Highway 628, 1.3 mi downstream from Froman Run, and 11.4 mi southwest of Winchester.

DRAINAGE AREA.--103 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1937 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 647.09 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1 to Dec. 3, Jan. 13-29, Feb. 6, 7, and May 10-23. Records good except those for periods of no gage-height record, Oct. 1 to Dec. 3 and May 10-23, and periods with ice effect, Jan. 13-29 and Feb. 6, 7, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--48 years, 94.1 ft<sup>3</sup>/s, 12.41 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft<sup>3</sup>/s, Oct. 15, 1942, gage height, 27.0 ft, from flood-marks, from rating curve extended above 15,000 ft<sup>3</sup>/s; minimum, 1.8 ft<sup>3</sup>/s, Feb. 19, 1941, Dec. 7, 1958, result of freezeups; minimum daily, 2.8 ft<sup>3</sup>/s, Sept. 7, 1964, Sept. 3, 4, 7, 8, 1966; minimum gage height, 1.04 ft, Feb. 19, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, 1936, reached a stage of about 25 ft, discharge, about 18,000 ft<sup>3</sup>/s, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	Unknown	*4,240	*a10.35	Feb. 12	1230	4,010	9.96

a From high-water mark.

Minimum discharge, 4.2 ft<sup>3</sup>/s, Aug. 16, Sept. 7, gage height, 1.41 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	18	200	49	69	130	160	32	146	11	12	7.1
2	13	17	120	58	121	120	140	32	78	18	11	6.9
3	12	23	95	75	104	105	130	73	59	21	10	6.7
4	12	23	82	89	80	97	116	63	50	13	8.7	6.5
5	11	28	73	132	75	92	105	48	64	11	7.7	5.9
6	11	22	82	121	70	90	97	42	78	17	7.8	5.3
7	11	19	70	112	64	73	86	40	56	12	7.6	5.0
8	12	18	70	104	61	72	80	36	75	11	15	8.1
9	12	17	66	90	57	69	75	33	61	17	13	11
10	12	16	62	87	70	64	69	28	50	22	8.6	8.2
11	12	18	66	80	72	60	66	28	42	21	7.3	7.1
12	12	30	69	73	1820	64	61	40	40	15	7.1	5.8
13	12	21	69	70	609	61	57	64	36	17	6.8	5.8
14	12	15	63	62	268	61	60	54	32	17	5.8	5.3
15	12	15	62	52	186	57	56	45	29	31	5.2	5.8
16	13	14	58	52	134	54	59	40	29	19	4.8	6.1
17	13	13	56	54	118	53	61	52	28	11	10	6.3
18	15	17	54	54	109	51	52	66	23	9.3	16	6.3
19	19	29	56	54	111	49	50	52	21	8.7	32	5.9
20	22	25	56	54	126	48	48	45	19	8.3	15	6.0
21	13	22	56	40	118	48	48	35	17	8.5	13	5.9
22	24	20	72	34	153	46	45	32	16	9.1	11	6.1
23	40	19	63	33	224	96	44	130	15	8.3	9.1	6.7
24	35	18	61	34	271	176	43	133	17	6.8	9.1	7.7
25	27	17	61	40	238	193	43	78	13	7.4	16	6.8
26	23	16	56	45	213	140	42	56	10	27	18	5.9
27	16	17	53	47	183	122	40	45	9.0	37	16	14
28	21	1600	53	49	148	113	39	40	9.3	24	12	17
29	35	1400	52	49	---	109	38	47	9.2	14	9.1	9.9
30	23	400	53	50	---	114	34	38	9.0	12	8.2	7.7
31	20	---	50	56	---	107	---	149	---	11	8.0	---
TOTAL	539	3927	2159	1999	5872	2734	2044	1696	1140.5	475.4	340.9	218.8
MEAN	17.4	131	69.6	64.5	210	88.2	68.1	54.7	38.0	15.3	11.0	7.29
MAX	40	1600	200	132	1820	193	160	149	146	37	32	17
MIN	11	13	50	33	57	46	34	28	9.0	6.8	4.8	5.0
CFSM	.17	1.27	.68	.63	2.04	.86	.66	.53	.37	.15	.11	.07
IN.	.19	1.42	.78	.72	2.12	.99	.74	.61	.41	.17	.12	.08
CAL YR 1984	TOTAL	56826	MEAN	155	MAX	3770	MIN	10	CFSM	1.50	IN.	20.52
WTR YR 1985	TOTAL	23145.6	MEAN	63.4	MAX	1820	MIN	4.8	CFSM	.62	IN.	8.36



## 01635500 PASSAGE CREEK NEAR BUCKTON, VA

LOCATION.--Lat 38°57'29", long 78°16'01", Warren County, Hydrologic Unit 02070006, on right bank 350 ft upstream from bridge on State Highway 55, 1.2 mi south of Buckton railroad station, 1.4 mi upstream from mouth, and 4.2 mi west of Riverton.

DRAINAGE AREA.--87.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1905 to July 1906 (gage heights only), April 1932 to current year. Prior to October 1966, published as "at Buckton."

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 525.14 ft above National Geodetic Vertical Datum of 1929. October 1905 to July 1906, nonrecording gage at site 1 mi downstream at different datum. Apr. 4, 1932, to Oct. 7, 1937, nonrecording gage at site 350 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 8, Jan. 12-17, 20-31, and Feb. 1, 2, 3-12, 15-19. Records good except those for periods of no gage-height record, Dec. 8, Jan. 12-17, 20-31, and Feb. 3-12, 15-19, and period with ice effect, Feb. 1, 2, which are fair. Occasional diurnal fluctuation during low flow caused by State Fish Hatchery 2 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--53 years, 69.0 ft<sup>3</sup>/s, 10.67 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 ft<sup>3</sup>/s, Oct. 15, 1942, gage height, 15.5 ft, from high-water mark in well, from rating curve extended above 5,200 ft<sup>3</sup>/s; minimum observed, 0.1 ft<sup>3</sup>/s, Aug. 5, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0930	1,540	6.88	Feb. 12	Unknown	*2,280	*a7.95

a From high-water mark.

Minimum discharge, 1.5 ft<sup>3</sup>/s, Aug. 15 16, gage height, 2.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	18	114	24	140	88	69	15	236	5.6	7.4	4.9
2	40	14	80	29	250	82	65	15	102	7.1	5.6	4.4
3	19	13	67	58	70	72	61	28	69	8.8	5.2	4.0
4	12	12	57	86	56	67	58	37	55	11	5.2	3.9
5	9.7	22	47	102	47	65	55	23	53	8.7	4.0	3.6
6	8.0	39	57	96	43	57	50	19	55	7.3	4.0	3.4
7	8.0	24	60	84	41	50	47	17	40	6.3	3.7	3.5
8	8.6	18	46	78	41	49	44	15	42	5.5	4.6	3.7
9	7.6	16	47	65	40	47	42	14	43	5.9	5.0	4.5
10	7.3	15	43	57	50	43	39	13	32	8.1	4.0	3.1
11	8.6	14	44	53	160	42	37	13	25	10	3.8	2.4
12	6.0	13	46	50	1600	47	35	13	26	8.9	3.0	2.3
13	6.7	12	44	47	540	43	34	19	23	8.9	2.3	2.4
14	6.7	11	40	46	236	40	33	21	19	13	2.1	2.3
15	6.5	11	35	45	150	35	32	15	17	11	1.7	2.2
16	8.3	10	33	44	110	34	33	14	17	8.9	2.1	2.4
17	5.8	10	32	43	92	32	32	38	16	7.5	1.8	4.5
18	8.3	10	31	40	88	31	29	72	14	6.0	3.8	2.5
19	8.6	15	29	35	84	29	26	44	14	4.8	6.8	2.1
20	9.4	31	29	33	82	29	25	32	12	4.1	9.9	2.1
21	6.7	23	29	27	76	27	23	24	10	3.6	9.9	2.1
22	6.9	18	35	22	74	28	23	21	9.1	3.7	13	2.0
23	8.8	16	32	20	90	47	23	24	9.4	3.3	8.8	1.9
24	17	15	29	20	102	94	22	44	9.4	3.0	6.4	1.9
25	16	14	29	23	102	90	22	38	8.6	3.2	6.6	2.0
26	12	14	27	28	114	74	23	29	8.3	4.8	10	2.0
27	9.4	13	24	33	116	65	21	24	6.5	12	16	4.7
28	12	97	24	35	98	63	22	23	5.8	11	13	3.3
29	44	926	24	35	---	63	22	21	5.4	7.9	8.4	3.2
30	37	186	23	37	---	65	20	21	5.4	5.9	6.5	2.6
31	21	---	23	40	---	63	---	247	---	5.8	5.5	---
TOTAL	419.9	1650	1280	1435	4692	1661	1067	993	987.9	221.6	190.1	89.9
MEAN	13.5	55.0	41.3	46.3	168	53.6	35.6	32.0	32.9	7.15	6.13	3.00
MAX	44	926	114	102	1600	94	69	247	236	13	16	4.9
MIN	5.8	10	23	20	40	27	20	13	5.4	3.0	1.7	1.9
CFSM	.15	.63	.47	.53	1.91	.61	.41	.36	.37	.08	.07	.03
IN.	.18	.70	.54	.61	1.99	.70	.45	.42	.42	.09	.08	.04
CAL YR 1984	TOTAL	40252.5	MEAN	110	MAX	2220	MIN	2.1	CFSM	1.25	IN.	17.05
WTR YR 1985	TOTAL	14687.4	MEAN	40.2	MAX	1600	MIN	1.7	CFSM	.46	IN.	6.22

01636500 SHENANDOAH RIVER AT MILLVILLE, WV  
(National stream-quality accounting network station)

LOCATION.--Lat 39°16'55", long 77°47'22", Jefferson County, Hydrologic Unit 02070007, on left bank 0.4 mi downstream from Cattail Run, 1.0 mi upstream from Millville, 5.0 mi upstream from Harpers Ferry, and at mile 5.0.

DRAINAGE AREA.--3,040 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1895 to March 1909, August 1928 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1432: Drainage area at former site, 1895-99, 1901-2, 1905, 1907-8, 1932(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 293.00 ft above National Geodetic Vertical Datum of 1929. Apr. 15, 1895, to Mar. 31, 1909, nonrecording gage at site 0.8 mi downstream at datum 0.32 ft higher.

REMARKS.--Estimated daily discharges: Jan. 18-22, 25-31 and Feb. 1, 8-11. Records good except those for periods with ice effect, Jan. 18-22, 25-31 and Feb. 1, 8-11, which are poor. Regulation by hydroelectric plants, particularly that of Potomac Light and Power Company, 0.5 mi upstream from station. U.S. Army Corps of Engineers satellite telemeter and National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--70 years (water years 1896-1908, 1929-85), 2,698 ft<sup>3</sup>/s, 12.05 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft<sup>3</sup>/s, Oct. 16, 1942, gage height, 32.4 ft, from floodmarks; minimum, about 59 ft<sup>3</sup>/s, Oct. 4, 1930, gage height, 0.39 ft; minimum daily, 194 ft<sup>3</sup>/s, July 24, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1870 reached practically same stage as flood of Mar. 18, 1936, 26.36 ft, discharge, 151,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 15,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 3	1930	15,500	8.55	Feb. 13	1545	*24,700	*10.83

Minimum discharge, 346 ft<sup>3</sup>/s, Sept. 25, gage height, 1.15 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	1060	7580	1550	1170	4970	2770	1060	2950	689	732	1090
2	1140	1260	5140	1580	1990	4380	2610	1100	5500	527	718	976
3	1250	953	3970	1690	6270	3870	2510	1170	3250	629	617	804
4	1300	964	3180	2020	6700	3400	2390	1210	2400	702	617	832
5	1360	1010	2700	2710	4540	3040	2290	1260	2010	795	595	782
6	1030	1010	2480	4100	3370	2740	2170	3360	1830	702	558	737
7	927	1040	2350	4220	2890	2530	2080	3050	1890	710	666	637
8	867	926	2260	3900	2540	2340	1940	2490	1930	728	645	682
9	810	1020	2240	3660	2360	2170	1890	2120	1780	539	590	724
10	903	989	2020	3390	2260	2060	1770	1830	1690	638	590	622
11	742	944	1920	2910	2120	2030	1730	1560	1610	666	571	573
12	813	846	1900	2680	7280	1930	1670	1480	1510	695	545	588
13	784	930	1840	2470	23900	1860	1600	1350	1360	695	603	573
14	773	978	1810	2310	15000	1840	1560	1290	1680	779	691	500
15	793	847	1810	2160	7290	1840	1530	1440	1540	1770	606	495
16	721	850	1760	1960	5230	1700	1480	1370	1390	1440	581	552
17	788	751	1660	1860	4200	1640	1470	1400	1110	1060	555	566
18	746	772	1620	1700	3620	1590	1450	1440	1060	834	499	508
19	755	871	1620	1600	3200	1540	1410	1560	1110	827	624	456
20	971	896	1580	1500	2940	1520	1370	1660	897	779	714	482
21	621	977	1540	1400	2780	1480	1330	1560	989	718	4430	538
22	828	983	1510	1300	2880	1470	1250	1330	852	652	3030	506
23	943	1050	1540	1620	2990	1710	1230	1350	819	544	2610	461
24	936	947	1590	1550	3350	2300	1290	1300	771	497	1920	443
25	882	974	1770	1560	4220	3170	1220	1500	755	571	1700	498
26	882	965	1840	1540	5250	3760	1200	2010	693	652	1450	551
27	999	986	1790	1500	5670	3590	1080	3020	744	679	1400	568
28	1050	1210	1740	1380	5490	3250	1200	2770	631	666	1430	615
29	1150	4920	1600	1310	---	3030	1250	2340	638	732	1490	557
30	1160	8630	1610	1270	---	2850	1130	2000	666	795	1380	486
31	1050	---	1610	1200	---	2700	---	1810	---	755	1180	---
TOTAL	28984	40559	69580	65600	141500	78300	49870	54190	46055	23465	34337	18402
MEAN	935	1352	2245	2116	5054	2526	1662	1748	1535	757	1108	613
MAX	1360	8630	7580	4220	23900	4970	2770	3360	5500	1770	4430	1090
MIN	621	751	1510	1200	1170	1470	1080	1060	631	497	499	443
CF5M	.31	.45	.74	.70	1.66	.83	.55	.58	.51	.25	.36	.20
IN.	.35	.50	.85	.80	1.73	.96	.61	.66	.56	.29	.42	.23
CAL YR 1984	TOTAL	1449243	MEAN	3960	MAX	50400	MIN	621	CF5M	1.30	IN.	17.73
WTR YR 1985	TOTAL	650842	MEAN	1783	MAX	23900	MIN	443	CF5M	.59	IN.	7.96

## POTOMAC RIVER BASIN

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-63, 1965, 1969-71, 1979 to current year.

INSTRUMENTATION.--Water-quality monitor October 1980 to September 1983.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to September 1983.

WATER TEMPERATURE: October 1980 to September 1983.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (water years 1981-82): Maximum, 778 microsiemens, Dec. 29, 1980; minimum, 212 microsiemens, Jan. 17, 1982.

WATER TEMPERATURE (water years 1981-83): Maximum, 30.0°C, July 20, 21, 1981; minimum, 0.0°C on many days during winter periods.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE, AIR (DEG C)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV 1984										
07...	11:00	1270	510	8.1	11.0	10.0	768	1.1	12.0	106
JAN 1985										
07...	10:00	4280	318	8.2	4.0	6.0	752	2.0	15.6	127
MAR										
11...	10:15	2120	310	8.6	15.0	11.0	761	1.5	12.7	115
MAY										
01...	09:30	1060	410	8.5	23.0	21.5	758	3.0	8.3	95
JUL										
01...	10:30	1830	425	8.9	21.0	25.0	764	2.0	7.5	91
SEP										
03...	10:00	1100	374	8.3	26.0	25.0	762	3.4	7.2	87

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
NOV 1984										
07...	--	K21	190	30	51	15	31	26	1	3.0
JAN 1985										
07...	48	180	140	17	38	10	11	15	0.4	1.9
MAR										
11...	K3	140	120	26	35	8.8	15	21	0.6	1.4
MAY										
01...	30	120	150	28	42	12	24	25	0.9	2.2
JUL										
01...	<1	K65	160	47	43	12	29	28	1	2.1
SEP										
03...	31	82	140	33	38	11	25	27	1	2.7

DATE	ALKA- LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)
NOV 1984										
07...	159	2.4	67	18	0.1	4.7	296	290	0.4	1010
JAN 1985										
07...	119	1.3	28	10	<0.1	3.6	193	170	0.26	2230
MAR										
11...	98	0.5	42	9.8	<0.1	1.3	178	170	0.24	1020
MAY										
01...	126	0.8	57	13	0.1	3.8	251	230	0.34	718
JUL										
01...	110	0.3	72	19	0.1	1.7	272	250	0.37	1340
SEP										
03...	107	1.0	55	12	0.1	6.1	211	210	0.29	627

## POTOMAC RIVER BASIN

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01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS TOTAL (MG/L AS PO4)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
NOV 1984									
07...	1.40	<0.01	--	0.5	0.28	0.86	0.16	0.15	0.46
JAN 1985									
07...	1.40	0.02	0.03	0.5	0.14	0.43	0.11	0.08	0.25
MAR									
11...	0.98	0.04	0.05	1.1	0.08	0.25	0.08	0.06	0.18
MAY									
01...	<0.10	<0.01	--	0.5	0.15	0.46	0.08	<0.01	--
JUL									
01...	0.14	0.02	0.03	0.7	0.12	0.37	0.08	0.07	0.21
SEP									
03...	0.86	0.05	0.06	0.5	0.12	0.37	0.12	0.11	0.34

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 1984										
07...	<10	1	43	<0.5	<1	<1	<3	1	9	1
MAR										
11...	20	<1	33	<0.5	<1	<1	<3	<1	27	3
MAY										
01...	20	1	37	0.6	<1	<1	<3	3	11	1
SEP										
03...	<10	1	39	<0.5	<1	<1	<3	1	6	1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 1984										
07...	10	4	<0.1	<10	1	<1	<1	180	<6	9
MAR										
11...	5	6	<0.1	<10	1	<1	<1	110	<6	8
MAY										
01...	<4	4	<0.1	<10	1	<1	<1	140	<6	5
SEP										
03...	8	12	<0.1	<10	1	<1	<1	130	<6	23

DATE	SEDI- MENT, DIS- SUS- PENDE (MG/L)	SEDIMENT, CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV			
07...	8	27	29
JAN			
07...	14	162	62
MAR			
11...	6	34	97

DATE	SEDI- MENT, DIS- SUS- PENDE (MG/L)	SEDIMENT, CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAY			
01...	22	63	78
JUL			
01...	29	143	71
SEP			
03...	15	45	99



## POTOMAC RIVER BASIN

01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA

LOCATION.--Lat 39°15'18", long 77°34'36", Loudoun County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on State Highway 663 at Taylorstown and 3.2 mi downstream from Milltown Creek.

DRAINAGE AREA.--89.6 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 247.37 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 3, 1983, at site 60 ft upstream at datum 1.78 ft higher.

REMARKS.--Estimated daily discharges: Dec. 3, 4, Jan. 9-24, Feb. 4-10, 14-26, May 14-22, and July 5-10, 14, 15, 17-25. Records good except those for periods of doubtful gage-height record, Dec. 3, 4, Feb. 14-26, May 14-22, and July 5-10, 14, 15, 17-25, and periods with ice effect, Jan. 9-24 and Feb. 4-10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--14 years, 107 ft<sup>3</sup>/s, 16.22 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,800 ft<sup>3</sup>/s, June 22, 1972, gage height, 23.83 ft, from flood-marks, site and datum then in use, from rating curve extended above 7,400 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; minimum, 1.0 ft<sup>3</sup>/s, Sept. 26, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	1230	*5,440	*13.08	No other peak equal to or greater than base discharge.			

Minimum discharge, 1.0 ft<sup>3</sup>/s, Sept. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	25	112	44	67	61	144	16	62	13	14	4.8
2	42	23	91	67	570	58	105	17	37	16	13	3.6
3	26	22	78	90	170	54	91	46	30	26	10	4.2
4	18	20	69	100	80	51	84	41	26	27	7.7	6.5
5	14	31	63	107	67	51	78	24	88	18	7.1	5.4
6	11	38	161	104	56	46	69	19	79	13	5.9	5.4
7	12	28	125	91	55	41	61	17	44	10	5.9	4.8
8	14	23	87	86	56	43	58	15	44	7.3	11	4.2
9	16	21	79	66	57	43	57	13	43	5.7	16	4.8
10	16	21	74	63	58	39	52	12	33	5.2	13	5.4
11	16	21	71	61	63	38	50	9.5	27	18	9.4	5.9
12	17	26	65	57	3160	43	48	49	25	144	7.7	6.5
13	15	20	61	53	478	39	46	214	23	152	5.9	4.8
14	14	17	59	50	170	36	44	50	20	25	4.2	3.9
15	14	16	54	49	115	34	43	25	19	14	2.9	3.6
16	17	17	53	48	88	31	43	20	19	57	2.9	3.6
17	19	17	50	50	78	31	41	45	20	30	2.3	3.2
18	19	17	49	49	72	30	37	90	18	16	4.2	3.2
19	18	25	49	49	69	27	34	38	15	12	14	3.2
20	17	30	53	48	68	27	32	27	14	9.0	14	3.2
21	17	25	53	45	65	27	30	25	13	7.0	7.7	2.9
22	19	21	70	43	65	28	27	22	13	5.9	6.5	2.6
23	42	20	59	42	75	54	26	52	13	5.4	5.4	2.6
24	39	19	53	44	85	144	25	76	16	4.9	4.2	2.6
25	33	19	51	45	82	149	26	43	13	4.0	4.8	2.3
26	25	19	47	43	80	86	26	33	8.4	19	14	1.3
27	22	19	45	41	73	73	23	27	8.4	38	26	8.8
28	21	125	45	39	65	66	20	40	12	38	21	24
29	74	604	45	38	---	78	20	62	14	27	14	8.3
30	43	165	45	37	---	91	17	36	13	20	9.4	4.8
31	30	---	44	38	---	116	---	48	---	17	7.1	---
TOTAL	755	1494	2060	1787	6187	1735	1457	1251.5	809.8	804.4	291.2	150.4
MEAN	24.4	49.8	66.5	57.6	221	56.0	48.6	40.4	27.0	25.9	9.39	5.01
MAX	74	604	161	107	3160	149	144	214	88	152	26	24
MIN	11	16	44	37	55	27	17	9.5	8.4	4.0	2.3	1.3
CFSM	.27	.56	.74	.64	2.47	.62	.54	.45	.30	.29	.10	.06
IN.	.31	.62	.86	.74	2.57	.72	.60	.52	.34	.33	.12	.06
CAL YR 1984	TOTAL	53441	MEAN	146	MAX	3500	MIN	11	CFSM	1.63	IN.	22.19
WTR YR 1985	TOTAL	18782.3	MEAN	51.5	MAX	3160	MIN	1.3	CFSM	.57	IN.	7.80

## 01638500 POTOMAC RIVER AT POINT OF ROCKS, MD

LOCATION.--Lat 39°16'25", long 77°32'35", Frederick County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on U.S. Highway 15 at Point of Rocks, 0.3 mi downstream from Catoctin Creek (Virginia), 6 mi upstream from Monocacy River, and at mile 159.5.

DRAINAGE AREA.--9,651 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1895 to current year.

REVISED RECORDS.--WSP 192: 1895-1905. WSP 1432: 1899, 1901-2, 1904-5, 1912, 1914(M), 1915, 1917(M), 1918, 1919(M), 1920, 1921-23(M), 1924, 1925-28(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 200.63 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1929, nonrecording gage at same site. Prior to Sept. 2, 1902, at datum about 0.45 ft higher.

REMARKS.--Estimated daily discharges: Nov. 5-9 and Jan. 15 to Feb. 13. Records good. Low flow affected slightly from 1913 to July 1981 by Stony River Reservoir, since December 1950 by Savage River Reservoir, and since July 1981, by Jennings Randolph Lake. Low flow affected extensively at times by run-of-the-river hydro-electric plants. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--90 years, 9,400 ft<sup>3</sup>/s, 13.22 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft<sup>3</sup>/s, Mar. 19, 1936, gage height, 41.03 ft, from rating curve extended above 300,000 ft<sup>3</sup>/s on the basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow; minimum discharge, 530 ft<sup>3</sup>/s, Sept. 11, 12, 1966, gage height, 0.27 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, reached a stage of 40.2 ft, from floodmarks, discharge, about 460,000 ft<sup>3</sup>/s from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 35,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 30	1400	36,800	8.70	Jun. 2	1030	35,000	8.39
Feb. 13	2000	*84,700	*15.57				

Minimum discharge, 1,300 ft<sup>3</sup>/s, Sept. 18, 19, gage height, 0.74 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3070	3320	28100	7870	4700	22900	21500	4020	6460	2000	2890	2760
2	2990	3870	19700	7600	8000	19000	27500	4110	27200	2130	2710	2530
3	3010	3670	14500	7330	8400	15800	25300	4970	20100	1930	2520	2220
4	3310	3150	11600	7410	9600	13300	20200	19000	12600	2100	2400	2260
5	3640	3300	9990	8130	10000	11800	16400	27100	10400	2300	2370	2110
6	3370	3500	9210	9860	8000	10700	14000	20900	9440	2290	2380	1980
7	3010	3600	8560	11100	7000	9960	12300	15300	9870	2410	2190	1780
8	2840	3400	8290	11300	6000	9420	11100	12000	11400	2560	2350	1740
9	2710	3380	7770	10500	4500	8540	10100	10200	9160	2460	2670	1830
10	2570	3360	7170	9810	5300	8030	9360	8730	8910	2340	2310	1920
11	3310	3260	6790	8760	5800	7740	8630	7520	8770	2240	2190	1800
12	3240	3030	6770	7880	21000	7860	7980	6780	7420	6080	2100	1740
13	2800	3030	6940	7290	56000	7600	7560	6540	6550	9550	2010	1700
14	2260	3160	7110	6640	57000	8400	7310	6060	6400	6580	2070	1540
15	2410	3170	7330	6000	30500	10100	7300	5960	5700	6330	1920	1490
16	2310	3070	7050	5600	21300	8840	7130	5650	5170	7520	2450	1510
17	2190	3400	6870	5300	15800	8050	6810	5540	4730	5530	2620	1570
18	2360	2910	6620	5100	12700	7430	6520	5900	4490	4580	2240	1450
19	2320	2920	6400	4900	11300	6940	6410	6640	4350	3700	2140	1350
20	2440	2960	6280	4500	10600	6700	6310	6650	4020	3280	2150	1410
21	2510	3100	6590	2300	10700	6210	5880	6010	3790	2980	4900	1470
22	2350	3200	8010	2600	11600	5770	5520	5470	3560	2730	4880	1450
23	3060	3470	11900	2800	12300	5800	5290	5290	3400	2530	4180	1430
24	3150	3700	13800	3300	17700	7350	5190	5080	3230	2210	3680	1380
25	3190	3550	12500	3900	26800	15700	5020	5520	3050	2250	3350	1380
26	3100	3420	11200	3800	28600	19600	4890	10900	2880	2660	3230	1400
27	3080	3290	10800	4500	29200	18300	4670	11000	2670	3450	4400	1630
28	3230	3590	10500	4500	26700	15500	4640	9420	2250	2970	4360	1860
29	3580	12500	9670	4300	---	13600	4540	7860	2390	3100	3850	1820
30	3450	33800	9020	4100	---	14100	4180	6960	2240	3080	3340	1670
31	3510	---	8360	4100	---	18000	---	6680	---	3020	3060	---
TOTAL	90370	139080	305400	193080	477100	349040	289540	269760	212600	108890	89910	52180
MEAN	2915	4636	9852	6228	17040	11260	9651	8702	7087	3513	2900	1739
MAX	3640	33800	28100	11300	57000	22900	27500	27100	27200	9550	4900	2760
MIN	2190	2910	6280	2300	4500	5770	4180	4020	2240	1930	1920	1350
CFSM	.30	.48	1.02	.65	1.77	1.17	1.00	.90	.73	.36	.30	.18
IN.	.35	.54	1.18	.74	1.84	1.35	1.12	1.04	.82	.42	.35	.20
CAL YR 1984	TOTAL	5008820	MEAN	13690	MAX	174000	MIN	2190	CFSM	1.42	IN.	19.31
WTR YR 1985	TOTAL	2576950	MEAN	7060	MAX	57000	MIN	1350	CFSM	.73	IN.	9.93

## POTOMAC RIVER BASIN

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1960 to current year.

SUSPENDED-SEDIMENT DISCHARGE: October 1960 to current year.

REMARKS.--Water temperatures are measured daily in field by local observer at time of sampling.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum daily, 33.5°C, Aug. 24, 1964, July 19, 1977; minimum daily, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily mean, 2,350 mg/L, Apr. 3, 1970; minimum daily mean, 1 mg/L on many days most years.

SEDIMENT LOAD: Maximum daily, 689,000 tons, June 23, 1972; minimum daily, 2.0 tons on many days during 1964, 1966-69.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum daily, 31.0°C, Aug. 15; minimum daily, 0.0°C, Jan. 14, 17, 18.

SEDIMENT CONCENTRATION: Maximum daily mean, 480 mg/L, Feb. 14; minimum daily mean, 1 mg/L, Jan. 11-20, 29-31, Feb. 1, 10, 11, Apr. 20 to May. 2, May 17-24, 30, 31.

SEDIMENT LOAD: Maximum daily, 76,800 tons, Feb. 14; minimum daily, 7.3 tons, Sept. 19.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	17.0	7.0	7.0	---	6.0	12.0	19.0	22.0	23.0	27.0	24.0
2	14.0	16.0	7.0	9.0	---	6.0	10.0	19.0	22.0	24.0	25.0	22.0
3	13.0	12.0	7.0	7.0	---	7.0	8.0	16.0	20.0	25.0	26.0	24.0
4	15.0	13.0	5.0	6.0	---	7.0	8.0	18.0	20.0	25.0	27.0	25.0
5	15.0	13.0	5.0	6.0	---	7.0	8.0	15.0	20.0	26.0	27.0	26.0
6	15.0	12.0	5.0	6.0	---	7.0	10.0	16.0	20.0	26.0	26.0	28.0
7	16.0	10.0	4.0	5.0	---	7.0	11.0	15.0	19.0	26.0	27.0	29.0
8	15.0	10.0	3.0	5.0	---	6.0	10.0	15.0	20.0	24.0	26.0	28.0
9	16.0	10.0	4.0	2.0	---	7.0	9.0	16.0	23.0	24.0	26.0	27.0
10	16.0	10.0	3.0	2.0	---	9.0	8.0	17.0	25.0	26.0	26.0	28.0
11	17.0	11.0	4.0	1.0	---	7.0	9.0	15.0	22.0	25.0	29.0	25.0
12	16.0	9.0	3.0	2.0	---	8.0	9.0	22.0	21.0	25.0	29.0	23.0
13	16.0	7.0	6.0	1.0	---	8.0	10.0	21.0	20.0	25.0	26.0	21.0
14	17.0	7.0	5.0	.0	---	8.0	14.0	21.0	19.0	27.0	30.0	20.0
15	15.0	6.0	6.0	1.0	1.0	7.0	13.0	20.0	19.0	25.0	31.0	20.0
16	17.0	9.0	6.0	1.0	1.0	7.0	14.0	19.0	21.0	25.0	29.0	22.0
17	16.0	6.0	8.0	.0	2.0	7.0	13.0	19.0	24.0	25.0	26.0	22.0
18	16.0	6.0	7.0	.0	3.0	8.0	14.0	18.0	23.0	26.0	25.0	22.0
19	18.0	6.0	8.0	1.0	4.0	8.0	17.0	18.0	22.0	27.0	24.0	24.0
20	18.0	7.0	7.0	---	5.0	8.0	17.0	18.0	21.0	28.0	25.0	24.0
21	20.0	5.0	7.0	---	4.0	7.0	17.0	20.0	24.0	27.0	24.0	22.0
22	20.0	5.0	7.0	---	4.0	7.0	18.0	20.0	25.0	27.0	25.0	22.0
23	19.0	4.0	7.0	---	7.0	6.0	20.0	19.0	27.0	27.0	25.0	22.0
24	17.0	5.0	6.0	---	8.0	6.0	18.0	21.0	25.0	27.0	22.0	22.0
25	17.0	6.0	5.0	---	8.0	6.0	18.0	20.0	25.0	25.0	23.0	22.0
26	17.0	4.0	5.0	---	8.0	6.0	17.0	20.0	23.0	24.0	23.0	21.0
27	18.0	6.0	5.0	---	8.0	8.0	19.0	23.0	23.0	28.0	24.0	22.0
28	20.0	7.0	5.0	---	7.0	9.0	18.0	23.0	24.0	27.0	23.0	19.0
29	20.0	6.0	5.0	---	---	11.0	18.0	21.0	27.0	26.0	24.0	20.0
30	18.0	6.0	7.0	---	---	11.0	---	19.0	24.0	28.0	24.0	18.0
31	18.0	---	6.0	---	---	11.0	---	19.0	---	---	23.0	---
MEAN	17.0	8.5	5.5	3.5	5.0	7.5	13.5	19.0	22.5	26.0	25.5	23.0
WTR YR 1985	MEAN	15.5		MAX	31.0		MIN	.0				

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

TOTAL LOAD FOR YEAR: 450500.4 TONS.



01643700 GOOSE CREEK NEAR MIDDLEBURG, VA

LOCATION.--Lat 38°59'11", long 77°47'49", Loudoun County, Hydrologic Unit 02070008, on right bank 250 ft upstream from bridge on State Highway 611, 2.0 mi downstream from Panther Skin Creek, and 3.4 mi northwest of Middleburg.

DRAINAGE AREA.--123 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1965 to September 1967, July 1969 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 329.80 ft above National Geodetic Vertical Datum of 1929. October 1965 to September 1967, at site 300 ft downstream at datum 0.73 ft lower.

REMARKS.--Estimated daily discharges: Jan. 10-30 and Feb. 3-11. Records good except those for periods with ice effect, Jan. 10-30 and Feb. 3-11, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--18 years, 137 ft<sup>3</sup>/s, 15.13 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft<sup>3</sup>/s, June 22, 1972, gage height, 27.46 ft, from flood-marks, from rating curve extended above 2,900 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 14.44 ft and 27.46 ft; no flow Sept. 21-26, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,350 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	1330	*6,860	*16.72	No other peak equal to or greater than base discharge.			
No flow Sept. 21-26.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	22	107	34	259	89	117	22	62	1.6	1.4	.54
2	49	19	77	51	476	85	91	22	29	1.8	2.1	.43
3	21	16	70	77	170	75	82	48	22	2.0	1.8	.39
4	15	15	58	131	118	75	78	40	20	2.9	1.2	.36
5	10	22	50	136	100	73	73	28	23	4.3	1.0	.41
6	8.9	33	147	129	95	61	67	25	54	3.1	.73	.44
7	7.8	23	112	114	90	55	60	22	29	2.0	.58	.42
8	7.2	18	84	99	87	58	56	21	37	1.3	.63	.37
9	7.2	16	70	77	94	55	55	22	30	1.2	.62	.36
10	7.2	15	64	60	92	51	51	17	23	1.1	.56	.34
11	7.2	16	61	52	88	50	51	15	19	.88	.53	.28
12	8.4	16	53	45	2950	54	49	15	19	.81	.47	.22
13	7.8	13	50	40	721	45	47	24	17	.93	.39	.17
14	7.8	11	47	34	408	44	45	20	13	1.1	.34	.12
15	7.2	11	42	30	293	42	45	15	12	2.1	.30	.08
16	8.9	13	40	28	218	43	48	16	12	36	.27	.04
17	11	14	41	29	182	43	44	46	13	8.1	.25	.03
18	13	14	39	29	150	36	40	47	11	2.3	.34	.03
19	13	30	37	29	131	34	38	31	8.5	.98	.33	.02
20	16	42	37	28	119	35	36	22	7.4	.66	.21	.01
21	22	26	36	29	107	34	36	19	5.7	.44	1.2	.00
22	20	20	48	31	103	35	34	18	5.2	.42	6.4	.00
23	20	16	40	30	109	80	31	26	4.6	.35	3.1	.00
24	31	16	35	29	124	153	30	45	4.2	.25	1.2	.00
25	40	16	35	28	126	173	37	28	5.2	.22	.89	.00
26	29	15	31	27	131	114	34	21	3.5	.35	1.1	.00
27	24	14	31	27	114	112	28	16	2.3	2.7	2.5	.14
28	22	80	31	26	93	101	28	15	1.7	15	4.8	.07
29	94	614	31	26	---	95	27	20	1.5	6.1	2.7	.03
30	45	179	31	25	---	99	29	19	1.6	3.3	1.1	.02
31	28	---	31	38	---	95	---	64	---	2.0	.78	---
TOTAL	687.6	1375	1666	1568	7748	2194	1487	809	496.4	106.29	39.82	5.32
MEAN	22.2	45.8	53.7	50.6	277	70.8	49.6	26.1	16.5	3.43	1.28	.18
MAX	94	614	147	136	2950	173	117	64	62	36	6.4	.54
MIN	7.2	11	31	25	87	34	27	15	1.5	.22	.21	.00
CFSM	.18	.37	.44	.41	2.25	.58	.40	.21	.13	.03	.01	.00
IN.	.21	.42	.50	.47	2.34	.66	.45	.24	.15	.03	.01	.00
CAL YR 1984	TOTAL	69921.6	MEAN	191	MAX	4160	MIN	7.2	CFSM	1.55	IN.	21.15
WTR YR 1985	TOTAL	18182.43	MEAN	49.8	MAX	2950	MIN	.00	CFSM	.40	IN.	5.50

## 01644000 GOOSE CREEK NEAR LEESBURG, VA

LOCATION.--Lat 39°01'10", long 77°34'40", Loudoun County, Hydrologic Unit 02070008, on left bank 400 ft upstream from bridge on State Highway 621 at Evergreen Mills, 1.4 mi downstream from Little River, 6.7 mi south of Leesburg, and 10.9 mi upstream from mouth.

DRAINAGE AREA.--332 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1909 to April 1911, September 1911 to December 1912, January 1930 to current year.

REVISED RECORDS.--WSP 851: 1935-37. WSP 951: 1933(M), 1937. WSP 1302: 1934-35(M). WSP 2103: Drainage area. WDR VA-72-1: 1937(M), 1943(M), 1951(M), 1956(M). WDR VA-79-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 248.93 ft above National Geodetic Vertical Datum of 1929. July 12, 1909, to Dec. 31, 1912, nonrecording gage at site 1,000 ft downstream at different datum. Jan. 21, 1930, to Nov. 28, 1938, nonrecording gage at site 400 ft downstream at datum 4.20 ft lower than present datum.

REMARKS.--Estimated daily discharges: Jan. 11, Feb. 4-8, and July 1 to Sept. 30. Records good except those for period of doubtful record, July 1 to Sept. 30, and periods with ice effect, Jan. 11 and Feb. 4-8, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--57 years (water years 1910, 1912, 1931-85), 317 ft<sup>3</sup>/s, 12.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,100 ft<sup>3</sup>/s, June 22, 1972, gage height, 30.59 ft, from high-water mark in gage house, from rating curve extended above 11,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 0.40 ft<sup>3</sup>/s, Sept. 27-30, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1889 reached a stage of about 29 ft, discharge, about 45,000 ft<sup>3</sup>/s, site and datum in use 1930-38, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	0630	4,440	7.26	Feb. 12	2130	*13,100	*15.88

Minimum daily discharge, 0.42 ft<sup>3</sup>/s, Sept. 21, 22, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173	78	377	108	366	253	322	73	235	8.8	15	3.4
2	191	71	269	133	3120	244	269	72	119	9.5	13	2.0
3	90	64	242	227	1470	220	227	118	85	12	7.5	1.7
4	63	61	209	344	900	205	213	140	70	14	5.1	2.2
5	55	82	177	392	600	213	199	95	70	13	3.6	1.5
6	50	94	508	395	420	188	185	80	107	14	3.1	1.4
7	49	90	442	339	300	163	167	72	114	16	2.5	1.3
8	47	74	303	302	250	165	158	67	90	14	2.5	1.1
9	46	67	262	242	215	166	153	61	97	10	2.5	1.1
10	43	64	226	204	215	152	144	59	76	8.1	1.6	1.0
11	38	67	209	190	231	145	139	56	62	6.0	1.5	1.1
12	34	69	187	174	7290	156	138	58	57	6.7	1.5	1.1
13	34	65	172	181	3570	145	131	103	54	17	1.4	.85
14	32	59	158	182	1010	133	128	78	46	10	1.2	.80
15	29	54	145	149	681	129	127	61	40	12	1.0	.80
16	34	54	139	115	522	121	132	58	39	26	1.0	.75
17	41	55	134	156	449	118	129	117	40	65	1.0	.60
18	45	55	132	158	384	115	115	162	38	25	1.4	.55
19	50	86	127	149	349	109	109	109	33	12	10	.48
20	57	120	125	99	326	109	106	79	28	6.9	11	.50
21	63	103	124	92	290	109	102	66	26	4.1	12	.42
22	72	83	146	96	283	108	99	59	23	3.2	13	.42
23	84	75	137	101	298	205	95	73	21	2.3	10	.45
24	118	71	119	107	327	491	92	122	47	1.7	8.1	.45
25	129	69	115	114	333	546	113	102	32	1.7	6.0	.42
26	115	67	107	116	325	376	109	76	24	4.7	7.4	1.4
27	104	65	103	102	331	315	92	60	16	38	12	3.4
28	102	316	104	101	277	281	86	87	12	39	11	5.6
29	205	1980	106	101	---	258	83	130	10	35	6.7	3.4
30	161	598	104	95	---	260	77	83	9.5	26	5.1	1.2
31	93	---	103	99	---	269	---	122	---	17	4.7	---
TOTAL	2447	4856	5811	5363	25132	6467	4239	2698	1720.5	478.7	183.4	41.39
MEAN	78.9	162	187	173	898	209	141	87.0	57.4	15.4	5.92	1.38
MAX	205	1980	508	395	7290	546	322	162	235	65	15	5.6
MIN	29	54	103	92	215	108	77	56	9.5	1.7	1.0	.42
CFSM	.24	.49	.56	.52	2.70	.63	.42	.26	.17	.05	.02	.00
IN.	.27	.54	.65	.60	2.82	.72	.47	.30	.19	.05	.02	.00
CAL YR 1984	TOTAL	194143	MEAN	530	MAX	9000	MIN	28	CFSM	1.60	IN.	21.75
WTR YR 1985	TOTAL	59436.99	MEAN	163	MAX	7290	MIN	.42	CFSM	.49	IN.	6.66

## POTOMAC RIVER BASIN

01646000 DIFFICULT RUN NEAR GREAT FALLS, VA

LOCATION.--Lat 38°58'33", long 77°14'46", Fairfax County, Hydrologic Unit 02070008, on right bank 250 ft downstream from bridge on State Highway 193, 300 ft downstream from Rocky Run, 0.7 mi upstream from mouth, and 1.5 mi southeast of Great Falls.

DRAINAGE AREA.--57.9 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1934 to current year. Monthly discharge only October to December 1934, published in WSP 1302.

REVISED RECORDS.--WSP 951: 1936(M), 1937-38, 1939-40(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 151.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 18-21 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 18-21 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--51 years, 60.0 ft<sup>3</sup>/s, 14.07 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,200 ft<sup>3</sup>/s, June 22, 1972, gage height, 21.40 ft, from flood-marks, from rating curve extended above 1,600 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 13.18 ft and slope-area measurement at gage height 21.40 ft; minimum, 0.05 ft<sup>3</sup>/s, Sept. 9, 10, 1966, gage height, 1.65 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0400	1,120	7.60	Feb. 12	1330	*1,990	*9.33

Minimum discharge, 3.4 ft<sup>3</sup>/s, Sept. 7, gage height, 2.29 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	185	27	52	35	360	38	52	22	47	12	19	5.5
2	104	27	42	52	333	38	40	22	29	13	8.5	5.0
3	33	24	67	67	104	37	37	159	26	22	6.7	5.3
4	27	24	46	135	66	38	36	39	24	15	5.9	4.9
5	25	115	51	110	55	42	35	29	45	12	5.5	4.6
6	24	41	265	76	80	36	34	26	57	16	5.5	4.1
7	23	30	75	52	63	41	32	24	28	13	5.4	3.7
8	23	28	52	46	45	62	33	22	37	11	14	3.7
9	25	27	47	38	43	61	34	21	28	9.9	9.5	7.2
10	24	27	45	36	40	57	32	20	25	11	6.0	114
11	24	33	43	39	39	56	34	20	22	11	5.3	72
12	24	31	40	38	1150	70	32	25	27	9.6	5.2	10
13	24	26	39	36	174	56	31	71	23	10	4.9	6.3
14	24	25	37	36	88	49	31	25	19	8.7	11	5.1
15	23	25	36	36	68	35	31	21	19	10	4.7	5.1
16	29	26	35	38	56	33	32	94	28	58	4.2	5.0
17	26	25	36	35	51	34	30	160	21	13	4.9	4.7
18	26	25	35	34	47	33	29	63	19	9.5	18	4.4
19	26	112	35	33	48	31	29	33	18	8.0	28	4.4
20	26	49	34	33	45	31	28	27	17	7.5	8.7	4.3
21	25	32	38	32	43	30	27	41	17	7.1	13	4.1
22	26	30	47	32	44	34	26	120	15	7.0	8.4	4.1
23	29	29	35	32	49	97	26	129	15	6.3	6.8	9.4
24	76	29	33	32	48	158	25	58	63	5.9	6.0	6.7
25	33	27	34	34	45	96	44	43	40	15	12	4.8
26	28	27	31	31	56	53	28	30	16	22	16	4.4
27	27	27	31	31	49	46	25	26	15	39	33	435
28	27	161	32	31	39	42	26	75	13	17	10	35
29	79	588	32	30	---	41	24	76	13	9.7	7.2	14
30	34	79	32	29	---	49	23	33	13	8.5	6.5	11
31	29	---	34	35	---	47	---	95	---	9.3	6.0	---
TOTAL	1158	1776	1491	1354	3328	1571	946	1649	779	427.0	305.8	807.8
MEAN	37.4	59.2	48.1	43.7	119	50.7	31.5	53.2	26.0	13.8	9.86	26.9
MAX	185	588	265	135	1150	158	52	160	63	58	33	435
MIN	23	24	31	29	39	30	23	20	13	5.9	4.2	3.7
CFSM	.65	1.02	.83	.75	2.06	.88	.54	.92	.45	.24	.17	.46
IN.	.74	1.14	.96	.87	2.14	1.01	.61	1.06	.50	.27	.20	.52
CAL YR 1984	TOTAL	30893	MEAN	84.4	MAX	1310	MIN	16	CFSM	1.46	IN.	19.85
WTR YR 1985	TOTAL	15592.6	MEAN	42.7	MAX	1150	MIN	3.7	CFSM	.74	IN.	10.02



## 01646500 POTOMAC RIVER NEAR WASHINGTON, DC

LOCATION.--Lat 38°56'58", long 77°07'40", Montgomery County, Md., Hydrologic Unit 02070008, on left bank just upstream from Little Falls Dam, 1 mi upstream from District of Columbia boundary line, 1.2 mi upstream from Chain Bridge, 1.8 mi east of Langley, Fairfax County, Va., and at mile 117.4.

DRAINAGE AREA.--11,560 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1930 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WDR MD-DE-75-1: 1973-74(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 37.95 ft above National Geodetic Vertical Datum of 1929. Prior to June 7, 1930, nonrecording gage, and June 7, 1930, to Jan. 22, 1965, water-stage recorder at site 1 mi upstream on right bank at same datum.

REMARKS.--No estimated daily discharges. Records good. Diversions at Great Falls through aqueducts, and since June 1959, from gage pool at Little Falls Dam, for municipal supply of Washington, D.C.; since October 1958, at Rockville Filtration Plant, for municipal supply of city of Rockville; since April 1961, at Potomac Filtration Plant for water supply of Washington Suburban Sanitary District; since October 1961, at Fairfax Water Treatment Plant for water supply of city of Fairfax (from Goose Creek); since April 1964, at Violets Lock to Chesapeake and Ohio Canal; and since October 1985, at Fairfax County Water Authority Treatment Plant for water supply of the county. Low flow affected slightly prior to July 1981 by Stony River Reservoir, since December 1950, by Savage River Reservoir, and since July 1981, by Jennings Randolph Lake. Gage-height telemeter at station.

AVERAGE DISCHARGE.--55 years, 11,500 ft<sup>3</sup>/s, 13.51 in/yr, adjusted for diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 484,000 ft<sup>3</sup>/s, Mar. 19, 1936, gage height, 28.1 ft, site then in use; minimum daily discharge observed at gaging station, 121 ft<sup>3</sup>/s, Sept. 9, 1966, does not include diversion of 489 ft<sup>3</sup>/s for municipal use; minimum daily discharge (adjusted), 601 ft<sup>3</sup>/s, Sept. 10, 1966, include diversion of 449 ft<sup>3</sup>/s for municipal use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, was of approximately the same magnitude as that of March 19, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 45,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 30	2245	46,900	6.54	Feb. 14	0115	*106,000	*9.08

Minimum daily discharge, 993 ft<sup>3</sup>/s, Sept. 21, does not include diversion for municipal use; minimum daily (adjusted) discharge, 1,730 ft<sup>3</sup>/s, Sept. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	3280	3870	39900	9070	5290	27200	24300	4390	7200	2110	2950	2910		
2	3900	3530	25900	8640	8550	23100	30700	4270	15000	1960	2890	2650		
3	3460	3930	18700	8900	8970	19500	31200	5190	27200	2160	2690	2340		
4	3310	3800	14800	10000	10100	16400	25800	11100	17100	1840	2490	2040		
5	3410	3780	12600	9670	11000	14200	20600	29500	12300	1960	2290	1990		
6	3660	3830	12700	10400	8970	12700	17600	26200	12900	2040	2220	1860		
7	3430	4210	12300	11900	8070	11800	15300	19400	10200	2200	2140	1650		
8	3100	4030	11500	12600	6740	11000	13600	15000	11900	2100	2180	1560		
9	2910	3620	10100	12200	5090	10300	12300	12300	11400	2290	2300	1360		
10	2770	3600	9070	11400	6030	9390	11500	10500	9480	2310	2910	2150		
11	2590	3610	8300	10400	6490	8880	10700	8930	9410	2260	2490	2190		
12	3180	3530	7990	9240	22400	8700	9870	7740	8740	2340	2180	1750		
13	3210	3180	7860	8180	78200	8640	9220	7620	7240	8610	2020	1590		
14	2880	3230	7930	7700	82700	8490	8640	6760	6400	8840	1880	1550		
15	2420	3220	8070	6980	40900	10100	8370	6300	6310	6440	1850	1410		
16	2490	3280	8070	6450	26900	10700	8300	6360	5740	9100	1740	1270		
17	2420	3160	7850	5920	20500	9420	8020	6730	5110	7300	2100	1240		
18	2310	3360	7550	6390	16700	8540	7570	6390	4660	5680	2650	1220		
19	2330	3390	7320	6260	14500	7930	7220	8100	4550	4430	2430	1280		
20	2450	3240	7050	5280	13200	7390	7000	8120	4330	3530	2130	1050		
21	2470	3290	7030	2770	12700	7100	6890	7300	3930	3080	2230	993		
22	2610	3340	7960	3150	13100	6590	6440	6970	3620	2760	4540	1100		
23	2630	3400	10800	3280	13900	6660	5930	6340	3410	2540	4560	1240		
24	4600	3530	14800	3860	16000	8210	5700	6300	3270	2330	3880	1230		
25	4110	3860	14600	4400	26600	14200	5880	6050	3210	2120	3630	1110		
26	3610	3680	13100	4320	34000	21800	5570	7370	2920	2200	3260	1150		
27	3360	3520	12100	5050	35300	22000	5300	11900	2740	3550	3190	3570		
28	3200	3850	11800	5090	31300	19200	5090	11300	2560	6450	4420	2410		
29	3730	12300	11300	4910	---	16500	4880	10100	2290	4330	4470	2550		
30	4460	37400	10500	4620	---	16100	4840	8140	2140	3310	3690	2250		
31	4270	---	9720	4680	---	21300	---	7590	---	3120	3170	---		
TOTAL	98560	149570	369270	223710	584200	404040	344330	300260	227260	115290	87570	52663		
MEAN	3179	4986	11910	7216	20860	13030	11480	9686	7575	3719	2825	1755		
MAX	4600	37400	39900	12600	82700	27200	31200	29500	27200	9100	4560	3570		
MIN	2310	3160	7030	2770	5090	6590	4840	4270	2140	1840	1740	993		
(*)	573	530	528	530	530	508	569	595	612	677	659	668		
MEAN†	3752	5516	12440	7746	21390	13540	12050	10280	8187	4396	3484	2423		
CFSM†	.32	.48	1.08	.67	1.85	1.17	1.04	.89	.71	.38	.30	.21		
IN.†	.37	.54	1.24	.77	1.93	1.35	1.16	1.03	.79	.44	.35	.23		
CAL YR 1984	TOTAL	6025070	MEAN	16460	MAX	209000	MIN	2280	MEAN†	16990	CFSM†	1.47	IN†	20.01
WTR YR 1985	TOTAL	2956723	MEAN	8101	MAX	82700	MIN	993	CFSM†	8683	CFSM†	.75	IN†	10.20

\* Diversion, in cfs, for municipal supply of Washington, D.C., Washington Suburban Sanitary District, city of Rockville, city of Fairfax (from Goose Creek), Fairfax County, and the Chesapeake and Ohio Canal (insignificant diversion to canal during current water year); records provided by U.S. Army Corps of Engineers, Washington Suburban Sanitary Commission, city of Rockville, city of Fairfax, and Fairfax County Water Authority.

† Adjusted for diversion.



## POTOMAC RIVER BASIN

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC  
(National stream-quality accounting network station)

LOCATION.--Lat 38°55'46", long 77°07'02", Arlington County, Va., Hydrologic Unit 02070010, under right downstream side of bridge on Virginia State Highway 123, and at river mile 115.9.

DRAINAGE AREA.--11,570 mi<sup>2</sup>.

PERIOD OF RECORD.--Water years 1973 to current year. Prior to October 1977, published as "at Great Falls."

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1978 to September 1981.

pH: June 1978 to September 1981.

WATER TEMPERATURE: June 1978 to September 1981.

DISSOLVED OXYGEN: June 1978 to September 1981.

SUSPENDED-SEDIMENT DISCHARGE: October 1978 to September 1981.

INSTRUMENTATION.--Water-quality monitor June 1978 to September 1981.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE, AIR (DEG C)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV 1984											
14...	10:00	3220	435	8.2	9.0	8.0	774	1.9	14.0	116	--
JAN 1985											
14...	11:00	7770	275	8.1	4.0	3.0	757	3.0	17.0	127	K7
MAR											
18...	12:30	8540	274	8.3	6.0	9.0	766	1.5	12.9	111	K3
MAY											
06...	11:00	26000	235	7.8	26.0	17.0	763	5.0	9.4	97	260
JUL											
08...	10:00	1940	325	8.0	25.5	28.0	763	2.5	7.6	97	K14
08...	10:05	1940	--	--	25.5	--	763	--	--	--	--
SEP											
04...	11:00	1990	352	8.1	27.0	28.0	766	3.4	7.7	98	100
04...	11:05	1990	--	--	27.0	--	766	--	--	--	--

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)
NOV 1984											
14...	K2	170	42	49	11	17	18	0.6	2.9	126	1.5
JAN 1985											
14...	88	110	32	33	7.0	8.3	14	0.4	1.8	79	1.2
MAR											
18...	66	110	42	33	7.0	8.5	14	0.4	1.5	69	0.7
MAY											
06...	71	91	43	27	5.6	7.7	15	0.4	2.2	48	1.5
JUL											
08...	37	120	50	31	9.8	16	22	0.7	2.8	68	1.3
SEP											
04...	100	140	55	42	9.3	17	20	0.6	3.4	88	1.3

## POTOMAC RIVER BASIN

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01646580 POTOMAC RIVER AT CHAIN BRIDGE, AT WASHINGTON, DC--Continued

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
NOV 1984											
14...	54	21	0.1	3.1	243	230	0.33	2110	--	1.30	0.02
JAN 1985											
14...	31	12	0.1	4.3	150	150	0.2	3150	--	1.40	0.06
MAR 18...	43	11	0.1	2.3	153	150	0.21	3530	--	1.10	0.05
MAY 06...	39	10	0.1	5.5	147	130	0.2	10300	--	0.96	0.15
JUL 08...	51	19	0.2	0.9	210	170	0.29	1100	--	<0.10	0.07
08...	--	--	--	--	--	--	--	--	0.01	0.10	0.07
SEP 04...	49	19	0.1	6.3	206	200	0.28	1110	--	1.00	0.04
04...	--	--	--	--	--	--	--	--	0.01	1.10	0.04

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS TOTAL (MG/L AS PO4)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
NOV 1984											
14...	0.03	--	0.5	--	--	--	0.05	0.15	0.08	0.08	0.25
JAN 1985											
14...	0.08	--	0.8	--	--	--	0.10	0.31	0.06	0.04	0.12
MAR 18...	0.06	--	1.1	--	--	--	0.07	0.21	0.04	0.03	0.09
MAY 06...	0.19	--	1.1	--	--	--	0.05	0.15	0.01	0.04	0.12
JUL 08...	0.09	--	0.6	--	--	--	0.04	0.12	0.02	<0.01	--
08...	0.09	0.23	0.7	0.4	0.3	--	0.03	0.09	0.03	0.01	0.03
SEP 04...	0.05	--	0.5	--	--	--	0.10	0.31	0.09	0.09	0.28
04...	0.05	0.36	0.5	0.1	0.4	1.5	0.11	0.34	0.09	0.08	0.25

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 1984										
14...	40	1	44	<0.5	<1	3	<3	1	16	1
MAR 18...	30	<1	37	0.7	<1	<1	<3	1	17	1
MAY 06...	70	<1	44	<0.5	<1	<1	<3	5	37	3
SEP 04...	<10	1	49	<0.5	<1	<1	<3	7	5	<1

## POTOMAC RIVER BASIN

01646580 POTOMAC RIVER AT CHAIN BRIDGE, AT WASHINGTON, DC--Continued

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 1984										
14...	8	8	0.1	<10	2	<1	<1	230	<6	12
MAR 18...	13	11	<0.1	<10	1	<1	<1	140	<6	11
MAY 06...	17	6	<0.1	<10	2	<1	<1	120	<6	8
SEP 04...	8	13	<0.1	<10	1	<1	<1	200	<6	23

DATE	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS YT-90)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)
MAR 1985							
18...	<3.4	<0.4	<2.3	<0.4	<2.0	0.26	0.05
SEP 04...	<1.5	<0.4	4.1	<0.4	3.1	0.16	--

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 1984					
14...	10:00	3220	10	87	64
JAN 1985					
14...	11:00	7770	4	84	52
MAR 18...	12:30	8540	10	231	76
MAY 06...	11:00	26000	104	7300	90
JUL 08...	10:00	1940	29	152	57
SEP 04...	11:00	1990	8	43	100

## 01654000 ACCOTINK CREEK NEAR ANNANDALE, VA

LOCATION.--Lat 38°48'46", long 77°13'43", Fairfax County, Hydrologic Unit 02070010, on left bank 800 ft upstream from bridge on State Highway 620, 0.2 mi upstream from Long Branch, and 2.3 mi southwest of Annandale.

DRAINAGE AREA.--23.5 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1947 to current year (fragmentary prior to October 1947).

REVISED RECORDS.--WSP 1502: 1952. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 191.24 ft above National Geodetic Vertical Datum of 1929 (levels by Stone and Webster Engineering Corporation). Prior to May 12, 1949, nonrecording gage at site 800 ft downstream at datum 0.33 ft lower. May 12, 1949, to June 4, 1970, water-stage recorder at site 800 ft downstream at datum 0.33 ft lower.

REMARKS.--Estimated daily discharges: Jan. 11, 12, 16-20, 22, Feb. 6-9, Mar. 14-22, and Aug. 5-14. Records good except those for periods of doubtful or no gage-height record, Mar. 14-22 and Aug. 5-14, and periods with ice effect, Jan. 11, 12, 16-20, 22 and Feb. 6-9, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--38 years, 27.9 ft<sup>3</sup>/s, 16.12 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft<sup>3</sup>/s, June 22, 1972, gage height, 15.96 ft, from high-water mark in gage house, from rating curve extended above 6,600 ft<sup>3</sup>/s on basis of contracted-opening and flow-over-road measurement of peak flow; minimum, 0.10 ft<sup>3</sup>/s, Sept. 25, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0100	1,670	8.33	Feb. 12	1200	*2,100	*9.03

Minimum discharge, 0.22 ft<sup>3</sup>/s, Aug. 16, gage height, 1.14 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179	4.5	13	8.3	209	11	20	5.2	13	2.0	11	3.1
2	48	4.6	10	32	172	11	11	19	7.6	3.2	2.3	2.5
3	6.8	4.3	31	64	32	12	10	134	6.8	7.5	1.3	2.5
4	5.0	10	12	70	20	17	9.7	12	6.0	3.5	.95	1.5
5	4.7	170	45	64	16	19	9.0	8.2	131	2.1	.80	1.8
6	3.7	11	129	24	21	15	8.6	7.4	27	7.3	.75	1.6
7	3.6	6.8	18	16	16	16	7.9	6.4	11	2.4	.70	.80
8	3.5	6.3	13	13	12	21	8.1	5.5	27	1.5	10	17
9	4.3	5.9	11	10	11	17	8.8	5.3	11	1.8	3.5	24
10	4.3	5.4	12	9.7	10	15	8.4	5.3	7.8	6.0	1.5	75
11	3.3	16	10	9.6	11	17	8.1	5.5	7.7	2.1	.90	22
12	3.2	7.6	10	9.5	710	28	8.0	85	13	2.0	.73	2.5
13	3.1	5.0	9.4	9.4	42	15	7.5	29	7.2	2.2	.63	1.5
14	3.2	4.7	8.6	9.3	23	14	7.3	8.1	4.8	1.5	.52	1.4
15	3.0	5.3	8.3	8.6	18	13	7.7	5.7	17	1.5	.44	1.2
16	13	5.1	8.2	7.8	15	12	7.8	42	15	12	.42	1.2
17	4.2	4.7	8.3	8.0	14	12	6.8	70	5.4	1.7	3.9	1.0
18	3.7	10	8.3	8.0	12	11	6.4	22	4.9	.96	40	.88
19	3.2	94	8.8	7.8	12	10	6.5	8.0	4.5	.83	15	.82
20	3.6	14	8.3	7.6	12	10	6.1	6.4	7.2	.78	2.2	.76
21	3.1	7.6	16	7.3	12	9.5	5.7	37	4.4	.74	8.1	.76
22	3.9	6.6	14	7.2	11	11	5.9	34	3.7	.66	1.9	.70
23	46	6.3	8.0	7.6	12	127	5.3	109	3.3	.58	.96	3.4
24	52	6.7	7.8	7.6	12	102	5.9	35	6.8	.46	.89	2.2
25	9.3	6.0	7.7	8.3	11	34	25	24	11	16	4.0	1.1
26	5.0	5.7	6.5	8.0	29	16	7.4	8.8	3.0	14	7.8	3.0
27	4.6	5.6	7.0	7.1	13	13	6.4	7.0	2.5	32	23	485
28	8.9	269	7.2	7.3	11	12	6.0	83	2.3	4.2	1.9	10
29	37	261	7.3	7.5	---	11	5.5	23	2.7	1.4	1.3	3.7
30	6.1	19	7.3	6.8	---	22	5.3	9.3	2.4	1.2	6.0	2.7
31	4.8	---	7.2	9.1	---	12	---	66	---	51	4.0	---
TOTAL	487.1	988.7	478.2	480.4	1499	665.5	252.1	926.1	377.0	185.11	157.39	675.62
MEAN	15.7	33.0	15.4	15.5	53.5	21.5	8.40	29.9	12.6	5.97	5.08	22.5
MAX	179	269	129	70	710	127	25	134	131	51	40	485
MIN	3.0	4.3	6.5	6.8	10	9.5	5.3	5.2	2.3	.46	.42	.70
CFSM	.67	1.40	.66	.66	2.28	.91	.36	1.27	.54	.25	.22	.96
IN.	.77	1.57	.76	.76	2.37	1.05	.40	1.47	.60	.29	.25	1.07
CAL YR 1984	TOTAL	13170.8	MEAN	36.0	MAX	846	MIN	2.7	CFSM	1.53	IN.	20.85
WTR YR 1985	TOTAL	7172.22	MEAN	19.6	MAX	710	MIN	.42	CFSM	.83	IN.	11.35



01655500 CEDAR RUN NEAR WARRENTON, VA

LOCATION.--Lat 38°44'25", long 77°47'16", Fauquier County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on State Highway 672, 1.9 mi north of Warrenton, and 14.5 mi upstream from Licking Run.

DRAINAGE AREA.--12.3 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1950 to current year.

REVISED RECORDS.--WSP 1382: 1951-53. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 419.40 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-23 and Aug. 17 to Sept. 30. Records good except those for periods of no gage-height record, Jan. 21-23 and Aug. 17 to Sept. 30, which are fair. Some regulation by town of Warrenton at municipal water-supply reservoir 400 ft upstream, capacity, 368 acre-ft, from which an average of less than 0.8 ft<sup>3</sup>/s is diverted for industrial and municipal use. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--35 years, 12.9 ft<sup>3</sup>/s, 14.24 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,840 ft<sup>3</sup>/s, June 21, 1972, gage height, 12.87 ft, from rating curve extended above 600 ft<sup>3</sup>/s on basis of areal study of flood of 1942; no flow part or all of each day Aug. 11-14, 1967, and all of each day Sept. 2-9, 16-26, 1985, probably caused by dam 400 ft upstream from gage.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of about 13 ft, discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	0830	*1,410	*8.01	No other peak equal to or greater than base discharge.			

No flow Sept. 2-9, 16-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	2.8	9.9	7.7	52	8.4	8.4	.76	9.4	.03	.02	.01
2	6.4	3.4	7.4	11	26	8.1	6.6	1.4	4.3	.05	.02	.00
3	1.6	.70	8.1	14	24	6.9	6.0	5.0	3.0	.04	.02	.00
4	.90	1.3	6.6	22	17	6.9	5.4	3.2	2.3	.04	.02	.00
5	.80	4.5	6.6	24	13	7.2	5.4	2.2	3.8	.03	.02	.00
6	.48	4.1	22	21	12	5.2	5.4	1.8	5.0	.03	.01	.00
7	.48	1.9	14	20	12	5.0	4.5	2.0	2.8	.03	.01	.00
8	.48	1.6	11	17	8.4	5.4	4.3	.59	3.0	.03	.01	.00
9	.62	2.0	9.2	12	6.0	5.7	5.2	.53	2.2	.03	.01	.00
10	.48	2.0	7.7	12	6.3	4.7	1.9	.65	1.7	.03	.01	2.5
11	.48	3.6	7.7	13	5.5	4.5	3.9	.65	1.2	.03	.01	.10
12	.80	2.6	6.9	11	343	8.8	3.6	2.0	1.7	.03	.01	.02
13	.55	4.5	6.0	5.2	63	.76	3.6	5.4	1.6	.03	.01	.01
14	.41	1.0	5.7	6.0	33	2.5	3.4	2.2	.06	.03	.01	.01
15	.13	.35	5.5	5.0	22	3.9	3.6	.65	.06	.03	.01	.01
16	.25	.48	4.9	2.8	17	2.5	4.1	2.2	.55	.03	.01	.00
17	.48	.29	4.9	4.9	15	4.3	3.1	8.5	.78	.02	.01	.00
18	.55	.35	4.9	5.7	12	3.6	2.8	4.8	.58	.02	.04	.00
19	.62	7.7	4.9	4.9	11	1.2	3.1	1.9	.56	.02	.04	.00
20	2.2	6.6	4.5	4.4	10	3.4	2.6	1.3	.15	.02	.06	.00
21	2.4	4.1	5.2	3.2	9.2	2.8	2.5	1.2	.04	.02	.10	.00
22	2.4	3.6	6.0	2.7	9.2	3.6	2.0	.99	.04	.02	.04	.00
23	3.0	2.8	4.5	2.5	11	9.9	2.2	3.7	.04	.02	.02	.00
24	3.6	2.5	4.5	2.5	22	13	2.2	4.9	.04	.01	.01	.00
25	2.4	2.5	4.9	2.8	9.2	14	4.5	3.3	.06	.02	.01	.00
26	2.0	2.4	3.4	3.2	13	12	3.1	2.0	.11	.03	.04	.00
27	1.6	2.4	3.6	2.2	11	11	2.2	1.3	.03	.08	.15	.06
28	2.7	36	3.4	2.4	9.2	9.9	1.9	1.7	.02	.02	.05	.03
29	7.4	57	3.6	2.4	---	9.5	1.6	2.2	.03	.02	.02	.02
30	4.1	15	4.9	2.4	---	9.5	1.2	1.4	.03	.02	.01	.01
31	3.6	---	6.3	3.4	---	7.8	---	16	---	.02	.01	---
TOTAL	66.91	180.07	208.7	253.3	802.0	201.96	110.3	86.42	45.18	.88	.82	2.78
MEAN	2.16	6.00	6.73	8.17	28.6	6.51	3.68	2.79	1.51	.03	.03	.09
MAX	13	57	22	24	343	14	8.4	16	9.4	.08	.15	2.5
MIN	.13	.29	3.4	2.2	5.5	.76	1.2	.53	.02	.01	.01	.00
CFSM	.18	.49	.55	.66	2.33	.53	.30	.23	.12	.00	.00	.01
IN.	.20	.54	.63	.77	2.43	.61	.33	.26	.14	.00	.00	.01
CAL YR 1984	TOTAL	7160.64	MEAN	19.6	MAX	639	MIN	.13	CFSM	1.59	IN.	21.66
WTR YR 1985	TOTAL	1959.32	MEAN	5.37	MAX	343	MIN	.00	CFSM	.44	IN.	5.93

## 01656000 CEDAR RUN NEAR CATLETT, VA

LOCATION.--Lat 38°38'12", long 77°37'31", Fauquier County, Hydrologic Unit 02070010, on right bank 100 ft downstream from bridge on State Highway 806, 0.9 mi downstream from Licking Run, and 1.4 mi southeast of Catlett.

DRAINAGE AREA.--93.4 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1950 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-79-1: 1973-77(P).

GAGE.--Water-stage recorder. Datum of gage is 199.15 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 11-16, 18-21 and Feb. 7-10. Records good except those for periods with ice effect, Jan. 11-16, 18-21 and Feb. 7-10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--35 years, 88.9 ft<sup>3</sup>/s, 12.93 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,600 ft<sup>3</sup>/s, June 22, 1972, gage height, 27.66 ft, from flood-marks, from rating curve extended above 5,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; no flow many days in 1954, 1957, 1959, 1963, 1964, 1966, and 1983.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of about 22 ft, discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0200	1,880	8.57	Feb. 12	1230	*3,170	*10.64
Feb. 2	1230	2,130	9.05				

Minimum discharge, 0.02 ft<sup>3</sup>/s, Sept. 25, 26, gage height, 1.59 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	12	130	19	395	66	48	7.0	138	1.6	.56	.32
2	56	9.5	80	37	1130	57	43	6.8	38	1.2	.77	.23
3	19	8.0	83	107	395	49	35	29	23	2.0	1.4	.17
4	10	7.1	66	310	213	46	32	26	18	5.0	.88	.09
5	7.4	19	55	264	138	52	30	15	21	2.6	.57	.07
6	5.6	25	350	200	98	44	27	11	65	1.8	.42	.08
7	5.4	17	175	137	90	35	24	11	29	1.6	.30	.07
8	5.2	11	102	105	68	36	21	7.8	24	1.1	.30	.06
9	5.1	8.6	80	68	52	36	20	6.6	22	.87	.20	.05
10	5.3	8.1	68	53	51	33	21	7.1	16	.86	.21	.44
11	5.4	11	62	40	50	30	17	5.7	12	.90	.18	.19
12	7.2	9.5	50	32	1930	37	19	13	11	.85	.12	1.4
13	5.2	10	47	25	534	37	18	28	9.7	1.0	.10	.57
14	4.9	8.3	40	26	299	25	18	15	9.0	.84	.09	.30
15	5.0	12	38	26	223	26	18	9.3	6.7	.68	.06	.17
16	4.9	8.0	36	32	156	24	18	7.3	7.3	.65	.05	.09
17	8.6	6.7	33	28	93	22	19	44	7.7	.65	.05	.06
18	5.1	6.1	31	28	78	23	16	31	6.2	.48	.51	.04
19	4.6	75	31	27	79	21	14	16	6.5	.35	.43	.04
20	4.6	72	29	25	75	19	14	9.6	5.2	.29	1.7	.04
21	13	32	27	23	65	22	13	9.3	4.3	.28	2.3	.03
22	8.4	21	39	22	67	21	12	6.8	3.6	.20	1.4	.03
23	7.1	17	32	21	76	51	12	11	3.1	.08	.75	.03
24	37	15	25	21	94	135	11	38	6.2	.06	.48	.03
25	19	13	24	23	74	151	14	41	13	.06	.51	.02
26	13	12	22	24	148	84	16	20	3.0	.07	2.0	.02
27	9.5	11	20	18	127	64	12	12	1.8	.13	5.7	2.6
28	6.9	200	20	18	79	54	10	16	1.6	4.0	1.7	1.4
29	25	929	21	18	---	49	8.8	43	1.6	2.3	1.5	.69
30	23	241	19	16	---	50	8.1	18	1.8	1.2	.85	1.1
31	16	---	19	19	---	45	---	250	---	.82	.54	---
TOTAL	400.4	1834.9	1854	1812	6877	1444	588.9	771.3	515.3	34.52	26.63	72.80
MEAN	12.9	61.2	59.8	58.5	246	46.6	19.6	24.9	17.2	1.11	.86	2.43
MAX	56	929	350	310	1930	151	48	250	138	5.0	5.7	44
MIN	4.6	6.1	19	16	50	19	8.1	5.7	1.6	.06	.05	.02
CFSM	.14	.66	.64	.63	2.63	.50	.21	.27	.18	.01	.01	.03
IN.	.16	.73	.74	.72	2.74	.58	.23	.31	.21	.01	.01	.03
CAL YR 1984	TOTAL	49090.0	MEAN	134	MAX	3630	MIN	3.7	CFSM	1.43	IN.	19.55
WTR YR 1985	TOTAL	16231.75	MEAN	44.5	MAX	1930	MIN	.02	CFSM	.48	IN.	6.46

## POTOMAC RIVER BASIN

01656100 CEDAR RUN NEAR ADEN, VA

LOCATION.--Lat 38°36'58", long 77°33'16", Prince William County, Hydrologic Unit 02070010, on left bank at upstream side of bridge on State Highway 611, 0.5 mi downstream from Darrels Run, 0.8 mi downstream from Town Run, and 3.0 mi southwest of Aden.

DRAINAGE AREA.--155 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 166.27 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 11-16, 19-21 and Feb. 7-10. Records good except those for periods with ice effect, Jan. 11-16, 19-21 and Feb. 7-10, which are fair. Occasional diurnal fluctuation during low flow caused by irrigation dam 4.5 mi upstream from gage. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--13 years, 190 ft<sup>3</sup>/s, 16.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,900 ft<sup>3</sup>/s, Oct. 1, 1979, gage height, 15.29 ft, from rating curve extended above 6,600 ft<sup>3</sup>/s; minimum daily, 0.25 ft<sup>3</sup>/s, Oct. 14, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of 21.37 ft, from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0800	4,850	11.15	Feb. 12	1900	*7,090	*12.49

Minimum daily discharge, 0.50 ft<sup>3</sup>/s, Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	23	220	37	392	110	76	11	311	4.3	1.1	.78
2	101	19	145	50	2290	102	69	10	97	4.1	1.1	.78
3	38	15	149	170	804	85	56	35	54	4.1	.85	.78
4	18	14	131	664	376	76	49	59	38	3.9	.78	.71
5	12	30	106	558	235	87	45	28	34	4.7	.85	.78
6	9.0	47	674	432	174	74	40	20	95	6.1	.85	.78
7	6.0	31	328	262	160	59	36	17	58	5.9	.92	.78
8	5.0	23	184	195	130	58	33	14	42	4.3	1.1	.78
9	4.4	18	147	136	95	59	32	11	40	3.9	.99	.74
10	4.4	16	131	110	80	53	31	10	28	3.7	.92	3.5
11	5.0	18	120	92	78	49	28	10	22	3.6	.92	21
12	6.6	18	102	80	3940	54	28	11	29	3.2	.92	6.6
13	7.3	19	92	72	1840	61	28	74	23	2.8	.85	4.3
14	4.8	16	79	64	463	44	26	30	15	2.6	.85	3.7
15	5.6	16	71	66	328	40	26	15	13	2.5	.85	3.6
16	6.8	18	67	70	233	38	28	18	16	2.2	.85	3.4
17	8.6	14	64	56	161	34	27	94	15	1.9	.85	2.6
18	7.9	13	61	60	142	35	28	75	12	1.6	14	2.3
19	5.6	115	57	52	136	33	22	36	11	1.5	68	1.9
20	8.2	152	57	43	136	30	21	20	11	1.3	11	1.5
21	13	68	53	37	120	33	20	15	8.8	1.2	7.1	1.2
22	15	45	78	33	120	32	18	13	7.4	1.2	5.2	.92
23	11	36	66	33	133	93	18	15	6.1	1.1	2.6	.85
24	32	32	51	34	149	284	17	50	7.4	.92	1.6	.57
25	29	28	48	37	128	284	17	139	23	.85	1.5	.50
26	19	25	45	42	234	152	18	55	9.6	.85	1.5	1.3
27	15	24	39	33	212	114	18	65	6.1	.99	1.1	11
28	13	270	39	33	136	92	16	158	5.4	1.1	.99	9.6
29	124	2700	42	33	---	78	13	218	5.0	.85	.99	3.9
30	55	403	39	29	---	81	12	69	4.5	.85	.85	1.8
31	32	---	37	36	---	72	---	654	---	.92	.78	---
TOTAL	658.2	4266	3522	3649	13425	2496	896	2049	1047.3	79.03	132.76	92.95
MEAN	21.2	142	114	118	479	80.5	29.9	66.1	34.9	2.55	4.28	3.10
MAX	124	2700	674	664	3940	284	76	654	311	6.1	68	21
MIN	4.4	13	37	29	78	30	12	10	4.5	.85	.78	.50
CFSM	.14	.92	.74	.76	3.09	.52	.19	.43	.23	.02	.03	.02
IN.	.16	1.02	.85	.88	3.22	.60	.22	.49	.25	.02	.03	.02

CAL YR 1984	TOTAL	97608.5	MEAN	267	MAX	8540	MIN	2.2	CFSM	1.72	IN.	23.43
WTR YR 1985	TOTAL	32313.24	MEAN	88.5	MAX	3940	MIN	.50	CFSM	.57	IN.	7.76

## 01656500 BROAD RUN AT BUCKLAND, VA

LOCATION.--Lat 38°46'50", long 77°40'22", Prince William County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on U.S. Highway 29 at Buckland and 1.1 mi upstream from South Run.

DRAINAGE AREA.--50.5 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1950 to September 1979, October 1980 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 284.58 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 24, 25 and Feb. 1, 2. Records good except those for periods with ice effect, Jan. 24, 25 and Feb. 1, 2, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--34 years, 52.0 ft<sup>3</sup>/s, 13.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft<sup>3</sup>/s, June 21, 1972, gage height, 13.92 ft, from rating curve extended above 3,200 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 13.08 ft and 13.92 ft; minimum, 0.20 ft<sup>3</sup>/s, Oct. 10, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	2330	828	4.75	Feb. 12	1200	*2,070	*6.99
Feb. 2	1530	850	4.80				

Minimum daily discharge, 0.54 ft<sup>3</sup>/s, Sept. 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	14	56	27	168	40	39	10	42	2.2	3.2	1.2
2	32	14	42	35	591	39	35	11	20	2.7	3.0	1.2
3	15	13	44	45	132	35	31	22	13	2.9	2.4	1.1
4	10	12	37	80	75	34	28	17	9.6	2.7	2.1	.97
5	8.2	24	33	78	61	35	27	13	11	2.0	1.6	.90
6	7.3	20	124	68	55	31	25	11	17	1.9	1.5	.74
7	6.4	16	80	55	58	28	24	9.6	11	1.9	1.3	.62
8	6.8	14	54	45	42	28	23	8.2	12	1.6	1.9	.66
9	7.7	14	45	37	36	28	22	8.2	8.7	1.9	2.7	1.1
10	7.7	14	40	33	29	25	21	7.7	7.3	2.4	1.6	1.8
11	7.7	14	38	32	31	24	21	7.3	6.9	2.6	1.3	2.7
12	7.7	15	33	30	1200	27	20	8.7	5.7	2.7	.97	1.5
13	7.3	14	31	26	252	25	20	24	5.0	3.6	.82	1.2
14	7.7	13	28	25	119	24	20	12	3.6	3.0	.66	1.1
15	7.7	12	27	22	89	23	20	8.2	3.0	3.9	.58	1.0
16	7.7	12	26	19	70	22	21	11	3.6	6.8	.58	.90
17	8.2	12	25	22	61	22	19	35	3.9	4.6	.58	.82
18	9.2	12	25	24	54	21	18	24	2.9	3.0	1.5	.74
19	9.6	37	24	24	49	19	18	15	2.7	2.2	5.4	.66
20	11	28	24	17	46	20	17	11	2.7	1.8	2.7	.66
21	12	19	24	15	42	20	17	8.2	2.6	1.6	2.6	.62
22	13	17	30	17	43	20	16	7.3	2.2	1.5	2.6	.62
23	14	15	27	18	46	43	15	14	2.9	1.5	2.1	.58
24	21	15	25	18	48	86	14	23	2.6	1.2	1.8	.58
25	17	14	25	19	46	80	22	15	3.0	1.2	2.6	.54
26	15	13	24	21	64	55	19	11	2.7	3.9	5.4	.54
27	14	13	24	18	58	46	16	7.7	2.7	9.2	5.0	4.0
28	14	118	24	19	44	40	14	7.7	2.6	7.7	2.9	4.3
29	28	330	25	19	---	37	13	14	2.4	4.6	2.2	1.9
30	21	91	25	17	---	40	11	9.6	2.1	3.2	1.5	1.8
31	16	---	25	19	---	36	---	77	---	2.9	1.2	---
TOTAL	428.9	969	1114	944	3609	1053	626	468.4	217.4	94.9	66.29	37.05
MEAN	13.8	32.3	35.9	30.5	129	34.0	20.9	15.1	7.25	3.06	2.14	1.23
MAX	59	330	124	80	1200	86	39	77	42	9.2	5.4	4.3
MIN	6.4	12	24	15	29	19	11	7.3	2.1	1.2	.58	.54
CFSM	.27	.64	.71	.60	2.55	.67	.41	.30	.14	.06	.04	.02
IN.	.32	.71	.82	.70	2.66	.78	.46	.35	.16	.07	.05	.03
CAL YR 1984	TOTAL	28325.2	MEAN	77.4	MAX	1510	MIN	6.4	CFSM	1.53	IN.	20.87
WTR YR 1985	TOTAL	9627.94	MEAN	26.4	MAX	1200	MIN	.54	CFSM	.52	IN.	7.09



## POTOMAC RIVER BASIN

01656650 BROAD RUN NEAR BRISTOW, VA

LOCATION.--Lat 38°44'56", long 77°33'50", Prince William County, Hydrologic Unit 02070010, on left bank 50 ft downstream from bridge on State Highway 619, 0.2 mi upstream from Dawkins Branch, 1.9 mi downstream from Rocky Branch, and 2.3 mi northwest of Bristow.

DRAINAGE AREA.--89.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 185 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 30 to Nov. 27. Records fair except those for period of doubtful gage-height record, Oct. 30 to Nov. 27, which are poor. Town of Manassas diverts about 3.0 ft<sup>3</sup>/s daily from municipal water-supply reservoir 6.0 mi upstream. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--11 years, 99.2 ft<sup>3</sup>/s, 15.04 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,800 ft<sup>3</sup>/s, Oct. 9, 1976, gage height, 16.11 ft, from rating curve extended above 4,100 ft<sup>3</sup>/s; minimum, 0.90 ft<sup>3</sup>/s, Sept. 30, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	2300	941	5.84	Feb. 12	1930	*2,410	*9.64

Minimum daily discharge, 2.1 ft<sup>3</sup>/s, Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	32	127	24	198	70	66	11	138	6.7	9.9	9.6
2	68	26	80	45	627	68	59	12	61	7.0	8.8	9.6
3	63	24	72	97	329	57	45	24	26	7.3	8.0	9.6
4	20	22	70	154	171	52	42	24	11	7.3	7.6	9.6
5	9.2	27	78	177	112	57	36	16	8.8	6.4	7.6	10
6	7.6	35	199	149	93	57	35	14	9.9	6.4	7.0	7.0
7	7.3	40	160	119	87	53	29	16	9.9	6.4	7.0	6.0
8	7.0	35	109	107	72	31	29	15	9.9	6.0	7.6	6.0
9	7.0	30	84	78	47	16	29	12	9.2	7.0	7.3	16
10	7.0	27	72	50	15	19	22	10	8.0	7.6	7.6	72
11	7.0	25	68	17	16	22	15	12	6.4	8.8	7.3	84
12	7.0	30	49	32	1550	35	23	14	5.4	8.4	7.0	26
13	7.0	35	13	22	921	32	22	15	8.4	5.4	6.7	17
14	7.0	40	14	26	266	26	20	13	8.0	8.4	5.4	17
15	8.0	30	22	66	163	30	22	13	4.5	7.3	4.8	19
16	15	25	27	24	119	21	22	14	4.5	6.7	5.4	20
17	7.3	20	31	15	91	23	25	20	4.8	11	6.0	16
18	7.0	32	31	20	61	31	16	31	4.5	9.2	7.6	9.6
19	6.4	76	30	25	66	16	18	22	5.1	9.9	8.4	7.0
20	9.2	87	27	36	74	13	18	11	5.7	9.2	7.3	4.8
21	14	70	29	23	72	20	17	12	7.6	9.2	7.6	4.5
22	9.9	60	38	14	63	17	16	13	8.0	6.4	7.6	6.0
23	21	50	36	14	64	60	16	17	5.7	8.8	7.6	3.7
24	35	45	29	14	70	174	14	22	5.7	8.4	7.6	2.2
25	21	40	35	14	76	177	21	23	6.0	8.4	8.4	2.1
26	20	35	22	22	114	119	23	20	5.7	9.2	9.2	2.4
27	21	30	20	15	122	87	19	15	6.4	10	11	22
28	25	186	22	15	84	72	19	14	8.4	10	9.6	9.2
29	36	587	22	15	---	64	16	17	7.0	9.6	9.2	3.0
30	41	239	25	15	---	66	14	14	7.3	9.2	9.6	2.2
31	41	---	25	18	---	63	---	100	---	8.4	9.2	---
TOTAL	596.9	2040	1666	1462	5743	1648	768	586	416.8	250.0	240.9	433.1
MEAN	19.3	68.0	53.7	47.2	205	53.2	25.6	18.9	13.9	8.06	7.77	14.4
MAX	68	587	199	177	1550	177	66	100	138	11	11	84
MIN	6.4	20	13	14	15	13	14	10	4.5	5.4	4.8	2.1
CFSM	.22	.76	.60	.53	2.29	.59	.29	.21	.16	.09	.09	.16
IN.	.25	.85	.69	.61	2.38	.68	.32	.24	.17	.10	.10	.18
CAL YR 1984	TOTAL	47452.1	MEAN	130	MAX	2950	MIN	2.3	CFSM	1.45	IN.	19.70
WTR YR 1985	TOTAL	15850.7	MEAN	43.4	MAX	1550	MIN	2.1	CFSM	.48	IN.	6.58

01656725 BULL RUN NEAR CATHARPIN, VA

LOCATION.--Lat 38°53'21", long 77°34'14", Prince William County, Hydrologic Unit 02070010, on right bank 20 ft downstream from bridge on State Highway 705, 0.7 mi downstream from Chestnut Lick, 2.5 mi north of Catharpin, and 6.7 mi northeast of Gainesville.

DRAINAGE AREA.--25.8 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1969 to current year. Prior to October 1970, published as "on State Highway 705."

REVISED RECORDS.--WDR VA-75-1: 1974(P).

GAGE.--Water-stage recorder. Datum of gage is 237.78 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 17-20 and Feb. 6-8. Records good except those for periods with ice effect, Jan. 17-20 and Feb. 6-8, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--16 years, 33.9 ft<sup>3</sup>/s, 17.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,400 ft<sup>3</sup>/s, June 22, 1972, gage height, 18.92 ft, from flood-marks, from rating curve extended above 3,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; no flow many days in 1970, 1977, 1980, 1983, and 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 820 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	2230	1,200	5.83	Feb. 12	0930	*2,560	*7.50

No flow many days in July, August, and September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	2.4	24	9.0	152	14	22	2.9	6.8	.41	.01	.05
2	9.9	2.7	18	14	180	14	14	3.1	3.3	.30	.01	.02
3	5.2	3.3	23	21	54	12	12	13	2.4	.27	.01	.01
4	3.5	2.2	16	52	28	12	11	7.7	2.4	.27	.00	.01
5	3.1	6.8	18	46	22	13	10	5.2	2.7	.27	.00	.00
6	2.7	5.2	123	33	21	9.9	9.4	3.8	5.5	.22	.00	.00
7	2.4	3.3	37	25	18	9.0	8.1	3.5	3.5	.16	.00	.00
8	2.2	2.4	25	20	16	9.4	8.1	2.9	3.8	.10	.01	.00
9	1.8	2.2	20	14	13	9.0	7.7	2.9	3.5	.08	.01	.00
10	1.4	2.2	17	13	11	8.6	6.8	2.7	3.1	.05	.01	1.0
11	1.7	2.7	16	13	12	8.1	6.8	2.2	2.4	.02	.01	7.3
12	1.4	2.9	14	11	843	9.4	6.5	2.4	2.2	.02	.00	1.1
13	1.3	2.2	13	11	98	7.7	6.5	4.8	2.4	.02	.00	.41
14	1.2	1.8	11	11	55	7.7	6.5	3.3	2.2	.01	.00	.22
15	1.1	2.0	11	10	40	7.2	6.5	2.2	1.6	.01	.00	.13
16	1.4	2.2	9.9	7.7	30	6.8	6.5	2.7	1.6	.01	.00	.10
17	1.8	2.4	9.9	7.4	24	6.8	6.1	13	1.8	.01	.01	.02
18	1.7	2.7	9.4	7.0	21	6.5	5.8	7.7	1.8	.00	.20	.01
19	1.6	12	9.0	6.4	21	5.8	5.5	3.8	1.4	.00	.78	.01
20	1.5	7.2	9.0	5.9	20	5.8	4.8	2.7	1.2	.00	1.1	.01
21	1.3	3.8	9.4	5.2	18	5.8	4.5	2.2	.96	.00	.41	.00
22	2.2	2.9	13	5.5	19	6.1	4.5	1.8	.85	.00	.19	.00
23	4.1	2.4	9.4	5.8	24	42	4.2	5.5	.74	.00	.19	.00
24	7.1	2.2	8.6	6.1	25	74	3.8	7.7	.85	.00	.13	.00
25	3.5	.2.0	8.1	7.2	21	49	10	4.5	1.2	.00	.19	.00
26	2.4	1.8	6.8	6.8	27	26	6.1	2.7	.85	.00	.74	.00
27	1.8	1.6	6.8	5.5	23	20	4.5	2.0	.52	.01	1.4	.72
28	2.0	168	6.8	5.5	17	17	4.2	2.0	1.4	.01	.74	2.9
29	17	210	6.8	5.8	---	14	3.5	3.1	1.3	.01	.24	1.2
30	4.8	36	6.8	5.2	---	17	3.1	2.4	.74	.00	.13	.30
31	2.9	---	6.8	5.8	---	15	---	11	---	.01	.05	---
TOTAL	119.0	501.5	522.5	401.8	1853	468.6	219.0	137.4	65.01	2.27	6.57	15.52
MEAN	3.84	16.7	16.9	13.0	66.2	15.1	7.30	4.43	2.17	.07	.21	.52
MAX	23	210	123	52	843	74	22	13	6.8	.41	1.4	7.3
MIN	1.1	1.6	6.8	5.2	11	5.8	3.1	1.8	.52	.00	.00	.00
CFSM	.15	.65	.66	.50	2.57	.59	.28	.17	.08	.00	.01	.02
IN.	.17	.72	.75	.58	2.67	.68	.32	.20	.09	.00	.01	.02
CAL YR 1984	TOTAL	16126.86	MEAN	44.1	MAX	1370	MIN	.52	CFSM	1.71	IN.	23.25
WTR YR 1985	TOTAL	4312.17	MEAN	11.8	MAX	843	MIN	.00	CFSM	.46	IN.	6.22

## POTOMAC RIVER BASIN

01656960 CUB RUN NEAR BULL RUN, VA

LOCATION.--Lat 38°49'16", long 77°27'57", Fairfax County, Hydrologic Unit 02070010, on right bank 20 ft downstream from bridge on State Highway 658, 0.6 mi downstream from Big Rocky Run, 1.2 mi southeast of Bull Run, and 2.3 mi upstream from mouth.

DRAINAGE AREA.--49.9 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 151.54 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 6-18, 22-27, Jan. 18-27, 29, Feb. 7-9, and June 10-13. Records good except those for periods of doubtful or no gage-height record, Nov. 6-18, 22-27 and June 10-13, and periods with ice effect, Jan. 18-27, 29 and Feb. 7-9, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--13 years, 57.8 ft<sup>3</sup>/s, 15.73 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft<sup>3</sup>/s, Oct. 1, 1979, gage height, 16.43 ft, from rating curve extended above 4,100 ft<sup>3</sup>/s; minimum daily, 0.10 ft<sup>3</sup>/s, Oct. 23, 1980, Sept. 30, Oct. 15, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of 28.64 ft, from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	1800	*3,210	*11.92	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 1.1 ft<sup>3</sup>/s, July 14, 15, Aug. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	7.4	40	9.8	234	21	28	3.5	40	1.6	9.4	2.5
2	44	7.4	26	15	650	18	25	4.1	12	1.9	3.8	2.1
3	13	7.0	31	55	219	13	19	48	6.2	3.0	2.5	2.3
4	9.0	14	33	222	102	12	16	22	4.1	2.7	2.1	2.3
5	7.8	73	31	187	60	14	14	10	8.9	2.5	2.1	2.5
6	5.9	35	358	130	52	12	13	7.0	16	3.0	1.4	2.5
7	4.7	20	99	66	45	9.0	12	5.3	7.0	1.8	1.3	2.3
8	5.6	15	44	46	37	8.2	11	4.4	8.2	1.6	1.6	2.5
9	5.6	12	32	30	25	7.4	9.4	3.8	5.9	1.4	2.5	3.8
10	6.6	11	26	23	21	6.6	9.0	3.5	4.5	1.6	2.1	106
11	6.2	15	23	22	19	9.8	9.0	3.5	4.0	1.9	1.8	68
12	6.2	14	20	20	1550	9.4	8.6	32	3.0	1.4	1.4	10
13	6.2	11	17	17	445	7.7	8.2	48	3.7	1.2	1.6	4.4
14	6.2	10	16	17	125	6.2	7.4	9.4	2.7	1.1	1.1	3.2
15	5.9	10	14	16	71	5.3	7.8	5.0	2.7	1.1	1.2	2.7
16	7.4	11	12	13	47	4.4	8.2	18	3.5	28	1.4	2.5
17	7.0	11	12	12	34	4.4	7.0	29	3.0	4.4	3.8	2.7
18	6.2	11	13	11	26	3.8	6.2	26	2.5	2.7	6.6	2.7
19	6.2	53	13	10	27	3.5	5.6	13	2.3	2.1	14	2.8
20	4.1	37	13	9.5	30	3.8	5.3	8.2	2.3	1.8	5.3	2.8
21	5.6	22	12	8.0	23	3.2	5.0	6.6	1.9	1.8	6.6	2.3
22	4.7	18	18	6.6	24	3.2	4.7	5.9	1.8	1.6	4.4	1.9
23	4.7	15	20	6.6	39	31	4.1	21	1.8	1.4	3.8	1.8
24	51	13	13	6.6	49	264	4.1	23	1.8	1.4	2.8	1.9
25	21	12	12	7.0	46	200	5.3	12	3.2	2.5	3.8	1.9
26	12	11	12	7.0	59	118	5.3	8.6	2.3	6.2	7.0	1.9
27	11	10	9.8	8.0	55	40	4.7	7.4	1.8	12	12	155
28	14	112	9.4	9.0	37	32	4.1	21	1.6	6.2	6.6	30
29	38	640	9.8	9.2	---	26	4.1	39	1.4	3.2	4.4	12
30	17	77	9.4	9.4	---	28	3.8	13	1.4	2.5	3.2	7.0
31	9.4	---	9.0	12	---	26	---	76	---	3.5	2.8	---
TOTAL	414.2	1314.8	1007.4	1020.7	4151	950.9	274.9	537.2	161.5	109.1	124.4	446.3
MEAN	13.4	43.8	32.5	32.9	148	30.7	9.16	17.3	5.38	3.52	4.01	14.9
MAX	62	640	358	222	1550	264	28	76	40	28	14	155
MIN	4.1	7.0	9.0	6.6	19	3.2	3.8	3.5	1.4	1.1	1.1	1.8
CFSM	.27	.88	.65	.66	2.97	.62	.18	.35	.11	.07	.08	.30
IN.	.31	.98	.75	.76	3.09	.71	.20	.40	.12	.08	.09	.33
CAL YR 1984	TOTAL	26913.8	MEAN	73.5	MAX	2120	MIN	3.2	CFSM	1.47	IN.	20.06
WTR YR 1985	TOTAL	10512.4	MEAN	28.8	MAX	1550	MIN	1.1	CFSM	.58	IN.	7.84

## POTOMAC RIVER BASIN

87

01657020 BULL RUN NEAR MANASSAS PARK, VA

LOCATION.--Lat 38°48'12", long 77°26'59", Fairfax County, Hydrologic Unit 02070010, on left bank 34 ft upstream from bridge on State Highway 28, 1.2 mi upstream from Little Rocky Run, 1.5 mi downstream from Cub Run, and 1.5 mi northeast of Manassas.

DRAINAGE AREA.--148 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1984 to September 1985.

GAGE.--Water-stage recorder. Elevation of gage is 135 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 17-21 and Feb. 7, 8. Records good except those for periods with ice effect, Jan. 17-21 and Feb. 7, 8, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of about 44.8 ft, discharge, 76,000 ft<sup>3</sup>/s, by slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges during period November 1984 to September 1985 equal to or greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	2200	*6,800	*15.80	No other peak equal to or greater than base discharge.			

Minimum discharge, 5.6 ft<sup>3</sup>/s, Sept. 26, gage height, 2.19 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, NOVEMBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	146	36	346	100	100	22	121	16	26	16
2		---	102	48	1460	90	92	23	56	17	15	14
3		---	105	111	498	80	73	83	40	23	14	14
4		---	112	411	256	73	67	70	33	18	15	13
5		---	96	365	183	77	66	42	37	16	14	13
6		---	694	322	162	67	61	33	50	16	13	12
7		---	285	187	130	58	57	30	39	17	12	11
8		---	160	146	110	56	52	27	43	15	14	10
9		---	127	105	96	57	49	24	38	14	12	60
10		---	107	83	79	57	49	23	34	14	15	397
11		---	99	79	72	57	48	23	29	14	11	400
12		---	87	71	3400	55	43	41	30	14	14	52
13		---	75	66	1800	49	42	89	24	11	12	28
14		---	66	63	350	48	42	37	22	14	13	18
15		---	62	56	241	50	42	30	28	22	13	18
16		21	57	47	203	48	42	51	26	42	14	14
17		20	51	45	148	48	41	84	24	16	14	12
18		23	51	43	119	46	37	80	22	14	34	11
19		107	50	40	119	42	33	52	22	11	44	11
20		104	48	39	125	40	32	41	28	10	18	12
21		53	50	36	109	35	31	36	21	11	29	12
22		40	58	33	100	37	32	33	19	14	22	11
23		34	62	30	123	89	29	67	19	12	17	11
24		28	50	35	144	468	28	61	16	11	16	11
25		28	44	33	140	409	30	50	18	13	23	10
26		27	44	33	185	190	38	40	17	22	30	8.4
27		25	39	30	183	132	32	36	15	42	44	312
28		162	38	31	123	109	38	67	16	25	19	87
29		1500	38	33	---	92	27	71	16	18	16	48
30		239	37	33	---	100	23	41	16	15	16	26
31		---	36	33	---	96	---	155	---	14	17	---
TOTAL		---	3076	2723	11004	2955	1376	1562	919	531	586	1672.4
MEAN		---	99.2	87.8	393	95.3	45.9	50.4	30.6	17.1	18.9	55.7
MAX		---	694	411	3400	468	100	155	121	42	44	400
MIN		---	36	30	72	35	23	22	15	10	11	8.4
CFSM		---	.67	.59	2.66	.64	.31	.34	.21	.12	.13	.38
IN.		---	.77	.68	2.77	.74	.35	.39	.23	.13	.15	.42



## POTOMAC RIVER BASIN

01658480 QUANTICO CREEK NEAR DUMFRIES, VA

LOCATION.--Lat 38°34'22", long 77°20'51", Prince William County, Hydrologic Unit 02070011, on left bank at upstream side of bridge on pyrite mine trail in Prince William Forest Park, 50 ft upstream from South Fork Quantico Creek, and 0.7 mi west of Dumfries.

DRAINAGE AREA.--6.90 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1983 to September 1985 (discontinued).

GAGE.--Water-stage recorder.

REMARKS.--Estimated daily discharges: Jan. 16-31, Feb. 2, 3, June 19-25, June 28 to Aug. 17, Aug. 20 to Sept. 9, and Sept. 12-26, 29, 30. Records fair except those for periods with ice effect, Jan. 16-31 and Feb. 2, 3, and those for periods of doubtful gage-height record, June 19-25, June 28 to Aug. 17, Aug. 20 to Sept. 9, and Sept. 12-26, 29, 30, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 430 ft<sup>3</sup>/s, Mar. 29, 1984, gage height, 6.85 ft; no flow at times in 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 221 ft<sup>3</sup>/s, Feb. 12, gage height, 4.19 ft; minimum daily, 0.10 ft<sup>3</sup>/s, Sept. 18-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	1.4	8.8	3.4	9.3	6.0	7.1	1.8	7.2	.60	1.0	.28
2	5.8	1.3	6.5	3.7	45	5.6	6.6	1.9	2.5	.66	.62	.27
3	2.9	1.2	6.0	5.9	20	4.9	5.8	9.3	1.3	.66	.50	.26
4	1.7	1.2	5.5	15	12	4.6	5.4	5.3	.98	.60	.40	.26
5	1.4	27	5.0	16	8.4	4.9	5.0	2.8	.95	.56	.35	.25
6	1.4	6.2	19	17	7.0	4.5	4.9	2.2	1.2	.60	.28	.22
7	1.4	3.2	13	12	6.5	4.3	4.6	1.6	.99	.56	.25	.20
8	1.2	2.0	8.9	9.3	6.3	4.5	4.6	1.5	1.1	.50	.26	.17
9	1.2	1.6	7.6	8.0	14	4.6	4.3	1.5	1.2	.40	.27	.50
10	1.2	1.5	6.2	7.0	9.3	4.4	4.3	1.4	1.1	.35	.27	1.6
11	1.2	1.4	5.7	6.4	3.6	4.2	4.4	1.3	.91	.34	.24	3.4
12	1.0	1.5	5.0	6.1	98	4.4	4.5	1.3	.92	.33	.23	.70
13	.74	1.4	4.8	4.9	34	4.4	4.3	1.4	1.0	.34	.22	.54
14	.74	1.2	4.4	4.2	18	4.6	4.3	1.3	.91	.30	.21	.40
15	.84	1.2	4.3	5.0	13	4.4	4.3	1.2	.87	.27	.20	.25
16	.91	1.2	4.3	9.2	10	4.3	4.3	1.1	.92	.26	.22	.15
17	.91	1.1	4.3	7.4	9.4	4.3	4.3	1.4	1.0	.24	.50	.13
18	1.0	1.2	4.1	4.8	8.4	4.2	4.0	2.3	.91	.21	1.6	.10
19	1.1	12	3.8	4.1	7.9	4.0	4.0	1.2	.85	.19	4.4	.10
20	1.1	9.1	3.7	3.8	7.3	4.0	3.8	.91	.80	.17	1.0	.10
21	1.2	4.5	3.8	3.5	6.8	4.0	3.5	.91	.72	.16	.80	.10
22	1.2	3.5	4.3	3.4	6.3	4.2	3.4	.78	.70	.15	.70	.11
23	1.4	2.7	3.9	3.3	5.6	8.8	3.3	1.5	.68	.14	.64	.15
24	1.7	2.4	3.7	3.5	5.5	20	2.9	3.2	.70	.13	.50	.15
25	2.2	2.1	3.7	3.6	5.2	17	3.0	5.6	1.7	.25	.60	.13
26	1.9	1.9	3.5	3.4	7.2	10	2.9	2.7	1.2	.51	.80	.15
27	1.7	2.4	3.4	3.3	7.8	8.5	2.5	1.3	.94	.47	.74	7.4
28	1.8	13	3.4	3.3	6.3	7.7	2.2	1.3	.80	.43	.50	3.7
29	7.1	53	3.4	3.2	---	7.0	2.2	7.9	.70	.39	.40	.90
30	4.1	13	3.4	3.3	---	7.4	2.1	2.7	.62	.35	.35	.60
31	2.2	---	3.4	6.0	---	6.9	---	7.9	---	.40	.30	---
TOTAL	60.94	176.4	170.8	193.0	398.1	192.6	122.8	78.50	36.37	11.52	19.35	23.27
MEAN	1.97	5.88	5.51	6.23	14.2	6.21	4.09	2.53	1.21	.37	.62	.78
MAX	7.1	53	19	17	98	20	7.1	9.3	7.2	.66	4.4	7.4
MIN	.74	1.1	3.4	3.2	3.6	4.0	2.1	.78	.62	.13	.20	.10
CFSM	.29	.85	.80	.90	2.06	.90	.59	.37	.18	.05	.09	.11
IN.	.33	.95	.92	1.04	2.15	1.04	.66	.42	.20	.06	.10	.13
CAL YR 1984	TOTAL	3767.20	MEAN	10.3	MAX	238	MIN	.69	CFSM	1.49	IN.	20.31
WTR YR 1985	TOTAL	1483.65	MEAN	4.06	MAX	98	MIN	.10	CFSM	.59	IN.	8.00

## POTOMAC RIVER BASIN

89

01658480 QUANTICO CREEK NEAR DUMFRIES, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1983 to September 1985 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)
OCT					
23...	12:45	1.3	95	20.5	19
NOV					
28...	09:30	3.1	95	5.5	3
DEC					
19...	10:00	3.9	98	10.0	6
JAN					
29...	10:23	3.0	60	0.0	219
FEB					
02...	12:33	71	75	1.0	113
12...	14:35	214	70	4.0	--
13...	12:15	31	70	4.0	--
27...	09:45	7.8	68	9.5	--
MAR					
28...	09:45	7.5	73	9.5	5
APR					
24...	11:20	2.9	75	18.0	3
MAY					
29...	12:40	7.6	63	18.0	4
JUN					
26...	09:45	1.1	90	20.0	5

## POTOMAC RIVER BASIN

01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA

LOCATION.--Lat 38°35'14", long 77°25'44", Prince William County, Hydrologic Unit 02070011, on left bank at upstream side of bridge on State Highway 619, 3.4 mi south of Independent Hill, 5.6 mi west of Dumfries, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--7.64 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 238.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 4-21, Nov. 11-13, 17, 18, and Jan. 20-31. Records fair except those for periods of doubtful gage-height record, Oct. 4-21 and Nov. 11-13, 17, 18, and period with ice effect, Jan. 20-31, which are poor.

AVERAGE DISCHARGE.--34 years, 6.95 ft<sup>3</sup>/s, 12.35 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,940 ft<sup>3</sup>/s, June 21, 1972, gage height, 11.35 ft; no flow at times in 1954, 1957, 1962-66, 1983, and 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0200	235	5.53	Feb. 12	1315	*350	*6.40

No flow July 21-31 and part or all of each day Aug. 6-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	2.6	8.4	4.8	45	10	9.6	2.4	8.1	.29	.08	.14
2	6.7	2.1	6.1	5.8	75	9.9	8.4	2.3	3.1	.27	.18	.14
3	2.8	1.9	6.0	10	28	8.9	7.5	13	2.0	.27	.16	.14
4	1.2	1.8	5.8	24	15	8.2	7.0	6.0	1.7	.27	.10	.14
5	.70	27	5.3	26	13	8.1	6.3	3.9	1.6	.25	.06	.14
6	.50	6.2	28	21	13	7.8	5.9	3.2	2.3	.21	.02	.14
7	.42	3.9	13	15	13	7.4	5.7	2.7	1.9	.18	.00	.13
8	.40	3.2	8.4	12	9.8	7.2	5.6	2.3	1.7	.16	.00	.11
9	.38	2.7	6.5	9.5	7.8	7.1	5.6	2.1	1.8	.11	.00	.11
10	.36	2.5	5.7	8.2	7.5	7.0	5.5	1.9	1.5	.10	.00	.55
11	.35	2.6	5.4	7.8	7.6	6.8	5.4	1.8	1.2	.12	.00	2.9
12	.38	2.8	4.9	7.6	140	7.0	5.4	1.7	1.1	.18	.00	.77
13	.45	2.3	4.6	6.9	37	6.9	5.4	1.8	1.1	.21	.00	.30
14	.56	1.9	4.4	6.8	21	6.5	5.4	1.8	.85	.15	.00	.16
15	.70	1.7	4.1	7.0	17	6.3	5.4	1.7	.69	.12	.00	.10
16	.80	1.7	4.1	5.6	14	6.0	5.4	1.6	.78	.12	.00	.08
17	.90	1.9	4.1	5.8	13	5.9	5.2	2.2	.88	.12	.00	.06
18	1.1	2.0	4.7	6.2	12	5.9	4.9	2.3	.79	.06	.04	.06
19	1.1	22	5.1	6.2	11	5.5	4.7	2.2	.66	.03	5.0	.05
20	1.0	9.3	5.1	5.9	10	5.4	4.5	1.7	.60	.01	.99	.05
21	.90	4.6	5.3	5.6	9.8	5.4	4.3	1.4	.58	.00	.67	.05
22	1.0	3.6	6.2	5.4	9.6	6.1	3.9	1.2	.49	.00	.51	.04
23	1.2	3.2	6.0	5.0	9.6	18	3.6	1.6	.43	.00	.32	.04
24	1.7	3.0	5.6	5.2	9.6	33	3.2	4.2	.66	.00	.23	.05
25	1.7	2.9	5.5	5.2	9.4	22	3.2	8.4	3.1	.00	.28	.05
26	1.6	2.7	5.2	5.0	14	13	3.2	3.6	1.2	.00	.30	.05
27	1.6	2.4	5.1	4.7	14	10	3.0	2.0	.66	.00	.24	10
28	1.5	29	5.0	4.5	12	9.1	2.8	6.9	.42	.00	.19	2.6
29	14	73	4.8	4.3	---	8.1	2.6	11	.32	.00	.14	.73
30	5.8	13	4.8	4.0	---	8.9	2.5	3.5	.32	.00	.14	.57
31	3.2	---	4.8	3.8	---	8.8	---	20	---	.00	.14	---
TOTAL	61.90	239.5	198.0	254.8	597.7	286.2	151.1	122.4	42.53	3.23	9.79	20.45
MEAN	2.00	7.98	6.39	8.22	21.3	9.23	5.04	3.95	1.42	.10	.32	.68
MAX	14	73	28	26	140	33	9.6	20	8.1	.29	5.0	10
MIN	.35	1.7	4.1	3.8	7.5	5.4	2.5	1.2	.32	.00	.00	.04
CFSM	.26	1.04	.84	1.08	2.79	1.21	.66	.52	.19	.01	.04	.09
IN.	.30	1.17	.96	1.24	2.91	1.39	.74	.60	.21	.02	.05	.10
CAL YR 1984	TOTAL	3864.76	MEAN	10.6	MAX	273	MIN	.35	CFSM	1.39	IN.	18.82
WTR YR 1985	TOTAL	1987.60	MEAN	5.45	MAX	140	MIN	.00	CFSM	.71	IN.	9.68

## POTOMAC RIVER BASIN

91

01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951, 1953, 1955-56, 1969, 1973-75, April 1983 to September 1985 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)
OCT 23...	10:05	1.2	80	17.5	11
NOV 27...	10:00	2.5	73	4.0	8
DEC 18...	10:10	4.6	80	9.5	9
JAN 30...	11:10	3.9	45	0.0	2
FEB 26...	10:20	16	40	9.0	13
MAR 27...	09:35	8.9	65	6.0	7
APR 24...	09:15	2.9	65	17.0	4
MAY 29...	09:50	7.9	50	16.5	53
JUN 25...	09:45	3.7	55	21.0	21
AUG 27...	10:10	0.23	58	25.0	10



## POTOMAC RIVER BASIN

01658550 SOUTH FORK QUANTICO CREEK AT CAMP 5, NEAR JOPLIN, VA

LOCATION.--Lat 38°34'38", long 77°24'36", Prince William County, Hydrologic Unit 02070011, on right bank, 100 ft downstream from footbridge in Happyland Camp No. 5 in Prince William Forest Park, 300 ft downstream from Camp 5 Lake, and 1.6 mi northwest of Joplin.

DRAINAGE AREA.--9.62 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1983 to September 1985 (discontinued).

GAGE.--Water-stage recorder.

REMARKS.--No estimated daily discharges. Records fair prior to July 1 and poor thereafter.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 527 ft<sup>3</sup>/s, Mar. 29, 1984, gage height, 4.05 ft; minimum, 0.01 ft<sup>3</sup>/s, July 25, 1985, gage height, 0.62 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 297 ft<sup>3</sup>/s, Feb. 12, gage height, 3.24 ft; minimum, 0.01 ft<sup>3</sup>/s, July 25, gage height, 0.62 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	2.3	12	5.6	46	9.3	9.7	2.7	10	.89	.72	.54
2	7.7	2.2	9.3	6.9	87	9.0	8.1	2.6	3.8	.96	.69	.54
3	2.9	2.1	9.9	11	32	8.3	7.3	16	2.8	.85	.59	.54
4	1.5	2.2	8.9	27	17	8.1	6.8	6.7	2.4	.78	.48	.46
5	.98	38	8.0	28	13	8.9	6.3	3.9	2.5	.71	.41	.41
6	.72	8.9	38	24	13	7.7	6.2	3.1	3.3	.62	.31	.39
7	.54	5.8	19	16	13	7.0	5.6	2.9	2.8	.57	.29	.28
8	.51	4.4	12	12	9.9	7.4	5.5	2.6	2.9	.39	.33	.21
9	.48	3.9	10	9.2	8.6	7.9	5.2	2.4	2.8	.33	.30	.36
10	.46	3.8	9.6	8.1	8.1	7.2	5.6	2.2	2.2	.38	.25	1.3
11	.46	4.0	8.9	8.2	8.3	7.0	5.7	2.2	2.0	.40	.23	4.4
12	.53	4.1	8.1	7.6	139	7.5	5.7	2.1	2.1	.55	.19	1.2
13	.69	3.6	7.7	7.2	43	7.6	5.6	2.4	2.0	.64	.17	.35
14	.85	3.2	7.1	7.3	22	7.0	5.5	2.5	1.8	.52	.17	.21
15	.88	3.2	6.8	7.3	16	6.9	5.6	2.1	1.5	.45	.13	.10
16	.97	3.5	6.6	5.9	13	6.1	5.8	2.2	1.9	.36	.13	.10
17	1.1	3.5	6.6	6.7	12	6.1	5.4	3.1	2.0	.23	.25	.10
18	1.4	3.4	6.3	7.0	11	6.3	5.1	3.1	1.8	.15	3.3	.13
19	1.4	29	6.1	7.0	11	5.8	5.0	2.7	1.5	.12	7.3	.13
20	1.4	15	6.0	6.4	10	5.8	4.6	2.1	1.3	.09	1.8	.13
21	1.3	8.8	6.3	6.3	9.3	5.8	4.4	2.0	1.2	.07	1.4	.10
22	1.6	7.0	7.5	5.8	9.2	5.9	4.0	1.8	1.2	.06	1.1	.10
23	2.3	6.3	6.6	5.4	9.4	12	3.6	2.7	1.2	.03	.78	.13
24	3.0	5.8	6.1	5.7	9.4	35	3.6	5.7	1.4	.02	.58	.13
25	3.1	5.6	6.1	6.3	9.0	34	3.9	9.7	3.9	.22	.71	.10
26	2.9	5.4	5.5	6.4	14	17	3.4	3.8	2.1	.50	.87	.10
27	2.9	5.0	5.4	5.4	13	12	3.1	2.6	1.4	.40	.77	11
28	3.0	31	5.4	5.7	10	10	3.0	4.7	1.2	.33	.65	3.4
29	13	88	5.7	5.5	---	9.2	3.0	15	1.1	.25	.57	1.0
30	4.4	19	5.5	5.1	---	10	2.8	4.3	.90	.25	.54	.62
31	2.7	---	5.5	6.2	---	9.0	---	23	---	.42	.54	---
TOTAL	73.77	328.0	272.5	282.2	616.2	306.8	155.1	144.9	69.00	12.54	26.55	28.56
MEAN	2.38	10.9	8.79	9.10	22.0	9.90	5.17	4.67	2.30	.40	.86	.95
MAX	13	88	38	28	139	35	9.7	23	10	.96	7.3	11
MIN	.46	2.1	5.4	5.1	8.1	5.8	2.8	1.8	.90	.02	.13	.10
CFSM	.25	1.13	.91	.95	2.29	1.03	.54	.49	.24	.04	.09	.10
IN.	.29	1.27	1.05	1.09	2.39	1.19	.60	.56	.27	.05	.10	.11
CAL YR 1984	TOTAL	4775.17	MEAN	13.0	MAX	276	MIN	.46	CFSM	1.35	IN.	18.48
WTR YR 1985	TOTAL	2316.12	MEAN	6.35	MAX	139	MIN	.02	CFSM	.66	IN.	8.97

## POTOMAC RIVER BASIN

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01658550 SOUTH FORK QUANTICO CREEK AT CAMP 5, NEAR JOPLIN, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1983 to September 1985 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)
OCT					
23...	11:25	2.2	50	19.0	17
NOV					
27...	12:00	5.0	43	5.5	15
DEC					
18...	12:35	5.9	45	10.0	9
JAN					
30...	11:40	4.8	45	0.5	10
FEB					
01...	12:15	25	46	1.0	8
02...	11:45	140	52	1.0	46
12...	11:15	247	43	4.0	231
26...	11:33	15	37	11.0	7
MAR					
13...	10:50	40	45	2.5	42
27...	09:35	11	48	8.0	7
APR					
24...	09:55	3.7	45	18.0	4
MAY					
29...	11:10	11	53	18.0	27
JUN					
25...	10:55	4.5	40	23.0	8

## POTOMAC RIVER BASIN

01658650 SOUTH FORK QUANTICO CREEK NEAR DUMFRIES, VA

LOCATION.--Lat 38°34'18", long 77°20'57", Prince William County, Hydrologic Unit 02070011, on left bank 50 ft downstream from footbridge in Prince William Forest Park, 500 ft upstream from mouth, and 0.7 mi west of Dumfries.

DRAINAGE AREA.--16.6 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1983 to September 1985 (discontinued).

GAGE.--Water-stage recorder.

REMARKS.--Estimated daily discharges: Jan. 11-31 and Feb. 1-3, 13. Records fair except those for period with ice effect, Jan. 11-31 and Feb. 1-3, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 910 ft<sup>3</sup>/s, Mar. 29, 1984, gage height, 6.74 ft, from rating curve extended above 600 ft<sup>3</sup>/s on basis of records for nearby stations; minimum, 0.18 ft<sup>3</sup>/s, Sept. 11-12, 1983, gage height, 1.54 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 571 ft<sup>3</sup>/s, Feb. 12, gage height, 4.66 ft; minimum, 0.19 ft<sup>3</sup>/s, Sept. 17-22, 25-26, gage height, 1.58 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	3.5	19	8.6	50	15	16	5.8	17	1.3	2.0	.60
2	13	3.0	15	9.7	130	15	14	5.8	7.1	1.4	1.4	.59
3	6.4	2.6	15	15	60	13	13	18	4.9	1.4	1.0	.59
4	4.2	2.6	14	36	28	13	13	11	4.5	1.3	.87	.59
5	3.5	105	13	36	22	13	13	7.7	4.3	1.2	.69	.58
6	3.1	108	48	38	18	12	12	6.5	5.1	1.3	.58	.50
7	2.8	107	29	25	15	11	11	5.9	4.3	1.2	.51	.44
8	2.6	6.5	21	22	16	12	11	5.3	4.6	.99	.58	.37
9	2.6	5.9	17	17	18	12	11	5.0	4.4	.77	.59	.54
10	2.5	5.4	15	15	17	12	10	4.9	3.7	.76	.59	2.6
11	2.5	5.9	14	14	13	12	10	4.5	3.1	.75	.51	5.9
12	2.4	5.9	13	14	286	13	10	4.6	3.5	.74	.51	1.2
13	2.6	5.1	13	13	96	11	10	4.5	3.2	.75	.51	.40
14	2.8	4.7	12	12	38	11	10	4.5	2.7	.66	.46	.26
15	2.8	4.7	11	11	28	11	10	4.0	2.5	.59	.44	.22
16	2.6	4.7	11	10	24	11	10	3.9	3.1	.58	.47	.22
17	2.7	4.7	11	11	21	11	9.7	4.6	2.9	.48	.74	.19
18	3.4	4.9	11	11	19	10	9.3	4.9	2.9	.43	5.7	.19
19	3.4	31	10	9.2	18	10	8.9	4.5	2.4	.37	9.5	.19
20	3.2	21	9.8	8.0	17	10	8.6	4.1	2.0	.36	2.0	.19
21	3.4	11	9.8	7.9	16	10	8.2	3.6	1.8	.31	1.2	.19
22	3.7	9.0	11	7.7	15	11	7.9	3.2	1.7	.31	1.1	.20
23	4.0	8.2	9.8	7.4	15	21	7.6	4.6	1.6	.26	1.1	.22
24	4.9	7.8	9.3	8.3	15	47	7.4	7.6	1.6	.22	.85	.22
25	4.0	7.3	9.2	9.3	14	39	7.4	13	4.4	.46	.99	.20
26	3.6	7.0	8.6	9.6	19	22	7.4	6.4	2.8	1.2	1.3	.21
27	3.4	6.6	8.6	9.0	19	18	6.8	4.6	1.8	1.1	1.2	14
28	3.4	27	8.6	9.7	16	17	6.5	4.5	1.5	.98	1.1	5.5
29	19	151	8.7	9.4	---	16	6.5	19	1.4	.86	.84	1.4
30	7.5	29	8.7	9.0	---	16	5.9	7.8	1.3	.76	.76	.73
31	4.6	---	8.6	10	---	15	---	23	---	.85	.68	---
TOTAL	144.6	706.0	422.7	432.8	1063	470	292.1	217.3	108.1	24.64	40.77	39.23
MEAN	4.66	23.5	13.6	14.0	38.0	15.2	9.74	7.01	3.60	.79	1.32	1.31
MAX	19	151	48	38	286	47	16	23	17	1.4	9.5	14
MIN	2.4	2.6	8.6	7.4	13	10	5.9	3.2	1.3	.22	.44	.19
CFSM	.28	1.41	.82	.84	2.28	.91	.59	.42	.22	.05	.08	.08
IN.	.32	1.58	.94	.97	2.38	1.05	.65	.49	.24	.06	.09	.09
CAL YR 1984	TOTAL	8592.0	MEAN	23.5	MAX	760	MIN	2.2	CFSM	1.41	IN.	19.21
WTR YR 1985	TOTAL	3961.24	MEAN	10.9	MAX	286	MIN	.19	CFSM	.66	IN.	8.86

## POTOMAC RIVER BASIN

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01658650 SOUTH FORK QUANTICO CREEK NEAR DUMFRIES, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1983 to September 1985 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)
OCT					
23...	12:45	4.0	65	20.0	5
NOV					
28...	11:40	6.5	63	5.0	9
DEC					
19...	11:50	9.6	63	10.0	3
JAN					
29...	10:47	9.4	48	0.0	3
FEB					
01...	14:15	47	42	1.0	17
02...	13:25	176	60	1.0	142
12...	15:00	550	42	4.0	428
13...	13:00	73	43	4.0	33
27...	10:47	21	42	9.0	30
MAR					
28...	11:20	16	52	12.0	5
APR					
24...	12:20	7.0	50	18.0	2
MAY					
30...	10:50	8.0	55	16.0	5
JUN					
26...	10:45	3.1	43	20.0	7



## POTOMAC RIVER BASIN

01660400 AQUIA CREEK NEAR GARRISONVILLE, VA

LOCATION.--Lat 38°29'25", long 77°26'02", Stafford County, Hydrologic Unit 02070011, on right bank at bridge on State Highway 641, 1.1 mi northwest of Garrisonville, and 3.0 mi upstream from Beaverdam Run.

DRAINAGE AREA.--34.9 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1971 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 120 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 11-16, 20-28 and Feb. 9. Records good except those for periods with ice effect, Jan. 11-16, 20-28 and Feb. 9, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--14 years, 38.0 ft<sup>3</sup>/s, 14.79 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,600 ft<sup>3</sup>/s, June 22, 1972, gage height, 16.32 ft, from rating curve extended above 1,600 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; no flow Sept. 15-17, 1980, Aug. 24-27, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 5	0130	870	4.31	Feb. 12	1300	*919	*4.42
Nov. 28	2200	800	4.15				

Minimum daily discharge, 0.04 ft<sup>3</sup>/s, Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	12	45	20	152	28	26	7.2	54	6.6	.55	.88
2	38	10	34	23	295	27	24	8.2	23	4.3	.15	.51
3	17	8.6	35	56	121	26	21	52	16	3.5	.12	.25
4	11	14	39	129	69	25	19	30	12	3.2	.09	.61
5	9.6	213	39	112	59	25	19	16	11	3.0	.06	.29
6	9.1	37	128	88	53	23	18	13	13	2.7	.07	.16
7	8.1	21	70	58	51	21	16	11	12	2.3	.11	.12
8	7.9	17	47	45	44	22	17	9.8	15	1.8	1.7	.07
9	8.5	17	37	35	42	21	17	8.2	14	1.4	1.1	1.2
10	8.0	15	34	32	40	20	16	7.5	12	1.9	.75	5.9
11	7.2	16	31	31	36	20	15	7.5	9.1	3.4	.41	35
12	7.1	17	27	28	533	25	16	8.2	9.0	3.0	.77	5.0
13	8.2	17	25	26	161	22	15	8.0	8.5	2.6	.65	2.0
14	8.2	17	23	25	78	20	15	7.3	7.1	1.8	.19	.63
15	8.4	17	23	26	58	19	17	6.8	6.7	1.8	.17	.19
16	8.0	17	23	28	52	18	16	7.3	7.7	1.7	.18	.18
17	7.3	17	23	26	43	17	15	10	8.2	.94	.14	.15
18	7.1	18	22	27	38	18	14	13	9.8	.21	48	.11
19	6.9	99	21	26	37	17	13	11	10	.17	47	.11
20	7.0	56	21	25	34	16	13	7.5	6.7	.14	14	.08
21	7.3	30	22	22	32	16	12	6.0	5.6	.12	7.9	.04
22	7.4	22	28	21	31	17	11	5.1	4.7	.20	3.9	.05
23	8.4	19	23	20	32	51	11	8.6	4.8	.22	3.0	.10
24	11	18	20	20	30	87	11	24	9.4	.17	2.0	.10
25	12	18	20	21	29	70	11	45	38	.71	1.9	.12
26	12	18	18	22	42	43	11	19	8.4	2.1	2.4	.12
27	11	18	18	23	40	36	9.6	10	5.2	1.9	2.3	67
28	14	147	19	24	31	30	9.9	47	4.1	1.4	1.8	12
29	113	327	18	26	---	28	9.0	61	3.8	1.1	.82	3.7
30	31	69	18	26	---	27	8.7	24	3.1	1.3	.33	1.9
31	17	---	19	27	---	26	---	76	---	1.1	1.2	---
TOTAL	491.7	1341.6	970	1118	2263	861	446.2	575.2	351.9	56.78	143.76	138.57
MEAN	15.9	44.7	31.3	36.1	80.8	27.8	14.9	18.6	11.7	1.83	4.64	4.62
MAX	113	327	128	129	533	87	26	76	54	6.6	48	67
MIN	6.9	8.6	18	20	29	16	8.7	5.1	3.1	.12	.06	.04
CFSM	.46	1.28	.90	1.03	2.32	.80	.43	.53	.34	.05	.13	.13
IN.	.52	1.43	1.03	1.19	2.41	.92	.48	.61	.38	.06	.15	.15
CAL YR 1984	TOTAL	19382.8	MEAN	53.0	MAX	1230	MIN	3.5	CFSM	1.52	IN.	20.66
WTR YR 1985	TOTAL	8757.71	MEAN	24.0	MAX	533	MIN	.04	CFSM	.69	IN.	9.33

## 01661800 BUSH MILL STREAM NEAR HEATHSVILLE, VA

LOCATION.--Lat 37°52'36", long 76°29'42", Northumberland County, Hydrologic Unit 02080102, on right bank 12 ft upstream from bridge on State Highway 601, 2.2 mi northwest of Howland, 3.0 mi southwest of Heathsville, and 3.5 mi upstream from mouth.

DRAINAGE AREA.--6.82 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1963 to March 1969, October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 22.22 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1969, 52 ft downstream at datum 0.82 ft higher.

REMARKS.--Estimated daily discharges: Nov. 1-4, 7-10, 14-17, 23-26, Dec. 11-13, 16-20, Jan. 17-24, Jan. 26 to Feb. 11, Feb. 14-25, May 21-29, June 6 to July 10, and Aug. 31 to Sept. 21. Records fair except those for periods of doubtful or no gage-height record, Nov. 1-4, 7-10, 14-17, 23-26, Dec. 11-13, 16-20, Jan. 26 to Feb. 11, Feb. 14-25, May 21-29, June 6 to July 10, and Aug. 31 to Sept. 21, and period with ice effect, Jan. 17-24, which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--21 years (water years 1964-68, 1970-85), 7.42 ft<sup>3</sup>/s, 14.77 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 714 ft<sup>3</sup>/s, July 30, 1979, gage height, 8.52 ft, from rating curve extended above 130 ft<sup>3</sup>/s; no flow many days in August and September 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 20, 1969, reached a stage of 6.13 ft, present datum, from flood-marks, discharge, about 450 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	0700	120	5.50	Sept. 27	0830	*294	*6.52

Minimum daily discharge, 0.02 ft<sup>3</sup>/s, July 20, 21, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	3.0	5.2	3.6	28	2.9	3.5	2.2	1.3	.07	.79	1.3
2	3.6	2.5	5.2	3.9	14	3.6	3.0	2.2	1.1	.07	.69	1.0
3	2.6	2.1	7.9	9.7	6.2	3.4	3.0	5.3	1.1	.08	.44	.80
4	2.0	2.2	5.9	14	4.5	3.4	3.0	3.7	1.1	.09	.28	.62
5	1.6	4.7	5.8	7.3	3.8	3.4	3.0	3.1	1.6	.08	.22	.50
6	1.4	4.5	14	4.6	4.5	2.9	2.8	2.6	7.0	.08	.16	.40
7	1.3	3.3	6.9	4.0	4.2	3.0	2.9	2.2	6.0	.09	.12	.33
8	1.2	2.4	5.8	3.7	3.8	3.8	4.4	2.1	4.0	.09	.06	.27
9	1.2	2.6	5.3	3.3	3.7	4.3	3.5	2.0	3.0	.08	.11	.25
10	1.2	3.5	5.2	3.4	3.6	3.5	3.4	2.0	2.0	.10	.08	.36
11	1.2	5.2	5.0	3.8	4.2	3.6	3.5	2.1	6.4	.07	.06	.27
12	1.2	5.1	4.7	3.6	24	4.5	3.3	2.0	5.0	.05	.05	.20
13	1.3	4.2	4.4	3.6	6.0	3.7	3.0	1.9	3.5	.16	.04	.17
14	1.2	3.0	4.1	3.8	4.0	3.5	2.9	1.8	2.0	.35	.03	.16
15	1.2	2.5	4.4	3.8	3.6	3.3	3.1	1.8	1.0	.10	.03	.16
16	1.2	2.3	4.0	2.9	3.4	3.1	3.1	1.9	.80	.05	.04	.15
17	1.1	2.0	3.7	2.9	3.3	3.3	2.6	2.9	.70	.05	.10	.15
18	1.2	3.8	3.5	3.3	3.3	3.1	2.6	2.6	.60	.03	1.3	.15
19	1.2	12	3.4	3.3	3.4	3.3	3.0	2.2	.50	.03	60	.15
20	1.2	6.4	3.2	3.0	3.4	3.5	2.9	2.0	.42	.02	6.3	.14
21	1.2	4.8	3.2	2.7	3.4	3.4	2.6	2.5	.27	.02	16	.14
22	1.2	4.4	3.2	2.7	3.5	5.3	2.5	3.0	.20	.03	4.9	2.7
23	1.3	3.5	2.8	2.8	3.4	7.6	2.3	3.5	.14	.04	3.6	3.0
24	10	3.0	2.8	2.7	3.7	7.6	2.6	11	.13	.02	3.1	1.2
25	7.0	2.7	2.8	3.0	3.8	6.0	2.8	7.0	.12	.05	5.3	1.7
26	5.0	2.8	2.8	2.9	6.7	4.4	2.6	2.5	.11	.35	4.8	9.9
27	3.0	4.1	2.9	2.6	4.1	4.0	2.5	1.7	.07	.25	3.6	142
28	2.8	9.7	2.9	2.6	3.0	3.8	2.6	1.4	.07	.43	3.0	12
29	2.8	29	2.9	2.6	---	3.7	2.5	1.3	.06	.78	2.4	5.4
30	3.7	6.7	3.0	2.4	---	4.0	2.3	1.3	.07	.97	2.2	3.5
31	3.3	---	4.0	5.0	---	3.6	---	1.3	---	.75	1.6	---
TOTAL	75.5	148.0	140.9	123.5	166.5	122.5	87.8	85.1	50.36	5.43	121.40	189.07
MEAN	2.44	4.93	4.55	3.98	5.95	3.95	2.93	2.75	1.68	.18	3.92	6.30
MAX	10	29	14	14	28	7.6	4.4	11	7.0	.97	60	142
MIN	1.1	2.0	2.8	2.4	3.0	2.9	2.3	1.3	.06	.02	.03	.14
CFSM	.36	.72	.67	.58	.87	.58	.43	.40	.25	.03	.57	.92
IN.	.41	.81	.77	.67	.91	.67	.48	.46	.27	.03	.66	1.03
CAL YR 1984	TOTAL	3877.7	MEAN	10.6	MAX	124	MIN	1.0	CFSM	1.55	IN.	21.15
WTR YR 1985	TOTAL	1316.06	MEAN	3.61	MAX	142	MIN	.02	CFSM	.53	IN.	7.18

## RAPPAHANNOCK RIVER BASIN

01662000 RAPPAHANNOCK RIVER NEAR WARRENTON, VA

LOCATION.--Lat 38°41'05", long 77°54'15", Fauquier County, Hydrologic Unit 02080103, on left bank 50 ft downstream from westbound bridge on U.S. Highway 211, 0.9 mi downstream from Carter Run, 6.2 mi southwest of Warrenton, and 15 mi upstream from Hazel River.

DRAINAGE AREA.--195 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1942 to current year.

REVISED RECORDS.--WSP 1302: 1944(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 312.57 ft above National Geodetic Vertical Datum of 1929. Oct. 8, 1942, to Dec. 17, 1944, nonrecording gage 50 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Jan. 13-31 and Feb. 9. Records good except those for periods with ice effect, Jan. 13-31 and Feb. 9, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 196 ft<sup>3</sup>/s, 13.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft<sup>3</sup>/s, Oct. 15, 1942, gage height, 23.5 ft, from flood-mark, from rating curve extended above 24,000 ft<sup>3</sup>/s; minimum, 0.22 ft<sup>3</sup>/s, Sept. 26, 1985; minimum daily, 0.26 ft<sup>3</sup>/s, Sept. 26, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	1700	*4,840	*13.25	No other peak equal to or greater than base discharge.			

Minimum discharge, 0.22 ft<sup>3</sup>/s, Sept. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	47	187	79	404	165	176	56	251	13	22	3.4
2	124	44	144	99	815	160	155	54	116	15	24	2.7
3	60	39	132	147	375	146	141	81	86	29	14	2.3
4	43	37	114	199	246	140	136	88	71	31	11	1.9
5	36	48	102	200	222	143	129	64	129	20	8.2	1.5
6	31	64	235	198	178	127	122	57	155	16	6.4	1.2
7	30	50	226	175	163	115	114	54	93	14	5.4	1.1
8	29	43	164	156	134	117	109	49	91	13	6.0	.81
9	30	39	141	131	105	116	105	45	81	13	5.2	.90
10	30	40	126	121	137	108	101	43	66	13	5.3	.88
11	29	46	118	120	122	106	101	42	56	14	4.9	.76
12	28	43	109	114	2570	115	100	48	60	14	4.0	.71
13	26	37	103	110	1020	103	96	181	55	14	3.2	.72
14	26	32	96	110	504	100	93	88	44	33	2.6	.53
15	27	32	92	100	353	96	96	59	40	22	1.9	.52
16	26	32	88	83	269	91	107	59	41	44	1.7	.50
17	26	32	88	100	231	91	97	161	43	32	1.7	.51
18	27	34	85	100	196	87	87	144	37	15	5.0	.50
19	28	76	83	90	185	83	85	98	32	10	15	.44
20	43	99	82	70	174	84	82	75	29	8.6	22	.38
21	46	67	83	55	159	83	79	61	26	7.1	13	.33
22	36	53	100	65	157	85	78	57	24	6.1	25	.27
23	37	47	88	70	164	183	74	76	23	5.6	14	.31
24	62	46	79	65	176	313	73	137	22	4.9	8.7	.32
25	56	44	79	75	176	282	110	95	20	4.7	9.2	.30
26	45	44	72	65	203	207	93	71	18	8.5	12	.26
27	40	42	71	58	205	179	73	58	16	30	13	3.1
28	41	154	73	62	177	165	68	55	13	42	12	3.5
29	84	1010	74	60	---	154	65	70	13	20	8.6	3.2
30	78	310	73	56	---	168	59	58	13	12	6.1	2.7
31	55	---	72	64	---	154	---	236	---	12	4.6	---
TOTAL	1406	2731	3379	3197	9820	4266	3004	2520	1764	536.5	295.7	36.55
MEAN	45.4	91.0	109	103	351	138	100	81.3	58.8	17.3	9.54	1.22
MAX	127	1010	235	200	2570	313	176	236	251	44	25	3.5
MIN	26	32	71	55	105	83	59	42	13	4.7	1.7	.26
CFSM	.23	.47	.56	.53	1.80	.71	.51	.42	.30	.09	.05	.01
IN.	.27	.52	.64	.61	1.87	.81	.57	.48	.34	.10	.06	.01
CAL YR 1984	TOTAL	104634	MEAN	286	MAX	5630	MIN	16	CFSM	1.47	IN.	19.96
WTR YR 1985	TOTAL	32955.75	MEAN	90.3	MAX	2570	MIN	.26	CFSM	.46	IN.	6.29

## RAPPAHANNOCK RIVER BASIN

99

01662800 BATTLE RUN NEAR LAUREL MILLS, VA

LOCATION.--Lat 38°39'20", long 78°04'27", Rappahannock County, Hydrologic Unit 02080103, on left bank just upstream from bridge on State Highway 729, 0.8 mi upstream from mouth, and 1.0 mi northeast of Laurel Mills.

DRAINAGE AREA.--27.6 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1958 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-72-1: 1971. WDR VA-74-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 374.62 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 12, 13, 20, 23, 24 and Feb. 8-10. Records good except those for periods with ice effect, Jan. 12, 13, 20, 23, 24 and Feb. 8-10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--27 years, 26.5 ft<sup>3</sup>/s, 13.04 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,120 ft<sup>3</sup>/s, Oct. 9, 1976, gage height, 13.90 ft, from flood-mark, from rating curve extended above 2,500 ft<sup>3</sup>/s on basis of velocity-area study; no flow many days in September 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 310 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	2230	326	4.87	July 13	2130	613	6.01
Feb. 12	0830	*1,300	*8.08				

Minimum discharge, 0.23 ft<sup>3</sup>/s, Sept. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	8.2	27	16	100	20	22	8.5	17	2.7	1.9	.79
2	13	7.6	22	24	99	19	18	8.7	11	3.1	2.0	.75
3	8.7	7.2	21	26	47	18	16	13	8.7	5.5	1.3	.73
4	7.7	8.2	18	43	39	18	15	9.6	7.8	3.7	1.1	.67
5	7.1	11	18	36	30	18	15	8.5	26	3.7	.99	.60
6	6.7	9.2	39	32	27	16	19	8.1	23	2.6	.96	.51
7	6.7	7.9	32	29	24	16	16	7.7	13	2.4	.98	.50
8	6.8	7.6	28	26	23	16	14	7.2	13	2.0	1.3	.47
9	7.0	7.7	24	22	22	16	14	6.9	10	2.1	1.2	.46
10	6.6	7.6	22	19	21	15	13	6.7	8.8	2.3	.89	.64
11	6.3	8.1	21	19	24	15	14	6.6	7.7	2.4	.67	.73
12	6.4	7.9	19	19	396	17	13	6.4	10	2.4	.54	.74
13	6.3	7.5	19	18	87	15	13	11	7.0	57	.49	.61
14	6.2	7.9	18	17	54	15	13	7.0	6.2	30	.45	.56
15	6.5	8.4	18	16	42	14	14	6.3	6.1	6.3	.36	.54
16	7.1	8.6	18	16	35	14	14	7.8	6.5	4.1	.35	.49
17	7.2	9.8	19	13	31	14	13	17	5.9	2.8	.40	.47
18	7.3	8.2	18	12	28	14	12	9.9	5.2	2.2	7.0	.52
19	7.4	19	18	12	27	13	12	7.8	4.9	1.9	7.0	.45
20	14	13	17	12	24	14	11	6.8	4.4	1.7	2.7	.43
21	8.5	10	20	11	22	13	11	6.0	4.1	1.4	3.0	.44
22	8.1	9.5	21	11	22	14	11	6.0	4.0	1.3	2.0	.42
23	8.1	9.1	17	12	22	30	11	12	3.7	1.2	1.2	.57
24	12	9.1	17	12	22	26	11	12	4.3	.95	1.2	.56
25	8.3	8.8	17	13	21	23	18	8.8	3.2	2.2	2.8	.39
26	7.7	8.4	15	13	24	20	12	6.8	2.6	6.7	3.2	.26
27	7.4	8.4	16	12	22	19	11	5.8	2.6	6.1	2.0	1.6
28	8.6	64	16	12	20	18	10	5.9	2.6	3.4	1.4	1.6
29	15	93	17	13	---	18	9.5	7.9	2.5	2.1	1.1	1.0
30	9.1	37	15	15	---	18	8.8	6.1	2.3	1.8	1.0	.51
31	8.2	---	16	14	---	17	---	37	---	1.6	.94	---
TOTAL	275.0	437.9	623	565	1355	533	404.3	285.8	234.1	169.65	52.42	19.01
MEAN	8.87	14.6	20.1	18.2	48.4	17.2	13.5	9.22	7.80	5.47	1.69	.63
MAX	29	93	39	43	396	30	22	37	26	57	7.0	1.6
MIN	6.2	7.2	15	11	20	13	8.8	5.8	2.3	.95	.35	.26
CFSM	.32	.53	.73	.66	1.75	.62	.49	.33	.28	.20	.06	.02
IN.	.37	.59	.84	.76	1.83	.72	.54	.39	.32	.23	.07	.03
CAL YR 1984	TOTAL	14563.9	MEAN	39.8	MAX	1210	MIN	4.4	CFSM	1.44	IN.	19.63
WTR YR 1985	TOTAL	4954.18	MEAN	13.6	MAX	396	MIN	.26	CFSM	.49	IN.	6.68



## 01663500 HAZEL RIVER AT RIXEYVILLE, VA

LOCATION.--Lat 38°35'30", long 77°57'55", Culpeper County, Hydrologic Unit 02080103, on right bank at downstream side of bridge on State Highway 229, 0.4 mi upstream from Waterford Run, 1.1 mi northeast of Rixeyville, 2.8 mi downstream from Thornton River, and 9.1 mi upstream from mouth.

DRAINAGE AREA.--287 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1942 to current year.

REVISED RECORDS.--WSP 971: 1942. WSP 1622: 1957-58. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20-31, Feb. 8-11, and Aug. 30 to Sept. 30. Records good except those for periods with ice effect, Jan. 20-31 and Feb. 8-11, and period of doubtful gage-height record, Aug. 30 to Sept. 30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 341 ft<sup>3</sup>/s, 16.14 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,000 ft<sup>3</sup>/s, Oct. 15, 1942, gage height, 31.8 ft, from rating curve extended above 27,000 ft<sup>3</sup>/s; minimum, 1.1 ft<sup>3</sup>/s, Sept. 10-13, 1966, gage height, 1.69 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 26, 1937, reached a stage of 28.4 ft, from floodmarks, discharge, 43,500 ft<sup>3</sup>/s, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	1500	*8,270	*16.10	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 4.4 ft<sup>3</sup>/s, Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	261	91	431	153	561	288	289	133	583	44	43	25
2	325	87	327	180	1190	281	273	128	306	59	42	22
3	161	82	288	294	659	263	245	173	231	60	40	20
4	115	80	253	438	431	250	239	204	191	62	33	18
5	93	101	226	417	378	253	231	160	255	62	25	16
6	83	134	373	384	312	234	222	139	648	60	21	15
7	79	105	376	337	282	216	212	129	340	46	18	13
8	77	92	293	307	230	213	205	119	322	39	19	11
9	78	87	261	271	210	213	197	113	271	34	21	9.8
10	81	85	243	248	245	204	190	106	219	34	22	11
11	78	88	232	241	230	197	187	103	185	40	18	9.8
12	74	88	225	224	4070	212	187	164	198	44	15	8.2
13	70	80	216	219	1630	203	182	206	176	54	12	7.0
14	67	75	204	220	898	192	178	147	144	172	13	6.2
15	66	73	194	200	659	185	189	110	130	123	16	5.8
16	67	76	190	174	530	176	247	110	126	76	25	5.5
17	70	74	186	208	458	173	211	209	122	57	37	5.2
18	71	76	181	202	392	171	186	193	110	44	69	5.0
19	71	140	175	187	345	164	178	151	100	36	258	4.8
20	72	216	171	150	322	163	173	124	93	31	142	4.6
21	85	145	173	120	295	162	167	106	84	26	108	4.4
22	75	116	217	125	284	162	167	99	78	24	94	4.5
23	87	105	194	145	290	329	163	118	73	21	58	4.7
24	126	101	175	135	303	525	158	230	70	18	41	5.1
25	118	98	173	145	306	413	204	209	69	18	46	6.0
26	95	94	161	135	322	349	207	149	56	58	69	8.0
27	87	91	155	120	328	313	168	120	47	121	70	15
28	83	169	155	130	301	294	156	104	45	95	56	19
29	172	1770	156	125	---	282	151	125	45	72	42	24
30	133	647	153	115	---	286	140	136	44	49	34	23
31	102	---	150	130	---	267	---	450	---	39	28	---
TOTAL	3222	5266	6907	6479	16461	7633	5902	4767	5361	1718	1535	336.6
MEAN	104	176	223	209	588	246	197	154	179	55.4	49.5	11.2
MAX	325	1770	431	438	4070	525	289	450	648	172	258	25
MIN	66	73	150	115	210	162	140	99	44	18	12	4.4
CFSM	.36	.61	.78	.73	2.05	.86	.69	.54	.62	.19	.17	.04
IN.	.42	.68	.90	.84	2.13	.99	.76	.62	.69	.22	.20	.04
CAL YR 1984	TOTAL	178301	MEAN	487	MAX	10200	MIN	47	CFSM	1.70	IN.	23.11
WTR YR 1985	TOTAL	65587.6	MEAN	180	MAX	4070	MIN	4.4	CFSM	.63	IN.	8.50

## 01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA

LOCATION.--Lat 38°31'50", long 77°48'50", Fauquier County, Hydrologic Unit 02080103, on left bank 80 ft upstream from bridge on alternate U.S. Highway 29, at Remington, 0.3 mi upstream from Tinpot Run, 0.4 mi downstream from Ruffans Run, and 2.5 mi downstream from Hazel River.

DRAINAGE AREA.--620 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 252.53 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 21, 1951, nonrecording gage at bridge 80 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 21-25. Records good except those for period with ice effect, Jan. 21-25, which are fair. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--43 years, 680 ft<sup>3</sup>/s, 14.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,000 ft<sup>3</sup>/s, Oct. 16, 1942, gage height, 30.0 ft, from flood-marks, from rating curve extended above 43,000 ft<sup>3</sup>/s on basis of slope-area determination of peak flow; minimum, 2.8 ft<sup>3</sup>/s, Sept. 13, 1966, gage height, 2.31 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1828, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 13	0215	*10,800	*14.80	No other peak equal to or greater than base discharge.			

Minimum discharge, 4.7 ft<sup>3</sup>/s, Sept. 22; minimum gage height, 2.46 ft, Sept. 16-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	317	177	870	263	745	577	527	196	1230	67	50	33
2	680	166	637	325	3390	555	518	190	565	74	62	30
3	313	158	549	554	1620	509	444	251	378	87	58	26
4	202	150	477	928	918	473	427	333	304	103	50	25
5	164	178	408	935	759	484	405	246	306	99	40	22
6	144	223	821	892	666	436	382	208	1040	88	33	20
7	133	207	921	730	579	390	358	191	562	75	28	18
8	129	175	655	642	452	384	341	178	476	64	27	15
9	129	161	549	544	377	385	329	166	434	59	26	15
10	135	158	481	468	485	363	317	159	333	56	27	13
11	133	165	447	446	433	350	311	152	280	57	26	15
12	129	173	420	426	5730	377	311	149	266	65	24	11
13	123	156	397	402	6070	357	300	504	273	75	21	9.2
14	119	145	372	409	1940	334	292	328	209	145	18	8.2
15	116	139	348	373	1350	322	294	205	188	157	17	7.9
16	117	138	337	289	1060	304	371	187	183	94	18	7.4
17	118	139	328	373	907	296	341	443	182	99	17	6.9
18	121	140	322	380	777	292	297	486	170	67	33	6.5
19	121	266	308	333	703	278	280	310	152	49	217	6.1
20	124	413	302	272	660	273	271	239	143	40	173	6.3
21	155	303	299	195	600	273	263	196	131	36	146	5.7
22	144	233	366	220	566	273	257	173	121	33	107	5.8
23	144	204	353	260	580	479	255	197	113	29	92	6.3
24	217	193	307	240	610	1110	246	383	108	26	62	6.1
25	229	186	297	260	621	901	283	401	103	26	54	7.3
26	182	180	279	240	668	720	349	277	91	32	80	9.8
27	161	173	265	215	729	619	262	211	80	96	83	19
28	153	304	269	230	630	567	236	179	73	116	70	25
29	279	3830	266	220	---	531	227	195	69	106	56	32
30	282	1400	265	210	---	538	212	225	68	66	45	43
31	209	---	259	235	---	512	---	543	---	50	37	---
TOTAL	5722	10633	13174	12509	34625	14262	9706	8101	8631	2236	1797	461.5
MEAN	185	354	425	404	1237	460	324	263	288	72.1	58.0	15.4
MAX	680	3830	921	935	6070	1110	527	543	1230	157	217	43
MIN	116	138	259	195	377	273	212	149	68	26	17	5.7
CFSM	.30	.57	.69	.65	2.00	.74	.52	.42	.46	.12	.09	.02
IN.	.34	.64	.79	.75	2.08	.86	.58	.49	.52	.13	.11	.03
CAL YR 1984	TOTAL	368884	MEAN	1008	MAX	26000	MIN	81	CFSM	1.63	IN.	22.13
WTR YR 1985	TOTAL	121857.5	MEAN	334	MAX	6070	MIN	5.7	CFSM	.54	IN.	7.31

## RAPPAHANNOCK RIVER BASIN

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1951 to September 1956, October 1965 to current year.

WATER TEMPERATURE: May 1951 to September 1956, October 1965 to September 1976, October 1977 to current year.

SUSPENDED-SEDIMENT DISCHARGE: April 1951 to current year.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 150 microsiemens, Sept. 3, 1974; minimum daily, 24 microsiemens, July 6, 1975.

WATER TEMPERATURE: Maximum, 32.5°C, July 19, 1980, July 18, 21, 1981; minimum, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily mean, 1,870 mg/L, June 13, 1982; minimum daily mean, 1 mg/L on many days during each year.

SEDIMENT LOAD: Maximum daily, 55,600 tons, Sept. 26, 1975; minimum daily, 0.03 ton, Sept. 9, 11, 1983.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE.--Maximum daily, 95 microsiemens, June 20, Aug. 23; minimum daily, 58 microsiemens, Feb. 14.

WATER TEMPERATURE.--Maximum daily, 30.0°C, Aug. 12, 13; minimum daily, 1.0°C on several days in January and February.

SEDIMENT CONCENTRATION: Maximum daily mean, 1,010 mg/L, Feb. 12; minimum daily mean, 1 mg/L on many days in November, December, January, and April.

SEDIMENT LOAD: Maximum daily, 21,100 tons, Feb. 12; minimum daily, 0.05 ton, Sept. 24.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)
OCT										
09...	12:00	129	75	75	7.0	7.3	15.5	759	2	8.5
NOV										
14...	12:20	144	72	72	7.2	7.3	7.5	762	5	11.6
JAN										
08...	10:00	647	68	69	6.8	7.1	3.5	750	8	12.4
FEB										
05...	12:30	739	65	66	7.1	7.0	0.0	--	20	--
MAR										
21...	11:15	274	62	66	7.0	7.4	7.5	762	10	11.6
MAY										
09...	12:15	165	67	69	7.2	7.3	18.0	761	5	8.8
JUN										
20...	10:00	144	68	69	7.0	7.0	20.0	752	15	8.4
AUG										
06...	12:15	32	85	88	7.5	7.8	23.0	757	5	7.3
SEP										
18...	10:45	6.7	90	90	7.0	6.9	17.5	762	5	8.0

## RAPPAHANNOCK RIVER BASIN

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01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT 09...	86	26	26	6.9	2.1	4.0	1.8	25	5.2
NOV 14...	97	25	25	6.7	2.1	4.1	1.6	25	4.6
JAN 08...	95	23	23	5.8	2.0	3.4	1.2	18	6.9
FEB 05...	--	22	22	5.5	1.9	3.3	1.8	15	7.8
MAR 21...	97	20	20	5.2	1.8	3.5	1.0	19	6.0
MAY 09...	93	23	23	6.0	1.9	3.5	1.4	23	5.0
JUN 20...	94	23	23	6.1	1.9	3.6	1.4	24	4.1
AUG 06...	86	30	30	7.9	2.4	4.1	2.1	27	7.4
SEP 18...	84	31	31	8.0	2.6	5.0	2.5	32	5.3

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 09...	4.8	<0.1	11	54	51	<0.01	0.22	<0.01	150
NOV 14...	4.7	<0.1	10	48	49	<0.01	0.23	<0.01	180
JAN 08...	4.4	<0.1	12	50	47	<0.01	0.53	<0.01	140
FEB 05...	5.5	<0.1	12	58	47	<0.01	0.73	0.03	110
MAR 21...	4.1	<0.1	9.9	47	43	<0.01	0.35	<0.01	110
MAY 09...	3.7	<0.1	10	49	45	<0.01	0.33	<0.01	120
JUN 20...	3.8	<0.1	7.2	48	43	<0.01	0.15	<0.01	120
AUG 06...	4.6	0.1	5.6	49	51	<0.01	0.14	0.08	79
SEP 18...	5.9	<0.1	3.5	53	52	<0.01	<0.10	0.01	76



## RAPPAHANNOCK RIVER BASIN

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	84	65	70	63	64	64	70	70	85	73	92
2	72	80	65	70	80	62	64	70	75	84	89	93
3	74	79	68	68	70	62	65	70	75	85	73	93
4	75	80	68	76	68	60	64	72	75	78	73	92
5	76	82	68	75	66	62	65	68	75	85	72	92
6	76	75	79	77	65	60	70	70	75	85	88	94
7	75	76	73	75	68	64	70	78	75	85	73	92
8	72	76	74	70	70	62	70	83	75	85	78	92
9	74	75	73	70	68	63	70	70	72	85	90	77
10	75	75	74	73	70	63	70	72	72	78	88	78
11	75	75	72	74	69	60	70	78	72	---	90	78
12	75	75	70	74	65	60	70	83	72	92	90	76
13	75	76	72	73	60	62	70	80	73	93	88	78
14	76	76	70	73	58	62	---	70	70	73	90	76
15	76	75	69	70	68	60	70	68	78	88	84	78
16	80	72	66	---	60	62	70	80	72	90	85	80
17	80	70	68	80	62	62	70	70	75	91	---	80
18	79	74	66	80	64	62	70	72	72	88	73	78
19	80	80	67	72	64	62	70	71	76	88	83	81
20	85	74	70	67	64	62	72	84	95	90	92	82
21	85	75	68	78	64	65	72	80	76	88	92	83
22	85	70	72	80	64	65	70	71	85	88	73	83
23	84	75	70	65	62	64	72	70	78	87	95	82
24	82	74	70	79	62	65	70	70	76	88	92	80
25	80	74	72	79	65	64	72	70	78	89	92	83
26	80	72	70	68	64	65	70	73	82	90	92	80
27	80	74	70	70	64	65	72	73	76	90	93	79
28	80	74	70	71	60	64	70	73	75	74	91	81
29	82	60	70	70	---	64	70	73	84	90	91	78
30	80	65	68	70	---	64	72	73	85	73	93	---
31	80	---	71	75	---	65	---	73	---	71	91	---
MEAN	78	75	70	73	65	63	69	73	76	85	86	83
WTR YR 1985	MEAN	75	MAX	95	MIN	58						

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.0	17.0	9.5	9.0	1.5	7.5	10.5	22.5	20.0	26.0	24.5	26.5
2	13.0	16.0	6.5	8.0	1.0	7.0	11.0	19.5	19.0	26.5	20.0	26.0
3	15.0	12.0	7.0	7.0	1.0	6.5	12.0	17.0	22.5	27.0	21.0	25.0
4	16.5	10.0	6.5	6.0	2.0	---	13.0	17.0	22.0	27.0	23.5	24.5
5	17.5	13.0	5.0	5.0	1.5	---	15.0	17.5	22.0	27.5	25.5	25.5
6	18.5	13.0	4.0	6.0	1.5	---	16.0	19.5	22.5	27.5	26.0	24.5
7	15.0	12.0	5.0	5.0	2.0	8.5	11.5	19.5	19.0	26.5	27.0	26.0
8	15.0	11.5	4.0	5.0	2.5	9.0	12.5	19.0	21.0	26.5	27.0	26.0
9	16.0	10.0	4.0	5.0	3.0	9.0	12.5	18.5	23.0	27.5	27.5	25.5
10	16.5	11.5	6.0	4.5	2.5	8.0	11.5	19.0	22.5	27.0	28.0	26.0
11	16.5	11.0	5.0	3.0	3.0	8.5	12.5	17.0	22.5	---	29.0	24.0
12	17.0	10.0	6.5	2.0	4.0	9.0	12.5	18.5	23.0	27.0	30.0	24.5
13	16.0	9.5	7.0	1.0	3.5	8.0	12.5	22.5	23.0	27.5	30.0	24.0
14	16.0	9.5	9.0	3.0	4.0	7.5	12.5	21.0	21.5	26.5	29.0	25.0
15	17.5	9.0	9.0	3.5	2.0	8.0	15.0	18.0	23.0	29.0	29.5	25.0
16	17.0	6.5	9.0	---	3.0	8.5	12.5	19.0	23.0	29.0	29.0	24.0
17	18.0	5.0	11.5	1.5	2.0	8.0	14.5	19.0	23.5	27.5	29.5	24.0
18	16.5	5.0	12.0	1.0	2.0	8.5	18.0	17.5	23.0	28.0	24.5	22.0
19	17.5	6.5	11.0	3.0	1.5	9.0	15.0	17.5	24.5	28.0	24.0	21.0
20	18.0	6.0	9.0	1.0	3.0	7.5	15.5	---	25.0	28.5	24.0	21.0
21	18.0	5.5	8.5	1.0	3.5	8.0	16.0	18.0	24.5	29.0	25.0	21.0
22	21.5	4.5	7.5	1.5	4.0	8.0	16.0	19.0	25.5	28.0	25.0	20.5
23	19.0	5.0	7.0	1.0	4.0	7.0	16.5	18.0	24.0	27.5	26.0	21.0
24	16.5	5.5	6.5	1.0	6.0	7.0	17.5	17.0	26.0	27.0	26.5	20.5
25	17.0	5.0	6.5	1.5	9.0	7.5	20.0	18.5	25.5	28.0	27.0	21.0
26	19.5	5.0	4.5	1.0	8.0	8.0	20.0	18.0	24.5	27.5	27.0	20.0
27	19.0	5.0	7.0	1.0	11.0	12.0	21.0	19.0	26.0	26.5	27.5	20.0
28	18.5	5.5	8.0	---	7.0	12.5	20.5	19.5	26.0	27.0	27.5	21.0
29	21.0	9.0	12.0	1.0	---	12.5	20.0	20.0	25.5	27.5	26.5	16.0
30	19.0	7.5	10.0	1.0	---	12.0	21.0	21.0	26.0	27.5	26.0	---
31	18.5	---	6.0	1.0	---	9.0	---	20.0	---	28.0	26.0	---
MEAN	17.0	8.5	7.5	3.0	3.5	8.5	15.0	19.0	23.5	27.5	26.5	23.0
WTR YR 1985	MEAN	15.5	MAX	30.0	MIN	1.0						

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	6	8.5	2	1.1	187	724	4	.72	5	.68	2	.18
2	4	5.6	8	4.1	17	26	4	.80	5	.84	3	.24
3	5	6.0	11	7.5	11	11	7	1.6	3	.47	3	.21
4	4	4.6	10	9.0	10	8.2	4	1.1	2	.27	2	.14
5	6	6.6	10	6.6	5	4.1	4	1.1	4	.43	3	.18
6	7	7.2	8	4.5	198	591	3	.71	4	.36	2	.11
7	4	3.9	8	4.1	10	15	4	.81	2	.15	3	.15
8	5	4.6	11	5.3	14	19	2	.35	4	.29	4	.16
9	8	7.1	7	3.1	30	35	3	.48	12	.84	4	.16
10	7	6.0	12	5.2	8	7.2	3	.45	17	1.2	7	.25
11	5	4.2	10	4.1	5	3.8	3	.46	13	.91	4	.16
12	8	6.7	16	6.4	8	5.7	3	.53	10	.65	6	.18
13	4	3.2	134	195	6	4.4	4	.81	7	.40	4	.10
14	1	.79	9	8.0	13	7.3	11	5.1	5	.24	5	.11
15	4	3.2	9	5.0	10	5.1	14	5.9	5	.23	8	.17
16	5	5.0	12	6.1	9	4.4	7	1.8	5	.24	8	.16
17	3	2.8	18	22	4	2.0	8	2.1	6	.28	7	.13
18	4	3.2	4	5.2	4	1.8	3	.54	9	.80	6	.11
19	2	1.5	4	3.3	4	1.6	6	.79	27	17	7	.12
20	1	.73	4	2.6	4	1.5	6	.65	13	6.1	5	.09
21	1	.71	2	1.1	5	1.8	5	.49	8	3.2	6	.09
22	1	.69	7	3.3	6	2.0	11	.98	10	2.9	8	.13
23	1	.69	11	5.9	7	2.1	6	.47	5	1.2	5	.09
24	2	1.3	30	31	3	.87	4	.28	6	1.0	3	.05
25	3	2.3	17	18	3	.83	4	.28	7	1.0	4	.08
26	4	3.8	14	10	5	1.2	12	1.0	5	1.1	5	.13
27	3	2.1	7	4.0	4	.86	11	2.9	5	1.1	5	.26
28	3	1.9	8	3.9	7	1.4	5	1.6	2	.38	3	.20
29	2	1.2	7	3.7	5	.93	2	.57	5	.76	7	.60
30	1	.57	8	4.9	3	.55	3	.53	3	.36	6	.65
31	---	---	149	368	---	---	4	.54	3	.30	---	---
TOTAL	---	106.68	---	762.0	---	1490.64	---	36.44	---	45.68	---	5.33

TOTAL LOAD FOR YEAR: 43862.40 TONS.

## RAPPAHANNOCK RIVER BASIN

01665000 MOUNTAIN RUN NEAR CULPEPER, VA

LOCATION.--Lat 38°28'50", long 78°03'10", Culpeper County, Hydrologic Unit 02080103, on left bank 30 ft upstream from bridge on State Highway 641, 2.4 mi upstream from Bond Branch, and 3.0 mi west of Culpeper.

DRAINAGE AREA.--15.9 mi<sup>2</sup>, of which 10.9 mi<sup>2</sup> are above flood-detention structures.

PERIOD OF RECORD.--September 1949 to current year.

REVISED RECORDS.--WSP 1332: 1950-51. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 389.46 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20, 21. Records good except those for period with ice effect, Jan. 20, 21, which are fair. Some regulation since 1959 by two reservoirs, combined flood storage, 2,240 acre-ft; 531 acre-ft additional storage used for low-water regulation for municipal supply for town of Culpeper. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--36 years, 16.7 ft<sup>3</sup>/s, 14.26 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,440 ft<sup>3</sup>/s, Aug. 18, 1955, from rating curve extended above 910 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; maximum gage height, 11.20 ft, Dec. 4, 1950; minimum discharge, 0.09 ft<sup>3</sup>/s, Sept. 30, Oct. 1, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	0800	*408	*5.30	No other peak equal to or greater than base discharge.			

Minimum discharge, 0.48 ft<sup>3</sup>/s, Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	12	25	16	47	12	12	5.2	14	1.9	2.4	1.8
2	19	12	21	23	103	12	11	5.4	8.7	2.4	2.3	1.8
3	9.7	11	20	26	49	11	11	12	6.5	2.3	2.1	1.8
4	7.3	11	18	41	26	11	10	9.4	5.6	2.2	2.0	1.5
5	6.0	14	18	35	21	12	10	7.6	7.0	2.2	1.5	1.1
6	5.2	13	41	28	19	11	10	6.2	10	2.2	1.0	1.3
7	4.9	12	29	22	18	10	9.0	5.6	7.0	2.2	1.4	1.4
8	5.2	11	24	19	16	10	9.4	4.9	7.9	1.9	1.7	1.6
9	5.2	11	21	16	14	10	9.4	4.5	6.2	2.1	1.7	1.6
10	5.2	11	19	15	13	10	9.0	4.1	5.2	2.3	1.8	1.5
11	5.2	12	19	15	13	10	9.0	4.1	4.7	2.3	1.8	1.5
12	4.9	13	18	14	199	11	9.0	4.1	5.2	2.2	1.8	1.5
13	5.2	11	17	13	114	10	9.0	5.2	4.3	3.0	1.9	1.3
14	4.7	11	16	13	63	11	9.0	4.7	3.4	6.1	1.5	1.3
15	4.7	10	16	12	28	10	10	4.1	3.1	3.1	1.6	1.4
16	5.2	11	16	11	21	9.7	11	5.6	3.4	2.4	1.9	1.2
17	5.2	10	16	12	19	10	9.7	9.7	3.2	1.9	2.3	1.2
18	5.6	11	15	13	17	9.7	8.7	8.2	3.1	1.8	14	1.1
19	5.8	27	15	12	16	9.4	8.2	5.8	3.1	1.6	8.8	1.0
20	5.8	22	15	12	16	9.7	7.6	4.9	3.2	1.5	4.1	.94
21	5.8	19	17	11	16	9.4	7.3	4.1	2.7	1.5	3.1	.94
22	7.1	15	19	10	15	11	7.0	4.1	2.7	1.5	2.2	.96
23	12	14	16	10	15	22	6.8	7.3	2.6	1.8	1.8	1.1
24	20	14	15	11	15	23	6.8	9.4	2.6	1.7	2.2	.93
25	14	13	15	11	14	19	7.9	8.7	2.4	1.9	4.3	.89
26	12	12	15	11	15	16	7.3	6.2	2.3	2.7	5.1	.94
27	12	12	16	11	15	14	6.5	5.2	2.0	2.6	3.4	1.9
28	12	41	16	11	13	13	6.2	4.5	2.0	2.4	2.6	1.1
29	20	96	16	11	---	13	6.0	5.2	2.0	2.3	2.2	1.0
30	16	39	15	11	---	12	5.6	4.9	1.9	2.1	2.1	.99
31	14	---	16	11	---	12	---	19	---	2.2	2.0	---
TOTAL	288.9	531	575	487	950	373.9	259.4	199.9	138.0	70.3	88.6	38.59
MEAN	9.32	17.7	18.5	15.7	33.9	12.1	8.65	6.45	4.60	2.27	2.86	1.29
MAX	24	96	41	41	199	23	12	19	14	6.1	14	1.9
MIN	4.7	10	15	10	13	9.4	5.6	4.1	1.9	1.5	1.0	.89
CFSM	.59	1.11	1.16	.99	2.13	.76	.54	.41	.29	.14	.18	.08
IN.	.68	1.24	1.35	1.14	2.22	.87	.61	.47	.32	.16	.21	.09
CAL YR 1984	TOTAL	9617.2	MEAN	26.3	MAX	347	MIN	4.1	CFSM	1.65	IN.	22.50
WTR YR 1985	TOTAL	4000.59	MEAN	11.0	MAX	199	MIN	.89	CFSM	.69	IN.	9.36

# RAPPAHANNOCK RIVER BASIN

107

01665500 RAPIDAN RIVER NEAR RUCKERSVILLE, VA

LOCATION.--Lat 38°16'50", long 78°20'25", Madison County, Hydrologic Unit 02080103, on left bank 250 ft downstream from bridge on U.S. Highway 29, 0.2 mi downstream from Elk Run, 1.7 mi upstream from White Run, 3.6 mi north-east of Ruckersville, and at mile 63.5.

DRAINAGE AREA.--114 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944-45(M). WSP 1382: 1943(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.44 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20-30 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 20-30 and Feb. 9, 10, which are fair. Diversion 0.4 mi upstream from station since 1973 by Rapidan Service Authority for municipal supply of Greene County and town of Stanardsville has averaged less than 0.25 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 149 ft<sup>3</sup>/s, 17.75 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,700 ft<sup>3</sup>/s, Oct. 15, 1942, gage height, 20.8 ft, from flood-mark in gage house, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 17.78 ft; minimum daily, 0.90 ft<sup>3</sup>/s, Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	0800	*3,110	*6.93	Aug. 18	1730	2,160	5.62
June 11	2030	1,410	4.46				

Minimum daily discharge, 8.9 ft<sup>3</sup>/s, Aug. 15.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	42	190	82	244	151	117	56	85	34	23	39
2	79	40	154	128	431	146	107	56	61	34	25	38
3	45	36	138	173	243	138	104	87	54	28	17	35
4	37	38	121	295	172	134	101	69	51	23	13	32
5	32	54	114	238	148	130	98	59	76	22	11	29
6	30	54	168	204	139	120	93	56	75	20	11	26
7	30	44	142	190	127	114	90	52	61	19	11	23
8	31	41	122	172	116	112	88	51	69	15	20	22
9	33	40	112	153	94	109	85	48	58	17	16	21
10	33	38	106	141	100	104	82	47	51	20	12	19
11	32	40	103	135	95	102	82	47	201	22	12	19
12	31	35	102	124	1170	106	79	48	148	65	12	18
13	30	32	98	116	455	98	77	87	77	43	10	16
14	28	31	93	111	302	95	77	54	63	56	9.1	16
15	27	31	89	103	239	92	85	47	56	59	8.9	16
16	28	31	87	102	201	87	84	53	54	46	9.5	15
17	29	31	86	104	177	86	76	82	52	22	14	14
18	30	32	83	96	158	82	71	70	45	17	518	14
19	30	80	82	91	148	79	70	57	40	15	309	15
20	31	78	80	84	141	79	68	48	37	15	132	13
21	29	56	92	65	131	78	67	47	33	15	103	11
22	33	47	98	69	128	80	65	52	32	15	77	12
23	89	44	86	78	131	139	62	82	31	14	61	16
24	78	42	82	72	144	151	61	116	41	13	53	17
25	51	40	82	66	150	140	89	112	29	20	84	17
26	44	38	77	64	161	129	71	81	25	71	99	15
27	41	37	75	69	160	126	64	66	22	40	74	28
28	38	169	76	66	154	124	66	59	22	26	58	25
29	93	510	74	64	---	122	64	54	22	20	50	19
30	59	256	72	68	---	120	59	52	21	17	45	19
31	46	---	87	82	---	114	---	94	---	16	41	---
TOTAL	1361	2087	3171	3605	6059	3487	2402	1989	1692	859	1938.5	619
MEAN	43.9	69.6	102	116	216	112	80.1	64.2	56.4	27.7	62.5	20.6
MAX	114	510	190	295	1170	151	117	116	201	71	518	39
MIN	27	31	72	64	94	78	59	47	21	13	8.9	11
CFSM	.39	.61	.89	1.02	1.89	.98	.70	.56	.49	.24	.55	.18
IN.	.44	.68	1.03	1.18	1.98	1.14	.78	.65	.55	.28	.63	.20
CAL YR 1984	TOTAL	70845	MEAN	194	MAX	4010	MIN	18	CFSM	1.70	IN.	23.12
WTR YR 1985	TOTAL	29269.5	MEAN	80.2	MAX	1170	MIN	8.9	CFSM	.70	IN.	9.55



## RAPPAHANNOCK RIVER BASIN

01666500 ROBINSON RIVER NEAR LOCUST DALE, VA

LOCATION.--Lat 38°19'30", long 78°05'45", Madison County, Hydrologic Unit 02080103, on right bank 100 ft upstream from bridge on State Highway 614, 1.1 mi upstream from Great Run, 1.7 mi upstream from mouth, 2.0 mi southeast of Locust Dale, and 3.4 mi downstream from Crooked Run.

DRAINAGE AREA.--179 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1943 to current year. Prior to October 1965, published as Robertson River near Locust Dale.

REVISED RECORDS.--WSP 1171: 1948(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 283.70 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20-31 and Feb. 8-10. Records good except those for periods with ice effect, Jan. 20-31 and Feb. 8-10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--42 years, 220 ft<sup>3</sup>/s, 16.69 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft<sup>3</sup>/s, June 22, 1972, gage height, 20.92 ft, from rating curve extended above 9,100 ft<sup>3</sup>/s on basis of records for other stations in Rappahannock River basin; minimum, 1.2 ft<sup>3</sup>/s, Sept. 7, 13, 1954; minimum daily, 1.8 ft<sup>3</sup>/s, Sept. 13, 27, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.9 ft, from floodmarks, discharge, about 44,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0300	1,960	8.19	Aug. 18	2030	5,580	13.97
Feb. 12	1300	*8,110	*15.63				

Minimum discharge, 15 ft<sup>3</sup>/s, Aug. 16-17, gage height, 1.14 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	94	297	131	433	194	183	94	205	55	45	42
2	212	91	235	205	874	190	166	93	137	61	42	41
3	125	88	215	268	413	178	158	159	117	54	36	38
4	102	84	191	456	276	174	154	130	106	48	32	36
5	90	102	180	380	226	175	149	108	109	47	30	32
6	84	98	330	333	212	161	142	100	191	44	29	33
7	80	89	254	281	196	152	135	94	152	42	28	32
8	79	87	209	247	160	153	135	90	151	37	31	31
9	80	86	191	215	140	151	132	87	131	37	31	31
10	76	84	180	198	150	146	126	83	144	40	27	30
11	74	90	174	194	147	142	127	81	277	42	25	26
12	72	89	170	181	3610	155	125	80	205	70	23	26
13	70	81	167	171	738	143	121	115	127	231	21	25
14	69	78	159	166	414	145	120	94	105	217	19	21
15	68	79	154	156	328	140	139	81	95	85	18	22
16	71	80	150	146	272	134	145	93	93	81	16	23
17	72	79	148	154	240	135	130	177	90	55	20	22
18	72	80	144	149	215	129	120	126	80	44	1260	21
19	72	166	141	145	203	126	120	98	75	40	755	21
20	72	152	138	120	193	126	116	87	72	38	191	20
21	71	119	148	94	180	123	114	82	67	36	133	18
22	70	108	171	105	178	129	112	84	63	34	94	17
23	121	105	149	120	183	255	108	140	59	35	72	22
24	170	102	141	105	217	297	106	202	62	30	60	24
25	106	98	139	100	220	256	133	205	55	31	106	22
26	95	96	129	97	229	221	122	130	49	102	138	17
27	90	94	129	105	220	205	109	107	46	81	88	44
28	86	239	128	98	202	195	110	95	45	60	70	42
29	373	1060	127	95	---	190	107	102	46	49	59	21
30	123	408	124	100	---	189	99	94	44	45	52	18
31	101	---	135	105	---	174	---	156	---	44	47	---
TOTAL	3286	4306	5347	5420	11069	5283	3863	3467	3198	1915	3598	818
MEAN	106	144	172	175	395	170	129	112	107	61.8	116	27.3
MAX	373	1060	330	456	3610	297	183	205	277	231	1260	44
MIN	68	78	124	94	140	123	99	80	44	30	16	17
CFSM	.59	.80	.96	.98	2.21	.95	.72	.63	.60	.35	.65	.15
IN.	.68	.89	1.11	1.13	2.30	1.10	.80	.72	.66	.40	.75	.17
CAL YR 1984	TOTAL	119572	MEAN	327	MAX	5060	MIN	65	CFSM	1.83	IN.	24.85
WTR YR 1985	TOTAL	51570	MEAN	141	MAX	3610	MIN	16	CFSM	.79	IN.	10.72

## 01667500 RAPIDAN RIVER NEAR CULPEPER, VA

LOCATION.--Lat 38°21'01", long 77°58'31", Culpeper County, Hydrologic Unit 02080103, on left bank 0.7 mi upstream from Cedar Run and bridge on U.S. Highway 522, 8.5 mi south of Culpeper, and at mile 29.6.

DRAINAGE AREA.--472 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 741: 1931. WSP 801: 1934(M), 1936(M). WSP 1081: 1943-46. WSP 1171: 1932(M), 1933-35. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 241.36 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-30. Records good except those for period of no gage-height record, Jan. 21-28, and period with ice effect, Jan. 29, 30, which are fair. Diurnal fluctuation at low flow caused by mill at Rapidan. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--55 years, 527 ft<sup>3</sup>/s, 15.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,100 ft<sup>3</sup>/s, Oct. 16, 1942, gage height, 30.3 ft, from flood-mark, from rating curve extended above 43,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 2.1 ft<sup>3</sup>/s, Oct. 4, 5, 11, 1954; minimum daily, 2.2 ft<sup>3</sup>/s, Oct. 4, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	2015	*8,430	*12.09	Aug. 19	0145	7,760	11.29

Minimum discharge, 33 ft<sup>3</sup>/s, Aug. 17, gage height, 0.39 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	402	194	715	330	713	506	424	205	491	98	99	143
2	526	188	558	377	2380	493	393	203	311	124	93	135
3	296	179	500	716	1350	464	363	319	252	124	87	128
4	220	171	447	1390	803	444	357	326	227	107	72	120
5	194	194	408	1160	617	450	342	243	227	101	64	112
6	177	207	786	1020	559	411	327	219	363	97	60	106
7	170	188	682	814	517	381	307	205	317	88	58	99
8	169	174	520	702	441	378	306	194	300	79	63	95
9	169	171	459	598	345	379	296	185	281	73	72	91
10	167	170	421	539	406	362	287	178	243	80	66	87
11	161	176	403	513	384	351	287	173	563	90	56	83
12	158	184	386	479	5060	373	286	173	1440	297	51	77
13	152	164	376	442	2620	342	277	229	471	390	46	73
14	151	156	358	426	1370	330	274	241	303	755	42	67
15	145	151	345	406	1020	323	297	182	252	247	38	66
16	147	155	335	344	837	305	330	187	245	243	35	67
17	148	155	329	391	725	303	298	474	230	161	34	67
18	148	156	321	390	637	297	269	369	208	109	1360	64
19	148	307	313	371	585	283	261	248	191	92	3780	64
20	148	376	308	350	550	282	257	207	172	84	748	62
21	149	264	314	240	507	279	253	183	157	78	580	60
22	146	225	383	260	484	285	248	182	145	74	373	59
23	221	209	341	300	486	538	239	263	138	74	270	61
24	389	203	313	270	527	777	232	514	137	66	219	65
25	248	198	308	260	546	645	268	834	137	64	234	64
26	197	190	290	250	579	532	290	436	114	139	465	59
27	182	184	281	260	587	479	243	303	101	207	298	81
28	173	315	281	250	532	453	236	251	97	137	232	116
29	613	2230	283	240	---	436	235	246	97	105	193	80
30	303	1040	278	260	---	446	218	227	96	91	170	66
31	220	---	308	275	---	411	---	247	---	90	156	---
TOTAL	6837	8874	12350	14623	26167	12738	8700	8446	8306	4564	10114	2517
MEAN	221	296	398	472	935	411	290	272	277	147	326	83.9
MAX	613	2230	786	1390	5060	777	424	834	1440	755	3780	143
MIN	145	151	278	240	345	279	218	173	96	64	34	59
CFSM	.47	.63	.84	1.00	1.98	.87	.61	.58	.59	.31	.69	.18
IN.	.54	.70	.97	1.15	2.06	1.00	.69	.67	.65	.36	.80	.20

CAL YR 1984	TOTAL	280258	MEAN	766	MAX	11700	MIN	131	CFSM	1.62	IN.	22.09
WTR YR 1985	TOTAL	124236	MEAN	340	MAX	5060	MIN	34	CFSM	.72	IN.	9.79

## RAPPAHANNOCK RIVER BASIN

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA  
(National stream-quality accounting network station)

LOCATION.--Lat 38°19'20", long 77°31'05", Spotsylvania County, Hydrologic Unit 02080104, on right bank  
1.6 mi upstream from dam of Virginia Power, 2.2 mi downstream from Motts Run, and 3.8 mi upstream from  
Fredericksburg.

DRAINAGE AREA.--1,596 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1907 to current year. Monthly discharge only for some periods, published in WSP 1302.  
REVISED RECORDS.--WSP 801: 1924(M). WSP 951: 1937(M). WSP 1302: 1907-12, 1913(M), 1916(M), 1918(M), 1920-21(M).

WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 55.18 ft above National Geodetic Vertical Datum of 1929. Prior to  
Jan. 15, 1922, nonrecording gage, and Jan. 15, 1922, to Aug. 2, 1966, water-stage recorder at same site at  
datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Apr. 23 to May 27. Records good except those for period of no gage-height  
record, Apr. 23 to May 27, which are fair.

AVERAGE DISCHARGE.--78 years, 1,665 ft<sup>3</sup>/s, 14.17 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 140,000 ft<sup>3</sup>/s, Oct. 16, 1942, gage height, 26.9 ft, present  
datum, from floodmarks, from rating curve extended above 76,000 ft<sup>3</sup>/s on basis of flow-over-dam and slope-area  
measurements at gage heights 26.1 ft and 26.9 ft, present datum; minimum, 5 ft<sup>3</sup>/s, Oct. 11, 12, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1889 was probably several feet lower than that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 16,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 13	0630	*25,700	*10.24	No other peak equal to or greater than base discharge.			

Minimum discharge, 72 ft<sup>3</sup>/s, Aug. 17-18, gage height, 1.13 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	674	583	2450	851	1280	1480	1230	560	1910	233	186	247
2	1500	511	1820	879	9140	1420	1280	545	1410	231	180	227
3	1270	475	1490	1460	7330	1370	1170	760	881	235	173	213
4	738	453	1380	3810	3140	1280	1100	870	699	261	183	203
5	554	711	1210	3720	2260	1270	1060	675	622	260	169	192
6	479	650	2280	3530	1970	1260	1010	600	1120	254	148	181
7	433	609	2760	2480	1810	1140	971	545	1420	242	134	170
8	411	537	1920	2050	1630	1080	924	515	971	220	131	161
9	405	482	1540	1730	1250	1090	897	495	918	200	124	151
10	403	456	1350	1470	1170	1070	865	475	787	189	125	149
11	405	462	1250	1370	1290	1020	848	455	713	182	129	145
12	394	471	1180	1320	9750	1020	849	445	1780	198	122	138
13	380	481	1120	1200	18600	1070	839	880	1450	344	110	123
14	368	441	1070	1170	5120	998	811	780	796	801	104	115
15	353	415	1000	1150	3290	968	808	540	593	774	95	112
16	349	400	965	999	2580	930	862	500	535	457	84	105
17	350	399	948	955	2170	896	941	1100	519	359	75	101
18	352	403	937	1100	1940	888	838	1000	507	309	145	102
19	352	619	906	1060	1750	860	771	755	472	242	5200	102
20	354	1390	878	1030	1680	833	747	630	434	195	1830	99
21	352	1030	873	996	1560	837	719	540	403	173	903	96
22	375	757	946	824	1450	848	699	480	389	159	728	94
23	397	638	1080	1080	1450	1010	685	500	365	161	517	94
24	479	577	950	1030	1490	2330	665	800	348	145	412	93
25	808	548	878	984	1540	2300	700	1400	341	141	346	92
26	618	531	852	977	1600	1880	830	800	321	148	344	94
27	507	513	801	900	1840	1560	730	700	285	146	549	162
28	461	580	789	866	1650	1420	640	604	252	291	430	145
29	1130	9220	794	883	---	1350	620	628	240	300	355	149
30	1300	4630	798	856	---	1320	600	630	228	265	309	154
31	757	---	807	824	---	1310	---	643	---	215	280	---
TOTAL	17708	29972	38022	43554	91730	38108	25709	20850	21709	8330	14620	4209
MEAN	571	999	1227	1405	3276	1229	857	673	724	269	472	140
MAX	1500	9220	2760	3810	18600	2330	1280	1400	1910	801	5200	247
MIN	349	399	789	824	1170	833	600	445	228	141	75	92
CFSM	.36	.63	.77	.88	2.05	.77	.54	.42	.45	.17	.30	.09
IN.	.41	.70	.89	1.02	2.14	.89	.60	.49	.51	.19	.34	.10
CAL YR 1984	TOTAL	934119	MEAN	2552	MAX	44600	MIN	348	CFSM	1.60	IN.	21.77
WTR YR 1985	TOTAL	354521	MEAN	971	MAX	18600	MIN	75	CFSM	.61	IN.	8.26

## RAPPAHANNOCK RIVER BASIN

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01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1929-30, 1956, 1967-74, 1978 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1955 to September 1956, April 1968 to August 1974.

WATER TEMPERATURE: October 1955 to September 1956, April 1968 to August 1974.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT 09...	09:45	405	78	78	6.8	7.0	17.5	760	1.2	8.9	93	--
NOV 26...	13:00	527	78	76	6.8	7.0	5.0	760	5.0	13.0	102	19
DEC 11...	09:30	1250	71	71	7.6	7.2	5.5	768	2.5	13.0	102	--
JAN 28...	11:00	843	73	72	7.1	7.2	1.0	753	2.0	12.0	85	K16
FEB 25...	10:45	1560	73	75	7.2	7.1	12.5	759	4.5	10.4	98	13
MAR 28...	10:30	1430	72	72	7.3	7.3	14.5	762	3.5	10.0	98	--
APR 23...	11:00	628	70	71	7.3	7.1	22.5	754	1.2	7.7	90	23
MAY 22...	08:00	449	70	73	6.8	7.2	19.0	760	5.0	9.2	99	--
JUN 18...	12:00	508	70	71	7.3	7.3	24.5	745	4.0	7.3	90	K36
JUL 16...	09:30	478	75	--	6.6	--	27.0	755	--	8.2	104	--
AUG 28...	10:00	432	70	73	6.5	6.7	25.0	758	2.5	7.4	90	K16
SEP 23...	10:00	95	82	79	7.3	7.3	22.0	770	2.0	10.1	114	--

DATE	STREP- TOCOC- FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS NONCAR- BONATE (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CAC03)	ALKA- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 09...	--	--	--	--	--	--	--	25	--	--	--	--
NOV 26...	K9	26	26	6.6	2.4	4.2	2.2	23	23	5.8	5.2	<0.1
DEC 11...	--	--	--	--	--	--	--	20	--	--	--	--
JAN 28...	K11	23	23	5.9	2.1	4.2	1.2	20	20	6.0	4.7	<0.1
FEB 25...	K6	24	24	6.0	2.2	3.5	1.3	18	18	7.6	4.8	<0.1
MAR 28...	--	--	--	--	--	--	--	19	--	--	--	--
APR 23...	K8	25	25	6.4	2.2	4.0	1.4	23	25	4.4	3.9	<0.1
MAY 22...	--	--	--	--	--	--	--	21	--	--	--	--
JUN 18...	39	23	23	5.4	2.2	3.5	2.2	21	22	9.6	4.2	0.1
JUL 16...	--	--	--	--	--	--	--	--	16	--	--	--
AUG 28...	220	22	22	5.2	2.2	3.4	2.4	20	19	5.9	4.5	0.1
SEP 23...	--	--	--	--	--	--	--	27	--	--	--	--



WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

[illegible]

## RAPPAHANNOCK RIVER BASIN

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01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 09...	--	--	--	--	--	--	--	--	1.9	2	89
NOV 26...	<0.1	<10	<1	<1	<1	35	<6	4	2.4	5	51
DEC 11...	--	--	--	--	--	--	--	--	--	6	66
JAN 28...	--	--	--	--	--	--	--	--	6.1	5	68
FEB 25...	<0.1	<10	<1	<1	1	33	<6	<3	1.8	6	93
MAR 28...	--	--	--	--	--	--	--	--	3.0	8	91
APR 23...	0.4	<10	<1	<1	<1	37	<6	14	--	3	88
MAY 22...	--	--	--	--	--	--	--	--	4.0	5	--
JUN 18...	--	--	--	--	--	--	--	--	3.1	6	83
JUL 16...	--	--	--	--	--	--	--	--	5.0	9	89
AUG 28...	<0.1	<10	2	<1	<1	33	<6	6	2.0	4	83
SEP 23...	--	--	--	--	--	--	--	--	2.7	5	69

## RAPPAHANNOCK RIVER BASIN

01668500 CAT POINT CREEK NEAR MONTROSS, VA

LOCATION.--Lat 38°02'23", long 76°49'38", Richmond County, Hydrologic Unit 02080104, on right bank 200 ft upstream from bridge on State Highway 637, 1.7 mi west of Farmers Fork, 3.8 mi south of Montross, and 11.4 mi upstream from mouth.

DRAINAGE AREA.--45.6 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1943 to current year.

REVISED RECORDS.--WSP 1382: 1944(M), 1945, 1946-51(M), 1952(P), 1953-54(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3.04 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 19, 1953, nonrecording gage near right bank at downstream side of highway bridge at same datum.

REMARKS.--Estimated daily discharges: Jan. 20-23, 27-30, Feb. 3, 4, and Apr. 25-29. Records good except those for periods of doubtful or no gage-height record, Jan. 20-23, 27-30, Feb. 3, 4, and Apr. 25-29, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--42 years, 45.0 ft<sup>3</sup>/s, 13.40 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,820 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 10.45 ft, from rating curve extended above 1,400 ft<sup>3</sup>/s; no flow at times in 1943, 1957, 1959, 1960, 1966, and 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1935 exceeded 9.3 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	1200	394	5.84	Sept. 27	1600	*1,940	*8.03

Minimum discharge, 0.25 ft<sup>3</sup>/s, July 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	36	52	25	57	35	26	11	17	.63	10	13
2	28	33	42	28	103	33	24	11	12	.56	8.0	10
3	23	31	39	42	80	30	23	17	9.0	.60	6.2	9.0
4	16	31	36	66	65	30	23	21	7.1	.56	5.4	7.7
5	13	33	35	64	54	30	23	20	6.5	.52	4.3	6.4
6	12	35	59	50	50	29	23	19	17	.52	3.4	5.9
7	11	34	54	40	41	28	22	14	31	.52	3.1	5.1
8	11	32	46	34	36	29	28	11	28	.42	3.9	4.9
9	11	31	40	30	36	32	28	8.8	20	.33	4.0	5.0
10	11	31	36	28	36	31	27	7.2	11	.33	3.8	7.3
11	12	32	34	28	35	30	27	6.8	20	.31	3.5	6.9
12	13	36	32	27	70	32	27	9.6	24	.32	3.4	5.4
13	14	35	31	27	98	31	25	10	28	.32	3.1	4.7
14	15	33	30	26	73	30	24	8.0	19	.31	2.6	4.0
15	17	31	29	26	61	28	23	6.6	10	.27	2.0	3.5
16	22	30	28	25	54	27	23	6.0	7.7	.37	2.1	3.0
17	19	28	28	25	48	26	22	8.8	7.0	30	3.6	2.7
18	19	28	28	25	46	25	20	13	5.3	24	15	2.2
19	20	56	27	27	44	24	18	12	4.3	8.5	287	1.8
20	22	59	26	26	41	24	19	9.4	3.6	5.8	167	1.5
21	23	50	26	24	39	24	17	10	3.2	4.5	81	1.5
22	24	40	27	23	38	28	17	41	2.6	3.5	46	1.6
23	28	35	26	22	36	38	15	38	2.3	2.6	29	2.1
24	62	33	25	24	35	45	15	45	1.9	2.1	22	3.4
25	57	31	24	25	33	50	15	70	1.6	2.5	22	4.0
26	46	30	22	26	44	42	14	54	1.3	4.8	31	11
27	39	29	22	24	48	36	13	35	1.0	8.7	40	1170
28	35	32	22	24	41	32	14	24	.94	11	32	510
29	46	86	22	23	---	29	13	24	.76	12	22	120
30	44	71	22	23	---	28	12	21	.66	12	18	59
31	41	---	24	26	---	27	---	17	---	11	15	---
TOTAL	774	1132	994	933	1442	963	620	609.2	303.76	149.89	899.4	1992.6
MEAN	25.0	37.7	32.1	30.1	51.5	31.1	20.7	19.7	10.1	4.84	29.0	66.4
MAX	62	86	59	66	103	50	28	70	31	30	287	1170
MIN	11	28	22	22	33	24	12	6.0	.66	.27	2.0	1.5
CFSM	.55	.83	.70	.66	1.13	.68	.45	.43	.22	.11	.64	1.46
IN.	.63	.92	.81	.76	1.18	.79	.51	.50	.25	.12	.73	1.63
CAL YR 1984	TOTAL	26957.5	MEAN	73.7	MAX	943	MIN	4.0	CFSM	1.62	IN.	21.99
WTR YR 1985	TOTAL	10812.85	MEAN	29.6	MAX	1170	MIN	.27	CFSM	.65	IN.	8.82

# RAPPAHANNOCK RIVER BASIN

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01668800 HOSKINS CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°55'38", long 76°57'16", Essex County, Hydrologic Unit 02080104, at bridge on State Highway 717, 0.4 mi upstream from Criddlin Swamp, 2.9 mi downstream from site of Hutchinson Mill Pond (destroyed by flood of August 1969), and 5.0 mi west of Tappahannock.

DRAINAGE AREA.--15.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1964 to September 1969, June 1970 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 36.28 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20, 21. Records good except those for period with ice effect, Jan. 20, 21, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--20 years, 17.0 ft<sup>3</sup>/s, 14.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,380 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 10.23 ft, from rating curve extended above 100 ft<sup>3</sup>/s on basis of velocity-area study; minimum, 0.20 ft<sup>3</sup>/s, Sept. 12, 13, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	1230	165	4.26	Sept. 27	1130	*208	*4.91

Minimum daily discharge, 0.70 ft<sup>3</sup>/s, July 24.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	9.6	20	11	32	15	8.8	6.4	3.6	.95	3.5	6.1
2	29	9.4	15	12	57	13	7.9	6.6	3.0	1.0	3.0	6.1
3	17	8.9	15	28	39	12	7.5	10	3.5	1.1	2.6	6.3
4	10	8.9	13	45	27	12	7.5	12	2.8	1.2	2.2	6.2
5	7.7	10	13	35	23	12	7.0	9.4	8.4	1.1	2.0	6.1
6	7.4	12	30	22	22	10	7.0	10	20	1.2	1.9	6.0
7	7.4	10	24	19	21	9.2	6.6	8.2	16	1.2	1.8	6.0
8	6.8	9.7	18	19	19	11	9.9	7.1	11	1.0	2.1	5.5
9	6.8	9.7	14	15	18	15	9.4	6.4	6.8	.95	11	5.3
10	6.8	9.4	13	13	18	12	7.9	6.3	4.7	1.2	5.1	5.5
11	6.9	11	12	14	18	11	8.4	6.0	19	1.1	3.1	5.5
12	6.9	14	12	14	44	12	8.8	6.2	13	1.1	2.8	5.4
13	6.9	12	11	13	48	11	8.8	6.2	9.4	1.1	2.7	4.8
14	6.6	11	11	14	30	9.7	9.4	5.8	5.8	1.1	2.6	4.4
15	6.8	9.7	11	13	24	8.8	11	5.1	3.9	.99	2.4	4.3
16	6.8	9.4	11	13	21	8.2	9.7	5.0	3.6	.96	2.2	4.2
17	7.0	9.2	11	13	20	8.2	8.6	7.1	3.6	1.5	2.1	3.9
18	6.9	9.6	11	14	20	8.0	7.5	7.7	3.3	1.6	8.6	3.8
19	7.0	27	11	14	19	7.0	7.1	6.2	2.9	1.0	124	3.6
20	7.7	28	11	13	18	7.1	6.8	5.4	2.5	.90	56	3.9
21	7.7	18	11	11	18	7.0	7.5	5.0	2.1	.84	25	4.1
22	7.7	13	11	11	17	9.7	7.9	6.4	1.9	.92	12	4.9
23	8.5	11	11	9.6	17	17	7.0	7.3	1.7	.78	6.9	8.1
24	18	10	10	11	17	24	6.8	16	1.6	.70	5.7	8.5
25	24	9.9	10	13	16	22	9.9	30	1.5	1.0	6.1	8.1
26	16	9.7	9.9	13	21	16	7.3	18	1.3	2.2	8.5	11
27	11	10	9.9	11	22	13	6.6	12	1.0	3.3	9.9	154
28	9.7	15	9.9	11	17	11	6.8	6.3	.95	2.9	7.8	59
29	10	55	10	11	---	10	6.6	4.7	.90	6.2	7.2	17
30	10	36	10	10	---	10	6.6	3.6	.95	9.5	6.6	7.9
31	9.7	---	11	12	---	9.4	---	3.2	---	4.4	6.2	---
TOTAL	329.7	426.1	400.7	477.6	683	361.3	238.6	255.6	160.70	54.99	343.6	385.5
MEAN	10.6	14.2	12.9	15.4	24.4	11.7	7.95	8.25	5.36	1.77	11.1	12.8
MAX	29	55	30	45	57	24	11	30	20	9.5	124	154
MIN	6.6	8.9	9.9	9.6	16	7.0	6.6	3.2	.90	.70	1.8	3.6
CFSM	.68	.92	.83	.99	1.57	.75	.51	.53	.35	.11	.72	.83
IN.	.79	1.02	.96	1.15	1.64	.87	.57	.61	.39	.13	.82	.93

CAL YR 1984	TOTAL	9073.0	MEAN	24.8	MAX	253	MIN	4.0	CFSM	1.60	IN.	21.78
WTR YR 1985	TOTAL	4117.39	MEAN	11.3	MAX	154	MIN	.70	CFSM	.73	IN.	9.88



## 01669000 PISCATAWAY CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°52'37", long 76°54'03", Essex County, Hydrologic Unit 02080104, on right bank at upstream side of bridge on State Highway 691, 0.6 mi south of Hensley Fork, 2.3 mi downstream from Sturgeon Swamp, and 4.2 mi southwest of Tappahannock.

DRAINAGE AREA.--28.0 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-79-1: 1970-76(P), 1978(P).

GAGE.--Water-stage recorder. Datum of gage is 2.50 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16, 21, 22. Records good except those for periods with ice effect, Jan. 16, 21, 22, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--34 years, 32.2 ft<sup>3</sup>/s, 15.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,380 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 7.52 ft, from rating curve extended above 1,400 ft<sup>3</sup>/s; minimum, 0.01 ft<sup>3</sup>/s, Oct. 2, 1954; minimum gage height, 0.07 ft, July 24, 25, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	1600	376	4.12	Sept. 27	1630	*526	*4.62

Minimum discharge, 0.75 ft<sup>3</sup>/s, July 24-25, gage height, 0.07 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	13	31	16	52	23	19	6.8	7.1	1.4	11	13
2	45	12	22	17	82	21	18	6.1	6.2	1.5	20	13
3	25	11	22	36	60	20	17	11	5.5	2.4	10	11
4	14	11	22	69	39	19	16	16	4.5	2.8	6.0	10
5	10	14	21	56	31	20	16	12	7.7	3.0	4.2	9.2
6	9.1	22	44	37	30	19	15	8.3	22	2.7	3.2	8.2
7	8.5	18	42	29	28	17	15	7.3	28	2.7	2.5	7.4
8	8.3	14	27	25	24	18	18	6.0	19	2.4	8.6	6.8
9	8.1	12	22	21	23	23	20	6.0	14	2.3	65	6.3
10	8.2	11	20	20	22	23	16	7.4	10	2.1	38	6.0
11	8.1	12	19	20	21	19	16	7.4	24	1.8	15	5.7
12	8.0	14	18	20	62	20	16	7.5	25	1.4	7.3	5.0
13	8.2	15	17	20	83	20	15	9.2	18	1.4	4.4	4.6
14	7.8	12	16	19	46	19	15	8.6	11	1.4	3.7	4.0
15	7.9	11	16	20	34	18	15	8.2	8.4	1.3	3.0	3.8
16	7.5	11	15	17	30	16	16	9.9	7.2	1.3	2.4	3.9
17	7.4	10	15	18	28	16	15	11	6.1	1.7	2.1	3.4
18	7.9	11	15	20	27	16	13	15	6.1	1.3	15	3.5
19	8.1	31	15	21	26	15	12	15	5.2	1.2	293	3.7
20	8.4	46	15	21	25	15	12	11	4.4	1.2	121	3.7
21	8.6	26	15	17	23	15	11	11	4.0	1.0	69	3.5
22	8.5	17	15	16	22	18	11	13	3.4	1.0	51	6.3
23	9.1	14	15	17	23	33	9.4	17	3.0	.91	29	15
24	16	14	14	18	23	45	8.8	32	2.7	.82	19	17
25	25	13	13	20	22	38	9.0	63	2.3	1.2	25	12
26	18	13	12	20	31	28	8.6	36	1.9	3.1	41	21
27	14	13	12	19	38	23	8.0	18	1.6	9.3	57	419
28	12	20	12	18	28	21	7.6	12	1.5	8.7	35	166
29	12	83	13	18	---	21	7.3	9.3	1.4	9.0	22	56
30	11	61	12	18	---	21	7.1	6.8	1.3	9.2	17	37
31	13	---	14	21	---	20	---	6.9	---	8.8	15	---
TOTAL	394.7	585	581	724	983	660	402.8	414.7	262.5	90.33	1015.4	885.0
MEAN	12.7	19.5	18.7	23.4	35.1	21.3	13.4	13.4	8.75	2.91	32.8	29.5
MAX	45	83	44	69	83	45	20	63	28	9.3	293	419
MIN	7.4	10	12	16	21	15	7.1	6.0	1.3	.82	2.1	3.4
CFSM	.45	.70	.67	.84	1.25	.76	.48	.48	.31	.10	1.17	1.05
IN.	.52	.78	.77	.96	1.31	.88	.54	.55	.35	.12	1.35	1.18
CAL YR 1984	TOTAL	15380.7	MEAN	42.0	MAX	376	MIN	4.8	CFSM	1.50	IN.	20.43
WTR YR 1985	TOTAL	6998.43	MEAN	19.2	MAX	419	MIN	.82	CFSM	.69	IN.	9.30

## PIANKATANK RIVER BASIN

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01669520 DRAGON SWAMP AT MASCOT, VA

LOCATION.--Lat 37°38'01", long 76°41'48", King and Queen County, Hydrologic Unit 02080102, on right bank at upstream side of bridge on State Highway 603, 0.8 mi east of Mascot, 2.1 mi downstream from Church Swamp, and 3.3 mi west of Warner.

DRAINAGE AREA.--108 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 21.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16, 18-22. Records good except those for periods with ice effect, Jan. 16, 18-22, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,530 ft<sup>3</sup>/s, Apr. 17, 1983, gage height, 8.85 ft, from rating curve extended above 1,400 ft<sup>3</sup>/s; minimum, 0.30 ft<sup>3</sup>/s, Sept. 5, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 28	2400	*1,720	*8.17	No other peak equal to or greater than base discharge.			

Minimum discharge, 1.0 ft<sup>3</sup>/s, July 20-21, gage height, 1.60 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	116	37	130	74	58	7.0	52	2.3	24	28
2	17	11	125	42	199	78	51	6.5	32	2.6	20	43
3	16	10	131	85	195	74	48	20	18	6.1	14	73
4	15	10	114	141	195	66	46	18	12	3.6	8.9	68
5	15	11	101	158	180	61	43	16	12	5.1	6.3	48
6	14	15	117	156	147	55	39	13	20	3.4	5.1	33
7	14	19	105	141	120	50	37	11	20	4.4	4.6	23
8	13	22	93	116	107	47	40	8.8	34	3.8	9.8	17
9	12	22	85	97	103	49	37	7.4	30	3.1	66	13
10	12	21	82	78	79	48	36	6.6	29	3.2	80	12
11	11	22	78	65	70	48	34	6.5	46	3.2	40	8.7
12	10	25	69	64	124	51	34	6.1	66	2.6	27	7.4
13	9.5	23	62	54	174	50	32	5.8	80	2.4	26	6.6
14	8.5	22	58	49	174	50	33	5.5	78	2.5	19	6.1
15	8.5	19	54	48	180	48	42	5.2	73	2.1	12	5.4
16	7.7	18	50	44	169	46	42	4.8	83	1.7	8.4	4.8
17	6.8	16	45	40	139	44	38	5.3	80	1.5	7.8	4.1
18	6.8	15	44	39	112	41	39	5.2	65	1.3	19	3.5
19	7.2	44	42	38	95	40	32	4.1	54	1.2	156	3.2
20	6.8	62	41	37	81	37	29	3.4	42	1.1	161	2.9
21	6.2	60	42	37	71	34	24	3.3	30	1.3	197	2.8
22	6.1	60	41	36	65	41	21	5.5	20	3.1	261	3.8
23	6.1	63	38	36	62	62	17	7.4	14	4.7	236	6.0
24	6.4	62	36	35	59	77	16	24	9.5	4.1	181	5.9
25	7.6	56	37	40	57	83	15	51	7.0	4.1	126	5.2
26	8.2	49	36	44	74	91	13	53	5.1	7.6	91	22
27	8.3	45	35	43	78	90	12	64	3.7	7.5	74	938
28	8.8	47	34	47	75	79	11	109	3.0	6.1	57	1350
29	9.7	97	34	51	---	69	9.0	167	2.8	5.3	42	1500
30	11	71	33	52	---	74	7.7	141	2.5	4.8	30	865
31	11	---	35	62	---	66	---	91	---	6.8	29	---
TOTAL	311.2	1027	2013	2012	3314	1823	935.7	882.4	1023.6	112.6	2038.9	5109.4
MEAN	10.0	34.2	64.9	64.9	118	58.8	31.2	28.5	34.1	3.63	65.8	170
MAX	17	97	131	158	199	91	58	167	83	7.6	261	1500
MIN	6.1	10	33	35	57	34	7.7	3.3	2.5	1.1	4.6	2.8
CFSM	.09	.32	.60	.60	1.09	.54	.29	.26	.32	.03	.61	1.57
IN.	.11	.35	.69	.69	1.14	.63	.32	.30	.35	.04	.70	1.76
CAL YR 1984	TOTAL	52551.2	MEAN	144	MAX	1430	MIN	3.7	CFSM	1.33	IN.	18.10
WTR YR 1985	TOTAL	20602.8	MEAN	56.4	MAX	1500	MIN	1.1	CFSM	.52	IN.	7.10

## 01670000 BEAVERDAM SWAMP NEAR ARK, VA

LOCATION.--Lat 37°28'14", long 76°33'48", Gloucester County, Hydrologic Unit 02080102, on right bank 300 ft downstream from bridge on State Highway 606, 1.4 mi upstream from Beech Swamp, 2.3 mi north of Ark, and 4.3 mi northwest of Gloucester.

DRAINAGE AREA.--6.63 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1502: 1950, 1951-52(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 36.43 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 7 to Dec. 10, Jan. 20-22, Mar. 7-23, Mar. 25 to Apr. 14, Apr. 17 to May 27, July 22 to Aug. 16, and Aug. 25 to Sept. 21. Records fair except those for periods of doubtful or no gage-height record, Nov. 7 to Dec. 10, Mar. 7-23, Mar. 25 to Apr. 14, Apr. 17 to May 27, July 22 to Aug. 16, and Aug. 25 to Sept. 21, and period with ice effect, Jan. 20-22, which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--36 years, 7.18 ft<sup>3</sup>/s, 14.71 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 570 ft<sup>3</sup>/s, Sept. 12, 1960, gage height, 5.88 ft, from rating curve extended above 130 ft<sup>3</sup>/s; no flow July 30 to Aug. 2, 1953, Aug. 18, Sept. 4, Sept. 29 to Oct. 2, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 65 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sept. 27	0730	*496	*4.59	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 0.08 ft<sup>3</sup>/s, July 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.1	3.3	3.2	19	4.8	4.2	2.7	1.3	.68	2.0	2.1
2	1.9	1.6	3.0	3.6	21	5.6	4.0	2.7	1.2	.58	1.7	1.7
3	1.4	1.3	3.5	5.6	12	5.1	3.5	4.4	1.2	.55	1.5	1.4
4	1.1	1.6	2.8	6.6	7.3	4.6	3.4	4.6	1.3	.48	1.3	1.2
5	.95	1.9	2.5	4.8	5.8	4.6	3.1	4.2	4.3	.45	1.1	1.0
6	.95	2.2	4.5	3.7	6.0	4.6	3.2	3.7	6.0	.43	1.0	.90
7	.95	1.9	4.0	3.4	5.7	4.5	3.4	3.2	3.2	.50	.90	.80
8	.90	1.8	3.8	3.3	4.6	4.5	4.1	2.9	2.5	.41	2.9	.70
9	.90	1.7	3.7	3.2	4.1	4.6	4.1	2.8	2.6	.33	1.5	.60
10	.90	1.6	3.6	3.1	4.1	4.6	3.8	2.5	2.3	.27	1.0	.70
11	.85	1.8	3.6	3.3	4.1	4.3	3.7	2.7	1.9	.27	.80	.60
12	.85	2.3	3.5	3.3	15	4.6	3.7	2.5	2.6	.24	.60	.50
13	.85	2.1	3.5	3.3	15	4.5	3.7	2.5	3.8	.22	.50	.45
14	.85	1.9	3.4	3.3	7.4	4.0	3.8	2.3	2.9	.19	.35	.38
15	.90	1.8	3.5	3.4	5.4	3.7	7.3	2.2	2.1	.17	.25	.35
16	.90	1.7	3.4	3.1	48	3.5	7.1	2.2	1.7	.16	.20	.33
17	.90	1.6	3.4	3.1	4.3	3.3	6.6	2.4	1.6	.16	1.0	.32
18	.85	1.5	3.3	3.6	4.2	3.3	5.7	3.0	1.3	.13	2.4	.27
19	.85	3.0	3.3	3.8	4.2	3.0	5.4	2.8	1.4	.09	30	.26
20	.90	4.0	3.2	3.1	4.0	3.0	4.8	2.3	1.2	.08	14	.24
21	1.1	3.0	3.3	2.9	4.0	3.0	4.5	2.3	.95	.12	4.3	.23
22	1.2	2.5	3.3	2.6	4.5	5.2	4.1	6.0	.75	.70	4.2	.62
23	1.6	2.2	3.3	2.7	4.5	8.9	3.6	6.3	.68	3.5	4.4	3.0
24	3.6	2.1	3.1	2.9	4.5	9.6	3.5	8.3	.65	1.0	4.8	3.8
25	3.5	2.0	3.1	3.6	4.4	7.3	3.6	9.8	.52	.70	5.4	3.8
26	2.4	1.9	3.1	4.0	5.8	5.6	3.7	5.6	.45	1.6	4.8	10
27	1.8	2.5	3.1	3.3	5.8	4.5	3.3	3.0	.41	1.5	4.0	254
28	1.5	4.1	3.1	3.5	5.0	4.4	3.2	1.3	.52	1.3	3.5	37
29	1.4	4.6	3.0	3.6	---	4.2	3.0	1.3	.70	1.1	3.1	11
30	1.4	4.0	3.0	3.2	---	5.7	2.9	1.3	.80	.90	2.8	5.2
31	1.6	---	3.0	5.8	---	5.0	---	1.3	---	2.7	2.5	---
TOTAL	41.55	68.3	103.2	111.9	239.7	148.1	124.0	105.1	52.83	21.51	108.80	343.45
MEAN	1.34	2.28	3.33	3.61	8.56	4.78	4.13	3.39	1.76	.69	3.51	11.4
MAX	3.6	4.6	4.5	6.6	48	9.6	7.3	9.8	6.0	3.5	30	254
MIN	.85	1.3	2.5	2.6	4.0	3.0	2.9	1.3	.41	.08	.20	.23
CFSM	.20	.34	.50	.54	1.29	.72	.62	.51	.27	.10	.53	1.72
IN.	.23	.38	.58	.63	1.34	.83	.70	.59	.30	.12	.61	1.93
CAL YR 1984	TOTAL	3547.02	MEAN	9.69	MAX	131	MIN	.47	CFSM	1.46	IN.	19.90
WTR YR 1985	TOTAL	1468.44	MEAN	4.02	MAX	254	MIN	.08	CFSM	.61	IN.	8.24

## YORK RIVER BASIN

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01670300 CONTRARY CREEK NEAR MINERAL, VA

LOCATION.--Lat 38°03'53", long 77°52'45", Louisa County, Hydrologic Unit 02080106, on left bank 400 ft downstream from bridge on U.S. Highway 522 and 4.0 mi northeast of Mineral.

DRAINAGE AREA.--5.53 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 275 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 16, 21-27, 30 and Feb. 8-10. Records good except those for periods with ice effect, Jan. 16, 21-27, 30 and Feb. 8-10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--10 years, 5.14 ft<sup>3</sup>/s, 12.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,280 ft<sup>3</sup>/s, Aug. 18, 1985, gage height, 4.70 ft, from rating curve extended above 310 ft<sup>3</sup>/s; minimum, 0.03 ft<sup>3</sup>/s, Aug. 22, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	2000	*2,280	*4.70	No other peak equal to or greater than base discharge.			

Minimum discharge, 0.06 ft<sup>3</sup>/s, July 8, gage height, 0.65 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.3	1.4	4.1	3.6	43	3.6	3.4	2.0	1.3	.58	.75	1.5
2	3.8	1.4	3.6	3.4	40	3.6	3.1	2.0	1.2	.58	.75	1.4
3	1.6	1.3	3.6	11	14	3.6	2.9	12	1.0	.43	.58	1.3
4	1.3	3.6	3.4	17	7.6	3.4	2.9	4.1	1.0	.31	.50	1.2
5	1.2	11	4.2	16	6.2	3.6	2.6	2.9	1.8	.37	.43	1.1
6	1.2	3.4	16	11	5.7	3.1	2.4	2.4	3.4	.31	.43	1.0
7	1.0	2.4	7.1	7.1	4.8	3.1	2.4	2.0	2.2	.20	.43	.98
8	1.0	2.0	4.6	4.8	4.5	3.4	2.6	1.8	2.0	.09	1.3	.93
9	1.0	2.0	4.1	4.3	4.2	3.4	2.4	1.8	1.4	.25	.84	.94
10	1.0	2.0	3.8	3.8	3.9	3.1	2.4	1.6	1.4	.58	.58	.90
11	1.0	2.9	3.6	3.8	3.8	3.1	2.6	1.6	2.0	.43	.50	.82
12	1.0	2.4	3.6	3.6	36	3.4	2.4	1.8	1.4	2.8	.43	.75
13	1.0	2.2	3.1	3.6	12	3.1	2.4	2.9	1.0	17	.31	.69
14	1.0	2.0	3.1	3.6	7.1	2.9	2.2	1.8	.84	8.4	.25	.66
15	.94	2.0	2.9	3.4	5.7	2.9	3.1	1.4	.84	2.0	.12	.62
16	1.0	2.0	2.9	3.1	4.8	2.9	2.9	2.0	1.0	1.3	.09	.61
17	1.0	2.0	2.9	3.4	4.6	2.9	2.6	2.4	.94	.94	.15	.64
18	1.0	2.2	2.9	3.4	4.1	2.9	2.4	2.0	.84	.84	315	.59
19	1.0	9.6	2.9	3.6	4.1	2.9	2.2	1.4	.75	.66	33	.59
20	1.0	4.1	2.9	4.1	4.1	2.9	2.2	1.3	.66	.66	17	.55
21	1.2	2.9	3.4	3.4	3.8	2.9	2.2	1.2	.58	.58	31	.52
22	1.2	2.6	3.6	3.0	3.6	4.6	2.2	1.3	.50	.50	6.6	.73
23	2.2	2.4	3.1	2.9	3.6	16	2.2	2.6	.43	.37	3.4	.94
24	2.9	2.4	2.9	2.8	3.6	8.5	2.2	5.3	.43	.31	2.9	.80
25	1.8	2.4	2.9	3.0	3.6	5.7	5.7	5.3	.31	1.7	6.6	.66
26	1.6	2.2	2.6	3.0	8.0	4.3	3.1	2.2	.20	1.4	6.7	.76
27	1.6	2.2	2.4	3.0	5.3	3.8	2.6	1.6	.15	1.2	3.7	4.3
28	1.6	28	2.6	3.1	4.1	3.6	2.4	1.3	.20	1.2	2.6	1.2
29	1.6	19	2.6	2.6	---	3.8	2.2	1.8	.20	1.0	1.9	.89
30	1.4	6.2	2.6	2.7	---	3.6	2.0	1.6	.37	.94	1.7	.80
31	1.4	---	4.3	4.1	---	3.4	---	1.6	---	.75	1.6	---
TOTAL	50.84	132.2	118.3	151.2	255.8	124.0	78.9	77.0	30.34	48.68	442.14	29.37
MEAN	1.64	4.41	3.82	4.88	9.14	4.00	2.63	2.48	1.01	1.57	14.3	.98
MAX	9.3	28	16	17	43	16	5.7	12	3.4	17	315	4.3
MIN	.94	1.3	2.4	2.6	3.6	2.9	2.0	1.2	.15	.09	.09	.52
CFSM	.30	.80	.69	.88	1.65	.72	.48	.45	.18	.28	2.59	.18
IN.	.34	.89	.80	1.02	1.72	.83	.53	.52	.20	.33	2.97	.20
CAL YR 1984	TOTAL	2970.24	MEAN	8.12	MAX	320	MIN	.66	CFSM	1.47	IN.	19.98
WTR YR 1985	TOTAL	1538.77	MEAN	4.22	MAX	315	MIN	.09	CFSM	.76	IN.	10.35



## YORK RIVER BASIN

01670400 NORTH ANNA RIVER NEAR PARTLOW, VA

LOCATION.--Lat 38°00'46", long 77°42'06", Spotsylvania County, Hydrologic Unit 02080106, on left downstream side of bridge on State Highway 601, 1.1 mi upstream from Northeast Creek, and 3.8 mi southwest of Partlow.

DRAINAGE AREA.--344 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 168.25 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 0.5 mi upstream. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--7 years, 300 ft<sup>3</sup>/s, 11.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft<sup>3</sup>/s, Feb. 26, 1979, gage height, 25.30 ft, from rating curve extended above 7,200 ft<sup>3</sup>/s; minimum, 33 ft<sup>3</sup>/s, Sept. 27, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1972, reached a stage of 36.32 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,240 ft<sup>3</sup>/s, Feb. 2, gage height, 9.17 ft; minimum, 41 ft<sup>3</sup>/s, Sept. 27, 28; minimum daily, 43 ft<sup>3</sup>/s, Sept. 28, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	661	57	323	306	868	126	156	59	55	45	52	49
2	661	58	332	527	2200	248	70	59	55	44	50	48
3	219	56	454	697	2160	206	62	570	55	45	48	49
4	50	81	328	739	1970	210	63	267	54	46	50	47
5	47	145	259	786	605	310	63	73	89	47	50	47
6	48	60	764	785	578	233	68	64	583	48	51	46
7	48	60	626	781	306	66	69	56	594	49	50	47
8	48	55	248	768	131	59	70	54	188	47	52	48
9	49	51	138	687	80	61	73	54	58	48	50	47
10	51	50	139	313	68	64	65	54	60	49	50	46
11	51	52	140	145	80	73	66	53	124	49	53	46
12	52	54	139	145	1260	175	66	54	679	54	51	47
13	53	55	141	143	2120	115	66	57	711	56	50	47
14	53	54	141	98	1470	69	67	75	406	57	52	47
15	50	53	141	70	465	71	202	135	46	56	54	47
16	49	53	141	64	529	70	187	195	84	55	54	46
17	49	53	141	67	523	72	68	302	98	54	53	45
18	49	53	233	147	258	72	67	193	48	51	155	46
19	49	631	340	282	70	70	70	69	47	49	1540	48
20	50	218	336	369	140	74	70	59	46	51	1730	47
21	50	131	334	354	133	72	183	58	46	51	1720	46
22	51	130	334	236	254	307	118	55	45	50	1870	46
23	164	81	140	63	355	616	60	56	44	51	300	47
24	596	55	67	63	376	609	60	371	44	49	74	46
25	84	55	69	68	383	577	62	634	45	48	417	45
26	60	55	69	75	493	179	62	248	47	50	320	715
27	56	56	69	67	175	75	61	57	45	50	151	636
28	57	377	70	67	175	76	61	78	44	49	47	43
29	58	2120	71	68	---	177	60	457	45	49	47	44
30	57	1060	235	68	---	584	59	81	44	45	47	43
31	57	---	310	471	---	404	---	50	---	49	49	---
TOTAL	3677	6069	7272	9519	18225	6120	2474	4647	4529	1541	9337	2651
MEAN	119	202	235	307	651	197	82.5	150	151	49.7	301	88.4
MAX	661	2120	764	786	2200	616	202	634	711	57	1870	715
MIN	47	50	67	63	68	59	59	50	44	44	47	43
CFSM	.35	.59	.68	.89	1.89	.57	.24	.44	.44	.14	.87	.26
IN.	.40	.66	.79	1.03	1.97	.66	.27	.50	.49	.17	1.01	.29
CAL YR 1984	TOTAL	182206	MEAN	498	MAX	7330	MIN	41	CFSM	1.45	IN.	19.70
WTR YR 1985	TOTAL	76061	MEAN	208	MAX	2200	MIN	43	CFSM	.60	IN.	8.23

## YORK RIVER BASIN

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01671000 NORTH ANNA RIVER NEAR DOSWELL, VA

LOCATION.--Lat 37°53'15", long 77°29'15", Caroline County, Hydrologic Unit 02080106, on left bank 1.5 mi upstream from bridge on U.S. Highway 1, 2.5 mi northwest of Doswell, and 4.4 mi upstream from Bull Run.

DRAINAGE AREA.--441 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1926 to current year. Monthly discharge only for some periods, published in WSP 1302. Published as "near Hewlett," 1926-28.

REVISED RECORDS.--WSP 1171: 1943: WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 55.66 ft above National Geodetic Vertical Datum of 1929. Mar. 23, 1926, to Aug. 11, 1928, nonrecording gage at site 10.2 mi upstream at different datum. Mar. 17, 1929, to Nov. 7, 1930, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 13 to Jan. 25, Mar. 16-19, and Sept. 2-30. Records good except those for periods of doubtful or no gage-height record, Dec. 13 to Jan. 25, Mar. 16-19, and Sept. 2-30, which are fair. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 20.5 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--59 years, 386 ft<sup>3</sup>/s, 11.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,800 ft<sup>3</sup>/s, Aug. 21, 1969, gage height, 32.60 ft; maximum gage height, 33.7 ft, Aug. 12, 1928, from floodmarks, present site and datum; minimum discharge, 1.0 ft<sup>3</sup>/s, Sept. 30, Oct. 1, 2, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,650 ft<sup>3</sup>/s, Aug. 19, gage height, 13.11 ft; minimum daily, 53 ft<sup>3</sup>/s, Sept. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	391	87	356	314	934	253	304	83	80	66	62	80
2	802	86	338	318	2250	205	142	83	79	65	65	76
3	385	84	404	642	2380	334	114	272	78	62	61	74
4	132	84	338	886	2110	217	108	506	76	60	58	70
5	87	231	270	937	1090	322	107	172	91	60	58	68
6	83	188	737	885	675	344	104	110	346	61	59	64
7	80	142	869	824	568	195	104	93	735	59	60	62
8	78	107	427	769	248	126	105	80	474	57	67	61
9	76	94	239	696	169	128	104	76	144	57	66	62
10	76	88	217	525	140	128	104	75	99	58	60	61
11	76	94	212	301	134	128	105	74	120	59	59	60
12	78	99	207	217	912	163	107	74	439	60	60	59
13	76	94	204	209	2250	227	108	79	695	76	59	58
14	76	93	200	204	2010	138	110	86	648	75	57	56
15	75	87	197	158	592	121	143	130	148	112	57	55
16	75	86	195	132	600	119	241	174	80	99	58	55
17	76	86	195	129	585	115	172	270	136	75	59	55
18	76	84	193	132	502	115	104	322	115	67	364	54
19	76	312	287	203	186	114	100	130	75	62	2820	53
20	76	486	332	332	158	114	100	94	72	60	1800	55
21	78	205	330	347	231	115	118	83	70	60	1670	55
22	79	174	339	337	229	140	222	86	69	61	1690	56
23	102	163	326	203	353	590	110	86	67	59	740	59
24	503	107	157	120	378	720	91	142	65	59	170	58
25	291	97	125	121	396	695	91	708	64	62	333	56
26	115	96	120	132	537	432	91	440	64	66	944	56
27	100	94	116	124	374	152	91	175	65	68	352	1010
28	91	118	116	123	270	128	90	88	64	66	140	230
29	91	1960	116	123	---	130	90	325	62	68	100	88
30	91	1830	116	121	---	472	84	234	62	67	89	78
31	88	---	271	173	---	560	---	94	---	62	82	---
TOTAL	4579	7556	8549	10737	21261	7740	3664	5444	5382	2048	12319	2984
MEAN	148	252	276	346	759	250	122	176	179	66.1	397	99.5
MAX	802	1960	869	937	2380	720	304	708	735	112	2820	1010
MIN	75	84	116	120	134	114	84	74	62	57	57	53
CFSM	.34	.57	.63	.78	1.72	.57	.28	.40	.41	.15	.90	.23
IN.	.39	.64	.72	.91	1.79	.65	.31	.46	.45	.17	1.04	.25
CAL YR 1984	TOTAL	228357	MEAN	624	MAX	10900	MIN	67	CFSM	1.41	IN.	19.26
WTR YR 1985	TOTAL	92263	MEAN	253	MAX	2820	MIN	53	CFSM	.57	IN.	7.78

## YORK RIVER BASIN

01671020 NORTH ANNA RIVER AT HART CORNER, NEAR DOSWELL, VA

LOCATION.--Lat 37°51'00", long 77°25'41", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 30, 0.3 mi west of Hart Corner, 2.1 mi east of Doswell, and 5.4 mi upstream from confluence with South Anna River.

DRAINAGE AREA.--463 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 43 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 21-23. Records good except those for period with ice effect, Jan. 21-23, which are fair. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 27.7 mi upstream. About 3.0 ft<sup>3</sup>/s diverted since June 1975, by Hanover County Department of Public Utilities, 0.8 mi upstream. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--6 years, 386 ft<sup>3</sup>/s, 11.32 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft<sup>3</sup>/s, Mar. 30, 1984, gage height, 21.28 ft; minimum, 44 ft<sup>3</sup>/s, Sept. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,750 ft<sup>3</sup>/s, Aug. 19, gage height, 15.06 ft; minimum daily, 55 ft<sup>3</sup>/s, Sept. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	288	95	612	345	880	264	388	84	84	67	67	86
2	783	94	438	349	2190	205	198	88	82	67	72	82
3	518	90	460	706	2830	352	133	171	80	67	68	80
4	198	88	446	974	2500	241	122	585	77	65	64	78
5	100	226	343	1030	1480	318	118	230	100	63	63	74
6	89	234	691	972	783	363	119	116	257	67	64	68
7	84	171	915	906	712	248	116	99	702	63	66	64
8	82	124	591	845	349	138	116	87	571	61	69	63
9	81	112	312	765	238	134	114	78	196	60	73	64
10	81	98	248	578	181	132	113	77	106	63	65	63
11	82	104	235	332	161	127	110	78	116	64	63	62
12	81	111	228	328	801	147	108	77	341	64	63	61
13	80	105	224	230	2390	230	108	80	693	75	63	59
14	81	101	220	224	2350	164	108	86	693	82	62	58
15	78	98	217	174	904	125	124	110	241	99	62	57
16	80	93	214	145	691	122	254	167	86	108	63	57
17	80	92	214	142	664	122	214	248	116	82	63	57
18	81	90	212	145	621	120	114	362	129	72	141	56
19	80	244	316	224	276	122	110	179	78	67	3030	55
20	82	610	365	366	187	119	106	102	76	63	3080	57
21	82	257	363	377	242	120	105	87	73	62	2570	57
22	83	194	372	363	237	123	216	86	72	63	2260	57
23	112	184	358	226	386	523	144	92	69	60	1730	61
24	481	137	174	132	438	754	98	116	67	60	429	60
25	453	110	137	132	460	742	95	628	67	62	241	57
26	158	106	132	137	545	568	95	534	64	75	1180	58
27	118	104	128	133	493	212	94	244	67	70	621	1180
28	111	127	128	128	287	146	94	100	66	74	244	252
29	104	1800	128	128	---	142	93	230	66	75	124	92
30	101	2240	127	127	---	414	88	332	66	76	104	82
31	96	---	300	141	---	650	---	120	---	72	92	---
TOTAL	5008	8239	9848	11804	24276	8187	4015	5673	5501	2168	16956	3257
MEAN	162	275	318	381	867	264	134	183	183	69.9	547	109
MAX	783	2240	915	1030	2830	754	388	628	702	108	3080	1180
MIN	78	88	127	127	161	119	88	77	64	60	62	55
CFSM	.35	.59	.69	.82	1.87	.57	.29	.40	.40	.15	1.18	.24
IN.	.40	.66	.79	.95	1.95	.66	.32	.46	.44	.17	1.36	.26

CAL YR 1984	TOTAL	246091	MEAN	672	MAX	10600	MIN	70	CFSM	1.45	IN.	19.77
WTR YR 1985	TOTAL	104932	MEAN	287	MAX	3080	MIN	55	CFSM	.62	IN.	8.43

01671100 LITTLE RIVER NEAR DOSWELL, VA

LOCATION.--Lat 37°52'21", long 77°30'48", Hanover County, Hydrologic Unit 02080106, on left bank at downstream side of bridge on State Highway 685, 0.8 mi southwest of Verdon, 2.9 mi west of Doswell, and 9.6 mi upstream from mouth.

DRAINAGE AREA.--107 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 132.30 ft above National Geodetic Vertical Datum of 1929 (levels by La Prade Bros., Engineers).

REMARKS.--Estimated daily discharges: Jan. 16 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 16 and Feb. 9, 10, which are fair. Frequent quarry dewatering by the General Crushed Stone Company upstream from gage adds about 0.5 ft<sup>3</sup>/s at times. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--24 years, 99.0 ft<sup>3</sup>/s, 12.56 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft<sup>3</sup>/s, Aug. 21, 1969, gage height, 11.09 ft, from rating curve extended above 7,600 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; minimum, 0.10 ft<sup>3</sup>/s, Sept. 25, 26, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 650 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 3	1200	680	4.40	Aug. 27	0600	752	4.53
Aug. 19	2330	*3,240	*6.98				

Minimum discharge, 2.9 ft<sup>3</sup>/s, Aug. 17, gage height, 1.83 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	34	282	60	142	93	94	24	26	5.5	6.7	36
2	96	32	157	65	455	82	83	23	22	5.5	8.5	29
3	99	31	113	87	660	74	76	26	20	5.2	8.7	24
4	83	30	93	191	472	70	67	29	18	4.3	7.8	21
5	58	98	80	267	246	68	57	32	22	4.0	7.0	20
6	42	88	145	254	176	66	51	33	28	4.4	6.2	18
7	34	87	187	198	149	60	49	31	27	4.1	5.7	17
8	28	89	177	153	130	56	49	27	31	3.9	6.0	16
9	24	65	134	122	100	59	47	23	29	3.5	7.3	14
10	22	52	107	100	90	59	45	20	28	3.5	6.7	13
11	20	48	93	88	86	61	45	20	30	3.8	5.6	12
12	20	49	79	81	245	61	45	18	28	4.2	4.9	11
13	20	47	71	77	449	60	45	19	27	5.7	4.2	9.8
14	20	44	69	72	350	58	45	18	23	10	4.0	8.6
15	18	41	65	71	209	55	47	17	20	9.9	3.4	8.3
16	18	39	63	63	151	52	49	17	19	12	3.1	8.3
17	18	37	60	62	127	50	50	20	18	14	2.9	8.0
18	18	35	59	64	115	49	48	21	17	22	93	7.4
19	18	53	59	65	107	45	45	21	17	18	1730	7.0
20	19	77	64	69	102	45	41	19	15	13	2300	6.2
21	20	77	71	65	96	44	39	18	13	10	838	5.8
22	20	74	73	63	89	48	37	17	12	8.5	418	5.7
23	36	63	71	57	84	67	34	17	10	7.4	295	6.2
24	87	56	66	57	84	106	32	24	9.5	6.0	151	6.2
25	136	51	62	61	83	117	31	44	12	5.8	100	5.5
26	120	47	56	66	85	101	30	74	6.7	7.9	323	6.0
27	79	45	53	64	95	83	28	78	5.8	8.1	627	42
28	58	56	52	66	96	70	28	52	5.4	7.4	242	58
29	49	328	51	64	---	64	27	44	5.3	8.0	108	47
30	41	411	51	63	---	78	25	36	5.5	7.3	63	28
31	37	---	52	64	---	83	---	29	---	7.0	46	---
TOTAL	1419	2284	2815	2899	5273	2084	1389	891	550.2	239.9	7432.7	505.0
MEAN	45.8	76.1	90.8	93.5	188	67.2	46.3	28.7	18.3	7.74	240	16.8
MAX	136	411	282	267	660	117	94	78	31	22	2300	58
MIN	18	30	51	57	83	44	25	17	5.3	3.5	2.9	5.5
CFSM	.43	.71	.85	.87	1.76	.63	.43	.27	.17	.07	2.24	.16
IN.	.49	.79	.98	1.01	1.83	.72	.48	.31	.19	.08	2.58	.18

CAL YR 1984	TOTAL	53450	MEAN	146	MAX	2750	MIN	11	CFSM	1.36	IN.	18.58
WTR YR 1985	TOTAL	27781.8	MEAN	76.1	MAX	2300	MIN	2.9	CFSM	.71	IN.	9.66



## 01672500 SOUTH ANNA RIVER NEAR ASHLAND, VA

LOCATION.--Lat 37°47'48", long 77°32'57", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 54, 4.5 mi northwest of Ashland, and 7.6 mi upstream from Newfound River.

DRAINAGE AREA.--394 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1930 to current year.

REVISED RECORDS.--WSP 801: 1935(M). WSP 1502: 1935, 1939. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 83.74 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20-28. Records good except those for period with ice effect, Jan. 20-28, which are fair. Since 1966, diversion 150 ft upstream from station for town of Ashland water supply has averaged less than 0.6 ft<sup>3</sup>/s. Capacity of the diversion pickup is about 1.5 ft<sup>3</sup>/s. Small diurnal fluctuation at low flow in some years caused by gristmills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--55 years, 367 ft<sup>3</sup>/s, 12.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,100 ft<sup>3</sup>/s, Aug. 23, 1969, gage height, 24.99 ft; minimum, 0.10 ft<sup>3</sup>/s, Sept. 12, 1966, caused by diversion upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 15, 1928, reached a stage of about 24 ft, discharge, about 14,500 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	2100	*8,720	*18.55	No other peak equal to or greater than base discharge.			

Minimum discharge, 28 ft<sup>3</sup>/s, Aug. 17, gage height, 1.39 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	119	631	209	624	298	292	92	104	39	71	176
2	292	113	385	230	1620	268	255	90	93	44	60	151
3	271	103	310	321	2060	252	236	103	87	50	53	135
4	189	99	274	745	1910	241	218	140	84	44	49	122
5	136	228	251	1070	814	236	203	231	107	40	44	114
6	109	373	532	890	580	229	188	163	300	37	42	101
7	94	231	690	761	487	219	177	126	406	33	40	91
8	88	164	534	546	409	213	176	105	250	31	37	84
9	82	136	370	417	332	221	174	92	173	32	73	78
10	81	122	303	337	295	218	169	83	134	48	57	73
11	79	126	270	298	287	212	167	77	464	69	50	69
12	76	142	252	276	694	214	165	73	224	74	45	65
13	75	139	236	258	1360	205	163	72	155	238	44	59
14	71	128	227	246	1560	202	165	136	138	1120	40	55
15	71	120	211	239	793	195	171	119	121	1110	34	51
16	72	111	206	220	550	186	176	85	94	633	30	55
17	71	105	196	213	442	184	175	84	84	327	28	56
18	72	103	192	220	383	182	165	100	78	212	341	53
19	73	151	189	230	348	172	161	128	75	151	6710	49
20	74	231	184	234	326	169	144	140	67	114	7460	54
21	73	284	186	230	304	166	138	103	61	90	7680	56
22	74	224	207	210	288	176	132	83	57	81	6430	56
23	91	178	224	198	280	241	132	80	52	66	3580	57
24	485	159	216	195	275	445	120	126	49	57	1030	56
25	416	148	197	210	271	567	114	362	46	55	467	56
26	262	141	182	228	297	392	119	641	42	63	1320	58
27	187	136	171	222	336	309	128	342	38	58	1090	216
28	153	183	166	231	349	263	126	209	36	62	536	166
29	137	1270	165	218	---	258	115	164	37	78	353	117
30	130	1280	166	191	---	355	103	142	35	119	261	109
31	119	---	181	215	---	393	---	120	---	85	208	---
TOTAL	4370	7047	8504	10308	18274	7881	4967	4611	3691	5260	38263	2638
MEAN	141	235	274	333	653	254	166	149	123	170	1234	87.9
MAX	485	1280	690	1070	2060	567	292	641	464	1120	7680	216
MIN	71	99	165	191	271	166	103	72	35	31	28	49
CFSM	.36	.60	.70	.85	1.66	.64	.42	.38	.31	.43	3.13	.22
IN.	.41	.67	.80	.97	1.73	.74	.47	.44	.35	.50	3.61	.25
CAL YR 1984	TOTAL	197702	MEAN	540	MAX	5120	MIN	50	CFSM	1.37	IN.	18.67
WTR YR 1985	TOTAL	115814	MEAN	317	MAX	7680	MIN	28	CFSM	.80	IN.	10.93

01673000 PAMUNKEY RIVER NEAR HANOVER, VA  
(National stream-quality accounting network station)

LOCATION.--Lat 37°46'03", long 77°19'57", Hanover County, Hydrologic Unit 02080106, on right bank 100 ft downstream from bridge on State Highway 614, 0.3 mi upstream from Mechumps Creek, 2.0 mi east of Hanover, and 7.0 mi upstream from Millpond Creek.

DRAINAGE AREA.--1,081 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1302: 1944(M). WSP 1382: 1949. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 14.72 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 15, 1976, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 20-26, Aug. 19, 20, 22-31, and Sept. 1-24. Records good except those for period with ice effect, Jan. 20-26, and periods of no gage-height record, Aug. 19, 20, 22-31 and Sept. 1-24, which are fair. Some regulation since January 1972 by Lake Anna, capacity, 373,000 acre-ft, and occasional diurnal fluctuation at low flow caused by mill upstream from station. Unknown amount of diversion for irrigation upstream from gage.

AVERAGE DISCHARGE.--44 years, 1,006 ft<sup>3</sup>/s, 12.64 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,300 ft<sup>3</sup>/s, Aug. 23, 1969, gage height, 31.12 ft, from flood-marks, from rating curve extended above 22,000 ft<sup>3</sup>/s; minimum, 12 ft<sup>3</sup>/s, Sept. 12, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1928 reached a stage of 32.6 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,100 ft<sup>3</sup>/s, Aug. 21, gage height, 22.84 ft; minimum, 103 ft<sup>3</sup>/s, Aug. 17-18, gage height, 2.58 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	281	311	3590	706	1140	862	1100	270	295	122	212	400
2	1030	306	1570	747	3270	770	804	249	249	124	172	350
3	1230	289	1110	1020	4570	734	607	250	227	124	156	315
4	810	279	1060	1920	5400	760	551	635	212	124	143	285
5	466	342	913	2670	5570	684	512	731	234	123	135	265
6	336	827	1120	2780	3580	775	482	486	570	119	133	240
7	278	747	2040	2400	1910	737	448	358	1020	119	125	228
8	245	554	1900	2020	1330	574	440	296	1250	114	125	212
9	225	445	1260	1670	961	537	440	252	775	107	140	200
10	210	375	919	1400	792	538	427	228	412	106	128	190
11	204	348	812	1030	728	526	421	217	550	115	130	181
12	196	359	752	808	1260	523	418	212	856	130	129	172
13	193	369	712	747	3570	572	414	201	920	142	126	163
14	189	357	683	720	4440	584	412	200	957	789	122	155
15	191	342	656	684	4310	505	424	257	795	1280	115	148
16	191	322	634	584	2240	474	522	276	333	1300	111	150
17	188	304	623	560	1580	463	599	312	238	643	106	151
18	185	294	610	566	1410	448	494	440	259	420	140	144
19	185	335	621	598	1130	440	421	481	238	298	825	139
20	184	895	719	680	829	429	399	331	191	241	8320	147
21	187	879	730	630	788	418	374	278	177	192	11900	146
22	189	699	758	605	790	420	396	224	164	169	11500	145
23	197	584	793	580	820	644	447	215	159	161	10200	144
24	643	516	715	570	928	1250	345	240	152	143	5300	142
25	1460	423	547	575	944	1590	316	675	142	130	1700	141
26	921	391	496	540	977	1460	306	1410	135	141	3000	139
27	611	378	470	511	1200	968	304	1110	128	145	3300	1150
28	464	382	457	522	958	682	306	601	127	145	1900	1420
29	391	2020	451	506	---	606	300	410	123	172	1200	453
30	362	4060	450	486	---	705	288	658	123	218	700	300
31	335	---	514	503	---	1240	---	448	---	220	475	---
TOTAL	12777	18732	28685	30338	57425	21918	13717	12951	12011	8376	62768	8415
MEAN	412	624	925	979	2051	707	457	418	400	270	2025	281
MAX	1460	4060	3590	2780	5570	1590	1100	1410	1250	1300	11900	1420
MIN	184	279	450	486	728	418	288	200	123	106	106	139
CFSM	.38	.58	.86	.91	1.90	.65	.42	.39	.37	.25	1.87	.26
IN.	.44	.64	.99	1.04	1.98	.75	.47	.45	.41	.29	2.16	.29
CAL YR 1984	TOTAL	598341	MEAN	1635	MAX	14500	MIN	149	CFSM	1.51	IN.	20.59
WTR YR 1985	TOTAL	288113	MEAN	789	MAX	11900	MIN	106	CFSM	.73	IN.	9.91

## YORK RIVER BASIN

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1968 to January 1976.

WATER TEMPERATURE: October 1945 to September 1946, April 1968 to January 1976.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT 17...	12:30	189	142	132	7.0	7.1	16.5	772	1.5	7.9	80	--
NOV 14...	09:00	358	100	94	6.7	7.0	6.5	763	5.3	11.6	94	48
DEC 12...	10:30	756	78	75	6.6	6.8	5.0	767	6.0	11.5	89	--
JAN 09...	11:00	1690	70	64	6.3	6.9	5.5	767	12	12.4	98	270
FEB 21...	08:45	770	78	79	7.1	6.9	4.0	770	7.0	12.4	94	24
MAR 12...	11:00	523	70	73	6.7	6.9	9.5	754	3.0	10.9	96	--
APR 16...	07:15	456	110	112	6.9	7.1	14.0	752	4.5	8.6	85	280
MAY 29...	09:00	406	100	100	6.6	6.8	21.0	751	5.3	7.0	80	--
JUN 13...	13:15	976	62	61	6.9	6.8	23.5	750	14	6.8	81	120
JUL 10...	10:30	105	220	217	7.0	7.1	25.0	750	1.1	6.3	78	--
AUG 21...	14:00	12100	39	38	6.1	6.3	23.0	754	20	5.6	66	230
SEP 23...	10:45	144	188	184	7.2	7.2	20.0	756	2.0	8.0	89	--

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 17...	--	--	--	--	--	--	--	27	--	--	--	--
NOV 14...	150	25	25	5.9	2.5	8.5	2.4	25	24	14	4.8	<0.1
DEC 12...	--	--	--	--	--	--	--	17	--	--	--	--
JAN 09...	290	17	17	3.6	2.0	4.5	1.8	12	15	10	3.8	<0.1
FEB 21...	33	20	20	4.7	2.1	6.1	1.6	16	18	13	4.7	<0.1
MAR 12...	--	--	--	--	--	--	--	21	--	--	--	--
APR 16...	29	26	26	6.2	2.5	10	2.1	25	23	19	5.2	0.2
MAY 29...	--	--	--	--	--	--	--	21	--	--	--	--
JUN 13...	100	18	18	3.8	2.1	3.9	1.9	15	15	8.4	3.6	<0.1
JUL 10...	--	--	--	--	--	--	--	39	--	--	--	--
AUG 21...	500	11	11	2.6	1.1	2.0	2.2	8.0	7	6.4	2.1	<0.1
SEP 23...	--	--	--	--	--	--	--	35	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

[illegible]



WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 17...	--	--	--	--	--	--	--	--	4.3	3	89
NOV 14...	<0.1	<10	1	<1	<1	37	<6	7	6.0	4	77
DEC 12...	--	--	--	--	--	--	--	--	--	11	92
JAN 09...	--	--	--	--	--	--	--	--	4.1	34	45
FEB 21...	<0.1	<10	1	<1	1	32	<6	23	3.4	11	92
MAR 12...	--	--	--	--	--	--	--	--	4.8	6	69
APR 16...	0.3	<10	1	<1	<1	40	<6	13	--	9	95
MAY 29...	--	--	--	--	--	--	--	--	6.8	15	85
JUN 13...	--	--	--	--	--	--	--	--	--	52	91
JUL 10...	--	--	--	--	--	--	--	--	9.1	2	--
AUG 21...	0.2	<10	<1	<1	<1	19	<6	36	13	20	96
SEP 23...	--	--	--	--	--	--	--	--	8.4	5	84

01673550 TOTOPOTOMOY CREEK NEAR STUDLEY, VA

LOCATION.--Lat 37°39'44" (corrected), long 77°15'29", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 606, 2.0 mi southeast of Studley, 2.4 mi downstream from Hawes millrace, and 4.1 mi upstream from mouth.

DRAINAGE AREA.--26.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 38.36 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 12, 16, 20-23 and Feb. 9, 10. Records good except those for period of no gage-height record, Jan. 20-22, and periods with ice effect, Jan. 12, 16, 23 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--8 years, 30.4 ft<sup>3</sup>/s, 15.76 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 802 ft<sup>3</sup>/s, Aug. 19, 1985, gage height, 8.22 ft; maximum gage height, 8.77 ft, Feb. 25, 1979; minimum daily discharge, 0.35 ft<sup>3</sup>/s, Oct. 1-7, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 160 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	1830	173	5.36	Sept. 28	0330	176	5.39
Aug. 19	1500	*802	*8.22				

Minimum daily discharge, 2.2 ft<sup>3</sup>/s, June 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	11	38	14	66	20	19	5.2	5.5	2.7	22	10
2	44	11	25	15	112	19	16	5.0	4.8	3.0	21	9.2
3	31	9.7	24	31	85	18	14	12	4.6	3.3	13	8.3
4	19	9.3	21	89	51	18	13	15	4.1	3.7	7.7	7.6
5	14	11	20	86	38	18	13	11	8.1	3.8	5.2	6.9
6	12	12	43	52	33	17	13	8.5	24	3.6	4.6	6.4
7	11	13	46	34	30	16	12	6.4	29	3.7	4.3	5.9
8	10	11	30	26	25	16	14	5.0	19	3.4	5.0	5.7
9	9.7	10	23	22	19	18	14	4.1	13	3.4	5.9	5.6
10	9.5	9.7	21	19	22	18	14	3.7	8.5	4.9	7.7	5.3
11	8.9	13	19	18	21	16	13	3.7	6.8	4.2	8.2	5.3
12	8.6	18	18	17	69	17	14	3.1	9.0	4.5	6.4	5.3
13	8.2	18	16	17	100	16	14	3.4	14	4.4	5.5	5.5
14	8.0	14	16	17	55	16	14	3.9	13	5.1	5.0	5.8
15	7.8	12	16	17	38	15	18	3.0	7.8	24	4.5	5.3
16	7.5	11	15	15	32	14	19	2.8	6.1	11	4.0	5.0
17	7.5	11	14	16	28	14	16	3.9	5.4	5.7	3.6	4.7
18	7.5	11	14	18	26	14	14	7.7	4.6	3.7	67	4.2
19	7.6	22	14	18	26	14	13	7.3	4.6	3.1	607	4.3
20	8.9	32	14	16	24	14	11	4.4	3.9	3.0	433	4.5
21	9.1	22	14	14	22	14	10	3.0	3.5	2.8	92	4.6
22	9.5	17	14	14	21	16	10	2.7	3.3	2.7	34	6.8
23	12	15	14	16	21	21	9.1	5.6	3.1	2.7	22	11
24	22	14	14	18	21	22	8.5	16	3.0	2.4	17	13
25	22	14	12	19	20	20	8.5	36	4.0	3.2	17	11
26	18	13	12	18	28	18	8.1	33	2.3	5.7	17	11
27	14	13	11	16	32	16	7.1	18	2.2	6.7	30	102
28	13	26	12	16	24	16	6.8	10	2.2	8.3	26	139
29	12	145	12	16	---	17	6.2	7.1	2.5	12	19	33
30	11	89	12	17	---	22	6.0	6.1	2.6	14	14	13
31	11	---	14	19	---	22	---	5.8	---	23	12	---
TOTAL	426.3	637.7	588	740	1089	532	368.3	262.4	224.5	187.7	1540.6	465.2
MEAN	13.8	21.3	19.0	23.9	38.9	17.2	12.3	8.46	7.48	6.05	49.7	15.5
MAX	44	145	46	89	112	22	19	36	29	24	607	139
MIN	7.5	9.3	11	14	19	14	6.0	2.7	2.2	2.4	3.6	4.2
CFSM	.53	.81	.73	.91	1.48	.66	.47	.32	.29	.23	1.90	.59
IN.	.61	.91	.83	1.05	1.55	.76	.52	.37	.32	.27	2.19	.66
CAL YR 1984	TOTAL	15950.3	MEAN	43.6	MAX	612	MIN	6.9	CFSM	1.66	IN.	22.65
WTR YR 1985	TOTAL	7061.7	MEAN	19.3	MAX	607	MIN	2.2	CFSM	.74	IN.	10.03

## YORK RIVER BASIN

01673800 PO RIVER NEAR SPOTSYLVANIA, VA

LOCATION.--Lat 38°10'17", long 77°35'42", Spotsylvania County, Hydrologic Unit 02080105, on right bank at upstream side of bridge on State Highway 208, 1.6 mi north of Snell, 2.0 mi south of Spotsylvania, 4.8 mi downstream from Gladys Run, and 4.9 mi upstream from U.S. Highway 1.

DRAINAGE AREA.--77.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 183.76 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1964, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 20-24, 28-30. Records good except those for period of no gage-height record, Jan. 21-24, and periods with ice effect, Jan. 20, 28-30, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--23 years, 76.6 ft<sup>3</sup>/s, 13.44 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,900 ft<sup>3</sup>/s, June 22, 1972, gage height, 19.03 ft, from rating curve extended above 3,400 ft<sup>3</sup>/s; minimum daily, 0.10 ft<sup>3</sup>/s, Oct. 24-29, 1963, Sept. 6-13, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 13	1430	*920	*7.50	No other peak equal to or greater than base discharge.			

Minimum discharge, 0.69 ft<sup>3</sup>/s, Sept. 20, 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	20	113	46	139	67	47	18	25	4.2	5.5	9.0
2	99	18	79	47	600	61	45	16	25	4.5	5.0	7.2
3	47	16	63	71	671	57	38	52	19	4.6	4.8	5.9
4	24	15	57	225	206	53	40	95	14	5.2	4.4	5.1
5	17	162	51	241	129	57	40	47	21	6.2	3.7	4.4
6	14	114	148	219	107	57	39	29	361	5.2	3.2	3.7
7	14	47	178	149	98	51	36	24	440	4.6	3.1	3.2
8	12	30	104	109	85	49	35	20	115	3.9	4.2	2.9
9	11	24	79	85	79	51	36	17	81	3.5	3.7	2.7
10	14	22	65	67	68	50	33	15	49	3.3	2.9	2.5
11	12	24	57	61	60	48	33	14	34	3.6	2.7	2.2
12	10	28	52	58	317	54	35	13	103	5.2	2.5	1.8
13	10	27	47	53	775	60	35	20	134	21	2.3	1.4
14	13	22	44	51	240	45	33	24	50	23	2.1	1.2
15	11	21	42	51	139	56	37	20	32	19	1.8	1.3
16	12	19	39	47	110	49	46	15	26	12	1.6	1.1
17	12	21	39	42	95	46	42	18	24	7.7	1.5	.99
18	13	47	39	46	85	45	35	20	21	5.4	95	.97
19	13	70	37	48	78	43	31	18	19	4.0	343	.90
20	11	108	37	46	73	42	30	14	17	3.1	121	.84
21	13	63	36	35	67	41	29	11	16	2.7	66	.82
22	13	41	42	32	63	46	27	9.7	15	2.4	65	.81
23	18	33	43	35	62	74	26	11	14	8.1	34	.87
24	39	30	37	39	62	121	25	20	12	4.2	22	1.1
25	28	29	34	41	61	105	28	51	9.6	3.3	19	.85
26	23	27	33	45	79	83	28	50	7.8	5.2	18	1.1
27	20	26	31	37	98	66	25	29	6.1	5.1	16	18
28	18	58	31	35	83	57	22	20	5.1	6.5	14	9.2
29	26	376	32	34	---	53	21	16	4.5	9.1	11	7.1
30	29	311	32	34	---	47	20	19	4.3	7.8	8.2	6.3
31	24	---	37	37	---	49	---	24	---	5.9	9.5	---
TOTAL	687	1849	1758	2166	4729	1783	997	769.7	1704.4	209.5	896.7	105.45
MEAN	22.2	61.6	56.7	69.9	169	57.5	33.2	24.8	56.8	6.76	28.9	3.51
MAX	99	376	178	241	775	121	47	95	440	23	343	18
MIN	10	15	31	32	60	41	20	9.7	4.3	2.4	1.5	.81
CFSM	.29	.80	.73	.90	2.18	.74	.43	.32	.73	.09	.37	.05
IN.	.33	.89	.84	1.04	2.27	.86	.48	.37	.82	.10	.43	.05
CAL YR 1984	TOTAL	45057.7	MEAN	123	MAX	2770	MIN	6.0	CFSM	1.59	IN.	21.66
WTR YR 1985	TOTAL	17654.75	MEAN	48.4	MAX	775	MIN	.81	CFSM	.63	IN.	8.49

## 01674000 MATTAPONI RIVER NEAR BOWLING GREEN, VA

LOCATION.--Lat 38°03'42", long 77°23'10", Caroline County, Hydrologic Unit 02080105, on right bank 0.1 mi upstream from bridge on State Highway 605, 2.2 mi northwest of Bowling Green, 2.4 mi upstream from South River, and 7.1 mi downstream from confluence of Matta and Poni Rivers.

DRAINAGE AREA.--257 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1382: 1943, 1945(M), 1948(M), 1949, 1953(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 85.14 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1978, gage located on left bank at same datum.

REMARKS.--Estimated daily discharges: Jan. 16, 17, 21-24 and Feb. 5, 6. Records good except those for period of no gage-height record, Feb. 5, 6, and periods with ice effect, Jan. 16, 17, 21-24, which are fair. Some diurnal fluctuation from gristmill upstream on Po River. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--43 years, 240 ft<sup>3</sup>/s, 12.68 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft<sup>3</sup>/s, June 23, 1972, gage height, 18.95 ft, from high-water mark in well, from rating curve extended above 8,100 ft<sup>3</sup>/s; no flow at times in September and October 1954 and September 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1928 reached a stage of 19.5 ft based on relative difference in stage between this flood and flood of Oct. 17, 1942, at Milford 4 mi downstream, discharge, 15,000 ft<sup>3</sup>/s, from rating curve extended above 8,100 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 4	1700	*1,680	*9.24	No peak equal to or greater than base discharge.			

Minimum discharge, 3.9 ft<sup>3</sup>/s, Aug. 17-18, gage height, 1.44 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	73	712	139	215	248	176	50	60	14	14	64
2	240	65	623	151	458	222	163	45	56	14	13	50
3	226	56	367	184	840	202	152	51	51	13	11	41
4	170	48	262	308	1590	187	143	95	43	13	8.9	34
5	110	126	221	451	1130	180	138	140	40	13	7.8	28
6	76	254	271	600	672	172	133	112	148	15	7.2	24
7	58	293	364	622	478	163	128	78	316	12	6.6	20
8	49	224	419	530	380	160	125	62	461	9.9	8.8	17
9	45	153	382	399	288	162	121	51	511	9.6	8.8	16
10	38	123	291	300	259	160	114	43	265	9.0	7.2	15
11	38	115	240	248	248	154	109	38	226	8.5	7.3	14
12	40	129	211	220	340	156	109	36	245	12	6.8	13
13	36	120	191	203	577	157	110	35	169	16	5.9	11
14	34	108	177	195	1260	155	108	42	204	22	5.5	9.3
15	33	97	165	186	1310	143	110	51	144	37	5.0	8.3
16	39	90	157	154	750	140	121	47	98	26	4.4	7.6
17	34	82	150	160	481	134	129	43	81	23	4.0	7.5
18	37	79	147	164	365	129	120	47	70	18	22	7.1
19	37	145	143	170	307	123	106	49	59	13	551	6.8
20	34	226	140	170	272	120	98	45	50	11	866	6.4
21	35	239	138	120	245	117	95	36	43	8.6	1210	6.3
22	31	210	144	120	229	121	93	29	42	7.1	638	6.4
23	41	165	145	130	217	177	85	30	35	8.4	268	7.7
24	76	141	141	138	212	257	80	39	33	8.2	148	9.3
25	114	128	134	159	215	297	75	80	37	11	134	8.2
26	102	119	129	166	224	287	74	113	31	12	461	8.2
27	92	112	121	156	268	237	72	105	22	12	594	117
28	77	118	116	151	272	202	67	73	19	12	291	198
29	73	294	116	145	---	183	61	56	17	12	128	108
30	85	473	116	142	---	193	53	46	15	14	87	65
31	82	---	123	145	---	188	---	46	---	15	71	---
TOTAL	2310	4605	7056	7126	14102	5526	3268	1813	3591	429.3	5601.2	934.1
MEAN	74.5	154	228	230	504	178	109	58.5	120	13.8	181	31.1
MAX	240	473	712	622	1590	297	176	140	511	37	1210	198
MIN	31	48	116	120	212	117	53	29	15	7.1	4.0	6.3
CFSM	.29	.60	.89	.89	1.96	.69	.42	.23	.47	.05	.70	.12
IN.	.33	.67	1.02	1.03	2.04	.80	.47	.26	.52	.06	.81	.14

CAL YR 1984	TOTAL	135880	MEAN	371	MAX	7170	MIN	14	CFSM	1.44	IN.	19.67
WTR YR 1985	TOTAL	56361.6	MEAN	154	MAX	1590	MIN	4.0	CFSM	.60	IN.	8.16



## YORK RIVER BASIN

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA  
(National stream-quality accounting network station)

LOCATION.--Lat 37°53'16", long 77°09'48", King and Queen County, Hydrologic Unit 02080105, on left bank 0.4 mi upstream from bridge on State Highway 628, 2.4 mi north of Beulahville, and 2.7 mi downstream from Maracoss Creek.

DRAINAGE AREA.--601 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1941 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 12.43 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation). Prior to Oct. 14, 1942, nonrecording gage, and Oct. 14, 1942, to Aug. 8, 1974, water-stage recorder at site 80 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation at times during low flow caused by gristmill on Po River.

AVERAGE DISCHARGE.--44 years, 593 ft<sup>3</sup>/s, 13.40 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft<sup>3</sup>/s, June 25, 1972, gage height, 23.97 ft, from flood-marks; maximum gage height, 24.04 ft, Aug. 23, 1969; minimum discharge, 5.9 ft<sup>3</sup>/s, Sept. 14, 1966, gage height, 0.94 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,010 ft<sup>3</sup>/s, Feb. 8, gage height, 12.18 ft; minimum, 26 ft<sup>3</sup>/s, Aug. 16, gage height, 2.04 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	271	269	1010	360	516	627	476	156	152	51	143	250
2	456	257	1080	398	830	585	442	149	147	54	118	220
3	609	238	1120	506	1100	537	414	169	138	55	97	187
4	516	224	1090	723	1300	498	384	209	124	48	75	161
5	395	225	754	913	1420	472	366	221	129	42	60	137
6	306	277	691	1000	1590	451	349	244	352	38	48	116
7	246	429	800	1050	1880	434	338	243	544	38	41	103
8	208	470	878	1080	1980	414	336	202	694	38	40	93
9	185	439	873	1100	1660	430	328	164	673	36	69	83
10	171	355	828	981	906	444	316	138	677	34	69	74
11	167	309	730	737	660	433	304	132	608	30	61	68
12	163	315	621	609	777	426	300	124	393	28	50	63
13	154	330	550	548	1100	420	295	115	417	65	42	59
14	154	314	498	507	1320	421	288	107	350	126	37	56
15	153	284	463	485	1450	397	294	96	286	169	32	52
16	151	266	433	456	1590	374	316	98	276	173	28	48
17	149	248	409	428	1780	360	331	113	220	130	28	43
18	153	238	400	423	1880	351	328	135	179	92	35	40
19	153	300	395	441	1560	342	315	130	154	69	300	37
20	154	443	384	451	938	330	291	117	132	57	775	36
21	157	559	380	423	698	320	270	107	113	48	1160	37
22	158	526	389	474	621	328	262	108	98	40	1510	36
23	182	463	395	509	579	412	250	111	87	34	1830	42
24	362	393	393	472	554	542	240	150	81	33	1840	49
25	523	346	378	422	536	659	222	302	74	32	1060	50
26	485	320	356	422	549	704	214	389	67	45	539	52
27	385	299	340	424	599	667	200	334	65	56	817	282
28	327	300	333	424	631	585	192	266	65	68	1080	679
29	297	591	329	403	---	497	184	213	57	83	1240	886
30	288	859	328	389	---	470	171	173	53	182	879	550
31	276	---	342	383	---	473	---	154	---	167	326	---
TOTAL	8354	10886	17970	17941	31004	14403	9016	5369	7405	2161	14429	4589
MEAN	269	363	580	579	1107	465	301	173	247	69.7	465	153
MAX	609	859	1120	1100	1980	704	476	389	694	182	1840	886
MIN	149	224	328	360	516	320	171	96	53	28	28	36
CFSM	.45	.60	.97	.96	1.84	.77	.50	.29	.41	.12	.77	.25
IN.	.52	.67	1.11	1.11	1.92	.89	.56	.33	.46	.13	.89	.28
CAL YR 1984	TOTAL	349849	MEAN	956	MAX	9810	MIN	85	CFSM	1.59	IN.	21.65
WTR YR 1985	TOTAL	143527	MEAN	393	MAX	1980	MIN	28	CFSM	.65	IN.	8.88

## YORK RIVER BASIN

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01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968, 1969, 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT												
17...	09:30	146	49	48	6.6	6.6	16.5	772	2.0	7.8	79	--
NOV												
14...	11:15	316	48	48	6.5	6.5	7.5	763	5.6	10.9	91	92
DEC												
12...	09:00	591	47	45	6.6	6.5	5.0	767	5.0	11.7	91	--
JAN												
09...	09:30	1100	58	44	6.3	6.4	3.0	767	10	12.3	91	730
FEB												
21...	11:30	698	46	46	6.6	6.3	4.5	769	3.5	12.8	98	34
MAR												
12...	09:15	427	50	50	6.5	6.9	9.0	754	3.0	10.7	94	--
APR												
16...	13:00	320	48	49	6.9	6.7	15.0	751	4.0	9.6	97	80
MAY												
29...	14:15	209	52	63	6.5	6.5	20.0	754	4.1	7.5	83	--
JUN												
13...	09:00	427	52	52	6.8	6.5	21.5	750	5.0	7.0	81	84
JUL												
10...	13:00	34	56	58	6.6	7.1	25.0	751	2.1	6.9	85	--
AUG												
21...	10:00	1140	45	45	5.7	5.9	22.5	755	3.7	6.2	72	380
SEP												
23...	14:00	43	58	62	6.7	7.5	20.0	755	3.5	8.8	98	--

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS NONCAR- BONATE (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CAC03)	ALKA- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT												
17...	--	--	--	--	--	--	--	9.0	--	--	--	--
NOV												
14...	110	12	12	2.5	1.4	3.6	1.9	10	8	5.0	5.8	<0.1
DEC												
12...	--	--	--	--	--	--	--	7.0	--	--	--	--
JAN												
09...	750	11	11	2.3	1.2	3.2	1.3	6.0	5	7.4	4.5	<0.1
FEB												
21...	24	11	11	2.4	1.2	3.2	1.3	6.0	7	7.5	4.8	<0.1
MAR												
12...	--	--	--	--	--	--	--	9.0	--	--	--	--
APR												
16...	38	13	13	2.8	1.5	3.5	1.4	12	11	4.1	5.0	0.2
MAY												
29...	--	--	--	--	--	--	--	13	--	--	--	--
JUN												
13...	210	16	16	3.6	1.7	3.2	1.4	11	13	7.3	4.2	<0.1
JUL												
10...	--	--	--	--	--	--	--	18	--	--	--	--
AUG												
21...	840	11	11	2.6	1.2	2.8	1.8	4.0	4	8.3	4.0	<0.1
SEP												
23...	--	--	--	--	--	--	--	15	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

[illegible]

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 17...	--	--	--	--	--	--	--	--	4.6	4	91
NOV 14...	<0.1	<10	3	<1	<1	19	<6	5	6.2	4	69
DEC 12...	--	--	--	--	--	--	--	--	7.7	10	68
JAN 09...	--	--	--	--	--	--	--	--	5.6	18	72
FEB 21...	<0.1	<10	<1	<1	<1	18	<6	17	4.5	7	82
MAR 12...	--	--	--	--	--	--	--	--	--	8	76
APR 16...	<0.1	<10	1	<1	<1	22	<6	3	--	6	94
MAY 29...	--	--	--	--	--	--	--	--	6.7	4	72
JUN 13...	--	--	--	--	--	--	--	--	--	10	88
JUL 10...	--	--	--	--	--	--	--	--	9.2	2	100
AUG 21...	0.2	<10	<1	<1	<1	21	<6	64	17	25	82
SEP 23...	--	--	--	--	--	--	--	--	10	5	75



## YORK RIVER BASIN

01677000 WARE CREEK NEAR TOANO, VA

LOCATION.--Lat 37°26'17", long 76°47'12", New Kent County, Hydrologic Unit 02080107, on left bank at upstream side of bridge on State Highway 600, 0.8 mi upstream from France Swamp, and 4.9 mi north of Toano.

DRAINAGE AREA.--6.29 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1979 to October 1981, March 1982 to current year.

REVISED RECORDS.--WDR VA-83-1: 1981.

GAGE.--Water-stage recorder. Elevation of gage is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 11 to Jan. 4, Jan. 7-30, Feb. 5-10, 15-23, Apr. 7, May 16, 17, May 29 to June 4, June 7, 9-11, 14-25, and Aug. 24 to Sept. 30. Records poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--5 years, 6.39 ft<sup>3</sup>/s, 13.80 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 260 ft<sup>3</sup>/s, Sept. 27, 1985, gage height, 2.60 ft, from floodmark, from rating curve extended above 120 ft<sup>3</sup>/s; no flow at times September 1980 and July to September 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 260 ft<sup>3</sup>/s, Sept. 27, gage height, 2.60 ft, from floodmark, from rating curve extended above 120 ft<sup>3</sup>/s; minimum, 0.45 ft<sup>3</sup>/s, Aug. 16, gage height, 0.62 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	3.3	5.8	7.6	26	3.8	4.4	3.0	1.2	3.1	5.1	2.7
2	7.6	3.3	4.4	14	22	4.3	3.6	3.0	1.1	2.6	4.1	2.5
3	5.6	3.0	12	30	14	4.0	3.3	6.8	1.0	2.4	2.2	2.2
4	4.6	3.1	11	27	11	3.7	3.5	6.4	15	2.1	2.0	1.8
5	4.0	5.0	6.7	16	6.1	3.8	3.5	4.3	32	2.0	3.0	1.5
6	4.1	5.4	13	12	6.6	3.5	3.2	3.5	46	2.0	4.2	1.3
7	4.0	4.1	9.9	8.0	6.1	3.3	1.1	3.1	18	2.2	4.9	1.2
8	3.9	3.4	6.1	5.8	5.2	3.6	1.7	2.6	7.8	2.0	2.5	1.1
9	3.9	3.3	5.1	3.9	4.5	4.5	3.1	2.5	4.0	1.8	2.0	1.0
10	3.9	3.3	4.8	3.6	4.4	3.7	3.5	2.5	3.0	5.2	2.0	.99
11	3.9	4.0	4.3	3.9	8.5	3.8	3.9	2.8	4.5	3.7	1.6	.98
12	3.9	5.1	4.2	3.6	22	4.6	4.2	2.8	11	2.5	1.4	.97
13	3.9	4.2	4.1	3.5	16	3.7	4.1	2.6	19	2.1	1.2	.95
14	3.9	3.7	4.0	3.4	11	3.6	4.0	2.6	8.0	1.6	1.0	.94
15	3.9	3.6	4.0	3.9	7.3	3.7	5.2	2.4	3.0	1.5	.75	.93
16	3.9	4.0	3.9	3.7	6.0	3.3	4.8	2.3	3.2	1.4	.60	.92
17	3.9	4.0	3.8	4.1	5.0	3.6	4.2	3.6	3.0	1.3	.87	.90
18	4.0	3.9	3.7	5.6	4.4	3.6	3.7	3.9	2.7	1.3	4.4	.89
19	4.3	13	3.6	7.9	4.3	3.2	3.2	3.0	5.7	1.3	95	.88
20	4.7	12	3.5	7.5	4.4	3.1	2.9	4.0	5.4	1.3	16	.85
21	4.9	6.0	3.4	7.2	5.1	3.3	2.9	8.4	3.5	1.2	11	.82
22	4.7	4.5	3.9	2.8	5.1	4.7	3.2	20	2.5	1.7	7.2	5.0
23	5.0	4.2	3.6	2.9	5.0	9.5	3.1	9.1	2.2	7.3	4.3	5.8
24	10	4.3	3.3	3.1	4.0	8.6	3.2	9.3	2.8	5.3	5.0	4.2
25	6.5	4.5	3.5	4.0	4.0	7.7	3.4	14	2.3	3.5	9.8	10
26	4.4	4.2	3.4	4.1	8.4	5.5	3.5	7.1	2.0	6.6	7.5	35
27	3.7	4.4	3.3	3.6	7.4	4.2	3.2	4.2	1.3	5.3	6.0	150
28	3.6	6.4	3.3	3.8	4.5	3.9	3.2	3.9	1.1	4.8	4.9	40
29	3.6	19	3.2	4.0	---	4.5	3.0	4.4	1.4	3.7	4.1	24
30	3.5	9.7	3.2	3.8	---	8.6	2.9	2.5	3.6	2.7	3.5	15
31	3.3	---	4.5	14	---	7.9	---	1.3	---	2.5	3.0	---
TOTAL	142.3	161.9	156.5	228.3	238.3	142.8	102.7	151.9	217.3	88.0	221.12	315.32
MEAN	4.59	5.40	5.05	7.36	8.51	4.61	3.42	4.90	7.24	2.84	7.13	10.5
MAX	10	19	13	30	26	9.5	5.2	20	46	7.3	95	150
MIN	3.3	3.0	3.2	2.8	4.0	3.1	1.1	1.3	1.0	1.2	.60	.82
CFSM	.73	.86	.80	1.17	1.35	.73	.54	.78	1.15	.45	1.13	1.67
IN.	.84	.96	.93	1.35	1.41	.84	.61	.90	1.29	.52	1.31	1.86
CAL YR 1984	TOTAL	3164.8	MEAN	8.65	MAX	71	MIN	3.0	CFSM	1.38	IN.	18.72
WTR YR 1985	TOTAL	2166.44	MEAN	5.94	MAX	150	MIN	.60	CFSM	.94	IN.	12.81

## JAMES RIVER BASIN

02011400 JACKSON RIVER NEAR BACOVA, VA

LOCATION.--Lat 38°02'32", long 79°52'54", Bath County, Hydrologic Unit 02080201, on left bank 0.1 mi downstream from ford, 1.8 mi upstream from Back Creek, and 2.2 mi southwest of Bacova.

DRAINAGE AREA.--158 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,639.20 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 17, 22-31. Records good except those for periods with ice effect, Jan. 17, 22-31, which are fair. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--11 years, 172 ft<sup>3</sup>/s, 14.78 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,970 ft<sup>3</sup>/s, Apr. 5, 1977, gage height, 13.39 ft, from rating curve extended above 1,300 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 8.88 ft, 11.40 ft, and 13.88 ft; minimum, 17 ft<sup>3</sup>/s, Sept. 29, 30, Oct. 1, 14, 15, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 11.40 ft, discharge, 4,800 ft<sup>3</sup>/s, and flood of Dec. 26, 1973, reached a stage of 13.88 ft, discharge, 7,560 ft<sup>3</sup>/s, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	1745	*1,500	*7.33	No other peak equal to or greater than base discharge.			

Minimum discharge, 25 ft<sup>3</sup>/s, part or all of each day Sept. 25-30; minimum gage height, 3.06 ft, Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	63	352	229	243	427	205	75	118	47	70	45
2	87	59	263	393	513	353	188	78	105	50	104	43
3	61	55	222	452	322	290	182	835	98	46	76	41
4	52	58	187	676	237	250	171	626	91	44	59	39
5	47	144	164	584	199	228	157	403	89	42	50	37
6	45	126	171	438	186	193	195	308	85	41	45	36
7	43	101	147	374	165	170	175	251	102	43	44	35
8	42	87	132	319	135	163	165	207	128	39	53	34
9	43	79	126	260	120	167	160	175	112	38	64	42
10	42	73	126	222	113	147	150	152	95	41	49	37
11	40	92	134	202	114	161	143	144	86	48	42	35
12	39	95	139	179	325	346	136	133	86	47	39	33
13	39	83	136	160	222	325	127	220	82	56	40	32
14	38	76	126	151	154	283	122	167	76	54	36	30
15	38	72	118	142	132	244	121	141	71	45	34	29
16	44	69	113	121	115	209	140	128	70	40	33	29
17	46	65	108	110	109	194	131	124	69	37	33	29
18	44	65	105	118	102	178	116	116	70	35	172	28
19	41	195	116	116	103	158	110	110	63	33	144	28
20	40	221	149	95	122	147	107	96	59	32	84	27
21	39	165	235	82	133	136	104	88	56	32	71	27
22	39	137	397	120	168	134	101	92	53	31	64	27
23	48	120	349	110	275	184	99	124	51	31	54	27
24	67	110	300	100	678	221	98	459	49	29	52	27
25	59	99	507	90	969	209	102	469	47	35	71	26
26	53	91	408	80	1070	188	93	323	45	82	85	26
27	49	83	339	70	786	177	88	246	44	72	77	26
28	49	657	288	75	555	171	88	198	44	48	67	26
29	95	852	246	68	---	175	85	168	43	40	58	25
30	89	476	214	65	---	204	79	144	42	38	52	25
31	72	---	236	75	---	186	---	131	---	85	49	---
TOTAL	1636	4668	6653	6276	8365	6618	3938	6931	2229	1381	1971	951
MEAN	52.8	156	215	202	299	213	131	224	74.3	44.5	63.6	31.7
MAX	106	852	507	676	1070	427	205	835	128	85	172	45
MIN	38	55	105	65	102	134	79	75	42	29	33	25
CFSM	.33	.99	1.36	1.28	1.89	1.35	.83	1.42	.47	.28	.40	.20
IN.	.39	1.10	1.57	1.48	1.97	1.56	.93	1.63	.52	.33	.46	.22
CAL YR 1984	TOTAL	80958	MEAN	221	MAX	3690	MIN	37	CFSM	1.40	IN.	19.06
WTR YR 1985	TOTAL	51617	MEAN	141	MAX	1070	MIN	25	CFSM	.89	IN.	12.15

## JAMES RIVER BASIN

02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: March 1978 to September 1981, October 1982 to current year.

INSTRUMENTATION.--Water-temperature recorder March 1978 to September 1981, and since October 1982.

REMARKS.--Some record in prior years fragmentary due to instrument malfunction.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded (water years 1978-81, 1983-85), 29.5°C, July 21, 1980; minimum recorded (water years 1978-81, 1984-85), 0.0°C on many days during winter periods.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 27.5°C, July 30, Aug. 13-15; minimum, 0.0°C on several days during winter period.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.0	12.0	12.5	15.0	14.5	14.5	8.0	5.0	6.5	10.5	8.0	9.0
2	13.0	12.0	12.5	14.5	14.0	14.0	7.0	5.0	5.5	10.5	9.0	10.0
3	13.0	12.5	13.0	13.5	12.5	12.5	7.5	6.0	6.5	9.0	6.0	7.5
4	14.5	11.0	13.0	12.5	11.5	12.0	5.5	4.0	4.5	7.0	6.0	6.5
5	15.5	13.5	14.0	11.5	11.5	11.5	4.0	3.0	3.5	6.0	5.0	5.5
6	15.5	14.0	14.5	11.5	10.5	11.0	4.0	2.0	3.0	5.5	4.0	4.5
7	15.5	14.5	15.0	10.5	9.5	10.0	2.0	.0	1.0	5.5	4.5	5.0
8	15.5	14.5	14.5	10.0	9.0	9.5	2.0	.0	1.0	4.5	3.5	4.0
9	16.0	14.5	15.0	10.0	9.0	9.5	3.5	.5	2.0	3.5	2.0	3.0
10	17.0	15.0	16.0	10.5	9.5	9.5	4.5	2.5	3.0	3.5	2.5	3.0
11	16.5	15.0	15.5	10.5	10.0	10.0	7.0	4.0	5.5	3.0	2.0	2.5
12	15.5	15.0	15.5	10.0	9.0	9.5	6.0	4.0	5.0	2.0	.0	1.5
13	15.5	15.0	15.0	9.0	8.0	8.5	8.0	5.0	6.5	2.5	.0	1.0
14	15.0	14.5	15.0	8.0	4.5	6.5	8.5	5.0	7.5	3.0	.5	1.5
15	15.0	14.5	14.5	7.0	3.5	5.0	10.5	7.5	9.0	1.5	.0	1.0
16	15.0	14.5	14.5	9.5	5.5	7.5	10.5	8.0	9.0	1.0	.0	.5
17	15.5	15.0	15.0	8.0	4.5	6.5	10.5	8.5	9.5	1.0	.0	.5
18	16.0	15.5	15.5	7.5	4.0	5.5	10.0	8.5	9.5	1.5	1.0	1.5
19	16.0	16.0	16.0	7.0	5.0	6.0	10.5	9.5	10.0	2.5	1.5	2.0
20	16.0	16.0	16.0	7.0	5.0	6.0	10.0	8.5	9.0	2.0	.0	1.0
21	16.5	16.0	16.0	6.5	6.0	6.0	8.0	7.5	8.0	.5	.0	.0
22	16.5	16.5	16.5	6.0	5.5	5.5	9.5	7.5	8.5	.0	.0	.0
23	16.5	16.5	16.5	5.5	5.0	5.5	7.0	5.0	6.0	1.0	.0	.0
24	16.5	16.0	16.5	6.0	5.0	5.5	5.0	3.5	4.5	.5	.0	.0
25	16.5	16.0	16.0	6.0	5.5	5.5	6.5	4.5	5.5	.0	.0	.0
26	16.5	16.0	16.5	6.0	5.5	6.0	4.5	3.0	4.0	.5	.0	.0
27	17.0	16.0	16.5	7.0	6.0	6.5	5.5	4.5	5.0	2.0	.0	.5
28	16.5	16.0	16.0	9.0	5.0	7.5	8.0	5.0	6.5	4.0	1.0	2.0
29	16.5	16.5	16.5	7.5	5.0	6.5	10.0	7.0	8.5	3.5	2.5	3.0
30	16.5	15.0	15.5	6.5	4.5	5.5	10.0	8.5	9.5	3.5	2.0	2.5
31	15.5	14.5	15.0	---	---	---	9.5	8.5	9.0	3.0	2.5	2.5
MONTH	17.0	11.0	15.0	15.0	3.5	8.0	10.5	.0	6.0	10.5	.0	2.5

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.0	.5	1.5	6.0	4.0	5.5	13.0	9.0	10.5	19.5	14.0	17.0
2	3.5	.5	2.0	8.0	5.5	6.5	10.5	7.5	9.0	18.0	15.5	16.5
3	3.5	3.0	3.5	8.5	5.5	7.0	9.0	6.0	7.5	15.5	11.5	13.0
4	3.5	3.5	3.5	7.5	7.0	7.0	12.5	6.5	9.5	13.0	10.0	12.0
5	4.0	3.0	3.5	10.5	7.0	8.5	15.5	10.0	12.5	14.0	11.0	12.5
6	4.0	3.5	4.0	8.5	5.5	6.5	13.5	10.0	12.0	15.0	12.5	14.0
7	4.0	3.0	3.5	8.0	4.0	6.0	10.0	7.0	8.5	17.5	14.0	15.5
8	4.0	2.5	3.5	7.5	6.0	6.5	9.5	6.0	7.5	17.0	13.5	15.0
9	3.5	1.5	3.0	10.5	6.5	8.0	7.5	5.0	6.5	18.5	12.5	15.0
10	3.5	1.5	2.5	10.5	5.5	8.0	9.5	3.0	6.5	19.5	14.5	16.5
11	3.5	2.0	3.0	7.5	6.0	6.5	9.0	6.5	7.5	19.0	15.0	17.0
12	3.5	1.5	2.5	9.0	6.5	7.0	14.0	7.0	10.5	21.0	16.0	18.5
13	3.5	3.0	3.0	8.5	5.5	7.0	13.5	10.0	12.0	20.0	17.0	18.5
14	3.5	1.0	3.0	8.5	7.0	8.0	13.0	11.5	12.5	21.0	17.0	19.0
15	3.5	2.0	3.0	9.5	6.0	7.5	14.5	12.0	13.0	20.0	17.5	19.0
16	3.5	1.0	3.0	9.0	4.5	6.5	16.5	12.5	14.5	21.0	17.5	19.0
17	4.0	3.0	3.5	9.5	6.0	7.0	17.0	11.5	14.5	18.5	16.0	17.0
18	4.0	3.0	3.5	8.0	4.5	6.0	18.5	11.0	14.5	18.0	13.5	15.5
19	4.5	4.0	4.0	8.5	3.0	5.5	19.0	13.0	16.5	19.0	13.0	15.5
20	5.0	4.0	4.5	9.5	4.5	7.0	19.5	14.0	17.0	20.0	13.5	17.0
21	5.0	4.0	4.5	8.0	6.5	7.0	20.0	14.0	17.5	19.5	16.5	18.0
22	5.5	4.5	5.0	6.5	5.0	5.5	18.5	13.5	16.5	18.5	16.5	17.5
23	6.0	5.0	5.5	8.0	5.0	6.5	21.0	14.5	17.5	18.0	16.0	17.0
24	8.5	4.5	6.5	11.0	7.5	9.0	19.0	15.5	17.5	15.5	13.0	14.0
25	8.0	6.5	7.5	8.5	7.0	7.5	19.5	15.5	17.5	16.0	12.5	14.0
26	8.0	6.5	7.0	10.5	5.0	7.5	20.0	13.5	16.5	17.5	13.5	15.5
27	8.0	6.5	7.0	12.0	6.0	9.0	17.5	14.0	16.0	18.0	14.5	16.0
28	6.5	4.5	5.5	14.0	9.5	11.5	19.0	15.5	17.0	17.5	16.0	16.5
29	---	---	---	15.5	12.0	14.0	20.5	14.0	17.0	19.5	15.5	17.0
30	---	---	---	15.5	13.0	14.0	20.5	13.5	17.0	17.5	16.0	16.5
31	---	---	---	13.5	10.5	12.0	---	---	---	19.5	15.0	17.0
MONTH	8.5	.5	4.0	15.5	3.0	8.0	21.0	3.0	13.0	21.0	10.0	16.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	23.0	17.0	20.0	20.5	18.0	19.0	23.5	20.5	22.0	21.0	18.0	19.5
2	20.0	17.5	19.0	20.5	17.5	19.0	22.5	19.0	20.5	23.0	18.5	20.5
3	21.0	16.5	19.0	21.5	18.0	19.5	22.5	17.5	20.0	23.5	19.5	21.5



## JAMES RIVER BASIN

02011460 BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°14'43", long 79°46'08", Bath County, Hydrologic Unit 02080201, on right bank 900 ft upstream from bridge on State Highway 600, 0.8 mi upstream from Gap Run, and 4.8 mi northeast of Sunrise.

DRAINAGE AREA.--60.1 mi<sup>2</sup>, revised.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,200.02 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation).

REMARKS.--Estimated daily discharges: Jan. 16, 21-30, Feb. 9, 10, and Apr. 21-26. Records fair except those for period of no gage-height record, Apr. 21-26, and periods with ice effect, Jan. 16, 21-30 and Feb. 9, 10, which are poor.

AVERAGE DISCHARGE.--11 years, 93.9 ft<sup>3</sup>/s, 21.22 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,400 ft<sup>3</sup>/s, Jan. 26, 1978, gage height, 6.80 ft; minimum, 1.5 ft<sup>3</sup>/s, Sept. 13, 14, 1980; minimum gage height, 0.07 ft, July 21, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	2200	902	3.64	May 3	0645	*2,130	*5.05
Feb. 24	2215	1,060	3.90	May 24	0815	874	3.59

Minimum discharge, 3.5 ft<sup>3</sup>/s, Sept. 25-30, gage height, 0.27 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	26	157	92	98	205	131	32	55	12	32	14
2	36	23	109	152	234	167	120	39	45	14	64	13
3	22	20	94	214	171	134	112	1060	41	14	36	11
4	17	20	77	303	123	114	99	379	36	13	25	9.6
5	14	53	65	305	112	103	86	222	35	12	19	8.8
6	12	60	63	232	97	88	89	162	33	12	16	8.3
7	11	49	58	175	72	76	76	127	51	12	14	8.0
8	9.9	39	53	134	56	75	74	99	94	10	19	7.8
9	9.9	33	50	96	52	82	73	78	93	9.9	21	10
10	9.3	30	52	89	49	72	71	69	66	13	16	7.5
11	8.7	42	55	80	51	81	74	62	51	21	13	6.9
12	8.0	57	60	63	57	298	74	72	56	15	12	6.3
13	7.6	55	63	57	54	291	74	142	51	13	10	5.9
14	7.6	45	62	57	48	211	73	91	44	22	9.5	5.4
15	7.0	39	58	52	44	161	71	70	38	14	9.1	5.2
16	10	36	54	42	54	129	87	61	34	12	8.5	4.9
17	11	32	52	44	43	111	89	61	31	10	8.3	4.7
18	11	29	48	43	36	96	89	55	30	9.0	26	4.7
19	9.4	128	57	42	34	78	84	53	26	8.1	36	4.4
20	8.7	206	100	36	47	71	77	44	22	7.3	22	4.4
21	8.2	126	193	30	74	63	68	47	20	7.0	29	4.2
22	8.0	86	320	33	127	59	60	67	18	6.6	22	3.9
23	10	69	250	34	278	92	54	253	17	6.5	17	3.9
24	14	57	186	33	621	181	50	738	16	5.7	16	3.9
25	13	46	341	32	762	184	46	383	15	9.1	46	3.5
26	12	40	271	30	646	153	44	221	13	58	53	3.5
27	11	34	190	25	423	129	41	150	13	40	42	3.5
28	12	311	138	27	273	112	42	112	13	23	31	3.5
29	41	496	109	25	---	107	39	89	12	17	24	3.5
30	39	237	90	24	---	120	34	71	11	14	20	3.6
31	31	---	88	25	---	126	---	62	---	15	17	---
TOTAL	476.3	2524	3563	2626	4736	3969	2201	5171	1080	455.2	733.4	187.8
MEAN	15.4	84.1	115	84.7	169	128	73.4	167	36.0	14.7	23.7	6.26
MAX	47	496	341	305	762	298	131	1060	94	58	64	14
MIN	7.0	20	48	24	34	59	34	32	11	5.7	8.3	3.5
CFSM	.26	1.40	1.91	1.41	2.81	2.13	1.22	2.78	.60	.24	.39	.10
IN.	.29	1.56	2.21	1.63	2.93	2.46	1.36	3.20	.67	.28	.45	.12
CAL YR 1984	TOTAL	38432.2	MEAN	105	MAX	2560	MIN	4.6	CFSM	1.75	IN.	23.79
WTR YR 1985	TOTAL	27722.7	MEAN	76.0	MAX	1060	MIN	3.5	CFSM	1.26	IN.	17.16

## JAMES RIVER BASIN

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02011460 BACK CREEK NEAR SUNRISE, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1984 to September 1985.

INSTRUMENTATION.--Water-temperature recorder since October 1984.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 26.0°C, July 15, 16, Aug. 13; minimum, 0.0°C on many days during winter period.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	11.0	10.5	11.0	13.5	12.5	13.0	7.0	4.5	6.0	10.0	7.5	9.0
2	11.5	9.5	10.5	13.5	10.0	12.5	6.0	3.5	5.0	9.5	7.5	8.5
3	13.0	8.5	10.5	11.0	7.0	9.0	7.0	4.0	6.0	7.0	6.0	6.0
4	15.5	10.5	12.5	10.0	9.0	9.5	4.0	2.5	3.0	6.5	6.0	6.0
5	15.0	11.5	13.0	11.0	9.5	10.5	3.5	2.0	3.0	6.0	4.0	5.0
6	15.5	12.0	13.5	9.5	7.5	8.5	4.0	.5	2.5	5.5	3.0	4.0
7	15.0	13.5	14.0	9.0	6.0	7.5	1.5	.0	.5	5.5	4.0	4.5
8	14.5	13.0	14.0	8.5	4.5	6.5	3.0	.0	1.0	4.5	2.0	3.5
9	17.5	13.5	15.5	9.0	6.5	7.5	3.5	.0	2.0	3.5	1.0	2.0
10	18.0	14.0	15.5	9.5	6.0	8.0	4.0	2.0	3.0	3.0	2.0	2.5
11	17.5	13.5	15.0	9.5	7.5	9.0	6.5	3.5	5.0	4.0	1.5	2.5
12	18.0	13.5	15.0	7.0	4.5	5.5	5.5	2.5	4.0	2.0	.0	1.0
13	17.0	12.0	14.0	6.0	3.5	4.5	7.5	4.5	6.0	2.5	.0	1.0
14	16.5	11.5	14.0	6.5	2.5	4.5	7.5	5.5	6.5	3.5	.0	1.5
15	14.5	11.0	13.0	7.5	3.5	5.5	9.0	6.5	8.0	1.0	.0	.0
16	18.0	13.5	15.0	7.5	4.0	6.0	9.0	7.0	7.5	.0	.0	.0
17	17.0	15.0	16.0	5.5	2.0	3.5	10.0	7.5	8.5	1.5	.0	.5
18	18.5	15.0	16.5	4.0	3.0	3.5	10.0	7.5	8.5	1.5	.5	1.0
19	19.0	15.0	17.0	5.5	4.0	5.0	9.5	8.0	8.5	2.0	.0	.5
20	18.0	15.5	16.5	5.0	3.0	4.0	8.0	6.0	7.0	.0	.0	.0
21	18.0	14.5	16.5	5.0	2.0	3.0	7.5	6.5	7.0	.0	.0	.0
22	18.0	15.5	16.5	4.5	1.0	2.5	8.5	5.5	7.5	.0	.0	.0
23	17.0	16.0	16.5	4.5	1.0	2.5	6.0	4.5	5.0	.0	.0	.0
24	17.0	15.0	16.0	5.0	1.5	3.0	5.5	3.0	4.5	.0	.0	.0
25	16.5	14.5	15.5	5.0	1.5	3.0	6.0	3.5	5.5	.0	.0	.0
26	18.5	15.5	16.5	5.5	2.0	3.5	5.0	2.5	4.0	.0	.0	.0
27	18.0	13.5	15.5	7.5	2.5	5.0	6.0	4.0	5.0	.0	.0	.0
28	17.5	13.0	15.5	8.5	6.0	7.5	9.0	5.5	7.0	.5	.0	.0
29	18.0	15.0	16.0	7.0	5.0	6.0	10.0	6.5	8.0	.5	.0	.0
30	14.5	12.5	13.5	6.5	3.5	5.5	9.0	8.0	8.5	.0	.0	.0
31	16.0	12.5	14.0	---	---	---	8.0	7.0	7.5	.5	.0	.0
MONTH	19.0	8.5	14.5	13.5	1.0	6.0	10.0	.0	5.5	10.0	.0	2.0

02011460 BACK CREEK NEAR SUNRISE, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	.0	.0	.0	6.5	2.5	4.5	12.0	7.0	9.0	18.5	11.5	15.5
2	2.5	.5	1.5	9.0	4.5	6.0	9.0	5.5	7.0	16.0	13.5	14.5
3	3.0	.0	1.5	9.0	3.5	6.0	8.5	4.0	6.0	13.0	10.0	11.5
4	2.5	.0	1.0	6.5	5.5	6.0	12.5	5.0	8.5	14.5	8.0	11.0
5	2.5	1.0	1.5	10.0	5.0	7.0	14.5	8.0	11.0	15.5	9.0	12.0
6	4.0	1.5	2.5	8.0	3.0	5.0	11.5	7.5	9.5	16.0	10.5	13.0
7	2.5	.0	1.0	8.0	2.5	5.0	7.5	5.5	6.5	17.0	12.5	14.5
8	.0	.0	.0	7.0	5.0	6.0	8.0	4.5	6.0	17.0	10.5	13.5
9	.0	.0	.0	10.0	5.0	7.0	7.5	3.0	5.0	18.0	10.5	14.0
10	1.0	.0	.0	10.0	3.5	6.5	10.0	1.5	5.5	17.0	11.5	14.0
11	1.5	.0	1.0	5.5	4.0	5.0	9.5	5.5	7.0	18.0	12.5	15.5
12	1.0	.0	.5	7.0	4.5	5.5	13.0	5.5	9.0	17.5	13.5	15.5
13	2.0	.0	.5	8.0	3.5	6.0	12.0	8.0	10.0	18.0	12.5	14.5
14	1.0	.0	.5	7.5	5.5	6.5	12.0	9.5	10.5	19.5	12.5	15.5
15	2.0	.0	.5	8.5	4.0	6.0	12.5	9.5	11.0	18.0	14.0	15.5
16	1.0	.0	.0	9.0	2.5	5.5	14.5	10.5	12.0	19.0	14.0	16.0
17	3.5	.0	1.5	9.0	4.5	6.0	15.0	8.5	11.5	15.0	13.0	14.0
18	2.5	.0	1.0	7.5	2.5	4.5	17.0	8.0	12.5	17.0	11.0	13.5
19	6.0	1.5	3.0	8.5	1.0	4.5	19.0	11.0	14.5	18.0	10.0	13.5
20	5.5	.0	2.0	9.0	3.0	6.0	17.0	11.0	14.0	20.0	11.0	15.0
21	5.0	.0	2.0	7.5	4.5	6.0	16.5	11.0	14.0	17.5	14.0	15.5
22	5.0	1.5	3.0	5.0	3.5	4.0	16.0	10.5	13.5	15.5	13.5	14.5
23	7.0	2.5	4.0	8.0	4.0	6.0	17.0	12.0	14.5	14.0	11.5	13.5
24	8.0	3.5	5.5	9.5	6.0	7.0	18.5	12.5	15.5	11.5	10.5	11.0
25	7.5	6.0	6.5	7.5	5.0	6.0	18.5	13.0	15.0	14.0	10.0	12.0
26	8.5	6.0	6.5	10.0	3.0	6.0	19.5	10.5	14.5	16.0	10.0	13.0
27	8.0	4.5	6.0	11.0	4.0	7.5	16.5	11.5	14.0	17.0	11.0	14.0
28	7.5	3.0	5.0	13.5	8.0	10.5	17.0	14.0	15.0	15.0	12.5	14.0
29	---	---	---	14.0	10.0	11.5	19.5	11.0	15.0	17.0	13.0	14.5
30	---	---	---	14.0	10.0	12.0	20.0	10.5	15.0	14.5	13.5	14.0
31	---	---	---	11.0	8.5	9.5	---	---	---	19.5	13.5	16.0
MONTH	8.5	.0	2.0	14.0	1.0	6.5	20.0	1.5	11.0	20.0	8.0	14.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	21.5	15.0	17.5	18.0	16.0	17.0	21.5	18.0	20.0	21.5	16.0	18.5
2	18.0	14.0	16.0	20.0	15.5	17.5	21.5	16.5	18.5	22.5	17.0	19.5
3	19.5	13.5	16.5	20.5	16.5	18.0	21.5	15.5	18.0	23.5	17.5	20.0
4	18.5	15.0	16.5	21.5	16.5	18.5	21.5	15.5	18.0	23.5	18.0	20.5
5	21.0	15.5	18.0	23.0	16.5	19.5	20.0	16.0	18.0	23.0	17.5	20.0
6	20.5	16.5	18.5	20.5	17.5	19.0	19.5	16.5	18.0	21.5	19.0	20.0
7	17.5	14.5	15.0	23.5	17.0	19.5	19.5	17.0	18.5	23.5	18.5	20.5
8	20.5	14.5	17.0	24.5	18.0	20.5	23.5	18.0	20.5	24.5	19.0	21.5
9	19.5	15.0	17.0	25.0	18.5	21.5	24.5	19.5	21.5	24.0	20.0	21.5
10	21.5	16.0	18.5	21.0	18.0	19.0	24.5	19.5	22.0	23.5	19.0	21.0
11	21.5	16.0	19.0	24.5	16.5	20.0	23.0	18.5	21.0	20.5	18.5	19.0
12	19.5	16.0	18.5	23.0	18.5	20.5	22.0	19.0	20.5	18.0	15.0	17.0
13	15.5	12.5	14.0	24.0	19.0	21.0	26.0	19.5	22.0	17.5	12.0	14.5
14	16.5	10.5	13.5	25.0	19.0	21.5	25.0	20.0	22.0	17.0	10.0	13.0
15	17.0	13.0	15.0	26.0	20.5	22.5	25.5	20.5	22.5	17.0	9.5	13.0
16	18.5	14.0	16.0	26.0	20.0	22.0	23.0	20.0	21.5	18.0	10.5	13.5
17	22.0	14.5	18.0	25.0	18.0	21.5	20.5	19.0	19.5	18.0	11.0	14.0
18	20.0	17.0	18.5	25.0	18.0	21.0	19.5	18.0	18.5	18.5	11.5	14.5
19	19.5	14.5	17.0	25.5	18.5	21.5	23.0	17.5	19.5	19.0	12.5	15.5
20	18.5	14.0	16.0	25.0	18.5	21.5	21.5	18.0	20.0	19.5	13.0	16.0
21	18.5	12.5	15.5	24.5	20.0	22.0	23.0	18.5	20.0	19.5	13.5	16.5
22	20.5	14.0	17.0	24.5	19.5	21.5	20.0	16.0	18.0	17.5	15.0	16.5
23	22.0	17.0	19.0	24.5	18.5	21.0	20.0	15.0	17.5	19.5	14.5	16.5
24	24.0	16.5	20.0	23.5	16.5	20.0	17.5	16.0	17.0	18.5	14.0	16.0
25	24.5	18.0	21.0	20.0	19.0	19.5	18.5	16.5	17.5	17.5	11.0	14.0
26	22.0	15.5	18.5	21.5	18.5	19.5	20.5	17.0	18.5	17.5	14.0	15.5
27	21.0	14.0	17.5	24.5	18.5	21.0	21.0	17.5	19.0	16.0	13.0	14.5
28	19.5	15.0	17.5	22.5	17.0	19.5	21.5	16.0	18.5	17.0	11.5	13.5
29	22.0	15.0	18.5	23.5	18.5	20.5	21.5	16.0	18.5	16.5	10.0	13.0
30	20.5	16.0	18.5	25.5	19.5	22.0	19.5	16.5	18.0	17.0	10.0	13.0
31	---	---	---	23.5	20.0	21.5	20.0	16.0	18.0	---	---	---
MONTH	24.5	10.5	17.5	26.0	15.5	20.5	26.0	15.0	19.5	24.5	9.5	16.5
YEAR	26.0	.0	11.5									

## JAMES RIVER BASIN

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## 02011470 BACK CREEK AT SUNRISE, VA

LOCATION.--Lat 38°11'25", long 79°48'43", Bath County, Hydrologic Unit 02080201, on left bank 75 ft upstream from bridge on State Highway 600 at Sunrise, 180 ft upstream from Beaver Run, 0.5 mi downstream from Back Creek Dam, and 7.6 mi northeast of Mountain Grove.

DRAINAGE AREA.--76.1 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to September 1985.

GAGE.--Water-stage recorder. Concrete control since Oct. 24, 1984. Datum of gage is 1,968.52 ft above National Geodetic Vertical Datum of 1929 (Virginia Power bench mark).

REMARKS.--Estimated daily discharges: Oct. 8-23 and June 28 to July 19. Records good except those for periods of doubtful or no gage-height record, Oct. 8-23 and June 28 to July 19, which are fair. Flow regulated since October 1984 by Back Creek Lake 0.5 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,360 ft<sup>3</sup>/s, May 3, gage height, 7.81 ft, from rating curve extended above 800 ft<sup>3</sup>/s on basis of release from Back Creek Lake at gage height 11.37 ft; minimum daily, 5.2 ft<sup>3</sup>/s, Nov. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	5.4	15	16	23	246	173	50	68	14	18	18
2	13	5.3	13	23	36	194	173	50	55	15	24	18
3	10	5.2	12	27	25	173	139	1190	39	14	23	14
4	9.1	6.4	11	37	20	137	122	456	42	13	21	11
5	7.6	8.2	11	26	18	116	102	189	42	12	13	11
6	9.2	11	11	20	23	98	108	135	42	13	15	11
7	9.7	7.1	10	18	17	85	95	106	44	15	16	11
8	9.8	6.7	10	16	16	82	88	88	82	13	18	11
9	10	6.4	10	14	15	93	78	74	110	12	17	11
10	10	6.2	10	14	15	88	77	69	93	14	15	11
11	10	7.3	11	13	15	96	91	69	72	14	15	11
12	10	7.2	14	12	22	442	93	100	49	16	16	11
13	9.5	7.1	14	12	19	180	92	231	49	16	17	11
14	9.5	7.9	13	12	17	20	92	150	49	15	15	10
15	9.0	10	12	12	16	29	86	102	49	14	15	10
16	9.5	10	12	11	16	134	88	87	30	13	15	11
17	10	10	12	12	16	134	96	71	19	12	15	11
18	10	10	12	12	16	125	96	71	16	12	19	11
19	10	20	14	12	16	112	97	71	26	12	13	11
20	9.5	19	16	11	18	92	100	51	50	10	12	11
21	8.0	12	23	11	19	91	94	36	77	10	12	11
22	9.0	13	31	11	20	93	74	28	74	9.9	12	11
23	9.5	14	22	11	28	138	64	311	65	9.9	12	11
24	7.8	13	19	11	217	222	57	1080	68	9.8	12	11
25	5.8	12	26	12	770	225	58	391	36	12	13	11
26	11	13	21	12	888	201	57	280	13	14	12	11
27	11	14	18	12	442	157	53	138	12	11	24	11
28	12	41	16	12	373	128	50	122	13	11	19	11
29	5.9	33	15	12	---	114	50	72	14	10	16	11
30	5.6	19	14	12	---	138	50	41	13	12	21	11
31	5.5	---	15	13	---	150	---	62	---	15	18	---
TOTAL	288.5	360.4	463	459	3136	4333	2693	5971	1411	393.6	503	345
MEAN	9.31	12.0	14.9	14.8	112	140	89.8	193	47.0	12.7	16.2	11.5
MAX	13	41	31	37	888	442	173	1190	110	16	24	18
MIN	5.5	5.2	10	11	15	20	50	28	12	9.8	12	10
(*)	+9	+85	+155	+89	+126	.00	.00	.00	.00	.00	.00	.00
MEAN†	18.3	97.0	170	104	238	140	89.8	193	47.0	12.7	16.2	11.5
CFSM†	.24	1.27	2.23	1.37	3.13	1.84	1.18	2.54	.62	.17	.21	.15
IN.†	.28	1.42	2.58	1.57	3.26	2.12	1.32	2.92	.69	.19	.25	.17

WTR YR 1985 TOTAL 20356.5 MEAN 55.8 MAX 1190 MIN 5.2 MEAN† 93.8 CFSM† 1.23 IN.† 16.73

\* Change in contents, equivalent in cubic feet per second, for the initial storage in Back Creek Lake; provided by Virginia Power.

† Adjusted for change in contents.



## JAMES RIVER BASIN

02011470 BACK CREEK AT SUNRISE, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1984 to September 1985.

INSTRUMENTATION.--Water-temperature recorder since October 1984.

REMARKS.--Interruption in the record, Oct. 5-22, was due to sensor being out of the water during construction of concrete control.

EXTREMES FOR CURRENT YEAR.--Maximum, 27.5°C, Aug. 10; minimum, 0.0°C, Jan. 20, 21.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.5	11.0	11.5	14.5	12.5	13.5	8.0	4.5	6.0	10.5	7.0	8.5
2	14.5	10.5	11.5	15.5	10.0	13.5	7.5	4.0	5.5	9.0	7.0	8.0
3	15.5	10.5	12.0	15.0	8.0	11.0	8.0	4.0	6.0	6.5	5.5	6.0
4	17.0	11.0	13.5	12.0	10.5	11.0	5.5	2.5	4.0	7.0	6.0	6.5
5	---	---	---	12.0	9.5	10.5	4.5	1.5	3.5	5.5	4.0	5.0
6	---	---	---	11.0	7.5	9.5	5.0	1.5	3.0	6.5	3.5	4.5
7	---	---	---	11.5	6.0	8.0	3.5	1.0	2.0	5.0	4.0	4.5
8	---	---	---	11.5	5.0	7.5	5.0	1.0	2.5	6.0	2.5	4.0
9	---	---	---	10.5	6.5	8.5	6.0	2.0	3.0	4.5	1.5	3.0
10	---	---	---	12.0	6.5	9.0	4.5	3.0	3.5	4.0	2.5	3.0
11	---	---	---	10.0	7.5	9.0	8.0	3.5	5.0	4.0	2.0	2.5
12	---	---	---	7.5	5.5	6.5	7.0	3.0	4.5	3.0	1.5	2.0
13	---	---	---	9.5	4.5	6.0	7.5	4.5	6.0	4.5	1.5	2.5
14	---	---	---	9.0	4.0	6.0	7.5	5.0	6.0	4.5	1.5	2.5
15	---	---	---	9.5	4.5	7.0	9.5	6.0	7.0	3.5	1.5	2.0
16	---	---	---	9.5	4.5	7.0	8.5	6.0	7.0	4.0	1.0	2.0
17	---	---	---	8.5	3.5	5.5	10.0	6.5	7.5	3.0	1.5	2.0
18	---	---	---	6.0	4.5	5.0	9.0	6.5	7.5	3.0	2.0	2.5
19	---	---	---	6.0	5.0	5.5	8.5	6.5	7.5	4.0	1.5	2.5
20	---	---	---	6.5	3.0	4.5	8.5	5.5	6.5	2.0	.0	1.0
21	---	---	---	6.5	2.5	3.5	7.5	6.0	6.5	1.5	.0	.5
22	---	---	---	6.0	1.5	3.0	8.5	5.0	7.0	2.5	.5	1.5
23	18.5	16.0	17.0	6.5	2.0	3.5	7.0	4.0	5.0	4.0	.5	2.0
24	18.5	16.0	16.5	7.0	2.5	4.0	5.5	3.5	4.5	4.0	1.5	2.5
25	18.0	15.5	16.5	7.0	2.0	4.0	6.0	3.5	5.0	3.5	1.5	2.0
26	19.5	15.5	17.0	7.5	2.5	4.5	5.5	2.5	4.0	3.5	1.0	1.5
27	20.0	14.5	16.5	8.0	3.5	5.5	6.0	3.5	5.0	3.5	1.0	2.0
28	20.0	14.5	16.5	9.0	6.0	7.0	9.5	5.5	6.5	4.0	2.0	2.5
29	19.0	14.0	16.5	7.0	5.0	6.0	10.5	6.0	7.5	5.0	1.5	2.5
30	16.0	13.0	14.5	7.5	4.0	6.0	8.5	7.0	8.0	4.5	1.5	2.5
31	19.0	13.5	15.0	---	---	---	8.0	7.0	7.0	3.5	1.0	2.5
MONTH	20.0	10.5	15.0	15.5	1.5	7.0	10.5	1.0	5.5	10.5	.0	3.0

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.0	1.0	2.0	4.5	3.5	4.0	7.0	6.0	6.0	10.0	7.5	8.5
2	2.5	1.5	2.0	5.0	3.5	4.0	7.0	5.5	6.0	10.0	8.0	8.5
3	4.0	1.0	2.0	5.0	3.5	4.0	7.0	5.5	6.0	9.0	7.5	7.5
4	3.0	1.0	2.0	4.5	4.0	4.0	7.5	5.5	6.5	7.5	7.5	7.5
5	3.0	1.5	2.0	5.5	4.0	4.5	8.0	6.0	7.0	8.0	7.5	7.5
6	4.5	2.0	3.0	5.5	3.5	4.5	7.5	6.0	7.0	8.0	7.5	7.5
7	4.5	1.0	2.0	5.5	4.0	4.5	7.0	6.0	6.5	8.0	7.5	8.0
8	3.0	.5	1.5	5.0	4.0	4.5	7.5	6.0	6.5	8.5	7.5	8.0
9	3.5	.5	1.5	6.0	4.0	4.5	7.5	5.5	6.5	8.5	7.5	8.0
10	4.5	1.0	2.5	6.0	4.0	4.5	8.5	5.5	6.5	8.5	8.0	8.0
11	4.0	1.5	2.5	5.0	4.5	4.5	7.5	6.5	6.5	9.0	8.0	8.5
12	1.5	1.0	1.5	4.5	4.5	4.5	8.5	6.5	7.5	8.5	8.0	8.0
13	3.0	1.0	2.0	7.0	4.5	5.5	8.5	7.0	7.5	8.0	7.5	8.0
14	4.5	1.0	2.0	8.5	4.5	6.0	8.5	7.0	7.5	8.5	7.5	8.0
15	4.0	1.5	2.0	9.5	4.0	5.5	8.0	7.0	7.5	8.5	8.0	8.0
16	4.5	1.5	2.0	6.0	4.5	5.0	9.0	7.0	8.0	8.5	8.0	8.0
17	5.5	1.5	3.0	6.0	4.5	5.0	9.0	6.5	7.5	8.0	8.0	8.0
18	5.5	1.5	3.0	6.5	4.5	5.0	9.5	7.0	8.0	9.0	7.5	8.0
19	7.0	2.0	4.0	6.5	4.5	5.0	9.5	7.0	8.0	9.0	7.5	8.0
20	7.0	2.0	3.5	6.5	5.0	5.5	9.0	7.0	8.0	10.0	7.5	8.5
21	7.5	2.0	4.0	6.5	5.0	5.5	9.5	7.0	8.0	9.5	8.0	8.5
22	5.5	3.0	4.0	6.0	5.0	5.5	9.5	7.0	8.0	9.0	8.5	8.5
23	8.0	2.5	4.0	6.5	5.5	6.0	9.5	7.5	8.0	8.5	7.5	8.0
24	8.0	3.0	4.5	6.5	5.5	5.5	10.5	7.5	8.5	8.0	7.5	8.0
25	3.5	3.0	3.5	6.0	5.5	5.5	10.5	7.5	8.5	8.0	7.5	8.0
26	4.0	3.0	3.5	6.5	5.0	5.5	10.0	7.0	8.5	8.0	7.5	8.0
27	4.5	3.5	4.0	7.0	5.5	6.0	10.0	7.5	8.0	8.5	7.5	8.0
28	4.0	3.5	3.5	7.5	5.5	6.5	9.5	8.0	8.5	8.5	8.0	8.0
29	---	---	---	7.5	6.0	6.5	10.5	7.5	8.5	10.0	8.0	9.0
30	---	---	---	7.0	6.0	6.5	10.5	7.0	8.5	9.0	8.5	9.0
31	---	---	---	6.0	6.0	6.0	---	---	---	9.5	8.5	9.0
MONTH	8.0	.5	3.0	9.5	3.5	5.0	10.5	5.5	7.5	10.0	7.5	8.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	10.5	8.5	9.5	15.0	13.0	13.5	20.0	15.0	17.5	14.5	11.0	12.0
2	10.5	8.5	9.0	17.5	13.0	14.0	22.0	18.5	19.5	14.5	11.5	12.5
3	11.5	9.0	10.0	17.0	13.0	14.5	23.5	17.5	20.0	17.0	11.5	13.0
4	11.5	9.0	9.5	17.5	13.0	14.5	24.5	18.0	20.5	16.5	12.0	13.5
5	12.0	9.0	10.0	18.5	13.0	15.0	25.0	21.0	22.5	17.0	11.5	13.5
6	11.5	9.5	10.0	17.0	13.5	14.5	23.5	21.0	22.0	15.5	12.0	13.5
7	10.0	9.5	10.0	19.0	13.5	15.5	23.5	21.5	22.5	16.5	12.0	13.5
8	12.0	9.5	10.0	19.5	13.5	16.0	27.0	21.5	23.0	17.0	12.0	13.5
9	11.0	9.5	10.0	19.5	14.0	16.0	27.0	21.5	23.5	16.5	12.5	13.5
10	11.0	9.5	10.0	17.0	14.0	15.0	27.5	22.5	24.0	17.0	12.0	13.5
11	11.5	9.5	10.5	20.0	14.0	16.0	26.0	21.5	23.5	14.5	12.0	13.0
12	11.5	10.0	10.5	19.5	14.5	16.0	26.0	21.5	23.5	14.0	11.0	12.0
13	11.0	10.0	10.0	18.5	14.5	16.0	26.5	22.5	24.0	15.5	10.5	12.0
14	11.0	10.0	10.5	20.0	14.5	16.5	27.0	22.0	24.0	15.5	10.0	12.0
15	12.0	10.0	10.5	20.0	14.5	16.5	26.5	22.5	24.0	16.0	10.0	12.0
16	13.0	10.5	11.5	20.5	14.5	16.5	25.0	22.0	23.0	16.0	10.5	12.5
17	16.0	10.5	13.0	20.5	14.0	16.5	23.5	22.0	22.5	16.0	10.5	12.5
18	15.0	11.5	12.5	20.5	14.5	16.5	22.0	13.0	16.5	16.0	11.0	12.5
19	14.5	10.5	12.0	20.0	14.5	16.5	17.0	12.5	14.0	16.5	11.0	13.0
20	12.0	10.5	11.0	20.0	14.5	16.5	16.0	12.0	13.5	16.5	11.5	13.0
21	12.0	10.5	11.0	19.5	15.0	16.5	17.0	12.0	13.5	15.5	11.5	13.0
22	12.5	10.5	11.5	18.5	15.0	16.5	15.5	11.5	13.0	13.5	12.0	12.5
23	12.5	11.0	11.5	20.5	14.5	16.5	16.0	11.0	12.5	16.0	11.5	13.0
24	12.5	11.0	11.5	20.5	14.5	17.0	13.0	11.5	12.0	15.0	11.0	12.5
25	15.0	11.5	12.5	18.5	15.5	16.5	14.5	12.0	12.5	15.5	10.5	12.5
26	21.5	11.5	14.0	20.5	16.5	17.5	16.5	12.0	13.5	14.0	12.0	12.5
27	17.5	11.5	14.0	21.0	15.5	17.0	13.5	11.5	12.0	12.5	11.5	12.0
28	16.5	12.0	13.5	19.0	14.5	16.0	16.5	11.5	13.0	15.5	11.0	12.5
29	18.0	12.0	14.0	19.5	14.5	16.5	17.0	11.0	13.0	15.0	11.0	12.5
30	17.0	12.5	14.0	21.5	14.5	17.5	14.5	11.0	12.0	15.5	11.0	12.5
31	---	---	---	20.5	16.5	18.5	14.5	11.0	12.0	---	---	---
MONTH	21.5	8.5	11.5	21.5	13.0	16.0	27.5	11.0	18.0	17.0	10.0	12.5
YEAR	27.5	.0	9.0									

## JAMES RIVER BASIN

02011490 LITTLE BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°12'52", long 79°50'16", Bath County, Hydrologic Unit 02080201, in George Washington National Forest, on right bank 600 ft downstream from Long Spring Run, 1.2 mi downstream from Little Back Creek Dam, and 8.5 mi northeast of Mountain Grove.

DRAINAGE AREA.--4.91 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to September 1985.

GAGE.--Water-stage recorder. Concrete control with rectangular weir plate. Datum of gage is 2,638.48 ft above National Geodetic Vertical Datum of 1929 (Virginia Power bench mark).

REMARKS.--Estimated daily discharges: Jan. 13-31 and Feb. 8-10, 14-20. Records good except those for periods with ice effect, Jan. 13-31 and Feb. 8-10, 14-20, which are fair. Flows regulated since January 1985 by Little Back Creek Lake 1.2 mi upstream, amount unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 254 ft<sup>3</sup>/s, May 3, gage height, 3.50 ft, from rating curve extended above 30 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 4.06 ft; minimum, 0.89 ft<sup>3</sup>/s, Oct. 12, 13, gage height, 0.66 ft; minimum daily, 0.90 ft<sup>3</sup>/s, Oct. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	6.6	5.6	4.1	2.4	5.9	5.1	3.7	4.1	2.4	4.6	2.7
2	5.2	14	4.1	8.1	3.6	4.6	4.8	4.1	3.9	2.5	5.3	2.6
3	5.0	6.0	3.4	12	8.0	3.6	6.7	100	3.8	2.4	3.7	2.4
4	4.6	4.2	2.7	17	6.3	3.0	5.4	15	3.7	2.4	3.1	2.4
5	4.3	6.3	2.5	12	4.9	2.9	5.1	7.8	3.1	2.3	2.8	2.4
6	4.2	11	2.3	7.3	3.2	2.5	5.4	5.7	1.8	2.4	2.7	2.4
7	3.1	9.7	2.1	5.5	2.4	1.9	5.0	4.5	2.7	2.3	2.7	2.3
8	1.9	6.2	2.1	4.5	2.1	2.1	5.0	3.7	3.9	2.2	3.7	2.4
9	1.7	5.6	2.0	3.5	2.0	2.3	4.9	3.4	3.7	2.2	4.3	2.3
10	1.6	4.9	1.8	2.9	1.9	2.2	4.8	3.2	3.6	2.6	3.2	2.3
11	1.3	5.4	2.0	2.7	2.2	2.6	4.9	3.2	3.4	2.6	2.8	2.3
12	1.0	4.9	2.2	2.4	2.3	7.8	5.2	6.8	3.4	2.3	2.7	2.3
13	.90	3.2	2.6	2.3	2.2	9.2	4.9	68	3.3	2.2	2.9	2.2
14	1.4	3.9	2.4	2.2	2.0	6.7	4.6	7.2	3.3	2.2	2.6	2.2
15	1.4	3.6	2.4	2.0	1.8	4.9	4.6	3.8	3.2	2.2	2.4	2.2
16	1.5	2.6	2.2	1.7	2.1	3.9	5.3	58	3.4	2.2	2.4	2.1
17	1.2	1.7	2.1	1.8	1.8	3.4	5.3	8.6	3.4	2.2	2.4	2.2
18	1.2	1.6	2.0	1.7	1.5	3.0	5.3	4.6	3.6	2.2	4.4	2.1
19	2.1	5.2	2.6	1.6	1.4	2.6	5.3	4.1	3.4	2.2	4.7	2.1
20	2.5	9.4	4.9	1.4	1.7	2.0	5.1	3.8	3.3	2.2	3.5	2.2
21	2.2	6.1	8.3	1.2	2.1	2.0	4.9	4.2	3.2	2.2	3.1	2.1
22	1.7	4.4	15	1.3	4.3	2.1	4.6	4.0	3.2	2.1	2.8	2.1
23	1.8	3.5	10	1.5	12	2.8	4.4	6.9	3.2	2.1	2.7	2.2
24	3.1	2.9	6.9	1.4	26	4.4	4.3	21	3.1	2.1	3.0	2.2
25	4.2	2.4	11	1.3	28	5.4	4.3	16	2.9	2.4	4.6	2.2
26	3.9	2.0	9.3	1.2	24	4.9	4.0	22	2.9	4.2	5.3	2.2
27	6.2	1.8	6.2	1.0	16	4.1	4.0	45	2.5	3.4	4.6	2.2
28	3.4	13	4.6	1.1	8.7	3.8	3.9	5.5	2.3	2.7	3.7	2.3
29	3.3	21	3.5	1.1	---	3.8	3.8	5.0	2.2	2.4	3.3	2.3
30	3.3	9.0	3.1	1.0	---	5.3	3.8	4.5	2.2	2.8	3.0	2.4
31	5.7	---	3.3	1.5	---	5.6	---	4.3	---	7.1	2.8	---
TOTAL	89.20	182.1	135.2	110.3	176.9	121.3	144.7	457.6	95.7	79.7	105.8	68.3
MEAN	2.88	6.07	4.36	3.56	6.32	3.91	4.82	14.8	3.19	2.57	3.41	2.28
MAX	6.2	21	15	17	28	9.2	6.7	100	4.1	7.1	5.3	2.7
MIN	.90	1.6	1.8	1.0	1.4	1.9	3.8	3.2	1.8	2.1	2.4	2.1
WTR YR 1985	TOTAL	1766.80	MEAN	4.84	MAX	100	MIN	.90				

## JAMES RIVER BASIN

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02011490 LITTLE BACK CREEK NEAR SUNRISE, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1984 to September 1985.

INSTRUMENTATION.--Water-temperature recorder since October 1984.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 22.0°C, July 16, Aug. 13-15; minimum, 0.0°C on many days during winter period.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.5	11.5	12.0	14.5	13.5	14.0	---	---	---	---	---	---
2	13.0	12.0	12.5	14.5	10.0	13.5	---	---	---	---	---	---
3	12.5	11.5	12.0	12.5	11.0	11.5	---	---	---	---	---	---
4	14.0	12.0	13.0	11.5	11.0	11.5	3.5	1.5	2.5	---	---	---
5	14.0	13.0	13.5	11.5	10.5	11.0	3.0	1.5	2.0	---	---	---
6	14.0	13.0	13.5	11.0	10.0	10.5	2.5	1.0	2.0	5.0	4.0	4.5
7	13.5	13.5	13.5	9.5	9.0	9.5	1.0	.0	.5	4.5	4.0	4.0
8	13.5	13.5	13.5	9.5	8.5	9.0	2.0	.0	1.0	3.5	2.0	3.0
9	15.0	13.5	14.0	9.5	8.5	9.0	3.0	1.0	2.0	2.5	1.0	2.0
10	15.5	14.0	15.0	9.5	8.5	9.0	3.5	2.5	3.0	2.0	1.5	2.0
11	15.5	14.0	15.0	9.5	8.0	9.0	4.5	3.0	3.5	2.0	1.0	1.5
12	15.5	14.0	14.5	8.0	7.0	7.5	5.0	3.0	4.0	1.0	.0	.5
13	15.0	13.0	14.0	7.0	5.0	6.0	6.0	4.0	5.0	1.0	.0	.5
14	15.0	13.5	14.5	6.5	5.0	5.5	6.0	4.5	5.5	.0	.0	.0
15	15.5	14.0	14.5	7.0	5.5	6.0	7.0	5.5	6.0	.0	.0	.0
16	16.0	14.0	15.0	6.5	4.5	6.0	7.0	6.0	6.5	.0	.0	.0
17	16.0	15.0	15.5	5.0	3.5	4.0	7.5	6.0	7.0	.5	.0	.5
18	16.5	14.0	15.5	4.5	3.5	4.5	8.0	7.0	7.5	.5	.5	.5
19	17.0	15.5	16.5	6.0	4.5	5.5	8.0	6.5	7.5	1.0	.0	.5
20	17.0	16.0	16.5	5.0	4.0	4.5	7.0	6.0	6.5	.0	.0	.0
21	17.0	16.0	16.5	4.5	3.5	4.0	7.0	6.5	7.0	.0	.0	.0
22	17.0	16.0	16.5	4.5	2.5	3.5	7.0	6.0	7.0	.0	.0	.0
23	16.5	15.5	16.0	4.5	2.5	3.5	6.0	5.0	5.5	.0	.0	.0
24	16.0	15.0	15.5	4.5	3.0	3.5	5.5	4.5	5.0	.5	.0	.0
25	16.0	15.0	15.5	4.5	3.0	3.5	6.0	4.5	5.0	.5	.0	.5
26	16.0	14.5	15.0	5.0	3.0	4.0	4.5	1.5	3.5	.0	.0	.0
27	17.0	14.5	15.5	6.0	3.5	5.0	5.0	3.0	4.0	.5	.0	.0
28	16.0	14.0	15.0	7.0	5.5	6.5	---	---	---	1.0	.5	.5
29	15.5	13.5	14.5	6.0	5.0	5.5	---	---	---	1.0	.5	.5
30	14.0	8.0	12.5	---	---	---	---	---	---	1.0	.0	.5
31	15.5	13.5	14.5	---	---	---	---	---	---	1.0	.0	.5
MONTH	17.0	8.0	14.5	14.5	2.5	7.0	8.0	.0	4.5	5.0	.0	1.0



TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	.5	.0	.0	---	---	---	10.0	7.0	8.5	15.0	13.5	14.5
2	2.0	.5	1.5	---	---	---	8.5	6.0	7.0	15.0	13.0	14.0
3	2.5	1.0	1.5	---	---	---	8.0	6.5	7.0	12.5	6.5	9.0
4	2.0	1.0	1.5	---	---	---	10.0	6.5	8.0	9.0	7.0	8.0
5	2.0	1.0	1.5	---	---	---	10.5	6.5	9.0	10.5	8.5	9.5
6	2.5	1.5	2.0	---	---	---	9.5	8.0	9.0	---	---	---
7	1.5	.0	.5	---	---	---	8.0	7.0	7.5	---	---	---
8	.0	.0	.0	---	---	---	7.0	5.0	6.5	---	---	---
9	.0	.0	.0	---	---	---	---	---	---	---	---	---
10	.0	.0	.0	---	---	---	---	---	---	15.0	13.0	14.0
11	1.5	.0	.5	5.0	4.0	4.5	---	---	---	16.5	13.5	15.0
12	1.5	.0	1.0	5.5	4.5	5.0	---	---	---	17.0	13.0	15.0
13	---	---	---	---	---	---	---	---	---	12.0	8.0	10.0
14	---	---	---	---	---	---	---	---	---	14.0	11.0	12.5
15	---	---	---	---	---	---	---	---	---	15.0	13.5	14.0
16	---	---	---	---	---	---	---	---	---	15.0	8.0	12.0
17	---	---	---	7.0	4.5	5.5	---	---	---	9.5	8.0	9.0
18	---	---	---	---	---	---	---	---	---	10.5	8.5	9.5
19	---	---	---	---	---	---	14.0	11.0	12.5	12.0	9.0	10.0
20	---	---	---	---	---	---	15.0	12.0	13.5	14.0	11.0	12.5
21	---	---	---	6.0	4.0	4.5	15.0	12.5	13.5	14.5	13.5	14.0
22	---	---	---	---	---	---	15.0	12.0	13.5	14.5	13.5	14.0
23	---	---	---	---	---	---	16.5	12.5	14.5	14.0	12.0	13.0
24	---	---	---	6.0	4.0	5.0	16.0	13.5	14.5	12.0	10.5	11.0
25	---	---	---	6.0	4.5	5.0	15.5	12.5	14.0	12.0	10.0	11.0
26	---	---	---	---	---	---	14.5	12.0	13.5	13.0	10.0	12.0
27	---	---	---	---	---	---	14.5	13.0	14.0	12.0	8.5	9.5
28	---	---	---	10.0	6.5	8.0	15.0	13.5	14.0	12.5	11.5	12.0
29	---	---	---	11.0	8.5	9.5	16.0	12.0	14.0	15.0	12.0	13.0
30	---	---	---	11.5	9.0	10.0	15.0	12.0	13.5	14.0	12.5	13.0
31	---	---	---	10.0	8.5	9.5	---	---	---	14.0	12.5	13.0
MONTH	2.5	.0	1.0	11.5	4.0	6.5	16.5	5.0	11.5	17.0	6.5	12.0
JUNE				JULY			AUGUST			SEPTEMBER		
1	16.5	14.0	15.0	17.5	16.5	17.0	19.5	17.0	18.5	18.0	17.0	17.5
2	15.5	14.5	15.0	17.0	16.5	16.5	19.0	17.0	17.5	19.0	15.5	17.5
3	16.0	14.5	15.0	17.5	16.0	16.5	19.5	16.5	18.0	20.0	17.5	18.5
4	16.5	15.0	15.5	18.0	16.5	17.0	19.5	17.0	18.0	20.0	18.5	19.0
5	17.5	15.5	16.5	19.5	17.0	18.0	18.5	17.5	18.0	20.0	17.0	19.0
6	18.0	16.5	17.0	18.5	18.0	18.0	18.0	17.5	17.5	19.0	15.5	18.5
7	16.5	15.5	16.0	19.0	17.0	18.0	18.0	17.5	18.0	21.0	17.0	18.5
8	18.0	15.5	16.5	19.5	18.0	18.5	19.0	17.5	18.0	21.0	19.5	20.0
9	18.0	16.5	17.5	20.5	18.5	19.5	20.5	18.0	19.0	---	---	---
10	19.5	17.0	18.0	20.0	18.5	19.0	20.5	17.0	19.5	21.5	18.0	20.5
11	19.0	17.5	18.5	20.5	18.0	19.0	20.0	18.5	19.5	21.0	19.0	20.0
12	19.0	16.5	17.5	21.0	19.0	20.0	20.5	19.0	19.5	19.0	16.5	17.5
13	16.0	13.5	14.5	21.0	19.5	20.0	22.0	19.5	20.5	17.0	16.0	16.5
14	14.5	12.5	13.5	21.5	19.0	20.0	22.0	20.0	21.0	17.5	15.0	16.0
15	15.0	13.5	14.5	21.5	20.0	21.0	22.0	20.0	21.0	17.5	15.0	16.0
16	15.5	14.5	15.0	22.0	20.0	21.0	21.0	19.5	20.0	18.0	15.0	16.5
17	17.0	14.5	15.5	21.5	19.5	20.5	20.0	19.5	19.5	18.0	15.5	16.5
18	16.5	16.0	16.0	21.5	19.5	20.5	19.5	18.5	18.5	18.5	15.5	17.0
19	16.0	15.0	15.5	21.5	20.0	21.0	19.5	17.0	18.5	18.0	16.0	17.0
20	15.5	14.5	15.0	21.5	20.0	21.0	19.5	17.5	18.5	19.0	16.5	17.5
21	16.5	14.0	15.0	21.5	20.5	21.0	19.5	17.5	18.5	19.0	16.5	17.5
22	17.0	15.0	16.0	21.0	20.0	20.5	18.5	16.5	17.5	18.0	17.5	18.0
23	18.5	16.5	17.0	21.0	19.5	20.5	18.0	16.0	17.0	18.0	16.5	17.5
24	19.5	16.5	18.0	21.0	19.0	20.0	16.5	15.5	16.0	17.5	16.0	17.0
25	19.5	18.0	18.5	20.5	19.5	20.0	17.5	13.0	15.5	17.0	15.0	16.0
26	18.0	17.0	17.5	19.5	19.0	19.5	17.5	15.5	16.5	17.0	16.0	16.5
27	18.0	16.0	17.0	21.0	19.0	19.5	17.5	16.5	17.0	17.0	14.5	15.5
28	17.5	16.5	17.0	20.5	18.5	19.5	18.0	15.5	16.5	16.5	14.0	15.0
29	18.0	16.0	17.0	21.0	19.0	20.0	18.0	16.5	17.5	16.0	14.5	15.0
30	18.5	17.0	17.5	21.5	19.5	20.5	18.0	16.0	17.0	16.5	14.0	15.0
31	---	---	---	20.0	18.0	19.0	18.0	15.0	17.0	---	---	---
MONTH	19.5	12.5	16.5	22.0	16.0	19.5	22.0	13.0	18.0	21.5	14.0	17.5
YEAR	22.0	.0	12.0									

## 02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA

LOCATION.--Lat 38°04'10", long 79°53'50", Bath County, Hydrologic Unit 02080201, on left bank 0.3 mi downstream from Cummings Run, 0.8 mi downstream from bridge on State Highway 39, and 2.1 mi south of Mountain Grove.

DRAINAGE AREA.--134 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,701.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16, 21, 26-31, Mar. 30 to Apr. 2, and May 6, 7, 9-24. Records good except those for periods of doubtful or no gage-height record, Mar. 30 to Apr. 2 and May 6, 7, 9-24, and periods with ice effect, Jan. 16, 21, 26-31, which are fair. Flow regulated since October 1984 by Back Creek Lake 11.3 mi upstream and since January 1985 by Little Back Creek Lake 14.4 mi upstream, amount unknown. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--34 years, 184 ft<sup>3</sup>/s, 18.65 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft<sup>3</sup>/s, Mar. 7, 1967, gage height, 10.77 ft, from rating curve extended above 4,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 7.39 ft, 9.05 ft, and 9.35 ft; minimum, 1.5 ft<sup>3</sup>/s, Aug. 18, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,190 ft<sup>3</sup>/s, May 3, gage height, 6.66 ft; minimum daily, 15 ft<sup>3</sup>/s, Sept. 12-21, 23-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	72	51	150	107	128	395	320	75	98	23	31	25		
2	53	49	111	225	420	291	270	80	94	24	45	24		
3	46	50	94	316	287	253	218	1570	67	23	40	23		
4	38	45	80	513	185	206	196	688	62	21	39	18		
5	32	81	72	347	142	178	163	364	63	21	30	18		
6	28	93	74	226	123	152	165	280	62	21	25	18		
7	27	84	65	170	100	130	147	220	74	24	29	17		
8	28	68	59	134	79	122	142	150	91	21	34	17		
9	28	60	58	105	77	131	130	130	142	20	36	18		
10	26	53	59	89	70	126	124	120	117	24	29	16		
11	25	61	64	80	63	131	130	140	101	24	27	16		
12	24	59	72	70	158	523	132	200	72	27	27	15		
13	23	56	80	63	141	396	131	400	67	26	29	15		
14	22	50	74	59	101	167	132	250	66	25	27	15		
15	23	51	69	55	82	131	129	170	65	23	25	15		
16	24	48	66	45	71	194	143	130	56	22	24	15		
17	24	45	62	49	63	196	148	109	41	20	25	15		
18	25	44	59	48	59	177	148	102	36	20	54	15		
19	24	166	63	45	61	155	147	140	32	20	42	15		
20	23	237	79	36	72	132	147	76	62	19	33	15		
21	21	153	159	32	86	128	138	59	82	19	30	15		
22	22	111	305	37	114	144	119	52	87	18	27	16		
23	25	91	243	37	199	249	105	450	76	18	25	15		
24	37	77	178	35	457	346	98	1300	82	18	25	15		
25	31	67	287	36	1020	324	97	790	61	23	29	15		
26	36	58	244	30	1150	278	91	458	31	38	27	15		
27	40	52	176	27	738	230	87	373	24	28	34	15		
28	44	224	135	29	537	194	82	228	23	23	34	15		
29	77	404	110	28	---	210	79	174	23	22	23	15		
30	66	221	94	25	---	270	76	85	22	21	31	15		
31	57	---	96	30	---	300	---	90	---	33	26	---		
TOTAL	1071	2909	3537	3128	6783	6859	4234	9453	1979	709	962	496		
MEAN	34.5	97.0	114	101	242	221	141	305	66.0	22.9	31.0	16.5		
MAX	77	404	305	513	1150	523	320	1570	142	38	54	25		
MIN	21	44	58	25	59	122	76	52	22	18	23	15		
(*)	+9	+85	+155	+89	+126	.00	.00	.00	.00	.00	.00	.00		
MEAN*	43.5	182	269	190	368	221	141	305	66.0	22.9	31.0	16.5		
CFSM*	.32	1.36	2.01	1.42	2.75	1.65	1.05	2.28	.49	.17	.23	.12		
IN.*	.37	1.52	2.32	1.63	2.86	1.90	1.18	2.62	.55	.20	.27	.14		
CAL YR 1984	TOTAL	78678	MEAN	215	MAX	4900	MIN	16	MEAN*	236	CFSM*	1.76	IN.*	23.98
WTR YR 1985	TOTAL	42120	MEAN	115	MAX	1570	MIN	15	MEAN*	153	CFSM*	1.14	IN.*	15.54

\* Change in contents, equivalent in cubic feet per second, for the initial storage in Back Creek Lake; provided by Virginia Power.

\* Adjusted for change in contents.

## JAMES RIVER BASIN

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1978 to current year.

INSTRUMENTATION.--Water-temperature recorder since June 1978.

REMARKS.--Some record in prior years fragmentary due to instrument malfunction.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 31.0°C, Aug. 5, 11, 1980, July 21, Aug. 21, 1983, July 30, 1985; minimum recorded, 0.0°C on many days during winter periods.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 31.0°C, July 30; minimum, 0.0°C on many days during winter period.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.5	13.0	13.0	15.5	14.5	15.0	9.0	7.0	8.0	10.0	7.5	8.5
2	14.5	12.5	13.0	15.5	12.5	14.5	8.0	5.5	7.0	9.0	7.5	8.5
3	16.0	11.0	13.5	13.5	10.5	12.0	8.5	6.5	7.5	7.5	7.0	7.0
4	17.0	12.0	14.5	12.5	12.0	12.5	6.5	4.5	5.5	7.0	7.0	7.0
5	17.5	13.5	15.5	13.5	12.5	13.0	6.0	4.0	5.0	7.0	5.0	6.0
6	17.5	14.0	16.0	12.5	11.5	12.0	5.5	3.0	4.5	6.0	3.5	5.0
7	17.0	15.5	16.0	12.5	9.5	11.0	3.0	1.5	2.0	5.5	4.5	5.0
8	17.0	15.5	16.0	12.0	8.5	10.5	4.0	1.0	2.5	5.0	3.0	4.5
9	20.0	16.0	18.0	12.0	10.0	11.0	5.0	1.5	3.5	3.5	1.5	2.5
10	20.0	16.0	18.0	12.5	9.0	11.0	5.5	4.0	4.5	3.0	2.5	3.0
11	20.0	16.0	18.0	12.5	11.0	12.0	7.5	5.0	6.0	3.5	2.0	2.5
12	20.0	15.5	17.5	10.5	8.5	9.5	7.0	4.0	5.5	2.0	.0	1.0
13	18.5	14.0	16.5	9.0	7.0	8.5	8.5	6.0	7.0	3.0	.0	1.5
14	18.0	14.0	16.0	9.0	6.5	8.0	8.0	7.0	7.5	3.0	.0	1.5
15	16.5	13.5	15.5	10.0	6.5	8.5	10.0	7.5	8.5	1.5	.0	.5
16	19.5	15.0	17.0	10.5	7.5	9.5	9.5	7.5	8.5	.5	.0	.0
17	18.5	16.5	17.5	8.5	5.5	7.0	10.5	8.0	9.0	.5	.0	.5
18	20.5	16.5	18.5	7.5	6.0	6.5	10.0	8.0	9.0	1.0	.0	.5
19	21.5	16.0	19.0	9.0	7.0	8.0	10.0	9.0	9.5	3.0	.5	1.0
20	20.5	17.0	19.0	8.5	6.5	8.0	9.0	7.5	8.0	.5	.0	.0
21	21.0	17.0	19.0	8.0	5.5	6.5	8.0	7.0	7.5	.5	.0	.0
22	20.5	18.0	19.5	7.0	4.5	6.0	9.0	7.5	8.0	.5	.5	.5
23	20.0	17.5	18.5	7.5	4.5	6.0	7.5	5.5	6.5	.5	.0	.5
24	19.5	17.5	18.0	7.5	4.5	6.0	6.5	4.5	5.5	.5	.0	.5
25	19.0	17.0	18.0	7.5	4.5	6.0	7.0	5.0	6.5	.5	.0	.5
26	20.5	17.5	19.0	8.0	4.5	6.0	5.5	3.5	4.5	.5	.5	.5
27	19.5	16.0	17.5	9.0	5.5	7.0	6.5	4.5	5.5	.5	.0	.5
28	19.5	15.5	17.5	10.5	8.5	9.5	8.0	5.5	7.0	1.0	.0	.5
29	19.5	16.0	17.5	8.5	7.0	8.0	9.0	6.0	7.5	1.0	.0	.5
30	16.5	14.5	15.5	8.5	6.0	7.0	9.0	7.5	8.0	1.0	.0	.5
31	18.5	15.0	16.5	---	---	---	8.0	7.5	7.5	.5	.0	.5
MONTH	21.5	11.0	17.0	15.5	4.5	9.0	10.5	1.0	6.5	10.0	.0	2.5

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	.5	.0	.5	6.0	2.5	4.0	11.0	5.5	8.0	18.0	12.0	15.0
2	3.5	.0	2.0	7.5	3.0	5.0	8.5	5.0	6.5	16.0	12.5	13.5
3	4.0	1.5	2.5	7.5	2.0	5.0	9.0	4.0	6.5	12.5	8.5	10.5
4	3.5	1.5	2.5	5.5	4.0	5.0	12.0	5.5	8.5	13.0	7.5	10.0
5	3.0	2.0	2.5	9.0	5.0	6.5	13.5	7.0	10.0	14.5	9.0	11.0
6	4.5	2.5	3.5	7.5	2.5	5.0	11.5	7.5	9.5	15.0	9.0	12.0
7	4.0	1.0	2.5	7.5	2.5	5.0	8.0	5.5	6.5	17.0	11.0	13.5
8	1.0	1.0	1.0	6.0	4.5	5.0	9.0	5.0	7.0	16.0	10.5	13.0
9	1.5	.0	1.0	9.0	4.0	6.5	8.0	4.5	6.0	19.0	11.0	14.5
10	1.5	1.0	1.0	9.0	2.5	5.5	11.0	3.0	6.5	18.0	13.0	15.5
11	2.5	1.0	1.5	5.5	3.5	4.5	9.0	6.0	7.5	19.5	13.5	16.0
12	2.0	1.0	1.5	7.0	4.5	5.5	14.0	6.0	9.5	19.0	14.0	16.0
13	2.0	.5	1.5	8.0	4.0	5.5	11.5	8.0	10.0	17.0	12.5	14.0
14	3.0	.5	1.5	7.5	5.5	6.5	11.0	8.5	10.0	18.5	11.0	14.0
15	3.0	.5	1.5	9.0	4.0	6.0	12.0	9.0	10.5	17.5	12.5	15.0
16	2.0	.5	1.0	8.5	3.0	5.5	14.5	9.5	11.5	18.5	12.5	15.5
17	4.0	.5	2.0	8.5	4.0	6.0	15.0	8.0	11.5	15.0	13.0	14.0
18	4.0	.5	2.5	7.5	3.0	5.0	16.5	8.0	12.0	17.0	12.0	14.5
19	6.5	3.0	4.0	9.0	2.0	5.0	17.5	9.0	13.0	19.0	11.5	15.0
20	6.0	1.5	4.0	9.0	3.0	6.0	16.0	9.5	12.5	20.5	12.0	16.0
21	6.0	1.0	3.5	6.5	4.5	5.5	16.0	9.5	12.5	18.5	15.5	17.0
22	5.5	2.5	4.5	5.5	3.5	4.5	16.0	9.5	12.5	17.0	15.5	16.5
23	7.5	3.5	5.0	8.0	4.5	6.0	18.5	11.0	14.5	17.0	10.0	14.5
24	8.0	4.0	5.5	9.5	5.5	7.0	16.5	11.5	14.5	10.5	10.0	10.5
25	6.0	5.0	5.5	7.0	4.5	5.5	18.0	12.5	15.0	14.5	10.0	12.0
26	6.0	4.0	5.0	10.5	3.0	6.0	19.5	10.5	14.5	15.5	10.5	12.5
27	7.0	3.5	5.0	11.0	4.0	7.0	15.0	11.5	13.5	16.5	11.0	13.5
28	6.5	2.5	4.0	11.5	6.0	8.5	17.0	13.0	15.0	14.0	11.5	12.5
29	---	---	---	11.5	7.5	9.5	19.5	11.5	15.0	18.0	11.5	14.5
30	---	---	---	11.0	7.5	9.5	20.0	11.5	15.5	16.0	15.0	15.0
31	---	---	---	8.5	7.5	7.5	---	---	---	18.5	14.0	16.0
MONTH	8.0	.0	3.0	11.5	2.0	6.0	20.0	3.0	11.0	20.5	7.5	14.0
JUNE				JULY			AUGUST			SEPTEMBER		
1	22.5	14.5	17.5	19.0	16.5	18.0	24.5	21.0	22.5	22.5	17.0	19.5
2	17.5	14.0	15.5	20.5	15.5	18.0	25.0	18.5	21.0	24.5	18.0	21.0
3	21.5	14.0	17.5	22.0	16.5	19.0	25.0	17.0	20.5	26.0	19.0	22.0
4	20.0	16.0	17.5	24.5	17.0	20.0	25.0	17.0	20.5	26.0	19.5	22.0
5	20.5	16.5	18.5	25.5	18.0	21.0	22.0	17.5	20.0	26.0	19.0	22.5
6	22.0	17.5	19.5	22.0	18.5	20.5	21.5	18.0	19.5	24.5	20.5	22.5
7	18.5	15.0	16.0	25.5	18.0	21.0	21.5	18.5	20.0	26.5	20.0	23.0
8	23.0	14.5	18.0	26.5	18.0	22.0	28.0	20.0	22.5	27.0	21.0	24.0
9	19.0	12.0	15.5	28.5	20.0	23.5	28.0	21.5	24.0	27.5	22.0	24.0
10	20.0	12.5	16.5	23.5	19.0	20.5	28.0	21.0	24.0	27.0	21.0	23.5
11	20.0	13.0	16.5	25.5	17.5	21.0	26.5	20.5	23.5	23.5	21.0	22.0
12	19.0	16.0	17.5	26.0	19.0	22.0	27.5	21.0	24.0	20.5	16.5	19.0
13	15.5	12.5	14.0	27.0	20.5	23.0	29.0	22.0	25.0	20.5	13.0	16.0
14	16.5	11.0	13.5	26.5	20.0	23.0	29.5	22.0	25.0	19.0	10.0	14.5
15	17.0	13.5	15.5	27.5	21.5	24.0	29.0	22.5	25.0	19.5	10.0	14.5
16	18.5	14.5	16.0	28.0	20.5	24.0	26.0	21.5	23.5	20.5	11.0	15.0
17	24.0	15.0	18.5	28.5	19.0	23.5	23.0	21.0	22.0	20.5	11.0	15.5
18	23.5	17.0	20.0	28.5	19.5	23.5	21.5	19.5	20.0	21.0	12.0	16.0
19	21.0	15.5	18.0	29.0	20.0	24.0	24.5	18.0	21.0	21.5	13.5	17.0
20	18.0	15.0	16.5	28.5	20.5	24.0	24.0	19.5	21.5	22.5	14.5	18.0
21	18.0	12.5	15.5	28.5	22.0	25.0	26.0	20.0	22.5	22.5	15.5	18.5
22	19.5	12.5	16.0	27.0	21.5	24.0	23.0	17.0	20.0	20.0	17.0	18.5
23	19.5	14.5	17.5	28.0	20.5	23.5	24.0	16.0	19.5	22.0	16.0	18.0
24	21.5	14.5	18.0	28.0	18.5	23.0	19.5	18.0	19.0	20.5	16.0	18.0
25	22.5	16.0	19.0	24.0	21.5	22.5	21.0	18.0	19.5	20.0	12.0	16.0
26	24.5	14.0	18.5	26.0	20.5	22.5	24.0	19.0	21.0	19.5	15.5	17.5
27	23.0	13.5	18.0	28.0	21.0	23.5	24.5	20.0	21.5	18.0	14.5	16.0
28	22.0	15.0	18.5	27.5	19.5	23.0	25.0	18.0	21.0	18.5	11.0	14.5
29	24.5	15.0	19.5	27.5	21.0	23.5	25.0	18.0	21.0	19.0	11.0	14.5
30	21.5	16.5	19.0	31.0	21.5	25.0	22.0	18.0	20.0	19.5	11.5	15.0
31	---	---	---	28.0	23.0	25.0	24.0	17.5	20.0	---	---	---
MONTH	24.5	11.0	17.5	31.0	15.5	22.5	29.5	16.0	21.5	27.5	10.0	18.5
YEAR	31.0	.0	12.5									



## 02011795 LAKE MOOMAW NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°57'04", long 79°59'21", Alleghany County, Hydrologic Unit 02080201, in control tower at Gathright Dam on Jackson River, 0.9 mi upstream from Cedar Creek, 7.6 mi southwest of Hot Springs, and 19 mi upstream from Covington.

DRAINAGE AREA.--344 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Lake is formed by rolled rockfill dam with an impervious compacted earth (clay) core. Spillway with crest at elevation 1,667.5 ft is in a divide about 2.5 mi south of the dam, ungated, and 2,450 ft long with a base width of 100 ft. Except for flood flows, all discharge will be through a diversion tunnel with the invert of the entrance being in an intake tower 260 ft high. Elevation of invert is 1,430.5 ft. Portals in the tower at nine levels permit oxygenated water from the surface and cold water from the bottom of the lake to be mixed for water-quality control. Sluice gates in the tower control flood flow releases. Storage began Dec. 10, 1979. Total capacity at top of dam, elevation 1,684.5 ft, is 502,600 acre-ft of which 81,100 acre-ft is above spillway crest. Capacity at maximum conservation pool, elevation 1,582.0 ft, is 123,700 acre-ft; capacity at minimum conservation pool, elevation 1,554.0 ft, is 63,000 acre-ft. Lake is used for flood control, low-water augmentation for water-quality control, and recreation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 142,000 acre-ft, Jan. 15, 1984, elevation, 1,589.0 ft; minimum, (after first filling to minimum conservation pool), 88,700 acre-ft, Oct. 20, 21, 1983, elevation, 1,567.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 126,300 acre-ft, Jan. 5, elevation, 1,583.0 ft; minimum, 90,800 acre-ft, Sept. 30, elevation, 1,568.0 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,578.5	115,000	-
Oct. 31.....	1,577.1	111,600	-3,400
Nov. 30.....	1,581.7	123,000	+11,400
Dec. 31.....	1,582.0	123,700	+700
CAL YR 1984.....	-	-	-300
Jan. 31.....	1,581.7	123,000	-700
Feb. 28.....	1,581.7	123,000	0
Mar. 31.....	1,581.8	123,200	+200
Apr. 30.....	1,581.7	123,000	-200
May 31.....	1,581.9	123,500	+500
June 30.....	1,580.2	119,200	-4,300
July 31.....	1,576.2	109,500	-9,700
Aug. 31.....	1,573.0	102,000	-7,500
Sept. 30.....	1,568.0	90,800	-11,200
WTR YR 1985.....	-	-	-24,200

## 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°56'54", long 79°56'58", Alleghany County, Hydrologic Unit 02080201, on right bank 0.4 mi upstream from Cedar Creek, 0.5 mi downstream from Gathright Dam and Moomaw Lake, and 7.3 mi southwest of Hot Springs.

DRAINAGE AREA.--345 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 to current year.

REVISED RECORDS.--WDR VA-81-1: 1980.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Dec. 20, 1973, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 0.5 mi upstream; since October 1984 by Back Creek Lake 28.5 mi upstream; and since January 1985 by Little Back Creek Lake 31.6 mi upstream, amount unknown. U.S. Army Corps of Engineers water-quality and gage-height transmitters at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--12 years, 458 ft<sup>3</sup>/s, 18.03 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft<sup>3</sup>/s, Dec. 26, 1973, result of cofferdam failure during construction of Gathright Dam, gage height, 18.77 ft, from rating curve extended above 4,400 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 3.0 ft<sup>3</sup>/s, July 12, 1979, result of gate closure at Gathright Dam, gage height, 7.78 ft; minimum daily, 47 ft<sup>3</sup>/s, Sept. 2, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 17.20 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,200 ft<sup>3</sup>/s, Feb. 25, gage height, 12.44 ft; minimum, 9.9 ft<sup>3</sup>/s, May 8, gage height, 7.87 ft; minimum daily, 138 ft<sup>3</sup>/s, Nov. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	257	179	630	442	358	1010	508	221	257	258	257	254		
2	207	164	443	678	909	828	508	199	257	264	257	254		
3	179	147	385	985	1040	730	509	1580	257	264	257	254		
4	157	147	323	991	1030	563	508	1920	257	264	257	254		
5	179	147	292	1700	656	403	508	1030	257	264	257	254		
6	179	147	292	1360	451	403	511	710	257	264	257	254		
7	179	147	292	802	498	403	513	451	257	263	257	254		
8	179	147	292	694	372	403	429	354	257	261	257	252		
9	179	147	292	474	273	403	367	428	257	261	257	250		
10	179	147	292	382	260	403	374	332	258	261	256	250		
11	179	147	292	382	260	403	373	268	256	261	255	250		
12	179	147	292	309	443	543	328	268	256	261	254	250		
13	179	147	292	260	725	1020	373	358	255	261	256	251		
14	274	147	292	260	506	983	373	474	254	261	257	250		
15	446	147	292	260	361	586	373	532	254	261	270	250		
16	277	138	292	260	361	461	373	523	254	261	279	250		
17	179	147	292	260	361	461	364	485	254	261	279	250		
18	179	147	292	260	246	461	370	322	254	261	280	250		
19	179	147	268	260	176	461	373	217	254	261	279	250		
20	179	146	257	260	229	461	373	217	254	261	279	250		
21	179	146	430	260	260	461	328	217	254	261	279	250		
22	179	147	586	260	386	461	295	217	254	261	279	250		
23	179	147	670	260	594	461	295	217	254	260	279	250		
24	179	147	670	260	837	462	295	1140	254	259	279	250		
25	179	147	761	202	2220	601	295	1620	254	260	279	250		
26	179	147	849	152	2670	581	295	1130	254	261	277	250		
27	179	147	970	152	2340	506	295	830	254	261	275	250		
28	179	148	774	152	1560	508	295	581	254	259	275	250		
29	179	149	553	152	---	508	270	433	254	257	275	250		
30	179	390	450	152	---	508	253	309	254	257	275	222		
31	179	---	469	152	---	508	---	257	---	257	267	---		
TOTAL	6093	4694	13576	13433	20382	16954	11324	17840	7656	8087	8296	7503		
MEAN	197	156	438	433	728	547	377	575	255	261	268	250		
MAX	446	390	970	1700	2670	1020	513	1920	258	264	280	254		
MIN	157	138	257	152	176	403	253	199	254	257	254	222		
(*)	-46	+277	+166	+78	+126	+3	-3	+8	-72	-158	-122	-188		
MEAN*	151	433	604	511	854	550	374	583	183	103	146	62.1		
CFSM*	.44	1.26	1.75	1.48	2.48	1.59	1.08	1.69	.53	.30	.42	.18		
IN.*	.50	1.40	2.02	1.71	2.58	1.84	1.21	1.95	.59	.34	.49	.20		
CAL YR 1984	TOTAL	203834	MEAN	557	MAX	5180	MIN	138	MEAN*	578	CFSM*	1.68	IN.*	22.81
WTR YR 1985	TOTAL	135838	MEAN	372	MAX	2670	MIN	138	MEAN*	377	CFSM*	1.09	IN.*	14.84

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## JAMES RIVER BASIN

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1978 to current year.

pH: October 1978 to current year.

WATER TEMPERATURE: October 1978 to current year.

DISSOLVED OXYGEN: October 1978 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1978.

REMARKS.--Interruptions in the record were due to malfunctions of the instruments. The intake tower at Gathright Dam permits selective withdrawal of water from one or more reservoir depths. Some record in prior years fragmentary due to instrument malfunction.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE (water years 1979, 1981-85): Maximum recorded, 225 microsiemens, Apr. 13, 1981; minimum recorded, 78 microsiemens, May 14, 1979.

pH (water years 1979, 1981-85): Maximum recorded, 8.6 units, Jan. 29, 1982, Jan. 13, 1983; minimum recorded, 6.9 units, Aug. 14-17, 1984.

WATER TEMPERATURE (water years 1979, 1981-85): Maximum recorded, 28.0°C, Aug. 1, 2, 1979; minimum recorded, 0.0°C, Feb. 16-19, 1979.

DISSOLVED OXYGEN (water years 1979, 1981, 1984-85): Maximum recorded, 19.5 mg/L, Jan. 16, 1979; minimum recorded, 6.1 mg/L, June 10, 15, 1979.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 186 microsiemens, Sept. 26; minimum recorded, 99 microsiemens, Apr. 10.

pH: Maximum, 8.3 units, Apr. 18; minimum, 7.1 units, Nov. 21-23, 30, Dec. 4.

WATER TEMPERATURE: Maximum, 23.5°C, July 19-21, 30, Aug. 10-12, 14; minimum, 2.5°C, Feb. 8, 9.

DISSOLVED OXYGEN: Maximum, 14.1 mg/L, Feb. 25; minimum, 7.2 mg/L, Aug. 14.

## SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	133	130	131	140	138	139	139	134	137	141	139	140
2	133	128	131	141	140	140	141	137	139	141	139	140
3	139	130	135	141	139	140	142	139	140	142	139	140
4	169	136	140	140	138	140	142	140	141	141	139	140
5	138	135	137	141	138	139	147	142	144	140	137	139
6	138	137	138	140	138	139	146	143	144	141	137	139
7	139	135	137	140	137	139	145	143	144	140	139	140
8	139	134	137	140	137	139	145	144	145	139	137	138
9	139	133	137	140	138	139	145	144	145	140	138	139
10	139	135	137	142	138	140	146	144	145	141	139	140
11	139	134	138	140	138	139	146	145	145	141	139	140
12	140	134	138	140	138	139	146	144	145	142	139	141
13	140	133	137	139	138	139	144	143	144	164	140	148
14	139	132	136	140	138	139	144	143	144	142	140	141
15	136	130	134	140	135	139	145	143	144	142	140	141
16	139	133	136	146	138	139	144	143	143	141	140	141
17	140	132	138	141	137	139	144	142	143	142	140	141
18	140	133	138	142	138	139	145	142	143	142	140	141
19	140	133	138	143	138	141	145	142	143	141	140	141
20	139	135	138	141	138	140	145	142	143	141	140	141
21	139	132	138	141	136	139	144	140	142	141	140	140
22	---	---	---	141	136	139	141	139	140	142	140	141
23	---	---	---	141	137	139	140	139	139	142	140	140
24	---	---	---	141	137	140	140	139	140	141	140	140
25	140	137	139	141	138	140	141	139	140	144	140	142
26	140	138	139	142	138	140	142	140	141	144	142	143
27	140	137	139	143	140	141	142	140	141	143	142	143
28	142	134	139	144	140	142	142	140	142	143	142	142
29	142	139	140	144	139	141	143	142	142	143	142	142
30	140	138	139	143	134	138	142	140	141	143	141	142
31	140	138	139	---	---	---	140	138	139	144	141	142
MONTH	169	128	137	146	134	140	147	134	142	164	137	141

## SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	143	135	140	130	128	128	---	---	---	---	---	---
2	136	135	135	130	128	129	---	---	---	---	---	---
3	134	133	134	133	129	131	---	---	---	---	---	---
4	135	133	134	---	---	---	---	---	---	---	---	---
5	137	134	135	---	---	---	---	---	---	---	---	---
6	136	135	136	131	130	130	---	---	---	---	---	---
7	135	133	135	131	130	130	---	---	---	---	---	---
8	136	133	135	132	130	130	120	118	119	133	108	115
9	137	136	136	131	130	130	119	118	118	109	102	106
10	137	136	137	---	---	---	122	99	116	110	103	107
11	137	136	137	---	---	---	119	103	114	110	107	109
12	138	133	136	---	---	---	127	104	114	112	108	110
13	134	133	133	132	127	130	117	115	116	112	109	110
14	136	133	135	131	126	129	116	115	116	111	109	110
15	136	135	135	132	129	131	116	105	112	111	106	108
16	136	135	135	132	130	131	117	114	115	113	108	110
17	137	132	134	---	---	---	---	---	---	116	111	113
18	136	131	134	---	---	---	---	---	---	123	113	118
19	136	135	136	132	129	131	---	---	---	118	114	116
20	136	133	134	135	131	133	---	---	---	121	114	117
21	134	132	133	135	133	134	126	124	125	123	117	121
22	134	130	132	135	133	134	128	125	126	124	122	123
23	130	129	130	---	---	---	---	---	---	130	124	125
24	131	129	130	---	---	---	---	---	---	134	105	119
25	131	128	129	---	---	---	128	126	127	108	106	107
26	130	128	128	---	---	---	---	---	---	111	107	108
27	129	128	128	133	128	131	---	---	---	126	108	119
28	129	127	128	---	---	---	---	---	---	126	121	123
29	---	---	---	---	---	---	128	125	126	129	124	126
30	---	---	---	---	---	---	---	---	---	127	125	126
31	---	---	---	---	---	---	---	---	---	129	125	128
MONTH	143	127	134	135	126	131	128	99	119	134	102	116
	JUNE			JULY			AUGUST			SEPTEMBER		
1	155	125	137	140	137	139	147	143	145	151	149	150
2	155	138	143	138	135	136	147	143	146	152	149	151
3	139	135	138	145	136	139	152	146	149	176	150	155
4	168	135	144	143	140	141	153	148	151	167	155	162
5	144	138	142	144	139	141	149	141	146	169	154	160
6	139	135	137	146	138	141	162	146	150	167	159	162
7	140	134	136	145	141	143	150	145	147	172	154	164
8	138	131	134	145	141	143	153	145	148	173	163	166
9	131	128	130	145	142	144	146	141	144	165	154	159
10	135	129	132	148	144	145	147	142	144	160	152	156
11	147	129	135	145	142	144	152	143	146	161	156	157
12	145	132	137	147	142	144	155	145	150	157	148	152
13	138	131	133	150	144	147	152	146	148	150	147	148
14	166	134	147	149	144	147	153	146	148	148	145	147
15	143	134	137	175	148	155	151	147	149	145	142	144
16	149	135	142	151	148	150	152	146	149	167	144	154
17	138	135	137	152	146	149	150	147	149	166	163	164
18	138	135	136	154	146	149	151	147	150	165	162	164
19	137	133	136	166	148	151	150	146	148	164	152	160
20	152	132	137	161	148	152	150	146	149	153	145	150
21	139	131	135	156	149	153	150	146	148	150	148	149
22	136	131	134	153	147	150	150	148	149	149	146	147
23	136	132	135	152	147	149	150	147	149	148	146	147
24	138	134	135	149	142	147	152	147	150	151	147	149
25	136	133	135	150	145	148	150	148	149	176	151	159
26	146	133	136	152	143	147	149	143	146	186	154	176
27	148	133	136	150	144	148	147	143	145	179	175	178
28	138	133	135	149	142	145	147	144	146	178	175	176
29	146	137	141	148	142	145	148	144	147	179	166	176
30	166	140	148	148	140	145	151	147	149	181	177	180
31	---	---	---	148	141	144	150	148	149	---	---	---
MONTH	168	125	137	175	135	146	162	141	148	186	142	159
YEAR	186	99	139									



## JAMES RIVER BASIN

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.6	7.5	7.5	7.7	7.5	7.5	7.2	7.2	7.2	7.4	7.3	7.3
2	7.7	7.5	7.6	7.7	7.5	7.6	7.3	7.2	7.2	7.3	7.2	7.3
3	7.7	7.5	7.5	7.6	7.4	7.5	7.3	7.3	7.3	7.3	7.2	7.3
4	7.6	7.5	7.5	7.5	7.4	7.4	7.3	7.1	7.2	7.3	7.3	7.3
5	7.6	7.5	7.5	7.5	7.4	7.4	7.5	7.2	7.3	7.3	7.2	7.2
6	7.7	7.5	7.5	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.2	7.3
7	7.7	7.5	7.5	7.4	7.3	7.3	7.3	7.2	7.3	7.3	7.3	7.3
8	7.6	7.5	7.5	7.4	7.3	7.3	7.3	7.2	7.3	7.4	7.3	7.3
9	7.6	7.5	7.5	7.4	7.2	7.3	7.3	7.3	7.3	7.6	7.3	7.5
10	7.6	7.5	7.5	7.4	7.2	7.3	7.3	7.3	7.3	7.6	7.5	7.6
11	7.7	7.5	7.6	7.4	7.3	7.3	7.3	7.3	7.3	7.6	7.6	7.6
12	7.7	7.5	7.6	7.3	7.3	7.3	7.3	7.3	7.3	7.6	7.6	7.6
13	7.7	7.6	7.6	7.3	7.3	7.3	7.3	7.3	7.3	7.6	7.6	7.6
14	7.7	7.5	7.6	7.3	7.2	7.2	7.3	7.3	7.3	7.6	7.6	7.6
15	7.6	7.5	7.5	7.3	7.2	7.2	7.4	7.3	7.3	7.6	7.6	7.6
16	7.7	7.5	7.6	7.3	7.2	7.2	7.3	7.3	7.3	7.6	7.6	7.6
17	7.7	7.6	7.6	7.3	7.2	7.2	7.3	7.3	7.3	7.6	7.6	7.6
18	7.7	7.6	7.6	7.3	7.2	7.2	7.3	7.3	7.3	7.7	7.6	7.6
19	7.8	7.6	7.7	7.3	7.2	7.2	7.3	7.3	7.3	7.6	7.6	7.6
20	7.8	7.6	7.7	7.2	7.2	7.2	7.3	7.3	7.3	7.6	7.6	7.6
21	7.9	7.5	7.7	7.2	7.1	7.2	7.3	7.3	7.3	7.6	7.6	7.6
22	---	---	---	7.2	7.1	7.2	7.3	7.3	7.3	7.7	7.6	7.6
23	---	---	---	7.2	7.1	7.2	7.3	7.3	7.3	7.7	7.6	7.6
24	---	---	---	7.2	7.2	7.2	7.3	7.3	7.3	7.7	7.6	7.6
25	7.9	7.6	7.7	7.3	7.2	7.2	7.3	7.3	7.3	7.7	7.6	7.6
26	7.8	7.6	7.7	7.2	7.2	7.2	7.3	7.3	7.3	7.7	7.6	7.6
27	7.8	7.6	7.7	7.3	7.2	7.2	7.3	7.3	7.3	7.7	7.6	7.6
28	7.8	7.6	7.7	7.3	7.2	7.2	7.3	7.3	7.3	7.7	7.6	7.6
29	7.7	7.6	7.6	7.3	7.2	7.3	7.3	7.3	7.3	7.7	7.6	7.6
30	7.8	7.6	7.7	7.3	7.1	7.2	7.3	7.3	7.3	7.7	7.6	7.7
31	7.7	7.5	7.6	---	---	---	7.3	7.3	7.3	7.8	7.7	7.7
MONTH	7.9	7.5	7.6	7.7	7.1	7.3	7.5	7.1	7.3	7.8	7.2	7.5
	FEBRUARY			MARCH			APRIL			MAY		
1	7.7	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.6	8.0	7.8	7.9
2	7.7	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.6	8.0	7.8	7.9
3	7.7	7.7	7.7	7.6	7.5	7.5	7.7	7.6	7.7	8.0	7.5	7.7
4	7.7	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.6	7.8	7.5	7.6
5	7.8	7.7	7.7	7.6	7.5	7.5	7.7	7.6	7.6	7.9	7.8	7.8
6	7.7	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.7	8.0	7.8	7.9
7	7.8	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.7	8.0	7.8	7.9
8	7.8	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.7	7.9	7.8	7.8
9	7.8	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.7	7.9	7.8	7.8
10	7.8	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.7	8.1	7.8	7.9
11	7.8	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.6	8.1	7.8	8.0
12	7.7	7.7	7.7	7.6	7.6	7.6	7.8	7.6	7.7	8.1	7.8	8.0
13	7.7	7.7	7.7	7.7	7.6	7.6	7.7	7.6	7.6	8.1	7.8	8.0
14	7.7	7.5	7.6	7.7	7.6	7.7	7.7	7.6	7.6	8.0	7.8	7.9
15	7.6	7.6	7.6	7.7	7.6	7.6	7.7	7.6	7.6	8.0	7.9	7.9
16	7.6	7.5	7.6	7.7	7.6	7.6	7.7	7.6	7.6	8.0	7.8	7.9
17	7.6	7.5	7.5	7.7	7.6	7.6	7.7	7.6	7.6	8.1	7.8	7.9
18	7.6	7.5	7.6	7.7	7.6	7.6	8.3	7.6	7.8	8.1	7.8	7.9
19	7.6	7.5	7.5	7.7	7.6	7.6	7.8	7.7	7.7	8.0	7.7	7.8
20	7.6	7.5	7.5	7.7	7.6	7.6	7.8	7.7	7.7	8.1	7.8	7.9
21	7.6	7.5	7.5	7.7	7.6	7.6	7.8	7.7	7.7	8.1	7.8	7.9
22	7.6	7.5	7.5	7.7	7.6	7.6	7.9	7.7	7.8	8.0	7.8	7.9
23	7.6	7.5	7.5	7.7	7.6	7.6	7.9	7.8	7.8	8.0	7.8	7.9
24	7.6	7.5	7.5	7.7	7.6	7.6	8.0	7.8	7.9	7.9	7.3	7.6
25	7.6	7.5	7.5	7.7	7.6	7.6	8.0	7.8	7.9	7.3	7.3	7.3
26	7.6	7.5	7.5	7.7	7.6	7.6	7.9	7.8	7.9	7.4	7.3	7.3
27	7.5	7.5	7.5	7.7	7.6	7.6	8.0	7.8	7.9	7.8	7.3	7.6
28	7.6	7.5	7.6	7.7	7.6	7.6	8.0	7.8	7.9	7.9	7.7	7.8
29	---	---	---	7.7	7.6	7.6	8.0	7.8	7.9	7.9	7.7	7.8
30	---	---	---	7.7	7.6	7.6	8.0	7.8	7.9	7.8	7.7	7.7
31	---	---	---	7.7	7.6	7.6	---	---	---	7.8	7.6	7.7
MONTH	7.8	7.5	7.6	7.7	7.5	7.6	8.3	7.6	7.7	8.1	7.3	7.8



## JAMES RIVER BASIN

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	18.0	17.5	18.0	17.5	17.0	17.5	10.0	10.0	10.0	8.5	8.0	8.5
2	17.5	17.0	17.5	17.0	16.5	16.5	10.0	9.5	10.0	8.5	7.5	8.0
3	17.5	17.0	17.0	16.5	16.5	16.5	10.0	9.5	10.0	7.5	7.5	7.5
4	17.5	16.0	17.0	16.5	16.0	16.0	9.5	9.5	9.5	7.5	7.5	7.5
5	17.5	17.0	17.0	16.0	15.5	16.0	9.5	9.0	9.5	7.5	7.0	7.5
6	17.5	17.0	17.0	15.5	15.0	15.0	9.0	9.0	9.0	7.5	7.5	7.5
7	17.0	17.0	17.0	15.0	14.5	15.0	9.0	8.5	8.5	7.5	7.5	7.5
8	17.0	17.0	17.0	15.0	14.5	14.5	8.5	8.5	8.5	7.5	7.0	7.5
9	17.5	17.0	17.0	15.0	14.5	14.5	8.5	8.5	8.5	7.0	7.0	7.0
10	17.5	17.0	17.0	14.5	14.0	14.0	8.5	8.5	8.5	7.0	7.0	7.0
11	17.5	17.0	17.5	14.0	13.5	14.0	8.5	8.5	8.5	7.0	7.0	7.0
12	17.5	17.5	17.5	13.5	13.0	13.0	8.5	8.5	8.5	7.0	6.5	7.0
13	17.5	17.0	17.5	13.0	13.0	13.0	8.5	8.5	8.5	6.5	6.5	6.5
14	17.5	17.0	17.5	13.0	12.5	13.0	8.5	8.5	8.5	6.5	6.5	6.5
15	17.5	17.0	17.0	13.0	12.5	13.0	8.5	8.5	8.5	6.5	6.0	6.0
16	17.5	17.0	17.5	13.0	12.5	12.5	8.5	8.5	8.5	6.0	6.0	6.0
17	17.5	17.0	17.5	12.5	12.0	12.5	9.0	8.5	8.5	6.0	6.0	6.0
18	17.5	17.0	17.5	12.5	12.0	12.0	9.0	8.5	8.5	6.0	6.0	6.0
19	18.0	17.5	17.5	12.0	12.0	12.0	9.0	8.5	8.5	6.0	5.5	6.0
20	18.0	17.5	17.5	12.0	11.5	11.5	9.0	8.5	8.5	5.5	5.0	5.5
21	18.5	17.5	18.0	11.5	11.0	11.0	8.5	8.5	8.5	5.0	4.5	5.0
22	---	---	---	11.0	11.0	11.0	9.0	8.5	8.5	5.0	4.5	5.0
23	---	---	---	11.0	10.5	11.0	8.5	8.5	8.5	4.5	4.5	4.5
24	---	---	---	11.0	10.5	10.5	8.5	8.0	8.0	5.0	4.5	4.5
25	18.0	18.0	18.0	11.0	10.5	10.5	8.0	7.0	7.5	5.0	4.5	4.5
26	18.0	18.0	18.0	10.5	10.5	10.5	7.0	7.0	7.0	4.5	4.0	4.5
27	18.0	18.0	18.0	10.5	10.5	10.5	7.0	7.0	7.0	4.5	4.0	4.5
28	18.5	18.0	18.0	11.0	10.5	10.5	7.5	7.0	7.5	4.5	4.5	4.5
29	18.0	18.0	18.0	10.5	10.0	10.0	7.5	7.5	7.5	4.5	4.0	4.5
30	18.0	18.0	18.0	10.0	10.0	10.0	8.5	7.5	8.0	4.5	4.0	4.5
31	18.0	17.5	17.5	---	---	---	8.0	8.0	8.0	4.5	4.0	4.5
MONTH	18.5	16.0	17.5	17.5	10.0	13.0	10.0	7.0	8.5	8.5	4.0	6.0
FEBRUARY			MARCH			APRIL			MAY			
1	4.5	4.0	4.0	4.0	4.0	4.0	7.5	7.0	7.5	13.0	11.0	12.0
2	4.0	3.5	3.5	4.0	4.0	4.0	7.5	7.0	7.5	14.5	11.5	13.0
3	3.5	3.0	3.5	4.5	4.0	4.0	7.5	7.0	7.5	15.0	6.5	10.5
4	3.5	3.5	3.5	4.5	4.0	4.5	7.5	7.0	7.5	11.0	7.5	9.0
5	3.5	3.0	3.5	4.5	4.5	4.5	8.0	7.0	7.5	12.0	11.0	11.5
6	3.5	3.5	3.5	4.5	4.5	4.5	8.0	7.0	7.5	14.0	11.0	12.5
7	3.5	3.0	3.0	4.5	4.5	4.5	7.5	7.0	7.5	14.0	12.0	13.5
8	3.0	2.5	3.0	4.5	4.5	4.5	7.5	7.0	7.5	13.5	12.0	13.0
9	3.0	2.5	3.0	5.0	4.5	5.0	7.5	7.0	7.5	13.5	12.0	12.5
10	3.5	3.0	3.0	5.0	5.0	5.0	7.5	7.0	7.5	16.0	12.0	14.0
11	3.5	3.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5	16.0	14.5	15.0
12	3.5	3.0	3.5	5.5	5.0	5.5	10.5	7.5	8.0	16.5	14.5	15.5
13	3.0	3.0	3.0	5.5	5.5	5.5	8.0	7.5	7.5	16.5	14.5	16.0
14	3.0	3.0	3.0	5.5	5.5	5.5	8.0	7.5	7.5	16.5	15.5	16.0
15	3.0	3.0	3.0	5.5	5.5	5.5	8.0	7.5	8.0	16.0	14.0	15.0
16	3.0	3.0	3.0	6.0	5.5	5.5	8.5	8.0	8.0	15.5	14.0	14.5
17	3.5	3.0	3.0	6.0	5.5	5.5	9.0	8.0	8.5	16.0	14.5	15.5
18	3.5	3.0	3.5	6.0	5.5	5.5	9.5	8.0	8.5	18.0	15.5	16.5
19	4.0	3.5	3.5	6.0	5.5	6.0	9.5	8.0	8.5	16.0	13.0	15.0
20	3.5	3.5	3.5	6.0	5.5	6.0	8.5	8.5	8.5	17.5	14.5	16.0
21	3.5	3.5	3.5	6.0	5.5	6.0	9.0	8.5	9.0	17.5	15.5	16.5
22	4.0	3.5	3.5	5.5	5.5	5.5	11.0	8.5	10.0	17.5	16.5	17.0
23	3.5	3.5	3.5	6.0	5.5	6.0	11.0	10.0	10.5	17.5	16.5	17.0
24	3.5	3.5	3.5	6.5	6.0	6.0	11.0	10.0	10.5	17.5	6.5	12.5
25	4.0	3.5	3.5	6.0	6.0	6.0	12.5	10.5	11.5	7.0	7.0	7.0
26	4.0	3.5	3.5	6.5	6.0	6.0	12.0	10.0	11.0	7.0	7.0	7.0
27	4.0	4.0	4.0	7.0	6.0	6.5	12.0	10.5	11.0	15.0	7.0	12.0
28	4.0	4.0	4.0	7.0	6.5	6.5	13.5	10.5	12.0	16.5	14.0	15.0
29	---	---	---	7.0	6.5	6.5	12.5	11.5	12.0	16.5	15.0	16.0
30	---	---	---	7.0	6.5	6.5	12.5	10.5	12.0	16.0	15.5	15.5
31	---	---	---	7.0	6.5	7.0	---	---	---	16.5	15.0	16.0
MONTH	4.5	2.5	3.5	7.0	4.0	5.5	13.5	7.0	9.0	18.0	6.5	14.0





## JAMES RIVER BASIN

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	9.7	9.4	9.5	8.7	8.3	8.4	11.1	11.0	11.0	11.5	11.2	11.3
2	9.9	9.5	9.7	8.7	8.3	8.5	11.1	11.0	11.0	11.8	11.3	11.6
3	10.2	9.5	9.7	8.6	8.3	8.4	11.1	11.0	11.0	11.8	11.7	11.8
4	10.3	9.6	9.8	8.7	8.3	8.4	11.2	10.8	11.0	11.7	11.5	11.6
5	10.3	9.7	9.9	8.6	8.3	8.4	11.1	10.8	10.9	12.3	11.5	11.9
6	10.4	9.7	9.9	8.8	8.5	8.6	10.8	10.7	10.8	12.3	11.4	11.8
7	10.3	9.7	9.9	8.9	8.6	8.7	10.9	10.8	10.9	11.5	11.4	11.4
8	10.2	9.6	9.8	8.9	8.6	8.7	10.9	10.8	10.8	11.6	11.4	11.4
9	10.3	9.5	9.8	9.0	8.6	8.7	11.0	10.9	10.9	11.7	11.4	11.6
10	10.2	9.5	9.7	8.9	8.5	8.6	10.9	10.8	10.8	11.7	11.6	11.7
11	9.9	9.2	9.5	9.0	8.6	8.7	10.9	10.8	10.9	11.6	11.5	11.6
12	9.8	9.1	9.3	9.0	8.7	8.8	10.9	10.8	10.8	11.7	11.5	11.6
13	9.6	8.9	9.2	9.0	8.8	8.9	11.0	10.8	10.9	11.6	11.4	11.4
14	9.4	8.9	9.1	9.0	8.8	8.9	11.1	10.9	11.0	11.4	11.3	11.3
15	9.4	9.2	9.3	9.0	8.6	8.8	11.1	11.0	11.0	11.5	11.3	11.4
16	9.2	8.7	9.0	9.1	8.7	8.9	11.1	10.9	11.0	11.7	11.5	11.6
17	9.2	8.7	8.8	9.3	9.0	9.1	11.0	10.9	11.0	11.4	11.3	11.3
18	9.1	8.5	8.8	9.3	9.0	9.1	11.1	10.9	11.0	11.5	11.3	11.3
19	8.9	8.4	8.6	9.4	9.1	9.2	10.9	10.7	10.9	11.5	11.3	11.4
20	8.9	8.4	8.6	9.6	9.3	9.4	11.0	10.8	10.9	11.5	11.3	11.5
21	8.8	8.3	8.5	9.7	9.5	9.6	11.3	11.0	11.1	11.6	11.5	11.5
22	---	---	---	9.8	9.6	9.7	11.4	11.2	11.3	11.7	11.5	11.6
23	---	---	---	9.9	9.7	9.8	11.5	11.4	11.4	11.7	11.5	11.6
24	---	---	---	10.0	9.8	9.8	11.5	11.3	11.4	11.7	11.5	11.6
25	8.8	8.3	8.5	10.1	9.9	10.0	11.9	11.4	11.7	11.6	11.3	11.5
26	8.7	8.3	8.5	10.2	10.0	10.1	11.9	11.8	11.8	11.7	11.4	11.5
27	8.6	8.2	8.4	10.4	10.1	10.2	12.0	11.8	11.9	11.7	11.5	11.6
28	8.6	8.2	8.4	10.2	10.1	10.2	11.9	11.6	11.7	11.7	11.4	11.5
29	8.6	8.2	8.4	10.4	10.3	10.3	11.6	11.5	11.6	11.8	11.5	11.6
30	8.7	8.3	8.4	10.9	10.4	10.7	11.6	11.4	11.5	11.8	11.4	11.5
31	8.6	8.3	8.4	---	---	---	11.6	11.4	11.5	11.7	11.3	11.5
MONTH	10.4	8.2	9.1	10.9	8.3	9.2	12.0	10.7	11.1	12.3	11.2	11.5
FEBRUARY			MARCH			APRIL			MAY			
1	12.1	11.3	11.7	13.0	12.7	12.9	12.0	11.8	11.9	10.8	10.4	10.6
2	12.3	12.0	12.1	12.8	12.7	12.7	12.1	11.8	11.9	10.4	9.4	9.9
3	12.5	12.3	12.4	12.8	12.7	12.7	12.1	11.9	12.0	12.6	9.2	10.1
4	12.4	12.4	12.4	12.7	12.3	12.5	12.3	12.0	12.2	10.6	8.8	9.7
5	12.4	11.7	12.0	12.4	12.3	12.4	12.3	12.0	12.1	9.4	8.5	8.9
6	11.9	11.6	11.8	12.6	12.4	12.5	12.3	11.9	12.1	9.2	7.9	8.5
7	12.0	11.9	11.9	12.6	12.4	12.5	12.1	11.9	12.0	9.4	7.8	8.7
8	12.0	11.7	11.9	12.4	12.3	12.4	13.1	11.8	12.6	9.7	9.2	9.5
9	11.8	11.7	11.8	12.5	12.3	12.4	13.6	13.1	13.4	9.7	9.5	9.6
10	11.8	11.7	11.7	12.5	12.3	12.4	13.9	13.4	13.6	9.7	8.8	9.2
11	11.8	11.5	11.6	12.4	12.1	12.2	14.0	13.6	13.8	9.1	8.9	9.0
12	11.8	11.3	11.5	12.4	12.0	12.2	14.0	13.5	13.8	9.1	8.8	8.9
13	12.0	11.8	11.9	13.1	12.3	12.7	13.9	13.7	13.8	9.1	8.8	9.0
14	12.6	11.9	12.3	13.1	12.6	12.8	13.8	13.5	13.6	9.1	8.9	9.0
15	12.6	12.4	12.5	12.8	12.4	12.6	13.7	13.3	13.5	9.5	9.0	9.3
16	12.6	12.4	12.5	12.6	12.3	12.4	13.2	12.9	13.1	9.5	9.2	9.3
17	12.7	12.5	12.6	12.4	12.2	12.3	13.2	12.9	13.1	9.3	8.9	9.1
18	12.8	12.3	12.5	12.4	12.2	12.3	13.1	11.9	12.6	9.2	8.6	8.9
19	12.6	12.2	12.4	12.5	12.3	12.4	13.0	12.7	12.8	9.5	8.9	9.3
20	12.6	12.3	12.5	12.5	12.2	12.3	13.0	12.7	12.9	9.3	8.9	9.1
21	12.7	12.5	12.6	12.5	12.3	12.4	12.9	12.7	12.8	9.1	8.9	9.0
22	12.9	12.5	12.7	12.4	12.2	12.3	12.7	11.9	12.3	9.0	8.8	8.9
23	12.9	12.7	12.8	12.3	12.1	12.2	12.2	11.8	12.0	9.1	8.8	8.9
24	13.0	12.7	12.9	12.5	12.1	12.2	12.1	11.7	11.9	11.9	8.8	10.9
25	14.1	13.0	13.7	12.6	12.1	12.4	11.8	11.1	11.5	11.9	11.5	11.6
26	14.0	13.6	13.8	12.6	12.3	12.4	11.8	11.2	11.5	11.5	11.5	11.5
27	13.7	13.6	13.7	12.4	12.1	12.3	11.7	11.1	11.4	11.5	9.8	10.4
28	13.7	12.9	13.2	12.3	12.1	12.2	11.4	10.5	11.1	9.9	9.4	9.7
29	---	---	---	12.4	12.1	12.2	11.3	10.6	10.9	9.7	9.4	9.5
30	---	---	---	12.4	12.1	12.2	11.1	10.4	10.8	9.6	9.3	9.4
31	---	---	---	12.2	11.9	12.1	---	---	---	9.3	9.1	9.3
MONTH	14.1	11.3	12.4	13.1	11.9	12.4	14.0	10.4	12.4	12.6	7.8	9.5



## JAMES RIVER BASIN

02012500 JACKSON RIVER AT FALLING SPRING, VA

LOCATION.--Lat 37°52'36", long 79°58'39", Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft upstream from Smith Bridge, 0.8 mi south of town of Falling Spring, 1.6 mi downstream from Falling Spring Creek, and 5.5 mi north of Covington.

DRAINAGE AREA.--411 mi<sup>2</sup>.

PERIOD OF RECORD.--Water years 1930, 1948, 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1968 to current year.

WATER TEMPERATURE: December 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 500 microsiemens, Oct. 2, 1970; minimum daily, 61 microsiemens, Dec. 21, 1977.

WATER TEMPERATURE: Maximum daily, 29.5°C, Aug. 2, 5, 1975; minimum daily, 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 240 microsiemens, Oct. 4, 23-25; minimum daily, 150 microsiemens, May 3, June 17.

WATER TEMPERATURE: Maximum daily, 27.0°C, July 30, Aug. 14; minimum daily, 2.5°C, Jan. 21.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)
OCT 03...	16:00	219	185	185	8.0	7.8	16.0	730	<1	9.6
NOV 15...	14:15	200	195	199	8.4	7.9	11.5	728	<1	10.9
JAN 09...	14:30	518	170	180	7.9	7.5	6.0	732	<1	12.0
FEB 13...	08:45	935	155	154	7.5	7.3	1.5	718	5	12.7
APR 03...	13:10	554	155	164	8.4	7.7	10.0	718	5	13.0
MAY 08...	12:35	142	170	170	7.9	7.6	16.0	732	15	10.6
JUN 26...	14:15	280	175	174	8.1	7.8	22.5	727	15	9.2
AUG 14...	14:20	290	180	185	8.3	7.7	25.0	730	15	9.2

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT 03...	102	87	87	28	4.1	2.1	1.6	68	22
NOV 15...	105	97	97	31	4.7	2.4	2.0	72	27
JAN 09...	100	83	83	27	3.7	1.9	1.5	64	20
FEB 13...	96	68	68	22	3.2	1.9	1.1	55	17
APR 03...	122	74	74	24	3.5	2.1	1.4	58	19
MAY 08...	112	78	78	25	3.7	1.9	1.4	60	21
JUN 26...	112	78	78	25	3.8	1.9	1.4	63	22
AUG 14...	117	87	87	28	4.2	2.2	1.6	66	22

## JAMES RIVER BASIN

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02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 03...	2.9	<0.1	4.7	102	110	<0.01	0.12	<0.01	20
NOV 15...	2.7	<0.1	4.9	111	120	<0.01	0.21	<0.01	24
JAN 09...	2.5	0.1	5.0	115	100	0.02	0.22	<0.01	7
FEB 13...	2.3	<0.1	4.7	87	85	<0.01	0.20	<0.01	10
APR 03...	2.6	0.1	4.1	98	92	<0.01	0.18	<0.01	9
MAY 08...	2.3	0.2	4.2	98	96	<0.01	<0.10	<0.01	5
JUN 26...	2.1	<0.1	1.7	118	96	<0.01	<0.10	<0.01	6
AUG 14...	2.4	0.2	1.9	111	100	<0.01	<0.10	<0.01	6

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG.C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	220	225	200	190	239	160	178	200	190	176	200	210
2	220	222	200	170	210	165	178	205	198	190	200	205
3	221	230	200	180	179	170	170	150	200	190	200	196
4	240	238	208	180	170	170	170	155	198	185	182	218
5	218	230	210	170	180	189	170	160	210	185	190	210
6	220	230	210	185	190	185	170	170	199	185	200	210
7	210	230	210	182	180	180	170	178	200	185	205	200
8	218	230	210	190	200	190	158	200	190	185	210	205
9	210	230	209	200	208	190	190	170	196	189	200	210
10	218	230	209	200	200	180	180	180	196	189	200	210
11	218	230	205	200	200	182	180	190	198	189	---	210
12	210	230	205	205	165	170	196	190	198	185	200	215
13	200	225	202	210	178	160	180	170	198	---	200	210
14	178	222	200	210	185	165	180	170	196	---	200	218
15	182	222	202	218	199	180	180	165	160	195	200	205
16	198	222	200	200	199	180	180	170	160	190	200	200
17	218	225	200	180	184	180	180	170	150	185	218	200
18	218	225	202	185	200	180	180	180	200	185	220	200
19	218	222	205	198	219	179	170	200	190	182	222	198
20	218	220	185	202	210	180	180	200	190	182	218	200
21	210	230	180	200	205	180	182	190	190	182	220	202
22	220	230	180	205	219	175	182	160	188	182	215	203
23	240	230	180	205	180	180	182	200	188	185	218	201
24	240	230	182	200	175	178	180	165	182	182	215	201
25	240	230	180	210	160	162	182	165	182	189	218	200
26	224	230	180	230	160	175	185	170	185	200	210	198
27	224	230	178	230	158	170	185	180	182	205	220	202
28	220	200	182	228	165	170	190	180	182	185	218	198
29	210	228	190	230	---	170	190	190	182	199	218	202
30	222	198	190	230	---	176	198	198	178	195	198	205
31	222	---	190	220	---	178	---	200	---	190	215	---
MEAN	217	226	196	201	190	176	180	180	189	188	208	205
WTR YR 1985	MEAN	196	MAX	240	MIN	150						



## JAMES RIVER BASIN

02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	16.5	10.0	10.0	5.0	5.5	11.0	17.0	21.0	21.0	23.0	23.0
2	17.0	16.0	10.0	9.0	4.5	6.5	10.0	13.0	19.5	21.0	25.0	24.0
3	17.5	14.0	10.5	7.5	4.5	7.0	10.0	12.5	20.0	21.0	23.0	24.5
4	19.0	14.0	9.0	8.0	4.0	6.5	11.5	10.0	20.0	23.0	25.0	24.5
5	18.5	14.0	8.0	7.5	4.5	9.0	11.5	14.0	21.5	23.0	23.0	25.0
6	18.0	13.0	8.0	8.0	5.0	8.0	10.0	15.0	20.0	23.0	23.0	24.0
7	17.0	13.0	7.0	7.5	5.0	8.0	10.0	16.0	18.0	23.0	23.0	24.0
8	17.0	12.5	8.0	7.5	3.5	6.5	8.5	17.5	20.0	24.0	26.5	25.0
9	19.5	13.0	9.0	7.0	3.5	9.0	9.0	17.5	21.0	24.0	25.5	26.0
10	19.0	13.5	8.0	7.0	5.0	9.0	11.0	17.0	21.0	23.0	26.0	26.0
11	18.5	13.0	10.0	6.5	5.0	6.5	9.0	17.5	20.0	23.5	26.0	24.0
12	19.0	10.5	9.0	6.5	3.5	8.0	13.0	17.5	20.0	23.0	26.5	21.0
13	18.5	11.0	10.5	6.5	4.0	7.5	10.5	19.0	17.5	---	26.0	22.0
14	18.5	11.0	10.0	6.5	5.5	7.0	10.0	20.5	19.5	---	27.0	21.0
15	18.0	12.0	10.0	5.0	5.0	9.0	11.5	19.0	20.0	24.0	26.0	20.5
16	19.5	12.0	10.5	5.5	5.0	8.5	12.5	18.5	21.0	25.0	24.5	22.0
17	18.0	9.5	11.0	6.0	5.5	8.5	12.0	18.5	22.5	25.0	23.0	22.5
18	20.0	9.5	10.0	6.0	5.0	8.0	13.5	18.0	21.5	26.0	22.5	22.0
19	20.0	10.0	10.5	5.5	6.5	9.0	14.0	18.0	21.0	26.0	24.0	22.5
20	19.5	9.0	10.0	4.0	7.0	9.0	14.0	19.5	21.5	26.0	24.0	22.0
21	19.5	8.5	10.0	2.5	7.0	7.5	15.0	18.5	19.5	26.0	23.0	22.5
22	19.0	9.0	10.0	4.0	7.0	6.0	15.0	18.0	22.0	24.0	23.0	22.0
23	19.0	9.0	10.0	5.0	6.5	7.0	17.0	19.0	23.5	25.5	22.0	22.0
24	18.5	9.5	9.0	5.0	6.0	8.0	15.0	19.5	23.5	25.0	22.0	21.5
25	19.0	9.0	8.0	5.0	6.0	8.0	16.5	10.0	23.5	23.0	22.0	21.0
26	20.0	9.5	8.0	3.0	5.5	10.0	17.5	12.0	23.0	24.5	23.0	21.0
27	20.0	10.5	8.0	5.0	6.0	11.0	16.0	17.5	23.5	22.5	23.0	14.0
28	19.5	10.0	9.0	5.5	6.5	10.5	14.0	17.0	23.0	25.0	23.0	17.0
29	18.0	9.5	9.0	5.5	---	10.5	17.0	19.0	24.0	26.0	24.0	19.5
30	17.0	10.0	9.0	4.0	---	11.5	18.0	17.0	22.5	27.0	23.0	20.0
31	17.5	---	9.0	4.5	---	11.0	---	20.0	---	25.0	---	---
MEAN	18.5	11.5	9.5	6.0	5.5	8.5	13.0	17.0	21.0	24.0	24.0	22.0
WTR YR 1985	MEAN	15.0		MAX	27.0		MIN	2.5				

## JAMES RIVER BASIN

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02012800 JACKSON RIVER AT FILTRATION PLANT, AT COVINGTON, VA

LOCATION.--Lat 37°48'39", long 79°59'19", Covington City, Hydrologic Unit 02080201, on left bank 250 ft upstream from Dry Run and 1.7 mi upstream from Dunlap Creek and bridge on U.S. Highway 60.

DRAINAGE AREA.--439 mi<sup>2</sup>.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1978 to current year.

INSTRUMENTATION.--Water-temperature recorder since June 1978.

REMARKS.--Some record in prior years fragmentary due to instrument malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 30.5°C, July 21, 1980; minimum recorded, 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 27.5°C, July 30, 31; minimum, 0.0°C on several days during winter period.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	15.0	13.5	14.5	15.5	14.0	14.5	9.0	8.5	9.0	9.5	8.0	8.5
2	15.0	14.0	14.0	15.5	12.5	14.0	9.0	7.0	8.0	9.5	7.5	9.0
3	15.5	13.0	14.0	12.5	11.0	11.5	9.0	8.0	8.5	7.5	6.5	7.0
4	16.5	13.5	15.0	13.0	11.0	12.0	7.5	6.5	7.0	7.0	6.5	7.0
5	17.0	15.0	16.0	13.5	12.5	13.0	7.0	5.5	6.0	7.0	6.0	6.5
6	17.5	16.0	16.5	12.5	10.5	11.5	7.5	5.5	6.5	7.0	6.0	6.5
7	16.5	15.5	16.0	11.0	9.0	10.0	6.0	2.0	4.0	6.0	5.0	5.5
8	16.0	15.5	16.0	10.0	8.5	9.0	5.5	3.5	4.5	5.5	5.0	5.5
9	19.5	16.0	17.5	10.5	9.0	9.5	6.5	4.5	5.5	5.0	3.5	4.5
10	19.5	17.0	18.0	11.0	9.0	10.0	7.0	6.0	6.5	4.5	3.5	4.0
11	19.0	17.0	17.5	12.0	9.5	11.0	8.5	7.0	7.5	5.0	4.0	4.0
12	18.5	16.0	17.0	10.5	7.5	9.0	7.5	6.5	7.0	4.0	2.0	3.0
13	18.0	15.0	16.5	8.5	6.5	7.5	8.5	7.0	8.0	3.5	2.0	3.0
14	17.5	15.0	16.0	8.0	6.0	7.0	8.5	8.0	8.5	4.0	2.5	3.0
15	16.0	14.5	15.5	9.0	6.0	8.0	9.0	8.0	8.5	3.5	1.5	2.5
16	17.0	15.5	16.5	10.0	7.5	9.0	9.0	8.5	8.5	2.5	.5	1.5
17	17.5	16.5	17.0	7.5	5.5	6.5	9.0	7.5	9.0	2.5	2.0	2.5
18	18.5	16.5	17.0	8.5	5.0	6.5	9.0	8.0	9.0	5.0	2.5	3.5
19	19.5	17.0	18.0	8.5	7.0	8.0	10.0	8.5	9.0	5.5	3.0	4.0
20	18.5	17.0	17.5	8.5	5.0	7.5	9.0	7.5	8.5	3.0	.0	1.0
21	19.5	17.0	18.0	7.0	3.5	5.5	8.5	7.0	8.0	.0	.0	.0
22	20.0	17.5	19.0	6.0	4.0	5.0	8.5	7.5	8.5	.0	.0	.0
23	20.0	17.5	18.5	6.5	4.0	5.5	7.0	6.0	6.5	.0	.0	.0
24	18.5	17.5	17.5	7.0	5.0	6.0	8.0	5.0	6.0	2.0	.5	1.0
25	17.5	17.0	17.0	7.0	5.0	6.5	8.5	4.5	7.0	3.0	1.5	2.5
26	18.5	17.0	17.5	7.0	5.5	6.5	7.0	4.5	6.0	1.5	.0	.5
27	18.0	16.0	17.0	8.5	6.0	7.5	7.0	5.5	6.5	.5	.0	.0
28	18.0	16.0	17.0	12.0	9.0	10.0	7.5	6.5	7.0	2.5	.5	1.5
29	17.5	15.5	16.5	8.5	7.0	8.0	8.5	7.0	8.0	3.0	2.0	2.0
30	15.5	14.0	15.0	9.0	5.0	7.0	8.5	7.5	8.0	3.5	.5	1.5
31	16.0	14.0	15.0	---	---	---	9.0	8.0	8.5	4.5	2.0	3.5
MONTH	20.0	13.0	16.5	15.5	3.5	9.0	10.0	2.0	7.5	9.5	.0	3.5

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	4.0	2.0	3.0	5.0	2.5	4.0	11.0	8.0	9.5	16.5	14.0	15.5
2	4.0	2.5	3.5	6.0	3.5	5.0	9.0	7.0	8.0	16.5	14.5	15.5
3	3.5	2.0	2.5	6.0	2.5	4.5	9.0	6.0	7.5	18.0	7.5	14.0
4	2.5	2.0	2.5	5.5	4.0	5.0	11.0	7.0	9.0	11.0	7.0	9.0
5	3.0	2.0	2.5	8.0	5.0	6.5	12.0	8.5	10.5	14.5	9.5	11.5
6	4.0	2.5	3.5	6.5	2.5	5.0	11.5	9.0	10.0	14.5	10.5	12.5
7	3.5	2.0	2.5	6.0	3.5	5.0	9.0	6.0	8.0	16.0	13.5	15.0
8	2.0	.0	1.0	6.0	4.5	5.0	9.0	7.0	8.0	16.0	13.0	14.5
9	1.0	.0	.5	7.5	4.0	6.0	8.5	6.0	7.5	16.0	12.0	14.5
10	2.5	.5	1.5	7.0	4.0	6.0	9.0	5.0	7.5	15.5	13.0	14.5
11	2.5	2.0	2.5	7.0	4.0	6.0	9.0	7.5	8.5	17.5	14.0	16.0
12	4.0	2.0	2.5	9.0	7.0	8.0	12.0	7.0	9.5	20.5	16.5	18.5
13	2.5	1.5	2.0	7.5	2.5	5.5	12.0	9.5	11.0	22.0	19.0	20.5
14	3.0	1.0	2.0	7.0	4.0	6.0	12.0	10.0	11.0	21.5	17.5	20.0
15	2.5	1.5	2.0	7.5	3.5	5.5	12.5	10.0	11.0	21.0	17.5	19.5
16	2.0	.5	1.5	7.0	3.0	5.0	13.5	11.5	12.5	20.5	16.0	18.5
17	3.0	1.5	2.0	7.5	4.0	6.5	14.0	9.5	12.0	20.0	16.0	17.0
18	3.0	1.5	2.5	6.5	4.0	5.5	14.5	10.5	12.5	18.5	15.0	16.5
19	5.5	3.0	4.0	7.0	2.5	5.5	15.0	12.0	13.5	20.5	15.5	18.0
20	5.5	2.5	4.0	7.5	4.5	6.5	14.5	12.0	13.5	21.0	14.5	18.0
21	5.5	2.5	4.0	7.0	4.5	5.5	15.0	11.0	13.5	19.5	16.0	18.0
22	6.0	5.0	5.5	6.5	2.5	5.0	14.0	12.5	13.0	18.5	16.5	17.0
23	6.5	3.0	5.0	7.0	2.5	6.0	16.0	11.5	14.0	21.0	18.0	19.5
24	7.0	4.0	5.5	10.0	6.5	8.0	16.0	13.0	15.0	19.5	9.5	16.5
25	5.5	4.0	5.0	7.5	6.0	7.0	16.0	12.5	15.0	12.5	9.0	10.5
26	6.5	5.0	5.5	9.0	4.5	7.0	16.5	12.5	14.5	13.0	9.0	10.5
27	5.5	3.5	4.5	9.5	5.5	8.0	16.0	12.5	14.0	17.0	8.5	10.5
28	5.5	2.5	4.0	10.5	7.5	9.0	16.0	13.5	14.5	17.0	14.5	16.0
29	---	---	---	10.5	9.0	9.5	17.0	13.0	15.0	19.5	16.0	17.5
30	---	---	---	10.5	7.5	9.0	17.0	14.0	15.5	18.5	16.5	17.5
31	---	---	---	9.5	8.0	8.5	---	---	---	19.5	17.0	18.0
MONTH	7.0	.0	3.0	10.5	2.5	6.5	17.0	5.0	11.5	22.0	7.0	16.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	22.0	18.5	20.0	22.5	20.5	22.0	25.5	24.0	24.5	21.0	19.0	20.0
2	21.0	18.0	19.5	23.0	19.5	21.5	25.0	22.5	23.5	22.0	19.5	20.5
3	21.5	18.0	19.5	24.0	20.0	22.0	25.0	22.0	23.0	22.5	20.0	21.0
4	21.5	19.0	20.0	25.0	21.5	23.0	25.0	21.5	22.5	23.5	20.5	22.0
5	24.0	20.0	22.0	23.5	20.5	22.5	23.0	21.5	22.0	23.5	20.5	22.0
6	23.0	21.0	22.0	23.0	21.5	22.5	22.0	21.5	21.5	23.5	21.0	22.0
7	21.0	19.5	20.5	23.5	20.5	22.0	25.0	21.5	23.0	23.5	20.5	21.5
8	23.0	18.5	20.5	25.0	21.0	23.0	27.0	23.5	25.0	23.5	21.0	22.5
9	23.0	19.5	21.5	25.0	22.0	23.5	27.0	24.5	26.0	24.0	21.5	23.0
10	24.5	20.5	22.0	25.0	20.5	23.0	26.0	24.0	25.0	23.5	21.5	22.5
11	24.5	21.5	23.0	26.5	20.5	24.0	25.5	23.5	24.5	22.5	20.5	21.5
12	23.0	20.5	22.0	25.5	24.0	25.0	26.0	23.5	24.5	20.5	17.5	19.0
13	20.0	16.5	18.5	25.0	22.5	23.5	26.0	24.0	25.0	19.0	16.0	17.0
14	20.0	16.0	17.5	25.0	22.5	23.5	25.5	23.5	24.0	18.0	15.5	16.5
15	21.0	16.5	18.5	25.5	22.0	24.0	25.0	23.0	24.0	18.0	15.5	16.5
16	22.0	20.5	21.0	25.0	22.0	24.0	24.0	22.5	23.5	18.5	15.5	16.5
17	24.5	20.0	22.0	25.0	22.5	24.0	24.0	21.5	23.0	18.5	15.5	17.0
18	24.5	22.0	23.5	25.5	23.0	24.5	23.5	21.0	22.5	18.5	15.5	17.0
19	22.0	20.0	21.5	25.5	23.0	24.5	23.0	20.5	22.0	19.5	16.5	17.5
20	22.0	18.5	20.5	26.0	23.0	24.5	23.5	21.0	22.0	19.5	17.0	18.0
21	22.5	18.5	20.5	26.0	23.0	25.0	25.0	22.5	23.5	19.0	17.0	18.0
22	22.0	19.5	21.0	25.0	23.0	24.0	23.0	20.0	22.0	18.5	16.5	17.5
23	24.5	20.5	22.0	25.0	22.5	23.5	22.0	20.0	20.5	19.0	16.5	17.5
24	24.5	21.5	22.5	24.5	22.0	23.5	21.0	19.0	20.0	19.0	16.5	18.0
25	24.5	21.5	23.0	25.5	23.5	25.0	22.0	19.0	21.0	17.5	15.0	16.5
26	23.0	20.5	21.5	26.0	23.5	24.5	22.5	21.5	22.0	17.5	16.5	17.0
27	22.5	19.0	21.0	26.0	24.5	25.0	24.0	22.0	22.5	16.5	14.0	16.0
28	23.0	19.0	21.0	25.5	24.0	25.0	22.5	20.5	21.5	16.5	13.5	14.5
29	23.0	19.5	21.5	27.0	24.0	25.5	22.0	20.0	21.0	16.5	14.0	15.0
30	23.0	21.0	22.0	27.5	24.0	25.5	21.0	19.5	20.5	16.5	14.0	15.0
31	---	---	---	27.5	25.5	26.5	21.0	19.0	20.0	---	---	---
MONTH	24.5	16.0	21.0	27.5	19.5	24.0	27.0	19.0	23.0	24.0	13.5	18.5
YEAR	27.5	.0	13.5									

## 02013000 DUNLAP CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°48'10", long 80°02'50", Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft downstream from bridge on U.S. Highway 60, 2.2 mi downstream from Ogle Creek, and 3.0 mi west of Covington.

DRAINAGE AREA.--164 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1929-30, 1932-34, 1942. WSP 1303: 1929-35(M), 1937-38(M), 1941-48(M). WSP 2104: Drainage area. WDR VA-74-1: 1969(M), 1972, 1973(P).

GAGE.--Water-stage recorder. Datum of gage is 1,294.70 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 8, 1949, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-24, 26, 27. Records fair. Occasional diurnal fluctuation caused by dam 7.9 mi upstream from station. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 167 ft<sup>3</sup>/s, 13.83 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,400 ft<sup>3</sup>/s, June 21, 1972, gage height, 15.65 ft, from rating curve extended above 4,500 ft<sup>3</sup>/s on basis of step-backwater computations and contracted-opening measurement at gage height 15.65 ft; minimum, 2.0 ft<sup>3</sup>/s, July 4, 1970; minimum daily, 7.0 ft<sup>3</sup>/s, Sept. 9, 1966; minimum gage height, 0.69 ft, June 6, July 14, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 18 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	0400	*3,470	*6.85	Aug. 18	1730	2,330	5.71

Minimum discharge, 3.7 ft<sup>3</sup>/s, July 19, gage height, 0.82 ft; minimum daily, 14 ft<sup>3</sup>/s, Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	71	264	257	726	317	151	91	66	27	35	38
2	96	63	193	341	2860	263	135	88	59	30	45	35
3	65	57	160	518	1410	213	130	101	55	29	39	32
4	52	56	137	1130	656	182	125	89	53	27	33	30
5	46	73	121	778	424	168	117	80	53	25	30	28
6	42	86	128	494	336	145	134	76	55	24	28	27
7	39	79	117	391	261	127	130	72	52	24	27	26
8	37	72	107	319	198	122	132	67	53	22	30	27
9	37	67	104	247	174	136	132	61	49	22	37	24
10	35	63	110	208	158	128	126	57	45	25	38	23
11	35	74	134	197	143	142	121	55	44	33	30	23
12	34	83	183	177	344	288	116	58	49	27	27	21
13	34	84	185	152	294	298	109	68	50	26	24	21
14	33	79	160	133	199	254	108	61	45	28	23	21
15	32	73	140	125	166	212	106	57	42	28	21	20
16	36	69	128	112	140	179	163	56	40	24	21	19
17	35	64	119	98	134	164	225	54	35	22	23	18
18	35	61	112	101	118	150	214	54	38	21	866	17
19	34	196	110	96	119	131	192	52	37	19	610	17
20	34	321	112	90	133	118	171	48	34	19	216	17
21	33	219	159	81	161	110	152	45	32	18	168	16
22	38	164	274	95	215	110	136	43	31	18	112	16
23	68	133	250	92	373	256	124	47	29	18	83	16
24	93	113	222	90	581	403	117	253	28	17	69	16
25	79	100	332	78	520	346	139	678	27	21	67	15
26	70	88	382	65	644	272	124	279	25	33	71	15
27	63	79	308	60	600	232	117	171	24	42	73	15
28	58	407	249	64	409	208	114	125	23	44	61	14
29	168	737	209	58	---	185	108	102	20	32	52	14
30	115	384	180	56	---	163	98	85	22	28	46	14
31	85	---	200	62	---	148	---	74	---	28	43	---
TOTAL	1780	4215	5589	6765	12496	6170	4066	3247	1215	801	3048	635
MEAN	57.4	141	180	218	446	199	136	105	40.5	25.8	98.3	21.2
MAX	168	737	382	1130	2860	403	225	678	66	44	866	38
MIN	32	56	104	56	118	110	98	43	20	17	21	14
CFSM	.35	.86	1.10	1.33	2.72	1.21	.83	.64	.25	.16	.60	.13
IN.	.40	.96	1.27	1.53	2.83	1.40	.92	.74	.28	.18	.69	.14
CAL YR 1984	TOTAL	94167	MEAN	257	MAX	4930	MIN	26	CFSM	1.57	IN.	21.36
WTR YR 1985	TOTAL	50027	MEAN	137	MAX	2860	MIN	14	CFSM	.84	IN.	11.35



## 02013100 JACKSON RIVER BELOW DUNLAP CREEK, AT COVINGTON, VA

LOCATION.--Lat 37°47'19", long 80°00'03", Covington City, Hydrologic Unit 02080201, on left bank in city recreation park and 0.5 mi downstream from Dunlap Creek.

DRAINAGE AREA.--614 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1974 to current year.

REVISED RECORDS.--WDR VA-76-1: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 1,206.53 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Small diurnal fluctuation at low flow caused by Westvaco plant 0.8 mi upstream and occasionally by dam on Dunlap Creek 12.7 mi upstream. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 19.9 mi upstream; since October 1984 by Back Creek Lake 47.9 mi upstream; and since January 1985 by Little Back Creek Lake 51.0 mi upstream, amount unknown. Diversion by Westvaco plant averages 47 ft<sup>3</sup>/s for industrial use of which approximately 42 ft<sup>3</sup>/s is returned upstream from station. Diversion 2.0 mi upstream from station for city of Covington water supply averages less than 4.0 ft<sup>3</sup>/s. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years, 733 ft<sup>3</sup>/s, 16.21 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,200 ft<sup>3</sup>/s, Apr. 5, 1977, gage height, 19.85 ft; minimum, 41 ft<sup>3</sup>/s, Jan. 5, 1981, gage height, 4.38 ft, result of freezeup; minimum daily, 67 ft<sup>3</sup>/s, Sept. 3, 27-29, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 24.36 ft, discharge, about 34,000 ft<sup>3</sup>/s, from floodmarks, and flood of Dec. 27, 1973, reached a stage of 22.09 ft, from floodmarks, discharge, about 28,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,550 ft<sup>3</sup>/s, Feb. 1, gage height, 8.92 ft; minimum, 175 ft<sup>3</sup>/s, Oct. 4, gage height, 4.65 ft; minimum daily, 238 ft<sup>3</sup>/s, Oct. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	475	363	1170	877	2210	1560	758	376	387	318	364	355		
2	403	340	840	1070	3760	1290	735	336	377	325	358	346		
3	289	301	713	1750	2480	1120	729	1030	367	317	339	344		
4	251	297	613	2600	1860	956	725	2450	356	316	328	339		
5	251	353	531	2560	1410	691	710	1180	367	313	324	336		
6	250	369	545	2430	933	648	744	991	361	310	318	333		
7	244	344	517	1420	899	611	737	609	356	309	322	328		
8	242	324	490	1270	746	607	692	490	355	308	333	327		
9	243	312	483	945	534	618	586	549	342	304	325	325		
10	241	303	488	725	493	602	576	496	339	327	333	324		
11	240	330	520	687	479	625	564	376	330	327	322	322		
12	239	343	584	616	1090	910	519	397	333	317	313	323		
13	241	335	593	489	1300	1290	550	440	333	319	310	318		
14	245	325	554	470	975	1470	549	598	327	342	314	316		
15	511	312	520	455	655	997	550	620	319	322	320	319		
16	443	304	502	418	605	744	654	669	322	316	349	313		
17	241	294	486	431	583	720	714	600	317	309	364	308		
18	244	294	477	416	504	701	700	527	328	311	1290	307		
19	238	523	463	412	366	668	674	330	317	309	1320	301		
20	240	737	441	389	401	647	644	326	313	311	711	302		
21	240	539	615	316	497	634	597	327	312	314	616	302		
22	253	446	1000	382	602	639	508	334	297	312	509	306		
23	320	395	1080	376	1110	814	488	348	302	318	453	306		
24	415	367	1030	369	1510	982	489	1070	299	313	435	297		
25	338	344	1220	353	2520	1010	520	2840	301	336	434	300		
26	317	322	1400	259	3750	1020	486	1600	297	363	440	295		
27	299	310	1370	244	3240	846	471	1260	299	393	447	299		
28	290	993	1270	252	2470	820	469	887	295	361	420	297		
29	714	1530	893	248	---	797	446	672	296	335	400	295		
30	478	1030	797	240	---	772	398	524	304	324	390	287		
31	401	---	754	270	---	751	---	408	---	353	381	---		
TOTAL	9836	13379	22959	23739	37982	26560	17982	23660	9848	10052	13882	9470		
MEAN	317	446	741	766	1357	857	599	763	328	324	448	316		
MAX	714	1530	1400	2600	3760	1560	758	2840	387	393	1320	355		
MIN	238	294	441	240	366	602	398	326	295	304	310	287		
(*)	-46	+277	+166	+78	+126	+3	-3	+8	-72	-158	-122	-188		
MEAN†	271	723	907	844	1482	860	596	771	256	166	326	128		
CFSM†	.44	1.18	1.48	1.37	2.41	1.40	.97	1.26	.42	.27	.53	.21		
IN.†	.51	1.31	1.70	1.58	2.51	1.61	1.08	1.45	.47	.31	.61	.23		
CAL YR 1984	TOTAL	344472	MEAN	941	MAX	8060	MIN	238	MEAN†	962	CFSM†	1.57	IN.†	21.34
WTR YR 1985	TOTAL	219349	MEAN	601	MAX	3760	MIN	238	MEAN†	606	CFSM†	.99	IN.†	13.40

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## JAMES RIVER BASIN

169

02014000 POTTS CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°43'44", long 80°02'33", Alleghany County, Hydrologic Unit 02080201, on left bank at downstream side of bridge on State Highway 18, 0.8 mi downstream from Blue Spring Creek, and 5.2 mi southwest of Covington.

DRAINAGE AREA.--153 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to September 1956, October 1965 to current year.

REVISED RECORDS.--WSP 1723: 1935, 1936(M), 1940(M), 1942(M), 1948-49(M), 1951-52(M), 1954(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,273.93 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1956, nonrecording gage at site 1.3 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Nov. 16 to Dec. 3 and Jan. 21-23. Records good except those for period of no gage-height record, Nov. 16 to Dec. 3, and period with ice effect, Jan. 21-23, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--48 years, 179 ft<sup>3</sup>/s, 15.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft<sup>3</sup>/s, June 21, 1972, gage height, 12.33 ft; minimum observed, 13 ft<sup>3</sup>/s, Nov. 29, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1630	*4,440	*8.30	No other peak equal to or greater than base discharge.			

Minimum discharge, 29 ft<sup>3</sup>/s, Sept. 29, 30, gage height, 2.20 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	51	210	208	1240	350	173	109	104	41	50	50
2	83	50	170	224	1740	303	155	107	90	47	69	46
3	58	48	140	325	1030	256	143	119	83	45	68	42
4	50	50	124	800	644	223	135	104	76	39	49	40
5	46	60	114	668	479	205	125	93	76	38	41	38
6	44	61	118	467	396	178	140	87	71	37	39	38
7	43	58	105	391	316	156	140	82	68	36	38	37
8	43	55	93	333	247	149	135	76	74	34	52	37
9	45	53	98	274	198	162	134	72	67	34	213	35
10	44	52	96	232	194	150	128	69	59	39	89	34
11	44	63	114	209	184	153	124	77	56	38	59	33
12	43	70	141	181	471	203	121	77	61	35	47	33
13	43	67	138	150	330	193	114	77	63	38	42	33
14	43	61	127	155	231	185	113	68	56	36	38	33
15	44	59	116	150	197	174	114	64	51	36	37	32
16	46	58	108	120	163	159	197	65	51	34	36	32
17	45	56	104	140	160	152	258	71	55	33	49	31
18	46	55	100	127	140	146	233	68	56	33	2160	31
19	45	110	97	120	143	133	216	64	48	32	1340	31
20	45	150	95	100	144	123	196	62	44	31	521	31
21	44	130	108	90	155	116	176	56	42	31	321	30
22	49	110	125	89	181	118	158	55	41	33	217	30
23	73	100	124	100	258	256	145	66	39	32	156	30
24	96	94	123	114	372	352	143	457	38	31	124	30
25	80	90	170	103	431	328	217	831	38	39	123	30
26	67	80	206	87	568	286	169	431	37	56	126	30
27	61	70	189	82	536	256	153	284	35	73	105	30
28	59	150	174	79	424	234	144	210	34	59	80	30
29	58	350	159	76	---	212	132	167	34	45	67	30
30	55	260	146	71	---	189	118	136	35	39	59	29
31	53	---	172	102	---	171	---	119	---	38	54	---
TOTAL	1707	2721	4104	6367	11572	6271	4649	4423	1682	1212	6469	1016
MEAN	55.1	90.7	132	205	413	202	155	143	56.1	39.1	209	33.9
MAX	112	350	210	800	1740	352	258	831	104	73	2160	50
MIN	43	48	93	71	140	116	113	55	34	31	36	29
CFSM	.36	.59	.86	1.34	2.70	1.32	1.01	.93	.37	.26	1.37	.22
IN.	.42	.66	1.00	1.55	2.81	1.52	1.13	1.08	.41	.29	1.57	.25
CAL YR 1984	TOTAL	83285	MEAN	228	MAX	3190	MIN	34	CFSM	1.49	IN.	20.25
WTR YR 1985	TOTAL	52193	MEAN	143	MAX	2160	MIN	29	CFSM	.93	IN.	12.69

## 02015700 BULLPASTURE RIVER AT WILLIAMSVILLE, VA

LOCATION.--Lat 38°11'43", long 79°34'14", Bath County, Hydrologic Unit 02080201, on left bank 15 ft downstream from bridge on State Highway 614 at Williamsville and 0.62 mi upstream from mouth.

DRAINAGE AREA.--110 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,610.14 ft above National Geodetic Vertical Datum of 1929. Prior to July 12, 1974, at site 700 ft upstream at datum 11.84 ft higher.

REMARKS.--Estimated daily discharges: Jan. 21-23. Records good except those for period with ice effect, Jan. 21-23, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--25 years, 147 ft<sup>3</sup>/s, 18.15 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,430 ft<sup>3</sup>/s, Apr. 5, 1977, from rating curve extended above 3,300 ft<sup>3</sup>/s; maximum gage height, 10.84 ft, Dec. 26, 1973, from floodmarks; minimum discharge, 19 ft<sup>3</sup>/s, Jan. 4, 1981, result of freezeup; minimum daily, 23 ft<sup>3</sup>/s, Sept. 8, 9, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 3	0530	*4,210	*7.00	No other peak equal to or greater than base discharge.			

Minimum discharge, 32 ft<sup>3</sup>/s, July 24-25, Sept. 30, gage height, 2.53 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	60	245	189	196	290	154	62	97	45	77	55
2	81	56	186	327	343	242	141	85	85	48	92	51
3	58	52	167	353	200	206	134	2290	81	45	62	48
4	51	55	141	520	154	180	129	680	77	42	52	46
5	47	157	127	519	136	167	122	365	78	41	47	45
6	45	116	139	343	132	144	146	259	77	41	45	42
7	44	92	122	286	122	129	132	211	103	50	45	41
8	44	80	112	242	94	129	127	175	116	41	66	41
9	45	75	114	197	87	127	120	146	88	45	64	44
10	45	69	112	172	94	116	114	132	78	50	50	40
11	44	87	118	162	97	120	109	127	72	60	45	39
12	42	88	120	146	129	228	105	129	141	70	42	38
13	40	80	120	132	136	197	97	149	85	66	40	37
14	40	73	112	129	105	180	96	118	75	52	39	34
15	40	69	105	116	94	156	96	103	69	46	39	34
16	46	67	101	94	81	141	107	99	66	44	38	36
17	46	61	99	107	83	139	97	105	64	40	37	34
18	44	60	94	105	83	129	87	97	60	38	244	34
19	42	143	114	101	105	116	83	94	55	37	166	34
20	41	156	139	83	127	112	80	81	51	36	92	34
21	41	120	326	60	146	105	78	77	50	34	107	34
22	41	101	437	45	196	101	77	75	48	34	81	33
23	46	96	294	73	466	167	75	163	48	34	67	34
24	73	90	242	81	778	214	75	534	47	32	62	34
25	58	83	492	81	819	192	78	353	47	36	146	34
26	54	77	312	73	944	167	72	225	45	83	141	33
27	50	73	259	67	603	154	70	175	42	56	107	33
28	51	574	220	72	377	144	72	144	41	45	83	33
29	109	759	194	69	---	144	70	124	41	40	73	33
30	80	343	169	64	---	151	64	112	41	40	66	32
31	69	---	194	67	---	134	---	105	---	84	60	---
TOTAL	1670	4012	5726	5075	6927	4921	3007	7594	2068	1455	2375	1140
MEAN	53.9	134	185	164	247	159	100	245	68.9	46.9	76.6	38.0
MAX	113	759	492	520	944	290	154	2290	141	84	244	55
MIN	40	52	94	45	81	101	64	62	41	32	37	32
CFSM	.49	1.22	1.68	1.49	2.25	1.45	.91	2.23	.63	.43	.70	.35
IN.	.56	1.36	1.94	1.72	2.34	1.66	1.02	2.57	.70	.49	.80	.39
CAL YR 1984	TOTAL	67706	MEAN	185	MAX	3030	MIN	38	CFSM	1.68	IN.	22.90
WTR YR 1985	TOTAL	45970	MEAN	126	MAX	2290	MIN	32	CFSM	1.15	IN.	15.55

## 02016000 COWPASTURE RIVER NEAR CLIFTON FORGE, VA

LOCATION.--Lat 37°47'30", long 79°45'35", Alleghany County, Hydrologic Unit 02080201, on left bank 100 ft downstream from bridge on State Highway 633, 2.5 mi upstream from confluence with Jackson River, and 4.0 mi southeast of Clifton Forge.

DRAINAGE AREA.--461 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1925 to current year. Records for May 1907 to August 1908, published in WSP 242, are unreliable and should not be used.

REVISED RECORDS.--WSP 952: 1925-41. WSP 2104: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,006.93 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to October 1934, nonrecording gage at site 100 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Jan. 22-24, 26, 27, 30. Records good except those for periods with ice effect, Jan. 22-24, 26, 27, 30, which are fair. Low flow affected by springs and by occasional regulation from unknown source. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--60 years, 527 ft<sup>3</sup>/s, 15.52 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,200 ft<sup>3</sup>/s, Mar. 18, 1936, gage height, 18.62 ft, from rating curve extended above 13,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 15.70 ft; minimum, 38 ft<sup>3</sup>/s, Sept. 2, 1932; minimum daily, 40 ft<sup>3</sup>/s, Sept. 1, 1932; minimum gage height, 1.43 ft, Jan. 31, 1981, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 20.8 ft, from floodmarks, discharge, about 45,000 ft<sup>3</sup>/s, from rating curve extended above 13,000 ft<sup>3</sup>/s on basis of records for other stations in James River basin.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 5,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	1130	*5,810	*7.86	May 3	2100	5,340	7.56

Minimum discharge, 72 ft<sup>3</sup>/s, Jan. 21, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	293	1150	741	999	1100	503	211	315	126	207	162
2	331	249	812	807	2870	901	525	222	282	154	267	148
3	253	219	632	1540	1780	746	496	1880	252	150	294	138
4	184	205	539	2530	1040	624	474	2640	233	132	192	129
5	155	311	468	2100	785	565	440	1270	227	117	148	122
6	139	539	489	1560	674	513	416	878	224	112	128	117
7	130	437	504	1170	600	447	416	682	223	113	121	111
8	124	351	428	973	497	411	381	552	280	111	137	107
9	124	301	402	786	385	408	361	460	285	109	181	104
10	124	270	400	642	413	387	340	397	235	104	236	101
11	119	274	414	570	391	371	326	357	210	118	171	104
12	116	305	443	520	1320	476	311	359	197	123	142	99
13	112	296	450	452	1500	641	297	468	253	136	126	92
14	108	265	435	420	828	592	284	450	206	168	118	88
15	107	244	402	404	614	544	278	350	184	168	109	86
16	114	229	375	343	500	486	307	317	178	130	104	87
17	120	215	355	338	440	449	311	351	175	111	106	85
18	132	206	339	344	419	427	283	329	176	101	911	84
19	128	315	329	326	395	393	261	294	166	93	2260	82
20	121	798	363	284	442	360	248	267	151	89	778	81
21	119	617	463	164	484	339	241	241	140	88	523	80
22	116	479	1180	150	532	327	234	228	132	87	400	81
23	204	401	1210	250	770	371	229	256	127	83	309	81
24	321	356	922	310	1400	505	231	1360	123	83	243	81
25	286	322	994	296	1910	621	299	2140	118	109	246	79
26	246	290	1180	280	2330	578	278	1110	112	168	328	78
27	205	264	937	260	2280	521	253	737	107	207	358	76
28	183	996	785	252	1510	490	245	563	105	182	293	76
29	620	4540	669	252	---	475	237	459	103	134	234	75
30	537	1960	581	240	---	518	223	390	105	115	198	74
31	373	---	594	234	---	498	---	344	---	112	176	---
TOTAL	6191	16547	19244	19538	28108	16084	9728	20562	5624	3833	10044	2908
MEAN	200	552	621	630	1004	519	324	663	187	124	324	96.9
MAX	620	4540	1210	2530	2870	1100	525	2640	315	207	2260	162
MIN	107	205	329	150	385	327	223	211	103	83	104	74
CFSM	.43	1.20	1.35	1.37	2.18	1.13	.70	1.44	.41	.27	.70	.21
IN.	.50	1.34	1.55	1.58	2.27	1.30	.78	1.66	.45	.31	.81	.23
CAL YR 1984	TOTAL	256026	MEAN	700	MAX	9330	MIN	97	CFSM	1.52	IN.	20.66
WTR YR 1985	TOTAL	158411	MEAN	434	MAX	4540	MIN	74	CFSM	.94	IN.	12.78



## 02016500 JAMES RIVER AT LICK RUN, VA

LOCATION.--Lat 37°46'25", long 79°47'05", Botetourt County, Hydrologic Unit 02080201, on right bank at community of Lick Run, 1,000 ft downstream from bridge on U.S. Highway 220, 0.9 mi downstream from confluence of Cowpasture and Jackson Rivers, 1.8 mi south of Iron Gate, and at mile 342.3.

DRAINAGE AREA.--1,373 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 852: 1936-37. WSP 972: 1927, 1930(M), 1932(M), 1935-36. WSP 1303: 1927-28(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 978.30 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 26, 1928, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 21-24. Records good except those for period with ice effect, Jan. 21-24, which are fair. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 43.7 mi upstream from station; since October 1984 by Back Creek Lake 71.7 mi upstream; and since January 1985 by Little Back Creek Lake 74.8 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--60 years, 1,612 ft<sup>3</sup>/s, 15.94 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,600 ft<sup>3</sup>/s, Mar. 18, 1936; maximum gage height, 27.01 ft, June 21, 1972; minimum discharge, 133 ft<sup>3</sup>/s, Jan. 6, 1981, result of freezeup; minimum daily, 156 ft<sup>3</sup>/s, Oct. 12, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of about 33 ft, discharge, about 120,000 ft<sup>3</sup>/s. Flood in March 1913 reached a stage of 30.4 ft, from floodmarks, discharge, about 98,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,300 ft<sup>3</sup>/s, Aug. 19, gage height, 9.99 ft; minimum, 431 ft<sup>3</sup>/s, Sept. 30, gage height, 1.98 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	964	924	3120	2140	3880	3490	1660	854	985	597	668	662		
2	1050	823	2230	2200	10200	2900	1640	824	907	645	794	629		
3	750	686	1790	3950	6650	2460	1580	2470	854	649	824	608		
4	620	656	1560	6710	4300	2130	1540	6050	807	586	664	586		
5	540	820	1350	5950	3330	1760	1480	2860	798	559	595	567		
6	530	1130	1380	5540	2380	1590	1480	2320	812	547	560	553		
7	510	994	1350	3540	2160	1430	1490	1610	781	544	549	542		
8	490	872	1210	3060	1840	1360	1430	1350	843	526	597	537		
9	490	791	1170	2430	1340	1360	1270	1170	840	522	748	527		
10	485	740	1170	1910	1320	1320	1210	1140	763	526	800	513		
11	461	778	1210	1740	1280	1310	1190	958	718	592	646	512		
12	457	832	1320	1610	3090	1650	1160	971	708	563	584	503		
13	448	823	1370	1340	3800	2190	1090	1190	758	571	549	492		
14	441	759	1310	1260	2500	2620	1110	1240	699	628	530	481		
15	637	713	1230	1210	1780	2040	1110	1140	659	636	507	479		
16	834	682	1170	1040	1520	1600	1280	1190	656	564	509	477		
17	587	653	1120	1090	1400	1510	1490	1160	660	525	533	469		
18	553	641	1090	1080	1320	1460	1410	1120	667	504	3110	463		
19	532	861	1060	1040	1110	1370	1340	831	642	491	6280	461		
20	480	1890	1070	955	1150	1300	1270	757	612	477	2360	457		
21	476	1500	1240	670	1290	1250	1210	717	585	472	1710	457		
22	457	1220	2550	600	1440	1240	1090	709	570	473	1310	460		
23	674	1050	2720	740	2180	1500	1030	779	548	474	1080	462		
24	1060	961	2370	920	3450	2000	1020	2600	546	466	934	455		
25	907	891	2570	879	4910	2140	1280	7190	536	532	932	450		
26	803	822	3150	732	7330	2170	1160	3790	521	705	1020	448		
27	710	757	2790	625	6830	1860	1070	2770	508	779	1090	449		
28	665	2220	2660	672	5380	1790	1040	1960	499	725	950	444		
29	1420	7710	2010	646	---	1730	996	1580	497	617	837	443		
30	1300	4000	1820	604	---	1710	909	1300	505	562	764	439		
31	1010	---	1730	685	---	1640	---	1070	---	564	703	---		
TOTAL	21341	38199	53890	57568	89160	55880	38035	55670	20484	17621	33737	15025		
MEAN	688	1273	1738	1857	3184	1803	1268	1796	683	568	1088	501		
MAX	1420	7710	3150	6710	10200	3490	1660	7190	985	779	6280	662		
MIN	441	641	1060	600	1110	1240	909	709	497	466	507	439		
(*)	-46	+277	+166	+78	+126	+3	-3	+8	-72	-158	-122	-188		
MEAN†	642	1550	1904	1935	3310	1806	1265	1804	611	410	966	313		
CFSM†	.47	1.13	1.39	1.41	2.41	1.32	.92	1.31	.45	.30	.70	.23		
IN.†	.54	1.26	1.60	1.63	2.51	1.52	1.03	1.52	.50	.34	.81	.25		
CAL YR 1984	TOTAL	791685	MEAN	2163	MAX	20500	MIN	441	MEAN†	2184	CFSM†	1.59	IN.†	21.66
WTR YR 1985	TOTAL	496610	MEAN	1361	MAX	10200	MIN	439	MEAN†	1366	CFSM†	.99	IN.†	13.51

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## 02017500 JOHNS CREEK AT NEW CASTLE, VA

LOCATION.--Lat 37°30'22", long 80°06'25", Craig County, Hydrologic Unit 02080201, on right bank 20 ft downstream from bridge on State Highway 615 at New Castle and 1,700 ft upstream from mouth.

DRAINAGE AREA.--104 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1926 to current year.

REVISED RECORDS.--WSP 972: 1935-36(M), 1940(M). WSP 1203: 1928, 1935. WSP 1303: 1927(M), 1928, 1929-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,254.30 ft above National Geodetic Vertical Datum of 1929. Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 8, Jan. 16, 21-23, and Feb. 9-11. Records good except those for periods with ice effect, Dec. 8, Jan. 16, 21-23, and Feb. 9-11, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--59 years, 127 ft<sup>3</sup>/s, 16.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft<sup>3</sup>/s, Jan. 23, 1935, from rating curve extended above 3,200 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; maximum gage height, 12.48 ft, June 21, 1972; minimum discharge, 6.0 ft<sup>3</sup>/s, Dec. 5, 1946, result of freezeup; minimum daily, 6.6 ft<sup>3</sup>/s, Oct. 1, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1700	*1,940	*8.28	No peak equal to or greater than base discharge.			

Minimum discharge, 8.8 ft<sup>3</sup>/s, July 24, gage height, 2.65 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	25	95	173	704	240	121	57	77	20	48	41
2	29	24	76	183	975	212	107	57	64	23	101	37
3	21	22	67	334	645	178	99	63	57	21	89	33
4	19	23	59	700	472	157	92	57	50	19	68	29
5	18	30	54	517	384	141	87	51	46	19	52	26
6	16	30	62	361	328	121	106	48	49	20	40	26
7	16	28	61	306	272	106	109	44	53	18	34	25
8	16	27	59	259	218	99	105	41	54	16	61	23
9	17	26	58	209	170	102	102	38	46	14	76	21
10	18	26	64	180	146	95	98	39	39	13	59	19
11	17	32	81	160	130	99	93	60	38	13	46	18
12	16	35	95	137	199	113	89	59	48	13	36	18
13	15	33	93	126	188	109	85	53	40	15	29	18
14	15	32	85	110	156	108	83	49	34	19	24	18
15	15	31	76	100	138	105	82	46	30	18	21	17
16	16	30	69	83	123	98	196	54	30	16	24	16
17	16	28	64	87	115	95	189	53	34	14	60	15
18	16	28	61	79	106	91	173	52	31	12	1180	14
19	16	56	59	74	111	84	162	52	27	11	638	13
20	16	70	57	70	122	78	149	49	24	11	377	13
21	16	60	66	60	126	74	134	45	22	9.9	297	12
22	18	53	103	52	141	78	120	44	20	9.5	253	12
23	34	48	112	60	169	246	108	53	18	9.4	224	12
24	67	45	111	61	187	257	100	300	17	9.2	190	12
25	36	42	115	61	202	219	97	443	16	13	187	12
26	31	39	109	55	319	192	86	288	15	22	165	12
27	29	37	106	48	323	175	78	208	14	25	116	12
28	27	93	102	50	274	163	74	163	14	31	86	11
29	28	148	95	49	---	149	68	133	14	24	68	12
30	27	114	88	48	---	134	62	109	15	21	55	12
31	26	---	131	69	---	121	---	93	---	28	48	---
TOTAL	713	1315	2533	4861	7443	4239	3254	2901	1036	527.0	4752	559
MEAN	23.0	43.8	81.7	157	266	137	108	93.6	34.5	17.0	153	18.6
MAX	67	148	131	700	975	257	196	443	77	31	1180	41
MIN	15	22	54	48	106	74	62	38	14	9.2	21	11
CFSM	.22	.42	.79	1.51	2.56	1.32	1.04	.90	.33	.16	1.47	.18
IN.	.26	.47	.91	1.74	2.66	1.52	1.16	1.04	.37	.19	1.70	.20
CAL YR 1984	TOTAL	56331	MEAN	154	MAX	1560	MIN	11	CFSM	1.48	IN.	20.15
WTR YR 1985	TOTAL	34133.0	MEAN	93.5	MAX	1180	MIN	9.2	CFSM	.90	IN.	12.21

## 02018000 CRAIG CREEK AT PARR, VA

LOCATION.--Lat 37°39'57", long 79°54'42", Botetourt County, Hydrologic Unit 02080201, on right bank 12 ft upstream from Chesapeake and Ohio Railway bridge, 700 ft downstream from Stony Run, 0.2 mi northeast of Horton, 0.4 mi northwest of Parr, and 12 mi upstream from mouth.

DRAINAGE AREA.--329 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1935-36. WSP 1303: 1929-30(M), 1932-35(M), 1937-38(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 992.50 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 20-24 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 20-24 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--60 years, 385 ft<sup>3</sup>/s, 15.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,200 ft<sup>3</sup>/s, June 21, 1972, gage height, 19.29 ft, from high-water mark in well; minimum, 20 ft<sup>3</sup>/s, probably occurred Dec. 21, 25, 1980, or Jan. 4, 1981, gage height, 3.20 ft, result of freezeup; minimum daily, 25 ft<sup>3</sup>/s, Sept. 4, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	0230	*7,400	*11.06	No other peak equal to or greater than base discharge.			

Minimum discharge, 41 ft<sup>3</sup>/s, July 24-25, gage height, 3.39 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	87	396	416	868	692	312	191	248	59	90	127
2	137	84	320	472	3260	605	292	188	207	66	136	113
3	102	81	269	615	2440	525	266	198	179	70	223	103
4	82	82	241	2120	1370	440	251	198	159	70	176	94
5	75	97	217	1720	969	400	237	176	146	66	134	86
6	72	106	230	1090	800	360	237	162	134	62	105	80
7	68	108	237	824	656	320	266	151	141	61	89	76
8	68	104	210	680	530	288	258	141	146	60	89	76
9	68	97	204	561	420	284	244	129	144	58	105	71
10	69	95	207	476	400	273	237	123	121	54	155	68
11	69	97	227	428	392	258	227	132	108	52	112	65
12	69	102	262	384	1010	288	220	168	114	50	91	63
13	68	106	276	328	1080	280	217	244	129	50	77	61
14	66	102	258	312	626	269	207	176	110	51	68	61
15	64	99	234	284	525	262	207	151	101	58	61	60
16	64	97	217	237	448	248	281	151	99	63	61	59
17	64	95	201	248	408	237	595	198	95	58	64	58
18	66	95	188	234	376	230	520	188	101	52	1970	56
19	67	106	179	220	360	224	468	171	99	48	3910	53
20	67	192	173	207	372	207	416	154	80	46	1050	52
21	66	207	182	150	392	198	380	139	74	45	693	51
22	68	179	234	144	428	198	340	132	70	45	541	51
23	85	159	288	170	512	324	312	134	67	42	450	51
24	165	149	296	220	585	605	284	1070	64	43	388	50
25	173	139	300	237	632	585	308	2490	61	50	353	50
26	123	127	292	210	818	512	296	1140	59	65	369	48
27	108	121	273	185	1030	440	262	701	54	88	305	47
28	101	371	262	173	830	412	251	512	53	109	245	47
29	97	935	251	151	---	384	234	412	51	116	199	47
30	95	507	237	132	---	352	210	336	52	84	166	46
31	90	---	262	157	---	320	---	288	---	73	142	---
TOTAL	2663	4926	7623	13785	22537	11020	8835	10744	3266	1914	12617	1970
MEAN	85.9	164	246	445	805	355	295	347	109	61.7	407	65.7
MAX	173	935	396	2120	3260	692	595	2490	248	116	3910	127
MIN	64	81	173	132	360	198	207	123	51	42	61	46
CFSM	.26	.50	.75	1.35	2.45	1.08	.90	1.05	.33	.19	1.24	.20
IN.	.30	.56	.86	1.56	2.55	1.25	1.00	1.21	.37	.22	1.43	.22
CAL YR 1984	TOTAL	162945	MEAN	445	MAX	5190	MIN	55	CFSM	1.35	IN.	18.42
WTR YR 1985	TOTAL	101900	MEAN	279	MAX	3910	MIN	42	CFSM	.85	IN.	11.52

## 02018500 CATAWBA CREEK NEAR CATAWBA, VA

LOCATION.--Lat 37°28'05", long 80°00'20", Botetourt County, Hydrologic Unit 02080201, on right bank 80 ft upstream from bridge on State Highway 779, 1.0 mi downstream from Little Catawba Creek, 1.9 mi west of Haymakertown, and 8.2 mi northeast of Catawba.

DRAINAGE AREA.--34.3 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1943 to current year.

REVISED RECORDS.--WSP 1303: 1944-45(M). WSP 2104: Drainage area. WDR VA-72-1: 1954, 1955(P), 1957-58(P), 1959, 1960-62(P), 1963, 1964(M), 1965-67(P), 1968(M), 1969, 1970(M), 1971.

GAGE.--Water-stage recorder. Datum of gage is 1,299.96 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1953, nonrecording gage at site 80 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 16, 17, 23-29, and Feb. 10. Records good except those for periods with ice effect, Jan. 16, 17, 23-29, and Feb. 10, which are fair. At a point 5.3 mi upstream from station, there is transmountain diversion through a tunnel into Roanoke River basin for municipal water supply of city of Roanoke since December 1974. Prior to October 1976, monthly means adjusted for pumpage by Citadel Cement Corporation. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--42 years, 35.8 ft<sup>3</sup>/s, 14.17 in/yr, adjusted for pumpage from October 1952 to September 1976, and transmountain diversion since December 1974.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,740 ft<sup>3</sup>/s, June 21, 1972, gage height, 10.35 ft, from rating curve extended above 1,100 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 0.33 ft<sup>3</sup>/s, Aug. 16, 1983, result of pumpage; minimum daily, 0.67 ft<sup>3</sup>/s, Aug. 14, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.26 ft, from information by observer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,870 ft<sup>3</sup>/s, Aug. 18, gage height, 6.69 ft; minimum, 4.0 ft<sup>3</sup>/s, Oct. 19, Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	4.9	19	14	60	42	15	11	29	9.3	11	16
2	9.1	4.5	15	14	129	38	14	11	26	8.4	13	13
3	6.5	4.4	14	28	123	33	14	11	24	8.0	9.7	10
4	5.6	7.0	13	49	73	29	14	9.8	22	11	8.2	8.9
5	5.2	11	11	34	54	28	14	9.2	22	8.7	7.3	7.9
6	5.0	7.6	13	25	45	25	14	8.7	22	9.2	7.4	8.0
7	4.7	6.4	10	22	37	23	13	8.6	23	8.1	7.3	6.9
8	4.8	5.8	10	18	30	22	13	8.3	21	6.8	6.7	6.5
9	5.1	5.6	9.8	15	26	21	13	7.7	18	6.4	6.4	6.1
10	4.8	5.0	9.7	14	22	20	12	8.0	16	8.5	5.7	5.9
11	4.6	5.9	10	13	24	20	12	8.6	18	8.1	5.0	7.5
12	4.6	5.7	10	10	195	20	12	8.4	14	6.7	4.9	14
13	4.6	5.1	9.9	9.5	91	18	12	8.3	11	7.5	4.9	12
14	4.5	4.7	9.3	9.2	55	17	11	7.7	10	7.2	4.7	11
15	4.5	4.7	8.7	8.2	43	16	11	7.2	9.7	8.0	4.4	11
16	4.6	4.7	8.6	7.5	36	16	17	8.9	10	7.1	4.5	10
17	4.6	4.5	8.2	9.0	31	15	18	9.3	9.6	6.6	9.2	9.9
18	4.6	4.7	7.9	9.3	29	14	16	8.5	8.9	6.4	1250	9.6
19	4.5	9.8	8.6	9.0	30	14	15	7.2	8.4	5.8	238	9.2
20	4.5	8.8	7.6	7.3	34	12	14	6.5	8.1	5.5	121	9.2
21	4.4	7.7	9.5	4.5	31	7.9	14	6.3	7.9	5.4	88	8.9
22	6.8	6.8	11	5.4	29	9.9	13	6.7	7.7	5.2	49	8.6
23	9.7	6.4	11	5.0	31	18	14	20	7.5	5.1	36	8.5
24	8.9	6.7	11	4.7	34	20	14	495	7.4	5.3	30	8.3
25	7.1	5.9	11	4.5	37	19	15	287	7.1	16	132	7.9
26	5.9	5.5	9.8	4.6	74	16	14	128	6.9	12	101	7.8
27	5.2	5.3	9.2	4.7	63	15	12	77	6.7	21	59	7.8
28	4.9	67	8.6	4.8	50	15	12	55	6.8	14	40	7.3
29	5.7	36	8.4	5.0	---	15	12	43	6.6	11	31	7.3
30	5.0	24	8.6	5.5	---	15	11	36	7.7	8.7	25	7.2
31	4.9	---	13	11	---	15	---	32	---	7.5	20	---
TOTAL	180.9	292.1	324.4	384.7	1516	608.8	405	1359.9	403.0	264.5	2340.3	272.2
MEAN	5.84	9.74	10.5	12.4	54.1	19.6	13.5	43.9	13.4	8.53	75.5	9.07
MAX	16	67	19	49	195	42	18	495	29	21	1250	16
MIN	4.4	4.4	7.6	4.5	22	7.9	11	6.3	6.6	5.1	4.4	5.9
(*)	0	1.3	.90	4.4	9.9	.20	.10	.80	.40	0	3.3	0
MEAN†	5.84	11.0	11.4	16.8	64.0	19.8	13.6	44.7	13.8	8.53	78.8	9.07
CFSM†	.17	.32	.33	.49	1.87	.58	.40	1.30	.40	.25	2.30	.26
IN.†	.20	.36	.38	.56	1.94	.67	.44	1.50	.45	.29	2.65	.30

CAL YR 1984	TOTAL	15575.6	MEAN	42.6	MAX	1050	MIN	4.4	MEAN†	43.0	CFSM†	1.25	IN.†	17.07
WTR YR 1985	TOTAL	8351.8	MEAN	22.9	MAX	1250	MIN	4.4	MEAN†	24.6	CFSM†	.72	IN.†	9.74

\* Average diversion, equivalent in cubic feet per second, provided by city of Roanoke.

† Adjusted for diversion.



## JAMES RIVER BASIN

02019500 JAMES RIVER AT BUCHANAN, VA

LOCATION.--Lat 37°31'50", long 79°40'45", Botetourt County, Hydrologic Unit 02080201, on left bank at Chesapeake and Ohio Railway station at Buchanan, 300 ft upstream from bridge on U.S. Highway 11, 1,000 ft upstream from Purgatory Creek, 1.5 mi downstream from Looney Creek, and at mile 306.4.

DRAINAGE AREA.--2,075 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1898 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for August 1895 to Feb. 11, 1898, published in WSP 11, 15, and 27 are in error and should not be used.

Gage-height records collected at this site since 1893 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 602: 1917-24. WSP 972: 1935-36. WSP 1303: 1898-1916, 1917-20(M), 1922(M), 1924(M).

WSP 1383: 1927. WSP 2104: Drainage area. WDR VA-72-1: 1913(M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 802.90 ft above National Geodetic Vertical Datum of 1929. Prior to July 1, 1927, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Oct. 19-25, July 11-15, and Aug. 16-20. Records good except those for periods of no gage-height record, Oct. 19-25, July 11-15, and Aug. 16-20, which are fair. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 79.6 mi upstream; since October 1984 by Back Creek Lake 107.6 mi upstream; and since January 1985 by Little Back Creek Lake 110.7 mi upstream, amount unknown. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--87 years, 2,474 ft<sup>3</sup>/s, 16.19 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 115,000 ft<sup>3</sup>/s, Mar. 27, 1913, gage height, 31 ft, from floodmarks; minimum, 202 ft<sup>3</sup>/s, Sept. 8, 1966, gage height, 1.44 ft; minimum daily, 207 ft<sup>3</sup>/s, Sept. 12, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of 34.9 ft, from floodmark, discharge, about 142,000 ft<sup>3</sup>/s, from rating curve extended above 110,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,600 ft<sup>3</sup>/s, Feb. 2, gage height, 11.73 ft; minimum, 539 ft<sup>3</sup>/s, Sept. 29, 30, gage height, 2.28 ft; minimum daily, 544 ft<sup>3</sup>/s, Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1030	1200	4310	2680	3510	5410	2220	1250	1530	780	911	997		
2	1360	1100	3330	2980	16300	4330	2210	1210	1390	882	1110	921		
3	1250	984	2600	4560	13700	3660	2110	1410	1270	992	1250	869		
4	949	899	2220	10100	8020	3150	2040	6540	1190	897	1260	826		
5	814	1040	1950	9960	5900	2740	1970	4140	1130	937	1070	785		
6	726	1320	1920	8510	4510	2380	1920	2960	1140	811	957	759		
7	702	1410	1970	5860	3730	2150	1950	2300	1100	788	904	740		
8	677	1230	1820	4710	3160	1990	1930	1840	1130	760	915	722		
9	674	1100	1670	3870	2490	1950	1810	1560	1160	747	937	710		
10	674	1020	1650	3100	2200	1910	1670	1500	1120	756	1190	690		
11	660	1000	1690	2670	2170	1830	1620	1380	1040	800	1130	668		
12	639	1050	1820	2450	4610	1990	1580	1280	1010	850	961	659		
13	630	1080	1950	2170	7480	2550	1500	1540	975	880	876	653		
14	620	1040	1910	1910	4670	3030	1500	1630	1010	920	821	639		
15	614	978	1780	1840	3340	2800	1480	1560	930	950	780	629		
16	897	935	1660	1630	2680	2290	1630	1500	915	878	780	627		
17	965	894	1580	1550	2370	2030	2140	1700	948	835	900	619		
18	726	863	1520	1600	2200	1950	2230	1620	901	761	4500	606		
19	710	962	1470	1510	1990	1860	2070	1430	899	740	14000	600		
20	700	1770	1450	1430	1850	1770	1950	1140	849	721	5500	594		
21	720	2170	1550	989	1970	1690	1840	1060	808	704	3250	585		
22	740	1740	2460	855	2120	1660	1700	1020	778	705	2430	588		
23	900	1490	3380	1240	2580	1850	1550	1220	755	706	1970	591		
24	1100	1340	3100	1330	3890	2670	1490	3890	744	702	1650	586		
25	1300	1240	2950	1330	5530	3110	1680	12900	733	755	1560	568		
26	1220	1150	3650	1420	8240	3060	1760	7680	715	1130	1760	564		
27	1050	1060	3470	1060	9500	2770	1580	4690	691	1130	1960	556		
28	952	1460	3260	993	7760	2550	1510	3250	677	1270	1620	547		
29	985	9780	2810	980	---	2430	1460	2530	673	1120	1370	544		
30	1870	6780	2390	925	---	2360	1360	2070	687	993	1190	544		
31	1400	---	2290	996	---	2290	---	1760	---	899	1080	---		
TOTAL	28254	50085	71580	87208	138470	78210	53460	81560	28898	26799	60592	19986		
MEAN	911	1670	2309	2813	4945	2523	1782	2631	963	864	1955	666		
MAX	1870	9780	4310	10100	16300	5410	2230	12900	1530	1270	14000	997		
MIN	614	863	1450	855	1850	1660	1360	1020	673	702	780	544		
(*)	-46	+277	+166	+78	+126	+3	-3	+8	-72	-158	-122	-188		
MEAN*	865	1946	2475	2891	5071	2526	1779	2639	891	706	1833	478		
CFSM*	.42	.94	1.19	1.39	2.44	1.22	.86	1.27	.43	.34	.88	.23		
IN.*	.48	1.05	1.38	1.61	2.55	1.40	.96	1.47	.48	.39	1.02	.26		
CAL YR 1984	TOTAL	1181226	MEAN	3227	MAX	36600	MIN	614	MEAN*	3248	CFSM*	1.57	IN.*	21.31
WTY YR 1985	TOTAL	725102	MEAN	1987	MAX	16300	MIN	544	MEAN*	1992	CFSM*	.96	IN.*	13.03

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

\* Adjusted for change in contents.

## JAMES RIVER BASIN

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02019500 JAMES RIVER AT BUCHANAN, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1951-56, 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1952 to September 1956, April 1968 to current year.

WATER TEMPERATURE: October 1947 to September 1948, May 1951 to September 1956, April 1968 to current year.

SUSPENDED-SEDIMENT DISCHARGE: May 1951 to September 1956.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 945 microsiemens, Sept. 27, 1954; minimum daily, 67 microsiemens, Oct. 20, 1975, Oct. 10, 1976.

WATER TEMPERATURE: Maximum daily, 31°C, July 5, 1955, July 17, 21, 1980; minimum daily, 0.0°C on many days during winter periods.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 540 microsiemens, Sept. 19; minimum daily, 100 microsiemens, Feb. 3, Aug. 19.

WATER TEMPERATURE: Maximum daily, 28.5°C, July 21, Aug. 14, 15; minimum daily, 0.0°C, Jan. 21.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)
OCT 05...	11:15	814	305	305	7.7	7.7	16.0	750	7	9.2
NOV 15...	12:35	975	325	308	8.0	8.0	8.5	745	10	11.8
JAN 09...	08:15	4040	160	164	7.4	7.4	4.0	748	5	12.3
FEB 15...	09:45	3440	160	163	7.1	7.0	1.5	742	5	13.2
APR 09...	08:15	1880	220	229	7.5	7.6	9.0	745	15	11.0
MAY 15...	08:00	1590	248	240	7.6	7.3	21.5	741	20	7.8
JUL 03...	08:15	1040	400	408	8.0	7.9	21.0	742	20	6.9
AUG 21...	15:15	3110	170	169	7.6	7.1	22.0	742	20	8.5

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT 05...	95	120	117	36	6.7	14	2.4	92	24
NOV 15...	103	110	112	35	5.9	20	2.2	81	26
JAN 09...	96	65	65	20	3.6	5.8	1.1	50	16
FEB 15...	97	64	64	19	4.0	5.1	1.2	51	15
APR 09...	97	83	83	26	4.4	12	2.1	64	19
MAY 15...	91	86	86	27	4.5	14	1.8	62	20
JUL 03...	80	130	126	40	6.3	28	3.1	92	41
AUG 21...	100	69	69	21	4.0	5.6	1.7	54	15

## JAMES RIVER BASIN

02019500 JAMES RIVER AT BUCHANAN, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 05...	22	<0.1	5.1	163	170	0.01	0.25	0.39	24
NOV 15...	31	<0.1	5.0	184	180	<0.01	0.20	0.46	35
JAN 09...	9.5	<0.1	5.6	98	92	<0.01	0.32	0.11	23
FEB 15...	8.6	<0.1	5.2	89	89	<0.01	0.28	0.13	31
APR 09...	20	0.1	2.4	134	130	<0.01	0.11	0.21	35
MAY 15...	21	<0.1	4.7	143	130	<0.01	<0.10	<0.01	31
JUL 03...	41	<0.1	3.5	267	220	<0.01	<0.10	<0.01	19
AUG 21...	8.5	<0.1	6.6	108	95	<0.01	0.36	--	--

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	440	240	140	210	360	140	200	262	235	390	370	340
2	390	277	175	182	115	150	208	260	240	410	380	340
3	360	285	180	178	100	170	219	280	260	400	350	370
4	320	321	200	120	125	175	202	218	280	---	320	350
5	310	349	220	140	142	198	250	145	300	330	300	370
6	322	320	219	130	150	---	218	175	---	350	300	380
7	335	315	242	140	160	200	220	180	310	350	325	360
8	320	290	222	158	158	210	218	180	300	390	350	360
9	440	280	242	165	196	240	230	218	370	380	350	380
10	425	303	255	178	192	235	221	220	340	410	350	380
11	400	315	230	180	230	220	221	240	298	419	330	400
12	458	340	258	210	258	240	240	240	320	430	300	420
13	440	340	250	---	140	245	220	230	340	420	340	---
14	441	339	240	220	150	200	238	242	320	390	360	400
15	---	340	238	245	178	190	260	240	320	360	380	400
16	460	320	220	260	190	180	260	245	300	400	390	440
17	500	320	240	155	199	210	250	260	340	380	365	400
18	490	322	238	142	210	220	210	236	300	378	---	420
19	275	370	280	158	220	220	190	238	345	425	100	540
20	270	360	242	---	230	220	200	230	341	420	130	400
21	322	278	258	180	242	235	218	220	345	420	165	---
22	382	210	240	300	259	240	210	280	345	420	180	450
23	400	219	190	340	240	---	222	290	350	418	200	400
24	400	260	180	370	198	222	222	240	360	390	220	450
25	365	265	195	320	160	198	240	135	341	378	240	420
26	320	278	180	320	150	180	240	130	345	380	280	500
27	305	302	160	320	125	180	220	160	350	345	255	440
28	302	278	180	325	---	180	250	175	380	370	265	500
29	339	175	180	360	---	180	240	198	400	350	275	510
30	320	120	180	320	---	190	260	---	420	340	280	490
31	260	---	200	320	---	190	---	184	---	340	320	---
MEAN	370	291	215	229	188	202	227	218	327	386	292	415
WTR YR 1985	MEAN	280		MAX	540		MIN	100				

## JAMES RIVER BASIN

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02019500 JAMES RIVER AT BUCHANAN, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.5	17.5	7.5	10.5	2.5	6.5	14.0	21.0	22.0	22.0	27.0	23.0
2	14.5	16.5	7.5	10.5	3.5	7.5	12.0	19.0	23.0	22.0	26.0	23.5
3	15.0	14.0	8.0	9.5	4.0	8.0	12.0	18.0	23.5	23.0	24.5	24.5
4	15.5	12.5	6.5	7.5	3.5	8.0	13.0	16.0	23.0	---	24.0	25.5
5	16.0	13.0	5.5	6.5	3.0	9.5	14.0	15.5	24.0	23.0	24.0	25.5
6	17.0	12.0	5.0	7.0	4.0	---	15.0	17.0	---	23.5	23.0	26.5
7	17.5	11.5	3.0	6.0	4.0	10.0	12.5	17.0	22.0	24.0	23.0	26.5
8	17.5	10.0	3.5	5.0	2.5	8.5	11.5	17.0	24.0	25.5	25.0	27.5
9	18.0	10.0	3.5	4.5	2.0	10.0	9.5	19.0	23.5	25.5	26.0	27.5
10	18.5	10.5	3.5	4.0	2.0	10.0	10.0	20.5	24.5	24.5	26.0	27.5
11	19.5	10.5	5.5	3.5	3.5	9.0	10.0	21.5	25.0	26.0	27.0	26.5
12	19.5	9.5	6.0	2.5	3.0	9.5	13.0	22.0	24.5	26.0	27.5	22.5
13	19.0	9.0	7.5	3.0	2.5	10.0	15.0	24.0	22.0	25.0	27.5	---
14	19.0	8.5	8.5	3.0	3.0	10.0	15.0	23.5	21.0	26.5	28.5	20.0
15	---	8.5	10.0	2.5	3.5	10.0	16.0	23.0	20.5	26.5	28.5	20.0
16	19.0	8.5	10.0	2.0	3.0	9.0	17.5	21.0	21.0	27.0	27.0	20.0
17	18.0	7.5	11.5	2.0	3.5	9.0	18.0	21.0	23.0	27.5	23.0	20.0
18	18.5	7.0	11.5	2.0	4.0	9.0	18.5	20.0	23.5	27.5	---	20.0
19	20.5	6.5	12.0	3.5	5.0	9.0	19.5	20.5	23.0	28.0	20.0	21.0
20	20.0	7.0	12.0	---	6.5	10.0	20.5	21.0	22.5	27.5	20.5	21.5
21	21.0	6.5	11.0	.0	7.0	9.0	21.5	21.5	23.5	28.5	22.0	---
22	21.0	5.5	11.0	.5	7.5	8.0	21.5	21.0	23.0	27.0	22.5	20.5
23	21.0	5.0	9.0	1.0	9.5	---	---	21.5	25.0	27.0	22.0	22.0
24	20.0	5.0	7.0	1.5	10.0	10.0	21.0	17.0	26.0	26.5	21.0	21.5
25	19.0	5.0	7.0	1.5	10.0	10.0	21.0	17.0	26.5	24.5	21.0	21.0
26	19.5	5.5	6.0	1.0	9.5	10.5	20.5	17.5	26.0	25.0	22.0	21.0
27	19.0	7.0	6.0	1.5	8.5	11.5	19.0	18.5	25.0	24.0	23.0	20.0
28	20.0	8.0	7.0	1.0	---	13.0	20.0	18.5	25.0	25.0	23.0	20.0
29	20.5	9.0	9.0	2.0	---	15.0	20.0	19.5	25.0	26.0	24.0	18.0
30	19.0	7.5	9.0	1.5	---	16.0	20.5	---	23.0	26.5	24.0	19.0
31	18.0	---	9.5	1.5	---	14.5	---	20.0	---	27.5	---	---
MEAN	18.5	9.0	7.5	3.5	5.0	10.0	16.5	19.5	23.5	25.5	24.0	22.5
WTR YR 1985	MEAN	15.5		MAX	28.5		MIN	.0				



## JAMES RIVER BASIN

02020500 CALFPASTURE RIVER ABOVE MILL CREEK, AT GOSHEN, VA

LOCATION.--Lat 37°59'16", long 79°29'38", Rockbridge County, Hydrologic Unit 02080202, on left bank 20 ft upstream from bridge on State Highway 42 at Goshen and 400 ft upstream from Mill Creek.

DRAINAGE AREA.--144 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,384.84 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 22, 23. Records good except those for period of no gage-height record, Jan. 22, and period with ice effect, Jan. 23, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--47 years, 164 ft<sup>3</sup>/s, 15.47 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,900 ft<sup>3</sup>/s, Oct. 6, 1972, gage height, 12.78 ft, from rating curve extended above 9,200 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; no flow Sept. 5, 6, 1957, Sept. 28, 1959, result of diversion.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0330	4,190	7.23	Aug. 18	2100	*4,640	*7.56

Minimum daily discharge, 13 ft<sup>3</sup>/s, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	100	460	214	143	397	168	46	67	23	30	55
2	50	85	294	288	831	314	165	48	59	28	44	50
3	36	75	225	526	567	249	166	1200	54	24	46	46
4	28	72	183	745	371	204	159	898	51	21	38	42
5	24	177	158	687	284	181	142	463	50	20	32	39
6	20	209	164	514	246	155	130	302	47	20	29	36
7	19	168	144	427	217	133	117	218	48	20	27	35
8	20	136	124	353	156	121	105	162	50	18	37	33
9	22	115	118	268	122	116	96	126	45	17	245	38
10	21	100	117	216	130	105	89	103	40	18	138	38
11	20	99	128	188	129	102	83	90	38	20	74	36
12	19	95	145	166	292	126	78	84	41	37	55	32
13	18	85	161	165	398	127	74	108	37	53	44	30
14	18	79	159	137	253	127	71	108	35	81	37	28
15	17	75	148	122	212	126	69	180	32	42	33	26
16	20	72	138	109	160	118	70	114	31	39	31	24
17	22	68	130	106	153	112	67	104	33	31	31	22
18	23	66	122	95	129	107	63	91	33	27	1460	20
19	20	111	123	89	124	100	60	81	29	25	1510	19
20	19	209	131	78	145	93	57	70	27	22	458	17
21	19	196	163	59	176	87	55	62	25	20	252	17
22	22	165	434	71	211	86	54	61	24	19	173	16
23	28	143	436	80	316	127	53	68	23	17	123	16
24	82	127	337	84	612	270	52	371	23	17	100	15
25	79	112	321	79	750	294	61	438	23	20	103	15
26	63	99	302	67	842	248	56	268	21	31	101	14
27	52	88	275	59	770	211	52	176	20	30	101	15
28	51	673	236	66	539	188	52	127	19	29	88	15
29	145	2610	200	56	---	177	50	101	18	25	77	14
30	154	847	175	50	---	174	48	84	17	23	68	13
31	125	---	188	56	---	153	---	76	---	25	62	---
TOTAL	1294	7256	6439	6220	9278	5128	2562	6428	1060	842	5647	816
MEAN	41.7	242	208	201	331	165	85.4	207	35.3	27.2	182	27.2
MAX	154	2610	460	745	842	397	168	1200	67	81	1510	55
MIN	17	66	117	50	122	86	48	46	17	17	27	13
CFSM	.29	1.68	1.44	1.40	2.30	1.15	.59	1.44	.25	.19	1.26	.19
IN.	.33	1.87	1.66	1.61	2.40	1.32	.66	1.66	.27	.22	1.46	.21

CAL YR 1984	TOTAL	89045	MEAN	243	MAX	4020	MIN	13	CFSM	1.69	IN.	23.00
WTR YR 1985	TOTAL	52970	MEAN	145	MAX	2610	MIN	13	CFSM	1.01	IN.	13.68

## 02021500 MAURY RIVER AT ROCKBRIDGE BATHS, VA

LOCATION.--Lat 37°54'26", long 79°25'20", Rockbridge County, Hydrologic Unit 02080202, on right bank at Rockbridge Baths, 1,200 ft upstream from bridge on State Highway 39, and 1.0 mi upstream from Hays Creek.

DRAINAGE AREA.--329 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River at Rockbridge Baths.

REVISED RECORDS.--WSP 972: 1929-40, 1941(M). WSP 1002: 1930(m). WSP 1553: 1931(m).

GAGE.--Water-stage recorder. Datum of gage is 1,100.33 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Estimated daily discharges: Jan. 21-23. Records good except those for period with ice effect, Jan. 21-23, which are fair. Since 1966, some regulation at times by Lake Merriweather on Little Calpasture River. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 376 ft<sup>3</sup>/s, 15.52 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft<sup>3</sup>/s, Mar. 17, 1936, gage height, 13.07 ft, from rating curve extended above 16,000 ft<sup>3</sup>/s; minimum, 5.8 ft<sup>3</sup>/s, Sept. 10, 1966, gage height, 0.79 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0400	*7,060	*7.64	Aug. 18	2400	6,380	7.35

Minimum discharge, 32 ft<sup>3</sup>/s, July 10, gage height, 1.12 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156	320	1190	565	653	873	475	101	190	56	82	117
2	217	299	824	681	2260	724	449	106	157	66	147	103
3	215	248	654	1080	1530	585	431	1310	141	51	116	92
4	206	216	530	1730	973	494	404	1390	127	45	91	84
5	190	588	455	1630	752	449	361	745	128	42	75	76
6	176	688	523	1210	656	386	330	512	124	41	65	70
7	125	519	455	1020	582	330	297	386	119	42	61	63
8	99	426	375	866	436	308	268	298	136	39	76	60
9	87	325	358	687	358	301	245	239	116	34	252	60
10	115	261	357	569	368	270	222	202	100	35	273	59
11	121	264	400	508	348	261	207	180	91	38	156	60
12	92	252	434	443	842	344	195	183	93	81	113	55
13	77	210	443	377	1050	316	182	286	92	181	91	52
14	70	189	416	349	650	299	175	288	79	594	76	49
15	63	176	378	314	514	288	174	284	74	238	66	48
16	69	167	349	251	420	267	186	237	72	143	59	47
17	68	154	327	269	386	258	176	218	76	100	59	46
18	70	149	304	250	358	246	143	195	78	78	1640	45
19	67	360	298	234	358	225	124	169	72	65	3130	43
20	63	659	331	198	416	212	120	145	67	57	937	43
21	60	523	397	160	459	204	118	127	61	52	640	42
22	60	422	859	170	547	203	113	121	58	48	425	42
23	127	354	851	165	790	344	110	145	57	45	296	43
24	304	311	711	176	1270	591	109	671	54	41	229	42
25	265	274	709	176	1460	607	149	1240	50	158	283	40
26	206	238	636	154	1750	518	135	786	48	138	294	50
27	171	210	597	132	1600	457	123	541	46	85	273	62
28	151	1550	539	146	1140	420	121	437	46	81	231	56
29	652	4950	475	136	---	419	117	318	46	64	189	54
30	556	1940	423	119	---	507	107	250	46	57	159	54
31	399	---	495	142	---	431	---	219	---	54	137	---
TOTAL	5297	17242	16093	14907	22926	12137	6366	12329	2644	2849	10721	1757
MEAN	171	575	519	481	819	392	212	398	88.1	91.9	346	58.6
MAX	652	4950	1190	1730	2260	873	475	1390	190	594	3130	117
MIN	60	149	298	119	348	203	107	101	46	34	59	40
CFSM	.52	1.75	1.58	1.46	2.49	1.19	.64	1.21	.27	.28	1.05	.18
IN.	.60	1.95	1.82	1.69	2.59	1.37	.72	1.39	.30	.32	1.21	.20
CAL YR 1984	TOTAL	210344	MEAN	575	MAX	6710	MIN	43	CFSM	1.75	IN.	23.78
WTR YR 1985	TOTAL	125268	MEAN	343	MAX	4950	MIN	34	CFSM	1.04	IN.	14.16

## 02022500 KERRS CREEK NEAR LEXINGTON, VA

LOCATION.--Lat 37°49'32", long 79°26'36", Rockbridge County, Hydrologic Unit 02080202, on right bank 100 ft upstream from bridge on Interstate Highway 64, 1.4 mi upstream from mouth, and 2.9 mi north of Lexington.

DRAINAGE AREA.--35.0 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1203: 1927-29, 1930-34(M), 1935-40, 1941(M), 1942, 1943-48(M), 1949. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 980.32 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Jan. 27, 1927, to Sept. 30, 1953, nonrecording gage at site 1,000 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Jan. 16, 17, 21-23, 27 and Feb. 9. Records good except those for periods with ice effect, Jan. 16, 17, 21-23, 27 and Feb. 9, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--59 years, 35.5 ft<sup>3</sup>/s, 13.77 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft<sup>3</sup>/s, Sept. 10, 1950, gage height, 13.8 ft, from flood-marks, site and datum then in use, from rating curve extended above 800 ft<sup>3</sup>/s on basis of contracted-opening and slope-area measurements of peak flow; minimum, 0.90 ft<sup>3</sup>/s, July 22, 1966 (result of temporary dam upstream); minimum daily, 4.0 ft<sup>3</sup>/s many days in August and September 1932, Nov. 21, 1938, July 22, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	1415	*880	*5.50	Feb. 12	0945	605	4.97

Minimum discharge, 7.3 ft<sup>3</sup>/s, July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	13	46	34	250	54	32	15	24	13	12	12
2	17	13	37	38	275	49	30	20	22	15	13	12
3	15	12	33	79	121	43	30	77	21	14	10	11
4	14	14	28	147	80	40	28	47	19	11	9.9	11
5	13	30	28	94	65	38	27	36	19	10	9.7	10
6	13	21	39	70	59	34	26	31	18	9.8	9.6	10
7	13	18	32	62	50	32	25	27	18	9.4	9.7	10
8	13	16	30	53	41	32	24	24	18	8.8	10	10
9	13	15	28	46	38	31	23	21	15	8.5	9.8	9.8
10	13	15	29	41	37	28	22	20	14	9.3	9.2	9.7
11	12	16	30	38	35	29	22	19	14	9.8	9.2	9.5
12	12	15	32	34	278	30	21	32	15	9.8	9.5	9.4
13	12	14	30	32	102	27	20	71	13	10	10	9.4
14	12	13	28	31	69	27	20	37	13	12	11	9.2
15	12	13	26	28	57	25	20	30	12	10	12	9.2
16	13	13	24	24	49	24	22	28	13	10	13	9.2
17	12	12	24	25	44	24	19	31	13	9.1	17	9.1
18	13	13	22	27	40	23	18	25	12	8.5	163	9.0
19	12	27	22	25	40	22	18	22	11	8.2	51	8.8
20	12	25	21	21	39	22	17	19	11	8.1	27	8.6
21	12	21	33	18	38	21	17	18	10	8.0	25	8.6
22	12	18	36	19	42	23	16	18	10	8.0	18	8.4
23	30	17	32	20	58	44	16	27	9.9	7.8	15	8.3
24	29	16	31	21	73	42	16	173	9.6	7.5	15	8.3
25	19	15	32	21	69	37	20	156	9.4	20	20	8.3
26	16	15	29	20	114	33	17	70	9.1	20	23	8.1
27	15	14	28	19	80	32	16	49	8.6	22	24	8.0
28	14	225	27	18	63	30	16	39	9.0	15	18	8.0
29	14	121	26	18	---	32	17	33	8.7	13	16	8.0
30	13	64	25	17	---	31	16	30	9.1	12	15	8.0
31	13	---	34	20	---	30	---	28	---	11	13	---
TOTAL	462	854	922	1160	2306	989	631	1273	408.4	348.6	627.6	278.9
MEAN	14.9	28.5	29.7	37.4	82.4	31.9	21.0	41.1	13.6	11.2	20.2	9.30
MAX	30	225	46	147	278	54	32	173	24	22	163	12
MIN	12	12	21	17	35	21	16	15	8.6	7.5	9.2	8.0
CFSM	.43	.81	.85	1.07	2.35	.91	.60	1.17	.39	.32	.58	.27
IN.	.49	.91	.98	1.23	2.45	1.05	.67	1.35	.43	.37	.67	.30
CAL YR 1984	TOTAL	18446	MEAN	50.4	MAX	808	MIN	11	CFSM	1.44	IN.	19.61
WTR YR 1985	TOTAL	10260.5	MEAN	28.1	MAX	278	MIN	7.5	CFSM	.80	IN.	10.91

## 02024000 MAURY RIVER NEAR BUENA VISTA, VA

LOCATION.--Lat 37°45'45", long 79°23'30", Rockbridge County, Hydrologic Unit 02080202, on right bank 0.5 mi downstream from South River and 2.8 mi northwest of Buena Vista.

DRAINAGE AREA.--646 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River near Buena Vista.

REVISED RECORDS.--WSP 952: 1940-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 846.58 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-24. Records good except those for period with ice effect, Jan. 21-24, which are fair. Since 1966, some regulation at times by Lake Merriweather on Little Calpasture River. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--47 years, 662 ft<sup>3</sup>/s, 13.92 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 31.23 ft, from flood-marks, from rating curve extended above 17,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 20 ft<sup>3</sup>/s, Oct. 10, 1941, occurred during filling of a small reservoir 2 mi upstream; unqualified minimum, 37 ft<sup>3</sup>/s, Sept. 9, 1966; minimum gage height, 0.98 ft, Jan. 5, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of about 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0800	*8,020	*9.01	Aug. 19	0330	6,930	8.33

Minimum discharge, 113 ft<sup>3</sup>/s, Sept. 27, gage height, 1.31 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	317	458	1720	763	1740	1250	747	261	465	177	183	312
2	404	434	1240	828	3630	1070	724	260	409	205	299	282
3	363	379	994	1370	2550	914	688	933	371	223	276	261
4	347	367	833	2360	1650	797	659	1800	346	191	235	240
5	331	615	731	2270	1280	733	607	1020	353	171	210	223
6	322	873	808	1810	1110	662	566	744	338	152	189	209
7	282	693	758	1550	1010	592	534	598	317	144	178	196
8	246	571	637	1360	805	559	500	501	318	139	175	184
9	226	506	603	1140	654	552	466	437	312	135	183	177
10	214	421	591	976	679	512	438	389	290	139	428	172
11	250	400	627	884	654	489	415	356	336	183	301	171
12	237	406	673	797	2700	543	398	348	291	164	237	175
13	209	357	693	706	2130	540	379	512	267	372	208	163
14	194	330	667	666	1320	507	363	485	253	718	186	155
15	190	313	619	613	1050	490	356	413	236	502	165	150
16	198	301	584	517	871	468	385	449	232	326	153	147
17	204	289	554	564	781	453	376	447	235	256	158	143
18	198	281	528	533	727	441	340	398	224	216	1120	138
19	195	386	509	502	684	421	308	352	218	190	4520	135
20	188	790	530	449	727	403	293	322	206	173	1460	131
21	181	691	571	335	734	387	287	294	193	158	1150	127
22	181	578	935	375	780	402	279	279	182	151	823	124
23	277	507	1060	400	976	594	273	307	175	145	613	124
24	548	462	925	395	1420	851	271	775	224	133	492	124
25	474	425	893	409	1730	931	334	2080	182	139	559	120
26	387	391	830	390	2070	823	326	1310	165	360	710	116
27	335	356	783	362	2050	732	299	916	154	267	679	125
28	304	1360	734	353	1560	678	291	1360	151	248	560	136
29	658	6350	671	346	---	676	291	739	149	216	462	133
30	734	2770	615	328	---	814	274	593	146	189	394	130
31	559	---	662	349	---	729	---	522	---	174	348	---
TOTAL	9753	23060	23578	24700	38072	20013	12467	20200	7738	6956	17654	5023
MEAN	315	769	761	797	1360	646	416	652	258	224	569	167
MAX	734	6350	1720	2360	3630	1250	747	2080	465	718	4520	312
MIN	181	281	509	328	654	387	271	260	146	133	153	116
CFSM	.49	1.19	1.18	1.23	2.11	1.00	.64	1.01	.40	.35	.88	.26
IN.	.56	1.33	1.36	1.42	2.19	1.15	.72	1.16	.45	.40	1.02	.29
CAL YR 1984	TOTAL	350018	MEAN	956	MAX	8540	MIN	176	CFSM	1.48	IN.	20.16
WTR YR 1985	TOTAL	209214	MEAN	573	MAX	6350	MIN	116	CFSM	.89	IN.	12.05



## 02025500 JAMES RIVER AT HOLCOMBS ROCK, VA

LOCATION.--Lat 37°30'04", long 79°15'46", Bedford County, Hydrologic Unit 02080203, on right bank at Holcombs Rock, 0.9 mi downstream from Pedlar River, and at mile 268.6.

DRAINAGE AREA.--3,259 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1900 to September 1915 (gage heights only), October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303. Published as "at Salt Creek" December 1926 to June 1931.

REVISED RECORDS.--WSP 972: 1913(M), 1932-33, 1935(M), 1936. WSP 1303: 1928(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 548.53 ft above National Geodetic Vertical Datum of 1929. January 1900 to September 1915, nonrecording gage in powerhouse of Owens Illinois Glass Company 1,000 ft upstream at different datum. December 1926 to June 1931, water-stage recorder at site 2 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Some diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 117.4 mi upstream; since October 1984 by Back Creek Lake 145.4 mi upstream; and since January 1985 by Little Back Creek Lake 148.5 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--59 years, 3,590 ft<sup>3</sup>/s, 14.96 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 150,000 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 35.50 ft, from rating curve extended above 73,000 ft<sup>3</sup>/s on basis of records for other stations in James River basin; minimum, 71 ft<sup>3</sup>/s, Oct. 24, 1963; minimum daily, 223 ft<sup>3</sup>/s, July 28, 1930; minimum gage height, 2.91 ft, Oct. 5, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 31.3 ft, from floodmarks, discharge, 118,000 ft<sup>3</sup>/s, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 25,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	1445	*24,600	*14.29	No peak equal to or greater than base discharge.			

Minimum discharge, 72 ft<sup>3</sup>/s, July 23, gage height, 3.02 ft; minimum daily, 736 ft<sup>3</sup>/s, Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1670	1980	6810	3210	3550	7490	3210	1830	2480	770	1200	1710		
2	1910	1820	5130	3790	18300	5770	3170	1770	2330	1210	1290	1530		
3	1970	1720	4020	4810	19200	4930	3040	1970	2020	1300	1400	1420		
4	1660	1580	3440	11400	11500	4300	2980	6100	2000	1350	1530	1300		
5	1410	1780	3000	13600	8020	3880	2880	6260	1890	1290	1430	1260		
6	1330	2240	3000	11000	6330	3370	2760	3910	1860	1220	1170	1350		
7	1280	2420	3020	8480	5140	3050	2710	3340	1820	1150	1120	1080		
8	1290	2150	2840	6460	4400	2900	2700	2630	1790	1120	1270	1060		
9	1030	1970	2600	5460	3710	2830	2580	2320	1780	1060	961	1080		
10	1140	1750	2540	4470	3190	2740	2380	2130	1750	971	1220	1180		
11	1080	1740	2540	3860	3130	2680	2340	2060	1710	1040	1540	946		
12	1140	1680	2660	3560	7320	2650	2290	1890	1670	1090	1410	978		
13	1090	1690	2790	3200	11200	2970	2230	2350	1550	1090	1080	1000		
14	1050	1670	2830	2930	7470	3430	2150	2410	1440	1320	1110	970		
15	1030	1580	2710	2790	5330	3670	2140	2270	1500	1650	1080	946		
16	1030	1460	2550	2570	4230	3090	2270	2170	1430	1520	846	933		
17	1370	1460	2460	2390	3710	2760	2490	3550	1490	1210	862	928		
18	1360	1400	2320	2500	3410	2620	2780	2660	1450	1120	4230	919		
19	1130	1670	2290	2330	3150	2540	2580	2320	1390	1070	17700	910		
20	1130	2020	2280	2270	2960	2420	2480	1950	1280	998	9190	895		
21	1070	3060	2330	1610	2980	2370	2380	1710	1120	946	5230	811		
22	1080	2680	2790	1330	3110	2410	2280	1650	1090	855	3810	772		
23	1310	2290	4180	1570	3420	2920	2140	1970	1130	737	2960	866		
24	1850	2130	4140	2130	4620	3580	2050	4520	1130	866	2590	904		
25	2250	1990	3820	2130	6580	4270	2140	15000	1120	932	3240	879		
26	1940	1850	4060	1980	9200	4170	2360	11700	1090	1240	3390	840		
27	1750	1760	4270	1760	11800	3940	2220	6850	1050	1690	3290	867		
28	1530	2250	3970	1760	9960	3560	2110	5540	1040	1490	2820	736		
29	1540	14400	3760	1730	---	3400	2060	4030	1020	1520	2390	915		
30	2500	12000	3200	1650	---	3440	1950	3280	1000	1370	2100	759		
31	2290	---	3090	1630	---	3340	---	2920	---	1010	1750	---		
TOTAL	45210	80190	101440	120360	186920	107490	73850	115060	45420	36205	85209	30744		
MEAN	1458	2673	3272	3883	6676	3467	2462	3712	1514	1168	2749	1025		
MAX	2500	14400	6810	13600	19200	7490	3210	15000	2480	1690	17700	1710		
MIN	1030	1400	2280	1330	2960	2370	1950	1650	1000	737	846	736		
(*)	-46	+277	+166	+78	+126	+3	-3	+8	-72	-158	-122	-188		
MEAN†	1412	2950	3438	3961	6802	3470	2459	3720	1442	1010	2627	837		
CFSM†	.43	.91	1.05	1.22	2.09	1.06	.75	1.14	.44	.31	.81	.26		
IN†	.50	1.01	1.22	1.40	2.17	1.23	.84	1.32	.49	.36	.93	.29		
CAL YR 1984	TOTAL	1715770	MEAN	4688	MAX	51300	MIN	1030	MEAN†	4709	CFSM†	1.44	IN.†	19.67
WTR YR 1985	TOTAL	1028098	MEAN	2817	MAX	19200	MIN	736	MEAN†	2822	CFSM†	.87	IN.†	11.76

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## 02026000 JAMES RIVER AT BENT CREEK, VA

LOCATION.--Lat 37°32'10", long 78°49'30", Nelson County, Hydrologic Unit 02080203, on left bank at town of Bent Creek, 150 ft downstream from Bent Creek, 525 ft upstream from bridge on U.S. Highway 60, 1.3 mi southeast of Gladstone, and at mile 227.8.

DRAINAGE AREA.--3,683 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to 1926, published as "at Bent Creek, near Gladstone."

REVISED RECORDS.--WSP 742: 1931(m). WSP 972: 1935-36. WSP 1066: 1940. WSP 1203: 1942. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 381.39 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 12, 1930, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 20-22, 25 and Sept. 20-30. Records good except those for period with ice effect, Jan. 20-22, 25, and period of doubtful gage-height record, Sept. 20-30, which are fair. Large diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 158.3 mi upstream; since October 1984 by Back Creek Lake 186.3 mi upstream; and since January 1985 by Little Back Creek Lake 189.4 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 4,188 ft<sup>3</sup>/s, 15.44 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 176,000 ft<sup>3</sup>/s, June 21, 1972, gage height, 27.13 ft, from high-water mark in gage house, from rating curve extended above 89,000 ft<sup>3</sup>/s on basis of velocity-area studies and records for other stations in James River basin; minimum, 222 ft<sup>3</sup>/s, Oct. 13, 14, 1930, gage height, 2.21 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 26,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	2200	*25,100	*10.07	No peak equal to or greater than base discharge.			

Minimum daily discharge, 641 ft<sup>3</sup>/s, July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2440	2340	8860	3520	3720	9280	4250	2140	2850	988	1270	1970
2	2160	2190	6760	4470	15100	7150	3870	1770	2460	886	1040	1990
3	2260	1770	5480	5320	22000	6300	3920	2620	2540	1210	1410	1850
4	2230	1860	4440	10100	14000	5610	3590	3310	2290	1420	1440	1860
5	1930	2070	4070	14600	9770	4930	3150	8240	2070	1130	1420	1780
6	1630	2410	3840	12200	7940	4510	3240	5650	2440	1280	1430	1460
7	1330	2370	3870	10500	6580	3870	3210	4180	2150	1150	1210	1400
8	1520	2900	3330	7810	5860	3340	3480	3430	2080	1010	1310	1330
9	1460	2160	3210	6850	4500	3160	3060	2730	1810	1020	1620	2400
10	1460	2020	3320	6150	4030	3300	2870	2420	2140	1070	1280	2580
11	1360	1920	2950	4840	4100	3500	2720	1900	2050	929	1070	1550
12	1050	2240	3150	4020	7150	3140	2670	2200	2030	1410	1430	1170
13	1400	1930	3210	4040	12400	3150	2270	5400	1750	1110	1530	1200
14	1250	1730	3670	3700	9930	3820	2560	2640	1800	1350	1250	1230
15	1250	1740	3070	3390	7040	4420	2800	3100	1350	1470	845	1190
16	1220	1850	3070	3280	5680	3820	2720	2460	1560	1700	1050	1170
17	1380	1360	3380	2910	4800	3500	2830	3840	1590	1570	943	1140
18	1610	1620	2800	2570	4340	3430	3020	2930	1590	1280	6300	1080
19	1550	2090	2690	2780	3990	3070	3180	2840	1690	922	14100	968
20	1260	2150	2760	2500	3880	3000	2530	2650	1320	960	15300	920
21	1280	2800	2390	2200	3770	2850	2820	1880	1180	929	8730	820
22	1430	3300	3060	2000	3490	2620	3010	1780	1020	945	6610	1080
23	2540	2910	4440	2020	3700	3250	2470	2430	1100	847	4360	1130
24	2510	2450	5210	2330	4980	4080	2430	4440	1090	641	3150	1040
25	2720	2350	4810	2600	6440	4770	2110	12000	1080	882	4180	872
26	2360	2350	4650	2800	9010	5220	2480	14800	1180	1540	5840	786
27	1900	1940	5210	2430	12100	5130	2500	8710	1050	1230	4500	883
28	1970	2420	5010	2410	11400	4880	2510	6810	895	1860	4130	895
29	1820	9640	4470	2030	---	4180	2630	5900	1070	1740	3020	937
30	1990	15100	4170	2020	---	3650	2240	4290	962	1980	2830	1000
31	3220	---	4130	2390	---	4190	---	3510	---	1110	2390	---
TOTAL	55490	85980	125480	140780	211700	131120	87140	133000	50187	37569	106988	39681
MEAN	1790	2866	4048	4541	7561	4230	2905	4290	1673	1212	3451	1323
MAX	3220	15100	8860	14600	22000	9280	4250	14800	2850	1980	15300	2580
MIN	1050	1360	2390	2000	3490	2620	2110	1770	895	641	845	786
(*)	-46	+277	+166	+78	+126	+3	-3	+8	-72	-158	-122	-188
MEAN*	1744	3143	4214	4619	7687	4233	2902	4298	1601	1054	3329	1135
CFSM*	.47	.85	1.14	1.25	2.09	1.15	.79	1.17	.43	.29	.90	.31
IN.*	.55	.95	1.32	1.45	2.17	1.33	.88	1.35	.49	.33	1.04	.34

CAL YR 1984 TOTAL 1973210 MEAN 5391 MAX 57600 MIN 1040 MEAN\* 5412 CFSM\* 1.47 IN.\* 20.01  
WTR YR 1985 TOTAL 1205115 MEAN 3302 MAX 22000 MIN 641 MEAN\* 3307 CFSM\* .90 IN.\* 12.19

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

\* Adjusted for change in contents.

## JAMES RIVER BASIN

02027000 TYE RIVER NEAR LOVINGSTON, VA

LOCATION.--Lat 37°42'55", long 78°58'55", Nelson County, Hydrologic Unit 02080203, on right bank at downstream side of bridge on State Highway 158, 3.5 mi downstream from Hat Creek, 4.8 mi upstream from Piney River, and 6.8 mi southwest of Lovingsston.

DRAINAGE AREA.--92.8 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 578.39 ft above National Geodetic Vertical Datum of 1929. Sept. 15, 1969, to Oct. 15, 1970, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-31 and Feb. 10. Records good except those for periods with ice effect, Jan. 22-31 and Feb. 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--47 years, 155 ft<sup>3</sup>/s, 22.68 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,000 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 29.0 ft, from flood-marks, from rating curve extended above 7,600 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 0.50 ft<sup>3</sup>/s, Sept. 10, 11, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1930	1,670	4.75	Aug. 20	1945	*2,380	*5.98

Minimum discharge, 13 ft<sup>3</sup>/s, Jan. 20, 21, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	44	222	84	191	203	155	90	174	54	147	170
2	72	35	178	94	325	190	140	89	155	75	183	154
3	47	33	154	149	228	174	135	138	149	65	120	141
4	36	34	133	219	183	163	130	155	149	53	98	131
5	33	85	125	205	161	157	124	139	160	50	85	121
6	34	60	141	187	150	145	122	131	146	48	79	111
7	31	49	114	184	139	144	118	124	134	48	89	100
8	31	45	105	170	117	140	125	116	129	46	152	95
9	32	44	100	153	108	139	120	108	119	45	98	91
10	32	43	96	142	104	127	114	102	108	45	82	86
11	33	45	98	137	107	116	111	99	103	59	73	82
12	34	43	98	128	306	118	107	97	101	272	66	78
13	35	39	97	117	273	109	104	106	92	155	61	75
14	37	37	93	119	213	107	101	96	85	114	55	60
15	41	38	89	110	183	103	101	85	83	88	47	56
16	50	37	87	97	165	99	106	85	83	82	43	54
17	43	36	86	109	155	98	99	488	86	128	44	49
18	40	37	83	102	145	92	95	313	79	74	929	49
19	40	100	81	95	137	88	92	226	72	63	987	48
20	40	78	80	76	129	87	90	190	66	57	897	47
21	42	61	97	77	126	85	88	167	61	54	662	42
22	50	56	96	80	134	89	86	153	57	50	421	41
23	75	53	85	81	171	185	84	309	56	47	310	46
24	88	52	82	81	198	205	81	367	82	41	260	44
25	57	50	84	80	215	191	106	472	67	62	417	40
26	46	48	80	76	258	172	89	363	57	191	458	39
27	49	47	79	74	244	158	85	281	49	140	419	37
28	55	123	79	74	221	148	87	256	47	130	321	38
29	52	481	77	73	---	148	103	212	45	119	263	39
30	51	298	75	72	---	167	95	198	43	113	224	43
31	49	---	88	80	---	149	---	188	---	90	194	---
TOTAL	1481	2231	3182	3525	5086	4296	3193	5943	2837	2658	8284	2207
MEAN	47.8	74.4	103	114	182	139	106	192	94.6	85.7	267	73.6
MAX	126	481	222	219	325	205	155	488	174	272	987	170
MIN	31	33	75	72	104	85	81	85	43	41	43	37
CFSM	.52	.80	1.11	1.23	1.96	1.50	1.14	2.07	1.02	.92	2.88	.79
IN.	.59	.89	1.28	1.41	2.04	1.72	1.28	2.38	1.14	1.07	3.32	.88
CAL YR 1984	TOTAL	67469	MEAN	184	MAX	2030	MIN	29	CFSM	1.98	IN.	27.05
WTR YR 1985	TOTAL	44923	MEAN	123	MAX	987	MIN	31	CFSM	1.33	IN.	18.01



## 02027500 PINEY RIVER AT PINEY RIVER, VA

LOCATION.--Lat 37°42'08", long 79°01'40", Nelson County, Hydrologic Unit 02080203, on left bank at upstream side of bridge on State Highway 151, 0.2 mi southwest of Piney River post office, 1.7 mi downstream from Indian Creek, and 2.5 mi southeast of Lowesville.

DRAINAGE AREA.--47.6 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-72-1: 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 633.58 ft above National Geodetic Vertical Datum of 1929. Prior to May 27, 1969, water-stage recorder, and Nov. 4, 1969, to Feb. 26, 1970, nonrecording gage at site 20 ft downstream from former highway bridge at same datum. Feb. 26, 1970, to Sept. 20, 1973, on right bank 20 ft upstream from bridge at same datum.

REMARKS.--Estimated daily discharges: Jan. 21-27 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 21-27 and Feb. 9, 10, which are fair. Periodic dewatering of upstream quarries adds small amount of inflow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--36 years, 94.3 ft<sup>3</sup>/s, 26.90 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 13.8 ft, from floodmarks, from rating curve extended above 6,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 1.1 ft<sup>3</sup>/s, Sept. 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1949 reached a stage of 9.9 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 650 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1530	*1,660	*4.48	Aug. 20	1930	1,640	4.45

Minimum discharge, 16 ft<sup>3</sup>/s, Oct. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	27	172	52	115	138	96	47	93	37	99	136
2	38	27	144	61	152	130	89	55	82	38	113	119
3	29	26	126	93	120	119	86	99	76	33	92	104
4	25	27	109	136	107	112	83	87	70	29	81	93
5	22	51	102	141	101	105	80	88	92	30	72	82
6	19	39	104	140	97	97	77	84	71	27	66	74
7	19	39	88	135	90	91	76	80	69	26	69	68
8	20	39	81	124	82	88	74	74	65	23	83	63
9	21	39	76	116	75	85	70	68	58	24	63	58
10	22	38	72	107	70	79	66	63	55	24	55	53
11	24	39	70	102	72	77	64	60	60	28	51	49
12	22	36	66	95	193	75	62	58	51	70	46	48
13	19	34	63	89	144	71	59	59	46	68	44	43
14	18	33	61	85	124	68	58	51	43	44	41	41
15	20	33	59	79	111	65	57	47	42	35	37	38
16	23	32	57	74	102	63	63	52	48	35	38	36
17	23	31	56	74	94	61	55	173	43	47	46	35
18	22	32	54	66	88	59	53	105	38	31	1030	34
19	20	62	53	63	84	57	51	88	34	27	697	31
20	21	47	51	52	79	56	49	79	34	24	530	30
21	18	43	62	51	75	54	48	73	31	22	348	28
22	23	41	58	51	75	60	46	71	30	21	248	28
23	37	41	54	50	80	117	45	156	31	20	190	29
24	41	41	53	50	91	114	45	206	38	18	167	27
25	33	40	54	49	104	118	60	276	29	49	269	24
26	32	39	52	47	137	118	47	229	27	79	324	23
27	31	38	52	45	145	116	45	186	26	75	329	22
28	30	150	51	42	144	110	51	158	26	72	274	21
29	30	299	50	41	---	109	51	136	26	75	224	19
30	28	218	49	39	---	103	48	120	25	70	185	19
31	28	---	57	43	---	98	---	106	---	66	156	---
TOTAL	832	1681	2256	2392	2951	2813	1854	3234	1459	1267	6067	1475
MEAN	26.8	56.0	72.8	77.2	105	90.7	61.8	104	48.6	40.9	196	49.2
MAX	74	299	172	141	193	138	96	276	93	79	1030	136
MIN	18	26	49	39	70	54	45	47	25	18	37	19
CFSM	.56	1.18	1.53	1.62	2.21	1.91	1.30	2.18	1.02	.86	4.12	1.03
IN.	.65	1.31	1.76	1.87	2.31	2.20	1.45	2.53	1.14	.99	4.74	1.15
CAL YR 1984	TOTAL	40681	MEAN	111	MAX	1380	MIN	16	CFSM	2.33	IN.	31.79
WTR YR 1985	TOTAL	28281	MEAN	77.5	MAX	1030	MIN	18	CFSM	1.63	IN.	22.10



## JAMES RIVER BASIN

02027800 BUFFALO RIVER NEAR TYE RIVER, VA

LOCATION.--Lat 37°36'20", long 78°55'25", Nelson County, Hydrologic Unit 02080203, on right bank 35 ft upstream from bridge on State Highway 657, 2.1 mi upstream from mouth, and 3.5 mi southeast of town of Tye River.

DRAINAGE AREA.--147 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 444.39 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-31 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 21-31 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--25 years, 170 ft<sup>3</sup>/s, 15.70 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 27.95 ft, from flood-mark, from rating curve extended above 1,800 ft<sup>3</sup>/s on basis of computation of flow over dam at gage height 11.03 ft and slope-area measurement at gage height 27.95 ft; minimum, 3.2 ft<sup>3</sup>/s, Sept. 8-13, 1966; minimum gage height, 0.28 ft, Sept. 9-13, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1445	*1,550	*6.22	No other peak equal to or greater than base discharge.			
Minimum discharge, 36 ft <sup>3</sup> /s, Sept. 28-30.							

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	242	83	169	119	384	174	154	106	141	75	68	149
2	149	83	151	119	688	173	145	106	126	85	95	121
3	104	81	143	217	393	166	143	195	121	73	73	107
4	92	80	130	432	273	163	142	153	112	70	63	96
5	85	102	128	332	231	163	137	131	112	64	58	86
6	82	97	211	261	214	155	133	124	117	59	56	80
7	80	86	174	230	198	150	130	117	107	63	60	74
8	81	83	150	206	174	149	134	114	111	59	117	70
9	82	82	138	189	168	152	128	109	101	53	88	66
10	81	83	130	177	160	147	126	106	97	55	69	62
11	80	88	125	171	166	145	124	107	124	55	61	59
12	80	85	119	163	573	146	123	108	109	86	56	55
13	78	79	114	152	386	138	122	236	91	97	53	54
14	77	76	110	154	278	136	121	137	83	108	51	50
15	76	76	106	141	240	136	122	112	83	69	49	49
16	78	77	105	147	217	132	145	116	85	122	45	49
17	79	76	105	153	205	134	144	137	109	74	56	48
18	78	75	103	152	195	130	124	140	90	61	762	46
19	79	138	102	141	190	125	120	117	81	53	461	45
20	78	124	101	131	184	123	116	109	76	50	280	44
21	76	98	123	129	177	123	113	106	73	48	537	44
22	83	92	140	128	173	132	109	103	70	46	301	43
23	149	89	120	124	171	196	107	286	69	43	210	47
24	147	89	112	120	170	179	107	332	66	42	212	46
25	110	88	109	116	169	173	146	370	64	49	636	43
26	98	86	102	114	192	164	119	252	61	108	591	41
27	92	83	100	112	186	162	110	207	58	79	360	40
28	89	140	102	111	176	157	141	182	56	74	281	37
29	88	317	102	110	---	155	138	170	56	85	242	36
30	87	202	99	110	---	155	112	157	56	74	224	36
31	85	---	122	125	---	150	---	151	---	72	207	---
TOTAL	2965	3038	3845	5086	6931	4683	3835	4896	2705	2151	6422	1823
MEAN	95.6	101	124	164	248	151	128	158	90.2	69.4	207	60.8
MAX	242	317	211	432	688	196	154	370	141	122	762	149
MIN	76	75	99	110	160	123	107	103	56	42	45	36
CFSM	.65	.69	.84	1.12	1.69	1.03	.87	1.07	.61	.47	1.41	.41
IN.	.75	.77	.97	1.29	1.75	1.19	.97	1.24	.68	.54	1.63	.46
CAL YR 1984	TOTAL	86170	MEAN	235	MAX	3560	MIN	71	CFSM	1.60	IN.	21.81
WTR YR 1985	TOTAL	48380	MEAN	133	MAX	762	MIN	36	CFSM	.90	IN.	12.24

## 02028500 ROCKFISH RIVER NEAR GREENFIELD, VA

LOCATION.--Lat 37°52'10", long 78°49'25", Nelson County, Hydrologic Unit 02080203, on left bank 50 ft downstream from bridge on State Highway 634, 2.8 mi downstream from confluence of North and South Forks, and 4.1 mi south of Greenfield.

DRAINAGE AREA.--94.6 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1943 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 530.29 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 21, 1943, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-29 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 22-29 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--42 years, 141 ft<sup>3</sup>/s, 20.24 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,000 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 31.2 ft, from floodmarks, from rating curve extended above 8,500 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 18.11 ft, slope-area measurements at gage heights 17.2 ft, 23.4 ft, and 31.2 ft, and peak runoff comparison with nearby stations; minimum, 0.20 ft<sup>3</sup>/s, Sept. 8-12, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.4 ft, from floodmarks, discharge, about 30,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1700	*3,730	*7.85	No other peak equal to or greater than base discharge.			

Minimum discharge, 25 ft<sup>3</sup>/s, July 9, gage height, 0.66 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	182	46	132	78	199	164	128	54	110	49	81	122
2	82	48	108	81	352	152	120	62	94	59	110	112
3	62	45	97	154	242	140	118	152	88	41	72	102
4	54	48	82	250	182	133	115	109	83	35	61	96
5	51	74	81	216	160	128	110	96	94	33	52	88
6	49	59	112	178	152	120	107	88	82	31	48	77
7	48	53	92	164	138	112	102	80	72	30	61	71
8	46	51	84	148	114	112	96	74	71	26	82	71
9	46	50	79	132	108	109	91	69	64	26	58	68
10	46	50	78	118	100	102	86	65	57	29	48	62
11	46	51	78	114	105	99	85	62	75	50	42	59
12	43	50	75	100	587	99	83	61	61	326	40	55
13	43	48	74	95	312	93	80	69	49	107	39	53
14	43	45	71	95	226	93	82	54	44	68	36	49
15	43	45	70	86	190	88	83	49	42	52	34	48
16	51	45	69	82	164	83	94	58	43	44	35	45
17	49	45	68	84	152	83	83	207	42	55	41	43
18	48	46	68	84	138	80	77	109	40	40	1560	42
19	46	84	66	81	134	77	75	85	37	36	955	42
20	46	69	65	68	131	75	72	69	35	34	718	40
21	45	59	79	68	123	75	71	62	34	32	691	40
22	45	56	84	69	123	83	68	61	33	31	432	40
23	59	53	74	70	130	168	65	206	34	30	310	41
24	76	54	70	69	144	140	64	385	42	26	250	41
25	60	53	69	67	154	131	88	527	33	102	307	38
26	56	52	66	66	192	123	66	323	30	147	318	37
27	52	51	66	64	182	120	61	238	27	93	264	37
28	50	180	66	62	172	117	64	188	27	75	216	34
29	53	274	66	60	---	130	65	158	29	68	182	34
30	50	164	68	59	---	134	55	136	31	57	156	34
31	48	---	82	66	---	123	---	125	---	49	136	---
TOTAL	1718	2048	2439	3128	5106	3486	2554	4081	1603	1881	7435	1721
MEAN	55.4	68.3	78.7	101	182	112	85.1	132	53.4	60.7	240	57.4
MAX	182	274	132	250	587	168	128	527	110	326	1560	122
MIN	43	45	65	59	100	75	55	49	27	26	34	34
CFSM	.59	.72	.83	1.07	1.92	1.18	.90	1.40	.56	.64	2.54	.61
IN.	.68	.81	.96	1.23	2.01	1.37	1.00	1.60	.63	.74	2.92	.68
CAL YR 1984	TOTAL	73837	MEAN	202	MAX	2280	MIN	38	CFSM	2.14	IN.	29.04
WTR YR 1985	TOTAL	37200	MEAN	102	MAX	1560	MIN	26	CFSM	1.08	IN.	14.63

## 02029000 JAMES RIVER AT SCOTTSVILLE, VA

LOCATION.--Lat 37°47'50", long 78°29'30", Albemarle County, Hydrologic Unit 02080203, on left bank 900 ft downstream from bridge on State Highway 20 at Scottsville, 6.8 mi upstream from Hardware River, and at mile 188.6. DRAINAGE AREA.--4,584 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303. REVISED RECORDS.--WSP 727: 1931(M). WSP 972: 1936(M), 1940(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 253.18 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1928, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Large diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 197.5 mi upstream; since October 1984 by Back Creek Lake 225.5 mi upstream; and since January 1985 by Little Back Creek Lake 228.6 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 5,158 ft<sup>3</sup>/s, 15.28 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 301,000 ft<sup>3</sup>/s, June 22, 1972, gage height, 34.02 ft, from floodmarks, from rating curve extended above 120,000 ft<sup>3</sup>/s on basis of slope-conveyance study; minimum daily, 300 ft<sup>3</sup>/s, Sept. 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1870 reached a stage of 30.7 ft, discharge, about 215,000 ft<sup>3</sup>/s, and flood in November 1877 reached a stage of 27.9 ft, discharge, about 160,000 ft<sup>3</sup>/s, from information by local resident. Flood in March 1913 reached a stage of 25.16 ft, from floodmarks, discharge, 121,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 35,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	0115	*29,200	*13.03	No peak equal to or greater than base discharge.			

Minimum discharge, 784 ft<sup>3</sup>/s, July 25; minimum daily, 845 ft<sup>3</sup>/s, July 25; minimum gage height, 2.67 ft, Sept. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2340	3390	12200	4490	4180	11500	5020	2790	4160	1210	2000	2710
2	3810	2730	8660	4470	13300	9240	4940	2460	3490	1350	1860	2940
3	2920	2600	7220	5810	25200	7720	4870	3060	3450	1460	2080	2560
4	2750	2180	5690	9550	18700	6940	4380	3670	3460	1670	1880	2530
5	2560	2330	5040	16300	12800	6310	4210	7330	3080	1260	2050	2650
6	1860	2830	5100	15100	10200	5580	3920	7740	3160	1480	2080	1750
7	1780	3050	5100	13000	8350	5150	3940	5790	2990	1420	1750	1800
8	1820	2980	4720	10200	7400	4420	3920	4710	2720	1340	1890	1870
9	1900	3060	4150	8420	6230	4400	4100	3700	2140	1220	2720	1750
10	1890	2800	3870	7560	5290	3850	3700	3130	2510	1190	2280	3780
11	1830	2310	4050	6440	4740	4060	3460	3140	3680	1200	1500	2200
12	1510	2460	3770	5550	9070	4240	3300	2460	2660	2950	1590	1810
13	1450	2720	3920	4990	14400	3750	3330	4150	2490	3890	2020	1380
14	1750	2380	4040	4450	13600	4360	2880	5330	2240	1930	1910	1460
15	1560	2120	4020	4420	9740	4810	3100	3720	1680	1810	1420	1460
16	1640	2230	3490	4010	7800	5070	3490	3630	1810	2100	1190	1420
17	1620	2320	3690	3840	6490	4050	3610	3830	2120	2080	1440	1400
18	1860	1730	3610	3660	5740	3960	3420	5460	2300	1950	8050	1340
19	1990	2320	3500	3620	5180	3880	3730	3710	2050	1290	20700	1280
20	1850	3100	3270	3200	5310	3910	3650	3520	1700	1140	23400	1010
21	1590	2810	3320	2800	4580	3380	3080	3560	1600	1180	17600	876
22	1660	3790	3620	2470	4570	3550	3290	2270	1440	1110	11200	1160
23	2660	3680	3940	2540	4580	3930	3400	3400	1290	1110	8290	1220
24	3640	3180	5700	2750	5220	4620	3040	4790	1500	1000	5870	1120
25	3190	2990	5760	3090	6620	5520	3150	11300	1510	845	6340	950
26	3340	2850	5060	3410	9040	6030	3200	18800	1350	1940	10500	862
27	2840	2690	5490	2830	12400	5990	3100	12600	1340	2120	8190	957
28	2400	2680	5860	2840	13500	5990	2790	8980	1280	2420	6800	967
29	2400	6420	5540	3060	---	5100	3100	7890	1120	2340	5770	1010
30	2310	17500	5000	2590	---	5180	3420	6240	1250	2790	4620	1030
31	2980	---	4390	2450	---	4640	---	4900	---	1790	3810	---
TOTAL	69700	100230	152790	169910	254230	161130	108540	168060	67570	52585	172800	49252
MEAN	2248	3341	4929	5481	9080	5198	3618	5421	2252	1696	5574	1642
MAX	3810	17500	12200	16300	25200	11500	5020	18800	4160	3890	23400	3780
MIN	1450	1730	3270	2450	4180	3380	2790	2270	1120	845	1190	862
(*)	-46	+277	+166	+78	+126	+3	-3	+8	-72	-158	-122	-188
MEAN†	2202	3618	5095	5559	9206	5201	3615	5429	2180	1538	5452	1454
CFSM†	.48	.79	1.11	1.21	2.01	1.13	.79	1.18	.48	.34	1.19	.32
IN.†	.55	.88	1.28	1.40	2.09	1.31	.88	1.37	.53	.39	1.37	.35

CAL YR 1984 TOTAL 2561010 MEAN 6997 MAX 60900 MIN 1450 MEAN† 7018 CFSM† 1.53 IN.† 20.84  
WTR YR 1985 TOTAL 1526797 MEAN 4183 MAX 25200 MIN 845 MEAN† 4188 CFSM† .91 IN.† 12.41

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## 02030000 HARDWARE RIVER BELOW BRIERY RUN, NEAR SCOTTSVILLE, VA

LOCATION.--Lat 37°48'45", long 78°27'20", Fluvanna County, Hydrologic Unit 02080203, on left bank 75 ft upstream from bridge on State Highway 637, 0.8 mi downstream from Briery Run, 2.4 mi northeast of Scottsville, and 10.8 mi upstream from mouth.

DRAINAGE AREA.--116 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 952: 1941(M). WSP 1002: 1940, 1943. WSP 1032: 1940, 1944.

GAGE.--Water-stage recorder. Datum of gage is 294.96 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 15 to Apr. 14. Records good except those for period of no gage-height record, Jan. 15 to Apr. 14, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--47 years, 128 ft<sup>3</sup>/s, 14.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,000 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 31.0 ft, from flood-marks, from rating curve extended above 18,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 23.8 ft and 31.0 ft; minimum, 0.10 ft<sup>3</sup>/s, Sept. 5-8, 1966; minimum gage height, 0.81 ft, Sept. 8, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	Unknown	1,790	a9.68	Aug. 19	0430	*2,640	*11.45

a From high-water mark.

Minimum discharge, 23 ft<sup>3</sup>/s, July 24-25, gage height, 1.61 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168	57	95	73	235	118	130	64	76	46	56	64
2	106	56	82	73	420	110	120	64	67	51	82	62
3	75	55	80	178	270	105	115	156	66	44	52	59
4	65	53	73	299	200	100	110	99	64	38	41	55
5	61	67	73	250	170	98	100	78	68	35	36	52
6	58	67	147	184	140	97	98	71	69	33	35	50
7	57	57	120	154	125	92	95	67	62	33	37	47
8	57	56	93	132	110	92	93	63	64	30	68	45
9	58	56	85	117	105	91	91	61	61	28	56	43
10	57	56	80	111	100	90	89	60	58	33	41	41
11	57	63	77	107	130	85	88	59	72	39	36	39
12	56	63	73	101	700	83	86	58	62	259	34	38
13	65	55	70	99	370	82	85	63	53	107	31	35
14	55	52	68	97	250	80	83	59	48	58	30	34
15	53	52	66	93	200	79	82	54	48	46	28	34
16	59	53	64	94	180	77	82	61	50	40	36	34
17	61	52	65	98	160	76	81	248	51	36	81	33
18	57	53	63	100	145	74	77	137	47	33	1010	33
19	56	98	63	98	140	73	76	83	44	31	1350	31
20	56	89	62	84	135	72	74	71	40	30	252	31
21	55	67	90	80	130	72	74	65	38	28	427	30
22	55	62	92	79	130	100	73	62	38	28	195	31
23	95	59	75	79	135	175	71	190	37	26	133	37
24	111	58	70	76	140	150	70	261	39	24	109	34
25	79	57	68	74	160	135	108	329	37	32	140	31
26	69	56	62	72	180	130	80	157	33	74	163	29
27	65	56	63	69	160	125	72	112	32	73	117	39
28	61	106	63	65	130	122	71	96	31	65	95	32
29	63	300	62	64	---	130	74	92	32	48	84	28
30	61	123	62	62	---	140	67	82	32	42	76	28
31	57	---	77	88	---	130	---	79	---	37	70	---
TOTAL	2108	2154	2383	3350	5450	3183	2615	3201	1519	1527	5001	1179
MEAN	68.0	71.8	76.9	108	195	103	87.2	103	50.6	49.3	161	39.3
MAX	168	300	147	299	700	175	130	329	76	259	1350	64
MIN	53	52	62	62	100	72	67	54	31	24	28	28
CFSM	.59	.62	.66	.93	1.68	.89	.75	.89	.44	.42	1.39	.34
IN.	.68	.69	.76	1.07	1.75	1.02	.84	1.03	.49	.49	1.60	.38
CAL YR 1984	TOTAL	74338	MEAN	203	MAX	3400	MIN	49	CFSM	1.75	IN.	23.84
WTR YR 1985	TOTAL	33670	MEAN	92.2	MAX	1350	MIN	24	CFSM	.79	IN.	10.80



## JAMES RIVER BASIN

02030500 SLATE RIVER NEAR ARVONIA, VA

LOCATION.--Lat 37°42'10", long 78°22'40", Buckingham County, Hydrologic Unit 02080203, on left bank 250 ft upstream from bridge on State Highway 676, 1.8 mi northwest of Arvonias, 2.9 mi upstream from Hunts Creek, and 3.8 mi upstream from mouth.

DRAINAGE AREA.--226 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1928-29, 1932, 1933-34(M), 1935. WSP 2104: 1928(M), 1935-37(M), 1940(M), 1944(M), 1949(M), 1955(M), drainage area. WDR VA-72-1: 1935, 1937, 1944, 1949, 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 238.78 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Feb. 15, 1936, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 21-23, 25-31. Records good except those for periods with ice effect, Jan. 21-23, 25-31, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--59 years, 230 ft<sup>3</sup>/s, 13.82 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,200 ft<sup>3</sup>/s, June 22, 1972, gage height, 25.10 ft, from high-water mark in gage house, from rating curve extended above 5,900 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 2.0 ft<sup>3</sup>/s, Sept. 28 to Oct. 2, 1930; minimum gage height, 1.35 ft, Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,100 ft<sup>3</sup>/s and maximum (\*)

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	2000	*4,940	*12.19	No other peak equal to or greater than base discharge.			

Minimum discharge, 31 ft<sup>3</sup>/s, July 10, gage height, 2.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	186	85	169	147	704	151	131	77	77	44	228	140
2	211	83	136	135	1720	147	128	75	71	49	207	113
3	110	77	127	223	878	142	118	141	65	51	112	102
4	84	74	126	714	389	136	115	177	62	47	73	93
5	76	80	118	571	271	137	113	116	157	50	58	86
6	71	89	335	420	231	133	110	94	142	45	51	80
7	69	82	314	278	205	124	107	84	110	41	51	76
8	70	76	199	215	178	124	105	77	87	38	164	72
9	70	74	158	177	153	130	106	73	86	34	257	70
10	70	74	139	155	160	129	102	69	78	31	123	68
11	68	80	131	146	157	123	101	69	499	33	79	66
12	68	87	123	140	941	124	103	74	260	428	64	62
13	67	82	118	132	829	121	102	134	133	886	54	59
14	66	75	114	128	361	116	102	146	92	204	49	55
15	66	73	109	126	259	116	106	96	76	115	44	55
16	71	73	109	115	214	113	113	81	71	81	40	55
17	74	73	110	124	191	112	124	128	114	155	79	55
18	72	71	108	128	177	112	111	166	108	132	1920	55
19	72	103	106	130	168	108	103	115	79	69	3910	54
20	72	141	106	130	163	107	99	85	65	54	1110	53
21	71	107	125	75	153	108	100	74	58	47	1270	52
22	71	88	203	116	148	117	94	73	53	44	624	52
23	228	82	171	112	148	240	90	93	50	40	279	61
24	356	80	139	110	147	262	87	193	50	36	181	70
25	188	79	127	105	146	193	89	627	50	39	423	63
26	128	77	118	118	171	159	94	271	45	98	862	58
27	109	76	111	110	206	143	87	151	42	112	418	76
28	99	107	109	108	169	136	84	111	39	106	263	83
29	94	510	109	100	---	136	84	95	40	100	178	62
30	91	265	108	98	---	144	81	85	41	120	142	53
31	86	---	122	128	---	133	---	80	---	83	169	---
TOTAL	3234	3123	4397	5514	9637	4276	3089	3930	2900	3412	13482	2099
MEAN	104	104	142	178	344	138	103	127	96.7	110	435	70.0
MAX	356	510	335	714	1720	262	131	627	499	886	3910	140
MIN	66	71	106	75	146	107	81	69	39	31	40	52
CFSM	.46	.46	.63	.79	1.52	.61	.46	.56	.43	.49	1.92	.31
IN.	.53	.51	.72	.91	1.59	.70	.51	.65	.48	.56	2.22	.35
CAL YR 1984	TOTAL	102606	MEAN	280	MAX	5480	MIN	48	CFSM	1.24	IN.	16.89
WTR YR 1985	TOTAL	59093	MEAN	162	MAX	3910	MIN	31	CFSM	.72	IN.	9.73

## 02031000 MECHUMS RIVER NEAR WHITE HALL, VA

LOCATION.--Lat 38°06'09", long 78°35'35", Albemarle County, Hydrologic Unit 02080204, on right bank 20 ft downstream from bridge on State Highway 614, 1.5 mi downstream from Rocky Run, 4.0 mi southeast of White Hall, and 4.9 mi upstream from confluence with Moormans River.

DRAINAGE AREA.--95.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1942 to September 1951, October 1979 to current year. Prior to September 1951, published as Mechum River near Ivy.

GAGE.--Water-stage recorder. Datum of gage is 429.75 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1942, to Sept. 30, 1951, on right bank 20 ft downstream from former highway bridge at different datum.

REMARKS.--Estimated daily discharges: Nov. 29, Jan. 22-31, Feb. 9, 10, 17-24, and Aug. 26. Records good except those for periods of doubtful gage-height record, Nov. 29, Feb. 17-24, and Aug. 26, and periods with ice effect, Jan. 22-31 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--15 years, 108 ft<sup>3</sup>/s, 15.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft<sup>3</sup>/s, Oct. 15, 1942, gage height, 30.3 ft, datum then in use, from floodmarks, from rating curve extended above 8,000 ft<sup>3</sup>/s; minimum, 0.6 ft<sup>3</sup>/s, Sept. 9, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 6, 1979, reached a stage of 24.5 ft, from floodmarks, discharge, about 13,500 ft<sup>3</sup>/s, from rating curve extended above 8,300 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	1200	*1,740	*9.89	Aug. 18	2030	1,600	9.60

Minimum discharge, 12 ft<sup>3</sup>/s, Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	42	94	73	188	91	96	52	58	38	34	57
2	68	42	84	71	383	91	87	52	49	57	45	53
3	51	40	78	108	224	89	85	94	46	42	31	48
4	45	40	72	220	149	87	84	72	49	35	26	44
5	40	60	70	178	126	86	82	63	67	29	23	40
6	39	54	101	142	113	81	78	59	57	27	20	38
7	37	45	96	120	106	78	75	55	51	26	23	34
8	37	42	85	108	94	78	74	53	53	21	34	31
9	38	41	79	96	90	80	71	51	47	22	29	28
10	37	41	76	90	88	78	70	48	46	25	23	27
11	36	44	74	87	84	77	70	47	116	30	20	27
12	34	41	70	82	837	78	69	47	68	111	18	25
13	34	37	70	77	347	72	67	58	52	62	17	22
14	34	36	69	77	198	72	69	50	43	42	16	21
15	33	37	67	72	158	70	71	43	41	34	15	21
16	40	37	65	71	141	70	74	45	43	28	14	21
17	41	37	65	74	125	70	70	106	42	24	16	20
18	37	38	64	73	115	68	65	78	42	21	474	19
19	37	73	64	71	110	66	64	59	37	18	347	18
20	36	74	61	62	105	66	63	50	40	16	208	18
21	36	54	70	60	100	65	61	45	33	15	362	17
22	37	50	78	60	98	69	60	44	31	14	148	16
23	55	47	69	57	97	145	59	88	28	14	104	19
24	82	47	67	56	94	126	57	178	37	14	84	20
25	58	46	67	55	92	112	83	291	30	30	92	18
26	49	43	63	53	101	103	65	137	27	57	160	15
27	45	42	62	51	98	100	59	101	26	45	116	18
28	43	98	62	51	93	96	58	81	26	40	99	14
29	65	267	64	50	---	95	60	71	27	27	84	12
30	51	117	61	50	---	101	53	64	26	26	73	13
31	46	---	70	64	---	92	---	60	---	30	64	---
TOTAL	1433	1712	2237	2559	4554	2652	2099	2342	1338	1020	2819	774
MEAN	46.2	57.1	72.2	82.5	163	85.5	70.0	75.5	44.6	32.9	90.9	25.8
MAX	112	267	101	220	837	145	96	291	116	111	474	57
MIN	33	36	61	50	84	65	53	43	26	14	14	12
CFSM	.48	.60	.76	.86	1.71	.90	.73	.79	.47	.34	.95	.27
IN.	.56	.67	.87	1.00	1.78	1.03	.82	.91	.52	.40	1.10	.30
CAL YR 1984	TOTAL	54850	MEAN	150	MAX	3090	MIN	26	CFSM	1.57	IN.	21.39
WTR YR 1985	TOTAL	25539	MEAN	70.0	MAX	837	MIN	12	CFSM	.73	IN.	9.96

## 02032250 MOORMANS RIVER NEAR FREE UNION, VA

LOCATION.--Lat 38°08'26", long 78°33'22", Albemarle County, Hydrologic Unit 02080204, on right bank 130 ft upstream from bridge on State Highway 601, 0.4 mi upstream from confluence with Mechums River, 0.8 mi downstream from Wards Creek, and 1.1 mi southeast of Free Union.

DRAINAGE AREA.--74.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 403.11 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 17-29 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 17-29 and Feb. 9, 10, which are fair. Flow regulated by Rivanna Water and Sewer Authority at Sugar Hollow Reservoir 12.0 mi upstream from station, capacity, 1,320 acre-ft, from which an average of 7.1 ft<sup>3</sup>/s is diverted for industrial and municipal use. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--6 years, 96.2 ft<sup>3</sup>/s, 17.51 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,670 ft<sup>3</sup>/s, Apr. 3, 1983, Feb. 14, 1984, gage height, 15.48 ft, from rating curve extended above 2,700 ft<sup>3</sup>/s; minimum, 1.3 ft<sup>3</sup>/s, Sept. 16, 17, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 20.2 ft, from floodmarks, discharge, about 8,800 ft<sup>3</sup>/s, and flood of Sept. 6, 1979, reached a stage of 21.55 ft, from floodmarks, discharge, about 9,700 ft<sup>3</sup>/s, from rating curve extended above 2,700 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	0900	1,080	6.67	Aug. 21	0030	1,180	6.88
Aug. 18	2030	*1,190	*6.91				

Minimum discharge, 3.5 ft<sup>3</sup>/s, July 23-25, Aug. 13, 14, 15, 16, gage height, 2.80 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	17	62	37	103	107	92	26	35	8.4	8.1	31
2	24	16	46	40	273	99	84	27	27	18	10	26
3	15	15	42	84	162	88	82	62	23	15	8.7	22
4	13	15	36	175	120	78	82	43	26	12	6.5	18
5	11	23	34	160	101	74	76	35	62	10	5.5	17
6	10	21	60	133	88	60	71	32	37	9.0	5.0	15
7	10	18	53	120	76	55	60	30	28	8.4	4.8	13
8	10	16	43	109	55	55	56	28	28	7.5	5.8	10
9	10	16	38	90	50	53	55	26	25	6.8	5.0	10
10	10	16	36	76	48	45	45	23	34	7.8	4.7	9.3
11	10	16	34	73	46	45	45	22	86	9.3	4.4	8.4
12	10	16	34	69	623	51	40	25	50	29	4.1	7.8
13	10	14	33	53	331	43	39	28	36	24	4.0	9.0
14	9.3	14	32	50	194	41	40	22	28	15	3.8	9.0
15	9.0	14	30	50	147	41	42	20	23	11	3.8	8.1
16	10	14	30	37	120	37	45	22	23	9.0	4.0	9.9
17	11	14	32	36	103	37	43	71	22	7.5	5.0	7.5
18	11	14	33	39	90	36	38	40	21	6.2	354	6.5
19	11	31	32	38	78	34	37	30	17	5.8	414	6.5
20	10	31	32	37	76	35	34	24	15	5.0	254	6.2
21	10	23	35	33	69	33	34	21	14	4.7	392	5.5
22	11	20	43	31	65	34	33	19	13	4.2	84	5.5
23	19	18	36	28	73	112	32	39	12	3.8	94	5.5
24	30	18	34	28	88	141	30	131	11	3.5	62	6.0
25	20	17	35	27	103	139	53	276	11	4.7	124	6.0
26	18	17	30	25	118	126	38	160	9.0	44	154	5.2
27	16	16	30	25	120	112	34	109	8.1	17	137	40
28	16	82	32	24	112	101	33	74	7.5	12	97	7.8
29	41	188	32	23	---	99	32	51	7.8	9.0	69	4.8
30	23	88	30	23	---	101	29	42	7.5	8.1	50	4.2
31	20	---	33	29	---	88	---	37	---	6.8	38	---
TOTAL	483.3	838	1142	1802	3632	2200	1454	1595	746.9	342.5	2416.2	340.7
MEAN	15.6	27.9	36.8	58.1	130	71.0	48.5	51.5	24.9	11.0	77.9	11.4
MAX	45	188	62	175	623	141	92	276	86	44	414	40
MIN	9.0	14	30	23	46	33	29	19	7.5	3.5	3.8	4.2
CFSM	.21	.37	.49	.78	1.74	.95	.65	.69	.33	.15	1.04	.15
IN.	.24	.42	.57	.90	1.81	1.10	.73	.80	.37	.17	1.21	.17
CAL YR 1984	TOTAL	45012.8	MEAN	123	MAX	2700	MIN	5.8	CFSM	1.65	IN.	22.46
WTR YR 1985	TOTAL	16992.6	MEAN	46.6	MAX	623	MIN	3.5	CFSM	.62	IN.	8.48

02032400 BUCK MOUNTAIN CREEK NEAR FREE UNION, VA

LOCATION.--Lat 38°09'16", long 78°32'22", Albemarle County, Hydrologic Unit 02080204, on left bank at downstream side of bridge on State Highway 665, 0.2 mi downstream from Piney Creek, 1.6 mi east of Free Union, and 2.0 mi upstream from mouth.

DRAINAGE AREA.--37.0 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 408.71 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 20, Jan. 22-31, Feb. 9, 10, and July 17-25, 31. Records good except those for periods of doubtful gage-height record, Oct. 20 and July 17-25, 31, and periods with ice effect, Jan. 22-31 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--6 years, 42.3 ft<sup>3</sup>/s, 15.53 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,770 ft<sup>3</sup>/s, Apr. 2, 1983, gage height, 8.57 ft, from rating curve extended above 1,200 ft<sup>3</sup>/s; minimum, 0.60 ft<sup>3</sup>/s, Sept. 12, 1983, gage height, 0.42 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 22, 1979, reached a stage of 11.12 ft, from floodmarks, discharge, about 6,600 ft<sup>3</sup>/s, from rating curve extended above 1,200 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	0700	*1,160	*5.12	Aug. 18	1645	659	4.01

Minimum discharge, 0.65 ft<sup>3</sup>/s, Aug. 15-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	13	36	22	87	33	31	9.7	14	3.2	3.5	5.6
2	23	13	29	29	173	33	29	11	9.7	7.8	4.2	4.9
3	15	11	27	54	82	31	28	28	8.4	5.4	2.9	4.2
4	12	12	23	104	52	30	27	17	9.1	4.1	1.8	3.4
5	11	21	23	74	42	29	26	14	20	3.8	1.4	2.7
6	10	16	43	57	39	27	24	12	13	3.7	1.3	2.2
7	9.9	13	36	49	35	27	24	10	10	3.4	1.4	1.8
8	10	12	29	41	31	28	23	9.3	13	3.2	2.1	1.6
9	10	12	27	35	29	28	22	8.3	8.3	3.5	2.1	1.6
10	9.6	12	24	32	28	27	21	7.7	10	4.7	1.7	1.3
11	9.3	13	24	30	28	27	21	7.3	22	4.6	1.2	1.2
12	8.7	12	22	27	471	30	21	10	15	19	.96	1.5
13	8.6	10	21	28	131	29	19	14	8.4	12	.87	1.1
14	7.9	9.5	20	24	78	29	18	7.8	6.4	8.3	.79	1.2
15	7.9	9.6	19	22	59	28	20	6.1	6.1	5.7	.72	1.1
16	9.6	9.9	19	23	48	27	21	8.3	6.7	4.5	.96	1.2
17	9.5	9.5	19	22	42	27	19	45	6.7	3.5	1.9	1.4
18	9.1	10	18	22	38	27	17	21	6.1	3.0	195	.91
19	9.0	30	18	21	36	26	17	15	4.8	2.6	74	1.1
20	9.3	23	18	19	34	26	15	11	3.6	2.3	67	1.0
21	8.7	18	24	15	32	25	15	8.9	3.4	2.1	58	.78
22	8.8	16	25	17	31	28	14	8.5	3.2	2.0	24	.81
23	20	15	21	16	31	54	13	26	3.0	1.8	15	.92
24	25	14	20	15	33	41	13	73	5.2	1.7	11	1.1
25	15	13	20	15	34	35	23	72	2.9	2.5	35	1.1
26	14	13	18	14	39	31	16	38	2.3	10	47	.90
27	12	12	18	14	38	29	14	28	2.2	7.0	30	1.8
28	19	78	18	14	35	28	13	22	2.2	5.1	19	1.1
29	33	102	17	13	---	28	12	18	2.4	4.3	13	.78
30	17	48	17	13	---	31	11	16	2.7	4.1	9.6	.70
31	14	---	23	15	---	28	---	17	---	3.8	7.6	---
TOTAL	431.9	600.5	716	896	1836	927	587	599.9	230.8	152.7	635.00	51.00
MEAN	13.9	20.0	23.1	28.9	65.6	29.9	19.6	19.4	7.69	4.93	20.5	1.70
MAX	46	102	43	104	471	54	31	73	22	19	195	5.6
MIN	7.9	9.5	17	13	28	25	11	6.1	2.2	1.7	.72	.70
CFSM	.38	.54	.62	.78	1.77	.81	.53	.52	.21	.13	.55	.05
IN.	.43	.60	.72	.90	1.84	.93	.59	.60	.23	.15	.64	.05
CAL YR 1984	TOTAL	20427.4	MEAN	55.8	MAX	1530	MIN	5.1	CFSM	1.51	IN.	20.53
WTR YR 1985	TOTAL	7663.80	MEAN	21.0	MAX	471	MIN	.70	CFSM	.57	IN.	7.70



## 02032515 SOUTH FORK RIVANNA RIVER NEAR CHARLOTTESVILLE, VA

LOCATION.--Lat 38°06'06", long 78°27'39", Albemarle County, Hydrologic Unit 02080204, on left bank 10 ft downstream from upstream bridge on U.S. Highway 29, 0.4 mi downstream from South Fork Rivanna River dam, 2.5 mi northeast of Charlottesville city limits, and 2.9 mi upstream from mouth.

DRAINAGE AREA.--260 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1979 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 330 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 28, 29, Jan. 15-17, 25, 28, 29, and Feb. 10. Records good except those for periods of doubtful or no gage-height record, Nov. 28, 29 and Jan. 15-17, and periods with ice effect, Jan. 25, 28, 29 and Feb. 10, which are fair. Flow regulated by Rivanna Water and Sewer Authority at South Fork Rivanna and Sugar Hollow Reservoirs, combined capacity, 6,540 acre-ft, from which an average of 14.1 ft<sup>3</sup>/s is diverted for industrial and municipal use. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--6 years, 296 ft<sup>3</sup>/s, 15.46 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,200 ft<sup>3</sup>/s, Sept. 6, 1979, gage height, 23.50 ft, from flood-marks, from rating curve extended above 12,000 ft<sup>3</sup>/s; minimum daily, 11 ft<sup>3</sup>/s, June 28-30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,660 ft<sup>3</sup>/s, Feb. 12, gage height, 10.24 ft; minimum, 13 ft<sup>3</sup>/s, Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260	112	257	172	368	264	248	106	160	51	80	118
2	222	108	218	178	1100	260	238	110	132	88	68	102
3	136	102	196	268	744	244	224	206	118	80	57	94
4	110	102	172	623	448	230	218	186	120	61	38	80
5	100	128	166	555	350	228	208	140	218	46	30	70
6	94	142	248	448	308	206	202	124	180	43	26	61
7	90	120	248	368	277	196	186	114	138	39	26	53
8	90	108	216	319	228	198	184	108	136	32	39	46
9	90	106	196	272	192	200	172	102	124	33	38	44
10	90	104	182	244	200	192	162	98	120	38	26	39
11	88	110	176	236	212	186	164	98	334	39	22	35
12	86	108	166	222	2110	198	160	102	212	250	19	32
13	84	100	162	212	1130	178	156	118	140	215	18	28
14	84	96	156	200	641	172	156	102	112	132	16	25
15	82	96	152	186	483	166	168	88	100	82	16	25
16	88	96	146	182	390	160	174	94	100	62	16	26
17	98	92	150	180	330	158	168	344	100	51	23	25
18	96	96	148	178	294	152	152	214	102	41	798	23
19	92	168	144	172	272	152	148	138	86	33	1310	21
20	92	200	144	154	260	152	140	110	80	32	520	21
21	92	150	158	86	244	146	136	98	70	26	1110	19
22	94	132	192	128	240	158	134	92	66	25	406	19
23	132	126	166	134	242	342	126	244	62	19	282	21
24	216	120	154	138	254	377	122	480	61	17	216	26
25	160	118	156	138	270	341	186	981	61	26	256	23
26	132	112	142	136	300	297	158	533	44	126	448	20
27	118	108	140	128	300	272	134	350	43	108	371	72
28	112	140	142	126	277	260	126	262	41	90	270	36
29	196	700	144	124	---	252	124	212	43	59	210	18
30	156	350	140	122	---	267	116	184	41	46	172	16
31	126	---	158	152	---	244	---	168	---	41	142	---
TOTAL	3706	4350	5335	6781	12464	6848	4990	6306	3344	2031	7069	1238
MEAN	120	145	172	219	445	221	166	203	111	65.5	228	41.3
MAX	260	700	257	623	2110	377	248	981	334	250	1310	118
MIN	82	92	140	86	192	146	116	88	41	17	16	16
*FT <sup>3</sup> /S	14.3	13.2	12.3	12.6	12.8	12.7	14.7	14.4	14.2	14.8	16.0	16.8
CAL YR 1984	TOTAL	146434	MEAN	400	MAX	6390	MIN	53	*FT <sup>3</sup> /S	13.6		
WTR YR 1985	TOTAL	64462	MEAN	177	MAX	2110	MIN	16	*FT <sup>3</sup> /S	14.1		

\* Average diversion, in cubic feet per second, by city of Charlottesville; records were provided by Rivanna Water and Sewer Authority.

## JAMES RIVER BASIN

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02032680 NORTH FORK RIVANNA RIVER NEAR PROFFIT, VA

LOCATION.--Lat 38°05'16", long 78°24'44", Albemarle County, Hydrologic Unit 02080204, on left bank 50 ft downstream from bridge on State Highway 649, 1.9 mi southeast of Proffit, and 2.2 mi upstream from confluence with South Fork.

DRAINAGE AREA.--176 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 323.43 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 22-31 and Feb. 9, 10. Records good except those periods with ice effect, Jan. 22-31 and Feb. 9, 10, which are fair. Rivanna Water and Sewer Authority diverts about 0.2 ft<sup>3</sup>/s daily for municipal water supply 7.8 mi upstream from station. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--15 years, 254 ft<sup>3</sup>/s, 19.60 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,800 ft<sup>3</sup>/s, June 21, 1972, gage height, 30.4 ft, from flood-marks, from rating curve extended above 9,000 ft<sup>3</sup>/s; minimum, 1.8 ft<sup>3</sup>/s, Oct. 6, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	1500	*3,300	*12.37	Aug. 18	2330	2,890	11.57

Minimum discharge, 21 ft<sup>3</sup>/s, Sept. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	157	84	225	142	335	159	140	76	115	45	41	67
2	138	84	187	156	780	154	128	76	86	57	41	64
3	94	80	171	254	450	146	123	120	85	58	35	60
4	82	74	156	491	285	141	120	105	74	44	32	56
5	71	92	151	373	239	138	116	79	92	44	29	54
6	68	92	247	318	223	129	113	82	118	43	28	51
7	68	82	231	270	199	122	107	79	105	40	29	45
8	68	78	189	235	161	122	109	76	98	36	34	43
9	70	76	169	205	135	123	106	63	89	36	32	42
10	68	78	224	187	140	117	104	67	84	45	29	39
11	66	80	274	178	142	115	99	68	117	92	28	38
12	65	79	168	164	1880	120	103	70	316	373	26	36
13	65	74	147	154	850	111	95	79	141	114	26	33
14	64	65	141	149	430	113	94	82	97	72	33	30
15	62	68	134	140	302	108	105	59	90	58	28	31
16	65	68	134	131	248	105	104	71	87	62	25	31
17	67	68	134	139	218	105	100	413	83	55	29	30
18	67	69	122	136	195	103	90	145	81	44	986	29
19	66	132	124	131	182	99	89	101	72	39	978	28
20	68	128	121	122	174	103	88	89	66	37	245	28
21	67	100	126	117	163	99	85	77	60	35	251	26
22	66	90	144	115	156	100	90	69	58	34	150	41
23	107	85	130	112	156	211	76	148	56	32	110	24
24	158	83	124	110	164	220	84	296	79	30	95	23
25	104	82	123	105	171	197	102	411	68	34	135	23
26	89	78	118	104	187	169	94	191	45	43	187	25
27	83	76	120	102	183	155	77	137	41	46	137	42
28	79	138	118	100	169	148	84	115	44	41	114	35
29	155	648	119	98	---	143	87	105	45	36	93	27
30	110	301	117	96	---	149	80	87	43	34	80	24
31	93	---	137	105	---	135	---	107	---	32	74	---
TOTAL	2650	3332	4825	5239	8917	4159	2992	3743	2635	1791	4160	1125
MEAN	85.5	111	156	169	318	134	99.7	121	87.8	57.8	134	37.5
MAX	158	648	274	491	1880	220	140	413	316	373	986	67
MIN	62	65	117	96	135	99	76	59	41	30	25	23
CFSM	.49	.63	.89	.96	1.81	.76	.57	.69	.50	.33	.76	.21
IN.	.56	.70	1.02	1.11	1.88	.88	.63	.79	.56	.38	.88	.24
CAL YR 1984	TOTAL	111868	MEAN	306	MAX	5170	MIN	52	CFSM	1.74	IN.	23.64
WTR YR 1985	TOTAL	45568	MEAN	125	MAX	1880	MIN	23	CFSM	.71	IN.	9.63

## 02034000 RIVANNA RIVER AT PALMYRA, VA

LOCATION.--Lat 37°51'28", long 78°15'58", Fluvanna County, Hydrologic Unit 02080204, on left bank 10 ft upstream from bridge on U.S. Highway 15 at Palmyra, 0.5 mi upstream from Cunningham Creek, and 15 mi upstream from mouth.

DRAINAGE AREA.--664 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1933 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1936(M). WSP 852: 1937. WSP 892: 1934-35. WSP 1303: 1945-46(M). WSP 1503: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 210.39 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 24, 1942, water-stage recorder at site 200 ft downstream at same datum. Oct. 24, 1942, to Dec. 18, 1947, nonrecording gage 10 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 8-26 and Jan. 21-23. Records good except those for period of no gage-height record, Nov. 8-26, and period with ice effect, Jan. 21-23, which are fair. Some diurnal fluctuation at times mostly at low and medium flow by South Fork Rivanna River Reservoir. Combined diversion for water supply and discharge from waste water treatment plant upstream at Charlottesville resulted in an average gain of about 1.3 ft<sup>3</sup>/s upstream from the gage. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--52 years, 723 ft<sup>3</sup>/s, 14.79 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,000 ft<sup>3</sup>/s, Aug. 20, 1969, gage height, 39.85 ft, from rating curve extended above 76,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow and velocity-area study; minimum, 5.2 ft<sup>3</sup>/s, Sept. 9-11, 1966, gage height, 2.13 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	2330	8,230	14.46	Aug. 19	0030	*12,900	*19.57

Minimum discharge, 69 ft<sup>3</sup>/s, Aug. 15, 17, gage height, 2.54 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	513	267	768	408	1020	578	505	256	343	112	203	282
2	671	252	561	390	3370	563	488	241	310	114	192	242
3	366	250	480	624	2420	533	447	453	247	147	157	219
4	261	237	435	1750	1300	498	434	459	273	132	133	199
5	231	253	393	1560	974	494	414	338	320	105	109	180
6	212	300	766	1330	814	466	404	286	589	94	96	169
7	209	278	820	1050	700	434	381	259	366	85	92	154
8	203	250	591	861	569	425	378	252	311	78	155	138
9	209	240	498	692	444	428	366	235	286	73	152	127
10	212	235	444	604	458	414	349	217	251	81	121	121
11	207	255	567	552	470	400	336	216	425	86	101	112
12	203	265	491	520	4400	408	343	220	595	2020	90	102
13	198	250	398	474	4180	398	326	230	429	898	81	95
14	194	230	376	439	1780	371	330	248	285	505	75	88
15	189	230	356	425	1220	364	333	225	228	293	73	80
16	202	235	345	366	964	346	360	197	216	227	75	79
17	211	240	343	378	818	341	356	837	217	194	72	83
18	212	250	342	406	727	334	322	684	226	162	3580	81
19	211	350	327	390	663	320	307	367	206	139	7510	80
20	210	440	324	368	620	319	300	274	182	123	1390	79
21	208	400	346	200	581	318	287	244	164	112	1940	77
22	204	360	431	340	556	326	286	260	149	107	1340	75
23	286	335	406	320	552	669	276	525	140	99	728	102
24	553	320	358	315	565	926	264	768	130	88	516	87
25	439	305	347	313	588	759	348	2010	148	79	646	80
26	316	305	337	391	637	636	371	1220	136	153	958	77
27	273	312	317	356	661	568	301	710	97	236	768	133
28	254	376	320	284	612	538	270	507	92	250	599	203
29	306	2060	318	296	---	516	290	415	99	174	468	121
30	412	1200	315	262	---	565	272	354	103	142	385	87
31	306	---	352	282	---	516	---	302	---	128	322	---
TOTAL	8681	11280	13472	16946	32663	14771	10444	13809	7563	7236	23127	3752
MEAN	280	376	435	547	1167	476	348	445	252	233	746	125
MAX	671	2060	820	1750	4400	926	505	2010	595	2020	7510	282
MIN	189	230	315	200	444	318	264	197	92	73	72	75
CFSM	.42	.57	.66	.82	1.76	.72	.52	.67	.38	.35	1.12	.19
IN.	.49	.63	.75	.95	1.83	.83	.59	.77	.42	.41	1.30	.21
CAL YR 1984	TOTAL	380283	MEAN	1039	MAX	19300	MIN	141	CFSM	1.56	IN.	21.31
WTR YR 1985	TOTAL	163744	MEAN	449	MAX	7510	MIN	72	CFSM	.68	IN.	9.17

## 02034500 WILLIS RIVER AT LAKESIDE VILLAGE, VA

LOCATION.--Lat 37°40'00", long 78°10'00", Cumberland County, Hydrologic Unit 02080205, on left bank 15 ft upstream from bridge on State Highway 690, 0.4 mi east of Lakeside Village, 6.9 mi upstream from mouth, and 7.7 mi downstream from Reynolds Creek.

DRAINAGE AREA.--262 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1926 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1978, published as Willis River at Flanagan Mills.

REVISED RECORDS.--WSP 872: 1936-37. WSP 892: 1928-29, 1932-34(M). WSP 972: 1937, 1940. WSP 1203: 1929. WSP 1303: 1928-30(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 178.98 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Jan. 3, 1935, nonrecording gage at site 1,300 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 21-29. Records good except those for period with ice effect, Jan. 21-29, which are fair. Regulation of flow from Trice Lake 0.4 mi upstream from station, total capacity, about 1,100 acre-ft, tributary to Willis River, slightly affects flow at gage. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--59 years, 253 ft<sup>3</sup>/s, 13.11 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 24,000 ft<sup>3</sup>/s, June 22, 1972; maximum gage height, 29.8 ft, June 22, 1972, from floodmarks (backwater from James River); minimum discharge, 1.5 ft<sup>3</sup>/s, Sept. 13, 14, 1966, gage height, 2.26 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	0600	*2,330	*14.41	No other peak equal to or greater than base discharge.			

Minimum discharge, 20 ft<sup>3</sup>/s, Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117	76	350	135	558	167	128	50	66	31	51	228
2	183	72	235	135	1010	153	120	50	61	33	45	137
3	137	68	187	207	1090	142	111	83	54	33	40	100
4	99	69	165	616	1040	133	106	140	50	32	36	80
5	76	83	146	717	816	129	103	122	75	33	33	67
6	65	98	333	688	450	124	99	97	165	33	30	58
7	59	93	362	528	326	114	93	82	143	30	28	52
8	56	82	279	355	259	110	91	72	121	28	38	48
9	54	75	219	260	214	114	92	66	95	27	53	44
10	54	71	186	212	187	113	87	62	94	29	46	42
11	54	75	170	186	185	109	85	58	352	29	37	40
12	53	85	161	170	383	109	86	58	261	42	35	38
13	53	86	144	155	570	109	87	56	136	59	30	36
14	53	78	136	145	545	105	86	57	96	156	27	33
15	53	73	130	139	419	102	89	57	75	114	24	31
16	56	71	121	126	297	99	96	56	65	72	22	30
17	60	69	118	124	244	97	102	59	67	58	20	30
18	62	69	116	131	218	96	99	75	69	54	760	30
19	61	87	115	142	195	92	95	68	62	52	2200	29
20	60	134	118	147	180	89	85	60	57	46	1740	29
21	61	127	125	120	168	89	79	55	51	38	1640	28
22	65	109	180	95	157	95	74	50	45	34	1290	29
23	84	97	182	92	151	191	69	60	40	33	671	33
24	212	91	164	94	147	274	65	137	36	28	443	38
25	209	87	146	95	145	239	66	467	37	25	301	43
26	158	86	133	96	161	202	64	290	38	28	423	40
27	123	86	123	98	205	172	59	192	33	43	449	47
28	104	129	119	100	191	153	57	130	30	57	437	76
29	93	587	116	105	---	143	59	95	28	62	301	59
30	87	453	115	108	---	145	56	79	29	63	201	47
31	81	---	119	140	---	135	---	70	---	57	445	---
TOTAL	2742	3466	5313	6461	10511	4144	2588	3053	2531	1459	11896	1622
MEAN	88.5	116	171	208	375	134	86.3	98.5	84.4	47.1	384	54.1
MAX	212	587	362	717	1090	274	128	467	352	156	2200	228
MIN	53	68	115	92	145	89	56	50	28	25	20	28
CFSM	.34	.44	.65	.79	1.43	.51	.33	.38	.32	.18	1.47	.21
IN.	.39	.49	.75	.92	1.49	.59	.37	.43	.36	.21	1.69	.23

CAL YR 1984	TOTAL	117356	MEAN	321	MAX	3530	MIN	33	CFSM	1.23	IN.	16.66
WTR YR 1985	TOTAL	55786	MEAN	153	MAX	2200	MIN	20	CFSM	.58	IN.	7.92



## JAMES RIVER BASIN

02035000 JAMES RIVER AT CARTERSVILLE, VA  
(National stream-quality accounting network station)

LOCATION.--Lat 37°40'15", long 78°05'10", Goochland County, Hydrologic Unit 02080205, on left bank 200 ft down-stream from bridge on State Highway 45 between Pemberton and Cartersville, 1.8 mi downstream from Willis River, and at mile 156.4.

DRAINAGE AREA.--6,257 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1898 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1203: 1901-2(M), 1923-25(M), 1928(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 163.90 ft above National Geodetic Vertical Datum of 1929. Prior to June 4, 1927, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Oct. 4-10 and Jan. 24-29. Records good. Moderate diurnal fluctuation caused by powerplants upstream from station. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--87 years, 7,076 ft<sup>3</sup>/s, 15.36 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 362,000 ft<sup>3</sup>/s, June 22, 1972, gage height, 37.87 ft, from flood-marks, from rating curve extended above 160,000 ft<sup>3</sup>/s on basis of slope-conveyance study; minimum, 316 ft<sup>3</sup>/s, Sept. 13, 14, 1966, gage height, 0.02 ft; minimum daily, 330 ft<sup>3</sup>/s, Sept. 14, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 40,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	1000	*60,400	*18.17	No other peak equal to or greater than base discharge.			

Minimum discharge, 1,060 ft<sup>3</sup>/s, Sept. 22, gage height, 0.75 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2590	3930	16900	5570	5610	13700	6220	3620	5140	1510	2030	4510
2	4440	3430	10900	5070	17800	11400	6220	3300	4490	1610	2980	3390
3	4100	3100	8680	6260	31400	9310	5720	3350	3840	1780	2420	3500
4	3250	2940	7240	11200	26300	8350	5720	4910	3850	1910	2620	2970
5	3000	2710	6100	18600	17700	7600	5310	5300	4010	2040	2200	3030
6	2500	3020	6790	20300	13200	6880	4900	9740	4430	1530	2290	2940
7	2240	3380	7280	16300	10900	6290	4820	7130	4160	1880	2420	2220
8	2300	3500	6470	13400	9180	5680	4700	5510	3680	1620	2480	2100
9	2400	3620	5480	10400	8020	5190	4900	4730	3410	1560	2950	2060
10	2280	3280	5130	9100	6610	5110	4600	3950	2790	1550	3200	2590
11	2120	3290	5010	8200	6230	4910	4370	3440	4130	1600	2570	3620
12	2120	2840	4820	6830	11200	5070	4210	3500	5170	2010	1680	2190
13	1650	2990	4710	6060	24300	4850	4070	3280	3770	8840	2040	1950
14	1850	3030	4720	5840	19200	4770	3990	6600	3150	5100	2310	1620
15	1960	2780	4910	5450	14000	5260	3750	4220	2830	3050	2060	1690
16	1870	2590	4550	4980	10600	5860	4070	4090	2220	2450	1500	1670
17	2030	2530	4350	4860	8740	5350	4280	4220	2380	2760	1680	1630
18	1970	2630	4580	4640	7620	4900	4310	6850	2710	2720	10200	1590
19	2200	2450	4090	4370	6910	4780	4250	5320	2790	2290	52900	1520
20	2280	3700	3970	4560	6510	4440	4460	4360	2530	1630	31100	1460
21	2000	3970	4110	3640	6180	4530	4080	3790	2090	1440	24900	1180
22	1950	3810	4370	2730	5960	4200	3840	3730	1960	1550	17500	1100
23	2310	4540	4810	2930	5670	4940	3940	2960	1710	1360	11700	1440
24	5040	4080	5760	3280	5920	6740	3670	5440	1680	1350	7710	1460
25	4580	3630	6520	3650	7140	6960	3720	12000	1830	1300	7070	1340
26	4010	3450	6150	4150	9130	7330	3800	20300	1870	1220	12800	1150
27	3670	3400	5850	3550	12600	7370	3970	17300	1670	2840	11500	1230
28	3270	3370	6400	3370	15300	7140	3650	11400	1570	2560	8640	1390
29	2870	7430	6240	3900	---	6790	3440	9100	1570	3290	7240	1340
30	2930	17500	5800	3600	---	7030	3710	7800	1460	2930	5740	1240
31	2840	---	5560	3580	---	6120	---	6040	---	3100	5290	---
TOTAL	84620	116920	188250	210370	329930	198850	132690	197280	88890	72380	253720	61120
MEAN	2730	3897	6073	6786	11780	6415	4423	6364	2963	2335	8185	2037
MAX	5040	17500	16900	20300	31400	13700	6220	20300	5170	8840	52900	4510
MIN	1650	2450	3970	2730	5610	4200	3440	2960	1460	1220	1500	1100
CFSM	.44	.62	.97	1.08	1.88	1.03	.71	1.02	.47	.37	1.31	.33
IN.	.50	.70	1.12	1.25	1.96	1.18	.79	1.17	.53	.43	1.51	.36

CAL YR 1984	TOTAL	3452260	MEAN	9432	MAX	76500	MIN	1650	CFSM	1.51	IN.	20.52
WTR YR 1985	TOTAL	1935020	MEAN	5301	MAX	52900	MIN	1100	CFSM	.85	IN.	11.50

## JAMES RIVER BASIN

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02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1968 to January 1976, October 1980 to May 1981.

WATER TEMPERATURE: April 1968 to January 1976, October 1980 to May 1981.

SUSPENDED-SEDIMENT DISCHARGE: October 1980 to May 1981.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT												
30...	08:45	3010	261	257	7.7	7.8	20.5	756	2.6	8.5	95	--
NOV												
27...	09:15	3600	205	203	7.7	7.6	5.5	760	3.5	12.8	102	22
DEC												
10...	09:30	5320	140	136	7.6	7.4	4.0	765	2.5	12.3	93	--
JAN												
29...	09:45	3830	168	166	7.8	7.7	1.0	755	2.0	14.0	99	210
FEB												
26...	09:15	8660	170	178	7.9	7.9	11.0	756	3.0	10.6	97	27
MAR												
28...	13:00	6640	173	169	8.1	7.6	14.0	745	2.5	11.2	111	--
APR												
29...	09:15	3530	150	158	7.8	7.6	20.5	754	2.0	7.8	88	20
MAY												
30...	09:00	8030	116	115	7.2	7.0	20.0	751	6.5	8.6	96	--
JUN												
26...	09:00	1820	200	202	8.7	8.1	26.5	749	1.5	7.7	98	K9
JUL												
30...	10:00	2560	205	184	7.7	7.4	26.0	752	2.7	7.6	95	--
AUG												
28...	13:00	7880	115	115	7.6	8.1	24.5	756	21	7.8	94	240
SEP												
25...	13:00	1320	200	200	8.4	7.3	22.5	753	0.8	8.6	101	--

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS NONCAR- BONATE (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CAC03)	ALKA- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT												
30...	--	--	--	--	--	--	--	69	--	--	--	--
NOV												
27...	15	81	81	24	5.2	11	1.8	68	68	17	15	<0.1
DEC												
10...	--	--	--	--	--	--	--	47	--	--	--	--
JAN												
29...	13	65	65	19	4.2	7.8	1.5	55	58	12	11	<0.1
FEB												
26...	K13	72	72	21	4.7	6.2	1.3	62	66	11	9.1	<0.1
MAR												
28...	--	--	--	--	--	--	--	57	--	--	--	--
APR												
29...	19	55	55	16	3.7	7.1	1.7	50	50	13	9.4	<0.1
MAY												
30...	--	--	--	--	--	--	--	42	--	--	--	--
JUN												
26...	K11	73	73	21	5.1	11	1.8	65	69	13	15	<0.1
JUL												
30...	--	--	--	--	--	--	--	54	--	--	--	--
AUG												
28...	77	42	42	12	2.8	4.4	1.7	37	40	9.7	5.4	0.1
SEP												
25...	--	--	--	--	--	--	--	62	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
OCT 30...	8.5	--	--	<0.01	0.39	0.20	0.4	0.37	0.34	0.35	--
NOV 27...	6.9	126	120	<0.01	0.15	<0.01	0.8	0.25	0.23	0.21	30
DEC 10...	8.5	--	--	<0.01	0.66	<0.01	0.8	--	--	--	--
JAN 29...	7.7	119	99	0.03	0.43	0.09	0.1	0.14	0.09	0.11	--
FEB 26...	5.4	106	99	<0.01	0.30	0.02	0.4	0.11	0.10	0.09	40
MAR 28...	3.5	--	--	<0.01	<0.10	0.01	0.3	0.13	0.09	0.09	--
APR 29...	6.0	100	88	<0.01	0.38	0.01	1.0	0.14	0.15	0.14	30
MAY 30...	8.2	--	--	<0.01	0.53	0.02	0.3	0.06	0.04	0.05	--
JUN 26...	1.7	130	110	0.01	<0.10	0.01	0.6	0.11	0.08	0.08	--
JUL 30...	8.5	--	--	<0.01	0.28	0.01	--	--	0.13	0.13	--
AUG 28...	9.2	77	70	<0.01	0.41	0.03	0.8	0.09	0.07	0.07	40
SEP 25...	4.6	--	--	<0.01	0.30	0.21	0.3	0.15	0.11	0.11	--

[illegible]





## 02036500 FINE CREEK AT FINE CREEK MILLS, VA

LOCATION.--Lat 37°35'52", long 77°49'12", Powhatan County, Hydrologic Unit 02080205, on right bank 75 ft downstream from bridge on State Highway 711 at Fine Creek Mills, 0.8 mi upstream from mouth, and 6.7 mi northeast of Powhatan.

DRAINAGE AREA.--22.1 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1944 to current year.

REVISED RECORDS.--WSP 1203: 1948. WSP 1303: 1945(M). WSP 1383: 1954. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 156.59 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1953, nonrecording gage and crest-stage gage at site 75 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 21-29. Records good except those for period with ice effect, Jan. 21-29, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--41 years, 20.2 ft<sup>3</sup>/s, 12.41 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,180 ft<sup>3</sup>/s, Oct. 6, 1972, gage height, 9.02 ft, from rating curve extended above 2,600 ft<sup>3</sup>/s; minimum daily, 0.08 ft<sup>3</sup>/s, Oct. 1, 1968; minimum gage height, 1.53 ft, Sept. 30, Oct. 1, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	0530	*775	*4.17	No other peak equal to or greater than base discharge.			

Minimum discharge, 1.0 ft<sup>3</sup>/s, July 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	12	24	15	67	14	11	4.6	4.1	1.5	12	8.5
2	24	9.6	17	16	120	14	9.3	5.1	3.7	1.5	13	6.9
3	12	8.7	17	28	80	12	8.4	9.9	3.8	1.4	6.7	5.9
4	6.4	11	14	61	38	12	6.9	9.2	4.5	1.3	4.6	5.2
5	5.6	31	15	57	26	12	8.0	7.1	31	1.1	3.8	4.4
6	5.1	26	34	37	22	11	9.1	6.0	28	1.1	3.6	3.8
7	4.3	15	32	27	20	11	6.9	5.2	15	1.1	3.3	3.5
8	3.9	9.9	22	22	16	11	7.7	4.2	9.1	1.1	5.7	3.1
9	3.8	7.8	17	18	14	13	7.8	4.0	6.4	1.3	13	2.8
10	3.9	7.0	15	16	13	11	7.4	3.8	6.2	3.5	5.7	2.7
11	3.8	13	14	16	13	11	8.0	3.9	20	3.7	4.9	2.4
12	4.0	16	13	15	42	12	7.9	3.7	28	4.4	3.9	2.1
13	3.9	13	12	14	49	10	7.7	3.7	17	5.6	3.5	1.9
14	3.8	10	12	14	29	9.5	8.1	3.5	9.2	49	3.2	1.7
15	3.8	9.1	11	13	22	9.0	8.7	3.3	6.1	34	2.7	1.6
16	4.5	11	11	12	18	9.3	11	3.4	5.9	12	2.4	1.6
17	4.4	9.3	12	12	17	9.3	10	20	5.9	5.7	2.2	1.6
18	4.4	9.1	12	15	15	8.0	8.7	17	4.9	4.2	66	1.6
19	4.7	29	12	17	15	7.3	7.4	7.6	4.4	3.6	470	1.7
20	5.4	31	12	16	14	7.7	6.7	5.3	3.9	3.4	85	1.7
21	5.7	22	15	10	13	7.8	6.6	4.6	3.4	3.1	36	1.7
22	6.8	16	15	9.0	12	12	6.4	4.0	3.0	3.1	22	2.0
23	13	13	16	8.5	12	18	6.4	7.7	2.8	2.7	13	3.0
24	30	12	15	8.6	12	18	6.4	22	2.6	2.2	8.0	3.3
25	28	12	13	8.8	14	14	6.5	54	2.3	3.1	22	3.5
26	16	11	11	9.0	18	12	6.2	24	1.9	4.2	49	3.8
27	10	11	11	9.4	20	10	6.1	12	1.8	3.5	34	22
28	8.6	30	10	10	16	8.4	6.4	6.2	1.7	4.2	18	22
29	8.1	88	11	12	---	10	5.9	5.4	1.6	6.3	11	10
30	8.1	51	12	15	---	15	5.3	4.7	1.5	5.6	10	5.4
31	15	---	13	23	---	13	---	4.1	---	5.3	9.2	---
TOTAL	288.0	554.5	470	564.3	767	352.3	228.9	279.2	239.7	183.8	947.4	141.4
MEAN	9.29	18.5	15.2	18.2	27.4	11.4	7.63	9.01	7.99	5.93	30.6	4.71
MAX	30	88	34	61	120	18	11	54	31	49	470	22
MIN	3.8	7.0	10	8.5	12	7.3	5.3	3.3	1.5	1.1	2.2	1.6
CFSM	.42	.84	.69	.82	1.24	.52	.35	.41	.36	.27	1.38	.21
IN.	.48	.93	.79	.95	1.29	.59	.39	.47	.40	.31	1.59	.24
CAL YR 1984	TOTAL	11620.4	MEAN	31.7	MAX	730	MIN	2.9	CFSM	1.43	IN.	19.56
WTR YR 1985	TOTAL	5016.5	MEAN	13.7	MAX	470	MIN	1.1	CFSM	.62	IN.	8.44

## JAMES RIVER BASIN

205

02037000 JAMES RIVER AND KANAWHA CANAL NEAR RICHMOND, VA

LOCATION.--Lat 37°33'52", long 77°34'28", Henrico County, Hydrologic Unit 02080205, on left bank 75 ft downstream from Canal bridge, 400 ft downstream from head gates, 1,200 ft north of north end of Boshier Dam on James River, 1.6 mi upstream from Huguenot Memorial Bridge, and 2.0 mi west of Richmond city limits.

PERIOD OF RECORD.--September 1936 to current year.

GAGE.--Water-stage recorder. Datum of gage is 106.07 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1938, at datum 3.06 ft higher.

REMARKS.--No estimated daily discharges. Records good. Canal diverts from James River 1,200 ft upstream from Boshier Dam and discharges into river at several points downstream from gaging station near Richmond. Above 2,540 ft<sup>3</sup>/s, gage height, 14.5 ft, there is interchange of flow with James River; discharge above 2,540 ft<sup>3</sup>/s included in discharge for James River near Richmond (station 02037500). Figures given show flow in canal only. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--49 years, 764 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 29.1 ft, June 23, 1972, from floodmarks, interchange of flow with James River makes maximum discharge indeterminate; no flow at times when head gates were closed.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 14.72 ft, Aug. 19, interchange of flow with James River makes maximum discharge indeterminate; minimum, 0.84 ft<sup>3</sup>/s, Nov. 27-28, result of head gates being closed.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	772	796	2.5	3.1	627	482	884	803	805	458	473	697
2	808	825	2.1	3.3	632	473	888	781	780	462	359	648
3	850	794	2.2	7.5	600	470	876	776	756	465	468	60
4	812	790	2.1	10	596	470	870	808	753	466	460	658
5	798	792	2.5	6.2	560	460	858	830	774	470	454	530
6	790	790	5.8	5.4	574	460	850	930	772	473	423	393
7	771	805	3.5	3.9	303	452	836	916	776	462	30	380
8	756	805	3.1	3.5	2.1	457	836	866	758	460	208	372
9	740	805	2.8	3.1	1.8	454	832	830	740	458	447	369
10	754	808	2.5	3.1	1.6	455	838	803	731	466	442	366
11	754	792	2.3	3.1	1.6	452	828	785	756	463	439	393
12	749	787	2.1	3.0	9.5	457	821	780	810	476	426	393
13	747	785	2.1	2.9	5.8	460	812	763	767	536	407	390
14	726	789	2.1	2.9	5.0	460	812	803	738	529	410	374
15	740	780	2.1	2.8	4.6	462	799	846	717	508	407	375
16	742	771	2.1	2.9	4.4	462	805	796	704	684	407	372
17	740	771	2.1	3.1	3.9	460	816	805	691	588	401	367
18	744	769	2.3	3.0	3.5	457	816	830	699	487	698	367
19	744	769	2.7	2.8	313	460	812	870	706	486	852	367
20	754	787	2.2	2.7	462	460	817	24	702	474	892	364
21	754	579	2.1	2.5	470	460	817	196	695	465	902	363
22	742	1.6	2.5	2.5	465	444	801	756	681	462	886	361
23	749	1.2	2.9	2.4	466	446	803	735	673	457	856	116
24	808	1.1	2.9	2.3	466	460	810	771	549	455	817	228
25	872	.96	2.9	2.4	466	452	794	866	500	463	771	359
26	834	.92	3.1	2.5	454	450	803	954	481	470	615	357
27	825	.88	3.1	2.5	466	450	803	934	465	468	844	402
28	803	2.1	3.1	2.6	490	450	798	916	463	498	830	336
29	787	8.8	3.0	2.7	---	626	792	908	460	506	781	335
30	781	3.4	3.0	309	---	910	794	878	458	622	745	332
31	787	---	3.1	733	---	900	---	834	---	619	709	---
TOTAL	24033	16409.96	82.9	1142.7	8453.8	15271	24721	24393	20360	15356	17859	11424
MEAN	775	547	2.67	36.9	302	493	824	787	679	495	576	381
MAX	872	825	5.8	733	632	910	888	954	810	684	902	697
MIN	726	.88	2.1	2.3	1.6	444	792	24	458	455	30	60
CAL YR 1984	TOTAL	277760.86	MEAN	759	MAX	1040	MIN	.88				
WTR YR 1985	TOTAL	179506.36	MEAN	492	MAX	954	MIN	.88				

## JAMES RIVER BASIN

02037500 JAMES RIVER NEAR RICHMOND, VA

LOCATION.--Lat 37°33'47", long 77°32'50", Henrico County, Hydrologic Unit 02080205, on left bank 0.2 mi upstream from Huguenot Memorial Bridge, 0.5 mi southwest of Richmond city limits, 1.7 mi downstream from Boshier Dam, 3.3 mi upstream from Powhite Creek, and at mile 116.6.

DRAINAGE AREA.--6,758 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1934 to current year. Gage-height records collected in vicinity of Mayo's Bridge, at mile 109.5, 1876-1956, and at mile 108.7 since 1957, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Control is Williams Island dams which divert flow for city of Richmond water supply.

Datum of gage is 98.82 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 22-29. Records good except those for period with ice effect, Jan. 22-29, which are fair. City of Richmond takes from 40 ft<sup>3</sup>/s to 90 ft<sup>3</sup>/s for water supply from river downstream from gage except during periods of low flow when supply is obtained from James River and Kanawha Canal. Flow regulated by powerplants upstream from station. Above 18.2 ft stage, there is interchange of flow with James River and Kanawha Canal. Records of daily discharge include diversion by city of Richmond but do not include flow in James River and Kanawha Canal (station 02037000) which diverts around station. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--51 years, 7,543 ft<sup>3</sup>/s, 15.16 in/yr, includes flow in James River and Kanawha Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 313,000 ft<sup>3</sup>/s, includes canal flow, June 23, 1972, gage height, 28.62 ft; minimum daily, about 10 ft<sup>3</sup>/s, Sept. 8-15, 1966, Sept. 30, Oct. 5, 6, 1968, Oct. 8-10, 1970; minimum daily discharge of James River and James River and Kanawha Canal combined, 214 ft<sup>3</sup>/s, Oct. 5, 1941, caused by recharging of the pool above Boshier Dam after the canal gates were closed.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 50,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	1930	*66,000	*14.94	No other peak equal to or greater than base discharge.			

Minimum discharge, 1,120 ft<sup>3</sup>/s, July 27, gage height, 3.57 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1850	2620	18700	5430	5520	13900	5580	3270	5320	1400	2740	4800		
2	2620	3040	12800	5550	13100	12000	5460	3240	4670	1440	2160	4070		
3	4000	3040	9510	5550	27400	9630	5290	3100	4270	1440	2430	3780		
4	3820	2840	8040	9050	29100	8180	5100	3100	3870	1520	2190	3520		
5	3420	2770	6720	15900	20000	7400	4880	3770	3770	1590	2210	2980		
6	3070	2670	6510	20600	14800	6820	4670	5600	3920	1710	2000	3160		
7	2820	2700	7400	17700	12200	6270	4400	7070	4020	1610	2190	3000		
8	2430	2920	7100	14900	10100	5810	4400	5690	3920	1540	2450	2480		
9	2160	3000	6300	11600	8720	5290	4340	4670	3620	1520	2480	2300		
10	2000	3070	5580	9630	7530	4990	4370	4120	3320	1490	2600	2220		
11	1970	3000	5210	8680	6510	4750	4320	3640	3120	1440	2670	2790		
12	1920	2920	5150	7730	7520	4700	4220	3300	4120	1420	2260	3260		
13	1900	2700	4930	6720	21300	4780	4170	3120	4540	3370	1680	2350		
14	1780	2620	4880	6160	20800	4520	4120	3200	3870	7100	1610	2070		
15	1610	2620	4910	5720	16700	4540	4070	5290	3270	4750	1850	1760		
16	1640	2500	4990	5490	12400	4960	3970	4070	2870	3040	1730	1740		
17	1660	2330	4670	5120	9900	5350	4040	3770	2450	2310	1540	1690		
18	1660	2280	4540	5040	8250	4750	4120	3920	2280	2400	2380	1660		
19	1710	2330	4670	4910	7200	4520	4100	5320	2310	2430	52000	1620		
20	1780	2310	4370	4750	6300	4440	4040	4720	2330	2140	40400	1560		
21	1850	3100	4320	4520	6180	4320	4070	4340	2210	1730	24800	1490		
22	1850	3870	4370	4000	5630	4300	3940	3770	2000	1490	19700	1290		
23	1800	3920	4620	3700	5490	4300	3740	3500	1800	1330	12400	1240		
24	2090	4370	4930	3500	5350	5070	3720	3220	1640	1260	8610	1590		
25	4270	4200	6010	3650	5690	6210	3600	5120	1560	1240	6590	1460		
26	4120	3940	6360	3700	7330	6480	3500	14800	1590	1240	9430	1390		
27	3770	3770	5950	3800	10100	6660	3500	18200	1610	1190	12300	1640		
28	3500	3720	5950	3900	13400	6600	3500	11800	1590	2280	9000	1720		
29	3170	4730	6330	4000	---	6480	3370	8870	1520	2480	7290	1640		
30	2820	10800	6160	4200	---	7100	3240	7630	1470	2800	6270	1540		
31	2700	---	5840	3820	---	6720	---	6360	---	2500	5190	---		
TOTAL	77760	100700	197820	219020	324520	191840	125840	171590	88850	65200	253150	67810		
MEAN	2508	3357	6381	7065	11590	6188	4195	5535	2962	2103	8166	2260		
MAX	4270	10800	18700	20600	29100	13900	5580	18200	5320	7100	52000	4800		
MIN	1610	2280	4320	3500	5350	4300	3240	3100	1470	1190	1540	1240		
(*)	775	547	2.67	36.9	302	493	824	787	679	495	576	381		
MEAN†	3283	3904	6384	7102	11890	6681	5019	6322	3641	2598	8742	2641		
CFSM†	.49	.58	.94	1.05	1.76	.99	.74	.94	.54	.38	1.29	.39		
IN.†	.56	.64	1.09	1.21	1.83	1.14	.83	1.08	.60	.44	1.49	.44		
CAL YR 1984	TOTAL	3394150	MEAN	9274	MAX	87400	MIN	1490	MEAN†	10030	CFSM†	1.48	IN†	20.21
WTR YR 1985	TOTAL	1884100	MEAN	5162	MAX	52000	MIN	1190	MEAN†	5654	CFSM†	.84	IN†	11.36

\* Average diversion, in cubic feet per second, by James River & Kanawha Canal.

\* Adjusted for diversion.

## 02038000 FALLING CREEK NEAR CHESTERFIELD, VA

LOCATION.--Lat 37°26'37", long 77°31'21", Chesterfield County, Hydrologic Unit 02080206, on left bank at upstream side of bridge on State Highway 651, 0.8 mi downstream from Licking Creek, 2.8 mi upstream from Pocoshock Creek, and 4.7 mi northwest of Chesterfield.

DRAINAGE AREA.--32.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1955 to current year.

REVISED RECORDS.--WSP 1904: 1957(M), 1958-60.

GAGE.--Water-stage recorder. Datum of gage is 126.39 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20-24. Records good except those for period with ice effect, Jan. 20-24, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--30 years, 34.0 ft<sup>3</sup>/s, 14.08 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft<sup>3</sup>/s, Oct. 1, 1979, gage height, 15.32 ft, from flood-marks, from rating curve extended above 3,200 ft<sup>3</sup>/s on basis of slope-conveyance study; minimum, 0.01 ft<sup>3</sup>/s, Sept. 20, Oct. 3, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 220 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	0945	*1,110	*10.23	No other peak equal to or greater than base discharge.			

Minimum discharge, 1.2 ft<sup>3</sup>/s, July 8-9; minimum gage height, 2.67 ft, Aug. 17.

REVISIONS.--The peak discharges and annual maximum (\*) reported for water years 1983 and 1984 have been revised as shown in the following table. They supersede figures published in the reports for 1983 and 1984.

Water Year	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
1983	Mar. 21, 1983	1200	*1,380	*10.84
	Apr. 16, 1983	0945	909	9.67
1984	Mar. 26, 1984	0600	985	9.89
	Mar. 29, 1984	0730	*1,490	*11.07
	Apr. 14, 1984	1745	663	8.84
	Apr. 23, 1984	1015	796	9.32



## JAMES RIVER BASIN

02038000 FALLING CREEK NEAR CHESTERFIELD, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	4.1	15	6.8	133	16	15	3.6	3.3	1.9	7.9	2.4
2	17	3.8	11	8.3	168	16	12	3.4	2.8	1.5	5.8	2.2
3	10	3.4	13	51	85	14	11	7.5	2.7	1.8	4.4	2.1
4	7.0	3.0	11	116	48	14	11	7.2	2.8	1.3	3.4	1.9
5	5.2	6.3	12	71	38	17	10	6.3	6.1	1.4	2.5	1.8
6	4.2	11	51	38	34	12	9.9	5.4	12	1.5	2.3	1.7
7	3.4	8.4	29	25	28	13	8.7	6.5	10	1.4	2.2	1.6
8	2.9	5.9	17	19	23	12	10	3.8	7.8	1.3	1.9	1.6
9	2.6	4.9	13	15	18	13	9.6	4.1	5.4	2.6	1.9	1.6
10	2.2	4.3	11	13	17	12	8.9	3.5	4.5	3.1	1.8	1.6
11	2.2	7.1	12	13	17	12	9.3	3.3	4.1	1.5	1.8	1.9
12	2.3	6.8	9.2	14	116	14	11	3.1	17	1.4	1.8	2.0
13	2.2	5.7	8.6	16	99	11	9.3	2.8	21	14	1.7	2.0
14	2.2	5.0	8.0	16	48	13	9.0	3.0	11	19	1.7	2.1
15	2.2	4.3	7.1	16	36	12	10	2.7	7.7	19	1.5	2.1
16	2.2	3.9	6.9	14	30	10	11	3.0	5.5	8.9	1.5	1.5
17	2.3	3.4	7.3	16	25	9.7	10	3.9	4.6	3.9	1.4	1.5
18	2.2	2.9	7.2	18	22	9.5	9.0	4.1	3.6	2.3	57	1.5
19	2.3	19	6.9	20	20	9.0	8.3	2.9	3.0	1.8	743	1.5
20	2.5	23	6.8	17	22	9.3	7.8	2.6	2.6	1.6	89	1.5
21	2.6	12	8.0	14	16	12	7.2	2.5	2.2	1.6	25	1.6
22	2.5	8.8	9.2	11	22	13	6.6	2.6	2.2	1.6	15	2.8
23	10	7.3	8.4	12	16	16	5.9	4.3	2.5	1.6	11	3.5
24	16	6.4	7.5	13	15	17	7.5	9.7	3.0	1.6	7.1	1.9
25	12	5.8	7.1	17	14	16	6.5	21	2.2	2.9	5.1	1.9
26	8.6	5.4	6.9	17	26	14	5.4	14	2.2	8.5	4.3	2.8
27	6.6	5.1	5.8	15	29	12	4.2	8.3	2.2	12	5.4	101
28	4.9	16	6.3	16	20	12	4.3	5.8	2.0	9.3	6.2	64
29	5.5	58	5.9	16	---	11	4.1	4.4	1.7	22	5.0	15
30	4.7	27	6.2	15	---	14	3.9	3.7	1.6	27	4.5	9.5
31	4.2	---	6.8	30	---	15	---	3.4	---	12	3.3	---
TOTAL	171.7	288.0	341.1	699.1	1185	400.5	256.4	162.4	159.3	191.3	1026.4	240.1
MEAN	5.54	9.60	11.0	22.6	42.3	12.9	8.55	5.24	5.31	6.17	33.1	8.00
MAX	17	58	51	116	168	17	15	21	21	27	743	101
MIN	2.2	2.9	5.8	6.8	14	9.0	3.9	2.5	1.6	1.3	1.4	1.5
CFSM	.17	.29	.34	.69	1.29	.39	.26	.16	.16	.19	1.01	.24
IN.	.19	.33	.39	.79	1.34	.45	.29	.18	.18	.22	1.16	.27
CAL YR 1984	TOTAL	17131.6	MEAN	46.8	MAX	1320	MIN	1.7	CFSM	1.43	IN.	19.43
WTR YR 1985	TOTAL	5121.3	MEAN	14.0	MAX	743	MIN	1.3	CFSM	.43	IN.	5.81

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA  
(Hydrologic bench-mark station)

LOCATION.--Lat 37°24'55", long 78°38'10", Appomattox County, Hydrologic Unit 02080207, on right bank 350 ft downstream from culvert on State Highway 614, 1.0 mi upstream from Holiday Lake, and 5.2 mi southwest of Andersonville.

DRAINAGE AREA.--8.53 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1966 to current year.

REVISED RECORDS.--WDR VA-72-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 472.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16, 20-29 and Feb. 8-10. Records good except those for periods of ice effect, Jan. 16, 20-29 and Feb. 8-10, which are fair. Recording rain gage at station.

AVERAGE DISCHARGE.--19 years, 8.99 ft<sup>3</sup>/s, 14.31 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft<sup>3</sup>/s, June 21, 1972, gage height, 14.64 ft, from high-water mark in gage house, from rating curve extended above 4,200 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 0.10 ft<sup>3</sup>/s, Sept. 11, 12, 1966; minimum gage height, 0.75 ft, July 28, 1966, June 29, 30, July 1, Aug. 26, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 150 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 10	2345	300	3.32	Aug. 18	1545	*731	*5.26
Aug. 18	1145	437	4.02	Aug. 20	1515	264	3.12

Minimum discharge, 1.1 ft<sup>3</sup>/s, Aug. 15-16, gage height, 0.86 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	2.8	5.1	4.9	43	6.1	5.4	3.4	3.4	2.6	2.4	3.9
2	4.0	3.1	4.5	4.8	52	6.1	5.0	3.7	2.8	2.5	2.6	3.7
3	2.8	2.8	4.7	16	18	5.7	5.0	12	2.9	2.2	2.0	3.3
4	2.5	2.9	4.3	19	10	5.7	4.9	5.6	4.2	2.0	1.8	3.0
5	2.5	3.9	4.9	17	8.0	5.8	4.8	4.3	9.1	1.8	1.7	2.8
6	2.4	3.4	11	12	7.3	5.4	4.7	3.9	9.3	1.8	1.7	2.7
7	2.5	2.9	7.2	8.0	6.5	5.3	4.6	3.5	4.9	1.6	2.2	2.6
8	2.5	2.8	5.6	6.6	6.5	5.5	4.7	3.2	4.3	1.4	3.7	2.5
9	2.5	2.8	5.0	5.8	6.8	5.8	4.5	3.0	3.6	1.4	3.0	2.4
10	2.5	2.9	4.8	5.3	6.4	5.4	4.4	3.0	14	1.4	2.1	2.4
11	2.5	3.7	4.6	5.2	5.9	5.3	4.5	3.0	44	1.5	1.9	2.1
12	2.4	3.5	4.4	5.0	42	5.6	4.5	2.8	9.4	11	1.6	2.0
13	2.4	3.1	4.2	4.8	16	5.2	4.4	8.4	5.6	4.0	1.6	2.0
14	2.4	2.8	4.2	4.8	9.7	5.2	4.6	4.1	4.2	2.5	1.4	1.9
15	2.4	2.8	4.1	4.6	7.8	5.1	4.9	3.2	3.8	2.1	1.3	1.9
16	2.5	2.9	4.1	4.8	7.8	4.9	6.0	5.3	4.3	2.4	1.2	1.9
17	2.5	2.8	4.2	4.9	7.4	5.1	5.1	4.4	5.5	5.9	2.1	1.9
18	2.7	2.8	4.1	4.9	7.0	4.9	4.5	4.0	3.7	2.3	204	1.9
19	2.7	6.6	4.4	5.1	6.7	4.7	4.4	3.0	3.1	1.9	32	1.8
20	2.7	4.5	4.2	4.4	6.4	4.9	4.3	2.7	2.7	1.7	54	1.6
21	2.7	3.5	6.9	5.3	6.1	4.9	4.1	2.6	2.4	1.6	32	1.6
22	2.8	3.3	6.6	4.3	6.0	6.9	3.9	2.6	2.4	1.5	11	2.1
23	7.3	3.2	5.3	4.4	6.1	12	3.8	9.4	2.4	1.4	6.8	2.7
24	11	3.2	4.8	4.3	6.1	8.1	3.7	41	2.2	1.2	5.5	2.2
25	4.6	3.2	4.5	4.1	6.0	6.9	3.9	21	2.0	5.9	11	1.9
26	3.7	3.1	4.2	4.2	9.0	6.0	3.6	8.1	2.0	4.8	20	1.8
27	3.4	3.1	4.2	4.3	7.2	5.8	3.5	5.4	1.8	6.4	21	2.7
28	3.2	14	4.2	4.4	6.2	5.6	3.7	4.3	1.9	4.8	9.1	1.9
29	3.4	15	4.2	4.5	---	5.5	4.1	3.9	1.9	5.7	6.1	1.7
30	3.4	6.3	4.2	4.8	---	5.5	3.6	3.6	2.1	3.5	4.9	1.7
31	2.8	---	5.5	8.3	---	5.3	---	3.6	---	2.5	4.4	---
TOTAL	108.7	123.7	154.2	200.8	333.9	180.2	133.1	192.0	165.9	93.3	456.1	68.6
MEAN	3.51	4.12	4.97	6.48	11.9	5.81	4.44	6.19	5.53	3.01	14.7	2.29
MAX	11	15	11	19	52	12	6.0	41	44	11	204	3.9
MIN	2.4	2.8	4.1	4.1	5.9	4.7	3.5	2.6	1.8	1.2	1.2	1.6
CFSM	.41	.48	.58	.76	1.40	.68	.52	.73	.65	.35	1.72	.27
IN.	.47	.54	.67	.88	1.46	.79	.58	.84	.72	.41	1.99	.30
CAL YR 1984	TOTAL	3176.7	MEAN	8.68	MAX	156	MIN	2.0	CFSM	1.02	IN.	13.85
WTR YR 1985	TOTAL	2210.5	MEAN	6.06	MAX	204	MIN	1.2	CFSM	.71	IN.	9.64

## JAMES RIVER BASIN

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
DEC 04...	09:45	4.2	34	33	6.7	7.1	4.5	757	2.0	13.1	102	23
FEB 26...	09:30	9.9	32	34	6.8	7.4	10.0	753	1.5	11.2	100	50
MAY 22...	09:15	2.6	38	40	7.0	7.2	17.5	748	3.0	9.2	98	K17
AUG 27...	09:45	20	31	33	6.7	7.4	20.0	756	6.5	8.6	95	1200

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)
DEC 04...	82	10	--	2.2	1.1	2.7	0.5	12	--	2.3	1.5	13
FEB 26...	32	10	--	2.0	1.1	2.6	0.4	12	11	2.8	2.1	11
MAY 22...	110	13	--	2.9	1.3	2.9	0.5	16	16	1.7	1.7	13
AUG 27...	1700	10	0	2.2	1.0	1.8	0.6	8.0	11	4.0	1.6	8.8

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)
DEC 04...	36	31	<0.10	<0.01	0.2	0.01	<0.01	--	--	--	--	--
FEB 26...	30	29	<0.10	<0.01	0.4	0.02	<0.01	--	7	<0.5	1	--
MAY 22...	50	34	<0.10	<0.01	<0.1	<0.01	<0.01	--	--	--	--	--
AUG 27...	18	27	<0.10	<0.01	0.6	0.03	0.03	<1	26	<0.5	<1	2

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

[illegible]



## 02039000 BUFFALO CREEK NEAR HAMPDEN SYDNEY, VA

LOCATION.--Lat 37°15'25", long 78°29'12", Prince Edward County, Hydrologic Unit 02080207, on left bank 100 ft upstream from bridge on State Highway 658, 0.8 mi upstream from Locket Creek, 2.0 mi northwest of Hampden Sydney, and 6.0 mi southwest of Farmville.

DRAINAGE AREA.--69.7 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1303: 1948-50(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 339.19 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation). Prior to Aug. 19, 1953, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 21-29. Records good except those for period with ice effect, Jan. 21-29, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--39 years, 67.1 ft<sup>3</sup>/s, 13.07 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,160 ft<sup>3</sup>/s, June 21, 1972, gage height, 12.38 ft, from rating curve extended above 1,600 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 11.96 ft; minimum daily, 2.7 ft<sup>3</sup>/s, Oct. 7, 8, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 15 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	0130	519	5.73	Aug. 21	0100	528	5.75
Aug. 18	2200	*1,740	*7.54	Aug. 26	0900	724	6.14

Minimum discharge, 9.0 ft<sup>3</sup>/s, July 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	35	60	46	270	52	35	24	23	18	25	48
2	53	36	53	45	479	50	34	25	21	19	30	43
3	45	32	52	129	314	47	33	48	20	19	24	41
4	36	30	50	333	172	45	33	40	21	18	20	38
5	32	33	49	321	113	45	33	34	27	17	18	36
6	31	35	96	193	92	42	33	31	34	17	17	34
7	30	33	80	118	79	41	32	28	30	19	17	33
8	28	32	66	84	68	41	32	27	27	17	17	31
9	28	32	58	68	63	41	32	25	25	16	22	30
10	29	33	55	60	57	41	31	24	24	15	22	29
11	30	35	53	57	55	39	31	24	27	21	19	29
12	29	35	50	54	136	40	31	23	29	20	16	28
13	29	34	48	51	143	38	31	26	29	24	15	27
14	29	33	46	50	96	38	31	26	25	39	14	26
15	28	32	45	49	76	38	32	23	22	27	12	26
16	29	32	44	48	66	37	34	25	24	22	12	25
17	29	31	47	48	60	36	32	27	28	19	17	25
18	29	31	45	49	57	36	31	30	24	17	554	24
19	29	65	44	49	56	35	30	27	22	15	891	24
20	30	65	44	45	54	35	29	24	20	14	487	23
21	29	51	49	43	51	35	29	23	19	12	451	23
22	30	45	54	40	50	39	28	32	17	11	291	22
23	41	42	50	38	50	51	27	46	17	11	194	26
24	72	40	47	37	50	48	27	54	17	10	129	27
25	75	38	45	37	50	44	29	50	16	17	125	27
26	57	37	43	38	65	41	27	39	16	22	485	26
27	47	37	42	38	62	39	26	33	15	30	287	34
28	41	54	41	39	56	38	26	29	15	36	170	34
29	45	99	41	39	---	38	26	26	15	32	94	32
30	40	72	40	40	---	37	25	24	15	27	66	32
31	36	---	46	62	---	35	---	24	---	23	54	---
TOTAL	1186	1239	1583	2348	2940	1262	910	941	664	624	4595	903
MEAN	38.3	41.3	51.1	75.7	105	40.7	30.3	30.4	22.1	20.1	148	30.1
MAX	75	99	96	333	479	52	35	54	34	39	891	48
MIN	28	30	40	37	50	35	25	23	15	10	12	22
CFSM	.55	.59	.73	1.09	1.51	.58	.43	.44	.32	.29	2.12	.43
IN.	.63	.66	.84	1.25	1.57	.67	.49	.50	.35	.33	2.45	.48
CAL YR 1984	TOTAL	29040	MEAN	79.3	MAX	898	MIN	22	CFSM	1.14	IN.	15.50
WTR YR 1985	TOTAL	19195	MEAN	52.6	MAX	891	MIN	10	CFSM	.75	IN.	10.24

## 02039500 APPOMATTOX RIVER AT FARMVILLE, VA

LOCATION.--Lat 37°18'25", long 78°23'20", Cumberland County, Hydrologic Unit 02080207, on left bank at downstream side of bridge on State Highway 45 at north town limits of Farmville and 1.1 mi downstream from Buffalo Creek.

DRAINAGE AREA.--303 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1926 to current year.

REVISED RECORDS.--WSP 972: 1927-37, 1938(M). WSP 1303: 1927(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 281.93 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 29, 1928, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation at low flow caused by Prince Edward Mill 0.2 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--59 years, 288 ft<sup>3</sup>/s, 12.91 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,100 ft<sup>3</sup>/s, June 22, 1972, gage height, 29.70 ft, from flood-marks, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; minimum, 3.8 ft<sup>3</sup>/s, Sept. 25, 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	1800	2,220	12.60	Aug. 21	2200	3,980	15.15
Aug. 19	1700	*8,160	*18.49				

Minimum discharge, 32 ft<sup>3</sup>/s, July 24, gage height, 3.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	225	156	236	178	927	213	145	117	105	58	94	184
2	253	181	194	169	2040	202	139	114	96	66	125	159
3	156	176	186	378	1560	193	134	204	84	65	90	143
4	129	168	178	1160	714	189	134	254	86	60	67	129
5	114	178	179	1170	442	186	139	170	97	54	58	119
6	107	187	377	789	360	176	136	143	143	53	55	109
7	105	178	382	483	312	160	133	129	141	57	60	102
8	103	169	271	344	264	159	131	116	117	51	84	96
9	103	167	226	276	218	165	131	97	105	45	129	91
10	102	167	202	238	223	164	126	92	96	43	95	88
11	102	174	190	220	216	160	124	91	291	46	71	83
12	101	181	178	204	597	161	129	89	289	104	60	81
13	100	171	168	188	1010	155	131	98	176	141	54	76
14	99	164	163	181	462	146	131	141	125	99	51	71
15	97	161	164	174	346	146	135	108	102	86	47	69
16	100	160	162	148	293	140	142	101	106	67	44	69
17	102	159	162	177	262	140	154	134	130	56	51	69
18	103	155	163	180	243	140	138	141	115	56	1060	68
19	104	208	149	182	229	133	129	125	95	47	6440	67
20	105	262	148	170	221	132	126	103	82	42	3370	66
21	105	202	167	116	206	132	124	93	73	40	2880	65
22	103	170	217	231	199	142	120	96	67	38	2210	69
23	189	158	205	202	197	222	116	153	65	36	699	84
24	380	154	176	171	197	249	113	325	62	34	448	86
25	424	149	166	168	196	206	114	716	60	43	394	79
26	249	140	155	183	263	179	118	327	57	109	1050	72
27	198	131	147	162	293	164	113	199	52	121	1380	109
28	169	180	144	155	242	157	113	151	50	202	799	105
29	163	515	145	152	---	156	127	130	50	147	404	78
30	160	340	144	140	---	157	128	118	50	116	279	70
31	144	---	160	222	---	151	---	110	---	90	223	---
TOTAL	4694	5661	5904	8911	12732	5175	3873	4985	3167	2272	22871	2756
MEAN	151	189	190	287	455	167	129	161	106	73.3	738	91.9
MAX	424	515	382	1170	2040	249	154	716	291	202	6440	184
MIN	97	131	144	116	196	132	113	89	50	34	44	65
CFSM	.50	.62	.63	.95	1.50	.55	.43	.53	.35	.24	2.44	.30
IN.	.58	.70	.72	1.09	1.56	.64	.48	.61	.39	.28	2.81	.34
CAL YR 1984	TOTAL	131881	MEAN	360	MAX	4670	MIN	71	CFSM	1.19	IN.	16.19
WTR YR 1985	TOTAL	83001	MEAN	227	MAX	6440	MIN	34	CFSM	.75	IN.	10.19

## 02040000 APPOMATTOX RIVER AT MATTOAX, VA

LOCATION.--Lat 37°25'17", long 77°51'33", Amelia County, Hydrologic Unit 02080207, on right bank 75 ft upstream from Southern Railway bridge at Mattoax, 0.3 mi upstream from Skinquarter Creek, and 3.7 mi upstream from Flat Creek.

DRAINAGE AREA.--726 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1900 to December 1905, March 1926 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 972: 1928, 1932, 1934-38. WSP 1303: 1901(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 174.51 ft above National Geodetic Vertical Datum of 1929.

August 1900 to December 1905, nonrecording gage at same site, different datum. March 1926 to October 1936, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Oct. 22 to Dec. 3 and Jan. 23-29. Records good except those for period of no gage-height record, Oct. 22 to Dec. 3, and period with ice effect, Jan. 23-29, which are fair. Appomattox Water Authority gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--64 years, 724 ft<sup>3</sup>/s, 13.54 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft<sup>3</sup>/s, Aug. 18, 1940, gage height, 35.3 ft, from flood-mark in gage house, from rating curve extended above 20,000 ft<sup>3</sup>/s on basis of records for stations at Farmville and near Petersburg; minimum, 11 ft<sup>3</sup>/s, Oct. 2, 1930, gage height, 3.52 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 23	1600	*4,190	*18.90	No other peak equal to or greater than base discharge.			

Minimum discharge, 67 ft<sup>3</sup>/s, July 24-25, gage height, 5.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	242	240	920	358	1540	578	362	212	191	95	168	407
2	424	225	600	388	3250	520	344	205	180	98	144	330
3	472	215	460	508	3530	484	326	211	170	113	150	288
4	306	210	438	1910	3640	455	316	252	159	120	162	264
5	242	350	431	2980	3690	443	304	358	203	115	137	242
6	218	500	691	3170	1580	429	300	282	224	102	116	228
7	199	470	1250	3160	1020	410	390	236	208	101	115	216
8	192	350	970	1490	826	386	284	212	224	97	114	205
9	194	310	652	907	708	390	277	196	207	96	136	199
10	187	285	539	705	600	390	274	185	194	87	185	188
11	185	280	482	617	585	386	270	171	316	86	168	180
12	182	315	448	570	1000	384	266	166	364	86	136	170
13	182	315	422	530	2050	376	266	166	486	150	114	163
14	182	300	396	496	2330	366	270	164	308	286	102	157
15	182	275	380	472	1260	352	277	182	235	211	91	146
16	182	250	368	443	850	340	282	196	195	158	85	141
17	185	240	362	417	724	334	288	198	183	135	88	136
18	190	230	356	431	654	324	296	200	213	116	460	135
19	192	350	358	465	612	320	280	211	214	104	2640	131
20	196	670	358	472	573	312	264	200	181	98	3060	129
21	196	720	364	412	544	304	254	180	151	92	3260	128
22	195	660	410	262	518	308	248	164	134	83	3680	128
23	210	450	462	260	501	368	236	198	124	76	4140	133
24	265	360	455	275	496	568	228	320	118	71	3070	143
25	660	320	405	285	491	597	222	640	112	80	772	157
26	740	300	370	295	522	510	222	913	104	84	1250	151
27	350	298	350	305	654	438	222	556	102	112	1810	190
28	300	350	334	330	691	398	218	338	97	180	2050	212
29	270	950	328	355	---	380	222	259	90	214	1160	225
30	255	1150	328	380	---	376	208	225	91	248	642	181
31	250	---	332	448	---	368	---	205	---	198	549	---
TOTAL	8225	11938	15019	24096	35439	12594	8216	8201	5778	3892	30754	5703
MEAN	265	398	484	777	1266	406	274	265	193	126	992	190
MAX	740	1150	1250	3170	3690	597	390	913	486	286	4140	407
MIN	182	210	328	260	491	304	208	164	90	71	85	128
CFSM	.37	.55	.67	1.07	1.74	.56	.38	.37	.27	.17	1.37	.26
IN.	.42	.61	.77	1.23	1.82	.65	.42	.42	.30	.20	1.58	.29
CAL YR 1984	TOTAL	351893	MEAN	961	MAX	9030	MIN	136	CFSM	1.32	IN.	18.03
WTR YR 1985	TOTAL	169855	MEAN	465	MAX	4140	MIN	71	CFSM	.64	IN.	8.70

## 02041000 DEEP CREEK NEAR MANNBORO, VA

LOCATION.--Lat 37°16'59", long 77°52'12", Amelia County, Hydrologic Unit 02080207, on left bank 300 ft upstream from bridge on State Highway 153, 0.9 mi upstream from Sweathouse Creek, 3.4 mi northwest of Mannboro, and 7.5 mi southeast of Amelia.

DRAINAGE AREA.--158 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1946 to current year.

REVISED RECORDS.--WSP 1203: 1948 (calendar year figures only). WSP 2104: Drainage area. WDR VA-79-1: 1973-76(P), 1978.

GAGE.--Water-stage recorder. Datum of gage is 177.20 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 2, 1949, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-30. Records good except those for period with ice effect, Jan. 22-30, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--39 years, 151 ft<sup>3</sup>/s, 12.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft<sup>3</sup>/s, Oct. 6, 1972, gage height, 24.04 ft, from high-water mark, from rating curve extended above 3,900 ft<sup>3</sup>/s; minimum, 0.03 ft<sup>3</sup>/s, Oct. 4, 5, 1968; minimum gage height, 0.29 ft, Aug. 9-12, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 14.8 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 5	0200	1,740	8.15	Feb. 2	1830	*1,840	*8.27

Minimum discharge, 3.4 ft<sup>3</sup>/s, Sept. 15, 18, gage height, 1.47 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	60	196	85	492	124	80	27	19	5.8	16	14
2	115	57	130	93	1470	111	74	25	17	6.2	14	12
3	118	52	124	290	1420	102	69	33	16	6.5	12	10
4	78	49	129	1100	774	97	66	47	15	6.1	10	9.1
5	54	90	132	1530	365	96	63	52	16	5.5	8.9	8.2
6	41	127	235	958	277	92	61	43	18	5.5	8.0	7.3
7	34	127	333	480	253	86	58	35	26	5.9	7.3	6.3
8	30	95	237	265	209	83	57	30	33	5.2	8.0	5.7
9	27	75	155	192	152	84	55	27	28	4.6	21	5.3
10	26	66	128	151	142	84	54	25	25	4.5	24	4.9
11	25	65	116	134	146	82	53	25	22	8.2	14	4.6
12	26	73	108	132	324	85	54	27	20	14	12	4.3
13	25	73	101	120	779	82	55	25	19	40	9.6	4.0
14	25	73	95	112	655	79	55	25	15	30	8.6	3.8
15	25	66	91	111	294	79	58	25	13	16	8.0	3.7
16	25	61	89	97	210	76	61	24	13	9.3	7.7	3.7
17	26	56	88	98	178	74	60	27	23	7.6	7.6	3.8
18	28	54	85	108	159	71	56	37	25	6.6	20	3.6
19	29	102	86	127	148	68	52	42	20	5.8	102	3.7
20	31	189	86	127	136	68	47	37	14	5.4	132	3.9
21	31	195	89	106	124	65	44	31	10	5.0	98	4.2
22	33	126	102	99	117	73	41	33	8.2	4.6	77	4.8
23	55	94	102	72	112	114	38	33	6.7	4.4	59	5.8
24	57	81	96	73	110	165	36	57	6.7	3.9	42	6.5
25	68	75	90	74	108	160	35	89	6.5	4.2	31	7.1
26	71	72	82	76	138	128	33	82	5.7	5.5	26	7.3
27	69	70	75	80	172	105	32	55	5.3	7.8	25	12
28	63	85	72	85	152	93	31	38	5.4	12	26	16
29	64	233	70	95	---	88	31	28	5.4	22	23	18
30	64	308	70	100	---	86	28	23	5.3	24	19	14
31	63	---	76	142	---	83	---	21	---	20	18	---
TOTAL	1491	2949	3668	7312	9616	2883	1537	1128	462.2	312.1	894.7	217.6
MEAN	48.1	98.3	118	236	343	93.0	51.2	36.4	15.4	10.1	28.9	7.25
MAX	118	308	333	1530	1470	165	80	89	33	40	132	18
MIN	25	49	70	72	108	65	28	21	5.3	3.9	7.3	3.6
CFSM	.30	.62	.75	1.49	2.17	.59	.32	.23	.10	.06	.18	.05
IN.	.35	.69	.86	1.72	2.26	.68	.36	.27	.11	.07	.21	.05
CAL YR 1984	TOTAL	86439	MEAN	236	MAX	7230	MIN	19	CFSM	1.49	IN.	20.35
WTR YR 1985	TOTAL	32470.6	MEAN	89.0	MAX	1530	MIN	3.6	CFSM	.56	IN.	7.64



## JAMES RIVER BASIN

02041650 APPOMATTOX RIVER AT MATOACA, VA  
(National stream-quality accounting network station)

LOCATION.--Lat 37°13'28", long 77°28'32", Chesterfield County, Hydrologic Unit 02080207, on left bank at upstream side of bridge on State Highway 600, 0.2 mi south of Matoaca, 2.0 mi upstream from Rohoic Creek, 2.8 mi downstream from Lake Chesdin, 3.5 mi west of Petersburg, and at mile 15.9.

DRAINAGE AREA.--1,344 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 68.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-22, Jan. 21-29, and Sept. 7-12. Records good except those for periods of doubtful gage-height record, Oct. 1-22 and Sept. 7-12, and period with ice effect, Jan. 21-29, which are fair. Flow regulated by Appomattox Water Authority at Lake Chesdin, capacity, 36,000 acre-ft, 2.8 mi upstream, from which an average of 12.4 ft<sup>3</sup>/s is diverted for industrial and municipal use. Records do not include flow of Upper Appomattox Canal of city of Petersburg which diverts around station. National Weather Service gage-height telemeter at station.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--16 years, 1,500 ft<sup>3</sup>/s, 15.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,800 ft<sup>3</sup>/s, Oct. 7, 1972, gage height, 18.39 ft; minimum, 41 ft<sup>3</sup>/s, Oct. 4, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,950 ft<sup>3</sup>/s, Feb. 3, gage height, 8.62 ft; minimum, 138 ft<sup>3</sup>/s, July 18, 19, 20, 21, 22, gage height, 1.79 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	300	446	1840	580	2490	1170	764	301	315	200	178	621
2	350	437	1220	699	6590	1080	685	299	279	201	186	495
3	415	407	1030	1510	7870	957	634	423	262	208	183	388
4	450	405	899	4360	7580	906	597	365	245	207	184	324
5	400	487	844	6450	6700	920	577	401	293	205	186	275
6	380	612	1280	6650	5380	827	631	492	290	206	162	250
7	350	613	1790	6030	2700	782	554	462	289	204	157	230
8	335	560	2030	4650	1820	785	571	374	307	177	193	215
9	330	513	1500	2240	1400	773	568	356	316	160	161	200
10	310	476	1090	1500	1200	767	441	324	298	157	159	195
11	300	520	929	1240	1100	747	487	319	308	147	155	180
12	280	518	818	1130	1890	839	496	313	407	150	153	170
13	275	509	761	1020	3880	701	499	316	562	144	152	163
14	270	476	703	971	4470	701	494	298	554	143	148	153
15	265	457	676	964	3740	728	546	272	436	142	148	152
16	265	474	641	821	2110	627	543	268	371	141	182	152
17	260	439	638	832	1550	685	538	304	324	140	173	153
18	260	426	620	834	1320	659	520	313	300	139	368	153
19	262	578	604	907	1210	577	544	281	297	139	410	153
20	265	776	605	1040	1130	609	491	272	285	139	2430	154
21	268	914	621	1000	1060	574	469	276	261	144	3430	155
22	270	898	663	950	1010	620	441	310	231	146	3630	211
23	274	733	689	580	976	725	405	321	227	146	3970	160
24	293	618	726	590	956	874	382	446	214	143	4360	160
25	436	549	721	600	928	1110	402	666	206	202	3150	159
26	660	514	657	605	1050	1080	351	909	200	161	1180	262
27	704	495	613	615	1190	975	344	1030	196	215	1190	420
28	597	545	588	670	1220	866	329	776	196	179	1560	254
29	534	1030	574	740	---	822	324	543	200	184	1770	252
30	482	1760	560	770	---	774	312	398	197	183	1270	266
31	451	---	583	916	---	750	---	326	---	180	842	---
TOTAL	11291	18185	27513	52464	74520	25010	14939	12754	8866	5232	32420	7075
MEAN	364	606	888	1692	2661	807	498	411	296	169	1046	236
MAX	704	1760	2030	6650	7870	1170	764	1030	562	215	4360	621
MIN	260	405	560	580	928	574	312	268	196	139	148	152
CAL YR 1984	TOTAL	656387		MEAN	1793	MAX	15500	MIN	235			
WTR YR 1985	TOTAL	290269		MEAN	795	MAX	7870	MIN	139			

## JAMES RIVER BASIN

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02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV											
20...	08:15	744	94	94	7.3	7.5	9.5	761	6.8	11.0	96
JAN											
24...	09:15	E590	70	77	7.3	6.9	1.0	749	15	14.2	102
FEB											
20...	12:30	1130	65	65	7.1	6.8	5.0	760	40	13.6	107
MAY											
23...	08:30	313	95	96	7.1	7.6	20.5	748	2.1	7.8	88
JUL											
09...	13:30	143	96	98	7.7	7.6	26.0	747	1.7	7.4	93
AUG											
22...	09:00	3620	94	91	7.1	7.0	25.0	753	5.0	7.7	94

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
NOV											
20...	19	180	31	31	7.2	3.2	5.7	2.7	35	34	4.9
JAN											
24...	24	K11	21	21	4.9	2.1	4.4	2.3	18	19	8.7
FEB											
20...	76	210	19	19	4.6	1.9	4.1	1.6	15	17	8.9
MAY											
23...	K16	31	34	34	7.6	3.6	6.3	1.7	37	40	5.1
JUL											
09...	21	32	32	32	7.5	3.3	5.7	2.1	37	38	5.2
AUG											
22...	13	78	32	32	7.2	3.3	6.0	2.2	35	36	3.7

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
NOV											
20...	5.0	0.1	17	72	66	<0.10	<0.01	0.2	<0.01	<0.01	<0.01
JAN											
24...	4.6	<0.1	14	58	52	0.29	0.03	0.1	0.05	0.02	<0.01
FEB											
20...	4.3	<0.1	13	60	49	0.23	0.05	0.5	0.02	0.02	0.02
MAY											
23...	4.4	0.1	13	62	66	<0.10	0.06	0.6	<0.01	<0.01	<0.01
JUL											
09...	4.3	0.1	16	77	67	0.24	0.01	0.3	0.02	0.02	0.02
AUG											
22...	4.3	0.2	15	57	64	<0.10	0.10	0.8	0.04	0.02	<0.01

## JAMES RIVER BASIN

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
NOV 20...	20	<1	25	<0.5	<1	2	<3	1	130	<1	<4
JAN 24...	--	--	--	--	--	--	--	--	--	--	--
FEB 20...	90	<1	23	<0.5	<1	<1	<3	1	240	<1	23
MAY 23...	20	<1	24	<0.5	<1	<1	<3	2	30	6	<4
JUL 09...	--	--	--	--	--	--	--	--	--	--	--
AUG 22...	20	<1	27	<0.5	<1	<1	<3	1	42	<1	<4

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. & FINER THAN .062 MM
NOV 20...	14	<0.1	<10	<1	<1	<1	56	<6	7	10	96
JAN 24...	--	--	--	--	--	--	--	--	--	10	93
FEB 20...	38	<0.1	<10	1	<1	<1	34	<6	6	69	97
MAY 23...	77	0.1	<10	1	<1	<1	66	<6	7	7	92
JUL 09...	--	--	--	--	--	--	--	--	--	2	90
AUG 22...	180	0.2	<10	<1	<1	<1	59	<6	14	14	83

## JAMES RIVER BASIN

219

02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA

LOCATION.--Lat 37°26'10", long 77°03'40", New Kent County, Hydrologic Unit 02080206, on left bank 100 ft downstream from bridge on State Highway 618, 1.1 mi southwest of Providence Forge, and 1.7 mi downstream from Schiminee Creek.

DRAINAGE AREA.--248 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1942 to current year.

REVISED RECORDS.--WSP 1553: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 6.07 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-18 and Jan. 22. Records good except those for period of no gage-height record, Oct. 1-18, and period with ice effect, Jan. 22, which are fair.

AVERAGE DISCHARGE.--43 years, 264 ft<sup>3</sup>/s, 14.46 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,710 ft<sup>3</sup>/s, Aug. 15, 1955, gage height, 11.67 ft; minimum, 0.70 ft<sup>3</sup>/s, July 7, 1977; minimum gage height, 1.53 ft, Sept. 13, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,740 ft<sup>3</sup>/s, Aug. 22, gage height, 9.76 ft; minimum, 4.1 ft<sup>3</sup>/s, Sept. 22, gage height, 1.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	39	228	84	243	215	301	31	92	8.2	86	230
2	28	40	253	92	389	203	263	25	72	7.9	79	202
3	30	37	271	206	553	200	214	40	53	8.2	75	196
4	31	35	377	326	605	201	188	67	39	8.9	82	203
5	29	33	423	414	602	193	175	69	52	8.4	94	204
6	27	40	426	449	697	180	161	66	187	8.5	118	188
7	23	43	392	423	714	165	142	51	177	10	137	162
8	20	37	353	475	633	152	137	38	199	11	154	144
9	17	34	317	541	518	146	125	31	189	9.8	181	106
10	15	33	272	501	418	140	113	27	143	9.6	134	78
11	14	35	260	431	347	135	102	23	129	13	102	58
12	13	41	271	359	337	134	93	18	152	20	72	43
13	13	45	261	298	402	128	86	16	182	18	58	32
14	12	49	236	249	453	122	80	13	182	13	50	21
15	12	53	207	213	481	119	86	11	172	10	51	13
16	12	54	179	171	467	112	95	9.0	161	9.0	57	9.1
17	11	53	159	169	545	106	100	8.2	142	8.2	68	7.0
18	11	51	142	165	545	99	92	8.5	137	9.6	89	7.0
19	10	76	128	168	488	94	83	7.9	152	23	418	6.2
20	9.8	112	117	161	398	89	75	7.7	154	39	705	5.4
21	9.2	115	108	145	317	83	69	7.6	129	50	1210	4.7
22	9.4	125	106	140	262	88	65	8.6	94	51	2150	4.5
23	10	122	102	130	229	127	59	8.1	71	47	2270	5.9
24	13	109	97	129	207	154	54	12	53	37	1540	7.8
25	11	109	95	139	194	175	56	46	35	31	1090	6.7
26	17	111	93	148	209	168	53	64	23	55	821	10
27	22	105	90	138	221	158	53	72	16	71	634	431
28	26	101	87	139	220	151	48	62	11	90	521	725
29	29	160	86	148	---	156	42	62	9.0	99	420	945
30	34	191	84	139	---	230	36	78	8.5	82	340	653
31	37	---	83	157	---	266	---	93	---	66	275	---
TOTAL	581.4	2188	6303	7447	11694	4689	3246	1080.6	3215.5	932.3	14081	4708.3
MEAN	18.8	72.9	203	240	418	151	108	34.9	107	30.1	454	157
MAX	37	191	426	541	714	266	301	93	199	99	2270	945
MIN	9.2	33	83	84	194	83	36	7.6	8.5	7.9	50	4.5
CFSM	.08	.29	.82	.97	1.69	.61	.44	.14	.43	.12	1.83	.63
IN.	.09	.33	.95	1.12	1.75	.70	.49	.16	.48	.14	2.11	.71
CAL YR 1984	TOTAL	138739.4	MEAN	379	MAX	3570	MIN	9.2	CFSM	1.53	IN.	20.81
WTR YR 1985	TOTAL	60166.1	MEAN	165	MAX	2270	MIN	4.5	CFSM	.67	IN.	9.02



## JAMES RIVER BASIN

02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-70, 1972 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)
OCT 18...	10:15	12	120	117	6.6	6.6	17.0	766	10	7.2
NOV 16...	08:30	54	120	115	6.6	6.8	7.0	756	35	10.4
JAN 08...	10:30	468	86	92	6.4	6.5	4.5	765	50	10.4
FEB 22...	12:30	260	145	143	6.5	6.7	7.5	--	20	--
APR 18...	08:30	93	130	115	6.6	6.8	11.5	765	50	8.6
JUN 17...	10:00	143	108	104	6.3	6.7	21.0	755	70	7.1
AUG 01...	09:30	89	101	102	6.7	7.1	24.5	763	65	6.2

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT 18...	74	28	28	8.3	1.8	9.7	1.3	13	18
NOV 16...	86	27	27	7.5	2.0	8.6	5.2	23	3.8
JAN 08...	80	17	17	4.8	1.2	7.6	2.8	8.0	11
FEB 22...	--	22	22	6.3	1.6	15	2.2	7.0	15
APR 18...	79	28	28	8.1	1.9	9.7	2.4	27	3.2
JUN 17...	80	25	25	7.2	1.7	12	0.5	23	5.9
AUG 01...	74	29	29	8.7	1.7	9.5	0.5	25	7.6

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 18...	13	<0.1	7.4	79	68	<0.01	<0.10	0.05	160
NOV 16...	19	<0.1	9.8	75	70	0.01	<0.10	0.03	580
JAN 08...	13	<0.1	7.6	69	53	0.03	<0.10	0.02	480
FEB 22...	26	<0.1	1.5	102	72	--	--	--	170
APR 18...	16	0.1	2.0	64	60	<0.01	<0.10	0.01	770
JUN 17...	13	0.1	8.8	88	64	--	--	--	620
AUG 01...	11	0.2	9.9	84	65	<0.01	0.15	0.02	650

## JAMES RIVER BASIN

221

02042720 CHICKAHOMINY RIVER ABOVE WALKERS DAM, AT WALKERS, VA

LOCATION.--Lat 37°24'31", long 76°56'18", New Kent County, Hydrologic Unit 02080206, on left bank 600 ft upstream from Walkers Dam at city of Newport News pumping station, 0.7 mi south of Walkers, and 8.0 mi upstream from Diascund Creek.

DRAINAGE AREA.--301 mi<sup>2</sup>.

PERIOD OF RECORD.--Water years 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT												
17...	08:30	125	6.9	18.0	15	762	6.6	70	27	2	7.2	2.3
NOV												
06...	08:15	120	6.5	17.0	11	754	11.7	122	28	5	7.6	2.1
DEC												
11...	09:45	112	6.7	5.0	20	758	10.3	81	24	17	6.5	1.8
FEB												
28...	08:45	150	6.6	10.0	10	766	9.8	86	22	14	6.0	1.6
APR												
23...	08:20	115	6.9	22.0	30	757	7.5	86	26	5	7.8	1.7
MAY												
14...	09:00	110	6.1	23.5	30	756	4.3	51	30	3	8.9	2.0
JUN												
20...	08:30	100	6.4	26.0	40	755	4.6	57	26	5	7.8	1.7
JUL												
17...	09:15	120	6.6	27.5	35	758	1.8	23	29	5	8.5	1.8
AUG												
12...	08:30	100	6.8	25.0	40	759	1.4	17	26	2	7.9	1.6
SEP												
04...	08:30	74	6.0	25.0	10	759	0.2	2	22	6	6.5	1.4

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
OCT												
17...	12	1.6	25	6.4	17	<0.1	3.5	65	<0.10	<0.01	1.1	0.02
NOV												
06...	11	1.4	23	7.3	14	<0.1	4.4	62	<0.10	<0.01	0.7	0.04
DEC												
11...	8.5	3.9	7.0	16	17	<0.1	8.4	67	<0.10	0.03	0.5	0.03
FEB												
28...	15	2.0	8.0	13	25	0.1	1.9	70	--	--	0.9	0.029
APR												
23...	11	1.8	21	5.5	16	<0.1	1.6	58	0.177	<0.01	0.9	0.063
MAY												
14...	9.9	2.0	27	4.3	17	<0.1	1	62	0.016	0.05	0.5	0.037
JUN												
20...	9.1	1.2	21	8.5	11	<0.1	6.1	59	0.026	0.03	0.6	0.049
JUL												
17...	11	1.0	24	6.4	14	<0.1	6.9	65	0.05	0.08	0.6	0.051
AUG												
12...	9.5	0.6	24	5.4	11	0.1	10	61	0.034	0.10	0.5	0.054
SEP												
04...	5.6	1.5	16	7.0	8.6	0.1	8.0	50	0.023	0.10	0.7	0.062

02042720 CHICKAHOMINY RIVER ABOVE WALKERS DAM, AT WALKERS, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	CADMIUM DIS- SOLVED (UG/L AS CD)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 17...	<0.01	<0.01	<1	<1	--	42	3	--	1	<0.1	<3	8.4
NOV 06...	0.03	<0.01	<1	<1	--	85	1	--	6	0.3	11	7.2
DEC 11...	0.02	0.02	<1	<1	--	240	2	--	54	0.8	17	7.4
FEB 28...	0.017	--	<1	1	470	140	<1	50	33	0.2	15	7.4
APR 23...	0.018	0.014	<1	1	790	350	1	70	8	0.1	10	8.5
MAY 14...	0.011	0.009	<1	1	610	140	3	150	26	0.2	24	8.9
JUN 20...	0.03	0.008	<1	1	820	360	2	290	210	<0.1	<3	10
JUL 17...	0.02	0.01	<1	2	1100	560	2	700	690	<0.1	<3	12
AUG 12...	0.034	0.02	<1	2	1400	450	<1	230	78	0.1	6	9.2
SEP 04...	0.034	0.016	<1	2	2600	860	<1	410	340	0.1	7	20

## JAMES RIVER BASIN

223

02042734 DIASCUND CREEK RESERVOIR OFF TIMBER SWAMP, NEAR WALKERS, VA

LOCATION.--Lat 37°25'48", long 76°54'19", New Kent County, Hydrologic Unit 02080206, in Diascund Creek Reservoir at mouth of Timber Swamp, 0.3 mi west of bridge on State Highway 603, and 2.1 mi east of Walkers.

PERIOD OF RECORD.--Water years 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT							
17...	09:45	3.00	75	7.0	18.5	762	7.4
17...	10:00	10.0	79	6.9	18.0	762	3.8
NOV							
07...	08:45	3.00	80	6.7	16.0	765	6.5
07...	08:55	16.0	78	6.8	16.0	765	6.3
DEC							
11...	11:00	3.00	75	6.3	7.0	758	11.0
11...	11:15	18.0	83	6.3	7.0	758	10.6
FEB							
28...	10:55	3.00	78	6.6	8.5	767	12.2
28...	11:00	10.0	69	6.7	8.0	767	12.0
28...	11:05	18.0	69	6.8	8.0	767	11.8
APR							
23...	09:30	3.00	80	6.7	24.5	757	9.3
23...	09:35	10.0	80	6.9	17.5	757	7.4
23...	09:40	18.0	87	6.2	14.0	757	2.8
MAY							
14...	10:15	3.00	75	6.7	27.5	756	8.3
14...	10:30	10.0	88	6.4	22.5	756	5.7
14...	10:45	18.0	80	6.6	14.0	756	0
JUN							
20...	09:15	3.00	78	6.5	27.5	755	8.7
20...	09:30	10.0	83	6.6	26.0	755	6.5
20...	09:45	18.0	90	6.4	19.0	755	0
JUL							
17...	10:00	3.00	80	6.8	30.0	758	7.6
17...	10:15	10.0	85	6.4	26.5	758	2.0
17...	10:30	18.0	125	6.5	19.0	758	0
AUG							
12...	09:45	3.00	82	6.9	29.5	759	8.7
12...	10:00	10.0	85	6.7	27.0	759	1.5
12...	10:15	18.0	180	6.4	18.5	759	0
SEP							
04...	09:30	3.00	72	6.5	28.0	759	7.5
04...	09:45	10.0	90	6.3	27.0	759	3.6
04...	10:00	18.0	98	6.3	22.5	759	0



## JAMES RIVER BASIN

02042734 DIASCUND CREEK RESERVOIR OFF TIMBER SWAMP, NEAR WALKERS, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
OCT						
17...	79	<0.10	0.02	--	0.03	<0.01
17...	40	<0.10	0.02	--	0.02	0.01
NOV						
07...	66	<0.10	0.17	--	0.02	<0.01
07...	64	<0.10	0.14	--	0.02	<0.01
DEC						
11...	91	<0.10	0.12	--	0.02	0.02
11...	88	<0.10	0.10	--	0.01	<0.01
FEB						
28...	104	--	--	1.3	0.04	--
28...	101	--	--	0.8	0.047	--
28...	99	--	--	0.8	0.04	--
APR						
23...	112	<0.01	<0.01	0.8	0.03	0.01
23...	78	<0.01	0.08	0.9	0.022	0.005
23...	27	<0.01	0.15	0.8	0.02	0.005
MAY						
14...	106	0.015	<0.01	0.3	0.028	0.014
14...	66	0.027	0.15	0.5	0.026	0.015
14...	0	<0.01	0.62	0.7	0.022	0.016
JUN						
20...	111	<0.01	<0.01	0.8	0.027	0.014
20...	81	<0.01	0.22	0.7	0.024	0.005
20...	0	0.016	0.75	0.6	0.032	0.003
JUL						
17...	101	0.018	0.13	0.7	0.033	0.009
17...	25	0.013	0.20	0.5	0.031	0.011
17...	0	<0.01	0.81	0.6	0.029	0.008
AUG						
12...	115	0.018	<0.01	0.6	0.032	0.03
12...	19	<0.01	0.02	0.6	0.035	0.018
12...	0	0.026	0.89	2.2	0.043	0.023
SEP						
04...	96	0.061	0.03	0.5	0.029	0.009
04...	45	0.047	0.04	0.6	0.025	0.003
04...	0	<0.01	0.70	0.8	0.031	0.002

## JAMES RIVER BASIN

225

02042746 DIASCUND CREEK RESERVOIR OFF PUMP STATION, NEAR WALKERS, VA

LOCATION.--Lat 37°25'51", long 76°53'38", New Kent County, Hydrologic Unit 02080206, in Diascund Creek Reservoir  
0.1 mi northwest of city of Newport News pumping station, 0.4 mi east of bridge on State Highway 603, and  
2.8 mi east of Walkers.

PERIOD OF RECORD.--Water years 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L CAC03)
OCT											
17...	10:15	3.00	82	7.1	19.0	15	762	7.9	85	32	3
17...	10:30	18.0	81	7.0	17.5	20	762	4.2	44	32	2
NOV											
07...	09:15	3.00	83	6.8	16.0	10	765	6.2	63	31	4
07...	09:35	18.0	85	6.7	16.0	12	765	6.1	62	31	3
DEC											
11...	11:30	3.00	81	6.9	7.0	10	758	11.6	96	28	3
11...	11:45	18.0	80	6.9	7.0	5	758	10.8	89	28	3
FEB											
28...	11:30	3.00	85	6.8	8.0	--	767	12.2	102	--	--
28...	11:45	10.0	83	6.9	8.0	--	767	11.8	99	--	--
28...	12:00	18.0	80	6.8	8.0	--	767	11.6	97	--	--
APR											
23...	09:55	3.00	80	6.5	24.5	--	757	9.5	115	--	--
23...	10:00	10.0	82	6.6	19.0	--	757	7.8	85	--	--
23...	10:10	18.0	90	6.3	14.5	--	757	4.7	46	--	--
MAY											
14...	11:00	3.00	87	6.6	27.5	--	756	7.9	101	--	--
14...	11:15	10.0	95	6.5	22.5	--	756	6.6	77	--	--
14...	11:25	18.0	90	6.3	15.0	--	756	0	0	--	--
JUN											
20...	10:00	3.00	81	6.8	27.5	--	755	7.5	96	--	--
20...	10:15	10.0	86	6.6	27.0	--	755	7.6	96	--	--
20...	10:30	18.0	130	6.4	19.0	--	755	0	0	--	--
JUL											
17...	10:45	3.00	83	7.2	30.0	--	758	7.8	104	--	--
17...	11:00	10.0	95	6.9	29.0	--	758	5.3	69	--	--
17...	11:15	18.0	189	6.8	19.0	--	758	0	0	--	--
AUG											
12...	10:30	3.00	85	6.9	29.5	--	759	8.8	116	--	--
12...	10:45	10.0	85	7.0	21.0	--	759	0.6	7	--	--
12...	11:00	18.0	195	6.6	19.5	--	759	0	0	--	--
SEP											
04...	10:15	3.00	77	6.6	28.0	--	759	7.8	100	--	--
04...	10:30	10.0	88	6.5	27.0	--	759	4.1	52	--	--
04...	10:45	18.0	147	6.4	22.5	--	759	0	0	--	--

## JAMES RIVER BASIN

02042746 DIASCUND CREEK RESERVOIR OFF PUMP STATION, NEAR WALKERS, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
OCT											
17...	11	0.98	2.8	1.1	29	2.0	4.8	<0.1	3.1	44	<0.10
17...	11	1.0	2.8	1.1	30	2.2	4.7	<0.1	3.4	45	<0.10
NOV											
07...	11	0.96	2.9	1.1	27	3.1	4.9	<0.1	3.1	44	<0.10
07...	11	0.91	3.0	1.0	28	2.6	4.8	<0.1	3.0	44	<0.10
DEC											
11...	9.8	0.9	3.0	1.0	25	3.1	5.1	<0.1	2.9	41	<0.10
11...	9.8	0.93	3.0	1.0	25	3.0	5.2	<0.1	2.9	41	0.11
FEB											
28...	--	--	--	--	--	--	--	--	3.8	--	--
28...	--	--	--	--	--	--	--	--	3.8	--	--
28...	--	--	--	--	--	--	--	--	3.8	--	--
APR											
23...	--	--	--	--	20	--	7.7	--	2.6	--	<0.01
23...	--	--	--	--	20	--	8.3	--	2.9	--	0.034
23...	--	--	--	--	21	--	7.5	--	3.3	--	<0.01
MAY											
14...	--	--	--	--	21	--	8.1	--	1.7	--	0.027
14...	--	--	--	--	23	--	8.4	--	2.3	--	0.036
14...	--	--	--	--	28	--	8.6	--	4.0	--	<0.01
JUN											
20...	--	--	--	--	24	--	7.4	--	2.6	--	<0.01
20...	--	--	--	--	25	--	7.7	--	2.8	--	<0.01
20...	--	--	--	--	38	--	9.0	--	5.1	--	<0.10
JUL											
17...	--	--	--	--	26	--	7.5	--	3.1	--	0.015
17...	--	--	--	--	25	--	7.6	--	3.3	--	<0.01
17...	--	--	--	--	47	--	9.8	--	6.8	--	0.07
AUG											
12...	--	--	--	--	26	--	7.4	--	3.4	--	0.022
12...	--	--	--	--	21	--	7.4	--	3.4	--	0.04
12...	--	--	--	--	53	--	9.9	--	6.9	--	0.026
SEP											
04...	--	--	--	--	25	--	7.5	--	3.4	--	0.057
04...	--	--	--	--	26	--	7.6	--	3.5	--	0.066
04...	--	--	--	--	44	--	9.3	--	6.6	--	<0.01

## JAMES RIVER BASIN

227

02042746 DIASCUND CREEK RESERVOIR OFF PUMP STATION, NEAR WALKERS, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT										
17...	<0.01	0.8	0.02	<0.01	<0.01	--	490	--	1	7.8
17...	0.09	1.0	0.02	<0.01	<0.01	--	530	--	59	7.2
NOV										
07...	0.16	0.8	0.03	0.03	<0.01	--	610	--	150	7.1
07...	0.15	0.8	0.03	0.01	<0.01	--	180	--	99	7.5
DEC										
11...	0.19	0.6	0.02	0.01	0.01	--	150	--	4	6.8
11...	0.13	0.6	0.01	<0.01	<0.01	--	130	--	4	--
FEB										
28...	--	0.7	0.036	0.019	--	530	140	50	10	6.9
28...	--	1.7	0.042	0.016	--	510	130	50	9	6.5
28...	--	0.6	0.032	0.022	--	580	150	50	10	6.5
APR										
23...	<0.01	0.9	0.046	0.016	0.013	500	210	40	5	7.7
23...	0.02	0.7	0.027	0.022	0.026	510	210	40	4	7.1
23...	0.16	0.8	0.031	0.009	<0.001	650	200	160	120	6.9
MAY										
14...	0.02	0.3	0.026	0.02	0.017	340	93	110	28	7.5
14...	0.09	0.6	0.024	0.012	0.012	520	180	180	84	7.6
14...	0.41	0.7	0.023	0.025	0.023	2200	2000	1600	1400	7.5
JUN										
20...	<0.01	0.5	0.023	0.016	<0.001	270	65	130	38	8.5
20...	<0.01	0.5	0.028	0.017	0.002	490	86	270	120	9.9
20...	0.67	1.0	0.028	0.014	0.01	8500	8300	2300	2200	14
JUL										
17...	0.13	0.7	0.029	0.015	0.005	210	40	80	4	10
17...	<0.01	0.5	0.028	0.022	0.002	350	73	210	110	10
17...	0.80	1.7	0.029	0.023	0.008	18000	17000	2900	2800	15
AUG										
12...	<0.01	0.7	0.034	0.018	0.011	410	24	150	13	9.0
12...	<0.01	0.6	0.038	0.031	0.031	520	29	90	4	8.6
12...	0.78	1.7	0.048	0.025	0.019	18000	16000	2900	2800	14
SEP										
04...	0.03	0.6	0.025	0.017	0.005	290	75	150	66	10
04...	0.04	0.6	0.022	0.01	0.01	450	120	190	39	7.1
04...	0.68	1.4	0.024	0.015	0.008	18000	15000	2600	2300	14



## JAMES RIVER BASIN

0204275415 LITTLE CREEK RESERVOIR INFALL NEAR NORGE, VA

LOCATION.--Lat 37°22'17", long 76°49'06", James City County, Hydrologic Unit 02080206, in north-northeastern arm of Little Creek Reservoir, 0.8 mi northeast of city of Newport News pumping station, and 2.7 mi west of Norge.

PERIOD OF RECORD.--July 1983 to December 1984 (discontinued).

## WATER QUALITY DATA, OCTOBER TO DECEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
OCT 18...	10:05	1.00	112	6.8	18.5	759	9.2	99	<0.10	<0.01	0.02	<0.01
NOV 08...	10:00	1.00	108	6.7	15.0	766	8.7	86	<0.10	<0.01	0.05	<0.01
DEC 12...	10:15	1.00	112	6.6	8.0	755	9.6	82	<0.10	0.16	0.02	<0.01

## JAMES RIVER BASIN

229

0204275420 LITTLE CREEK RESERVOIR (NORTH) NEAR NORGE, VA

LOCATION.--Lat 37°22'13", long 76°49'42", James City County, Hydrologic Unit 02080206, in northern arm of Little Creek Reservoir, 0.6 mi north of city of Newport News pumping station, 1.5 mi south of Toano, and 3.3 mi west of Norge.

PERIOD OF RECORD.--August 1983 to December 1984 (discontinued).

## WATER QUALITY DATA, OCTOBER TO DECEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
OCT												
18...	09:35	3.00	105	6.8	19.5	759	9.6	105	<0.10	0.02	<0.01	<0.01
18...	09:40	10.0	105	7.0	18.5	759	9.2	99	<0.10	<0.01	<0.01	<0.01
18...	09:45	20.0	95	7.0	18.0	759	7.3	77	<0.10	<0.01	<0.01	<0.01
NOV												
08...	09:25	3.00	105	6.7	16.0	766	6.4	64	<0.10	0.32	<0.01	<0.01
08...	09:30	10.0	108	6.8	16.0	766	6.4	64	<0.10	0.12	<0.01	<0.01
08...	09:35	20.0	108	6.6	15.5	766	6.3	63	<0.10	0.02	<0.01	<0.01
DEC												
12...	09:35	3.00	105	6.7	8.5	755	9.4	81	<0.10	0.19	<0.01	<0.01
12...	09:45	10.0	115	6.6	8.5	755	9.2	79	<0.10	0.64	<0.01	<0.01
12...	09:50	20.0	115	6.4	8.5	755	9.0	78	<0.10	0.17	<0.01	<0.01

## JAMES RIVER BASIN

0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA

LOCATION.--Lat 37°21'43", long 76°49'42", James City County, Hydrologic Unit 02080206, near city of Newport News pumping station in north-central arm of Little Creek Reservoir, 1.8 mi south of Toano, and 3.3 mi west of Norge.

PERIOD OF RECORD.--Water years 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT											
18...	08:45	3.00	100	7.3	19.0	--	759	9.3	101	--	--
18...	09:00	10.0	100	7.2	18.5	10	759	8.9	95	30	6
18...	09:10	20.0	108	7.3	18.0	--	759	7.0	74	--	--
18...	09:15	30.0	155	6.4	13.5	--	759	0	--	--	--
18...	09:20	40.0	170	6.3	12.0	240	759	0	--	34	--
NOV											
08...	08:30	3.00	105	6.9	16.0	--	766	6.5	66	--	--
08...	08:35	10.0	108	6.9	16.0	10	766	6.5	66	29	5
08...	08:45	20.0	110	6.9	16.0	--	766	6.4	64	--	--
08...	09:00	30.0	138	6.6	14.0	--	766	0	--	--	--
08...	09:10	40.0	168	6.6	12.0	280	766	0	--	34	1
DEC											
12...	09:00	3.00	120	6.5	8.5	--	755	9.0	78	--	--
12...	09:05	10.0	110	6.8	8.5	10	755	9.0	78	30	5
12...	09:10	20.0	125	6.6	8.5	--	755	8.8	76	--	--
12...	09:15	30.0	120	6.8	8.5	--	755	8.8	76	--	--
12...	09:20	40.0	120	6.8	8.0	15	755	8.8	75	30	5
MAR											
01...	10:15	3.00	105	6.9	6.5	--	761	13.7	112	--	--
01...	10:30	10.0	105	6.5	6.5	--	761	13.6	111	--	--
01...	10:45	20.0	105	6.7	6.0	--	761	13.4	108	--	--
01...	11:00	30.0	105	6.8	5.0	--	761	13.0	102	--	--
01...	11:15	40.0	105	7.0	5.0	--	761	12.7	100	--	--
APR											
23...	11:30	3.00	100	6.8	23.5	--	757	9.3	110	--	--
23...	11:45	10.0	100	6.8	18.0	--	757	10.4	111	--	--
23...	11:50	20.0	125	6.5	12.5	--	757	9.1	86	--	--
23...	12:00	30.0	120	6.8	10.0	--	757	8.4	75	--	--
23...	12:05	40.0	130	7.0	10.0	--	757	7.9	70	--	--
MAY											
14...	12:30	3.00	110	6.6	27.5	--	756	8.2	105	--	--
14...	12:35	10.0	120	6.7	23.0	--	756	8.6	101	--	--
14...	12:45	20.0	130	6.7	13.0	--	756	7.7	74	--	--
14...	12:50	30.0	130	6.1	10.5	--	756	4.7	42	--	--
14...	13:00	40.0	130	6.1	10.0	--	756	3.2	29	--	--
JUN											
20...	11:30	3.00	115	6.8	28.0	--	755	7.6	98	--	--
20...	11:45	10.0	125	6.7	27.5	--	755	7.5	96	--	--
20...	12:00	20.0	115	6.8	16.0	--	755	7.6	78	--	--
20...	12:15	30.0	140	6.8	10.5	--	755	1.0	9	--	--
20...	12:30	40.0	153	6.0	9.0	--	755	0	--	--	--
JUL											
17...	12:00	3.00	110	6.9	30.0	--	758	7.8	104	--	--
17...	12:15	10.0	115	6.9	29.5	--	758	7.9	104	--	--
17...	12:30	20.0	120	6.9	17.5	--	758	7.4	78	--	--
17...	12:45	30.0	156	6.6	10.0	--	758	0	--	--	--
17...	13:00	40.0	145	6.6	8.5	--	758	0	--	--	--
AUG											
12...	12:00	3.00	119	7.1	29.5	--	759	11.7	154	--	--
12...	12:15	10.0	115	6.9	29.0	--	759	11.7	153	--	--
12...	12:30	20.0	153	6.7	22.0	--	759	5.9	68	--	--
12...	12:45	30.0	160	6.4	11.0	--	759	0	--	--	--
12...	13:00	40.0	165	6.5	10.0	--	759	0	--	--	--
SEP											
04...	11:30	3.00	101	6.6	28.5	--	759	7.5	97	--	--
04...	11:45	10.0	100	6.9	28.0	--	759	7.6	98	--	--
04...	12:00	20.0	101	6.8	25.0	--	759	5.1	62	--	--
04...	12:15	30.0	119	6.4	12.0	--	759	0	--	--	--
04...	12:30	40.0	148	6.4	9.5	--	759	0	--	--	--

## JAMES RIVER BASIN

231

0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
OCT											
18...	--	--	--	--	--	--	--	--	--	--	<0.10
18...	9.4	1.6	6.5	1.5	24	6.8	11	0.1	3.1	55	<0.10
18...	--	--	--	--	--	--	--	--	--	--	<0.10
18...	--	--	--	--	--	--	--	--	--	--	<0.10
18...	11	1.7	6.6	1.9	36	5.4	13	0.1	4.5	82	<0.10
NOV											
08...	--	--	--	--	--	--	--	--	--	--	<0.10
08...	8.9	1.7	7.6	1.5	24	7.1	12	<0.1	3.5	57	<0.10
08...	--	--	--	--	--	--	--	--	--	--	<0.10
08...	--	--	--	--	--	--	--	--	--	--	<0.10
08...	11	1.7	7.0	2.0	34	6.3	13	<0.1	4.5	83	<0.10
DEC											
12...	--	--	--	--	--	--	--	--	--	--	<0.10
12...	9.3	1.6	7.3	1.6	25	7.0	12	<0.1	3.6	59	<0.10
12...	--	--	--	--	--	--	--	--	--	--	<0.10
12...	--	--	--	--	--	--	--	--	--	--	<0.10
12...	9.4	1.6	7.3	1.6	25	6.9	11	<0.1	3.5	57	<0.10
MAR											
01...	--	--	--	--	--	--	--	--	3.1	--	--
01...	--	--	--	--	--	--	--	--	3.0	--	--
01...	--	--	--	--	--	--	--	--	3.1	--	--
01...	--	--	--	--	--	--	--	--	3.2	--	--
01...	--	--	--	--	--	--	--	--	3.1	--	--
APR											
23...	--	--	--	--	--	--	--	--	2.2	--	0.05
23...	--	--	--	--	24	--	11	--	2.3	--	0.049
23...	--	--	--	--	--	--	--	--	2.7	--	0.10
23...	--	--	--	--	--	--	--	--	2.9	--	0.165
23...	--	--	--	--	24	--	12	--	2.9	--	0.091
MAY											
14...	--	--	--	--	--	--	--	--	1.6	--	0.04
14...	--	--	--	--	25	--	11	--	1.6	--	0.052
14...	--	--	--	--	--	--	--	--	2.5	--	0.122
14...	--	--	--	--	--	--	--	--	3.0	--	0.112
14...	--	--	--	--	26	--	10	--	3.2	--	0.078
JUN											
20...	--	--	--	--	--	--	--	--	0.4	--	<0.01
20...	--	--	--	--	25	--	11	--	0.4	--	<0.01
20...	--	--	--	--	--	--	--	--	1.6	--	0.073
20...	--	--	--	--	--	--	--	--	3.1	--	0.022
20...	--	--	--	--	29	--	9.7	--	3.3	--	<0.01
JUL											
17...	--	--	--	--	--	--	--	--	0.3	--	0.052
17...	--	--	--	--	26	--	12	--	0.3	--	<0.01
17...	--	--	--	--	--	--	--	--	1.1	--	<0.01
17...	--	--	--	--	--	--	--	--	3.3	--	<0.01
17...	--	--	--	--	29	--	12	--	3.5	--	0.127
AUG											
12...	--	--	--	--	--	--	--	--	0.4	--	0.03
12...	--	--	--	--	25	--	12	--	0.4	--	0.017
12...	--	--	--	--	--	--	--	--	1.1	--	0.021
12...	--	--	--	--	--	--	--	--	3.5	--	0.017
12...	--	--	--	--	32	--	13	--	4.0	--	0.021
SEP											
04...	--	--	--	--	--	--	--	--	0.5	--	0.044
04...	--	--	--	--	25	--	12	--	0.5	--	0.106
04...	--	--	--	--	--	--	--	--	0.7	--	0.063
04...	--	--	--	--	--	--	--	--	3.3	--	0.055
04...	--	--	--	--	35	--	12	--	4.2	--	0.084



## JAMES RIVER BASIN

0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT										
18...	0.01	1.3	<0.01	<0.01	<0.01	--	120	--	80	--
18...	<0.01	0.7	<0.01	<0.01	<0.01	--	110	--	64	--
18...	<0.01	0.8	<0.01	<0.01	<0.01	--	150	--	60	7.4
18...	0.72	1.1	<0.01	<0.01	<0.01	--	9900	--	1600	--
18...	0.97	1.6	<0.01	<0.01	<0.01	--	14000	--	1300	6.9
NOV										
08...	0.06	0.9	0.02	<0.01	<0.01	--	140	--	150	--
08...	0.05	0.8	0.01	<0.01	<0.01	--	170	--	140	--
08...	0.07	0.5	0.01	<0.01	<0.01	--	80	--	140	--
08...	0.47	1.4	0.02	<0.01	<0.01	--	4100	--	1400	--
08...	1.00	1.7	0.03	0.01	0.01	--	14000	--	1300	8.4
DEC										
12...	0.17	0.7	<0.01	<0.01	<0.01	--	600	--	280	--
12...	0.19	0.5	<0.01	<0.01	<0.01	--	610	--	260	6.0
12...	0.19	1.1	<0.01	<0.01	<0.01	--	520	--	280	--
12...	0.17	0.5	<0.01	<0.01	<0.01	--	580	--	270	--
12...	0.19	0.5	<0.01	<0.01	<0.01	--	580	--	250	6.0
MAR										
01...	--	0.7	0.018	0.012	--	--	300	--	55	--
01...	--	0.9	0.02	0.003	--	510	280	90	55	6.1
01...	--	0.5	0.015	0.01	--	--	280	--	55	--
01...	--	0.5	0.02	0.011	--	--	310	--	62	--
01...	--	0.4	0.017	0.006	--	550	320	100	63	5.9
APR										
23...	0.01	0.9	0.01	0.01	<0.001	--	31	--	14	--
23...	<0.01	0.5	0.021	0.012	0.001	330	35	20	3	6.8
23...	<0.01	0.8	0.01	0.01	<0.001	--	45	--	2	--
23...	0.01	0.9	0.01	0.01	<0.001	--	46	--	15	--
23...	0.03	0.4	0.016	0.01	<0.001	430	59	90	22	6.2
MAY										
14...	<0.01	0.4	0.011	0.007	0.01	--	35	--	75	--
14...	0.03	0.4	0.011	0.01	0.008	100	29	10	13	6.5
14...	0.04	0.5	0.018	0.008	0.01	--	24	--	17	--
14...	0.15	0.6	0.026	0.024	0.024	--	37	--	170	--
14...	0.20	0.4	0.02	0.011	0.014	550	64	460	470	6.1
JUN										
20...	0.05	0.5	0.011	0.005	<0.001	--	74	--	87	--
20...	0.06	0.4	0.015	0.012	0.009	80	22	10	12	6.6
20...	0.07	0.7	0.013	0.005	<0.001	--	20	--	73	--
20...	0.24	0.5	0.015	0.007	<0.001	--	120	--	610	--
20...	0.36	0.5	0.032	0.014	0.013	2100	1300	800	770	7.3
JUL										
17...	0.05	0.4	0.02	0.012	0.003	--	35	--	44	--
17...	0.03	0.5	0.025	0.016	0.002	70	39	30	18	7.3
17...	0.05	0.5	0.02	0.016	0.002	--	12	--	42	--
17...	0.34	0.6	0.021	0.013	0.004	--	2600	--	840	--
17...	0.50	0.6	0.029	0.024	0.004	3900	3400	900	890	9.5
AUG										
12...	<0.01	0.5	0.03	0.029	0.013	--	32	--	28	--
12...	<0.01	0.4	0.019	0.023	0.006	520	33	30	9	7.2
12...	<0.01	0.5	0.02	0.009	0.004	--	26	--	160	--
12...	0.38	0.7	0.03	0.009	<0.001	--	3100	--	980	--
12...	0.65	1.2	0.025	0.01	0.004	7400	7100	1000	1000	7.6
SEP										
04...	<0.01	0.9	0.009	0.009	0.001	--	52	--	28	--
04...	0.05	0.3	0.02	0.008	0.003	140	38	20	3	7.4
04...	0.11	0.9	0.011	0.007	0.009	--	32	--	3	--
04...	0.35	0.5	0.021	0.007	0.009	--	1600	--	1300	--
04...	0.91	1.2	0.033	0.028	0.027	9500	9500	1100	1000	7.6

## JAMES RIVER BASIN

233

0204275440 LITTLE CREEK RESERVOIR (NORTHEAST) NEAR NORGE, VA

LOCATION.--Lat 37°21'42", long 76°48'42", James City County, Hydrologic Unit 02080206, 0.9 mi northeast of city of Newport News pumping station, 1.3 mi south of Toano, and 2.4 mi west of Norge.

PERIOD OF RECORD.--August 1983 to December 1984 (discontinued).

## WATER QUALITY DATA, OCTOBER TO DECEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
OCT												
18...	11:40	3.00	105	7.1	19.0	759	9.5	103	<0.10	0.03	<0.01	<0.01
18...	11:45	10.0	105	7.1	18.5	759	9.0	96	<0.10	0.02	0.01	0.01
18...	11:50	18.0	110	7.0	18.5	759	7.7	83	<0.10	<0.01	<0.01	<0.01
NOV												
08...	11:55	3.00	102	7.0	16.5	766	7.0	71	<0.10	<0.01	<0.01	<0.01
08...	12:00	10.0	106	7.0	16.5	766	6.9	70	<0.10	<0.01	<0.01	<0.01
08...	12:05	18.0	105	7.0	16.0	766	6.9	70	<0.10	<0.01	<0.01	<0.01
DEC												
12...	11:45	3.00	105	6.6	9.0	755	9.9	86	<0.10	0.15	<0.01	<0.01
12...	11:50	10.0	105	6.3	8.5	755	9.6	83	<0.10	0.16	<0.01	<0.01
12...	11:55	18.0	105	6.6	8.5	755	9.5	82	<0.10	0.19	<0.01	<0.01

## JAMES RIVER BASIN

0204275470 LITTLE CREEK RESERVOIR (SOUTH CENTRAL) NEAR NORGE, VA

LOCATION.--Lat 37°21'17", long 76°50'27", James City County, Hydrologic Unit 02080206, 0.3 mi north of Little Creek Reservoir dam, 0.9 mi southwest of city of Newport News pumping station, 2.7 mi southwest of Toano, and 4.0 mi west of Norge.

PERIOD OF RECORD.--Water years 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT							
18...	10:30	3.00	100	6.9	19.5	759	9.4
18...	10:35	10.0	105	7.1	19.5	759	9.3
18...	10:40	20.0	110	6.9	18.0	759	5.4
18...	10:45	35.0	145	6.7	12.0	759	0
18...	10:50	45.5	160	6.7	12.0	759	0
NOV							
08...	10:25	3.00	102	6.9	16.5	766	7.1
08...	10:30	10.0	112	6.9	16.5	766	7.0
08...	10:35	20.0	103	6.9	16.5	766	6.9
08...	10:45	35.0	119	6.8	12.5	766	0
08...	10:50	50.0	169	6.6	11.5	766	0
DEC							
12...	10:30	3.00	110	6.7	9.0	755	8.7
12...	10:35	10.0	110	6.7	9.0	755	8.7
12...	10:40	20.0	110	6.6	9.0	755	8.6
12...	10:45	35.0	110	6.4	8.5	755	8.6
12...	10:50	50.0	110	6.7	8.5	755	8.6
MAR							
01...	11:30	3.00	100	7.0	6.0	761	13.4
01...	11:45	10.0	105	7.1	6.0	761	13.4
01...	12:00	20.0	105	7.0	5.5	761	13.2
01...	12:15	35.0	105	7.0	5.0	761	12.8
01...	12:30	50.0	105	7.0	5.0	761	12.8
APR							
23...	12:30	3.00	110	6.4	23.5	757	9.3
23...	12:35	10.0	103	6.6	18.0	757	10.1
23...	12:40	20.0	108	6.6	12.5	757	9.5
23...	12:45	35.0	140	6.5	10.0	757	8.2
23...	12:50	50.0	138	6.4	9.5	757	7.7
MAY							
14...	13:20	3.00	120	6.4	27.0	756	8.3
14...	13:25	10.0	120	6.6	27.0	756	8.3
14...	13:30	20.0	121	6.6	14.0	756	8.7
14...	13:35	35.0	120	6.5	10.0	756	5.4
14...	13:40	50.0	120	6.5	10.0	756	4.1
JUN							
20...	13:00	3.00	110	6.7	27.5	755	7.8
20...	13:15	10.0	110	7.0	27.0	755	7.6
20...	13:30	20.0	113	6.5	16.0	755	9.3
20...	13:45	35.0	120	6.6	10.0	755	2.5
20...	14:00	50.0	142	6.5	8.5	755	0
JUL							
17...	13:15	3.00	107	7.0	30.0	758	7.7
17...	13:30	10.0	112	7.1	30.0	758	8.0
17...	13:45	20.0	115	7.1	19.0	758	10.3
17...	14:00	35.0	120	6.8	9.5	758	0.5
17...	14:45	50.0	138	6.7	8.5	758	0
AUG							
12...	13:15	3.00	110	7.2	29.5	759	11.5
12...	13:30	10.0	110	6.9	29.0	759	11.3
12...	13:45	20.0	112	6.6	23.0	759	8.8
12...	14:00	35.0	130	6.6	9.5	759	0
12...	14:15	50.0	140	6.5	9.0	759	0
SEP							
04...	13:00	3.00	98	6.7	28.5	759	7.6
04...	13:15	10.0	99	6.5	28.0	759	7.6
04...	13:30	20.0	102	6.7	25.0	759	5.0
04...	13:45	35.0	120	6.5	10.0	759	0
04...	14:00	50.0	134	6.5	9.0	759	0

0204275470 LITTLE CREEK RESERVOIR (SOUTH CENTRAL) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
OCT						
18...	103	<0.10	<0.01	--	<0.01	<0.01
18...	102	<0.10	0.04	--	<0.01	<0.01
18...	57	<0.10	0.08	--	<0.01	<0.01
18...	0	<0.10	0.66	--	<0.01	<0.01
18...	0	<0.10	0.78	--	<0.01	<0.01
NOV						
08...	72	<0.10	0.04	--	<0.01	<0.01
08...	71	<0.10	0.26	--	<0.01	<0.01
08...	70	<0.10	0.04	--	<0.01	<0.01
08...	0	<0.10	0.29	--	<0.01	<0.01
08...	0	<0.10	0.87	--	0.02	<0.01
DEC						
12...	76	<0.10	0.20	--	<0.01	<0.01
12...	76	<0.10	0.23	--	<0.01	<0.01
12...	75	<0.10	0.22	--	<0.01	<0.01
12...	74	<0.10	0.16	--	<0.01	<0.01
12...	74	<0.10	0.16	--	<0.01	<0.01
MAR						
01...	108	--	--	1.0	0.017	--
01...	108	--	--	1.2	0.022	--
01...	105	--	--	0.7	0.014	--
01...	100	--	--	0.9	0.014	--
01...	100	--	--	0.5	0.017	--
APR						
23...	110	0.10	<0.01	0.9	0.01	<0.001
23...	107	0.056	<0.01	0.6	0.01	0.001
23...	90	0.151	<0.01	0.8	0.01	0.002
23...	73	0.131	0.04	0.5	0.01	<0.001
23...	68	0.138	0.08	0.6	0.053	0.048
MAY						
14...	105	0.065	<0.01	0.2	0.027	0.024
14...	105	0.063	0.01	0.4	0.03	0.007
14...	85	0.099	0.01	0.5	0.016	0.015
14...	48	0.119	0.08	0.4	0.037	0.024
14...	37	0.084	0.15	0.7	0.02	0.008
JUN						
20...	100	<0.01	0.05	0.6	0.015	<0.001
20...	96	0.029	0.06	0.3	0.012	<0.001
20...	95	0.039	0.05	0.5	0.021	<0.001
20...	22	0.05	0.22	0.4	0.012	<0.001
20...	0	0.041	0.30	0.6	0.012	<0.001
JUL						
17...	103	0.052	<0.01	0.3	0.019	0.005
17...	107	0.023	0.01	0.3	0.018	<0.001
17...	112	<0.01	0.22	0.4	0.02	<0.001
17...	4	0.059	0.30	0.5	0.022	0.005
17...	0	0.03	0.45	0.7	0.025	0.004
AUG						
12...	152	0.027	<0.01	0.3	0.011	0.004
12...	148	0.03	<0.01	0.3	0.024	<0.001
12...	103	0.055	0.03	0.5	0.023	<0.001
12...	0	<0.01	0.31	0.6	0.025	0.002
12...	0	0.185	0.55	0.8	0.019	0.003
SEP						
04...	98	0.055	<0.01	0.6	0.013	0.004
04...	98	0.051	0.02	0.5	0.01	0.005
04...	61	<0.01	<0.01	0.5	0.011	0.008
04...	0	<0.01	0.33	1.0	0.015	0.006
04...	0	0.078	0.65	1.2	0.024	0.023



## JAMES RIVER BASIN

0204275490 LITTLE CREEK RESERVOIR (WEST) NEAR NORGE, VA

LOCATION.--Lat 37°21'21", long 76°51'02", James City County, Hydrologic Unit 02080206, in western arm of Little Creek Reservoir, 0.6 mi northwest of reservoir dam, 1.4 mi west of city of Newport News pumping station, 3.0 mi south of Toano, and 4.5 mi west of Norge.

PERIOD OF RECORD.--July 1983 to December 1984 (discontinued).

## WATER QUALITY DATA, OCTOBER TO DECEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
OCT												
18...	11:00	3.00	100	7.0	20.0	759	9.4	104	<0.10	0.08	<0.01	<0.01
18...	11:10	10.0	105	6.9	19.0	759	9.1	99	<0.10	<0.01	<0.01	<0.01
18...	11:20	20.0	105	6.6	18.5	759	6.0	64	<0.10	0.08	<0.01	<0.01
NOV												
08...	11:15	3.00	105	6.9	17.5	766	6.6	69	<0.10	<0.01	<0.01	<0.01
08...	11:20	10.0	100	6.9	17.0	766	6.4	66	<0.10	0.04	0.02	<0.01
08...	11:25	20.0	108	6.9	16.5	766	6.6	67	<0.10	0.26	<0.01	<0.01
DEC												
12...	11:20	10.0	110	6.5	8.5	755	8.5	73	<0.10	0.25	0.01	<0.01
12...	11:25	20.0	110	6.6	8.5	755	8.4	72	<0.10	0.21	<0.01	<0.01

## 02043500 CYPRESS SWAMP AT CYPRESS CHAPEL, VA

LOCATION (REVISED).--Lat 36°37'24", long 76°36'07", Suffolk City, Hydrologic Unit 03010205, near center of span on downstream side of bridge on State Highway 32, 0.5 mi downstream from Dragon Swamp, 0.8 mi northwest of Cypress Chapel, and 6.5 mi south of downtown Suffolk.

DRAINAGE AREA.--23.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1953 to September 1971, March 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 28.65 ft above National Geodetic Vertical Datum of 1929. October 1953 to September 1971, recording gage on right bank 30 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 14-16, 20-30. Records good except those for periods with ice effect, Jan. 14-16, 20-30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--25 years, 27.3 ft<sup>3</sup>/s, 15.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft<sup>3</sup>/s, Aug. 11, 1967, gage height, 6.85 ft; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	1130	257	4.47	July 11	1530	347	4.79
Feb. 13	1100	201	4.24	Sept. 27	2230	*551	*5.36

No flow many days during year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.21	.63	136	47	20	.00	.00	.00	.08	.00
2	.11	.00	.20	.57	247	52	16	.00	.00	.00	.10	.00
3	.38	.00	3.0	4.6	218	52	14	.03	.00	.00	.06	.00
4	.23	.00	7.9	44	134	42	11	.67	.00	.00	.02	.00
5	.04	.00	7.6	77	83	36	9.6	.92	13	.00	.00	.00
6	.00	.00	20	51	91	31	8.4	.27	95	.00	.00	.00
7	.00	.00	18	27	101	25	6.4	.06	63	.16	.00	.00
8	.00	.00	15	18	76	22	5.6	.03	10	.34	.00	.00
9	.00	.00	12	12	60	21	4.6	.01	1.6	.07	.00	.00
10	.00	.00	8.8	9.0	51	20	3.8	.00	.26	1.8	.00	.00
11	.00	.00	7.1	12	45	18	3.2	.00	.05	238	.00	.00
12	.00	.00	5.3	14	89	17	2.9	.00	.59	167	.00	.00
13	.00	.00	4.4	13	189	16	2.7	.00	9.4	27	.00	.00
14	.00	.00	3.7	9.4	121	14	2.5	.00	8.6	4.1	.00	.00
15	.00	.00	3.1	7.8	74	12	3.0	.00	.82	.73	.00	.00
16	.00	.00	2.5	6.2	57	11	4.0	.00	.44	.21	.00	.00
17	.00	.00	2.1	7.3	48	10	5.9	.00	.99	1.6	.00	.00
18	.00	.00	1.9	21	41	9.9	6.7	.00	.34	3.6	.00	.00
19	.00	.00	1.8	26	37	9.0	4.1	.00	.24	.97	.00	.00
20	.00	.00	1.7	20	34	7.7	2.4	.00	.09	.15	.00	.00
21	.00	.00	1.6	16	32	6.9	1.3	.00	.03	.04	.00	.00
22	.00	.00	1.5	14	28	17	.70	.00	.01	.02	.00	.00
23	.00	.00	1.3	12	27	79	.35	.00	.00	.04	.00	.00
24	.00	.00	1.3	11	26	79	.15	.00	.00	.04	.00	.00
25	.00	.00	1.2	10	24	92	.07	.00	.00	.10	.00	.00
26	.00	.00	.97	18	53	79	.05	.00	.00	.36	.00	.00
27	.00	.00	.82	15	89	52	.03	.00	.00	.24	.00	229
28	.00	.00	.77	9.0	66	41	.02	.00	.00	.19	.00	384
29	.00	.00	.74	8.5	---	34	.01	.00	.00	.16	.00	129
30	.00	.00	.72	8.2	---	29	.00	.00	.00	.46	.00	38
31	.00	---	.66	18	---	24	---	.00	---	.33	.00	---
TOTAL	.76	.00	137.89	520.20	2277	1005.5	139.48	1.99	204.46	447.71	.26	780.00
MEAN	.02	.00	4.45	16.8	81.3	32.4	4.65	.06	6.82	14.4	.01	26.0
MAX	.38	.00	20	77	247	92	20	.92	95	238	.10	384
MIN	.00	.00	.20	.57	24	6.9	.00	.00	.00	.00	.00	.00
CFSM	.00	.00	.19	.71	3.42	1.36	.20	.00	.29	.61	.00	1.09
IN.	.00	.00	.22	.81	3.56	1.57	.22	.00	.32	.70	.00	1.22
CAL YR 1984	TOTAL	8357.50	MEAN	22.8	MAX	394	MIN	.00	CFSM	.96	IN.	13.06
WTR YR 1985	TOTAL	5515.25	MEAN	15.1	MAX	384	MIN	.00	CFSM	.63	IN.	8.62

## GREAT DISMAL SWAMP BASIN

## 02043600 LAKE DRUMMOND IN GREAT DISMAL SWAMP, VA

LOCATION.--Lat 36°35'42", long 76°26'23", Chesapeake City, Hydrologic Unit 03010205, on right bank in outlet canal, 200 ft upstream from dam and gates, 0.5 mi downstream from Lake Drummond, 3.1 mi north of North Carolina State line, and 20 mi southwest of Norfolk.

PERIOD OF RECORD.--May 1926 to current year. Prior to October 1973, published as Lake Drummond in Dismal Swamp.

REVISED RECORDS.--WSP 1032: 1934-43.

GAGE.--Nonrecording gage. Datum of gage is 12.16 ft above National Geodetic Vertical Datum of 1929. Aug. 22, 1978, to Oct. 1, 1981, water-stage recorder at same site and datum.

REMARKS.--Mean daily gage heights are shown in table below.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 6.68 ft, Sept. 17, 1960; minimum, -0.67 ft, Nov. 3, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.20 ft, Mar. 29, Apr. 17, 20; minimum, 3.30 ft, Sept. 22.

GAGE HEIGHT (FEET), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.79	3.80	3.70	4.35	5.06	5.00	5.10	5.09	4.34	3.68	3.98	3.68
2	4.80	3.78	3.70	4.38	5.00	5.00	5.03	5.08	4.30	3.65	3.96	3.68
3	4.78	3.75	3.82	4.45	5.08	5.00	5.06	5.17	4.22	3.58	3.96	3.66
4	4.70	3.68	3.82	4.57	5.00	5.00	5.07	5.08	4.20	3.60	3.94	3.62
5	4.68	3.70	3.85	4.64	4.99	5.00	5.18	5.06	4.26	3.52	3.90	3.60
6	4.68	3.66	3.94	4.68	5.00	5.00	5.18	5.06	4.38	3.56	3.90	3.60
7	4.60	3.62	3.96	4.74	4.98	5.00	5.09	5.06	4.40	3.62	3.90	3.58
8	4.60	3.60	3.96	4.82	4.98	5.00	5.16	5.05	4.40	3.62	3.90	3.56
9	4.52	3.60	3.97	4.86	4.98	5.00	5.16	5.00	4.38	3.60	3.90	3.54
10	4.52	3.60	3.99	4.88	4.94	5.00	5.18	4.94	4.38	3.58	3.90	3.53
11	4.49	3.59	4.04	4.94	4.91	5.06	5.18	4.94	4.30	3.72	3.84	3.52
12	4.48	3.65	4.06	5.06	5.00	5.08	5.18	4.92	4.32	3.72	3.80	3.50
13	4.40	3.60	4.06	5.06	5.02	5.10	5.14	4.94	4.38	3.76	3.80	3.48
14	4.37	3.59	4.10	5.08	5.00	5.14	5.18	4.92	4.37	3.80	3.80	3.46
15	4.36	3.59	4.11	5.10	5.00	5.14	5.18	4.90	4.25	3.82	3.80	3.45
16	4.29	3.58	4.18	5.12	5.00	5.14	5.18	4.86	4.24	3.84	3.80	3.45
17	4.24	3.58	4.18	5.14	4.98	5.15	5.20	4.82	4.24	3.80	3.80	3.38
18	4.22	3.56	4.18	5.14	5.00	5.09	5.18	4.81	4.20	3.87	3.78	3.36
19	4.21	3.58	4.19	5.14	4.98	5.00	5.19	4.94	4.20	3.90	3.80	3.35
20	4.13	3.61	4.20	5.14	4.99	5.08	5.20	4.64	4.12	3.90	3.82	3.34
21	4.16	3.63	4.22	5.15	4.99	5.09	5.17	4.62	4.10	3.89	3.82	3.36
22	4.12	3.62	4.25	5.10	4.98	5.05	5.18	4.61	4.03	3.86	3.79	3.30
23	4.08	3.58	4.25	5.00	4.98	5.14	5.10	4.60	3.98	3.90	3.79	3.32
24	4.02	3.59	4.25	4.94	4.99	5.00	5.18	4.60	3.95	3.90	3.77	3.40
25	4.01	3.59	4.30	4.96	4.98	5.00	5.14	4.60	3.90	3.90	3.77	3.40
26	3.98	3.60	4.30	4.96	5.05	5.02	5.13	4.60	3.87	3.94	3.78	3.40
27	3.90	3.60	4.30	4.94	4.95	5.09	5.16	4.52	3.80	3.94	3.76	4.10
28	3.89	3.60	4.30	4.96	5.00	5.13	5.10	4.50	3.77	3.96	3.76	3.90
29	3.88	3.70	4.35	4.98	---	5.20	5.09	4.48	3.74	3.98	3.74	3.92
30	3.82	3.68	4.35	4.96	---	5.10	5.10	4.39	3.70	3.96	3.74	3.92
31	3.80	---	4.35	4.96	---	5.10	---	4.38	---	3.98	3.74	---
MEAN	4.31	3.63	4.10	4.91	4.99	5.06	5.15	4.81	4.16	3.79	3.83	3.55
MAX	4.80	3.80	4.35	5.15	5.08	5.20	5.20	5.17	4.40	3.98	3.98	4.10
MIN	3.80	3.56	3.70	4.35	4.91	5.00	5.03	4.38	3.70	3.52	3.74	3.30
WTR YR 1985	MEAN	4.35	MAX	5.20	MIN	3.30						

## 02044000 NOTTOWAY RIVER NEAR BURKEVILLE, VA

LOCATION.--Lat 37°04'40", long 78°11'52", Lunenburg County, Hydrologic Unit 03010201, on right bank at downstream side of bridge on State Highway 723, 4.0 mi upstream from Modest Creek, 5.6 mi north of Victoria, and 7.5 mi south of Burkeville.

DRAINAGE AREA.--38.7 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1946 to current year.

REVISED RECORDS.--WSP 1383: 1946-47, 1949. WSP 1433: 1948. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 354.58 ft above National Geodetic Vertical Datum of 1929. Prior to July 4, 1951, nonrecording gage at same site and datum. Prior to Oct. 29, 1981, on left bank at downstream side of bridge at same datum.

REMARKS.--Estimated daily discharges: Oct. 8-22, Jan. 11, 12, 17, 21-30, Feb. 6, 7, 9-11, May 3, 13, 18, June 1, 2, 6-8, 12-14, 29, July 1, 13, 26, 29, and Aug. 2. Records good except those for periods of doubtful gage-height record, Oct. 8-22, May 3, 13, 18, June 1, 2, 6-8, 12-14, 29, July 1, 13, 26, 29, and Aug. 2, and periods with ice effect, Jan. 11, 12, 17, 21-30 and Feb. 6, 7, 9-11, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--39 years, 38.6 ft<sup>3</sup>/s, 13.54 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft<sup>3</sup>/s, Oct. 23, 1971, gage height, 22.33 ft, from rating curve extended above 3,200 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; no flow Aug. 29 to Oct. 14, 1954, Sept. 3-5, 12-15, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1930, 27.4 ft in August 1940, from U.S. Army Corps of Engineers floodmark.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	1700	*756	*10.38	No peak equal to or greater than base discharge.			

Minimum discharge, 0.54 ft<sup>3</sup>/s, Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	6.3	20	15	474	26	20	7.2	5.2	1.5	3.0	5.3
2	16	5.7	15	16	374	24	18	7.0	4.7	2.8	10	3.8
3	8.2	5.4	22	332	131	21	16	20	4.3	1.8	5.3	3.9
4	5.9	5.2	25	468	72	20	15	12	3.8	1.5	2.8	2.3
5	5.0	8.0	18	218	55	21	15	8.8	4.4	1.7	1.8	1.9
6	4.3	10	113	91	51	19	14	7.7	17	1.5	1.5	1.7
7	4.0	7.8	46	61	45	16	14	7.0	14	1.6	1.4	1.6
8	3.9	6.5	28	46	40	17	13	6.2	9.0	1.4	1.4	1.4
9	3.8	5.7	21	34	30	18	13	5.6	7.0	1.2	1.8	1.3
10	3.7	5.5	18	28	28	17	12	5.5	5.6	1.4	1.8	1.2
11	3.7	6.7	18	26	25	16	12	5.6	4.4	3.9	1.4	1.2
12	3.6	12	16	24	305	17	13	5.6	4.5	8.0	1.0	1.1
13	3.5	8.8	14	23	122	16	13	7.0	6.0	20	.90	1.0
14	3.4	6.9	13	21	68	16	13	6.2	4.5	5.3	.70	.95
15	3.4	6.3	12	20	48	15	14	5.0	3.1	3.0	.66	.95
16	3.5	6.1	12	18	39	15	15	4.4	3.3	1.8	.58	.95
17	3.6	6.1	12	17	34	15	14	5.0	8.3	1.5	.74	.86
18	3.7	5.7	12	23	30	14	12	7.5	6.2	1.2	26	.90
19	3.7	39	12	28	28	14	11	4.4	4.3	1.0	51	.82
20	3.8	40	12	26	26	14	11	3.9	3.0	.90	11	.82
21	3.8	18	12	20	23	14	10	4.3	2.3	.78	46	.82
22	4.5	13	19	19	23	16	9.7	16	1.8	.95	20	1.0
23	22	11	19	18	22	56	9.0	37	1.6	1.4	11	1.2
24	13	10	14	17	23	43	8.8	81	1.5	1.2	7.4	1.7
25	14	9.8	12	17	22	36	8.8	37	1.4	1.8	5.8	1.6
26	10	9.2	11	16	53	26	8.4	14	1.2	11	5.8	1.5
27	8.2	8.8	10	16	44	21	7.9	9.9	1.2	5.3	14	10
28	7.1	14	10	17	30	19	8.1	7.9	1.0	5.8	9.2	9.0
29	7.5	88	10	17	---	20	8.1	6.7	1.5	9.4	6.2	4.1
30	9.8	30	10	18	---	33	7.7	6.0	.95	5.8	7.2	2.5
31	7.3	---	12	72	---	24	---	5.6	---	3.9	7.5	---
TOTAL	223.9	415.5	598	1782	2265	659	364.5	367.0	137.05	110.33	264.88	67.37
MEAN	7.22	13.8	19.3	57.5	80.9	21.3	12.1	11.8	4.57	3.56	8.54	2.25
MAX	26	88	113	468	474	56	20	81	17	20	51	10
MIN	3.4	5.2	10	15	22	14	7.7	3.9	.95	.78	.58	.82
CFSM	.19	.36	.50	1.49	2.09	.55	.31	.30	.12	.09	.22	.06
IN.	.22	.40	.57	1.71	2.18	.63	.35	.35	.13	.11	.25	.06
CAL YR 1984	TOTAL	16558.8	MEAN	45.2	MAX	1000	MIN	2.3	CFSM	1.17	IN.	15.92
WTR YR 1985	TOTAL	7254.53	MEAN	19.9	MAX	474	MIN	.58	CFSM	.51	IN.	6.97



## CHOWAN RIVER BASIN

02044500 NOTTOWAY RIVER NEAR RAWLINGS, VA

LOCATION.--Lat 36°59'00", long 77°48'00", Brunswick County, Hydrologic Unit 03010201, on right bank at downstream side of bridge on State Highway 612 at Harpers Bridge, 0.1 mi upstream from Beaver Pond Creek, and 2.6 mi northwest of Rawlings.

DRAINAGE AREA.--309 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 184.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 22-30. Records good except those for period with ice effect, Jan. 22-30, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--35 years, 312 ft<sup>3</sup>/s, 13.71 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,900 ft<sup>3</sup>/s, Oct. 6, 1972, gage height, 23.25 ft, from rating curve extended above 16,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 0.40 ft<sup>3</sup>/s, Oct. 14, 15, 1954; minimum gage height, 1.83 ft, Oct. 15, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 20.8 ft, discharge, about 19,000 ft<sup>3</sup>/s, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 5	0700	3,210	8.38	Feb. 3	0200	*3,300	*8.51

Minimum discharge, 17 ft<sup>3</sup>/s, Sept. 20, 22, 23, gage height, 2.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	104	277	139	865	270	197	95	96	74	89	76
2	190	100	199	150	2530	248	179	99	87	76	97	66
3	183	95	214	746	2970	233	167	150	82	85	90	57
4	127	93	233	2290	1180	220	160	170	77	81	77	50
5	99	141	216	2910	585	219	157	155	80	70	64	44
6	86	177	339	1420	498	214	155	133	166	65	55	40
7	79	159	530	607	464	204	147	114	203	69	50	36
8	76	136	323	428	402	197	146	100	152	65	76	34
9	76	119	230	336	329	198	144	92	136	55	150	33
10	74	111	198	285	292	199	137	88	135	48	76	31
11	73	117	180	267	278	195	138	87	139	59	58	28
12	73	124	168	258	624	192	139	85	118	103	47	25
13	73	121	160	241	1490	180	143	82	122	255	41	24
14	72	115	153	226	936	173	143	87	105	200	38	24
15	71	107	147	216	515	173	149	89	88	123	34	22
16	72	102	143	198	407	172	162	82	82	83	30	20
17	73	99	140	195	349	170	208	100	85	65	32	19
18	75	96	140	218	316	170	170	167	90	53	126	18
19	77	122	143	231	291	162	153	131	87	46	341	18
20	79	222	142	235	274	160	142	104	75	41	299	18
21	78	249	140	213	257	158	136	87	67	37	305	19
22	78	184	145	200	244	164	128	83	61	34	286	17
23	87	150	150	185	237	205	119	97	57	32	202	18
24	115	135	148	180	234	293	113	425	52	39	143	24
25	132	127	142	175	234	300	115	708	48	54	107	33
26	129	122	134	175	295	257	112	327	42	82	95	35
27	121	117	129	178	374	223	108	206	38	123	113	39
28	111	129	128	179	324	204	104	152	35	223	90	125
29	106	300	127	180	---	195	104	123	41	184	79	113
30	108	406	125	190	---	193	100	112	64	135	68	81
31	109	---	131	235	---	200	---	103	---	104	70	---
TOTAL	3016	4379	5774	13686	17794	6341	4275	4633	2710	2763	3428	1187
MEAN	97.3	146	186	441	636	205	143	149	90.3	89.1	111	39.6
MAX	190	406	530	2910	2970	300	208	708	203	255	341	125
MIN	71	93	125	139	234	158	100	82	35	32	30	17
CFSM	.31	.47	.60	1.43	2.06	.66	.46	.48	.29	.29	.36	.13
IN.	.36	.53	.70	1.65	2.14	.76	.51	.56	.33	.33	.41	.14
CAL YR 1984	TOTAL	143179	MEAN	391	MAX	8150	MIN	53	CFSM	1.27	IN.	17.24
WTR YR 1985	TOTAL	69986	MEAN	192	MAX	2970	MIN	17	CFSM	.62	IN.	8.43

## 02045500 NOTTOWAY RIVER NEAR STONY CREEK, VA

LOCATION.--Lat 36°54'00", long 77°24'00", Sussex County, Hydrologic Unit 03010201, on left bank 15 ft downstream from upstream bridge on U.S. Highway 301, 1.8 mi upstream from Island Swamp, 3.3 mi south of town of Stony Creek, and 4.4 mi upstream from Stony Creek.

DRAINAGE AREA.--579 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1935(M). WSP 972: 1931(M), 1932, 1934-35, 1939. WSP 2104: Drainage area. WDR VA-74-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 58.42 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 11, 1934, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: May 18, 28, June 6, 24-30, July 1, 11-13, 20-26, Aug. 8, 9, and Sept. 10, 11, 19, 24, 25. Records good except those for periods of doubtful gage-height record, which are fair. Diurnal fluctuation at low flow caused by Baskerville Mill, 33 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years, 563 ft<sup>3</sup>/s, 13.20 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,200 ft<sup>3</sup>/s, Aug. 17, 1940, gage height, 23.66 ft, from rating curve extended above 13,000 ft<sup>3</sup>/s; minimum, 3.4 ft<sup>3</sup>/s, Aug. 15, 16, 1977; minimum gage height, 0.62 ft, Sept. 2, 5, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 5	2230	*4,860	*14.96	Feb. 4	0530	4,410	14.39

Minimum discharge, 17 ft<sup>3</sup>/s, Sept. 21-22, gage height, 2.31 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	122	564	181	1080	555	303	123	115	66	135	74
2	149	119	386	193	2900	486	294	117	107	76	124	85
3	238	113	379	621	4150	445	267	137	97	82	125	79
4	223	107	544	3440	4250	409	250	254	87	83	110	69
5	158	106	429	4690	1940	393	239	241	86	88	93	60
6	122	157	560	4660	1080	387	234	207	110	72	77	53
7	101	214	813	2330	934	359	225	170	199	62	65	47
8	90	191	765	940	813	342	215	143	227	62	62	43
9	84	163	498	690	692	342	213	124	169	64	95	39
10	82	140	368	556	601	342	209	115	146	60	155	35
11	79	129	313	488	556	333	204	108	139	56	91	32
12	77	156	280	469	1110	323	208	106	154	95	72	31
13	77	171	254	442	2480	317	209	102	150	150	58	31
14	77	155	238	408	2370	298	212	99	141	246	49	30
15	77	143	224	383	1270	290	214	98	124	206	42	28
16	78	130	214	349	882	284	224	98	106	127	38	23
17	77	123	206	327	735	277	275	95	96	87	36	21
18	79	116	204	375	652	276	349	110	95	63	62	20
19	82	123	207	433	599	268	282	171	102	47	324	20
20	87	179	216	425	554	257	234	144	96	44	535	18
21	90	299	214	342	507	254	208	119	84	42	419	18
22	93	307	204	358	472	260	191	105	72	39	447	19
23	94	228	209	393	449	309	176	116	63	34	360	45
24	97	184	211	380	434	409	167	175	55	34	251	25
25	126	163	209	369	425	574	158	765	48	73	180	21
26	147	152	198	365	562	515	152	754	44	90	142	29
27	144	145	186	352	779	417	143	406	42	135	124	372
28	135	146	178	330	687	365	139	240	40	176	134	509
29	128	252	177	322	---	328	134	181	39	358	115	249
30	121	548	176	334	---	313	129	143	52	243	95	167
31	122	---	174	371	---	304	---	128	---	172	83	---
TOTAL	3399	5281	9798	26316	33963	11031	6457	5894	3085	3232	4698	2292
MEAN	110	176	316	849	1213	356	215	190	103	104	152	76.4
MAX	238	548	813	4690	4250	574	349	765	227	358	535	509
MIN	65	106	174	181	425	254	129	95	39	34	36	18
CFSM	.19	.30	.55	1.47	2.09	.61	.37	.33	.18	.18	.26	.13
IN.	.22	.34	.63	1.69	2.18	.71	.41	.38	.20	.21	.30	.15
CAL YR 1984	TOTAL	275423	MEAN	753	MAX	10500	MIN	54	CFSM	1.30	IN.	17.70
WTR YR 1985	TOTAL	115446	MEAN	316	MAX	4690	MIN	18	CFSM	.55	IN.	7.42

## 02046000 STONY CREEK NEAR DINWIDDIE, VA

LOCATION.--Lat 37°04'01", long 77°36'10", Dinwiddie County, Hydrologic Unit 03010201, on right bank at upstream side of upstream bridge on U.S. Highway 1, 1.2 mi southwest of Dinwiddie, 1.7 mi downstream from Chamberlains Bed Creek, and 5.7 mi downstream from confluence of White Oak and Butterwood Creeks.

DRAINAGE AREA.--112 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1946 to current year. Published as "at Dinwiddie" September 1946 to September 1947 and October 1949 to September 1950.

REVISED RECORDS.--WSP 1303: 1947(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 129.94 ft above National Geodetic Vertical Datum of 1929. Prior to June 12, 1957, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Estimated daily discharges: Oct. 13-23, Jan. 16, 24-29, Feb. 6, 7, and Sept. 7-21. Records good except those for periods of doubtful gage-height record, Oct. 13-23 and Sept. 7-21, and periods with ice effect, Jan. 16, 24-29 and Feb. 6, 7, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--39 years, 113 ft<sup>3</sup>/s, 13.70 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,400 ft<sup>3</sup>/s, Oct. 6, 1972, gage height, 20.84 ft, from rating curve extended above 5,800 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; no flow for part of Oct. 13, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 4	1200	1,470	8.92	Feb. 2	1530	*1,580	*9.16

Minimum discharge, 0.29 ft<sup>3</sup>/s, July 25, gage height, 0.89 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	23	90	48	720	100	49	17	15	2.0	17	8.4
2	55	22	64	57	1430	89	47	15	13	3.2	13	6.5
3	52	20	102	476	1040	81	44	27	11	5.1	10	4.7
4	38	19	118	1340	444	75	42	38	9.6	3.8	7.6	3.5
5	28	24	90	969	242	74	41	36	19	3.7	5.8	2.9
6	21	51	227	441	195	69	39	29	53	3.9	4.7	2.8
7	17	53	216	241	175	63	37	24	57	11	3.9	2.6
8	14	42	135	169	160	61	37	20	45	12	3.4	2.4
9	12	34	94	131	126	63	42	17	32	9.2	2.7	1.9
10	9.9	28	75	111	111	62	36	15	25	19	2.0	1.8
11	8.7	35	66	105	105	60	35	14	20	11	1.6	1.6
12	8.6	62	60	103	465	62	36	13	20	58	1.3	1.4
13	6.0	50	56	96	616	58	36	13	26	45	1.1	1.3
14	5.4	36	52	91	332	56	36	12	23	22	.92	1.2
15	5.0	30	48	85	197	54	37	11	18	21	.83	1.1
16	5.0	25	46	70	153	51	39	11	14	18	.65	1.0
17	5.1	22	45	75	131	53	37	15	17	8.3	.67	.88
18	5.2	20	45	91	116	51	34	17	16	4.2	10	.78
19	5.2	42	45	107	106	47	32	13	13	2.7	130	.70
20	5.4	88	44	102	99	47	31	11	11	1.8	156	.68
21	5.4	74	44	85	91	46	29	10	8.9	1.3	267	.62
22	5.5	59	47	72	86	50	27	15	7.4	1.1	181	7.1
23	5.6	45	46	68	83	70	25	32	4.9	.86	83	13
24	10	37	42	69	82	87	24	144	3.6	.60	48	12
25	15	32	41	66	80	105	23	214	3.0	1.9	32	13
26	15	29	38	66	135	94	22	101	2.4	17	27	15
27	17	27	37	67	168	73	20	52	1.8	49	24	163
28	18	31	37	68	125	61	20	33	1.1	86	21	114
29	20	128	37	70	---	57	20	25	.94	56	17	66
30	24	125	36	75	---	55	18	20	1.1	35	14	37
31	23	---	40	137	---	52	---	17	---	24	11	---
TOTAL	493.0	1313	2163	5751	7813	2026	995	1031	492.74	537.66	1098.17	488.86
MEAN	15.9	43.8	69.8	186	279	65.4	33.2	33.3	16.4	17.3	35.4	16.3
MAX	55	128	227	1340	1430	105	49	214	57	86	267	163
MIN	5.0	19	36	48	80	46	18	10	.94	.60	.65	.62
CFSM	.14	.39	.62	1.66	2.49	.58	.30	.30	.15	.15	.32	.15
IN.	.16	.44	.72	1.91	2.60	.67	.33	.34	.16	.18	.36	.16
CAL YR 1984	TOTAL	61237.6	MEAN	167	MAX	3290	MIN	3.3	CFSM	1.49	IN.	20.34
WTR YR 1985	TOTAL	24202.43	MEAN	66.3	MAX	1430	MIN	.60	CFSM	.59	IN.	8.04

## CHOWAN RIVER BASIN

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02047000 NOTTOWAY RIVER NEAR SEBRELL, VA  
(National stream-quality accounting network station)

LOCATION.--Lat 36°46'13", long 77°09'59", Southampton County, Hydrologic Unit 03010201, on right bank 1,000 ft upstream from bridge on State Highway 653, 1 mi downstream from Three Creek, 2.5 mi southwest of Sebrell, and 5.5 mi upstream from Assamoosick Swamp.

DRAINAGE AREA.--1,421 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1942, 1944, 1948-49. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5.94 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1950, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good.

AVERAGE DISCHARGE.--44 years, 1,365 ft<sup>3</sup>/s, 13.04 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft<sup>3</sup>/s, July 19, 1975, gage height, 24.43 ft; minimum, 4.0 ft<sup>3</sup>/s, Oct. 25, 1981; minimum gage height, 2.82 ft, Oct. 24-25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,670 ft<sup>3</sup>/s, Feb. 7, gage height, 16.38 ft; minimum, 43 ft<sup>3</sup>/s, Sept. 23-25, gage height, 2.87 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	165	629	337	1280	2240	799	241	263	64	482	185
2	100	166	813	347	2190	2050	731	229	222	60	433	155
3	111	164	796	498	3090	1830	681	229	193	67	434	136
4	244	156	772	1350	3830	1610	631	246	171	93	381	134
5	323	153	949	2580	4870	1410	580	329	160	101	322	121
6	281	150	1040	3440	6130	1260	546	418	199	115	248	105
7	217	149	1090	4420	6590	1150	521	382	312	111	183	93
8	177	227	1390	5740	5790	1070	498	328	382	98	144	82
9	152	284	1480	6520	4310	1000	480	286	414	86	121	72
10	136	258	1230	5950	3060	961	466	250	350	88	108	66
11	125	226	959	4240	2230	924	453	232	282	141	133	62
12	118	197	798	2620	2000	890	433	220	249	148	179	57
13	113	190	698	1750	2510	860	421	229	237	162	127	54
14	108	237	622	1410	3210	838	424	226	247	240	101	51
15	105	251	560	1260	3840	800	424	201	211	325	84	49
16	105	229	509	1160	4500	758	433	182	203	368	72	48
17	103	206	471	1090	4700	730	475	173	176	315	67	47
18	103	188	441	1080	3900	700	549	174	155	276	69	46
19	111	187	432	1150	2860	677	655	166	147	240	370	45
20	109	196	429	1250	2130	660	592	196	139	216	753	45
21	105	232	428	1200	1760	643	505	239	136	159	1190	45
22	104	388	428	1080	1540	653	430	203	127	106	1400	44
23	105	498	414	1010	1390	799	386	224	111	85	1500	43
24	106	437	404	1050	1300	948	352	329	99	70	1300	43
25	107	357	405	1020	1240	1200	325	523	90	67	887	56
26	117	302	395	993	1340	1420	309	1060	81	87	610	64
27	162	269	384	955	1720	1460	291	1410	74	98	449	1310
28	188	254	362	953	2140	1320	282	1010	68	155	355	3360
29	189	268	349	937	---	1140	269	662	65	351	294	4340
30	181	311	342	896	---	994	253	458	66	647	270	3880
31	171	---	338	939	---	878	---	331	---	645	225	---
TOTAL	4475	7295	20357	59225	85450	33873	14194	11386	5629	5784	13291	14838
MEAN	144	243	657	1910	3052	1093	473	367	188	187	429	495
MAX	323	498	1480	6520	6590	2240	799	1410	414	647	1500	4340
MIN	99	149	338	337	1240	643	253	166	65	60	67	43
CFSM	.10	.17	.46	1.34	2.15	.77	.33	.26	.13	.13	.30	.35
IN.	.12	.19	.53	1.55	2.24	.89	.37	.30	.15	.15	.35	.39
CAL YR 1984	TOTAL	688659	MEAN	1882	MAX	11300	MIN	98	CFSM	1.32	IN.	18.03
WTR YR 1985	TOTAL	275797	MEAN	756	MAX	6590	MIN	43	CFSM	.53	IN.	7.22



## CHOWAN RIVER BASIN

02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947, 1978 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1946 to September 1947.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV 21...	08:15	220	90	92	7.1	7.3	5.0	770	3.1	12.0	93
FEB 20...	09:00	2180	57	58	6.8	6.5	4.5	763	10	11.8	91
MAY 22...	13:45	184	93	92	7.3	7.1	24.0	754	2.5	7.4	89
SEP 03...	12:00	112	85	85	6.8	6.9	25.0	771	4.0	5.6	67

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS NONCAR- BONATE (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CAC03)	ALKA- LITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)
NOV 21...	89	100	27	27	6.7	2.4	6.6	2.9	30	27	5.1
FEB 20...	40	48	15	15	4.0	1.3	3.8	1.5	9.0	11	9.1
MAY 22...	16	13	30	30	7.2	2.9	7.2	1.7	36	36	4.4
SEP 03...	--	--	33	33	11	1.4	2.8	1.9	21	25	9.1

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
NOV 21...	7.4	<0.1	16	73	64	<0.10	<0.01	0.5	<0.01	<0.01	0.01
FEB 20...	5.6	<0.1	10	55	42	0.11	0.01	0.5	<0.01	<0.01	<0.01
MAY 22...	7.5	0.1	11	59	64	0.11	0.05	0.5	<0.01	<0.01	<0.01
SEP 03...	7.9	<0.1	8.3	77	59	0.10	0.08	0.8	0.06	0.05	0.02

02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
NOV 21...	30	<1	24	<0.5	<1	1	<3	<1	700	<1	<4
FEB 20...	100	<1	30	<0.5	<1	<1	<3	1	270	<1	5
MAY 22...	60	<1	32	<0.5	<1	5	<3	1	410	5	5
SEP 03...	90	<1	65	<0.5	1	2	<3	3	1100	3	9

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 21...	33	<0.1	<10	<1	<1	<1	56	<6	3	3	92
FEB 20...	22	<0.1	<10	<1	<1	<1	30	<6	5	10	96
MAY 22...	59	0.2	<10	<1	<1	<1	70	<6	4	7	92
SEP 03...	150	<0.1	<10	2	<1	<1	66	<6	32	12	46

## 02047100 ASSAMOOSICK SWAMP NEAR SEBRELL, VA

LOCATION.--Lat 36°46'22", long 77°05'57", Southampton County, Hydrologic Unit 03010201, near center of span on upstream side of bridge on State Highway 35, 0.7 mi upstream from Indian Branch, 1.7 mi southeast of Sebrell, and 2.8 mi upstream from mouth.

DRAINAGE AREA.--86.4 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 20 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 11-29. Records good except those for periods of no gage-height record, Jan. 11-16, 21-24, and periods with ice effect, Jan. 17-20, 25-29, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,730 ft<sup>3</sup>/s, Sept. 28, 1985, gage height, 7.42 ft; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,730 ft<sup>3</sup>/s, Sept. 28, gage height, 7.42 ft; no flow many days during year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.56	.00	5.4	11	118	154	46	.56	2.1	.00	16	.98
2	.47	.00	9.0	12	194	170	38	.41	.98	.00	18	.56
3	.38	.00	31	41	259	154	34	.80	.47	.00	9.5	.32
4	.26	.00	46	156	354	131	30	1.5	.20	.00	5.0	.20
5	.17	.00	51	222	388	108	27	1.7	.26	.00	3.3	.06
6	.11	.03	74	306	347	91	23	1.7	3.7	.00	2.1	.01
7	.08	.02	88	368	280	75	21	1.8	25	.00	1.2	.00
8	.04	.02	89	311	216	63	20	1.7	41	.00	.68	.00
9	.03	.02	82	255	170	57	19	1.5	74	.00	.32	.00
10	.02	.01	75	196	146	51	17	.98	59	.00	.17	.00
11	.02	.02	70	165	123	45	15	.74	28	.00	.05	.00
12	.01	.03	59	125	154	42	14	1.9	13	.00	.03	.00
13	.00	.02	48	95	198	40	13	4.8	7.0	.00	.02	.00
14	.00	.02	40	80	228	37	12	4.2	3.7	.00	.00	.00
15	.00	.02	35	72	257	35	13	2.4	1.8	.17	.00	.00
16	.00	.02	32	65	261	33	14	1.6	1.0	.08	.00	.00
17	.00	.02	29	60	230	31	16	1.7	.74	.05	.03	.00
18	.00	.02	26	59	186	29	13	1.5	.50	.03	.17	.00
19	.00	.16	25	59	148	27	10	1.2	2.9	.00	2.5	.00
20	.00	.35	24	58	118	25	7.0	1.7	3.4	.00	35	.00
21	.00	.18	22	53	98	23	6.0	6.6	1.1	.00	191	.00
22	.00	.16	21	50	85	30	4.8	6.6	.35	.00	216	.00
23	.00	.16	20	46	75	63	3.9	16	.10	.00	135	.00
24	.00	.17	19	44	69	82	3.0	42	.04	.00	61	.00
25	.00	.17	18	42	63	116	2.5	88	.01	.00	31	.00
26	.00	.18	16	42	92	123	1.9	91	.00	.00	20	.03
27	.00	.20	15	41	127	119	1.5	59	.00	.00	13	234
28	.00	.35	14	41	144	105	1.3	35	.00	.01	8.5	1140
29	.00	1.1	13	40	---	89	1.0	18	.00	.96	4.5	1440
30	.00	1.0	13	52	---	73	.80	6.4	.00	10	2.9	776
31	.00	---	12	68	---	58	---	3.7	---	14	1.8	---
TOTAL	2.15	4.45	1121.4	3235	5128	2279	428.70	406.69	270.35	25.30	778.77	3592.16
MEAN	.07	.15	36.2	104	183	73.5	14.3	13.1	9.01	.82	25.1	120
MAX	.56	1.1	89	368	388	170	46	91	74	14	216	1440
MIN	.00	.00	5.4	11	63	23	.80	.41	.00	.00	.00	.00
CFSM	.00	.00	.42	1.20	2.12	.85	.17	.15	.10	.01	.29	1.39
IN.	.00	.00	.48	1.39	2.21	.98	.18	.18	.12	.01	.34	1.55
CAL YR 1984	TOTAL	39636.61	MEAN	108	MAX	1160	MIN	.00	CFSM	1.25	IN.	17.07
WTR YR 1985	TOTAL	17271.97	MEAN	47.3	MAX	1440	MIN	.00	CFSM	.55	IN.	7.44

## CHOWAN RIVER BASIN

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02047500 BLACKWATER RIVER NEAR DENDRON, VA

LOCATION.--Lat 37°01'30", long 76°52'30", Surry County, Hydrologic Unit 03010202, on left bank 10 ft upstream from Walls Bridge on State Highway 617, 1.2 mi downstream from Cypress Swamp, and 3.5 mi southeast of Dendron.

DRAINAGE AREA.--294 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 30.99 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Aug. 13, 1980, at site 25 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 17-30. Records good except those for period of no gage-height record, Jan. 20-22, and periods with ice effect, Jan. 17-19 and Jan. 23-30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--44 years, 311 ft<sup>3</sup>/s, 14.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,850 ft<sup>3</sup>/s, Sept. 28, 1985, gage height, 9.11 ft, from rating curve extended above 4,900 ft<sup>3</sup>/s; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.1 ft, from U.S. Army Corps of Engineers floodmarks, discharge, 10,000 ft<sup>3</sup>/s, from rating curve extended above 4,900 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,850 ft<sup>3</sup>/s, Sept. 28, gage height, 9.11 ft, from rating curve extended above 4,900 ft<sup>3</sup>/s; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.86	.00	79	64	355	416	221	8.6	20	11	213	56
2	3.1	.00	91	69	507	396	213	7.5	14	87	178	35
3	3.1	.00	127	125	689	385	197	14	8.3	44	150	24
4	3.1	.00	145	294	857	382	175	21	5.2	20	121	21
5	2.9	.00	166	573	880	353	159	25	16	4.7	86	15
6	2.1	.00	213	776	932	350	154	31	142	1.2	76	9.6
7	1.0	.00	229	880	966	294	146	29	326	2.1	43	5.1
8	.15	.00	232	873	848	263	140	23	386	4.2	27	2.1
9	.02	.00	227	868	749	287	125	17	235	11	18	.69
10	.00	.00	225	799	666	225	116	15	166	12	13	.04
11	.00	.07	213	705	546	199	106	15	101	26	9.2	.00
12	.00	1.5	192	616	535	189	99	42	65	24	5.0	.00
13	.00	3.0	178	548	610	177	90	48	55	15	2.1	.00
14	.00	4.0	165	473	709	167	85	25	43	10	.58	.00
15	.00	4.4	153	403	710	159	85	16	50	10	.03	.00
16	.00	6.1	140	333	673	151	85	13	56	18	.00	.00
17	.00	7.5	127	295	694	147	82	15	56	48	.00	.00
18	.00	8.8	116	285	716	143	75	24	44	47	4.6	.00
19	.00	18	107	280	668	135	68	16	40	35	288	.00
20	.00	36	100	265	556	130	58	9.5	29	28	1670	.00
21	.00	42	93	230	466	124	50	6.4	19	45	1100	.00
22	.00	49	91	205	399	139	42	5.8	12	37	556	.00
23	.00	57	114	180	352	215	34	34	8.5	39	291	.00
24	.00	57	86	170	313	287	29	93	5.6	287	423	.00
25	.00	54	73	165	284	295	26	137	2.1	375	556	.00
26	.00	53	69	155	320	303	21	116	.11	244	503	23
27	.00	53	67	150	384	276	17	86	.00	225	409	1940
28	.00	54	66	148	390	259	15	57	.00	256	311	5540
29	.00	73	65	145	---	251	13	41	.00	297	218	3850
30	.00	77	63	190	---	257	11	33	.00	325	141	2150
31	.00	---	62	264	---	232	---	26	---	272	87	---
TOTAL	16.33	658.37	4074	11526	16774	7586	2737	1049.8	1904.81	2860.2	7499.51	13671.53
MEAN	.53	21.9	131	372	599	245	91.2	33.9	63.5	92.3	242	456
MAX	3.1	77	232	880	966	416	221	137	386	375	1670	5540
MIN	.00	.00	62	64	284	124	11	5.8	.00	1.2	.00	.00
CFSM	.00	.07	.45	1.27	2.04	.83	.31	.12	.22	.31	.82	1.55
IN.	.00	.08	.52	1.46	2.12	.96	.35	.13	.24	.36	.95	1.73
CAL YR 1984	TOTAL	138216.93	MEAN	378	MAX	2940	MIN	.00	CFSM	1.29	IN.	17.49
WTR YR 1985	TOTAL	70357.55	MEAN	193	MAX	5540	MIN	.00	CFSM	.66	IN.	8.90



## CHOWAN RIVER BASIN

## 02048000 BLACKWATER RIVER AT ZUNI, VA

LOCATION.--Lat 36°52'05", long 76°50'07", Isle of Wight County, Hydrologic Unit 03010202, on left bank at downstream side of bridge on U.S. Highway 460 at Zuni, 1.6 mi downstream from Pope Swamp, and 4.2 mi upstream from Antioch Swamp.

DRAINAGE AREA.--456 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1942 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 8.56 ft above National Geodetic Vertical Datum of 1929. Prior to July 18, 1957, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Oct. 12 to Nov. 12, Jan. 25-30, Apr. 22 to May 21, June 4, June 17 to July 5, July 11-25, and Sept. 3-24. Records good except those for periods of doubtful gage-height record, Oct. 12 to Nov. 12, Apr. 22 to May 21, June 4, June 17 to July 5, July 11-25, and Sept. 3-24, and period with ice effect, Jan. 25-30, which are fair. Several measurements of water temperatures were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--43 years, 496 ft<sup>3</sup>/s, 14.77 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft<sup>3</sup>/s, Mar. 21, 1975; maximum gage height, 17.51 ft, June 5, 1963; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 23.2 ft, discharge, 16,000 ft<sup>3</sup>/s, from rating curve extended above 5,500 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,640 ft<sup>3</sup>/s, Sept. 29, gage height, 15.38 ft; minimum daily, 0.03 ft<sup>3</sup>/s, Oct. 31, Nov. 1-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	.03	64	78	397	747	418	15	21	18	395	210
2	7.4	.03	64	77	574	803	387	14	11	16	357	122
3	6.7	.03	91	101	813	810	350	13	4.7	30	282	78
4	8.6	.05	141	259	1050	774	319	21	8.5	34	210	55
5	5.9	.07	167	418	1240	722	296	25	9.2	22	157	35
6	5.7	.15	205	604	1400	668	267	28	149	16	116	30
7	5.4	.21	251	890	1430	608	233	28	361	14	80	18
8	5.5	.23	296	1140	1430	560	211	27	467	11	56	12
9	5.3	.21	326	1210	1390	509	198	26	534	8.5	36	8.0
10	3.7	.20	341	1200	1230	447	189	23	541	6.3	20	7.0
11	2.9	1.0	345	1170	1090	423	175	20	417	90	9.1	5.2
12	1.9	1.7	332	1110	1090	389	161	17	261	85	4.4	4.0
13	1.2	2.1	314	1010	1210	336	148	16	166	45	2.0	2.8
14	.80	2.6	289	868	1240	296	139	27	89	15	1.4	1.7
15	.64	3.0	261	752	1280	270	132	33	48	13	1.1	.90
16	.45	3.5	237	653	1280	248	128	22	27	45	.84	.60
17	.35	4.1	215	565	1210	231	124	20	70	120	.83	.53
18	.25	4.8	195	503	1120	218	115	26	180	130	10	.42
19	.20	7.7	177	462	1070	204	105	29	200	50	154	.38
20	.17	11	159	445	1050	193	97	19	110	40	160	.35
21	.13	14	144	414	1000	185	89	13	60	35	306	.32
22	.12	22	132	379	887	195	72	10	30	38	1190	2.2
23	.11	30	122	332	757	341	60	26	13	47	1280	2.5
24	.05	21	114	299	648	466	50	115	2.5	51	942	3.5
25	.05	27	116	270	566	596	43	290	.80	60	590	4.7
26	.05	34	117	260	587	659	36	351	.32	110	451	12
27	.04	37	103	250	649	654	30	279	.27	272	550	1570
28	.04	38	92	245	694	599	25	187	.20	342	632	3990
29	.10	56	86	240	---	534	22	109	.50	370	559	6310
30	.05	67	83	260	---	479	19	64	3.5	426	441	6250
31	.03	---	80	299	---	446	---	37	---	431	316	---
TOTAL	71.83	388.71	5659	16763	28382	14610	4638	1930	3785.49	2990.8	9309.67	18737.10
MEAN	2.32	13.0	183	541	1014	471	155	62.3	126	96.5	300	625
MAX	8.6	67	345	1210	1430	810	418	351	541	431	1280	6310
MIN	.03	.03	64	77	397	185	19	10	.20	6.3	.83	.32
CFSM	.01	.03	.40	1.19	2.22	1.03	.34	.14	.28	.21	.66	1.37
IN.	.01	.03	.46	1.37	2.32	1.19	.38	.16	.31	.24	.76	1.53
CAL YR 1984	TOTAL 234053.64	MEAN 639	MAX 3710	MIN .03	CFSM 1.40	IN. 19.09						
WTR YR 1985	TOTAL 107265.60	MEAN 294	MAX 6310	MIN .03	CFSM .64	IN. 8.75						

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA  
(National stream-quality accounting network station)

LOCATION.--Lat 36°45'45", long 76°53'55", Southampton County, Hydrologic Unit 03010202, on right bank 0.4 mi south of Burdette, 0.5 mi upstream from Black Creek, 3.3 mi downstream from Corrowaugh Swamp, and 6.0 mi north of Franklin.

DRAINAGE AREA.--617 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1944 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair except those for periods of tidal effect, below 40 ft<sup>3</sup>/s, during October, November, and May to September, which are poor. Low flow reversed by tide some years. Diversion upstream from station by city of Norfolk for municipal supply most years.

AVERAGE DISCHARGE.--41 years, 640 ft<sup>3</sup>/s, 14.09 in/yr, adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft<sup>3</sup>/s, Sept. 14, 1960, gage height, 17.14 ft, from flood-marks; minimum daily, 0.07 ft<sup>3</sup>/s, Oct. 16, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 22 ft, discharge, 21,000 ft<sup>3</sup>/s, from rating curve extended above 9,400 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,360 ft<sup>3</sup>/s, Sept. 30, gage height, 13.42 ft; minimum daily, 0.20 ft<sup>3</sup>/s, June 28.

CORRECTIONS.--Diversion (\*), in cubic feet per second, for the 1984 water year have been corrected as shown in the following table. These figures supersede those published in the report for 1984.

OCTOBER 1983..... 5.21  
NOVEMBER 1983.....14.2  
DECEMBER 1983.....30.7

JANUARY 1984.....26.3  
JULY 1984..... 7.89  
SEPTEMBER 1984..... 3.73

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	7.4	6.2	63	66	462	737	472	12	55	13	353	305		
2	7.6	6.9	67	64	666	796	433	9.0	34	6.4	341	216		
3	7.8	5.2	94	84	905	826	395	9.7	21	6.9	304	135		
4	11	3.8	138	318	1120	801	355	13	13	5.6	252	84		
5	12	5.4	174	569	1290	762	319	16	32	6.9	193	58		
6	11	6.2	231	730	1410	699	296	16	104	8.8	146	43		
7	9.2	3.7	275	849	1480	636	277	13	246	7.1	105	30		
8	8.3	3.0	303	961	1460	585	240	8.0	391	2.7	82	21		
9	7.5	2.6	337	1080	1400	545	212	6.4	487	1.0	61	16		
10	6.7	5.2	358	1120	1320	501	192	5.7	498	3.2	43	13		
11	6.0	16	355	1110	1180	456	181	4.7	469	89	28	10		
12	5.5	14	344	1070	1160	428	170	4.2	388	120	16	7.0		
13	5.1	5.8	324	993	1360	396	157	3.6	296	61	11	5.1		
14	4.7	4.1	306	902	1460	352	144	2.4	219	24	6.2	4.0		
15	4.4	3.9	283	793	1460	313	137	1.9	119	9.0	2.0	3.2		
16	4.4	5.2	260	691	1420	283	137	4.4	73	12	.80	2.3		
17	4.3	3.2	238	628	1340	261	259	6.4	49	152	.53	2.3		
18	4.2	2.7	213	594	1200	243	277	4.4	37	178	2.5	2.0		
19	4.3	3.4	195	567	1070	224	198	2.6	172	105	155	2.0		
20	4.4	4.4	178	538	980	210	148	3.8	284	69	360	2.7		
21	4.4	4.1	161	469	926	197	113	5.4	155	49	276	3.3		
22	4.3	3.9	147	427	867	204	92	3.3	76	37	311	3.5		
23	4.2	3.8	132	389	777	357	79	4.1	49	20	683	4.5		
24	4.1	3.8	118	356	690	518	70	13	26	13	879	5.0		
25	4.2	5.7	110	343	617	641	60	64	15	15	752	6.2		
26	10	12	107	338	609	723	46	239	6.2	29	560	11		
27	13	19	103	320	674	735	35	356	1.8	67	431	1730		
28	14	30	93	327	710	708	27	324	.20	181	464	3600		
29	16	47	83	324	---	643	21	226	1.8	264	496	4640		
30	14	53	76	312	---	577	16	132	9.0	302	462	5310		
31	9.7	---	70	333	---	517	---	79	---	331	391	---		
TOTAL	233.7	293.2	5936	17665	30013	15874	5558	1593.0	4327.00	2188.6	8167.03	16275.1		
MEAN	7.54	9.77	191	570	1072	512	185	51.4	144	70.6	263	543		
MAX	16	53	358	1120	1480	826	472	356	498	331	879	5310		
MIN	4.1	2.6	63	64	462	197	16	1.9	.20	1.0	.53	2.0		
(*)	0	0	27.2	33.0	33.3	32.7	29.1	18.9	16.3	16.5	17.5	2.6		
MEAN*	7.54	9.77	218	603	1105	545	214	70.3	160	87.1	280	546		
CFSM*	.01	.02	.35	.98	1.79	.88	.35	.11	.26	.14	.45	.88		
IN.*	.01	.02	.41	1.13	1.86	1.02	.39	.13	.29	.16	.52	.99		
CAL YR 1984	TOTAL	282950.9	MEAN	773	MAX	3410	MIN	2.6	MEAN*	779	CFSM*	1.26	IN.*	17.15
WTR YR 1985	TOTAL	108123.63	MEAN	296	MAX	5310	MIN	.20	MEAN*	315	CFSM*	.51	IN.*	6.93

\* Average diversion, in cubic feet per second, by city of Norfolk.

\* Adjusted for diversion.

## CHOWAN RIVER BASIN

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

## WATER-QUALITY RECORDS

LOCATION.--Samples taken at bridge 2.0 mi upstream from discharge station.

PERIOD OF RECORD.--Water years 1947, 1952, 1975 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV 20...	12:00	4.2	139	139	6.9	6.9	9.0	764	5.5	5.8	50
FEB 19...	11:15	1060	84	85	6.7	6.4	4.0	760	6.5	12.8	98
MAY 22...	09:30	3.8	130	128	7.3	6.9	22.5	754	3.3	7.3	85
AUG 21...	09:30	281	--	--	--	--	--	--	--	--	--
SEP 03...	09:45	142	87	84	6.1	7.0	24.0	772	2.0	4.7	55

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
NOV 20...	230	670	56	56	18	2.6	4.9	2.3	40	29	16
FEB 19...	72	70	27	27	8.5	1.5	3.6	1.6	10	10	13
MAY 22...	K5	K3	52	52	17	2.4	5.0	2.4	41	43	5.7
AUG 21...	25	160	--	--	--	--	--	--	--	--	--
SEP 03...	--	--	26	26	6.9	2.2	5.6	2.0	27	18	5.7

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
NOV 20...	12	<0.1	6.8	92	82	0.16	<0.01	0.7	<0.01	<0.01	0.01
FEB 19...	9.9	<0.1	6.0	70	51	0.40	0.02	0.7	<0.01	<0.01	<0.01
MAY 22...	11	0.1	2.7	80	73	<0.10	0.10	0.8	0.02	<0.01	<0.01
AUG 21...	--	--	--	--	--	--	--	--	--	--	--
SEP 03...	6.7	<0.1	14	75	55	0.18	0.07	0.3	0.06	0.06	0.03

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
NOV 20...	50	<1	63	<0.5	1	1	<3	<1	1200	4	<4
FEB 19...	120	<1	38	<0.5	<1	<1	<3	1	240	<1	11
MAY 22...	60	<1	63	<0.5	<1	<1	<3	2	540	7	<4
AUG 21...	--	--	--	--	--	--	--	--	--	--	--
SEP 03...	10	<1	41	<0.5	<1	1	<3	3	620	1	11

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 20...	200	<0.1	<10	1	<1	<1	99	<6	<3	5	88
FEB 19...	12	0.2	<10	<1	<1	1	45	<6	15	5	88
MAY 22...	130	0.1	<10	2	<1	<1	100	<6	25	7	94
AUG 21...	--	--	--	--	--	--	--	--	--	--	--
SEP 03...	82	<0.1	<10	2	<1	<1	62	<6	9	12	88



## CHOWAN RIVER BASIN

02051000 NORTH MEHERRIN RIVER NEAR LUNENBURG, VA

LOCATION.--Lat 36°59'53", long 78°21'03", Lunenburg County, Hydrologic Unit 03010204, on right bank at upstream side of bridge on State Highway 40, 0.5 mi downstream from Tusekiah Creek, 4.6 mi upstream from Juniper Creek, and 5.2 mi northwest of Lunenburg.

DRAINAGE AREA.--55.6 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1946 to September 1980, October 1981 to current year.

REVISED RECORDS.--WSP 1303: 1947(M), 1949(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 333.7 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to July 5, 1951, nonrecording gage at same site and datum. July 5, 1951, to July 11, 1980, water-stage recorder at site 20 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 28, 29, Dec. 6, Jan. 2-9, 16, 17, Jan. 22 to Feb. 7, and Feb. 11-17. Records good except those for periods of doubtful gage-height record, Nov. 28, 29, Dec. 6, Jan. 2-9, Jan. 31 to Feb. 5, and Feb. 12-17, and periods with ice effect, Jan. 16, 17, 22-30 and Feb. 6, 7, 11, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--38 years, 53.4 ft<sup>3</sup>/s, 13.04 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,400 ft<sup>3</sup>/s, Oct. 23, 1971, gage height, 28.30 ft, from rating curve extended above 1,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; no flow Sept. 5-21, Oct. 8-14, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 48 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 4	Unknown	a720	Unknown	Feb. 1	Unknown	*a780	Unknown

a Daily mean discharge; actual peak is known to be greater than value shown.

Minimum discharge, 2.5 ft<sup>3</sup>/s, July 22-23, gage height, 0.55 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	12	29	24	780	41	31	13	11	7.5	5.8	22
2	18	11	24	40	450	39	26	13	10	6.8	11	16
3	11	11	38	100	280	36	24	20	9.2	6.8	6.8	13
4	8.9	10	34	720	180	33	22	18	9.0	5.8	4.9	12
5	8.2	15	30	300	105	34	23	15	9.8	6.0	4.2	10
6	7.5	16	254	150	65	31	22	14	12	5.4	3.8	9.0
7	7.3	13	61	85	56	28	21	13	11	5.2	3.8	8.2
8	7.7	11	40	65	51	28	21	12	10	4.6	8.0	7.5
9	7.7	11	33	50	45	31	20	11	9.5	4.0	8.0	7.0
10	7.5	11	28	37	41	30	20	11	8.8	3.7	5.2	6.5
11	7.5	14	28	36	37	28	20	12	8.5	10	4.6	6.2
12	7.7	19	26	35	450	28	20	11	8.0	7.5	4.0	6.0
13	7.7	14	24	32	260	26	20	16	9.2	5.8	3.8	5.5
14	8.4	13	22	31	140	26	20	14	8.0	4.9	3.6	5.4
15	8.4	11	22	29	80	26	22	12	7.0	4.4	3.4	5.4
16	8.4	11	21	26	60	24	22	11	8.8	4.2	3.1	5.4
17	8.4	11	21	25	48	24	20	12	10	3.6	3.1	5.5
18	8.4	11	21	34	42	24	18	14	8.5	3.3	445	5.4
19	8.7	59	21	40	39	23	18	12	7.0	3.0	119	5.4
20	8.9	38	21	35	38	23	18	10	6.0	2.9	270	5.2
21	9.2	22	22	29	36	22	17	11	5.2	2.7	444	5.2
22	18	18	29	25	35	28	16	13	4.8	2.6	186	6.0
23	28	17	28	21	34	75	15	155	4.6	3.7	36	11
24	28	16	23	21	34	50	15	115	4.4	3.5	21	9.2
25	21	15	22	19	34	45	15	49	4.3	9.6	18	7.5
26	16	15	21	19	89	35	15	24	3.8	14	28	6.8
27	13	15	20	22	61	31	14	17	3.6	7.5	67	24
28	12	178	20	23	46	29	14	14	3.5	10	23	12
29	15	125	21	25	---	28	15	13	17	12	15	8.2
30	15	39	21	26	---	56	14	12	14	9.2	154	6.5
31	13	---	23	80	---	36	---	12	---	6.2	43	---
TOTAL	398.5	782	1048	2204	3616	1018	578	699	246.5	186.4	1956.1	263.0
MEAN	12.9	26.1	33.8	71.1	129	32.8	19.3	22.5	8.22	6.01	63.1	8.77
MAX	44	178	254	720	780	75	31	155	17	14	445	24
MIN	7.3	10	20	19	34	22	14	10	3.5	2.6	3.1	5.2
CFSM	.23	.47	.61	1.28	2.32	.59	.35	.40	.15	.11	1.13	.16
IN.	.27	.52	.70	1.47	2.42	.68	.39	.47	.16	.12	1.31	.18
CAL YR 1984	TOTAL	23110.1	MEAN	63.1	MAX	1600	MIN	5.5	CFSM	1.13	IN.	15.46
WTR YR 1985	TOTAL	12995.5	MEAN	35.6	MAX	780	MIN	2.6	CFSM	.64	IN.	8.69

## 02051500 MEHERRIN RIVER NEAR LAWRENCEVILLE, VA

LOCATION.--Lat 36°43'00", long 77°49'55", Brunswick County, Hydrologic Unit 03010204, on right bank 50 ft upstream from Gholson Bridge on State Highway 715, 0.6 mi upstream from Allen Creek, and 3.0 mi southeast of Lawrenceville.

DRAINAGE AREA.--552 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1932(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 136.56 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 17, 1931, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 500 ft<sup>3</sup>/s, 12.30 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft<sup>3</sup>/s, Aug. 17, 1940, gage height, 42.0 ft, from flood-mark, from rating curve extended above 13,000 ft<sup>3</sup>/s on basis of velocity-area studies and records for Nottoway River near Stony Creek; minimum, 4.2 ft<sup>3</sup>/s, Oct. 7, 8, 1954; minimum gage height, 0.72 ft, Sept. 23, 24, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 5	1600	*8,070	*21.71	Feb. 3	1330	5,910	18.24

Minimum discharge, 34 ft<sup>3</sup>/s, July 24; minimum gage height, 1.59 ft, Sept. 19-20, 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	158	395	212	1550	535	332	164	141	96	105	274
2	279	146	287	230	4690	477	302	159	133	162	153	169
3	269	139	605	1620	5720	449	284	259	127	125	135	115
4	176	134	636	5250	2190	419	272	308	120	101	118	100
5	142	227	462	7560	944	403	267	243	116	92	95	86
6	127	223	1140	5140	800	389	261	203	180	87	80	78
7	119	185	1290	1050	799	364	251	183	226	88	74	72
8	116	164	610	749	724	348	246	165	168	83	70	67
9	114	151	435	589	577	350	242	154	147	78	67	64
10	114	145	366	488	506	351	238	149	131	72	68	61
11	112	167	330	456	485	345	236	145	122	93	99	57
12	110	196	305	441	1620	336	237	145	121	99	80	53
13	107	177	287	424	3710	328	238	150	195	118	67	50
14	106	174	270	398	1370	318	244	161	211	120	59	48
15	104	158	257	378	848	312	254	188	150	102	53	46
16	105	147	247	353	679	304	258	153	124	84	48	46
17	106	142	243	342	584	300	289	148	121	70	63	47
18	109	138	240	386	533	299	346	172	116	58	155	44
19	110	168	241	400	496	289	276	193	111	50	1310	43
20	109	264	240	409	471	281	246	166	102	44	798	44
21	110	349	238	290	448	278	234	142	95	42	737	44
22	111	239	235	260	427	290	219	132	86	40	1250	44
23	116	194	238	414	417	334	207	195	83	45	759	50
24	152	178	245	399	412	494	198	628	79	36	309	61
25	249	173	239	382	409	551	194	1070	78	48	191	56
26	197	167	224	371	526	462	188	489	72	179	155	58
27	175	163	215	353	894	386	181	305	66	212	319	141
28	154	179	212	334	692	350	178	219	65	277	175	152
29	146	503	207	335	---	335	175	180	65	239	173	131
30	152	732	210	331	---	325	169	161	78	142	128	93
31	166	---	209	404	---	324	---	149	---	117	215	---
TOTAL	4421	6280	11358	30748	33521	11326	7262	7278	3629	3199	8108	2394
MEAN	143	209	366	992	1197	365	242	235	121	103	262	79.8
MAX	279	732	1290	7560	5720	551	346	1070	226	277	1310	274
MIN	104	134	207	212	409	278	169	132	65	36	48	43
CFSM	.26	.38	.66	1.80	2.17	.66	.44	.43	.22	.19	.47	.14
IN.	.30	.42	.77	2.07	2.26	.76	.49	.49	.24	.22	.55	.16
CAL YR 1984	TOTAL	250024	MEAN	683	MAX	9940	MIN	93	CFSM	1.24	IN.	16.85
WTR YR 1985	TOTAL	129524	MEAN	355	MAX	7560	MIN	36	CFSM	.64	IN.	8.73

02051600 GREAT CREEK NEAR COCHRAN, VA

LOCATION.--Lat 36°48'46", long 77°55'19", Brunswick County, Hydrologic Unit 03010204, on left bank at upstream side of bridge on State Highway 763, 1.4 mi southwest of Cochran, and 9.5 mi upstream from Roses Creek.

DRAINAGE AREA.--30.7 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1958 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 215.72 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 12, 21-29 and Feb. 6, 7. Records good except those for periods with ice effect, Jan. 12, 21-29 and Feb. 6, 7, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--27 years, 30.3 ft<sup>3</sup>/s, 13.40 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,100 ft<sup>3</sup>/s, Oct. 6, 1972, gage height, 16.65 ft, from rating curve extended above 3,700 ft<sup>3</sup>/s on basis of contracted-opening measurements at gage heights 12.08 ft, 14.57 ft, and 16.65 ft; minimum, 0.10 ft<sup>3</sup>/s, Oct. 11, 12, 1965, Sept. 23, 1968; minimum gage height, 1.50 ft, Aug. 19, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 4	0730	*545	*7.77	No other peak equal to or greater than base discharge.			

Minimum discharge, 1.2 ft<sup>3</sup>/s, July 21-22, Sept. 18, 19-21, 22, gage height, 1.73 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	6.8	16	13	114	26	18	9.1	6.1	6.1	8.3	5.8
2	17	6.5	13	16	237	25	16	9.0	5.3	7.5	15	4.5
3	9.6	6.2	61	179	137	23	16	23	4.7	5.4	9.6	3.8
4	7.5	7.2	32	445	69	22	15	20	4.6	3.9	5.7	3.4
5	6.6	30	24	172	55	23	15	14	4.9	3.7	4.3	3.1
6	6.0	15	90	75	47	21	15	12	12	3.3	3.7	2.8
7	6.0	9.6	42	52	40	19	14	11	8.7	3.6	3.6	2.6
8	6.0	7.6	25	40	36	20	14	9.6	7.3	3.5	3.5	2.5
9	6.0	7.1	22	31	31	21	14	8.9	9.7	2.6	3.4	2.3
10	5.8	7.3	19	27	29	19	14	8.8	7.7	2.3	3.3	2.2
11	5.6	14	19	26	28	19	14	8.7	6.3	3.7	3.1	1.9
12	5.6	14	17	25	194	20	14	8.5	6.8	4.4	2.7	1.8
13	5.5	9.9	17	23	137	18	14	8.6	19	9.0	2.5	1.5
14	5.4	8.3	16	22	65	18	15	8.7	9.4	5.0	2.3	1.4
15	5.4	7.8	15	21	49	18	15	8.1	6.1	3.3	1.9	1.4
16	5.4	8.2	15	19	40	17	15	7.6	5.8	2.6	1.7	1.3
17	5.5	8.0	15	22	35	18	23	11	6.5	2.2	1.7	1.3
18	5.7	6.7	15	28	31	18	17	13	5.4	1.9	61	1.3
19	5.7	17	16	25	29	17	15	10	4.4	1.7	66	1.2
20	5.7	23	15	23	28	17	15	8.4	3.7	1.5	17	1.2
21	5.7	13	15	23	26	16	14	8.3	3.3	1.3	30	1.2
22	5.6	10	15	21	25	18	13	9.9	3.1	1.3	15	1.4
23	6.0	9.7	16	20	24	26	12	9.9	3.0	6.6	9.2	2.3
24	11	9.5	14	19	24	26	12	33	2.8	2.9	6.9	2.6
25	9.6	7.6	15	18	24	30	12	34	2.6	11	6.5	2.4
26	7.5	7.9	14	18	55	21	11	14	2.3	34	6.9	2.6
27	6.9	7.8	13	18	43	19	11	9.7	2.0	23	6.8	23
28	6.6	18	13	19	29	19	10	7.8	2.0	35	5.9	14
29	6.7	55	14	20	---	18	10	6.9	2.2	16	4.9	5.1
30	7.1	21	14	21	---	20	9.4	6.9	8.1	10	4.6	3.4
31	7.1	---	13	43	---	18	---	6.5	---	7.0	8.0	---
TOTAL	227.8	379.7	660	1524	1681	630	422.4	364.9	175.8	225.3	325.0	105.3
MEAN	7.35	12.7	21.3	49.2	60.0	20.3	14.1	11.8	5.86	7.27	10.5	3.51
MAX	22	55	90	445	237	30	23	34	19	35	66	23
MIN	5.4	6.2	13	13	24	16	9.4	6.5	2.0	1.3	1.7	1.2
CFSM	.24	.41	.69	1.60	1.95	.66	.46	.38	.19	.24	.34	.11
IN.	.28	.46	.80	1.85	2.04	.76	.51	.44	.21	.27	.39	.13
CAL YR 1984	TOTAL	15107.6	MEAN	41.3	MAX	1980	MIN	5.3	CFSM	1.35	IN.	18.31
WTR YR 1985	TOTAL	6721.2	MEAN	18.4	MAX	445	MIN	1.2	CFSM	.60	IN.	8.14

02052000 MEHERRIN RIVER AT EMPORIA, VA  
(National stream-quality accounting network station)

LOCATION.--Lat 36°41'24", long 77°32'27", Emporia City, Hydrologic Unit 03010204, on left bank at downstream side of bridge on U.S. Highway 301 and 1.2 mi upstream from Falling Run.

DRAINAGE AREA.--747 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1951 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 67.17 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Estimated daily discharges: Jan. 23-30. Records good except those for period with ice effect, Jan. 23-30, which are fair. Prior to November 1965, low and medium flow regulated by powerplant 0.8 mi upstream from station.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--34 years, 694 ft<sup>3</sup>/s, 12.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,100 ft<sup>3</sup>/s, Oct. 8, 1972, gage height, 27.38 ft; minimum, 5.0 ft<sup>3</sup>/s, Nov. 11, 1954, gage height, 1.00 ft; minimum daily, 8.0 ft<sup>3</sup>/s, Nov. 8-10, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 31.5 ft, from floodmarks, discharge, about 40,000 ft<sup>3</sup>/s, from rating curve extended above 18,000 ft<sup>3</sup>/s on basis of record for station near Lawrenceville.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 6	0930	*8,570	*20.84	Feb. 4	0130	6,710	19.01

Minimum discharge, 41 ft<sup>3</sup>/s, July 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	160	584	214	1420	819	411	210	183	134	144	288
2	224	155	339	226	4490	685	384	207	174	181	168	238
3	262	148	531	838	6410	618	355	275	166	194	171	176
4	200	146	944	4990	5690	573	338	399	159	161	149	147
5	163	166	666	7420	2180	543	331	333	157	130	126	127
6	149	232	948	8320	1330	513	330	269	168	113	104	114
7	140	194	1770	4210	1200	482	313	235	241	106	89	104
8	136	171	1040	1440	1110	461	303	217	218	98	82	98
9	134	161	581	932	898	454	297	203	200	85	80	92
10	132	156	432	729	741	453	289	200	179	98	78	86
11	132	160	370	642	673	446	291	195	167	146	81	83
12	129	192	331	606	1470	440	290	196	163	135	105	78
13	127	187	307	566	4450	421	293	198	199	146	87	72
14	124	176	285	528	3810	407	298	195	247	133	72	67
15	120	170	270	485	1590	396	311	214	214	121	61	66
16	120	163	259	449	1100	384	318	209	183	119	54	64
17	120	158	253	435	899	380	328	193	169	104	52	63
18	122	157	249	497	783	374	386	199	166	70	127	64
19	124	176	251	532	715	362	365	219	155	59	823	61
20	124	232	254	523	666	353	307	212	146	54	1650	59
21	125	309	248	414	622	346	285	192	131	48	783	63
22	126	285	245	286	584	371	269	176	121	44	1440	85
23	129	211	240	320	559	433	254	220	110	41	1330	83
24	132	189	242	350	553	529	247	403	106	48	486	80
25	185	182	244	355	543	814	241	1290	101	79	273	94
26	189	181	232	360	775	690	235	803	96	142	204	112
27	171	177	221	365	1150	555	229	409	87	233	280	499
28	160	191	220	370	1150	473	225	277	80	228	244	290
29	158	377	215	385	---	437	221	224	90	329	203	191
30	151	832	215	400	---	415	215	201	110	190	179	159
31	157	---	216	497	---	403	---	191	---	152	170	---
TOTAL	4615	6394	13202	38684	47561	15030	8959	8964	4686	3921	9895	3803
MEAN	149	213	426	1248	1699	485	299	289	156	126	319	127
MAX	262	832	1770	8320	6410	819	411	1290	247	329	1650	499
MIN	120	146	215	214	543	346	215	176	80	41	52	59
CFSM	.20	.29	.57	1.67	2.27	.65	.40	.39	.21	.17	.43	.17
IN.	.23	.32	.66	1.93	2.37	.75	.45	.45	.23	.20	.49	.19
CAL YR 1984	TOTAL	335737	MEAN	917	MAX	12600	MIN	118	CFSM	1.23	IN.	16.72
WTR YR 1985	TOTAL	165714	MEAN	454	MAX	8320	MIN	41	CFSM	.61	IN.	8.25



## CHOWAN RIVER BASIN

02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1968 to September 1971, October 1972 to September 1978.

WATER TEMPERATURE: April 1968 to September 1971, October 1972 to September 1978.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV 21...	11:00	294	83	84	7.2	7.5	6.0	770	4.3	13.0	103
FEB 19...	15:30	705	62	63	7.1	6.9	4.5	760	20	13.3	103
MAY 23...	12:30	206	88	87	7.2	6.9	22.0	749	7.5	8.4	98
AUG 22...	12:30	1610	56	55	6.7	6.9	23.5	754	35	8.7	104

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
NOV 21...	42	56	26	26	6.2	2.6	6.6	1.9	32	36	2.8
FEB 19...	110	33	17	17	4.0	1.8	4.6	1.3	17	18	6.4
MAY 23...	210	180	28	28	6.3	2.9	6.9	1.6	32	35	3.4
AUG 22...	140	400	16	16	3.9	1.6	3.7	2.3	14	14	5.8

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
NOV 21...	5.4	<0.1	19	68	67	<0.10	<0.01	0.4	<0.01	<0.01	0.01
FEB 19...	4.6	<0.1	15	58	49	0.15	0.04	0.4	<0.01	<0.01	0.01
MAY 23...	5.4	0.1	17	62	65	0.16	0.09	0.4	0.02	<0.01	<0.01
AUG 22...	3.5	0.1	12	51	42	0.26	0.12	0.9	0.07	0.04	0.02

## CHOWAN RIVER BASIN

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02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
NOV 21...	20	<1	19	<0.5	<1	1	<3	14	590	3	<4
FEB 19...	50	<1	22	<0.5	<1	<1	<3	1	220	<1	12
MAY 23...	30	<1	28	<0.5	<1	<1	<3	1	330	6	6
AUG 22...	80	<1	25	<0.5	<1	<1	<3	2	430	1	<4

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 21...	47	<0.1	<10	1	<1	<1	46	<6	<3	8	75
FEB 19...	31	0.4	<10	<1	<1	1	30	<6	6	13	98
MAY 23...	140	0.3	<10	1	<1	<1	56	<6	26	24	86
AUG 22...	42	0.2	<10	<1	<1	<1	32	<6	6	38	94

## CHOWAN RIVER BASIN

02052500 FOUNTAINS CREEK NEAR BRINK, VA

LOCATION.--Lat 36°36'55", long 77°42'00", Greenville County, Hydrologic Unit 03010204, on left bank 30 ft upstream from bridge on State Highway 603, 0.3 mi downstream from Quarrel Creek, 3.6 mi west of Brink, and 10 mi south-west of Emporia.

DRAINAGE AREA.--65.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1953 to current year. Prior to October 1980, published as Fontaine Creek near Brink.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 152.59 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-30, Feb. 6-8, and July 6-9. Records good except those for period of no gage-height record, July 6-9, and periods with ice effect, Jan. 21-30 and Feb. 6-8, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--32 years, 68.6 ft<sup>3</sup>/s, 14.29 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft<sup>3</sup>/s, Oct. 6, 1972, gage height, 24.14 ft, from flood-mark, from rating curve extended above 3,000 ft<sup>3</sup>/s; no flow at times some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 4	0945	*888	*10.78	No other peak equal to or greater than base discharge.			

Minimum discharge, 0.07 ft<sup>3</sup>/s, Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.86	5.5	26	8.5	310	65	28	8.1	5.5	84	17	2.3
2	2.4	4.7	17	8.8	637	57	26	7.6	5.1	68	38	3.0
3	2.5	4.1	92	237	624	51	24	18	4.5	29	7.5	2.2
4	1.8	3.5	86	852	288	46	23	28	4.1	17	2.6	1.4
5	1.5	7.3	60	680	145	45	25	21	3.9	9.4	1.1	.93
6	1.2	9.5	128	360	130	42	24	15	3.9	6.6	.76	2.9
7	.88	8.3	90	152	110	38	24	11	4.1	5.2	.68	1.6
8	.77	6.5	58	82	95	37	21	8.4	4.4	3.7	.61	.62
9	.80	6.5	36	57	79	37	20	7.2	5.4	2.9	.54	.45
10	.99	6.1	27	46	65	36	19	6.7	7.1	3.5	.51	.38
11	.99	6.6	24	45	60	35	19	6.7	6.8	25	.44	.35
12	.89	7.3	20	47	344	35	19	7.4	7.2	22	.37	.27
13	.81	6.2	18	43	529	33	20	8.0	9.1	11	.32	.21
14	.79	5.2	16	40	312	32	24	7.6	7.9	7.6	.28	.25
15	.85	5.3	14	37	138	31	27	7.0	6.7	5.6	.44	.19
16	.91	5.7	13	31	96	29	26	6.4	6.1	5.2	.42	.16
17	.99	4.9	13	35	77	29	30	6.4	6.0	6.3	.33	.15
18	.98	5.1	13	58	66	29	25	6.6	5.5	3.8	.41	.11
19	.95	11	13	54	59	27	20	6.2	4.9	2.7	8.9	.11
20	1.0	19	13	46	55	27	18	5.6	4.4	2.0	19	.10
21	1.2	15	13	33	50	27	18	5.2	3.5	1.6	20	.09
22	1.2	12	13	28	48	32	15	5.0	2.6	1.2	9.1	.09
23	1.6	11	13	27	46	53	13	9.5	2.1	.86	5.6	.11
24	2.9	9.4	11	26	45	56	12	41	1.6	1.8	4.1	.11
25	3.9	8.4	11	25	45	85	11	33	1.3	4.6	2.1	.14
26	4.5	7.5	9.4	25	143	57	11	24	.94	14	1.7	.19
27	3.2	7.0	8.8	26	154	43	10	14	.71	12	3.2	121
28	4.1	9.3	9.4	28	99	39	9.7	9.4	.61	9.9	4.4	66
29	8.7	39	9.2	29	---	35	9.3	7.5	.74	9.3	2.6	27
30	9.7	33	9.0	33	---	32	8.6	6.3	53	8.6	1.6	14
31	7.4	---	8.6	83	---	29	---	5.8	---	7.2	1.1	---
TOTAL	71.26	289.9	892.4	3282.3	4849	1249	579.6	359.6	179.70	391.56	155.71	246.41
MEAN	2.30	9.66	28.8	106	173	40.3	19.3	11.6	5.99	12.6	5.02	8.21
MAX	9.7	39	128	852	637	85	30	41	53	84	38	121
MIN	.77	3.5	8.6	8.5	45	27	8.6	5.0	.61	.86	.28	.09
CFSM	.04	.15	.44	1.63	2.65	.62	.30	.18	.09	.19	.08	.13
IN.	.04	.17	.51	1.87	2.77	.71	.33	.21	.10	.22	.09	.14

CAL YR 1984	TOTAL	39010.61	MEAN	107	MAX	3040	MIN	.60	CFSM	1.64	IN.	22.26
WTR YR 1985	TOTAL	12546.44	MEAN	34.4	MAX	852	MIN	.09	CFSM	.53	IN.	7.16

## 02053800 SOUTH FORK ROANOKE RIVER NEAR SHAWSVILLE, VA

LOCATION.--Lat 37°08'24", long 80°16'00", Montgomery County, Hydrologic Unit 03010101, on right bank 95 ft downstream from bridge on State Highway 637, 0.3 mi downstream from Georges Run, 1.3 mi downstream from Elliott Creek, and 2.0 mi southwest of Shawsville.

DRAINAGE AREA.--110 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,361.87 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1974, water-stage recorder, and Aug. 26, 1974, to July 24, 1975, nonrecording gage at site 95 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 16, 22-30 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 16, 22-30 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--25 years, 108 ft<sup>3</sup>/s, 13.33 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft<sup>3</sup>/s, June 21, 1972, gage height, 11.12 ft, from high-water mark in well, from rating curve extended above 3,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 7.5 ft<sup>3</sup>/s, July 27-29, 1966, gage height, 0.37 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 30, 1959, reached a stage of 9.89 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1000	*3,980	*7.07	No other peak equal to or greater than base discharge.			

Minimum discharge, 20 ft<sup>3</sup>/s, Jan. 21, gage height, 0.69 ft, result of freezeup; minimum daily, 22 ft<sup>3</sup>/s, July 23, 24, Aug. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104	33	65	46	183	154	91	52	57	48	44	64
2	47	33	56	47	374	133	74	59	51	40	51	59
3	35	34	52	115	238	112	71	66	48	35	38	54
4	33	38	47	214	157	100	67	53	50	35	33	51
5	31	67	47	180	123	94	63	49	48	31	32	48
6	29	46	52	131	108	82	74	47	47	30	31	47
7	29	38	40	110	89	74	66	46	54	28	32	44
8	29	35	44	92	74	75	68	44	53	25	32	42
9	29	34	43	76	70	83	61	42	43	24	30	41
10	29	34	45	66	58	71	58	41	41	29	28	40
11	30	35	51	62	70	73	57	43	42	39	26	38
12	29	35	48	51	146	76	55	57	62	27	25	39
13	29	32	45	52	111	68	54	62	46	29	24	40
14	29	31	43	61	103	65	54	54	38	30	23	36
15	29	31	42	50	81	61	61	50	36	48	22	36
16	29	31	41	45	73	59	127	121	48	65	24	34
17	30	31	41	53	61	59	122	126	58	35	51	33
18	30	31	41	52	60	57	102	106	40	29	1860	33
19	30	49	41	49	66	55	91	84	36	26	485	32
20	30	47	42	38	80	55	80	64	33	24	225	31
21	30	38	47	27	98	53	72	63	32	23	162	31
22	32	33	55	32	142	63	66	66	31	23	119	31
23	37	32	50	28	155	127	61	134	30	22	93	32
24	36	34	48	27	162	142	67	301	28	22	82	32
25	36	34	49	27	161	144	110	278	27	83	144	30
26	35	33	45	28	352	125	75	180	27	110	144	29
27	34	33	44	29	269	109	68	126	25	67	149	29
28	33	127	43	31	193	98	65	97	25	61	118	29
29	37	131	42	33	---	90	60	81	26	55	95	27
30	36	83	42	36	---	81	55	69	27	47	80	27
31	35	---	49	50	---	78	---	64	---	45	75	---
TOTAL	1071	1323	1440	1938	3857	2716	2195	2725	1209	1235	4377	1139
MEAN	34.5	44.1	46.5	62.5	138	87.6	73.2	87.9	40.3	39.8	141	38.0
MAX	104	131	65	214	374	154	127	301	62	110	1860	64
MIN	29	31	40	27	58	53	54	41	25	22	22	27
CFSM	.31	.40	.42	.57	1.25	.80	.67	.80	.37	.36	1.28	.35
IN.	.36	.45	.49	.66	1.30	.92	.74	.92	.41	.42	1.48	.39
CAL YR 1984	TOTAL	40648	MEAN	111	MAX	1380	MIN	25	CFSM	1.01	IN.	13.75
WTR YR 1985	TOTAL	25225	MEAN	69.1	MAX	1860	MIN	22	CFSM	.63	IN.	8.53



## 02054500 ROANOKE RIVER AT LAFAYETTE, VA

LOCATION.--Lat 37°14'11", long 80°12'34", Montgomery County, Hydrologic Unit 03010101, on right bank 120 ft upstream from bridge on State Highway 603 at Lafayette, 0.4 mi downstream from confluence of North and South Forks, and 1.1 mi upstream from Cove Hollow.

DRAINAGE AREA.--257 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1943 to current year.

REVISED RECORDS.--WSP 1333: 1944-47(M), 1948-49.

GAGE.--Water-stage recorder. Datum of gage is 1,174.47 ft above National Geodetic Vertical Datum of 1929. Prior to July 30, 1949, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-30 and Feb. 10. Records good except those for periods with ice effect, Jan. 22-30 and Feb. 10, which are fair. Occasional diurnal fluctuation caused by meat-processing plant upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--42 years, 240 ft<sup>3</sup>/s, 12.68 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft<sup>3</sup>/s, June 21, 1972, gage height, 15.60 ft, from flood-marks, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 10 ft<sup>3</sup>/s, Jan. 14, 15, 18, 19, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 12.2 ft, from information by local residents, discharge, 19,000 ft<sup>3</sup>/s, from rating curve extended above 12,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1215	*6,510	*8.65	No other peak equal to or greater than base discharge.			

Minimum discharge, 18 ft<sup>3</sup>/s, Jan. 21, gage height, 0.77 ft, result of freezeup; minimum daily, 34 ft<sup>3</sup>/s, Jan. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	161	68	111	91	471	297	168	109	134	78	77	149
2	96	67	95	90	930	256	143	112	117	83	90	137
3	72	68	88	169	581	219	136	131	109	70	72	125
4	65	71	81	507	345	193	129	107	105	72	59	117
5	62	108	81	390	262	181	121	95	107	69	53	110
6	59	96	92	269	226	159	140	90	104	66	52	106
7	58	81	78	217	190	143	130	86	104	61	54	101
8	58	76	75	179	138	137	130	82	110	55	53	98
9	61	73	79	152	116	146	122	79	91	52	51	98
10	60	71	78	133	110	130	115	76	83	51	47	93
11	58	77	85	122	125	127	112	77	86	68	44	90
12	58	76	84	106	319	135	109	83	109	56	51	91
13	58	72	81	93	274	121	104	101	95	54	54	92
14	58	70	79	97	194	117	102	90	79	74	45	85
15	58	69	78	87	168	111	110	85	74	70	39	83
16	60	68	76	67	145	106	257	163	91	96	43	81
17	61	68	76	93	140	104	252	173	120	68	80	80
18	62	69	74	89	131	101	207	156	85	56	3180	77
19	62	94	74	83	146	97	183	128	75	51	969	75
20	61	107	76	76	177	95	165	106	69	47	529	74
21	60	85	87	34	178	93	148	94	65	53	431	73
22	68	78	109	45	217	102	135	103	63	63	316	73
23	89	74	106	43	259	217	125	271	61	48	259	74
24	88	75	97	42	272	249	142	1640	58	45	240	74
25	75	75	96	42	271	254	279	972	56	65	731	73
26	71	74	90	43	612	227	197	485	55	167	442	69
27	67	74	86	45	521	201	167	316	52	108	330	68
28	66	154	83	48	370	184	151	244	51	98	259	66
29	73	225	81	50	---	171	135	203	51	86	214	65
30	72	140	79	58	---	156	119	171	53	75	187	65
31	68	---	89	85	---	147	---	154	---	80	171	---
TOTAL	2145	2603	2644	3645	7888	4976	4533	6782	2512	2185	9222	2662
MEAN	69.2	86.8	85.3	118	282	161	151	219	83.7	70.5	297	88.7
MAX	161	225	111	507	930	297	279	1640	134	167	3180	149
MIN	58	67	74	34	110	93	102	76	51	45	39	65
CFSM	.27	.34	.33	.46	1.10	.63	.59	.85	.33	.27	1.16	.35
IN.	.31	.38	.38	.53	1.14	.72	.66	.98	.36	.32	1.33	.39
CAL YR 1984	TOTAL	89622	MEAN	245	MAX	2830	MIN	48	CFSM	.95	IN.	12.97
WTR YR 1985	TOTAL	51797	MEAN	142	MAX	3180	MIN	34	CFSM	.55	IN.	7.50

## 02055000 ROANOKE RIVER AT ROANOKE, VA

LOCATION.--Lat 37°15'30", long 79°56'20", Roanoke City, Hydrologic Unit 03010101, on left bank 50 ft downstream from Walnut Street Bridge, 3.2 mi upstream from Tinker Creek, and at mile 360.6.

DRAINAGE AREA.--395 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1899 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for July 1896 to January 1899 published in WSP 11, 15, 27, and 20th Annual Report, Part 4, are unreliable, due to doubtful gage-height record, and should not be used.

REVISED RECORDS.--WSP 972: 1928, 1930, 1933. WSP 1433: 1899-1904, 1914-17(M), 1918-24, 1925-27(M), 1929-34(M), 1935, 1936-39(M). WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1940(M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 906.84 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 7, 1937, nonrecording gage on downstream side of highway bridge 50 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 21, 26. Records good except those for periods with ice effect, Jan. 21, 26, which are fair. Prior to 1949, diurnal fluctuation at low flow caused by powerplants upstream from station. Appalachian Power Company gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--86 years, 371 ft<sup>3</sup>/s, 12.75 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,300 ft<sup>3</sup>/s, June 21, 1972, gage height, 19.61 ft, from floodmarks; practically no flow Dec. 23, 1909, Dec. 19, 1963, when flow was retarded by freezing, gage height, 0.0 ft; minimum daily discharge, 19 ft<sup>3</sup>/s, Aug. 29, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 24	1030	3,660	5.61	Aug. 18	1300	*11,400	*11.32

Minimum discharge, 42 ft<sup>3</sup>/s, Jan. 21, result of freezeup, and Aug. 16, gage height, 0.39 ft; minimum daily, 49 ft<sup>3</sup>/s, July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	245	75	155	118	493	439	219	134	189	94	162	209
2	161	73	132	122	1290	370	196	140	160	96	139	184
3	103	71	118	276	984	314	178	149	145	88	123	164
4	86	127	110	699	583	274	169	138	134	79	97	152
5	80	120	114	591	419	250	158	120	136	100	83	140
6	77	113	130	406	342	224	168	109	133	85	76	131
7	74	94	117	310	290	197	172	102	141	72	78	123
8	73	84	99	260	227	181	160	96	134	64	75	118
9	76	81	102	217	163	185	154	92	122	56	71	112
10	76	79	102	183	186	173	145	89	106	54	66	108
11	73	85	101	161	185	164	139	90	113	53	61	101
12	72	83	106	146	686	170	134	122	124	67	57	119
13	70	79	102	121	574	154	130	119	128	111	82	99
14	70	76	99	125	352	147	127	107	103	80	62	96
15	70	73	96	121	288	141	127	111	91	92	52	91
16	70	73	95	96	244	134	320	180	105	81	66	85
17	70	72	92	118	224	130	377	198	123	91	201	82
18	71	74	90	116	199	127	300	183	113	66	6920	81
19	72	118	89	110	199	122	257	150	97	55	2210	78
20	72	108	90	97	230	119	229	129	88	51	874	74
21	71	100	129	56	238	116	203	116	82	55	692	74
22	85	88	123	62	265	176	180	124	78	104	448	73
23	103	82	132	78	316	304	162	435	75	62	324	72
24	97	80	124	84	350	332	167	2820	71	49	287	71
25	91	80	120	93	373	345	298	1920	66	131	714	68
26	81	79	116	90	688	312	259	906	62	166	990	67
27	78	78	109	81	767	278	210	553	59	166	564	63
28	77	189	104	83	558	255	187	392	57	135	411	61
29	80	284	103	84	---	234	166	310	56	127	318	60
30	80	202	103	78	---	217	146	255	60	108	266	59
31	78	---	128	116	---	205	---	220	---	130	238	---
TOTAL	2682	3020	3430	5298	11713	6789	5837	10609	3151	2768	16807	3015
MEAN	86.5	101	111	171	418	219	195	342	105	89.3	542	101
MAX	245	284	155	699	1290	439	377	2820	189	166	6920	209
MIN	70	71	89	56	163	116	127	89	56	49	52	59
CFSM	.22	.26	.28	.43	1.06	.55	.49	.87	.27	.23	1.37	.26
IN.	.25	.28	.32	.50	1.10	.64	.55	1.00	.30	.26	1.58	.28
CAL YR 1984	TOTAL	132521	MEAN	362	MAX	5010	MIN	58	CFSM	.92	IN.	12.48
WTR YR 1985	TOTAL	75119	MEAN	206	MAX	6920	MIN	49	CFSM	.52	IN.	7.07

## 02055100 TINKER CREEK NEAR DALEVILLE, VA

LOCATION.--Lat 37°25'03", long 79°56'08", Botetourt County, Hydrologic Unit 03010101, on left bank 1,100 ft downstream from Norfolk and Western Railway bridge, 0.2 mi downstream from unnamed tributary, 0.5 mi south of Glebe Mills, and 1.3 mi northwest of Daleville.

DRAINAGE AREA.--11.7 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1956 to current year.

REVISED RECORDS.--WSP 1904: 1958-60(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,217.47 ft above National Geodetic Vertical Datum of 1929 (Norfolk and Western Railway bench mark).

REMARKS.--Estimated daily discharges: Jan. 16-31. Records good except those for period with ice effect, Jan. 16-31, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--29 years, 11.7 ft<sup>3</sup>/s, 13.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,000 ft<sup>3</sup>/s, June 21, 1972, gage height, 9.82 ft, from rating curve extended above 100 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 9.82 ft and slope-area measurements at gage heights 8.52 ft and 9.82 ft; minimum, 0.20 ft<sup>3</sup>/s, Jan. 24, 1961, result of freezeup; minimum daily, 0.90 ft<sup>3</sup>/s, July 26, 1966; minimum gage height, 0.99 ft, June 12, 24, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1940 reached a stage of 9.0 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	0715	*508	*4.95	Aug. 20	1900	452	4.73

Minimum discharge, 2.7 ft<sup>3</sup>/s, part of each day Aug. 12-16, gage height, 1.13 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	5.3	7.5	6.6	72	11	6.6	4.4	8.3	5.8	4.8	11
2	6.6	5.2	6.7	6.5	49	11	6.0	5.2	7.8	5.1	4.5	9.9
3	6.3	5.0	6.8	20	30	10	5.9	5.2	7.3	4.2	3.8	9.4
4	6.0	6.3	6.2	32	24	9.9	5.8	4.6	6.8	4.7	3.6	8.7
5	5.7	8.8	5.9	23	19	9.4	5.7	4.3	6.7	5.4	3.4	8.3
6	5.5	6.2	7.5	18	17	8.6	6.3	4.2	6.6	4.5	3.4	7.9
7	5.4	5.6	6.4	15	15	8.4	6.1	4.3	7.4	3.9	3.7	7.8
8	5.4	5.4	6.1	13	13	8.3	6.1	4.1	6.8	3.7	3.6	7.5
9	5.6	5.3	5.9	11	13	8.0	5.9	4.0	6.0	3.6	3.3	7.2
10	5.5	5.2	6.0	10	11	7.4	5.6	3.9	5.9	5.4	3.1	6.9
11	5.6	5.4	6.0	9.7	11	7.8	5.6	4.6	9.0	4.9	3.0	6.5
12	5.9	5.0	5.9	9.1	82	7.8	5.6	4.7	12	3.9	2.9	6.8
13	5.9	5.2	5.7	8.9	28	8.0	5.5	4.1	7.2	4.3	2.9	6.4
14	5.9	5.3	5.5	9.2	24	8.0	5.5	3.8	6.2	4.6	2.9	6.1
15	5.6	5.3	5.3	9.8	18	7.6	5.5	3.8	5.8	4.6	2.8	6.0
16	5.8	5.6	5.3	7.5	15	7.7	8.7	4.7	6.0	4.0	3.2	5.8
17	6.0	5.9	5.3	9.0	14	7.2	6.3	5.9	5.6	3.6	4.9	5.5
18	5.9	6.2	5.1	8.8	13	7.0	5.8	4.4	5.3	3.4	165	5.3
19	5.8	8.6	5.1	8.0	12	6.7	5.5	4.1	5.0	3.3	31	5.2
20	5.6	6.9	5.0	7.0	11	6.5	5.4	3.9	4.9	3.2	61	5.2
21	5.6	6.5	6.6	4.5	11	6.4	5.2	4.1	4.8	3.1	37	5.1
22	6.7	6.4	6.3	5.4	11	8.5	5.2	4.2	4.6	3.1	25	5.2
23	9.7	6.3	5.7	6.4	11	14	5.0	23	4.7	3.2	20	5.2
24	9.1	6.0	5.7	7.0	11	9.7	5.4	91	4.6	3.1	16	5.1
25	7.2	5.9	5.5	7.5	10	8.5	5.8	41	4.3	8.6	41	5.0
26	6.8	5.7	5.2	7.0	17	7.7	5.0	25	4.2	6.2	28	5.0
27	6.6	5.7	5.2	6.4	14	7.3	4.9	19	4.1	9.3	21	5.5
28	6.4	15	5.1	6.6	13	7.2	4.8	14	4.2	5.8	17	5.6
29	6.5	8.6	5.1	6.4	---	6.9	4.6	11	4.1	5.0	14	5.6
30	5.9	6.7	5.0	6.2	---	6.6	4.5	10	4.6	4.3	13	5.5
31	5.5	---	7.5	10	---	6.7	---	9.4	---	4.2	12	---
TOTAL	198.0	190.5	182.1	315.5	589	255.8	169.8	339.9	180.8	142.0	560.8	196.2
MEAN	6.39	6.35	5.87	10.2	21.0	8.25	5.66	11.0	6.03	4.58	18.1	6.54
MAX	12	15	7.5	32	82	14	8.7	91	12	9.3	165	11
MIN	5.4	5.0	5.0	4.5	10	6.4	4.5	3.8	4.1	3.1	2.8	5.0
CFSM	.55	.54	.50	.87	1.79	.71	.48	.94	.52	.39	1.55	.56
IN.	.63	.61	.58	1.00	1.87	.81	.54	1.08	.57	.45	1.78	.62
CAL YR 1984	TOTAL	5702.4	MEAN	15.6	MAX	188	MIN	4.4	CFSM	1.33	IN.	18.13
WTR YR 1985	TOTAL	3320.4	MEAN	9.10	MAX	165	MIN	2.8	CFSM	.78	IN.	10.56

## 02056000 ROANOKE RIVER AT NIAGARA, VA

LOCATION.--Lat 37°15'18", long 79°52'18", Roanoke County, Hydrologic Unit 03010101, on right bank 200 ft downstream from powerplant of Appalachian Power Company at Niagara, 2 mi downstream from Tinker Creek, 2.1 mi southeast of Vinton, and at mile 355.3.

DRAINAGE AREA.--512 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1926 to current year.

REVISED RECORDS.--WSP 972: 1927(M), 1929(M), 1934(M), 1937(M). WSP 1303: 1928, 1930, 1933-38, 1940. WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1930(M), 1933(M), 1935-36(M), 1938(M), 1940, 1944-45(M), 1948-49(M), 1951(M), 1955(M), 1960(M), 1967(M), 1969(M).

GAGE.--Water-stage recorder. Datum of gage is 820.15 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Estimated daily discharges: Jan. 20-24. Records good except those for period with ice effect, Jan. 20-24, which are fair. Flow regulated by dam and powerplant 200 ft upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--59 years, 511 ft<sup>3</sup>/s, 13.55 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,300 ft<sup>3</sup>/s, Apr. 27, 1978, gage height, 19.12 ft, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 18.98 ft; minimum, 1.0 ft<sup>3</sup>/s, Oct. 16, 20, 1956; minimum daily, 8 ft<sup>3</sup>/s, Oct. 9, 1954; minimum gage height, 0.17 ft, Aug. 25, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 24	1115	4,700	8.74	Aug. 18	1345	*16,500	*14.82

Minimum discharge, 16 ft<sup>3</sup>/s, May 9, 13, 15, Sept. 16, gage height, 0.55 ft; minimum daily, 112 ft<sup>3</sup>/s, July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	487	179	285	172	825	593	358	257	332	198	331	325
2	311	140	205	230	1750	519	335	238	299	189	305	296
3	225	153	244	454	1350	453	311	276	283	131	207	283
4	180	229	184	968	854	410	297	260	249	157	191	253
5	182	347	234	807	675	381	285	222	212	220	138	238
6	178	208	267	605	574	361	284	216	286	184	159	228
7	177	198	211	447	499	325	287	191	272	133	167	213
8	143	167	213	397	417	306	284	191	267	153	163	204
9	202	177	187	349	330	300	278	196	234	151	163	220
10	165	173	188	314	334	296	253	169	200	131	144	203
11	150	162	198	292	323	287	246	208	237	127	137	192
12	191	161	199	277	1270	290	248	247	269	158	136	232
13	145	160	201	232	961	287	215	213	236	271	157	193
14	147	182	178	233	647	277	248	212	210	211	140	181
15	172	140	213	229	535	246	215	189	190	213	133	173
16	153	153	159	222	451	285	504	352	195	172	141	143
17	172	163	166	224	401	237	512	319	263	166	327	166
18	153	162	183	231	367	171	433	297	212	138	9510	163
19	172	259	213	228	349	228	385	265	193	146	2950	158
20	153	173	145	170	367	226	354	229	186	139	1300	157
21	165	199	278	130	373	221	321	222	154	129	1150	153
22	178	160	226	150	391	338	303	229	149	179	740	152
23	209	169	226	170	439	544	284	717	170	147	547	164
24	208	169	181	190	473	508	276	3690	162	112	487	152
25	168	167	220	195	506	507	430	2670	133	274	987	149
26	192	145	191	183	848	476	388	1340	143	307	1410	148
27	178	188	206	178	931	434	329	829	151	304	846	143
28	148	311	190	184	723	406	307	602	135	251	629	139
29	160	396	187	181	---	384	286	491	141	223	499	137
30	174	324	179	174	---	356	268	414	143	210	415	139
31	169	---	271	276	---	339	---	368	---	206	368	---
TOTAL	5807	5914	6428	9092	17963	10991	9524	16319	6306	5730	24977	5697
MEAN	187	197	207	293	642	355	317	526	210	185	806	190
MAX	487	396	285	968	1750	593	512	3690	332	307	9510	325
MIN	143	140	145	130	323	171	215	169	133	112	133	137
CFSM	.37	.38	.40	.57	1.25	.69	.62	1.03	.41	.36	1.57	.37
IN.	.42	.43	.47	.66	1.31	.80	.69	1.19	.46	.42	1.81	.41
CAL YR 1984	TOTAL	201491	MEAN	551	MAX	6720	MIN	126	CFSM	1.08	IN.	14.64
WTR YR 1985	TOTAL	124748	MEAN	342	MAX	9510	MIN	112	CFSM	.67	IN.	9.06



## ROANOKE RIVER BASIN

02056650 BACK CREEK NEAR DUNDEE, VA

LOCATION.--Lat 37°13'40", long 79°52'06", Roanoke County, Hydrologic Unit 03010101, on right bank at upstream side of bridge on State Highway 660, 0.9 mi upstream from Horseshoe Branch, 1.1 mi southeast of Dundee, 2.8 mi west of Hardy post office, and at mile 2.4.

DRAINAGE AREA.--56.8 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 822.67 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 4, 1975, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 8, 9 and Jan. 13-30. Records good except those for periods with ice effect, Dec. 8, 9 and Jan. 13-30, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years, 59.7 ft<sup>3</sup>/s, 14.27 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,500 ft<sup>3</sup>/s, May 29, 1976, gage height, 15.00 ft, from flood-marks; minimum daily, 0.90 ft<sup>3</sup>/s, Aug. 30, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of May 30, 1971, and June 21, 1972, reached a stage of 17.5 ft and 20.0 ft, respectively, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1320	*5,110	*12.46	No other peak equal to or greater than base discharge.			

Minimum discharge, 5.1 ft<sup>3</sup>/s, July 22, 23, gage height, 0.63 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	13	31	25	96	70	45	22	30	19	14	39
2	31	12	26	24	219	62	41	23	26	25	22	36
3	19	12	25	68	121	54	38	30	24	20	15	32
4	15	17	22	140	81	50	37	23	25	14	12	30
5	14	56	21	120	62	47	35	20	26	12	11	28
6	13	34	30	79	55	42	36	19	25	11	10	26
7	12	17	24	59	49	38	34	17	23	11	11	24
8	12	15	22	49	35	37	35	17	24	9.2	20	24
9	12	14	20	42	39	37	33	16	19	8.0	12	22
10	12	13	23	36	44	35	31	16	16	8.3	10	20
11	12	13	22	33	38	34	31	18	17	12	9.7	19
12	12	13	22	30	173	35	31	29	17	9.1	9.1	24
13	12	11	20	25	105	32	29	23	16	11	8.6	23
14	12	11	20	26	68	32	29	18	14	9.4	8.1	19
15	12	11	20	24	55	30	29	16	13	11	7.5	18
16	12	11	19	20	48	29	67	43	14	12	7.4	18
17	12	11	18	23	46	29	53	32	26	9.4	16	18
18	12	11	18	24	41	28	46	25	15	7.5	2050	16
19	12	18	18	22	43	27	41	20	13	6.8	360	16
20	12	19	18	20	50	27	36	17	12	6.4	150	16
21	12	14	23	12	44	27	35	19	11	6.0	117	14
22	12	13	30	13	45	36	32	20	10	5.7	78	15
23	13	12	26	16	52	130	31	57	10	5.2	58	15
24	17	13	23	17	53	101	30	255	10	5.7	49	14
25	16	12	23	19	54	82	39	177	8.9	22	114	14
26	16	12	21	18	123	64	30	90	8.3	65	159	13
27	15	12	20	17	108	59	27	63	7.9	26	166	13
28	13	50	20	18	84	54	27	47	7.6	21	89	12
29	13	68	20	18	---	50	24	41	7.4	21	63	12
30	13	38	20	17	---	46	22	35	7.6	16	50	13
31	13	---	23	27	---	43	---	33	---	16	47	---
TOTAL	493	576	688	1081	2031	1467	1054	1281	483.7	441.7	3753.4	603
MEAN	15.9	19.2	22.2	34.9	72.5	47.3	35.1	41.3	16.1	14.2	121	20.1
MAX	80	68	31	140	219	130	67	255	30	65	2050	39
MIN	12	11	18	12	35	27	22	16	7.4	5.2	7.4	12
CFSM	.28	.34	.39	.61	1.28	.83	.62	.73	.28	.25	2.13	.35
IN.	.32	.38	.45	.71	1.33	.96	.69	.84	.32	.29	2.46	.39
CAL YR 1984	TOTAL	20938.1	MEAN	57.2	MAX	984	MIN	9.4	CFSM	1.01	IN.	13.71
WTR YR 1985	TOTAL	13952.8	MEAN	38.2	MAX	2050	MIN	5.2	CFSM	.67	IN.	9.14

02056900 BLACKWATER RIVER NEAR ROCKY MOUNT, VA

LOCATION.--Lat 37°02'42", long 79°50'40", Franklin County, Hydrologic Unit 03010101, on right bank 45 ft downstream from bridge on State Highway 122, 3.0 mi northeast of Rocky Mount, and 4.1 mi upstream from Maggodee Creek.

DRAINAGE AREA.--115 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 14, 15, 22-30 and Feb. 6, 7, 10. Records good except those for periods with ice effect, Jan. 14, 15, 22-30 and Feb. 6, 7, 10, which are fair. Appalachian Power Company gage-height telemeter at station. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--9 years, 131 ft<sup>3</sup>/s, 15.47 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,130 ft<sup>3</sup>/s, Sept. 22, 1979, gage height, 16.38 ft; minimum, 7.2 ft<sup>3</sup>/s, Aug. 28, 1981, gage height, 1.16 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1930	*4,470	*10.95	No other peak equal to or greater than base discharge.			

Minimum discharge, 23 ft<sup>3</sup>/s, July 22, 24, Aug. 15, gage height, 1.49 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	136	48	70	65	177	134	87	55	71	64	50	99
2	76	48	64	62	383	123	79	58	64	74	69	94
3	54	47	62	191	216	111	75	73	61	87	51	86
4	48	51	58	388	138	104	74	60	60	51	41	79
5	46	119	59	202	116	100	71	54	79	42	37	72
6	45	79	83	132	100	93	78	52	72	38	36	69
7	46	59	74	109	90	88	75	49	72	37	37	66
8	45	54	68	95	82	86	74	49	85	33	67	67
9	47	52	63	85	70	88	71	47	64	29	81	61
10	47	51	61	79	70	83	68	46	55	28	47	59
11	46	53	61	76	92	81	68	46	64	41	38	55
12	46	52	59	72	393	86	67	65	60	36	34	58
13	46	48	57	65	218	77	66	62	53	30	31	58
14	47	47	56	64	134	76	66	49	46	44	29	52
15	44	47	55	62	116	73	69	48	45	124	28	50
16	45	47	55	62	101	71	110	90	60	76	26	49
17	45	47	54	78	99	71	102	79	67	65	36	47
18	46	47	54	71	90	69	84	67	50	43	2770	46
19	47	55	54	67	88	67	79	54	43	35	738	44
20	46	65	55	59	91	67	75	50	39	32	315	42
21	47	53	60	42	88	66	72	53	37	29	206	41
22	46	51	68	52	89	77	68	57	36	27	155	42
23	53	49	63	45	93	173	65	401	35	28	127	42
24	56	49	57	46	95	136	64	469	38	26	112	41
25	52	49	57	48	97	113	88	272	36	57	132	38
26	52	49	54	50	274	100	70	150	33	129	192	36
27	50	48	53	52	202	93	65	112	31	98	316	36
28	49	87	54	56	155	90	66	95	28	75	179	34
29	50	159	54	58	---	87	61	85	29	71	140	34
30	50	84	54	60	---	84	57	79	31	59	120	34
31	48	---	63	77	---	81	---	77	---	49	110	---
TOTAL	1601	1794	1859	2670	3957	2848	2214	3003	1544	1657	6350	1631
MEAN	51.6	59.8	60.0	86.1	141	91.9	73.8	96.9	51.5	53.5	205	54.4
MAX	136	159	83	388	393	173	110	469	85	129	2770	99
MIN	44	47	53	42	70	66	57	46	28	26	26	34
CFSM	.45	.52	.52	.75	1.23	.80	.64	.84	.45	.47	1.78	.47
IN.	.52	.58	.60	.86	1.28	.92	.72	.97	.50	.54	2.05	.53
CAL YR 1984	TOTAL	43107	MEAN	118	MAX	1110	MIN	34	CFSM	1.03	IN.	13.94
WTR YR 1985	TOTAL	31128	MEAN	85.3	MAX	2770	MIN	26	CFSM	.74	IN.	10.07

## ROANOKE RIVER BASIN

02057400 SMITH MOUNTAIN LAKE NEAR PENHOOK, VA

LOCATION.--Lat 37°02'28", long 79°32'09", Pittsylvania County, Hydrologic Unit 03010101, at dam on Roanoke (Staunton) River 6.5 mi northeast of Penhook and at mile 314.0.

DRAINAGE AREA.--1,024 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to July 19, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete dam. Two ungated spillways, one near each end of dam, with crests at elevation 795 ft, are each 105 ft long. Initial filling began in September 1963 during construction; water in reservoir first reached minimum power pool, elevation, 787 ft, in May 1965. Total capacity at maximum pool elevation, 811 ft, is 1,517,000 acre-ft of which 375,000 acre-ft is upstream from the spillway crest; 157,800 acre-ft is normally used for power between elevation 787 ft, minimum power pool, and the spillway crest. Capacity at invert of lowest penstock, elevation, 601 ft, is 100 acre-ft. Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (pumped storage) which is used for hydroelectric power, flood control, low-water regulation for pollution abatement and water supply, water releases for downstream fish spawning, and recreation.

COOPERATION.--Records were provided by the Appalachian Power Company.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,250,200 acre-ft, Apr. 27, 1978, elevation, 799.8 ft; minimum (after first filling to minimum power pool), 995,400 acre-ft, Jan. 23, 1970, elevation, 787.6 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,160,000 acre-ft, Aug. 18, 19, elevation, 795.8 ft; minimum, 1,091,000 acre-ft, Nov. 20-22, elevation, 792.5 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	794.2	1,125,700	-
Oct. 31.....	793.7	1,115,500	-10,200
Nov. 30.....	793.0	1,101,200	-14,300
Dec. 31.....	794.4	1,129,800	+28,600
CAL YR 1984.....	-	-	+2,100
Jan. 31.....	794.1	1,123,600	-6,200
Feb. 28.....	793.9	1,119,600	-4,000
Mar. 31.....	794.8	1,137,900	+18,300
Apr. 30.....	794.7	1,135,900	-2,000
May 31.....	793.6	1,113,400	-22,500
June 30.....	794.2	1,125,700	+12,300
July 31.....	794.5	1,131,800	+6,100
Aug. 31.....	794.3	1,127,700	-4,100
Sept. 30.....	794.3	1,127,700	0
WTR YR 1985.....	-	-	+2,000

## 02058400 PIGG RIVER NEAR SANDY LEVEL, VA

LOCATION.--Lat 36°56'45", long 79°31'30", Pittsylvania County, Hydrologic Unit 03010101, on left bank 300 ft downstream from Harpen Creek, 0.5 mi upstream from bridge on State Highway 40, and 1.1 mi south of Sandy Level.

DRAINAGE AREA.--350 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1963 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 617.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 18, 1963, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-25. Records good except those for period with ice effect, Jan. 22-25, which are fair. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--22 years, 365 ft<sup>3</sup>/s, 14.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,400 ft<sup>3</sup>/s, Apr. 27, 1978, gage height, 25.56 ft, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 24 ft<sup>3</sup>/s, Aug. 29, 30, 1981, gage height, 1.95 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	2200	*17,100	*21.54	No other peak equal to or greater than base discharge.			

Minimum discharge, 96 ft<sup>3</sup>/s, July 21-22, 25, gage height, 2.33 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	444	200	272	229	676	312	228	159	192	184	266	250
2	344	198	241	220	1750	298	220	160	171	291	472	236
3	222	191	235	1180	995	284	208	175	162	535	277	225
4	197	192	226	2590	524	275	204	179	162	271	192	213
5	190	274	226	1060	409	274	203	160	192	177	162	205
6	183	295	412	579	382	261	202	155	246	154	150	204
7	181	225	360	433	359	248	205	151	193	145	245	196
8	181	205	286	370	318	255	201	144	236	134	661	220
9	185	199	260	328	278	280	194	142	202	122	391	211
10	185	198	247	305	304	261	191	143	169	118	240	187
11	178	203	239	293	297	252	193	147	156	121	188	179
12	178	206	230	281	1420	257	194	151	222	115	163	175
13	176	197	226	269	1000	245	192	169	196	116	150	178
14	175	190	220	262	517	240	193	150	152	124	147	175
15	174	192	218	258	403	236	204	142	143	155	133	165
16	174	194	211	224	354	228	235	238	176	252	131	161
17	176	190	210	268	330	229	275	301	285	216	298	160
18	181	189	209	285	317	226	227	207	184	161	10600	158
19	180	231	214	284	301	220	207	163	151	118	6510	155
20	179	264	217	250	294	219	196	150	138	107	817	157
21	176	223	231	150	286	222	189	148	131	100	550	152
22	181	205	258	200	279	243	184	161	126	99	411	154
23	194	201	243	205	276	424	176	1240	122	115	332	158
24	526	202	218	215	276	398	172	989	123	105	303	155
25	363	201	211	225	276	311	218	749	126	141	464	148
26	242	199	201	219	409	265	226	418	126	593	488	141
27	219	199	200	208	454	245	183	287	135	454	692	138
28	207	330	203	233	346	236	181	232	121	595	474	134
29	217	689	202	231	---	232	176	214	112	465	341	131
30	222	348	201	220	---	227	168	205	137	295	323	131
31	206	---	226	257	---	221	---	192	---	247	304	---
TOTAL	6836	7030	7353	12331	13830	8124	6045	8221	4987	6825	26875	5252
MEAN	221	234	237	398	494	262	202	265	166	220	867	175
MAX	526	689	412	2590	1750	424	275	1240	285	595	10600	250
MIN	174	189	200	150	276	219	168	142	112	99	131	131
CFSM	.63	.67	.68	1.14	1.41	.75	.58	.76	.47	.63	2.48	.50
IN.	.73	.75	.78	1.31	1.47	.86	.64	.87	.53	.73	2.86	.56
CAL YR 1984	TOTAL	146312	MEAN	400	MAX	4950	MIN	155	CFSM	1.14	IN.	15.55
WTR YR 1985	TOTAL	113709	MEAN	312	MAX	10600	MIN	99	CFSM	.89	IN.	12.09



## ROANOKE RIVER BASIN

02059400 LEESVILLE LAKE NEAR LEESVILLE, VA

LOCATION.--Lat 37°05'35", long 79°24'09", Campbell County, Hydrologic Unit 03010101, at Leesville Dam on Roanoke (Staunton) River, 2.0 mi south of Leesville, 3.5 mi upstream from Goose Creek, and at mile 296.

DRAINAGE AREA.--1,505 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to June 6, 1963, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete dam. Spillway, with crest at elevation 578.0 ft, is equipped with 4 radial gates 35 ft high by 50 ft wide. Storage began on Sept. 29, 1962, during construction, and water in reservoir first reached minimum power pool, elevation, 600.0 ft, on Mar. 5, 1963. Total capacity at maximum pool elevation, 613 ft, is 94,960 acre-ft of which 75,960 acre-ft is upstream from the spillway crest; 38,200 acre-ft is normally used for power between elevations 600.0 ft, minimum power pool, and 613.0 ft. Capacity at invert of lowest penstock, elevation, 579.75 ft, is 21,010 acre-ft. Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (see station 02057400).

COOPERATION.--Records were provided by the Appalachian Power Company.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 98,180 acre-ft, Feb. 1, 1965, elevation, 614.0 ft; minimum (after first filling to minimum power pool), 39,880 acre-ft, Mar. 19, 1963, elevation, 592.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 94,960 acre-ft, Oct. 16, Sept. 3, 4, 7, elevation, 613.0 ft; minimum, 57,470 acre-ft, Nov. 9, elevation, 600.1 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	604.9	70,330	-
Oct. 31.....	606.9	76,190	+5,860
Nov. 30.....	610.0	85,300	+9,110
Dec. 31.....	601.9	62,290	-23,010
CAL YR 1984.....	-	-	-19,190
Jan. 31.....	602.8	64,700	+2,410
Feb. 28.....	610.3	86,270	+21,570
Mar. 31.....	605.0	70,600	-15,670
Apr. 30.....	603.9	67,650	-2,950
May 31.....	611.2	89,160	+21,510
June 30.....	603.1	65,510	-23,650
July 31.....	605.0	70,600	+5,090
Aug. 31.....	606.5	75,010	+4,410
Sept. 30.....	602.1	62,830	-12,180
WTR YR 1985.....	-	-	-7,500

## 02059500 GOOSE CREEK NEAR HUDDLESTON, VA

LOCATION.--Lat 37°10'23", long 79°31'14", Bedford County, Hydrologic Unit 03010101, on left bank 0.3 mi upstream from Haden Bridge on State Highway 732, 0.4 mi upstream from Rockcastle Creek, and 3.5 mi northwest of Huddleston.

DRAINAGE AREA.--188 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1925 to August 1928 (gage heights only), September 1930 to current year.

REVISED RECORDS.--WSP 892: 1933, 1935(M), 1939. WSP 972: 1931-32(M), 1934(M), 1935-38, 1940, 1941(M). WSP 1082: 1940(P). WSP 1142: 1938-40(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 592.91 ft above National Geodetic Vertical Datum of 1929. Mar. 15, 1925, to Aug. 4, 1928, nonrecording gage at site 1,300 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Jan. 14, 22-30 and Feb. 10. Records good except those for periods with ice effect, Jan. 14, 22-30 and Feb. 10, which are fair. Prior to October 1954, diurnal fluctuation at low flow caused by mill upstream from station. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--55 years, 177 ft<sup>3</sup>/s, 12.79 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,300 ft<sup>3</sup>/s, Oct. 19, 1937, gage height, 25.75 ft, from flood-marks, from rating curve extended above 11,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 19.25 ft, 24.1 ft, and 24.89 ft; minimum, 3 ft<sup>3</sup>/s, Aug. 31, 1932, Jan. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1130	*3,720	*10.17	Aug. 25	2000	2,580	7.90

Minimum discharge, 16 ft<sup>3</sup>/s, Jan. 21, gage height, 0.85 ft, result of freezeup; minimum daily, 47 ft<sup>3</sup>/s, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	226	78	141	122	605	143	140	80	98	84	115	105
2	139	78	124	121	1130	141	132	83	86	103	107	99
3	102	74	117	403	619	134	129	105	86	90	79	92
4	93	80	107	829	377	129	129	89	85	67	64	86
5	90	146	108	487	273	128	126	82	89	59	59	80
6	86	121	151	311	224	118	129	78	92	57	58	76
7	86	94	134	233	189	115	127	77	88	56	67	74
8	86	86	126	191	151	115	130	76	97	52	78	71
9	90	85	119	165	124	118	123	73	81	49	93	69
10	89	83	111	150	120	112	115	71	73	101	70	68
11	86	86	112	142	136	113	113	73	96	195	58	66
12	82	83	105	134	906	117	110	75	151	77	54	69
13	79	78	103	126	578	106	106	84	91	161	51	69
14	77	76	100	120	355	106	102	73	74	165	50	61
15	77	76	99	117	263	103	102	68	70	81	49	60
16	78	78	98	101	209	101	130	105	75	70	49	60
17	78	74	98	130	184	102	130	88	90	128	69	59
18	80	75	97	128	164	98	113	81	72	78	1770	58
19	79	106	98	121	156	96	107	69	65	59	582	57
20	78	109	97	109	149	96	103	65	61	55	252	56
21	77	85	116	59	140	95	98	71	58	50	214	57
22	77	80	138	85	137	107	96	87	57	52	149	58
23	121	81	119	80	135	202	95	157	61	58	118	62
24	108	81	110	79	134	177	93	550	101	50	120	59
25	90	79	109	80	132	169	115	529	60	80	645	56
26	84	78	100	82	202	150	98	250	55	154	598	52
27	82	77	99	84	175	143	93	166	52	108	348	50
28	81	180	99	87	152	139	94	136	51	104	215	48
29	83	306	99	90	---	138	88	120	51	92	153	48
30	80	170	98	100	---	135	83	105	54	76	129	47
31	78	---	121	126	---	132	---	104	---	67	122	---
TOTAL	2842	2983	3453	5192	8119	3878	3349	3870	2320	2678	6585	1972
MEAN	91.7	99.4	111	167	290	125	112	125	77.3	86.4	212	65.7
MAX	226	306	151	829	1130	202	140	550	151	195	1770	105
MIN	77	74	97	59	120	95	83	65	51	49	49	47
CFSM	.49	.53	.59	.89	1.54	.66	.60	.66	.41	.46	1.13	.35
IN.	.56	.59	.68	1.03	1.61	.77	.66	.77	.46	.53	1.30	.39
CAL YR 1984	TOTAL	84605	MEAN	231	MAX	2930	MIN	70	CFSM	1.23	IN.	16.74
WTR YR 1985	TOTAL	47241	MEAN	129	MAX	1770	MIN	47	CFSM	.69	IN.	9.35

## 02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA

LOCATION.--Lat 37°06'16", long 79°17'44", Pittsylvania County, Hydrologic Unit 03010101, on right bank 12 ft upstream from bridge on alternate U.S. Highway 29, 0.3 mi south of Altavista, 0.3 mi downstream from Sycamore Creek, 3.5 mi upstream from Big Otter River, and at mile 286.5.

DRAINAGE AREA.--1,789 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1930 to current year.

REVISED RECORDS.--WSP 892: 1938(M). WSP 972: 1931-33. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 503.10 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1951, on left bank 50 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 9.5 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 27.5 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke.

AVERAGE DISCHARGE.--55 years, 1,786 ft<sup>3</sup>/s, 13.56 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft<sup>3</sup>/s, Aug. 15, 1940, gage height, 40.08 ft, from floodmark, from rating curve extended above 52,000 ft<sup>3</sup>/s on basis of unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers and records for other stations in Roanoke River basin; minimum, 13 ft<sup>3</sup>/s, Jan. 30, 1966; minimum daily, 39 ft<sup>3</sup>/s, July 10, 1966; minimum gage height, 1.53 ft, Jan. 2, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,600 ft<sup>3</sup>/s, Aug. 18, gage height, 19.51 ft; minimum, 117 ft<sup>3</sup>/s, Jan. 20, gage height, 1.83 ft, result of freezeup; minimum daily, 142 ft<sup>3</sup>/s, Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1150	1000	327	299	1470	2970	1770	1260	670	940	986	236		
2	1120	1120	221	1220	2010	575	1570	1250	390	936	1010	217		
3	1050	276	1110	1490	3330	260	1180	1220	894	1120	307	1180		
4	1050	205	1070	6820	5290	2850	1030	1170	892	299	190	1120		
5	1120	1030	1280	5400	3450	1680	1010	1220	1560	1400	958	1090		
6	272	1090	1210	915	2580	1200	309	1230	480	323	902	1110		
7	187	997	808	2450	2170	1070	224	1200	733	180	897	267		
8	982	1070	362	2980	2000	1510	1000	1200	270	719	961	170		
9	995	1070	270	1810	387	376	1000	1240	567	887	1080	980		
10	1000	280	1050	1120	278	223	1050	1250	896	1190	319	951		
11	1030	216	1050	820	1080	1070	854	1270	911	856	184	951		
12	983	1070	1040	292	5710	1540	866	1260	978	964	947	947		
13	270	1040	1050	215	6350	1540	711	1190	1180	553	906	888		
14	256	967	1130	987	2760	1400	499	974	1130	515	945	257		
15	1120	1020	287	977	1940	1140	1060	1140	273	1060	931	147		
16	1020	961	230	950	491	286	846	1210	175	1000	919	865		
17	1050	260	1030	1160	345	192	918	1280	962	1030	628	907		
18	999	264	1030	1120	1150	1430	1040	1230	887	971	15000	901		
19	988	1070	992	293	2130	1000	1120	1280	901	733	18800	917		
20	267	1480	1040	303	1680	1030	730	1290	902	259	14200	872		
21	223	1550	1270	2940	1160	983	636	1290	904	216	6640	243		
22	1070	526	344	3150	1560	1010	1100	1290	245	987	5910	186		
23	1050	544	238	699	492	439	1340	1410	191	971	1480	990		
24	1150	310	981	466	245	417	1280	1320	975	989	305	878		
25	1040	237	219	489	2950	1160	1330	1420	927	1200	306	885		
26	1360	1010	1020	284	2300	1500	1290	1140	938	817	6600	883		
27	286	983	1520	261	2000	1760	1230	1250	833	361	4940	927		
28	194	1100	1470	1050	2370	1730	1230	2660	993	265	2870	225		
29	1000	1380	170	1040	---	3020	1270	2340	266	1070	2340	142		
30	1010	1440	173	1040	---	412	1260	1280	157	968	2770	934		
31	1000	---	1250	1210	---	260	---	3420	---	948	1110	---		
TOTAL	26292	25566	25242	44250	59678	36033	30753	43184	22080	24727	96341	21266		
MEAN	848	852	814	1427	2131	1162	1025	1393	736	798	3108	709		
MAX	1360	1550	1520	6820	6350	3020	1770	3420	1560	1400	18800	1180		
MIN	187	205	170	215	245	192	224	974	157	180	184	142		
(*)	-71	-87	+91	-62	+316	+43	-84	-16	-190	+182	+5	-205		
MEAN†	777	765	905	1365	2447	1205	941	1377	546	980	3113	504		
CFSM†	.43	.43	.51	.76	1.37	.67	.53	.77	.31	.55	1.74	.28		
IN.†	.50	.48	.58	.88	1.42	.78	.59	.89	.34	.63	2.01	.31		
CAL YR 1984	TOTAL	712998	MEAN	1948	MAX	14700	MIN	170	MEAN†	1925	CFSM†	1.08	IN.†	14.65
WTR YR 1985	TOTAL	455412	MEAN	1248	MAX	18800	MIN	142	MEAN†	1241	CFSM†	.69	IN.†	9.42

\* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; provided by Appalachian Power Company.

† Adjusted for change in contents.

## ROANOKE RIVER BASIN

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02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951, 1953-56, 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1950 to September 1951, February 1953 to September 1956, April 1968 to current year.

WATER TEMPERATURE: October 1950 to September 1951, February 1953 to September 1956, April 1968 to current year.

SUSPENDED-SEDIMENT DISCHARGE: February 1953 to September 1956.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 580 microsiemens, Jan. 17, 1969; minimum daily, 54 microsiemens, Aug. 18, 1955.

WATER TEMPERATURE: Maximum daily, 30.0°C, Aug. 10, 1951, Aug. 11, 1980; minimum daily, 0.0°C on many days during winter periods.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 200 microsiemens, June 27, July 9; minimum daily, 79 microsiemens, Jan. 6.

WATER TEMPERATURE: Maximum daily, 26.0°C, July 9, 15, 21, Sept. 8; minimum daily, 1.0°C Jan. 21.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)
OCT										
11...	10:15	415	160	159	7.7	7.5	17.5	756	5	9.6
NOV										
15...	10:35	459	165	161	7.3	7.7	10.5	752	10	10.6
DEC										
19...	09:30	424	152	154	7.5	7.6	11.0	749	15	10.4
FEB										
06...	09:30	866	130	123	7.3	7.4	2.5	741	25	13.0
MAR										
20...	08:45	485	147	152	7.4	7.6	8.0	750	15	11.4
MAY										
08...	10:30	1210	170	167	--	7.4	16.0	750	20	9.8
JUN										
19...	10:00	401	195	191	7.7	7.4	20.5	742	15	8.7
AUG										
07...	10:15	424	191	187	7.4	7.6	21.5	748	20	8.0
SEP										
18...	08:45	495	168	171	7.6	7.8	17.5	756	10	8.3

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT									
11...	101	57	57	14	5.4	8.4	2.0	54	13
NOV									
15...	96	58	58	14	5.6	9.6	1.8	55	12
DEC									
19...	96	58	58	14	5.5	7.7	1.6	53	11
FEB									
06...	98	46	46	11	4.6	6.2	1.8	41	11
MAR									
20...	98	54	54	13	5.2	8.0	1.7	49	12
MAY									
08...	101	62	62	15	6.0	7.4	1.9	57	12
JUN									
19...	99	63	63	15	6.1	12	1.9	61	17
AUG									
07...	92	63	63	15	6.2	12	2.3	60	16
SEP									
18...	88	60	60	14	6.0	8.9	2.4	56	14



## ROANOKE RIVER BASIN

02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 11...	8.4	0.1	8.6	96	93	<0.01	0.14	0.14	32
NOV 15...	11	<0.1	8.5	93	96	<0.01	0.17	0.16	69
DEC 19...	7.8	0.1	8.4	87	88	<0.01	0.25	0.07	40
FEB 06...	8.6	<0.1	9.7	73	78	0.06	0.30	0.06	72
MAR 20...	8.0	0.1	8.8	102	87	<0.01	0.17	0.10	44
MAY 08...	8.3	0.1	6.7	98	92	<0.01	0.19	0.03	16
JUN 19...	10	0.1	6.8	121	110	<0.01	0.16	0.09	33
AUG 07...	11	<0.1	7.2	120	110	<0.01	0.20	0.16	38
SEP 18...	11	0.2	6.9	112	97	<0.01	0.23	0.07	32

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	160	165	140	140	125	142	160	160	170	160	179	142
2	130	165	150	140	125	142	160	160	180	170	176	155
3	145	165	155	130	120	135	160	160	180	160	176	150
4	145	160	170	80	122	135	160	159	182	158	---	142
5	150	160	160	148	135	142	162	170	168	160	---	158
6	142	159	145	79	142	148	160	160	180	158	---	158
7	160	162	160	115	142	140	145	163	170	160	---	152
8	142	160	160	142	145	140	148	163	198	180	---	160
9	160	170	160	150	142	159	150	168	170	200	162	150
10	160	165	145	142	138	141	150	170	180	190	170	162
11	162	162	150	140	140	140	155	170	162	178	170	160
12	162	162	145	140	122	140	156	170	185	180	---	159
13	162	168	158	140	140	150	158	170	170	180	180	175
14	162	162	---	140	125	150	158	170	182	158	160	175
15	160	162	---	135	122	158	155	170	182	160	180	156
16	162	164	155	150	122	155	155	170	162	178	180	155
17	164	165	150	140	138	158	150	170	162	179	105	162
18	160	150	158	140	140	142	160	170	190	170	153	167
19	160	158	155	142	130	150	---	170	190	180	150	165
20	160	158	158	155	140	145	155	178	192	180	105	163
21	170	160	158	150	142	150	158	180	196	175	108	163
22	160	---	160	155	138	148	158	175	190	175	135	158
23	162	160	160	142	142	140	158	150	180	178	130	156
24	150	155	125	142	138	150	162	140	182	178	135	164
25	158	162	---	140	130	140	160	140	198	158	137	170
26	160	162	123	140	130	140	162	120	190	158	135	172
27	165	160	155	130	130	160	162	170	200	158	92	157
28	140	160	158	142	142	158	162	170	185	140	138	157
29	160	122	140	140	---	156	160	180	170	140	142	145
30	160	145	140	140	---	156	162	182	165	178	175	143
31	160	---	125	140	---	160	---	180	---	180	142	---
MEAN	157	160	151	137	134	147	157	165	180	170	149	158
WTR YR 1985	MEAN	156		MAX	200		MIN	79				

## ROANOKE RIVER BASIN

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02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	20.0	10.0	12.0	4.0	8.5	13.0	18.0	24.0	19.5	24.0	21.0
2	15.0	20.0	10.0	12.0	3.5	9.0	12.5	18.0	23.0	19.0	24.0	22.0
3	15.0	19.0	9.0	9.5	3.5	9.5	10.0	16.5	21.5	19.5	21.5	23.0
4	16.0	18.0	11.5	8.0	3.5	9.0	14.5	17.5	21.0	22.0	---	24.0
5	18.0	17.0	9.0	10.0	3.0	9.0	15.0	17.0	21.5	23.0	---	24.5
6	18.0	15.5	8.5	7.0	5.0	8.0	14.0	17.0	22.0	23.5	---	25.0
7	19.0	17.5	6.0	6.0	3.5	7.0	12.0	18.0	19.5	25.0	---	24.5
8	19.0	17.5	6.5	8.0	2.5	8.0	10.0	17.0	23.5	23.0	---	26.0
9	19.0	13.0	6.5	7.5	2.0	10.0	10.0	16.0	23.0	26.0	25.0	22.5
10	20.0	14.0	6.5	7.0	2.0	9.5	9.0	17.0	21.0	22.0	22.0	25.0
11	20.0	15.0	7.0	5.5	2.5	10.0	12.0	19.0	22.5	21.0	23.0	23.0
12	20.0	15.0	8.0	4.0	4.0	12.0	12.0	19.0	22.0	21.5	24.0	21.0
13	20.0	14.5	8.0	4.0	4.0	10.5	13.0	21.0	19.5	23.0	23.0	19.0
14	20.0	13.0	9.0	3.0	3.0	10.0	14.0	18.5	21.0	25.0	25.5	19.5
15	20.5	11.5	---	3.5	2.5	10.5	14.5	18.0	20.0	26.0	24.5	20.0
16	21.0	13.0	10.0	7.0	3.5	9.0	15.0	20.0	21.0	23.0	24.5	21.0
17	19.5	12.0	11.0	5.0	3.0	9.0	15.0	18.5	21.5	22.5	22.0	18.0
18	20.5	12.0	12.0	5.0	4.0	9.0	13.5	17.0	21.5	22.0	21.5	18.0
19	20.0	11.0	12.0	2.5	5.5	7.5	17.5	17.0	21.0	24.0	22.0	19.0
20	21.0	10.0	11.5	2.0	4.5	9.0	18.0	18.0	20.0	25.0	22.0	19.5
21	21.5	9.5	11.0	1.0	7.0	10.5	18.0	19.5	19.0	26.0	22.0	20.0
22	19.0	---	11.5	3.0	6.0	9.0	17.5	19.0	20.0	23.0	20.5	20.5
23	21.0	8.0	11.5	3.0	7.0	8.0	17.5	18.5	21.5	22.5	20.0	22.0
24	20.0	8.0	8.0	2.5	9.0	8.5	16.0	17.0	22.0	22.0	20.0	20.5
25	19.0	8.0	---	3.0	12.5	10.5	15.0	16.0	22.0	22.0	20.5	21.0
26	20.5	9.0	6.0	2.5	8.5	9.5	15.0	19.5	21.5	25.0	21.5	20.5
27	20.5	9.5	8.0	2.0	8.0	12.0	16.5	20.0	20.0	23.0	22.0	21.5
28	21.0	12.5	12.0	4.5	8.0	12.0	16.5	19.5	20.5	21.0	21.5	20.0
29	21.5	9.5	12.5	3.5	---	13.5	16.0	19.0	24.0	21.5	22.0	18.0
30	20.0	9.0	12.0	2.5	---	14.0	14.0	19.5	21.0	24.0	22.5	18.0
31	19.5	---	12.5	4.0	---	14.0	---	21.5	---	25.0	22.0	---
MEAN	19.5	13.0	9.5	5.0	5.0	10.0	14.0	18.5	21.5	23.0	22.5	21.5
WTR YR 1985	MEAN	15.0		MAX	26.0		MIN	1.0				

## ROANOKE RIVER BASIN

02061500 BIG OTTER RIVER NEAR EVINGTON, VA

LOCATION.--Lat 37°12'30", long 79°18'14", Campbell County, Hydrologic Unit 03010101, on right bank 60 ft upstream from bridge on State Highway 682, 2.0 mi southwest of Evington, and 2.1 mi upstream from Flat Creek.

DRAINAGE AREA.--320 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1936 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1965, published as Otter River near Evington.

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1938-39(M). WSP 972: 1937-39. WSP 1032: 1940. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 544.02 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 22-30, Feb. 9, 10, Apr. 11-15, May 8-11, 16-18, June 21-29, July 2, 11-19, 23, 24, Aug. 5-16, and Aug. 30 to Sept. 30. Records good except those for periods of doubtful gage-height record, Apr. 11-15, May 8-11, 16-18, June 21-29, July 2, 11-19, 23, 24, Aug. 5-16, and Aug. 30 to Sept. 30, and periods with ice effect, Jan. 22-30 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--49 years, 330 ft<sup>3</sup>/s, 14.00 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft<sup>3</sup>/s, Oct. 19, 1937, Aug. 19, 1939, gage height, 23.1 ft, from rating curve extended above 7,000 ft<sup>3</sup>/s on basis of unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers, and records for other stations in Roanoke River basin; minimum, 7.5 ft<sup>3</sup>/s, Sept. 14, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1600	*5,170	*12.92	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 75 ft<sup>3</sup>/s, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	482	184	327	264	1340	323	254	175	216	102	215	210
2	312	184	285	248	2330	318	239	174	195	154	179	190
3	219	175	272	739	1110	303	229	202	186	141	142	175
4	200	171	254	1620	618	292	226	215	178	126	115	165
5	191	235	246	897	490	290	222	180	178	111	104	155
6	183	239	391	567	445	275	221	173	191	103	100	150
7	177	199	335	468	398	265	215	165	175	100	110	140
8	177	194	291	407	342	270	222	155	182	95	120	130
9	178	191	264	361	320	281	214	150	171	87	150	128
10	175	190	250	334	270	265	206	149	155	83	125	123
11	172	190	247	318	317	260	200	155	150	200	115	120
12	168	186	236	298	1500	269	195	164	343	125	105	130
13	167	176	230	285	877	247	190	368	188	180	95	130
14	166	173	223	282	532	243	188	228	150	250	90	120
15	164	172	217	262	444	238	185	176	141	180	85	115
16	165	173	213	267	391	232	248	200	140	125	80	110
17	168	170	212	289	366	233	311	178	172	170	86	105
18	189	167	212	276	344	226	232	170	149	110	2760	104
19	186	203	210	266	336	218	213	162	131	100	1270	103
20	177	254	208	246	324	220	203	149	121	85	522	102
21	172	196	233	120	308	217	196	149	110	81	589	99
22	175	182	307	170	300	231	189	151	105	76	429	108
23	321	178	260	160	298	405	185	335	108	88	344	110
24	300	179	233	155	299	353	184	1350	150	80	298	108
25	232	178	229	160	298	325	212	1150	100	81	1310	100
26	210	175	213	165	437	285	201	511	95	216	1440	94
27	203	174	208	170	399	267	183	372	90	168	611	88
28	196	391	210	175	343	261	182	307	85	158	468	85
29	200	808	209	180	---	259	190	268	86	156	409	80
30	195	399	206	200	---	256	181	241	91	143	290	75
31	188	---	249	279	---	247	---	232	---	124	240	---
TOTAL	6408	6686	7680	10628	15776	8374	6316	8754	4532	3998	12996	3652
MEAN	207	223	248	343	563	270	211	282	151	129	419	122
MAX	482	808	391	1620	2330	405	311	1350	343	250	2760	210
MIN	164	167	206	120	270	217	181	149	85	76	80	75
CFSM	.65	.70	.77	1.07	1.76	.84	.66	.88	.47	.40	1.31	.38
IN.	.74	.78	.89	1.24	1.83	.97	.73	1.02	.53	.46	1.51	.42
CAL YR 1984	TOTAL	173135	MEAN	473	MAX	6110	MIN	134	CFSM	1.48	IN.	20.13
WTR YR 1985	TOTAL	95800	MEAN	262	MAX	2760	MIN	75	CFSM	.82	IN.	11.14

## 02062500 ROANOKE (STAUNTON) RIVER AT BROOKNEAL, VA

LOCATION.--Lat 37°02'28", long 78°57'02", Campbell County, Hydrologic Unit 03010102, on left bank 1,600 ft upstream from bridge on U.S. Highway 501 at Brookneal, 2.9 mi upstream from Falling River, and at mile 255.9.

DRAINAGE AREA.--2,415 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1923 to current year.

REVISED RECORDS.--WSP 892: 1928(M). WSP 972: 1928-34. WSP 1303: 1924-27(M), 1929(M), 1941(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 351.96 ft above National Geodetic Vertical Datum of 1929. Apr. 30, 1923, to Aug. 29, 1929, nonrecording gage, Aug. 30, 1929, to Aug. 15, 1940, water-stage recorder, and Aug. 16 to Oct. 1, 1940, nonrecording gage at site 1,800 ft downstream at same datum. Oct. 2, 1940, to Sept. 30, 1941, nonrecording gage at site 1,600 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 40.1 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 58.1 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--62 years, 2,382 ft<sup>3</sup>/s, 13.39 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft<sup>3</sup>/s, Aug. 15, 1940, gage height, 46.5 ft, at present site, from gage-height relation curve, from rating curve extended above 55,000 ft<sup>3</sup>/s on basis of slope-area measurement by Geological Survey, unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers, and records for other stations in Roanoke River basin; minimum daily, 140 ft<sup>3</sup>/s, July 25, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42,700 ft<sup>3</sup>/s, Aug. 18, gage height, 30.27 ft; minimum, 265 ft<sup>3</sup>/s, July 22; minimum daily, 329 ft<sup>3</sup>/s, Sept. 30; minimum gage height, 5.49 ft, Jan. 21, July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	790	1170	1580	1480	1700	2570	992	1470	3800	388	979	816
2	1630	1270	670	682	4420	2930	1920	1480	717	996	1130	663
3	1310	1140	868	1770	5420	769	1830	1540	674	1020	1050	675
4	1210	515	1350	4710	4430	1220	1320	1490	1090	1170	425	1400
5	1200	609	1300	9350	4700	3030	1290	1430	1080	458	371	1330
6	1250	1290	1590	5000	4030	1870	1130	1460	1800	1390	924	1290
7	508	1220	1740	1270	2700	1390	639	1430	674	444	911	1280
8	507	1180	1060	3020	2400	1390	816	1400	928	362	1030	522
9	1150	1240	671	3340	1910	1630	1260	1420	529	925	1060	526
10	1130	1170	872	2160	728	680	1270	1440	811	936	1100	1140
11	1150	538	1290	1410	1090	912	1210	1460	1040	1050	420	1100
12	1130	662	1280	1190	4590	1390	1150	1470	1070	1170	355	1100
13	1070	1200	1260	739	7710	1810	1090	1690	1260	861	907	1070
14	489	1160	1290	662	5970	1690	975	1560	1300	682	875	1020
15	657	1150	1150	1310	2680	1680	1090	1300	1180	703	900	436
16	1150	1150	589	1260	2020	1130	1320	1520	456	1010	902	383
17	1160	1090	771	1210	932	619	1300	1530	429	997	1000	1000
18	1180	504	1230	1450	1190	901	1380	1550	1080	1030	21600	1020
19	1160	750	1200	1420	1610	1510	1300	1480	963	924	32400	1020
20	1090	1320	1240	727	2560	1270	1250	1450	965	742	22400	1020
21	505	1740	1330	475	1880	1240	985	1440	952	360	13100	970
22	626	1600	1420	3190	1460	1280	1100	1510	950	377	7210	404
23	1220	685	722	3400	1710	1260	1510	2130	404	963	4280	453
24	1670	810	630	993	776	1010	1570	3070	469	948	1440	1040
25	1410	533	1230	850	1240	1160	1530	3700	979	967	795	983
26	1300	637	585	833	4110	1460	1570	2040	953	1240	4890	975
27	1390	1230	1260	670	2010	1900	1480	1770	960	968	8050	969
28	550	1260	1850	608	2580	1960	1460	1650	875	577	4250	994
29	573	2280	1450	1270	---	2180	1480	2860	1010	744	3340	366
30	1190	1620	539	1280	---	2730	1510	2540	390	1150	2940	329
31	1180	---	563	1290	---	698	---	1440	---	1000	3880	---
TOTAL	32535	32723	34580	59019	78556	47269	38727	53720	29788	26552	144914	26294
MEAN	1050	1091	1115	1904	2806	1525	1291	1733	993	857	4675	876
MAX	1670	2280	1850	9350	7710	3030	1920	3700	3800	1390	32400	1400
MIN	489	504	539	475	728	619	639	1300	390	360	355	329
(*)	-71	-87	+91	-62	+316	+43	-84	-16	-190	+182	+5	-205
MEAN†	979	1004	1206	1842	3122	1568	1207	1717	803	1039	4680	671
CFSM†	.41	.42	.50	.76	1.29	.65	.50	.71	.33	.43	1.94	.28
IN.†	.47	.46	.58	.88	1.35	.75	.56	.82	.37	.50	2.23	.31

CAL YR 1984 TOTAL 1006449 MEAN 2750 MAX 28500 MIN 478 MEAN† 2727 CFSM† 1.13 IN.† 15.37  
WTR YR 1985 TOTAL 604677 MEAN 1657 MAX 32400 MIN 329 MEAN† 1650 CFSM† .68 IN.† 9.28

\*Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; provided by Appalachian Power Company.

† Adjusted for change in contents.



## ROANOKE RIVER BASIN

02064000 FALLING RIVER NEAR NARUNA, VA

LOCATION.--Lat 37°07'36", long 78°57'36", Campbell County, Hydrologic Unit 03010102, on left bank at upstream side of bridge on State Highway 643, 2.7 mi northeast of Naruna, and 3.2 mi upstream from Little Falling River.

DRAINAGE AREA.--173 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1929 to January 1935, September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1930, 1931-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 412.32 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 15, 1935, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-29 and Feb. 10. Records good except those for periods with ice effect, Jan. 22-29 and Feb. 10, which are fair. Small diurnal fluctuation at times during low flow, cause unknown. Prior to 1958, diurnal fluctuation caused by gristmill at Spring Mills. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--49 years (water years 1930-34, 1942-85), 149 ft<sup>3</sup>/s, 11.70 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,600 ft<sup>3</sup>/s, June 22, 1972, gage height, 29.21 ft, from rating curve extended above 7,100 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 3.0 ft<sup>3</sup>/s, Oct. 9, 1932, gage height, 2.18 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 26.5 ft, from floodmarks, discharge, 22,000 ft<sup>3</sup>/s, by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1700	*8,060	*18.14	Aug. 26	2215	2,410	9.35

Minimum discharge, 34 ft<sup>3</sup>/s, July 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	61	99	101	748	124	88	59	65	56	74	127
2	85	61	87	92	1050	120	84	59	58	59	79	102
3	69	59	85	375	453	112	81	133	55	56	59	90
4	58	58	82	630	251	108	80	97	53	50	51	80
5	56	67	82	408	198	108	80	73	64	45	47	75
6	54	69	193	241	181	101	79	68	100	46	48	70
7	55	62	146	183	160	96	76	62	69	44	68	66
8	55	59	110	153	136	98	76	59	65	40	122	63
9	55	58	98	131	129	102	75	57	58	38	98	62
10	58	59	92	120	125	97	73	56	55	64	65	60
11	58	62	89	116	118	95	75	56	89	118	55	59
12	55	64	85	108	1070	98	76	63	89	54	49	56
13	54	59	82	102	459	90	75	372	63	48	46	56
14	54	57	81	100	248	90	76	124	52	92	44	54
15	52	57	79	96	194	89	78	81	50	61	40	51
16	53	58	79	90	165	86	127	136	52	51	40	51
17	55	57	80	100	152	87	116	102	66	47	69	51
18	58	57	79	102	141	85	89	89	55	43	4640	51
19	58	102	80	103	135	81	82	71	50	40	1510	51
20	57	97	79	95	130	82	78	63	46	39	548	51
21	56	71	95	86	124	81	74	76	46	39	1050	49
22	55	65	124	84	123	96	70	75	46	37	414	50
23	75	63	103	79	121	146	68	307	53	36	230	55
24	224	63	91	78	120	126	66	910	77	34	168	54
25	111	62	87	78	117	109	69	553	49	43	200	50
26	76	61	81	79	190	97	66	186	44	74	628	47
27	68	61	80	79	166	93	62	118	42	94	842	46
28	64	103	80	80	135	91	66	91	41	123	263	44
29	69	259	80	83	---	91	69	85	42	99	170	42
30	65	127	79	88	---	90	62	74	43	82	418	42
31	64	---	95	135	---	86	---	69	---	62	253	---
TOTAL	2167	2218	2882	4395	7339	3055	2336	4424	1737	1814	12388	1805
MEAN	69.9	73.9	93.0	142	262	98.5	77.9	143	57.9	58.5	400	60.2
MAX	224	259	193	630	1070	146	127	910	100	123	4640	127
MIN	52	57	79	78	117	81	62	56	41	34	40	42
CFSM	.40	.43	.54	.82	1.51	.57	.45	.83	.33	.34	2.31	.35
IN.	.47	.48	.62	.95	1.58	.66	.50	.95	.37	.39	2.66	.39

CAL YR 1984	TOTAL	71276	MEAN	195	MAX	4770	MIN	43	CFSM	1.13	IN.	15.33
WTR YR 1985	TOTAL	46560	MEAN	128	MAX	4640	MIN	34	CFSM	.74	IN.	10.01

## 02065500 CUB CREEK AT PHENIX, VA

LOCATION.--Lat 37°04'45", long 78°45'50", Charlotte County, Hydrologic Unit 03010102, on right bank 10 ft upstream from bridge on State Highway 40, 0.9 mi west of Phenix, 1.9 mi downstream from Rough Creek, and 6.4 mi upstream from Louse Creek.

DRAINAGE AREA.--98.0 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1333: 1947(M), 1948, 1949(M). WSP 2104: Drainage area. WDR VA-76-1: 1975.

GAGE.--Water-stage recorder. Datum of gage is 370.19 ft above National Geodetic Vertical Datum of 1929. Prior to July 14, 1950, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 24-29 and Feb. 10. Records good except those for periods with ice effect, Jan. 24-29 and Feb. 10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--39 years, 97.4 ft<sup>3</sup>/s, 13.50 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,380 ft<sup>3</sup>/s, June 22, 1972, gage height, 20.37 ft, from floodmark in gage house, from rating curve extended above 2,700 ft<sup>3</sup>/s; minimum, 2.6 ft<sup>3</sup>/s, Oct. 6, 1970, gage height, 0.74 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 17.5 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 19	0530	*5,740	*14.61	No other peak equal to or greater than base discharge.			

Minimum discharge, 18 ft<sup>3</sup>/s, July 24-25, gage height, 1.18 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	51	86	70	288	79	59	40	42	28	34	70
2	91	50	72	63	575	77	57	40	38	31	49	59
3	52	48	76	185	589	73	56	93	36	29	32	53
4	44	47	70	439	254	69	57	81	35	27	26	47
5	41	56	67	506	141	70	57	49	38	25	25	44
6	40	57	162	298	128	66	57	43	70	25	24	42
7	39	50	145	157	113	62	55	41	46	27	27	39
8	39	47	94	122	96	63	57	37	41	24	38	37
9	39	46	81	102	84	65	56	36	38	23	42	36
10	39	46	74	90	82	63	56	35	35	23	31	36
11	39	48	73	87	87	61	57	36	59	52	26	34
12	39	51	68	82	202	64	57	36	57	34	24	33
13	39	47	64	76	408	60	56	248	59	27	23	32
14	39	44	62	75	198	59	57	126	39	28	23	30
15	39	45	60	73	126	58	60	56	34	28	21	30
16	40	45	59	63	108	57	63	59	36	25	21	31
17	42	45	59	73	97	57	80	71	41	23	33	30
18	45	45	59	80	91	56	60	73	36	22	665	30
19	46	89	59	80	86	54	56	50	32	21	3790	29
20	46	113	58	79	83	54	53	42	30	20	713	29
21	45	68	64	80	78	55	51	45	28	20	428	29
22	46	58	85	67	76	60	48	103	27	20	296	30
23	66	54	74	61	75	92	46	134	27	19	124	37
24	137	53	63	57	75	89	44	205	29	19	81	36
25	236	52	60	54	75	74	45	294	28	20	101	34
26	90	51	56	54	115	65	43	172	26	36	210	31
27	66	50	54	55	116	61	41	77	25	36	331	31
28	58	76	54	57	89	61	44	58	24	100	417	30
29	64	231	54	62	---	61	49	51	25	43	116	28
30	61	133	53	66	---	61	43	46	25	36	91	28
31	53	---	64	103	---	59	---	44	---	29	102	---
TOTAL	1873	1896	2229	3516	4535	2005	1620	2521	1106	920	7964	1085
MEAN	60.4	63.2	71.9	113	162	64.7	54.0	81.3	36.9	29.7	257	36.2
MAX	236	231	162	506	589	92	80	294	70	100	3790	70
MIN	39	44	53	54	75	54	41	35	24	19	21	28
CFSM	.62	.64	.73	1.15	1.65	.66	.55	.83	.38	.30	2.62	.37
IN.	.71	.72	.85	1.33	1.72	.76	.61	.96	.42	.35	3.02	.41
CAL YR 1984	TOTAL	42567	MEAN	116	MAX	1500	MIN	28	CFSM	1.18	IN.	16.16
WTR YR 1985	TOTAL	31270	MEAN	85.7	MAX	3790	MIN	19	CFSM	.87	IN.	11.87

## ROANOKE RIVER BASIN

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA

LOCATION.--Lat 36°54'54", long 78°44'28", Halifax County, Hydrologic Unit 03010102, on right bank 14 ft downstream from bridge on State Highway 746, 2.8 mi northwest of Randolph, 3.6 mi upstream from Roanoke Creek, and at mile 227.3.

DRAINAGE AREA.--2,977 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1900 to September 1906, October 1927 to September 1930, October 1950 to current year.

Monthly discharge only for some periods, published in WSP 1303. Prior to October 1902, published as Staunton River at Randolph. Gage heights collected since 1905 at this site or at former site are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1203: 1928-30. WSP 1303: 1901-6. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 307.59 ft above National Geodetic Vertical Datum of 1929. Aug. 27, 1900, to Oct. 13, 1902, nonrecording gage at site 3.2 mi downstream at datum about 5.9 ft lower. Oct. 14, 1902, to Aug. 11, 1906, and Oct. 1, 1927, to Mar. 31, 1930, nonrecording gage at site of original gage at datum 3.93 ft lower than present datum.

REMARKS.--Estimated daily discharges: Oct. 7-9, 14-16, 21-23, 28-30, Nov. 4-6, 11-13, 25, Dec. 16, 17, 25-27, Dec. 30 to Jan. 1, Jan. 21, Mar. 18, 19, June 17, 18, 24, 25, and July 1, 2, 5, 7-9, 15, 21, 22. Records good except those for periods of doubtful gage-height record, which are fair. Flow regulated since 1962 by Leesville Lake (station 02059400) 68.7 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 86.7 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

AVERAGE DISCHARGE.--44 years, 3,048 ft<sup>3</sup>/s, 13.90 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 97,000 ft<sup>3</sup>/s, Dec. 31, 1901, gage height, 35.0 ft, from graph based on gage readings, site and datum then in use; minimum daily, 179 ft<sup>3</sup>/s, Sept. 8, 1965, July 7, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 16, 1940, reached a stage of 41.6 ft, present site and datum, discharge, 150,000 ft<sup>3</sup>/s, from information by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37,000 ft<sup>3</sup>/s, Aug. 20, gage height, 27.28 ft; minimum daily, 534 ft<sup>3</sup>/s, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1240	1590	2380	1900	3770	3470	1050	1940	4060	640	1530	2670
2	2170	1570	1540	1400	8070	3970	2130	1910	1830	1010	1770	1380
3	2070	1690	1040	2900	8110	1890	2370	2050	1090	1510	1760	1180
4	1780	1040	1720	7700	6310	1190	2180	2200	1380	1630	1200	1770
5	1720	820	1860	12900	6800	3390	1780	1980	1600	1000	629	1970
6	1760	1400	2360	7740	5070	2670	1760	1920	2200	1590	871	1860
7	1240	1700	2590	3080	3990	2280	1220	1910	1660	1150	1380	1840
8	800	1510	2110	3780	3460	1930	949	1840	1250	700	1540	1300
9	1310	1540	1490	4240	3110	2200	1460	1800	1230	600	1820	796
10	1660	1550	1090	3080	1780	1620	1680	1840	949	1350	1660	1180
11	1600	1020	1730	2450	1290	1050	1720	1860	1730	1620	1320	1560
12	1620	850	1870	1890	3280	1710	1530	1880	1690	1650	670	1530
13	1550	1360	1850	1360	10400	2160	1550	3470	1890	1600	837	1500
14	950	1490	1850	1110	8630	2350	1430	3470	1890	1300	1360	1420
15	780	1400	1920	1730	4270	2210	1110	2080	1790	1060	1380	1160
16	1390	1460	1250	1800	3460	2140	1850	2040	1290	1380	1360	652
17	1570	1420	914	1760	2060	1220	1820	2290	730	1480	1470	882
18	1620	1010	1590	2060	1530	1000	1800	2270	980	1480	7490	1390
19	1590	706	1840	2070	2190	1880	1870	2110	1500	1420	27900	1380
20	1580	1710	1790	1360	3030	1860	1860	2010	1430	1230	35100	1390
21	1000	1970	1870	900	2790	1750	1440	1980	1410	980	28100	1360
22	800	2170	2190	3460	2380	1720	1300	2240	1390	570	15300	1080
23	1350	1450	1530	4070	2370	1870	1690	2680	1180	833	7670	615
24	1990	952	1140	1900	1790	1620	2010	4530	660	1400	3120	1030
25	2670	1150	1640	1330	1220	1490	1970	5830	1100	1410	1840	1400
26	2010	837	1000	1250	3900	2000	2050	4230	1420	1680	3010	1330
27	2040	1330	1590	1120	3720	2210	2020	2770	1390	1620	11300	1310
28	1200	1640	2090	1000	3190	2620	1920	2480	1310	1480	7600	1330
29	890	2450	2470	1680	---	2610	1940	3640	1390	995	4850	1020
30	1460	3220	1200	1800	---	3780	1980	3370	1230	1740	4230	534
31	1640	---	920	1890	---	1710	---	2370	---	1650	5550	---
TOTAL	47050	44005	52424	86710	111970	65570	51439	78990	44649	39758	185617	39819
MEAN	1518	1467	1691	2797	3999	2115	1715	2548	1488	1283	5988	1327
MAX	2670	3220	2590	12900	10400	3970	2370	5830	4060	1740	35100	2670
MIN	780	706	914	900	1220	1000	949	1800	660	570	629	534
(*)	-71	-87	+91	-62	+316	+43	-84	-16	-190	+182	+5	-205
MEAN†	1447	1380	1782	2735	4315	2158	1631	2532	1298	1465	5993	1122
CFSM†	.49	.46	.60	.92	1.45	.72	.55	.85	.44	.49	2.01	.38
IN.†	.56	.52	.69	1.06	1.51	.84	.61	.98	.49	.57	2.32	.42
CAL YR 1984 TOTAL	1222625			MEAN 3341	MAX 29600	MIN 610	MEAN† 3318	CFSM† 1.11	IN.† 15.17			
WTR YR 1985 TOTAL	848001			MEAN 2323	MAX 35100	MIN 534	MEAN† 2316	CFSM† .78	IN.† 10.56			

\* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; provided by Appalachian Power Company.

† Adjusted for change in contents.

## ROANOKE RIVER BASIN

279

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1951 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1950 to September 1956, April 1968 to September 1982.

WATER TEMPERATURE: October 1950 to September 1956, April 1968 to September 1982.

SUSPENDED-SEDIMENT DISCHARGE: January 1954 to September 1981.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)
OCT 09...	15:15	1690	109	114	7.4	7.4	19.5	757	<1	8.7
NOV 13...	16:00	2040	113	111	7.3	7.5	9.5	753	5	10.5
DEC 17...	15:15	903	118	120	7.5	7.5	11.0	755	5	10.2
FEB 04...	15:45	7330	68	69	7.0	6.9	3.5	761	150	12.8
MAR 19...	07:15	874	97	108	7.3	7.4	7.0	760	15	10.5
MAY 06...	14:00	1900	137	133	--	7.4	20.0	750	10	8.6
JUN 17...	15:15	612	139	136	7.4	7.4	25.5	750	5	7.1
AUG 05...	15:15	588	145	144	7.4	7.6	25.0	755	10	7.2
SEP 16...	15:00	619	134	136	7.4	7.6	19.5	757	15	8.1

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT 09...	95	45	45	11	4.2	5.5	1.9	44	7.2
NOV 13...	93	41	41	9.9	4.0	5.6	1.7	41	6.7
DEC 17...	93	46	46	11	4.4	5.6	1.5	44	7.5
FEB 04...	96	27	27	6.7	2.5	2.9	2.0	19	9.6
MAR 19...	87	38	38	9.3	3.7	5.2	1.5	38	7.0
MAY 06...	96	49	49	12	4.7	5.6	1.7	46	9.0
JUN 17...	88	53	53	13	5.1	6.0	1.8	50	8.9
AUG 05...	88	54	54	13	5.3	6.3	2.3	50	9.8
SEP 16...	89	50	50	12	4.9	6.1	2.5	49	8.9



## ROANOKE RIVER BASIN

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 09...	6.2	0.1	11	76	74	<0.01	0.11	<0.01	91
NOV 13...	5.4	<0.1	11	71	69	<0.01	0.13	0.02	180
DEC 17...	5.8	<0.1	10	64	72	<0.01	0.17	0.01	120
FEB 04...	4.4	<0.1	9.7	62	50	0.11	0.46	0.02	180
MAR 19...	4.8	0.1	11	74	66	<0.01	<0.10	<0.01	150
MAY 06...	6.1	0.1	8.8	81	76	<0.01	0.14	<0.01	78
JUN 17...	6.2	<0.1	10	84	81	<0.01	0.21	<0.01	110
AUG 05...	6.2	0.2	9.8	95	83	<0.01	0.22	0.02	96
SEP 16...	6.2	<0.1	10	93	80	<0.01	0.16	0.02	190

## 02067800; 02067820 TALBOTT AND TOWNES RESERVOIRS NEAR KIBLER, VA

LOCATION.--Talbot Dam: Lat 36°40'39", long 80°23'52", Patrick County, Hydrologic Unit 03010103, on Dan River 4.5 mi northeast of Kibler. Townes Dam: Lat 36°41'10", long 80°25'50", Patrick County, Hydrologic Unit 03010103, on Dan River about 4 mi north of Kibler.

DRAINAGE AREA.--Talbot Dam, 20.2 mi<sup>2</sup>; Townes Dam, 32.9 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1939 to December 1945, January 1948 to September 1960 (published in WSP 1723), and October 1960 to current year.

REMARKS.--The two reservoirs are operated as a unit for storage of water for Pinnacles hydroelectric plant. Total capacity of Talbot Reservoir, 8,035 acre-ft, and Townes Reservoir, 1,377 acre-ft. Storage began in Talbot Reservoir on Feb. 13, 1939, and in Townes Reservoir several months earlier.

COOPERATION.--Records were provided by the city of Danville.

## COMBINED MONTHEND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	6,820	-
Oct. 31.....	6,170	-650
Nov. 30.....	6,160	-10
Dec. 31.....	6,090	-70
CAL YR 1984.....	-	-1,630
Jan. 31.....	6,020	-70
Feb. 28.....	7,420	+1,400
Mar. 31.....	7,340	-80
Apr. 30.....	7,580	+240
May 31.....	7,580	0
June 30.....	7,280	-300
July 31.....	7,050	-230
Aug. 31.....	8,150	+1,100
Sept. 30.....	6,990	-1,160
WTR YR 1985.....	-	+170

## 02068500 DAN RIVER NEAR FRANCISCO, NC

LOCATION.--Lat 36°30'53", long 80°18'11", Stokes County, Hydrologic Unit 03010103, on left bank 200 ft upstream from bridge on State Highway 704, 700 ft downstream from remains of Georges Mill, 0.2 mi downstream from Elk Creek, 3 mi east of Francisco, and 7.9 mi downstream from Little Dan River.

DRAINAGE AREA.--129 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1924 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1303: 1938-50 (monthly runoff). WSP 1433: 1925-26, 1928-29, 1931, 1942, 1948. WDR NC-80-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 831.99 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 15, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Since 1938, considerable diurnal fluctuation and regulation by Talbott Reservoir (station 02067800) and Townes Reservoir (station 02067820) and Pinnacles hydroelectric plant in Virginia, 28 mi upstream from station. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 191 ft<sup>3</sup>/s, 20.11 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft<sup>3</sup>/s, Aug. 17, 1985, gage height, 19.50 ft, from rating curve extended above 8,400 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 18.11 ft; minimum, 7.1 ft<sup>3</sup>/s, Sept. 8, 1932, gage height, 0.43 ft; minimum daily, 27 ft<sup>3</sup>/s, Aug. 24, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1916 reached a stage of about 15 ft, from information by local residents, discharge, 16,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 23	0300	2,080	4.65	Aug. 17	2330	*21,200	*19.50

Minimum discharge, 58 ft<sup>3</sup>/s, Nov. 1, 3, 16; minimum daily, 62 ft<sup>3</sup>/s, Nov. 2; minimum gage height, 1.22 ft, Apr. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	70	96	83	320	124	127	122	126	127	107	233
2	134	62	93	94	428	122	110	130	126	106	127	231
3	116	63	97	176	227	106	136	146	102	111	116	229
4	112	86	112	244	165	104	111	127	128	122	111	211
5	101	147	119	174	181	105	98	122	189	125	107	212
6	97	114	149	128	167	101	126	120	199	126	108	206
7	92	109	140	121	133	112	133	133	111	127	105	173
8	94	115	101	118	133	102	129	95	113	119	171	179
9	101	105	94	123	142	105	130	89	99	107	175	168
10	108	91	93	125	128	102	77	94	93	101	124	152
11	99	96	92	128	113	102	103	107	118	144	117	143
12	101	90	90	97	292	103	116	110	92	108	89	103
13	108	105	89	e95	192	101	112	98	86	108	120	98
14	117	101	88	e105	158	100	98	143	105	109	108	93
15	88	84	88	e95	132	99	103	137	107	102	98	93
16	100	64	87	e85	123	106	216	279	118	106	95	95
17	119	85	88	e100	121	110	190	207	106	81	1500	94
18	95	84	86	97	115	110	137	158	91	78	6430	93
19	118	93	87	95	113	123	125	137	85	75	1090	91
20	122	103	88	e90	112	97	132	129	82	73	550	89
21	128	112	90	e80	94	93	135	126	81	89	533	89
22	96	110	94	e90	99	116	107	136	80	75	361	89
23	120	94	89	e100	108	220	137	574	80	98	327	89
24	160	91	86	e110	108	161	111	394	85	76	333	108
25	98	85	87	e110	111	119	168	263	102	151	384	108
26	92	86	83	e110	133	121	137	194	106	139	367	133
27	88	85	84	e110	119	120	131	156	82	349	345	140
28	95	146	84	e110	113	120	131	171	80	210	278	95
29	119	171	84	e110	---	120	127	167	83	157	261	81
30	124	105	83	e120	---	122	123	155	122	122	249	81
31	91	---	83	118	---	121	---	131	---	107	235	---
TOTAL	3384	2952	2924	3541	4380	3567	3816	5150	3177	3728	15121	3999
MEAN	109	98.4	94.3	114	156	115	127	166	106	120	488	133
MAX	160	171	149	244	428	220	216	574	199	349	6430	233
MIN	88	62	83	80	94	93	77	89	80	73	89	81
(†)	-11	0	-1	-1	+25	-1	+4	0	-5	-4	+18	-19

CAL YR 1984 TOTAL 70747 MEAN 193 MAX 1240 MIN 62 MEAN† 191 CFSM† 1.48 IN.† 20.19  
WTR YR 1985 TOTAL 55739 MEAN 153 MAX 6430 MIN 62 MEAN† 153 CFSM† 1.19 IN.† 16.07

† Change in contents, equivalent in cubic feet per second, in Talbott and Townes Reservoirs; provided by city of Danville, Va.

† Adjusted for change in contents.

e Estimated.

02069700 SOUTH MAYO RIVER NEAR NETTLERIDGE, VA

LOCATION.--Lat 36°34'15", long 80°07'47", Patrick County, Hydrologic Unit 03010103, on right bank 60 ft downstream from bridge on State Highway 700, 1.2 mi southeast of Nettleridge, 1.4 mi downstream from Russell Creek, and 3.6 mi upstream from Spoon Creek.

DRAINAGE AREA.--84.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-74-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 871.60 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 9, 1964, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-30, Feb. 6, 7, and Aug. 25. Records good except those for period of doubtful gage-height record, Aug. 25, and periods with ice effect, Jan. 22-30 and Feb. 6, 7, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--23 years, 125 ft<sup>3</sup>/s, 20.07 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft<sup>3</sup>/s, Sept. 22, 1979, gage height, 22.00 ft, from rating curve extended above 2,900 ft<sup>3</sup>/s on basis of contracted-opening measurements at gage heights 18.32 ft and 22.00 ft; minimum, 20 ft<sup>3</sup>/s, Aug. 29, 30, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
July 27	0100	1,480	7.51	Aug. 21	0030	1,390	7.30
Aug. 18	0500	*18,100	*20.89	Aug. 21	1500	1,690	7.96

Minimum discharge, 35 ft<sup>3</sup>/s, Jan. 21, result of freezeup; minimum daily, 39 ft<sup>3</sup>/s, July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	63	83	68	282	86	72	60	67	61	133	115
2	71	62	78	75	389	84	65	63	62	59	121	111
3	64	58	80	179	203	80	64	80	62	51	84	104
4	61	70	74	242	140	79	64	63	69	47	71	98
5	60	127	81	152	120	78	63	59	75	45	64	95
6	59	79	123	111	110	74	74	57	97	45	62	91
7	58	68	91	96	100	72	65	56	70	45	67	86
8	59	64	84	87	94	73	64	56	73	42	94	83
9	61	64	81	80	90	75	62	54	62	40	78	101
10	59	63	79	76	89	72	61	55	57	43	64	96
11	59	67	77	74	84	71	61	59	55	61	58	84
12	57	63	75	70	349	71	61	61	56	98	55	80
13	57	61	74	69	183	68	60	55	52	76	60	77
14	57	60	74	68	135	68	61	52	50	50	53	73
15	56	60	74	66	116	67	65	59	50	68	50	71
16	56	60	74	68	103	66	147	164	51	66	74	70
17	57	58	71	73	98	66	117	136	52	48	566	69
18	57	59	70	69	92	65	88	87	49	43	6580	67
19	57	67	72	68	89	64	79	69	48	41	830	66
20	57	64	72	63	87	64	73	63	46	40	555	64
21	56	60	75	44	83	64	68	72	45	39	924	63
22	67	59	78	54	81	72	66	72	44	42	300	63
23	63	59	73	52	80	109	63	343	44	44	206	63
24	112	59	69	50	80	83	64	253	45	41	227	62
25	73	58	70	50	80	74	125	148	43	129	260	59
26	65	58	67	52	114	70	82	110	46	145	198	57
27	62	58	68	53	97	68	74	91	42	416	219	57
28	65	169	68	54	89	68	73	81	41	197	172	54
29	98	130	67	57	---	68	67	75	48	138	147	54
30	67	92	67	62	---	68	63	71	53	99	134	54
31	64	---	68	76	---	66	---	70	---	85	125	---
TOTAL	2066	2139	2357	2458	3657	2253	2211	2794	1654	2444	12631	2287
MEAN	66.6	71.3	76.0	79.3	131	72.7	73.7	90.1	55.1	78.8	407	76.2
MAX	152	169	123	242	389	109	147	343	97	416	6580	115
MIN	56	58	67	44	80	64	60	52	41	39	50	54
CFSM	.79	.84	.90	.94	1.55	.86	.87	1.07	.65	.93	4.81	.90
IN.	.91	.94	1.04	1.08	1.61	.99	.97	1.23	.73	1.07	5.55	1.01
CAL YR 1984	TOTAL	46789	MEAN	128	MAX	1020	MIN	51	CFSM	1.51	IN.	20.57
WTR YR 1985	TOTAL	38951	MEAN	107	MAX	6580	MIN	39	CFSM	1.26	IN.	17.13



## 02070000 NORTH MAYO RIVER NEAR SPENCER, VA

LOCATION.--Lat 36°34'05", long 79°59'15", Henry County, Hydrologic Unit 03010103, on left bank 800 ft downstream from bridge on State Highway 629 at Moores Mill, 2.1 mi downstream from Horse Pasture Creek, and 3.8 mi south-east of Spencer.

DRAINAGE AREA.--108 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1303: 1929-32(M), 1934(M).

GAGE.--Water-stage recorder. Datum of gage is 730.94 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Jan. 23, 1936, nonrecording gage at site 800 ft upstream at datum 1.50 ft higher. July 25 to Sept. 27, 1936, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Jan. 21 to Feb. 23. Records good except those for period of no gage-height record, Jan. 21 to Feb. 23, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--57 years, 126 ft<sup>3</sup>/s, 15.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,200 ft<sup>3</sup>/s, Oct. 9, 1947, gage height, 15.80 ft, from rating curve extended above 7,200 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 13.41 ft and velocity-area study; minimum, 14 ft<sup>3</sup>/s, Aug. 11, 1956; minimum gage height, 1.08 ft, Oct. 8, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1330	*14,100	*14.22	Aug. 21	0300	1,570	4.94

Minimum discharge, 28 ft<sup>3</sup>/s, July 21, gage height, 1.23 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	174	78	94	76	350	100	85	64	69	64	716	97
2	92	76	87	78	460	98	79	64	61	69	343	95
3	79	71	87	249	260	96	78	74	63	53	124	91
4	74	78	81	524	180	92	78	66	61	48	92	86
5	74	126	85	250	145	92	78	63	71	44	79	83
6	71	94	148	145	130	88	79	61	92	44	71	80
7	71	83	109	121	120	87	78	60	72	43	100	78
8	71	78	98	107	115	87	74	60	74	40	184	76
9	72	78	90	96	110	90	71	58	66	37	110	75
10	71	78	88	90	105	85	71	58	60	40	80	75
11	71	79	87	87	100	83	72	60	58	54	69	72
12	71	78	83	81	400	83	74	64	58	42	63	71
13	69	72	81	81	250	81	72	61	53	48	60	70
14	69	71	79	79	170	83	72	55	50	45	56	67
15	69	72	78	78	140	81	78	61	50	40	54	66
16	69	72	78	79	130	79	134	194	50	40	60	66
17	69	71	78	85	120	81	117	126	53	37	271	65
18	69	71	78	81	115	78	92	90	49	33	7460	64
19	69	81	78	79	110	78	85	74	45	32	1020	63
20	69	83	78	76	105	78	81	66	43	31	419	62
21	69	74	79	59	100	78	78	69	43	30	704	62
22	76	74	83	68	98	85	74	88	42	31	224	62
23	79	72	78	68	97	137	71	376	42	71	166	62
24	122	74	74	64	98	109	71	306	42	42	193	60
25	100	74	76	66	98	96	90	177	41	149	266	58
26	83	72	72	68	132	87	78	119	40	242	167	56
27	78	72	72	70	117	85	72	96	37	201	180	56
28	79	123	74	72	102	83	74	83	38	214	145	54
29	107	197	74	75	---	83	69	78	40	140	123	54
30	83	109	72	80	---	83	66	72	58	96	114	54
31	78	---	76	150	---	81	---	71	---	83	105	---
TOTAL	2497	2531	2595	3382	4457	2727	2391	3014	1621	2183	13818	2080
MEAN	80.5	84.4	83.7	109	159	88.0	79.7	97.2	54.0	70.4	446	69.3
MAX	174	197	148	524	460	137	134	376	92	242	7460	97
MIN	69	71	72	59	97	78	66	55	37	30	54	54
CFSM	.75	.78	.77	1.01	1.47	.81	.74	.90	.50	.65	4.13	.64
IN.	.86	.87	.89	1.16	1.54	.94	.82	1.04	.56	.75	4.76	.72

CAL YR 1984	TOTAL	50848	MEAN	139	MAX	1270	MIN	58	CFSM	1.29	IN.	17.51
WTR YR 1985	TOTAL	43296	MEAN	119	MAX	7460	MIN	30	CFSM	1.10	IN.	14.91

02071900 PHILPOTT LAKE NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'52", long 80°01'40", Henry County, Hydrologic Unit 03010103, at Philpott Dam on Smith River, 1.5 mi west of Philpott, 12.0 mi upstream from Reed Creek, and at mile 44.3.

DRAINAGE AREA.--216 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by concrete dam. Spillway, with crest at elevation 985 ft, is ungated and 120 ft long. Storage began August 1950 during construction; initial filling started in December 1951; water in reservoir first reached rule-curve elevation in July 1953. Total capacity at maximum flood-control pool elevation, 998 ft, is 247,400 acre-ft of which 47,000 acre-ft is upstream from the spillway crest; 34,200 acre-ft is controlled flood storage between elevations 974 ft, maximum power pool, and 985 ft; 57,800 acre-ft is available for power between elevations 951 ft, minimum power pool, and 974 ft; and 108,400 acre-ft is inactive and dead storage below elevation 951 ft. Usable capacity is 92,000 acre-ft between elevations 951 ft and 985 ft. Figures given herein represent total contents. Reservoir is used for flood control, hydro-electric power, low-water regulation for pollution abatement and industrial water supply, and recreation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 191,700 acre-ft, June 22, 1972, elevation, 983.06 ft; minimum (after first filling to rule curve), 64,540 acre-ft, Sept. 26, 1956, elevation, 927.59 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 177,370 acre-ft, Aug. 19, elevation, 977.76 ft; minimum, 152,010 acre-ft, Aug. 16, elevation, 968.97 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	971.50	159,040	-
Oct. 31.....	971.10	157,910	-1,130
Nov. 30.....	970.99	157,600	-310
Dec. 31.....	970.90	157,350	-250
CAL YR 1984.....	-	-	-5,720
Jan. 31.....	971.30	158,470	+1,120
Feb. 28.....	972.93	163,100	+4,630
Mar. 31.....	973.28	164,110	+1,010
Apr. 30.....	973.30	164,170	+60
May 31.....	973.80	165,610	+1,440
June 30.....	972.54	161,980	-3,630
July 31.....	970.35	155,820	-6,160
Aug. 31.....	974.89	168,790	+12,970
Sept. 30.....	971.22	158,250	-10,540
WTR YR 1985.....	-	-	-790

## 02072000 SMITH RIVER NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'50", long 80°01'30", Franklin County, Hydrologic Unit 03010103, on left bank 900 ft downstream from Philpott Dam, 3.1 mi west of Philpott, 11.6 mi upstream from Reed Creek, and at mile 44.1.

DRAINAGE AREA.--216 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1553: 1953(M), 1955-56(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 804.27 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 8, 1952, at site 1.9 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Aug. 22 to Sept. 17. Records good except those for period of no gage-height record, Aug. 22 to Sept. 17, which are fair. Since August 1950, flow regulated by Philpott Lake (station 02071900) 0.2 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--39 years, 276 ft<sup>3</sup>/s, 17.35 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft<sup>3</sup>/s, June 29, 1949, gage height, 20.3 ft, site and datum then in use, from rating curve extended above 9,700 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 18.2 ft and 20.3 ft; minimum, 4.0 ft<sup>3</sup>/s, Aug. 12, 1953, gage height, 1.50 ft; minimum daily, 20 ft<sup>3</sup>/s, Mar. 24, 1984, caused by turbines being shut down for repair at Philpott Dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,480 ft<sup>3</sup>/s, May 23, gage height, 5.18 ft; minimum, 9.8 ft<sup>3</sup>/s, Oct. 25, 26, Nov. 1, gage height, 1.86 ft; minimum daily, 39 ft<sup>3</sup>/s, Oct. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	195	174	44	192	194	186	187	189	43	302	298	60
2	195	181	44	192	44	44	189	189	43	287	299	780
3	193	45	193	196	44	44	192	189	228	286	46	820
4	193	45	197	197	190	189	193	44	232	287	46	910
5	190	186	187	44	375	194	190	45	239	284	311	950
6	45	191	191	44	383	193	44	193	237	44	301	850
7	45	198	192	195	397	188	45	194	234	44	288	58
8	195	195	45	481	389	191	188	188	44	313	309	58
9	195	193	44	486	43	45	189	182	44	307	307	231
10	189	44	190	492	43	45	190	186	236	301	46	233
11	190	44	191	491	186	192	193	44	232	300	46	235
12	185	191	190	44	192	186	189	44	232	301	284	240
13	44	193	191	44	190	190	45	190	240	44	297	240
14	44	195	191	191	191	190	45	190	242	44	306	50
15	185	192	44	191	189	194	188	194	44	309	306	50
16	192	190	44	186	44	45	185	194	44	302	305	231
17	192	44	192	189	44	44	194	190	242	299	50	231
18	193	45	197	192	277	192	196	45	236	306	50	234
19	240	189	192	44	276	189	195	45	232	301	879	241
20	44	190	191	44	282	186	44	287	247	46	1250	257
21	44	195	191	197	294	187	44	286	252	46	1100	46
22	176	191	44	192	273	188	180	286	44	306	731	46
23	165	191	44	192	44	44	190	297	44	308	731	249
24	162	44	191	191	44	45	190	745	228	297	72	240
25	154	45	191	192	184	190	190	502	220	305	72	242
26	151	192	191	44	200	189	189	712	227	304	755	240
27	39	191	190	44	201	192	44	718	239	50	800	245
28	39	191	191	191	193	188	45	763	241	49	790	45
29	212	191	44	190	---	187	193	728	44	305	755	46
30	206	192	44	191	---	44	193	738	44	305	740	179
31	185	---	191	191	---	45	---	729	---	309	60	---
TOTAL	4677	4548	4462	5950	5406	4426	4539	9526	5154	7291	12630	8537
MEAN	151	152	144	192	193	143	151	307	172	235	407	285
MAX	240	198	197	492	397	194	196	763	252	313	1250	950
MIN	39	44	44	44	43	44	44	44	43	44	46	45
(*)	-18	-5	-4	+18	+83	+16	+1	+23	-61	-100	+211	-177
MEAN†	133	147	140	210	276	159	152	330	111	135	618	108
CFSM†	.62	.68	.65	.97	1.28	.74	.70	1.53	.51	.62	2.86	.50
IN.†	.71	.76	.75	1.12	1.33	.85	.79	1.76	.57	.72	3.30	.56

CAL YR 1984 TOTAL 103322 MEAN 282 MAX 1280 MIN 20 MEAN† 274 CFSM† 1.27 IN.† 17.27  
CAL YR 1984 TOTAL 77146 MEAN 211 MAX 1250 MIN 39 MEAN† 210 CFSM† .97 IN.† 13.20

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## 02072500 SMITH RIVER AT BASSETT, VA

LOCATION.--Lat 36°46'12", long 80°00'04", Henry County, Hydrologic Unit 03010103, on left bank 25 ft upstream from bridge on State Highway 666 at north edge of North Bassett, 1.0 mi northwest of Bassett, 3.0 mi downstream from Town Creek, 5.6 mi upstream from Reed Creek, 6.2 mi downstream from Philpott Dam, and at mile 38.1.

DRAINAGE AREA.--259 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 753.09 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. Records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 6.2 mi upstream. Diversion upstream from station by Henry County Public Service Authority has averaged less than 1.0 ft<sup>3</sup>/s. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--46 years, 329 ft<sup>3</sup>/s, 17.25 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft<sup>3</sup>/s, Aug. 14, 1940, gage height, 18.28 ft; minimum, 19 ft<sup>3</sup>/s, July 19, 1956; minimum daily, 44 ft<sup>3</sup>/s, Aug. 23, 1964; minimum gage height, 1.06 ft, Sept. 18, 26, 1953.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 19, 1937, reached a stage of about 22.9 ft, from information by local residents, discharge, 38,000 ft<sup>3</sup>/s, from rating curve extended above 23,000 ft<sup>3</sup>/s on basis of backwater studies and records for station at Martinsville.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,480 ft<sup>3</sup>/s, Aug. 18, gage height, 8.43 ft; minimum, 45 ft<sup>3</sup>/s, July 24, gage height, 1.44 ft; minimum daily, 58 ft<sup>3</sup>/s, July 14, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	276	217	84	242	320	235	231	226	100	366	339	79
2	240	231	82	246	278	79	228	230	72	336	343	883
3	234	73	249	511	128	76	233	232	266	340	64	926
4	236	81	252	470	260	233	231	68	284	331	62	1050
5	233	254	251	149	457	239	229	68	289	324	344	1040
6	73	241	287	113	458	236	74	226	284	66	337	1000
7	70	247	261	270	477	230	70	229	286	63	329	99
8	233	243	92	582	462	234	227	228	83	337	360	74
9	238	240	88	583	79	76	228	220	70	333	348	279
10	236	75	249	589	78	74	227	223	270	331	62	280
11	238	74	248	585	234	234	233	66	272	326	60	278
12	233	233	248	85	476	230	229	66	275	326	328	288
13	73	234	248	82	295	231	70	226	280	60	331	287
14	70	232	248	245	264	229	70	225	281	58	338	68
15	229	237	82	245	254	234	228	239	74	337	339	66
16	238	236	82	238	87	72	247	282	71	336	341	283
17	239	70	247	245	85	72	241	255	278	315	110	277
18	239	71	252	247	342	231	239	73	277	334	1890	269
19	292	245	247	81	342	228	237	68	273	313	917	275
20	73	242	246	75	346	228	70	318	235	61	1450	291
21	70	241	253	242	358	227	70	336	335	58	1360	67
22	232	238	86	237	335	240	217	341	72	337	817	65
23	207	236	83	237	77	106	226	855	64	345	857	282
24	266	71	247	235	77	87	237	972	254	322	104	277
25	204	73	245	237	233	240	260	649	252	379	90	278
26	195	239	244	72	267	234	233	804	262	360	846	276
27	71	239	242	70	259	236	72	821	277	101	1020	276
28	66	332	243	234	246	233	72	865	279	77	907	66
29	265	282	79	232	---	248	230	834	73	349	863	62
30	256	256	78	233	---	73	230	837	64	340	845	207
31	231	---	246	240	---	73	---	832	---	353	92	---
TOTAL	6056	5983	6089	8152	7574	5698	5689	11914	6252	8314	16493	9948
MEAN	195	199	196	263	271	184	190	384	208	268	532	332
MAX	292	332	287	589	477	248	260	972	335	379	1890	1050
MIN	66	70	78	70	77	72	70	66	64	58	60	62
(*)	-18	-5	-4	+18	+83	+16	+1	+23	-61	-100	+211	-177
MEAN†	177	194	192	281	354	200	191	407	147	168	743	155
CFSM†	.68	.75	.74	1.08	1.37	.77	.74	1.57	.57	.65	2.87	.60
IN.†	.79	.84	.85	1.25	1.42	.89	.82	1.81	.63	.75	3.31	.67

CAL YR 1984 TOTAL 131467 MEAN 359 MAX 1510 MIN 66 MEAN† 351 CFSM† 1.36 IN.† 18.45  
WTR YR 1985 TOTAL 98162 MEAN 269 MAX 1890 MIN 58 MEAN† 268 CFSM† 1.03 IN.† 14.05

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.



## ROANOKE RIVER BASIN

02073000 SMITH RIVER AT MARTINSVILLE, VA

LOCATION.--Lat 36°39'40", long 79°52'51", Henry County, Hydrologic Unit 03010103, on right bank at south edge of Martinsville, 800 ft downstream from bridge on U.S. Highways 58 and 220, and 5.0 mi downstream from Beaver Creek.

DRAINAGE AREA.--380 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1929 to current year.

REVISED RECORDS.--WSP 1032: 1933-35(M), 1936-39, 1940-41(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 657.22 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 19.6 mi upstream from station. Some additional regulation by powerplant 1,000 ft upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--56 years, 455 ft<sup>3</sup>/s, 16.26 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft<sup>3</sup>/s, Oct. 19, 1937, gage height, 21.50 ft, from rating curve extended above 17,000 ft<sup>3</sup>/s on basis of computations of flow over dam at gage heights 16.76 ft and 21.50 ft; minimum, 3.8 ft<sup>3</sup>/s, Mar. 19, 1955; minimum daily, 19 ft<sup>3</sup>/s, Oct. 6, 1935; minimum gage height, 0.69 ft, Sept. 8, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,900 ft<sup>3</sup>/s, Aug. 18, gage height, 15.43 ft; minimum, 7.0 ft<sup>3</sup>/s, Nov. 24, gage height, 0.85 ft; minimum daily, 80 ft<sup>3</sup>/s, July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	487	314	126	218	942	385	353	290	464	436	913	164		
2	344	329	146	355	945	132	315	347	139	443	580	953		
3	314	169	365	1130	419	155	316	376	342	433	263	1110		
4	330	183	324	1260	475	361	319	117	407	393	135	1280		
5	330	307	362	388	500	341	347	110	411	437	396	1280		
6	304	359	451	265	669	326	142	334	421	258	440	1250		
7	124	346	315	260	642	314	120	303	391	91	567	414		
8	216	335	182	728	594	375	297	314	248	326	671	156		
9	328	351	160	672	261	130	350	308	140	400	479	339		
10	360	286	352	692	185	146	308	318	306	411	194	393		
11	304	163	317	678	346	351	400	134	372	415	132	388		
12	327	329	310	278	1310	330	327	140	359	387	360	398		
13	265	359	317	150	601	318	122	322	367	259	396	397		
14	154	332	331	205	459	319	123	301	363	89	370	197		
15	225	333	112	332	400	368	353	309	259	330	432	128		
16	331	346	126	312	208	118	443	519	105	422	499	322		
17	325	141	337	338	201	130	355	469	346	391	876	389		
18	329	137	320	329	414	343	342	102	365	381	9760	372		
19	333	385	311	300	449	304	313	131	354	378	1560	364		
20	308	353	304	136	444	314	187	349	318	228	1900	382		
21	148	362	346	277	469	312	134	366	364	80	1930	178		
22	337	275	112	311	439	408	341	380	260	451	1090	124		
23	305	342	132	324	229	227	310	1720	90	534	1120	258		
24	536	153	288	308	174	202	346	1560	311	408	511	396		
25	338	173	297	322	336	378	410	1030	307	857	299	342		
26	297	343	341	145	447	331	384	958	362	652	965	338		
27	151	331	308	141	399	331	117	1030	343	440	1320	346		
28	163	610	327	330	377	326	133	1080	352	255	1240	197		
29	387	464	112	307	---	295	352	1080	209	494	1130	115		
30	354	395	115	317	---	158	324	1040	105	472	1100	199		
31	329	---	363	356	---	155	---	1050	---	1050	360	---		
TOTAL	9383	9305	8309	12164	13334	8683	8683	16887	9180	12601	31988	13169		
MEAN	303	310	268	392	476	280	289	545	306	406	1032	439		
MAX	536	610	451	1260	1310	408	443	1720	464	1050	9760	1280		
MIN	124	137	112	136	174	118	117	102	90	80	132	115		
(*)	-18	-5	-4	+18	+83	+16	+1	+23	-61	-100	+211	-177		
MEAN†	285	305	264	410	559	296	290	568	245	306	1243	262		
CFSM†	.75	.80	.69	1.08	1.47	.78	.76	1.49	.64	.81	3.27	.69		
IN.†	.86	.90	.80	1.24	1.53	.90	.85	1.72	.72	.93	3.77	.77		
CAL YR 1984	TOTAL	193466	MEAN	529	MAX	2770	MIN	103	MEAN†	521	CFSM†	1.37	IN.†	18.62
WTR YR 1985	TOTAL	153686	MEAN	421	MAX	9760	MIN	80	MEAN†	420	CFSM†	1.11	IN.†	15.01

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

02074000 SMITH RIVER AT EDEN, NC

LOCATION.--Lat 36°31'31", long 79°45'57", Rockingham County, Hydrologic Unit 03010103, on right bank at Eden, 0.3 mi downstream from bridge on State Highway 14, 0.8 mi upstream from bridge on Secondary Road 1714, 1.2 mi south of Virginia-North Carolina State line, 1.3 mi downstream from Stuart Creek, and 3.9 mi upstream from mouth.

DRAINAGE AREA.--538 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1970, published as "at Spray".

REVISED RECORDS.--WSP 1433: 1946.

GAGE.--Water-stage recorder. Datum of gage is 539.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 40 mi upstream, usable capacity, 6,325,000 ft<sup>3</sup>. Additional regulation by hydroelectric plant at Martinsville, VA, 18 mi upstream. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--46 years, 621 ft<sup>3</sup>/s, 15.68 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,600 ft<sup>3</sup>/s, Aug. 15, 1940, gage height, 19.28 ft, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of computation of peak flow over dam 1.5 mi downstream; minimum, 38 ft<sup>3</sup>/s, Aug. 7, 1967; minimum daily, 46 ft<sup>3</sup>/s, Aug. 14, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,600 ft<sup>3</sup>/s, Aug. 18, gage height, 15.40 ft; minimum, 84 ft<sup>3</sup>/s, July 21, 22, gage height, 1.45 ft; minimum daily, 108 ft<sup>3</sup>/s, July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	627	452	410	342	1320	471	398	415	870	276	1870	220		
2	473	376	200	445	1900	381	405	362	154	493	1040	471		
3	404	361	387	1220	974	214	400	401	307	464	644	1100		
4	390	185	420	2440	713	409	400	326	411	366	200	1240		
5	380	428	441	1030	690	440	404	143	437	465	261	1260		
6	377	439	687	584	828	423	355	297	477	397	448	1190		
7	163	405	534	532	825	410	165	348	441	121	584	1000		
8	277	347	410	683	746	421	303	330	395	192	1090	185		
9	368	443	233	827	532	355	444	357	170	402	805	282		
10	374	379	386	816	330	196	396	352	313	400	595	452		
11	368	196	424	800	414	390	398	298	387	488	192	415		
12	370	349	415	669	1740	417	365	167	385	389	240	426		
13	299	383	413	223	1120	405	370	315	381	422	439	374		
14	219	386	409	347	709	405	164	345	376	127	433	390		
15	249	386	362	426	592	407	348	349	336	229	400	174		
16	381	392	175	407	398	335	496	650	134	437	453	201		
17	367	336	355	425	344	177	466	541	281	432	621	454		
18	369	168	398	442	502	366	417	371	377	394	15300	337		
19	373	373	404	434	565	392	406	211	363	390	3220	392		
20	413	425	399	203	587	388	353	327	360	373	2480	390		
21	172	391	415	300	586	392	167	456	365	108	2390	344		
22	326	331	389	579	576	429	328	476	329	140	1440	181		
23	382	434	178	536	395	528	359	1330	125	648	1370	175		
24	627	300	289	501	285	298	372	1970	219	442	1140	424		
25	521	205	388	526	395	444	481	1180	340	618	778	338		
26	382	340	433	328	605	436	427	1070	326	1910	662	373		
27	271	386	384	231	534	426	354	1050	333	786	1360	381		
28	243	591	388	355	485	419	164	1020	344	442	1350	360		
29	489	832	356	412	---	384	350	1060	327	471	1170	162		
30	465	506	161	398	---	313	333	987	130	572	1130	157		
31	361	---	345	461	---	258	---	1020	---	714	979	---		
TOTAL	11480	11525	11588	17922	19690	11729	10788	18524	10193	14108	45084	13848		
MEAN	370	384	374	578	703	378	360	598	340	455	1454	462		
MAX	627	832	687	2440	1900	528	496	1970	870	1910	15300	1260		
MIN	163	168	161	203	285	177	164	143	125	108	192	157		
(†)	-18	-5	-4	+18	+83	+16	+1	+23	-61	-100	+211	-177		
CAL YR 1984	TOTAL	263614	MEAN	720	MAX	5220	MIN	149	MEAN†	712	CFSM†	1.32	IN.†	18.02
WTR YR 1985	TOTAL	196479	MEAN	538	MAX	15300	MIN	108	MEAN†	537	CFSM†	1.00	IN.†	13.55

† Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## ROANOKE RIVER BASIN

02074500 SANDY RIVER NEAR DANVILLE, VA

LOCATION.--Lat 36°37'10", long 79°30'16", Pittsylvania County, Hydrologic Unit 03010103, on right bank 200 ft downstream from Hickory Forest Creek, 400 ft upstream from bridge on State Highway 863 between Callahans Store and Mount Cross, 5.5 mi northwest of western corporate limits of Danville, and 5.8 mi upstream from mouth.

DRAINAGE AREA.--112 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1930-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 460.38 ft above National Geodetic Vertical Datum of 1929. Prior to June 26, 1942, at site 1,200 ft downstream at datum 5.57 ft lower.

REMARKS.--Estimated daily discharges: Jan. 16, 17, 22-30. Records good except those for periods with ice effect, Jan. 16, 17, 22-30, which are fair. Diurnal fluctuation at low flow caused by small mill upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--56 years, 107 ft<sup>3</sup>/s, 12.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft<sup>3</sup>/s, Aug. 14, 1940, gage height, 14.8 ft, present datum, from floodmarks, from rating curve extended above 11,000 ft<sup>3</sup>/s; minimum, 3 ft<sup>3</sup>/s, Sept. 29, 1930, gage height, 0.40 ft, site and datum then in use; minimum daily, 8 ft<sup>3</sup>/s, Aug. 29, 31, Sept. 1, 2, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1330	*10,900	*10.10	No other peak equal to or greater than base discharge.			

Minimum discharge, 20 ft<sup>3</sup>/s, July 23, gage height, 0.98 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	70	83	63	349	89	72	50	46	47	147	70
2	71	68	76	64	736	88	69	49	42	49	164	68
3	61	63	84	415	290	84	68	58	44	40	67	65
4	58	65	76	903	169	83	68	50	42	38	50	61
5	56	72	84	353	142	83	68	48	44	36	43	58
6	55	71	163	174	146	78	68	47	50	35	41	56
7	56	64	107	132	138	76	64	46	47	35	54	53
8	56	63	88	109	114	78	65	45	53	31	129	51
9	56	63	82	96	110	83	64	44	44	29	121	50
10	55	63	78	88	104	78	63	45	40	31	73	53
11	55	67	75	84	96	77	64	48	39	44	53	49
12	54	65	73	79	391	78	64	61	39	33	45	47
13	54	62	72	76	244	73	64	50	36	37	41	47
14	53	61	71	75	154	74	64	44	35	47	38	44
15	53	61	69	72	127	73	67	43	35	35	36	44
16	53	63	69	66	112	71	71	85	35	35	45	43
17	53	61	70	77	106	72	69	65	38	28	131	42
18	55	61	69	81	100	70	63	52	35	25	6780	42
19	55	72	69	78	96	69	62	45	33	25	599	41
20	55	72	69	73	92	70	60	43	31	24	302	41
21	54	64	72	59	88	69	58	42	30	23	286	41
22	58	63	75	64	88	80	56	43	29	21	160	42
23	61	63	68	60	87	113	55	118	29	22	113	42
24	160	63	66	59	86	92	55	149	30	23	133	41
25	94	63	66	60	87	84	59	89	28	63	260	39
26	72	63	63	61	130	77	54	65	27	232	152	37
27	66	63	65	64	108	76	53	55	25	91	141	37
28	66	146	66	67	93	75	56	50	25	82	104	36
29	139	182	64	69	---	75	54	47	27	69	86	36
30	108	97	64	70	---	74	50	47	38	57	81	36
31	75	---	65	86	---	72	---	47	---	54	80	---
TOTAL	2142	2174	2361	3877	4583	2434	1867	1770	1096	1441	10555	1412
MEAN	69.1	72.5	76.2	125	164	78.5	62.2	57.1	36.5	46.5	340	47.1
MAX	160	182	163	903	736	113	72	149	53	232	6780	70
MIN	53	61	63	59	86	69	50	42	25	21	36	36
CFSM	.62	.65	.68	1.12	1.46	.70	.56	.51	.33	.42	3.04	.42
IN.	.71	.72	.78	1.29	1.52	.81	.62	.59	.36	.48	3.51	.47
CAL YR 1984	TOTAL	51863	MEAN	142	MAX	2350	MIN	44	CFSM	1.27	IN.	17.23
WTR YR 1985	TOTAL	35712	MEAN	97.8	MAX	6780	MIN	21	CFSM	.87	IN.	11.86

## 02075000 DAN RIVER AT DANVILLE, VA

LOCATION.--Lat 36°35'15", long 79°22'55", Danville City, Hydrologic Unit 03010104, on left bank 50 ft downstream from Southern Railway bridge, 1,000 ft upstream from Fall Creek, and at mile 62.7.

DRAINAGE AREA.--2,050 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--August 1934 to current year. Gage-height records collected in this vicinity 1890-1934, at same site 1934-49, and at Main Street bridge, 0.25 mi upstream 1949-68, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 972: 1936.

GAGE.--Water-stage recorder. Datum of gage is 379.29 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good prior to Aug. 22 and fair thereafter. Diurnal fluctuation caused by mills upstream. Since August 1950, flow regulated by Philpott Lake (station 02071900) 74.7 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--51 years, 2,308 ft<sup>3</sup>/s, 15.29 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,000 ft<sup>3</sup>/s, Aug. 15, 1940, gage height, 20.96 ft; maximum gage height, 21.34 ft, June 22, 1972, backwater from debris; minimum discharge, 11 ft<sup>3</sup>/s, Sept. 5, 1966, gage height, 1.18 ft; minimum daily, 110 ft<sup>3</sup>/s, Sept. 5, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,800 ft<sup>3</sup>/s, Aug. 18, gage height, 14.78 ft; minimum, 355 ft<sup>3</sup>/s, July 31, gage height, 1.84 ft; minimum daily, 426 ft<sup>3</sup>/s, July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1370	1150	1470	1120	3250	1570	1020	949	1490	688	2760	2110
2	1890	1100	1150	1040	8760	1480	1180	939	1070	913	3000	1410
3	1300	1050	1100	2490	7160	1280	1120	999	746	996	2030	1820
4	1130	942	1290	7260	3590	1200	1090	1070	905	932	1300	2140
5	1060	934	1270	5970	2540	1360	1110	889	933	843	969	2200
6	1030	1330	1830	2990	2530	1300	1120	751	986	900	1030	2160
7	993	1280	1930	2010	2610	1270	960	897	1730	765	1050	2080
8	833	1130	1520	1710	2360	1240	936	880	1430	550	1360	1340
9	924	1080	1270	1820	1990	1310	1050	882	1160	666	1950	1030
10	982	1120	1110	1690	1530	1140	1100	838	863	741	1490	1280
11	988	1100	1250	1630	1480	1080	1040	858	893	803	1080	1300
12	985	918	1200	1600	3260	1240	1050	823	907	865	790	1170
13	983	1070	1170	1250	5890	1210	1030	828	990	908	859	1140
14	891	1040	1160	1040	3380	1170	956	913	892	1030	884	1060
15	851	1050	1170	1140	2420	1160	883	845	830	883	862	961
16	895	1030	1010	1150	2050	1170	1110	1690	783	847	891	801
17	958	1050	939	1130	1710	1010	1440	2720	644	932	1050	872
18	973	901	1130	1280	1610	970	1470	1780	835	838	19800	1010
19	1010	894	1110	1250	1660	1130	1250	1150	853	726	31500	951
20	1000	1240	1110	1180	1590	1100	1150	963	780	704	22600	962
21	1020	1170	1130	938	1550	1110	1010	1030	742	632	9100	959
22	863	1100	1180	929	1500	1150	878	1090	744	426	7160	888
23	1100	1010	1020	1200	1450	1500	1020	1400	682	663	3870	752
24	1210	1090	940	1320	1290	1600	975	3450	511	833	3050	768
25	1450	929	1070	1190	1250	1480	1040	3040	620	987	2690	983
26	1300	892	1080	1370	1650	1440	1180	2130	669	3240	2910	916
27	1100	1040	1110	1210	2260	1230	1130	1840	667	2900	3110	909
28	981	1330	1070	974	1810	1210	926	1630	671	2230	3730	898
29	1540	2240	1110	1140	---	1190	853	1570	687	2460	2820	875
30	1720	2030	950	1130	---	1170	1010	1540	758	1880	2330	679
31	1320	---	884	1260	---	1060	---	1500	---	1670	2520	---
TOTAL	34650	34240	36733	53411	74130	38530	32087	41884	26471	34451	140545	36424
MEAN	1118	1141	1185	1723	2648	1243	1070	1351	882	1111	4534	1214
MAX	1890	2240	1930	7260	8760	1600	1470	3450	1730	3240	31500	2200
MIN	833	892	884	929	1250	970	853	751	511	426	790	679
(*)	-18	-5	-4	+18	+83	+16	+1	+23	-61	-100	+211	-177
MEAN†	1100	1136	1181	1741	2731	1259	1071	1374	821	1011	4745	1037
CFSM†	.54	.55	.58	.85	1.33	.61	.52	.67	.40	.49	2.31	.51
IN.†	.62	.62	.66	.98	1.39	.71	.58	.77	.45	.57	2.67	.56

CAL YR 1984 TOTAL 966940 MEAN 2642 MAX 25700 MIN 723 MEAN† 2634 CFSM† 1.28 IN.† 17.49  
WTR YR 1985 TOTAL 583556 MEAN 1599 MAX 31500 MIN 426 MEAN† 1598 CFSM† .78 IN.† 10.58

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.



## 02075500 DAN RIVER AT PACES, VA

LOCATION.--Lat 36°38'32", long 79°05'23", Halifax County, Hydrologic Unit 03010104, on right bank 100 ft upstream from bridge on State Highway 658, 0.5 mi southeast of Paces, 0.5 mi upstream from Big Toby Creek, 2.7 mi upstream from Birch Creek, and at mile 36.0.

DRAINAGE AREA.--2,550 mi<sup>2</sup>, approximately.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 322.48 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation by mills 23 mi upstream at Danville. Since August 1950, flow regulated by Philpott Lake (station 02071900) 101.4 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

AVERAGE DISCHARGE.--34 years (water years 1952-85), 2,708 ft<sup>3</sup>/s, 14.42 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64,800 ft<sup>3</sup>/s, June 23, 1972, gage height, 33.15 ft, from rating curve extended above 32,000 ft<sup>3</sup>/s; minimum, 193 ft<sup>3</sup>/s, Sept. 4, 1956, gage height, 1.71 ft; minimum daily, 244 ft<sup>3</sup>/s, Sept. 4, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 16, 1940, reached a stage of 32.3 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,600 ft<sup>3</sup>/s, Aug. 20, gage height, 23.74 ft; minimum, 426 ft<sup>3</sup>/s, July 23, gage height, 2.29 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1360	1440	2030	1090	4250	2280	1330	1170	1790	967	2380	3010
2	2040	1330	1640	1350	11300	2060	1370	1130	1700	865	3610	1780
3	1870	1240	1390	3520	12500	1920	1470	1180	1030	1190	3000	1800
4	1320	1180	1480	10500	7050	1660	1390	1270	885	1160	2020	2330
5	1200	1020	1590	11800	4060	1710	1380	1290	1120	1080	1340	2370
6	1130	1260	2480	7010	3560	1750	1390	996	1210	1020	1150	2310
7	1100	1590	2740	3630	3750	1680	1340	907	1650	1010	1330	2220
8	982	1380	2210	2730	3450	1620	1170	1080	1940	794	1380	2070
9	903	1250	1780	2420	2880	1640	1180	1050	1520	588	2290	1220
10	1040	1250	1470	2340	2350	1650	1330	1020	1260	775	2120	1270
11	1070	1280	1430	2210	2030	1410	1320	996	994	868	1690	1490
12	1080	1170	1510	2120	3440	1490	1270	1020	1060	966	1090	1380
13	1070	1100	1450	1970	7900	1570	1290	973	1100	989	922	1280
14	1030	1210	1420	1450	5440	1520	1300	980	1140	1370	1070	1190
15	912	1200	1380	1470	3620	1480	1150	1050	995	1300	1030	1120
16	924	1210	1390	1520	2930	1460	1180	1290	948	1150	993	913
17	1010	1190	1170	1470	2470	1440	1530	3150	861	1050	1060	850
18	1050	1170	1230	1560	2220	1250	1870	2350	743	1100	8180	1090
19	1090	1060	1430	1680	2160	1290	1680	1840	1010	908	21000	1030
20	1100	1260	1400	1590	2150	1410	1470	1260	947	793	26600	1030
21	1150	1440	1380	1190	2040	1380	1360	1140	864	760	21700	1040
22	981	1330	1390	903	1990	1420	1150	1320	807	630	9240	1030
23	1030	1220	1430	1050	1920	1710	1090	1500	808	457	5640	874
24	1270	1190	1170	1410	1810	2100	1220	3070	688	880	3850	804
25	1530	1210	1150	1490	1660	2060	1200	3940	523	969	3410	942
26	1590	1030	1280	1370	2110	1890	1290	2930	679	2160	3790	969
27	1340	1040	1270	1380	3190	1700	1400	2340	695	4370	3890	974
28	1190	1270	1300	1260	2760	1570	1300	2070	711	3020	4290	975
29	1600	2430	1270	1300	---	1560	1050	1880	720	3080	3720	929
30	2160	2760	1310	1450	---	1530	1070	1870	861	2520	3030	795
31	1860	---	1090	1560	---	1470	---	1800	---	2170	3010	---
TOTAL	38982	39710	46660	77793	106990	50680	39540	49862	31259	40959	149825	41085
MEAN	1257	1324	1505	2509	3821	1635	1318	1608	1042	1321	4833	1370
MAX	2160	2760	2740	11800	12500	2280	1870	3940	1940	4370	26600	3010
MIN	903	1020	1090	903	1660	1250	1050	907	523	457	922	795
(*)	-18	-5	-4	+18	+83	+16	+1	+23	-61	-100	+211	-177
MEAN*	1239	1319	1501	2527	3904	1651	1319	1631	981	1221	5044	1193
CFSM*	.49	.52	.59	.99	1.53	.65	.52	.64	.38	.48	1.98	.47
IN.*	.56	.58	.68	1.14	1.59	.75	.58	.74	.43	.55	2.28	.52

CAL YR 1984 TOTAL 1187539 MEAN 3245 MAX 25500 MIN 719 MEAN\* 3237 CFSM\* 1.27 IN.\* 17.26  
WTR YR 1984 TOTAL 713345 MEAN 1954 MAX 26600 MIN 457 MEAN\* 1953 CFSM\* .77 IN.\* 10.40

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

\* Adjusted for change in contents.

## ROANOKE RIVER BASIN

293

02075500 DAN RIVER AT PACES, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1954 to September 1956.

WATER TEMPERATURE: January 1954 to September 1956.

SUSPENDED-SEDIMENT DISCHARGE: January 1954 to September 1981.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC 06...	08:45	2480	130	127	7.2	7.3	5.5	741	30	11.9	97
JAN 23...	09:00	1070	200	208	7.2	6.9	0.0	745	4.0	15.3	107
MAR 14...	13:50	1410	175	168	7.4	7.3	12.0	760	3.5	9.4	87
APR 25...	10:30	1240	195	195	7.3	7.2	22.5	742	3.0	7.0	83
JUN 11...	10:00	977	140	142	7.2	6.9	25.5	743	90	6.1	77
AUG 06...	12:15	1130	126	128	6.9	7.5	24.0	750	30	7.1	86

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS NONCAR- BONATE (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CAC03)	ALKA- LITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)
DEC 06...	K3600	K4500	24	24	5.8	2.3	17	2.0	26	25	8.7
JAN 23...	15	K5	28	28	6.9	2.6	29	2.3	32	36	11
MAR 14...	--	--	25	25	6.0	2.3	22	1.8	31	33	9.9
APR 25...	98	35	29	29	7.1	2.6	27	2.1	34	33	12
JUN 11...	K2300	200	23	23	5.9	2.1	17	2.3	26	26	11
AUG 06...	300	120	23	23	5.6	2.2	14	2.7	24	23	11

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
DEC 06...	21	0.1	15	89	88	0.32	0.02	0.2	0.37	0.09	0.10
JAN 23...	33	0.1	18	142	130	0.65	0.18	0.6	0.18	0.15	0.15
MAR 14...	23	0.1	15	107	100	0.16	0.02	0.4	--	--	--
APR 25...	29	0.2	15	127	120	<0.10	0.04	1.1	0.07	<0.01	<0.01
JUN 11...	17	0.1	15	103	87	0.97	0.13	0.7	0.21	0.11	0.14
AUG 06...	15	0.1	14	85	79	0.50	0.05	0.5	0.14	0.11	0.10

## ROANOKE RIVER BASIN

02075500 DAN RIVER AT PACES, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
DEC 06...	60	1	21	<0.5	<1	1	<3	<1	220	<1	<4
JAN 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 14...	--	1	29	<0.5	<1	<1	<3	5	170	<1	<4
APR 25...	20	2	23	<0.5	<1	<1	<3	1	130	2	<4
JUN 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 06...	50	<1	23	1	<1	3	<3	10	160	1	<4

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC 06...	14	0.6	<10	1	<1	<1	50	<6	6	101	67
JAN 23...	--	--	--	--	--	--	--	--	--	9	89
MAR 14...	7	0.2	<10	<1	--	--	50	<6	13	14	64
APR 25...	10	0.3	<10	1	<1	<1	60	<6	9	27	71
JUN 11...	--	--	--	--	--	--	--	--	--	126	97
AUG 06...	7	<0.1	<10	2	<1	<1	46	<6	5	48	98

02076500 GEORGES CREEK NEAR GRETN, VA

LOCATION.--Lat 36°56'11", long 79°18'42", Pittsylvania County, Hydrologic Unit 03010105, on left bank 15 ft downstream from bridge on State Highway 40, 2.8 mi southeast of Gretna, and 5.8 mi upstream from Whitethorn Creek.

DRAINAGE AREA.--9.24 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1949 to current year.

REVISED RECORDS.--WSP 1703: 1950-52. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 629.54 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-11, Jan. 16, 17, 22-30, Aug. 1-6, 27, and Sept. 4. Records good except those for periods of doubtful or no gage-height record, Oct. 1-11, Aug. 1-6, 27, and Sept. 4, and periods with ice effect, Jan. 16, 17, 22-30, which are fair. Occasional regulation at low flow from unknown source. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--36 years, 9.62 ft<sup>3</sup>/s, 14.14 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,480 ft<sup>3</sup>/s, Sept. 22, 1979, gage height, 8.50 ft, from rating curve extended above 640 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 4.93 ft and 6.22 ft and contracted-opening measurements at gage heights 7.75 ft and 8.50 ft; minimum daily, 1.0 ft<sup>3</sup>/s, Mar. 12, Apr. 5, 1956, July 28, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 150 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	0630	*905	*6.55	Aug. 26	2200	256	3.44

Minimum daily discharge, 2.6 ft<sup>3</sup>/s, June 27-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	8.5	7.3	8.9	28	8.2	7.6	5.4	4.9	5.7	8.4	12
2	10	8.7	6.7	8.4	34	8.0	7.1	5.7	4.5	5.6	10	11
3	7.0	8.3	6.8	55	18	7.9	7.2	6.3	4.5	5.7	8.5	9.5
4	6.4	8.2	6.7	42	14	7.9	7.1	5.9	4.1	4.4	7.0	8.2
5	6.0	9.5	8.7	21	13	8.0	7.4	5.7	4.1	3.8	6.2	7.4
6	5.9	9.1	12	15	12	7.7	7.0	5.5	4.5	3.6	5.4	6.2
7	5.8	8.8	9.5	12	11	7.4	6.8	5.1	4.4	3.8	9.1	6.0
8	5.8	8.8	8.8	11	10	8.1	7.0	5.0	4.8	3.2	12	5.9
9	5.9	8.7	8.8	10	9.8	9.0	6.9	4.8	4.5	3.0	8.5	5.9
10	5.9	8.6	8.5	9.9	9.3	8.0	6.5	4.9	4.2	3.6	6.8	5.9
11	6.0	9.0	8.5	9.7	9.5	7.8	6.4	4.8	4.1	4.9	6.3	5.5
12	6.5	8.3	8.4	9.1	28	8.0	6.7	4.8	3.9	3.5	5.7	5.4
13	7.0	8.0	7.9	8.2	16	7.6	6.9	6.2	3.7	7.1	5.4	5.4
14	7.0	8.0	7.9	8.3	13	7.4	6.9	5.1	3.4	6.6	5.2	5.1
15	7.1	8.4	7.7	8.5	11	7.4	6.9	5.3	3.4	4.2	5.1	4.9
16	7.2	9.0	7.5	6.5	11	7.1	7.7	7.5	3.9	4.2	7.0	5.0
17	7.4	9.0	7.6	7.9	9.7	7.1	7.2	5.9	4.2	3.6	10	5.0
18	8.3	8.4	7.7	9.3	9.6	7.1	6.9	5.1	3.6	3.3	461	5.0
19	8.4	13	7.6	9.1	9.6	6.9	6.8	5.0	3.2	3.0	33	4.9
20	8.1	10	7.6	8.6	9.2	7.0	6.6	4.9	3.0	2.9	22	4.8
21	8.1	9.2	9.4	8.3	9.0	7.1	6.4	5.1	3.0	3.4	19	4.8
22	8.3	9.0	9.5	8.0	8.9	9.3	6.2	5.2	3.0	14	12	5.1
23	8.9	8.9	8.5	7.7	8.8	14	5.9	18	2.9	17	9.6	5.3
24	30	9.1	7.7	7.3	8.9	9.7	6.1	10	2.9	5.8	12	5.0
25	11	8.9	7.6	7.2	8.7	8.8	7.8	8.0	3.0	18	14	4.6
26	9.9	8.9	7.7	7.2	12	8.1	6.2	6.5	2.7	16	30	4.7
27	9.3	8.9	7.9	7.3	8.9	7.8	6.0	5.9	2.6	34	50	4.5
28	9.1	17	7.6	7.5	8.2	7.6	5.9	5.3	2.6	16	15	4.4
29	9.7	10	7.5	7.9	---	7.5	5.7	5.2	2.6	22	13	4.3
30	9.1	8.0	7.5	8.3	---	7.5	5.6	5.2	2.8	11	25	4.6
31	8.8	---	9.1	11	---	7.6	---	5.3	---	8.2	16	---
TOTAL	268.9	276.2	252.2	366.1	359.1	248.6	201.4	188.6	109.0	251.1	858.2	176.3
MEAN	8.67	9.21	8.14	11.8	12.8	8.02	6.71	6.08	3.63	8.10	27.7	5.88
MAX	30	17	12	55	34	14	7.8	18	4.9	34	461	12
MIN	5.8	8.0	6.7	6.5	8.2	6.9	5.6	4.8	2.6	2.9	5.1	4.3
CFSM	.94	1.00	.88	1.28	1.39	.87	.73	.66	.39	.88	3.00	.64
IN.	1.08	1.11	1.02	1.47	1.45	1.00	.81	.76	.44	1.01	3.46	.71
CAL YR 1984	TOTAL	4582.0	MEAN	12.5	MAX	227	MIN	4.3	CFSM	1.35	IN.	18.45
WTR YR 1985	TOTAL	3555.7	MEAN	9.74	MAX	461	MIN	2.6	CFSM	1.05	IN.	14.32



## 02077000 BANISTER RIVER AT HALIFAX, VA

LOCATION.--Lat 36°46'35", long 78°54'58", Halifax County, Hydrologic Unit 03010105, on left bank 10 ft downstream from bridge on U.S. Highway 360, 1,700 ft downstream from Terrible Creek, 1 mi northeast of Halifax, and 10 mi upstream from mouth.

DRAINAGE AREA.--547 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1904 to December 1905, October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 892: 1929-30, 1932-35. WSP 972: 1938(M), 1940. WSP 1112: 1943(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 318.54 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Sept. 28, 1904, to Dec. 31, 1905, nonrecording gage at site 400 ft upstream at different datum. Dec. 9, 1928, to Sept. 20, 1950, water-stage recorder at site 400 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 6, 7. Records good. Low and medium flow regulated at times during year by a lake 0.5 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--58 years, 508 ft<sup>3</sup>/s, 12.61 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft<sup>3</sup>/s, Sept. 20, 1944, gage height, 40.8 ft, from flood-marks, from rating curve extended above 13,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow and velocity-area study; minimum, 6.0 ft<sup>3</sup>/s many days in August and September 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,140 ft<sup>3</sup>/s, Aug. 19, gage height, 19.50 ft; minimum daily, 87 ft<sup>3</sup>/s, June 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	344	309	406	271	1010	446	300	191	176	88	265	204
2	377	280	323	282	2570	422	290	186	166	96	266	211
3	275	257	335	859	2660	400	281	216	158	102	238	249
4	213	247	331	3560	1560	385	277	224	152	113	206	230
5	193	263	327	4040	882	372	273	203	152	133	172	214
6	184	292	585	2450	741	362	275	188	158	141	155	199
7	181	286	650	1080	731	222	267	179	165	139	162	188
8	182	256	484	740	633	311	262	170	163	126	227	179
9	181	242	383	595	510	350	256	165	160	116	258	172
10	179	239	345	515	472	361	248	163	171	110	258	166
11	176	258	328	466	459	341	252	162	699	112	209	161
12	173	260	314	433	906	343	254	162	284	112	173	157
13	171	248	301	400	2040	329	254	195	174	120	152	153
14	171	231	290	385	1250	321	257	184	146	164	140	144
15	169	227	281	370	774	313	262	159	132	201	129	138
16	170	224	275	253	612	303	267	239	134	178	122	137
17	171	210	276	309	537	305	272	317	159	145	133	136
18	181	209	276	366	496	298	261	280	198	138	1360	136
19	191	247	278	375	469	290	251	207	153	120	5770	134
20	191	296	278	361	448	286	239	175	130	110	5970	132
21	187	284	284	228	424	284	231	169	126	103	4460	131
22	194	248	312	213	401	305	222	224	123	103	2270	133
23	223	232	318	310	393	382	214	322	120	220	879	140
24	494	229	291	325	390	486	209	994	119	259	563	146
25	767	229	278	333	389	424	209	655	127	176	523	139
26	462	228	265	311	448	373	210	384	126	259	878	132
27	316	225	257	289	587	340	203	276	123	383	1220	127
28	276	269	256	313	509	327	205	227	117	496	945	118
29	378	560	257	330	---	321	213	198	99	502	556	114
30	497	623	257	318	---	314	198	186	87	526	425	112
31	384	---	262	379	---	307	---	179	---	340	373	---
TOTAL	8251	8208	10103	21459	23301	10623	7412	7779	4997	5931	29457	4732
MEAN	266	274	326	692	832	343	247	251	167	191	950	158
MAX	767	623	650	4040	2660	486	300	994	699	526	5970	249
MIN	169	209	256	213	389	222	198	159	87	88	122	112
CFSM	.49	.50	.60	1.27	1.52	.63	.45	.46	.31	.35	1.74	.29
IN.	.56	.56	.69	1.46	1.58	.72	.50	.53	.34	.40	2.00	.32
CAL YR 1984	TOTAL	239374	MEAN	654	MAX	8410	MIN	133	CFSM	1.20	IN.	16.28
WTR YR 1985	TOTAL	142253	MEAN	390	MAX	5970	MIN	87	CFSM	.71	IN.	9.67

## 02077500 HYCO RIVER NEAR DENNISTON, VA

LOCATION.--Lat 36°35'16", long 78°53'56", Halifax County, Hydrologic Unit 03010104, on left bank 60 ft upstream from bridge on U.S. Highway 501, 0.8 mi upstream from Mayo Creek, 2.5 mi northeast of Denniston, and 7.3 mi south of South Boston.

DRAINAGE AREA.--289 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to September 1934, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1383: Drainage area, 1930. WSP 1503: 1930(M). WDR VA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 315.24 ft above National Geodetic Vertical Datum of 1929. July 10, 1929, to Mar. 14, 1934, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 12 to Jan. 21. Records good except those for period of no gage-height record, Dec. 12 to Jan. 21, which are fair. Small diurnal fluctuation at low flow in some years caused by mill upstream from station. Since 1964, flow regulated by Hyco Lake 15.7 mi upstream, capacity 75,480 acre-ft, and since Apr. 26, 1974, by Roxboro Steam-Electric Generating Plant afterbay Reservoir, capacity 12,000 acre-ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--41 years, 254 ft<sup>3</sup>/s, 11.94 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft<sup>3</sup>/s, July 15, 1975, gage height, 24.27 ft, from rating curve extended above 8,200 ft<sup>3</sup>/s; minimum, 0.004 ft<sup>3</sup>/s, Sept. 14, 1932, gage height, 3.58 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in August 1928 and September 1945 reached stages of 26.4 ft and 25.6 ft, respectively, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,420 ft<sup>3</sup>/s, Jan. 6, gage height, 15.54 ft; minimum, 12 ft<sup>3</sup>/s, Sept. 30; minimum gage height, 4.41 ft, Aug. 13.

CORRECTIONS.--The maximum discharge for water year 1984 is 4,360 ft<sup>3</sup>/s, July 30, 1984, gage height, 18.09 ft; the previously published figure was not the maximum.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	48	38	25	825	253	53	27	28	23	31	451
2	88	34	32	70	1730	233	53	27	24	29	31	620
3	54	27	61	300	2170	217	53	39	22	21	28	558
4	46	25	79	1500	2270	209	52	46	23	17	23	295
5	45	25	56	2100	1540	205	52	31	25	17	19	221
6	43	28	295	2300	745	193	49	26	82	21	18	172
7	43	27	128	800	637	189	47	27	55	24	20	157
8	41	25	68	250	582	187	46	27	41	23	20	153
9	43	25	53	40	527	185	45	25	33	24	27	150
10	43	25	45	43	444	181	47	26	26	26	23	132
11	45	26	44	70	271	178	48	27	25	29	19	60
12	43	36	46	90	704	155	48	25	26	28	16	33
13	42	28	42	100	955	151	45	25	27	25	18	31
14	41	27	38	110	776	148	43	26	25	25	20	18
15	39	27	36	150	535	61	43	25	24	26	16	16
16	40	27	34	170	273	45	45	39	22	25	15	14
17	42	27	33	192	286	43	44	56	27	26	16	15
18	43	25	36	210	274	41	42	42	30	26	62	15
19	44	28	34	130	255	43	40	29	24	25	536	15
20	44	48	32	86	234	43	39	25	21	23	1210	15
21	43	34	30	80	218	43	36	25	20	22	1080	16
22	42	29	39	90	212	45	32	30	20	19	850	15
23	49	27	34	80	208	71	33	35	18	21	538	14
24	49	26	32	80	204	83	33	45	17	22	402	15
25	43	25	30	80	201	112	33	56	18	27	187	16
26	48	25	34	74	384	204	30	52	19	48	200	15
27	47	26	30	69	511	182	28	40	18	36	215	16
28	44	31	28	73	644	173	27	31	18	61	203	15
29	47	81	27	81	---	153	26	29	19	68	195	14
30	56	53	26	113	---	60	27	28	25	47	213	22
31	54	---	25	149	---	55	---	28	---	35	217	---
TOTAL	1491	945	1565	9705	18615	4141	1239	1019	802	889	6468	3299
MEAN	48.1	31.5	50.5	313	665	134	41.3	32.9	26.7	28.7	209	110
MAX	100	81	295	2300	2270	253	53	56	82	68	1210	620
MIN	39	25	25	25	201	41	26	25	17	17	15	14
CFSM	.17	.11	.17	1.08	2.30	.46	.14	.11	.09	.10	.72	.38
IN.	.19	.12	.20	1.25	2.40	.53	.16	.13	.10	.11	.83	.42
CAL YR 1984	TOTAL	148626	MEAN	406	MAX	4020	MIN	25	CFSM	1.40	IN.	19.13
WTR YR 1985	TOTAL	50178	MEAN	137	MAX	2300	MIN	14	CFSM	.47	IN.	6.46

## ROANOKE RIVER BASIN

02079490 JOHN H. KERR RESERVOIR NEAR BOYDTON, VA

LOCATION.--Lat 36°35'56", long 78°18'06", Mecklenburg County, Hydrologic Unit 03010102, at John H. Kerr Dam on Roanoke River, 2.7 mi upstream from Allen Creek, 6.7 mi southeast of Boydton, 18 mi upstream from the Virginia-North Carolina State line, and at mile 178.7.

DRAINAGE AREA.--7,780 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--July 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by concrete dam with earth embankments. Spillway, with crest at elevation 288.0 ft, is equipped with 22 radial gates 32 ft high by 42 ft wide. Storage began in September 1950 during construction; initial filling started June 30, 1952; water in reservoir first reached rule-curve elevation in March 1953. Total capacity at top of gates, elevation, 320 ft, is 2,770,000 acre-ft of which 1,281,400 acre-ft is controlled flood storage between elevations 300 ft, top of power pool, and 320 ft; 316,900 acre-ft is available for power between elevations 293.0 ft, bottom of power pool, and 300 ft; 1,171,700 acre-ft is inactive and dead storage below elevation 293.0 ft. Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, low-water regulation for navigation and pollution abatement, release of water for downstream fish spawning, and recreation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,656,300 acre-ft, Apr. 3, 1975, elevation, 318.85 ft; minimum (after first filling to rule curve), 724,700 acre-ft, Feb. 3, 1956, elevation, 280.23 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,722,700 acre-ft, Aug. 23, elevation, 304.46 ft; minimum, 1,261,180 acre-ft, Dec. 31, elevation, 295.12 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	296.89	1,340,130	-
Oct. 31.....	297.80	1,382,380	+42,250
Nov. 30.....	295.87	1,294,180	-88,200
Dec. 31.....	295.20	1,264,700	-29,480
CAL YR 1984.....	-	-	-175,780
Jan. 31.....	295.77	1,289,780	+25,080
Feb. 28.....	298.17	1,399,830	+110,050
Mar. 31.....	298.27	1,404,610	+4,780
Apr. 30.....	299.61	1,469,450	+64,840
May 31.....	300.30	1,503,750	+34,300
June 30.....	298.92	1,435,680	-68,070
July 31.....	298.48	1,414,640	-21,040
Aug. 31.....	301.79	1,579,860	+165,220
Sept. 30.....	298.09	1,396,000	-183,860
WTR YR 1985.....	-	-	+55,870

02079640 ALLEN CREEK NEAR BOYDTON, VA

LOCATION.--Lat 36°40'46", long 78°19'37", Mecklenburg County, Hydrologic Unit 03010106, on left bank at upstream side of bridge on U.S. Highway 58, 0.8 mi upstream from Coleman Creek, 2.3 mi downstream from Layton Creek, 3.7 mi east of Boydton, and 11.8 mi southwest of South Hill.

DRAINAGE AREA.--53.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 216.50 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation).

REMARKS.--Estimated daily discharges: Jan. 21-30 and Feb. 6, 7. Records good except those for periods with ice effect, Jan. 21-30 and Feb. 6, 7, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--24 years, 44.4 ft<sup>3</sup>/s, 11.29 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,620 ft<sup>3</sup>/s, Oct. 23, 1971, gage height, 21.80 ft, from rating curve extended above 3,100 ft<sup>3</sup>/s; no flow many days in August, September, and October 1968, September and October 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 4	0200	*2,280	*16.99	Feb. 12	1230	872	11.73
Feb. 2	0900	1,080	13.03				

Minimum discharge, 1.5 ft<sup>3</sup>/s, July 22, Sept. 20, 21-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	8.1	16	12	430	38	20	11	8.9	3.5	4.5	3.9
2	13	7.7	13	13	718	35	19	11	7.9	4.9	5.0	3.8
3	7.0	7.1	99	874	177	31	18	29	6.9	4.4	4.9	3.7
4	5.5	6.8	44	1170	82	29	18	20	6.9	3.6	4.1	3.6
5	4.9	11	37	230	61	29	18	13	8.6	3.4	3.7	3.5
6	4.5	11	259	89	59	26	17	12	23	3.2	3.4	3.3
7	4.4	8.3	60	60	52	24	16	11	13	3.3	3.4	3.2
8	4.5	7.3	34	46	47	24	17	9.8	9.2	3.2	3.3	3.1
9	4.7	7.0	26	37	40	25	16	9.2	7.9	2.7	3.4	3.0
10	4.6	7.1	22	32	36	23	16	9.1	6.7	2.5	3.5	2.9
11	4.5	8.7	20	31	35	23	16	9.1	5.6	2.7	3.4	2.7
12	4.5	12	18	31	396	23	17	8.9	5.9	3.0	3.2	2.5
13	4.5	9.2	17	28	150	22	17	8.8	18	2.9	3.1	2.3
14	4.6	7.9	16	27	73	21	19	8.8	11	2.7	3.2	2.1
15	4.7	7.3	15	25	55	21	20	8.1	6.2	2.6	2.9	1.9
16	4.8	7.4	15	23	45	20	19	7.5	8.5	2.5	2.6	1.8
17	4.8	7.2	15	25	41	20	21	11	12	2.2	2.5	1.7
18	4.8	7.0	15	29	37	20	18	14	7.5	1.9	23	1.7
19	4.9	13	15	30	34	18	17	11	5.3	1.9	38	1.7
20	5.2	23	15	27	32	19	16	7.9	4.2	1.7	9.1	1.6
21	5.3	13	14	25	30	19	15	7.2	3.4	1.6	13	1.6
22	6.7	10	14	22	29	20	14	7.1	3.0	1.6	15	1.8
23	13	9.2	14	21	28	36	13	34	2.8	1.7	7.8	2.7
24	45	9.0	12	20	28	34	13	259	2.6	2.0	5.5	3.6
25	18	8.9	13	19	28	37	13	67	2.5	4.1	5.0	3.7
26	10	8.6	12	19	120	27	12	23	2.3	13	5.1	3.7
27	8.0	8.4	12	20	74	24	12	16	2.3	8.5	6.0	9.0
28	7.2	11	12	20	45	23	12	13	2.3	16	5.1	8.4
29	13	68	12	21	---	23	12	11	2.4	8.0	4.5	5.0
30	14	24	12	22	---	22	11	10	3.2	6.1	4.3	4.0
31	9.3	---	12	80	---	20	---	9.6	---	4.6	4.2	---
TOTAL	271.9	354.2	910	3128	2982	776	482	687.1	210.0	126.0	205.7	97.5
MEAN	8.77	11.8	29.4	101	107	25.0	16.1	22.2	7.00	4.06	6.64	3.25
MAX	45	68	259	1170	718	38	21	259	23	16	38	9.0
MIN	4.4	6.8	12	12	28	18	11	7.1	2.3	1.6	2.5	1.6
CFSM	.16	.22	.55	1.89	2.00	.47	.30	.42	.13	.08	.12	.06
IN.	.19	.25	.63	2.18	2.08	.54	.34	.48	.15	.09	.14	.07
CAL YR 1984	TOTAL	20672.0	MEAN	56.5	MAX	1600	MIN	3.3	CFSM	1.06	IN.	14.40
WTR YR 1985	TOTAL	10230.4	MEAN	28.0	MAX	1170	MIN	1.6	CFSM	.52	IN.	7.13



## 03161000 SOUTH FORK NEW RIVER NEAR JEFFERSON, NC

LOCATION.--Lat 36°23'35", long 81°24'26", Ashe County, Hydrologic Unit 05050001, on right bank 600 ft upstream from bridge on State Highways 16 and 88, 0.2 mi downstream from Bear Creek, and 4 mi southeast of Jefferson.

DRAINAGE AREA.--205 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1275: 1925-26(M), 1928-30(M), 1931-32, 1933-35(M), 1941-42(m), 1944(m). WDR NC-81-1; Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,657.04 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 14, 1934, nonrecording gage on bridge 400 ft downstream at same datum. Oct. 14, 1934, to Mar. 25, 1935, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite telemeter at station. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 430 ft<sup>3</sup>/s, 28.48 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,800 ft<sup>3</sup>/s, Aug. 14, 1940, gage height, 22.50 ft, from rating curve extended above 5,100 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 52 ft<sup>3</sup>/s, Dec. 24, 1943, result of freezeup; minimum daily, 65 ft<sup>3</sup>/s, Sept. 9, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 15, 1916, reached a stage of 18.0 ft, from floodmarks witnessed by local resident, discharge, 35,200 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	0230	*3,190	*5.83	No other peak equal to or greater than base discharge.			

Minimum discharge, 109 ft<sup>3</sup>/s, Jan. 21, result of freezeup; minimum daily, 132 ft<sup>3</sup>/s, July 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	313	205	374	220	e750	442	368	286	226	210	252	283
2	272	198	324	231	e900	412	322	289	219	225	272	254
3	210	191	311	357	e780	380	291	319	261	211	253	241
4	196	204	293	614	e540	357	281	307	234	190	210	232
5	190	285	284	563	e470	346	277	277	215	185	187	228
6	187	251	354	403	e435	331	454	267	229	185	179	281
7	189	213	318	346	e430	316	421	260	253	179	186	252
8	201	200	297	316	e300	308	339	258	338	176	204	299
9	204	194	312	297	e250	316	329	254	258	160	288	257
10	198	196	290	275	e340	316	326	262	221	153	241	232
11	192	522	281	275	e340	299	312	264	344	161	196	211
12	187	404	282	e230	e480	301	302	262	312	180	182	203
13	183	264	267	e220	e380	290	294	307	262	155	177	201
14	180	231	257	e230	e260	281	291	354	234	228	186	193
15	178	219	250	e220	e270	275	430	307	220	197	161	184
16	179	214	248	e220	e320	266	749	382	217	180	160	182
17	180	205	247	e240	e280	264	595	357	221	170	786	179
18	180	198	245	e250	e290	259	471	314	212	153	2440	179
19	179	212	242	e250	e355	252	416	287	207	146	846	174
20	186	234	241	e200	e340	251	383	254	201	141	538	171
21	225	210	244	e150	e450	250	361	245	195	136	497	169
22	273	196	247	e200	e500	328	340	236	191	133	365	167
23	249	189	248	e230	571	611	325	244	190	132	310	169
24	234	192	233	e240	618	446	350	325	187	155	286	174
25	223	190	232	e250	571	392	439	350	183	200	296	181
26	222	188	233	e250	658	342	345	280	179	327	353	171
27	212	187	226	e250	588	320	317	251	169	429	649	167
28	199	984	224	e250	497	309	325	237	166	341	527	176
29	285	1150	223	e260	---	303	340	232	168	293	370	163
30	285	486	221	e320	---	295	305	230	218	269	318	157
31	220	---	222	e430	---	293	---	244	---	297	302	---
TOTAL	6611	8812	8270	8787	12963	10151	11098	8741	6730	6297	12217	6130
MEAN	213	294	267	283	463	327	370	282	224	203	394	204
MAX	313	1150	374	614	900	611	749	382	344	429	2440	299
MIN	178	187	221	150	250	250	277	230	166	132	160	157
CFSM	1.04	1.43	1.30	1.38	2.26	1.60	1.80	1.38	1.09	.99	1.92	.00
IN.	1.20	1.60	1.50	1.59	2.35	1.84	2.01	1.59	1.22	1.14	2.22	1.11

CAL YR 1984	TOTAL	151998	MEAN	415	MAX	3610	MIN	175	CFSM	2.02	IN.	27.58
WTR YR 1985	TOTAL	106807	MEAN	293	MAX	2440	MIN	132	CFSM	1.43	IN.	19.38

e Estimated.

03164000 NEW RIVER NEAR GALAX, VA

LOCATION.--Lat 36°38'50", long 80°58'45", Grayson County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on State Highway 94, 500 ft downstream from Meadow Creek, 1.2 mi southwest of Old Town, 3.1 mi southwest of Galax, and 3.6 mi downstream from Elk Creek.

DRAINAGE AREA.--1,131 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 758: Drainage area, 1933(M). WSP 893: 1930(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 2,208.04 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 15-30 and Feb. 10, 11, 15-18. Records good except those for periods with ice effect, Jan. 15-30 and Feb. 10, 11, 15-18, which are fair. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station.

AVERAGE DISCHARGE.--56 years, 1,902 ft<sup>3</sup>/s, 22.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 141,000 ft<sup>3</sup>/s, Aug. 14, 1940, gage height, 25.7 ft, from flood-mark, from rating curve extended above 32,000 ft<sup>3</sup>/s on basis of computation of peak flow over dam at Fries 6 mi downstream and slope-area measurement of peak flow; minimum, 193 ft<sup>3</sup>/s, Jan. 9, 1956, gage height, 0.52 ft, result of freezeup; minimum daily, 265 ft<sup>3</sup>/s, Sept. 19, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 9,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	0430	10,100	4.19	Aug. 18	1000	*10,500	4.31
Feb. 16	1530	Ice jam	*5.65				

Minimum discharge, 339 ft<sup>3</sup>/s, Jan. 21, gage height, 0.69 ft, result of freezeup; minimum daily, 484 ft<sup>3</sup>/s, July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1440	848	1640	1090	3470	2370	1270	1060	1250	910	1200	983
2	1320	802	1320	1070	6810	2100	1360	1020	1210	1030	1170	901
3	967	770	1180	1600	5190	1890	1270	1110	1210	919	1220	854
4	823	814	1110	3260	3200	1730	1230	1160	1260	840	1040	798
5	784	1020	1060	3840	2320	1620	1200	1060	1200	887	869	763
6	745	1010	1180	2780	2050	1540	1400	969	1120	856	793	756
7	720	972	1230	2130	1980	1420	1630	935	1210	847	773	885
8	733	859	1110	1770	1520	1340	1440	914	1340	788	790	857
9	745	794	1150	1500	1110	1400	1310	889	1360	673	813	795
10	784	775	1140	1340	1300	1510	1270	891	1190	617	880	861
11	771	1190	1090	1250	1700	1470	1250	902	1120	624	857	725
12	758	1900	1120	1210	4110	1440	1240	1070	1230	655	753	674
13	722	1320	1070	964	3210	1400	1200	1180	1350	649	694	650
14	703	972	1020	1060	1980	1360	1180	962	1190	1000	738	633
15	697	886	975	1000	1700	1320	1230	998	1070	1030	623	610
16	694	849	941	900	1550	1230	1910	2200	1050	847	619	587
17	692	818	919	1050	1450	1130	2550	1560	1180	747	1010	577
18	694	795	904	1100	1500	1110	1890	1380	1240	657	7720	559
19	694	804	898	1000	1690	1080	1540	1330	1050	571	4520	552
20	693	881	956	800	1760	1060	1410	1140	1020	517	2460	534
21	729	893	1070	580	2010	1060	1330	1050	949	485	1860	519
22	868	819	1070	780	2090	1250	1250	1000	919	484	1540	516
23	972	763	1130	750	2270	1920	1200	2300	886	585	1280	520
24	1180	763	1060	700	2550	2090	1180	3030	854	529	1120	525
25	995	771	1020	760	2870	1510	1540	2870	830	591	1170	522
26	938	762	1160	620	3580	1400	1330	2450	755	843	1320	531
27	826	754	1080	600	3470	1310	1180	1930	707	1420	1800	550
28	801	2020	1050	660	2830	1270	1160	1640	675	2110	1810	514
29	884	4890	1000	620	---	1250	1230	1470	695	1800	1500	509
30	1030	2530	975	600	---	1200	1160	1380	920	1460	1200	508
31	992	---	1010	1770	---	1150	---	1290	---	1270	1050	---
TOTAL	26394	34044	33638	39154	71270	44930	41340	43140	32040	27241	45192	19768
MEAN	851	1135	1085	1263	2545	1449	1378	1392	1068	879	1458	659
MAX	1440	4890	1640	3840	6810	2370	2550	3030	1360	2110	7720	983
MIN	692	754	898	580	1110	1060	1160	889	675	484	619	508
CFSM	.75	1.00	.96	1.12	2.25	1.28	1.22	1.23	.94	.78	1.29	.58
IN.	.87	1.12	1.11	1.29	2.34	1.48	1.36	1.42	1.05	.90	1.49	.65
CAL YR 1984	TOTAL	737509	MEAN	2015	MAX	17700	MIN	590	CFSM	1.78	IN.	24.26
WTR YR 1985	TOTAL	458151	MEAN	1255	MAX	7720	MIN	484	CFSM	1.11	IN.	15.07

## KANAWHA RIVER BASIN

03164000 NEW RIVER NEAR GALAX, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1968 to September 1983.

WATER TEMPERATURE: October to December 1949, April 1968 to September 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)
OCT										
12...	13:20	758	45	47	8.6	8.2	18.5	712	2	9.8
NOV										
20...	12:50	901	45	46	7.6	7.4	5.5	710	<1	12.2
JAN										
15...	10:05	1000	68	--	7.1	7.5	0.5	719	<1	13.7
FEB										
25...	10:15	2910	57	57	7.1	7.0	9.0	707	5	10.4
APR										
11...	11:00	1270	50	54	7.7	7.1	10.0	711	10	12.8
MAY										
17...	10:55	1510	50	51	6.8	6.9	19.5	708	30	9.1
JUL										
10...	13:30	608	50	51	7.9	7.8	28.0	700	30	8.4
AUG										
20...	11:00	2420	54	51	7.2	7.2	21.5	705	20	7.5

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT									
12...	112	14	14	3.5	1.3	3.3	1.2	17	2.2
NOV									
20...	104	15	15	3.6	1.4	3.0	1.2	15	2.6
JAN									
15...	101	16	16	4.1	1.5	6.2	2.8	15	3.7
FEB									
25...	97	15	15	3.5	1.4	3.8	1.5	12	3.9
APR									
11...	122	14	14	3.5	1.3	3.6	1.7	14	2.9
MAY									
17...	107	14	14	3.4	1.4	3.4	1.3	13	3.7
JUL									
10...	117	16	16	3.8	1.5	3.3	3.6	18	2.8
AUG									
20...	92	14	14	3.4	1.3	2.3	2.0	10	4.3

## KANAWHA RIVER BASIN

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03164000 NEW RIVER NEAR GALAX, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 12...	6.6	<0.1	9.0	35	37	<0.01	<0.10	<0.01	110
NOV 20...	3.2	<0.1	10	36	34	<0.01	0.46	<0.01	82
JAN 15...	8.7	<0.1	11	53	47	0.01	0.76	0.09	73
FEB 25...	5.8	<0.1	8.8	38	36	<0.01	0.77	0.02	59
APR 11...	4.9	0.1	8.9	31	35	<0.01	0.39	0.02	74
MAY 17...	3.6	<0.1	8.5	38	33	<0.01	0.52	0.02	130
JUL 10...	2.9	<0.1	4.5	33	33	<0.01	<0.10	<0.01	230
AUG 20...	3.0	<0.1	7.6	42	30	<0.01	0.74	<0.01	140



## KANAWHA RIVER BASIN

03165000 CHESTNUT CREEK AT GALAX, VA

LOCATION.--Lat 36°38'45", long 80°55'10", Galax City, Hydrologic Unit 05050001, on right bank 200 ft upstream from bridge on State Highway 89 and 1.7 mi downstream from Wards Mill Branch.

DRAINAGE AREA.--39.4 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1944 to current year.

REVISED RECORDS.--WSP 1385: 1953.

GAGE.--Water-stage recorder. Concrete control since Aug. 30, 1979. Datum of gage is 2,344.17 ft above National Geodetic Vertical Datum of 1929. Prior to June 25, 1948, nonrecording gage, and June 25, 1948, to May 28, 1953, water-stage recorder, at site 200 ft upstream at datum 0.86 ft higher.

REMARKS.--Estimated daily discharges: Jan. 15, 16, 20-30. Records fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--41 years, 67.4 ft<sup>3</sup>/s, 23.23 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,980 ft<sup>3</sup>/s, Oct. 17, 1947, gage height, 14.4 ft, from flood-mark, site and datum then in use, from rating curve extended above 2,200 ft<sup>3</sup>/s on basis of two slope-area and one contracted-opening measurements at gage heights 9.5 ft, 14.4 ft, and 17.4 ft, respectively, site and datum then in use; minimum, 12 ft<sup>3</sup>/s, part or all of each day Aug. 25-30, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 14, 1940, reached a stage of 17.4 ft, at site and datum used 1944-53, discharge, 11,000 ft<sup>3</sup>/s, by contracted-opening measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 12	0530	1,020	3.55	Aug. 18	0345	*2,250	*5.97

Minimum daily discharge, 22 ft<sup>3</sup>/s, Jan. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104	33	47	32	193	52	57	36	42	50	50	44
2	43	33	42	34	176	51	45	38	45	41	38	42
3	36	32	42	95	74	48	43	41	42	35	33	40
4	35	55	37	141	58	46	42	36	77	32	31	37
5	33	56	44	82	54	45	41	35	94	31	29	36
6	33	37	57	59	61	44	74	34	48	31	30	36
7	34	33	45	51	55	43	49	33	52	31	32	35
8	35	32	43	45	61	44	45	33	54	27	35	45
9	35	31	41	41	98	46	44	33	43	27	32	36
10	35	31	40	39	63	43	43	35	38	26	29	34
11	33	40	40	37	60	43	43	34	36	27	27	33
12	33	33	36	41	415	42	42	37	37	29	27	33
13	32	31	35	88	82	41	42	36	34	45	27	33
14	32	30	34	68	68	41	42	33	33	46	29	32
15	32	30	33	22	62	40	54	72	33	38	26	32
16	32	30	33	30	60	39	62	230	37	34	25	32
17	32	30	33	35	57	39	49	80	37	30	155	31
18	33	30	33	34	64	37	44	58	45	27	1020	31
19	32	33	33	33	67	37	43	48	34	27	128	31
20	32	31	38	30	69	38	41	43	32	26	120	30
21	33	30	36	27	59	38	40	43	31	25	92	30
22	37	29	37	34	56	96	39	45	30	28	62	30
23	37	31	33	30	56	94	38	193	30	25	54	30
24	38	30	32	28	57	60	52	133	34	26	52	30
25	35	29	32	31	60	51	61	84	30	48	61	29
26	33	29	31	26	92	47	43	62	29	43	103	29
27	33	29	31	25	63	45	42	54	27	60	113	30
28	34	328	31	28	55	44	43	49	27	48	69	29
29	38	87	31	26	---	44	39	47	31	42	57	28
30	33	58	32	25	---	43	37	45	33	35	52	28
31	33	---	32	45	---	47	---	45	---	44	47	---
TOTAL	1130	1371	1144	1362	2395	1468	1379	1825	1195	1084	2685	996
MEAN	36.5	45.7	36.9	43.9	85.5	47.4	46.0	58.9	39.8	35.0	86.6	33.2
MAX	104	328	57	141	415	96	74	230	94	60	1020	45
MIN	32	29	31	22	54	37	37	33	27	25	25	28
CFSM	.93	1.16	.94	1.11	2.17	1.20	1.17	1.49	1.01	.89	2.20	.84
IN.	1.07	1.29	1.08	1.29	2.26	1.39	1.30	1.72	1.13	1.02	2.54	.94
CAL YR 1984	TOTAL	25338	MEAN	69.2	MAX	838	MIN	29	CFSM	1.76	IN.	23.92
WTR YR 1985	TOTAL	18034	MEAN	49.4	MAX	1020	MIN	22	CFSM	1.25	IN.	17.03

## 03166800 GLADE CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°55'51", long 80°54'02", Wythe County, Hydrologic Unit 05050001, on left bank 30 ft downstream from bridge on State Highway 629 (revised), 1.0 mi southwest of Grahams Forge, and at mile 0.4.

DRAINAGE AREA.--7.15 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1976 to current year.

GAGE.--Water-stage recorder. Concrete control since June 1, 1979. Elevation of gage is 1,972 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1-4, Oct. 23 to Nov. 19, Dec. 8 to Jan. 3, and Jan. 8 to Feb. 20. Records fair except those for periods of no gage-height record, Oct. 1-4, Oct. 23 to Nov. 19, Dec. 8 to Jan. 3, and Jan. 8 to Feb. 20, which are poor. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--9 years, 1.16 ft<sup>3</sup>/s, 2.20 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,350 ft<sup>3</sup>/s, July 5, 1984, gage height, 5.37 ft, from rating curve extended above 30 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 5.11 ft; minimum, 0.02 ft<sup>3</sup>/s, Sept. 14, 1981, and as result of temporary pumpage, Sept. 11, 1985; minimum gage height, 1.36 ft, Sept. 7, 1976, Sept. 11, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 17	2335	*386	*4.01	No other peak equal to or greater than base discharge.			

Minimum discharge, 0.02 ft<sup>3</sup>/s, Sept. 11, gage height, 1.36 ft, result of temporary pumpage; minimum daily, 0.10 ft<sup>3</sup>/s, June 27, 28, July 18-22, Aug. 13, 14, Sept. 15, 23, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	.24	.38	1.5	1.5	1.1	.41	.14	.25	.22	4.0	.23
2	.30	.23	.36	.70	5.0	.92	.36	.16	.26	.16	.68	.20
3	.25	.22	.34	1.5	2.5	.71	.36	.16	.23	.14	.34	.19
4	.24	.22	.32	3.8	1.7	.61	.34	.13	.22	.12	.25	.17
5	.24	.25	.42	2.4	1.2	.59	.32	.12	.37	.12	.21	.20
6	.24	.24	.44	1.6	1.0	.58	.53	.12	.29	.19	.22	.22
7	.24	.23	.33	1.3	.84	.58	.36	.13	.25	.14	.20	.17
8	.24	.22	.28	.80	.70	.58	.34	.12	.25	.11	.18	.16
9	.24	.22	.27	.70	.55	.60	.32	.12	.20	.11	.16	.16
10	.23	.24	.26	.60	.70	.49	.32	.12	.22	.14	.12	.13
11	.21	.40	.30	.54	.60	.53	.30	.13	.22	.17	.13	.11
12	.21	.30	.28	.50	.90	.48	.27	.14	.25	.12	.12	.12
13	.21	.27	.27	.40	.80	.36	.24	.14	.21	.21	.10	.12
14	.21	.25	.26	.45	.70	.36	.27	.11	.18	.15	.10	.11
15	.21	.24	.25	.28	.62	.39	.38	.11	.17	.12	.12	.10
16	.21	.24	.24	.31	.58	.41	.60	.35	.17	.12	.25	.12
17	.21	.23	.24	.40	.56	.41	.30	.18	.17	.12	19	.12
18	.21	.23	.23	.35	.50	.41	.26	.14	.17	.10	35	.12
19	.21	.40	.23	.33	.60	.37	.23	.13	.16	.10	2.5	.12
20	.21	.30	.23	.30	2.5	.36	.20	.82	.15	.10	1.3	.12
21	.21	.28	.24	.25	1.6	.36	.17	.38	.14	.10	.82	.12
22	.27	.28	.25	.35	1.2	.48	.18	.84	.14	.10	.57	.11
23	1.3	.28	.26	.31	1.0	.51	.18	1.4	.12	.11	.46	.10
24	.50	.28	.27	.28	1.1	.46	.20	1.7	.12	.11	.45	.11
25	.30	.28	.30	.30	1.4	.38	.19	.95	.12	.25	.48	.12
26	.27	.28	.45	.26	3.0	.38	.15	.62	.11	.16	.46	.10
27	.25	.28	.38	.23	1.7	.40	.17	.47	.10	.26	.43	.13
28	.24	1.1	.33	.25	1.2	.38	.20	.39	.10	.16	.35	.12
29	.28	.51	.30	.24	---	.37	.15	.34	.11	.16	.32	.12
30	.26	.42	.28	.23	---	.36	.15	.31	.12	.14	.30	.12
31	.24	---	.50	.35	---	.47	---	.28	---	.17	.26	---
TOTAL	8.89	9.16	9.49	21.81	36.25	15.39	8.45	11.25	5.57	4.48	69.88	4.14
MEAN	.29	.31	.31	.70	1.29	.50	.28	.36	.19	.14	2.25	.14
MAX	1.3	1.1	.50	3.8	5.0	1.1	.60	1.7	.37	.26	.35	.23
MIN	.21	.22	.23	.23	.50	.36	.15	.11	.10	.10	.10	.10
CFSM	.04	.04	.04	.10	.18	.07	.04	.05	.03	.02	.31	.02
IN.	.05	.05	.05	.11	.19	.08	.04	.06	.03	.02	.36	.02
CAL YR 1984	TOTAL	1171.60	MEAN	3.20	MAX	500	MIN	.13	CFSM	.45	IN.	6.10
WTR YR 1985	TOTAL	204.76	MEAN	.56	MAX	35	MIN	.10	CFSM	.08	IN.	1.07

## KANAWHA RIVER BASIN

03167000 REED CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°56'22", long 80°53'13", Wythe County, Hydrologic Unit 05050001, on left bank 20 ft downstream from bridge on State Highway 619 at Grahams Forge, 2.2 mi downstream from Glade Creek, and at mile 7.3.

DRAINAGE AREA.--247 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1908 to September 1916, January 1927 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1235: 1912-13, 1915-16. WSP 1275: 1911, 1927-28(M), 1930-34(M). WSP 1705: 1913(M), 1916(M), 1957 calendar year runoff. WSP 1725: 1915 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,924.65 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1916, nonrecording gage at same site at datum 0.68 ft lower. Feb. 3, 1927, to Oct. 28, 1934, and June 11, 1974, to July 22, 1975, nonrecording gage, at present site and datum.

REMARKS.--Estimated daily discharges: Jan. 21-30, Mar. 18 to Apr. 5, and Apr. 17 to May 12. Records good except those for periods with ice effect, Jan. 21-30, and periods of doubtful or no gage-height record, Mar. 18 to Apr. 5 and Apr. 17 to May 12, which are fair. Occasional diurnal fluctuation at low flow caused by mills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--66 years, 268 ft<sup>3</sup>/s, 14.73 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft<sup>3</sup>/s, July 16, 1916, gage height, 11.4 ft, present datum, from floodmarks, from rating curve extended above 7,600 ft<sup>3</sup>/s on basis of velocity-area study and slope-area measurement at gage heights 11.4 ft and 10.01 ft, respectively; minimum observed, about 5 ft<sup>3</sup>/s, Dec. 22, 1909, gage height, 0.49 ft, present datum, result of freezeup; minimum daily, 22 ft<sup>3</sup>/s, Jan. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	1630	*2,310	*4.07	No other peak equal to or greater than base discharge.			

Minimum discharge, 46 ft<sup>3</sup>/s, June 29, July 24, gage height, 1.31 ft; minimum daily, 62 ft<sup>3</sup>/s, July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	93	138	530	587	463	250	120	118	79	432	108
2	129	92	119	296	1890	398	230	110	113	83	739	102
3	100	91	108	412	1060	340	200	150	113	81	247	99
4	92	91	102	1190	614	301	170	140	107	78	158	95
5	88	97	101	1190	445	279	160	120	102	74	122	92
6	88	94	118	624	375	259	177	110	138	74	111	87
7	87	90	109	418	330	236	177	108	141	74	108	87
8	85	89	103	326	261	225	189	104	115	68	106	85
9	88	87	104	268	215	249	216	100	106	68	97	85
10	88	90	104	232	240	256	203	98	97	65	88	90
11	86	125	106	210	221	250	190	100	92	69	82	84
12	84	120	106	194	324	252	182	120	105	71	78	80
13	84	107	104	161	305	237	172	113	105	91	76	81
14	82	98	100	165	261	223	164	105	94	147	72	78
15	83	94	97	160	246	214	163	101	87	114	71	75
16	86	91	94	123	215	204	250	142	85	102	80	75
17	85	90	92	164	216	194	220	137	86	84	155	75
18	84	90	91	144	195	180	190	131	87	76	1640	72
19	84	105	90	137	240	170	170	126	83	71	927	71
20	83	122	91	120	321	165	150	123	81	68	443	70
21	82	116	93	100	457	175	140	112	80	64	294	70
22	85	103	97	130	621	200	130	109	78	63	225	68
23	122	96	100	120	796	520	120	185	77	63	187	69
24	134	94	105	110	859	420	130	278	74	62	168	69
25	107	93	114	115	718	340	270	467	73	72	203	68
26	102	91	165	100	884	280	220	334	72	91	190	68
27	97	90	148	90	801	240	150	236	68	93	160	68
28	95	200	128	95	582	220	160	187	67	95	143	72
29	104	289	117	92	---	210	150	161	69	92	128	69
30	103	179	111	90	---	200	130	145	67	86	119	67
31	97	---	160	119	---	190	---	129	---	102	113	---
TOTAL	2986	3307	3415	8225	14279	8090	5423	4701	2780	2520	7762	2379
MEAN	96.3	110	110	265	510	261	181	152	92.7	81.3	250	79.3
MAX	172	289	165	1190	1890	520	270	467	141	147	1640	108
MIN	82	87	90	90	195	165	120	98	67	62	71	67
CFSM	.39	.45	.45	1.07	2.06	1.06	.73	.62	.38	.33	1.01	.32
IN.	.45	.50	.51	1.24	2.15	1.22	.82	.71	.42	.38	1.17	.36
CAL YR 1984	TOTAL	120098	MEAN	328	MAX	3880	MIN	79	CFSM	1.33	IN.	18.09
WTR YR 1985	TOTAL	65867	MEAN	180	MAX	1890	MIN	62	CFSM	.73	IN.	9.92

## 03167500 BIG REED ISLAND CREEK NEAR ALLISONIA, VA

LOCATION.--Lat 36°53'20", long 80°43'40", Pulaski County, Hydrologic Unit 05050001, on left bank 700 ft downstream from bridge on State Highway 693, 3.5 mi southeast of Allisonia, 4 mi upstream from Little Reed Island Creek, and at mile 4.5.

DRAINAGE AREA.--278 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1908 to September 1916, April 1939 to current year.

REVISED RECORDS.--WSP 1033: 1939(P), 1940, 1941-43(P). WSP 1305: 1912(M). WSP 1625: 1940, 1945(M), 1947, 1951, 1952(M).

GAGE.--Water-stage recorder. Datum of gage is 1,902.74 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1916, nonrecording gage at site 4 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Jan. 21-30 and Sept. 7-30. Records good except those for period with ice effect, Jan. 21-30, and period of no gage-height record, Sept. 7-30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 400 ft<sup>3</sup>/s, 19.54 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft<sup>3</sup>/s, Sept. 30, 1959, gage height, 12.54 ft, from rating curve extended above 6,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 63 ft<sup>3</sup>/s, Jan. 20, 1971, gage height, 1.63 ft, result of freezeup; minimum daily, 75 ft<sup>3</sup>/s, Jan. 5, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	1300	3,510	5.91	Aug. 18	0800	*5,330	*7.22

Minimum discharge, 96 ft<sup>3</sup>/s, Jan. 21, gage height, 1.83 ft, result of freezeup; minimum daily, 108 ft<sup>3</sup>/s, July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	652	184	277	198	686	310	276	174	195	232	398	248
2	282	182	243	214	1480	286	237	175	180	291	551	233
3	200	178	233	441	711	263	214	213	187	187	298	221
4	187	193	220	890	426	247	206	201	172	161	210	208
5	181	506	216	676	351	245	196	172	308	144	178	199
6	178	328	285	411	343	230	320	163	289	144	168	218
7	177	240	233	320	354	220	313	157	232	148	169	190
8	178	214	218	275	197	226	256	153	252	138	469	185
9	184	204	300	238	202	273	230	149	202	121	430	200
10	196	201	294	223	342	227	215	148	172	116	248	190
11	186	220	267	213	337	218	207	155	159	136	190	180
12	181	224	244	196	1050	230	204	188	188	123	164	175
13	178	197	229	162	483	210	197	189	178	243	150	170
14	177	189	220	251	325	202	197	168	149	315	146	165
15	176	188	213	218	330	195	199	186	145	183	139	160
16	177	187	209	178	267	186	405	692	143	173	151	155
17	176	182	206	227	301	184	346	446	173	156	352	155
18	178	179	203	232	304	178	261	290	163	128	3600	150
19	178	200	203	221	293	173	230	224	153	117	1070	150
20	187	228	221	192	328	174	211	194	140	113	560	145
21	178	193	219	115	319	174	198	209	132	108	514	145
22	187	176	240	170	338	207	186	224	127	123	359	140
23	196	172	230	150	342	463	181	768	123	133	290	145
24	220	200	203	140	331	391	199	943	124	111	265	150
25	251	210	199	150	330	328	398	632	125	157	319	160
26	197	190	191	140	515	275	290	387	124	578	554	150
27	187	180	186	120	462	249	229	279	139	583	976	140
28	183	590	188	135	361	234	236	239	118	441	552	135
29	241	714	185	130	---	226	216	231	137	285	388	135
30	222	349	185	120	---	217	186	213	187	255	314	130
31	191	---	202	335	---	213	---	203	---	292	273	---
TOTAL	6462	7398	6962	7681	12108	7454	7239	8765	5116	6435	14445	5127
MEAN	208	247	225	248	432	240	241	283	171	208	466	171
MAX	652	714	300	890	1480	463	405	943	308	583	3600	248
MIN	176	172	185	115	197	173	181	148	118	108	139	130
CFSM	.75	.89	.81	.89	1.55	.86	.87	1.02	.62	.75	1.68	.62
IN.	.86	.99	.93	1.03	1.62	1.00	.97	1.17	.68	.86	1.93	.69
CAL YR 1984	TOTAL	153854	MEAN	420	MAX	3370	MIN	159	CFSM	1.51	IN.	20.59
WTR YR 1985	TOTAL	95192	MEAN	261	MAX	3600	MIN	108	CFSM	.94	IN.	12.74



## KANAWHA RIVER BASIN

03168000 NEW RIVER AT ALLISONIA, VA

LOCATION.--Lat 36°56'15", long 80°44'45", Pulaski County, Hydrologic Unit 05050001, on left bank on State Highway 653, 0.2 mi downstream from Big Reed Island Creek, and 0.5 mi upstream from Allisonia.

DRAINAGE AREA.--2,202 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 783: Drainage area. WSP 823: 1936. WSP 1305: 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,848.36 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16-30. Records good. Large diurnal fluctuation and some regulation by powerplant 25 mi upstream from station. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years, 3,207 ft<sup>3</sup>/s, 19.78 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 185,000 ft<sup>3</sup>/s, Aug. 14, 1940, gage height, 23.42 ft, from rating curve extended above 52,000 ft<sup>3</sup>/s on basis of flood records for other stations on New River; minimum, 412 ft<sup>3</sup>/s, Sept. 7, 1930, gage height, 0.47 ft; minimum daily, 453 ft<sup>3</sup>/s, Sept. 6, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 17,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	1415	18,700	5.75	Aug. 18	1630	*21,800	*6.25

Minimum discharge, 633 ft<sup>3</sup>/s, June 28, gage height, 0.88 ft; minimum daily, 673 ft<sup>3</sup>/s, June 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3010	1390	2400	1700	2860	3890	2350	1530	1240	1380	2050	1630
2	2020	1450	2180	2360	10400	3090	2250	1700	1600	1540	3010	1480
3	2040	1010	2120	2680	9530	2990	2150	1610	1900	1370	1550	1750
4	1270	1240	1960	5370	5990	2780	1900	1370	1490	891	1670	1740
5	1360	2120	1590	6720	4200	2630	1740	1640	1930	1440	1780	923
6	1130	1690	1970	4930	3480	2350	1940	1890	1570	970	1110	1290
7	1220	1600	1960	3840	3280	2380	2490	1440	1660	1130	1140	1180
8	1400	1570	1450	2980	2540	1930	2570	1370	1460	1170	1500	1410
9	1280	1300	1650	2610	1820	2060	2280	1320	1790	1030	1530	1510
10	1440	1010	2060	2350	2080	2170	1960	1420	1860	938	1010	1490
11	1270	1560	1960	1950	2530	2560	1930	997	1420	945	1250	1230
12	1300	2310	1850	1690	5780	1970	2140	1470	1360	948	1420	1160
13	1130	2220	1720	1390	5190	2020	1660	2160	1700	1160	1120	1040
14	1120	1670	1820	1820	3030	1940	1880	1670	1380	1550	849	1020
15	1460	1500	1440	1600	2470	2010	2120	1500	1070	1560	972	1030
16	1200	1310	1550	1300	2290	1480	2500	3060	1170	1550	973	1130
17	1080	1060	1770	1400	2230	1810	3180	3050	1640	1120	1510	1100
18	1330	1320	1610	1500	2340	2010	3160	1840	1450	1100	16800	1030
19	1130	1650	1390	1400	2600	1660	2390	1960	1380	947	10300	1080
20	1170	1430	1580	1150	2840	1660	1910	2320	1280	822	4920	1050
21	1210	1400	1750	900	3090	1520	2030	1620	934	725	3710	865
22	1480	1170	1490	1000	3360	1850	2150	1700	898	760	2540	938
23	1600	1490	1820	980	3680	2470	1850	3150	1050	900	2250	1130
24	1630	1010	1870	940	4220	3100	1820	4830	1190	850	1580	1040
25	2040	1410	1520	1100	4200	3160	2260	4270	1120	1090	1920	1050
26	1610	1440	1920	900	5690	2770	2230	3740	1280	1640	2850	850
27	1000	1180	1800	850	5910	2290	1630	2880	766	2370	3470	884
28	1320	2480	1710	900	5010	2260	1850	2730	673	2320	3130	1080
29	1780	5960	1390	880	---	2170	2150	2130	944	2880	2600	893
30	1500	4780	1590	840	---	1860	1770	2070	1100	1720	1990	1140
31	1630	---	1970	1470	---	2010	---	1670	---	2130	1410	---
TOTAL	45160	52730	54860	61500	112640	70850	64240	66107	40305	40946	83914	35143
MEAN	1457	1758	1770	1984	4023	2285	2141	2132	1344	1321	2707	1171
MAX	3010	5960	2400	6720	10400	3890	3180	4830	1930	2880	16800	1750
MIN	1000	1010	1390	840	1820	1480	1630	997	673	725	849	850
CFSM	.66	.80	.80	.90	1.83	1.04	.97	.97	.61	.60	1.23	.53
IN.	.76	.89	.93	1.04	1.90	1.20	1.09	1.12	.68	.69	1.42	.59

CAL YR 1984	TOTAL	1284231	MEAN	3509	MAX	30000	MIN	882	CFSM	1.59	IN.	21.70
WTR YR 1985	TOTAL	728395	MEAN	1996	MAX	16800	MIN	673	CFSM	.91	IN.	12.31

## KANAWHA RIVER BASIN

309

03169000 CLAYTOR RESERVOIR NEAR RADFORD, VA

LOCATION.--Lat 37°04'28", long 80°35'05", Pulaski County, Hydrologic Unit 05050001, at Claytor Dam on New River, 0.5 mi upstream from Little River, and 5.5 mi upstream from Radford.

DRAINAGE AREA.--2,382 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1939 to current year (monthly figures only).

REVISED RECORDS.--WSP 2108: 1961-65 monthend contents and change in contents.

GAGE.--Water-stage recorder. Datum of gage is approximately National Geodetic Vertical Datum of 1929 (levels by Appalachian Power Company). Prior to Sept. 11, 1943, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by gravity overflow concrete dam. Spillway with crest at elevation 1,818.5 ft is equipped with 9 lift gates 30 ft high by 50 ft wide. Dam completed and storage began May 22, 1939; water in reservoir reached minimum pool elevation in January 1940. Total level-pool capacity at elevation 1,847.0 ft, 1.5 ft below top of gates, is 230,100 acre-ft of which about 100,000 acre-ft is controlled storage above minimum pool elevation of 1,820.0 ft. Reservoir is used for hydroelectric power and recreation. U.S. Army Corps of Engineers satellite elevation telemeter at station.

COOPERATION.--Records were provided by the Appalachian Power Company.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,845.82	224,700	-
Oct. 31.....	1,844.73	220,100	-4,600
Nov. 30.....	1,843.39	214,300	-5,800
Dec. 31.....	1,845.12	221,700	+7,400
CAL YR 1984.....	-	-	+6,000
Jan. 31.....	1,844.96	221,100	-600
Feb. 28.....	1,844.69	219,900	-1,200
Mar. 31.....	1,845.21	222,100	+2,200
Apr. 30.....	1,845.58	223,700	+1,600
May 31.....	1,843.76	215,900	-7,800
June 30.....	1,845.83	224,800	+8,900
July 31.....	1,845.53	223,500	-1,300
Aug. 31.....	1,844.16	217,600	-5,900
Sept. 30.....	1,845.78	224,600	+7,000
WTR YR 1985.....	-	-	-100

## 03170000 LITTLE RIVER AT GRAYSONTON, VA

LOCATION.--Lat 37°02'15", long 80°33'25", Pulaski County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on State Highway 693 at Snowville, 0.5 mi southeast of Grayson, 7 mi south of Radford, and at mile 8.6.

DRAINAGE AREA.--300 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 823: 1929-36. WSP 1143: 1945. WSP 1305: 1929(M). WSP 1555: Drainage area (at site used 1928-41). WSP 1625: 1951(M). WSP 1725: 1936(M).

GAGE.--Water-stage recorder. Datum of gage is 1,816.04 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 20, 1931, nonrecording gage at bridge 1.0 mi downstream at datum 17.99 ft lower. Nov. 20, 1931, to Nov. 12, 1941, water-stage recorder 1.2 mi downstream at datum 20.58 ft lower.

REMARKS.--Estimated daily discharges: Jan. 16, 21-30. Records fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 362 ft<sup>3</sup>/s, 16.39 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft<sup>3</sup>/s, June 21, 1972, gage height, 13.40 ft, from rating curve extended above 16,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 12.76 ft and 13.40 ft; minimum, 21 ft<sup>3</sup>/s, Feb. 22, 1942, result of freezeup; minimum daily, 50 ft<sup>3</sup>/s, Sept. 21, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 18	2000	*5,330	*5.54	No other peak equal to or greater than base discharge.			

Minimum discharge, 82 ft<sup>3</sup>/s, July 22, 23, gage height, 0.82 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	457	166	241	198	389	329	248	174	186	193	187	207
2	338	164	215	193	1560	295	241	171	174	234	212	196
3	211	162	201	293	725	270	213	194	169	199	192	190
4	185	169	197	925	388	251	206	201	180	172	149	179
5	176	271	190	604	300	244	198	174	182	139	133	171
6	169	286	211	382	310	231	217	163	201	130	125	166
7	166	203	184	309	271	215	242	157	198	124	129	163
8	166	181	146	278	205	218	220	152	266	120	137	164
9	168	175	210	243	199	302	217	149	223	109	173	167
10	170	172	226	224	225	284	205	146	183	103	142	157
11	168	177	228	216	241	251	200	146	167	120	121	151
12	164	183	214	173	297	253	198	157	187	140	111	145
13	162	171	199	139	431	235	194	230	199	134	104	150
14	161	162	191	194	290	219	192	171	171	164	101	148
15	160	161	184	225	253	212	194	153	157	143	100	139
16	160	161	182	160	227	201	325	284	153	186	99	138
17	161	159	178	199	221	197	358	357	151	143	124	136
18	162	158	178	216	217	195	274	258	160	121	2640	133
19	163	176	178	211	302	186	234	213	149	105	1670	131
20	161	218	181	172	540	184	215	188	139	96	524	129
21	159	191	185	110	540	184	201	185	133	91	399	127
22	163	168	199	130	517	199	192	197	128	86	324	126
23	175	150	201	135	495	409	183	328	125	87	270	129
24	187	164	186	120	396	436	184	501	120	95	245	134
25	229	173	178	140	365	360	349	511	121	133	291	130
26	201	182	175	120	589	295	282	352	118	491	457	126
27	177	175	170	110	544	263	222	262	110	339	795	120
28	170	249	171	120	396	246	210	220	108	294	433	118
29	177	666	171	115	---	232	201	205	128	216	304	116
30	188	304	170	110	---	222	183	194	178	198	254	114
31	172	---	183	179	---	216	---	189	---	176	226	---
TOTAL	5826	6097	5923	6943	11433	7834	6798	6982	4864	5081	11171	4400
MEAN	188	203	191	224	408	253	227	225	162	164	360	147
MAX	457	666	241	925	1560	436	358	511	266	491	2640	207
MIN	159	150	146	110	199	184	183	146	108	86	99	114
CFSM	.63	.68	.64	.75	1.36	.84	.76	.75	.54	.55	1.20	.49
IN.	.72	.76	.73	.86	1.42	.97	.84	.87	.60	.63	1.39	.55
CAL YR 1984	TOTAL	132607	MEAN	362	MAX	2900	MIN	139	CFSM	1.21	IN.	16.44
WTR YR 1985	TOTAL	83352	MEAN	228	MAX	2640	MIN	86	CFSM	.76	IN.	10.34

## 03171000 NEW RIVER AT RADFORD, VA

LOCATION.--Lat 37°08'30", long 80°34'10", Pulaski County, Hydrologic Unit 05050001, on left bank 2,000 ft downstream from bridge on U.S. Highway 11 at Radford, 5 mi downstream from Little River, and 5.5 mi downstream from Claytor Dam.

DRAINAGE AREA.--2,748 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1907 to September 1915, August 1939 to current year. Records for August 1898 to September 1907, published in WSP 27, 36, 48, 65, 83, 98, 128, 169, 205, 243, and 536, are unreliable and should not be used. Gage-height records collected at same site since 1895 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 873: Drainage area. WSP 953: 1940-41. WSP 1305: 1908-12. See also PERIOD OF RECORD. GAGE.--Water-stage recorder. Datum of gage is 1,712.16 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 30, 1939, nonrecording gage at highway bridge 2,000 ft upstream at datum 0.85 ft lower.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated since 1939 by Claytor Reservoir (station 03169000). Some additional regulation at low flow by dam and powerplant on Little River. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 3,861 ft<sup>3</sup>/s, 19.08 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 218,000 ft<sup>3</sup>/s, Aug. 14, 1940, gage height, 35.96 ft, from rating curve extended above 76,000 ft<sup>3</sup>/s on basis of records for other stations on New River and flow over Claytor Dam, computed by Appalachian Power Company; minimum, 165 ft<sup>3</sup>/s, Aug. 25, 27, 1944, gage height, 1.08 ft; minimum daily, 550 ft<sup>3</sup>/s, Aug. 22, 1911.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 16, 1916, reached a stage of 35.7 ft, discharge, 200,000 ft<sup>3</sup>/s, at site and datum used by Geological Survey 1907-15, from reports of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,100 ft<sup>3</sup>/s, Aug. 18, gage height, 6.71 ft; minimum, 584 ft<sup>3</sup>/s, Feb. 9, May 10, gage height, 1.65 ft; minimum daily, 917 ft<sup>3</sup>/s, May 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4100	2180	2150	1100	7990	5880	2090	1960	1040	1620	3680	1140
2	3910	2020	1130	2890	12900	3470	2090	1890	1000	2390	3600	1130
3	3040	1080	2190	6380	9400	1030	3560	2890	980	2630	1160	1820
4	3260	1030	2310	8750	6960	3860	4020	1100	965	1040	1100	1990
5	1210	2010	2920	7090	4400	4260	2850	962	1850	1440	2240	2060
6	946	2110	3060	2740	5240	3900	994	2540	1850	1070	2160	2020
7	1060	2020	1140	5450	4040	3510	1040	2250	2870	994	1320	1150
8	1400	2010	1160	4320	3690	2060	3890	1890	1210	1570	1500	1140
9	1540	1640	1040	4210	1070	1080	3440	1960	1100	1720	1920	1720
10	1350	1110	1950	4090	1020	1150	3570	1690	2300	1170	1090	1860
11	1200	1040	1830	2520	3040	5000	2670	917	2280	1220	1000	2000
12	1220	3480	3160	1060	9470	2660	3130	1030	2470	1900	2260	2000
13	984	2650	2460	954	5950	3390	935	2390	2240	1200	2070	1170
14	1100	2110	2450	2150	2750	2190	1040	2710	1980	2380	1030	1140
15	1150	2110	1030	1620	2520	2180	2190	2350	1050	2380	1250	1070
16	1440	2260	1110	1920	1030	991	4000	3490	995	2180	2710	1030
17	1970	1060	1970	1740	995	1010	3700	4750	1990	2160	3890	1210
18	1950	1010	2160	1680	3350	1980	4800	3040	1800	1680	15400	1100
19	1840	2460	3230	1110	3990	2140	3790	1090	1940	992	14400	1130
20	1080	2530	3480	1010	3830	1930	1070	2560	1870	982	8540	1120
21	1050	2050	2410	3920	4400	2190	987	2300	1010	956	5790	1110
22	2090	1020	1100	1750	4500	2450	2770	2090	999	928	3860	1090
23	2050	1040	1010	1080	3040	3930	2320	3140	980	1110	2720	980
24	2170	971	2130	956	4310	1790	2370	6190	1010	1230	2100	1060
25	2950	1110	981	1020	6560	5220	2960	6510	1000	4740	1570	1070
26	3320	1770	3840	949	8500	4440	4610	2710	1390	1130	3010	1070
27	1080	2590	2770	965	5990	3600	1240	4850	1450	6760	5540	1580
28	1110	5800	3450	1840	5920	3960	1010	3390	1030	1610	4070	1060
29	2530	8850	978	2000	---	2720	2380	3750	1010	1290	4150	1060
30	2840	5130	1070	2130	---	1060	2080	3420	1070	1160	3510	1170
31	2660	---	2240	2130	---	1050	---	3670	---	2190	1820	---
TOTAL	59600	68251	63909	81524	136855	86081	77596	85479	44729	55822	110460	40250
MEAN	1923	2275	2062	2630	4888	2777	2587	2757	1491	1801	3563	1342
MAX	4100	8850	3840	8750	12900	5880	4800	6510	2870	6760	15400	2060
MIN	946	971	978	949	995	991	935	917	965	928	1000	980
(*)	-75	-97	+120	-10	-22	+36	+27	-127	+150	-21	-96	+118
MEAN*	1848	2178	2182	2620	4866	2813	2614	2630	1641	1780	3467	1460
CFSM*	.67	.79	.79	.95	1.77	1.02	.95	.96	.60	.65	1.26	.53
IN.*	.78	.88	.92	1.10	1.84	1.18	1.06	1.10	.67	.75	1.46	.59

CAL YR 1984 TOTAL 1554054 MEAN 4246 MAX 28000 MIN 936 MEAN\* 4254 CFSM\* 1.55 IN.\* 21.08  
WTR YR 1985 TOTAL 910556 MEAN 2495 MAX 15400 MIN 917 MEAN\* 2495 CFSM\* .91 IN.\* 12.33

\* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; provided by Appalachian Power Company.

† Adjusted for change in contents.



## KANAWHA RIVER BASIN

03173000 WALKER CREEK AT BANE, VA

LOCATION.--Lat 37°16'05", long 80°42'35", Giles County, Hydrologic Unit 05050002, on left bank at Bane, 0.2 mi downstream from bridge on State Highway 100, 0.2 mi downstream from Sugar Run, and at mile 7.9.

DRAINAGE AREA.--305 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.--WSP 1143: 1939(M), 1940, 1944, 1946. WSP 1305: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,665.92 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 24-30. Records fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--47 years, 325 ft<sup>3</sup>/s, 14.47 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft<sup>3</sup>/s, Apr. 5, 1977, gage height, 16.69 ft, from rating curve extended above 7,200 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 16.50 ft; minimum, 15 ft<sup>3</sup>/s, Dec. 21, 1958, gage height, 2.42 ft, result of freezeup; minimum daily, 24 ft<sup>3</sup>/s, Sept. 27, 28, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1878 reached a stage of about 23.5 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	0100	*3,490	*8.71	No peak equal to or greater than base discharge.			

Minimum discharge, 39 ft<sup>3</sup>/s, July 24, 25, Sept. 25, 26, gage height, 2.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	66	185	417	561	541	250	123	139	57	84	75
2	94	60	144	374	2620	455	232	119	122	65	128	71
3	79	56	123	600	1500	385	213	125	113	66	171	66
4	61	55	109	1500	858	326	201	124	110	62	111	62
5	55	56	100	1460	603	295	190	113	107	61	85	59
6	52	56	103	800	491	265	196	106	112	71	72	56
7	50	56	99	550	412	233	207	100	115	61	70	53
8	50	54	87	423	310	216	202	96	109	55	73	52
9	49	54	96	332	225	227	205	92	100	51	77	52
10	51	53	97	272	272	225	202	88	94	49	71	53
11	51	69	99	239	249	217	197	88	388	50	60	50
12	50	86	114	210	257	238	195	97	234	47	54	50
13	49	88	123	161	259	244	189	100	184	55	50	49
14	47	73	115	176	213	236	182	92	143	93	47	48
15	46	64	105	164	211	227	183	86	119	128	45	47
16	47	61	97	111	186	210	400	123	107	86	44	46
17	48	57	93	166	185	197	553	191	99	66	47	44
18	49	56	89	147	167	191	418	197	95	57	787	43
19	50	67	88	133	174	180	350	186	85	51	1010	42
20	49	103	88	112	214	167	303	175	78	47	450	42
21	49	118	94	78	302	158	267	150	72	45	289	41
22	50	90	102	85	461	166	237	137	67	43	210	41
23	60	76	115	96	701	261	214	178	64	41	162	41
24	69	71	122	84	855	458	197	453	60	40	136	41
25	66	68	129	95	801	585	187	791	57	47	136	41
26	72	66	173	85	1040	498	173	518	55	68	145	40
27	90	63	169	78	954	415	158	360	55	79	126	42
28	74	132	155	85	691	363	151	271	52	71	107	42
29	73	438	141	80	---	322	144	224	50	62	94	41
30	80	263	131	75	---	286	133	189	50	60	85	41
31	76	---	143	99	---	256	---	159	---	68	78	---
TOTAL	1861	2675	3628	9287	15772	9043	6929	5851	3235	1902	5104	1471
MEAN	60.0	89.2	117	300	563	292	231	189	108	61.4	165	49.0
MAX	94	438	185	1500	2620	585	553	791	388	128	1010	75
MIN	46	53	87	75	167	158	133	86	50	40	44	40
CFSM	.20	.29	.38	.98	1.85	.96	.76	.62	.35	.20	.54	.16
IN.	.23	.33	.44	1.13	1.92	1.10	.85	.71	.39	.23	.62	.18
CAL YR 1984	TOTAL	130105	MEAN	355	MAX	4780	MIN	41	CFSM	1.16	IN.	15.87
WTR YR 1985	TOTAL	66758	MEAN	183	MAX	2620	MIN	40	CFSM	.60	IN.	8.14

## 03175500 WOLF CREEK NEAR NARROWS, VA

LOCATION.--Lat 37°18'20", long 80°51'00", Giles County, Hydrologic Unit 05050002, on right bank at downstream side of bridge on State Highway 724, 2.8 mi southwest of Narrows, and at mile 3.5.

DRAINAGE AREA.--223 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1908 to September 1916, March 1938 to current year.

REVISED RECORDS.--WSP 973: 1940-41(M). WSP 1235: 1912-13, 1915-16. WSP 1505: 1940, monthly and yearly runoff. WSP 1725: 1913(M), 1915-16(M), 1941 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,583.83 ft above National Geodetic Vertical Datum of 1929. July 22, 1908, to Sept. 30, 1916, and Mar. 31 to Nov. 7, 1938, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 26-28. Records good. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--55 years, 299 ft<sup>3</sup>/s, 18.21 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,900 ft<sup>3</sup>/s, Jan. 29, 1957, gage height, 12.55 ft, from floodmark in gage well, 13.8 ft, from floodmark at downstream side of bridge, from rating curve extended above 5,700 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; minimum, 8.8 ft<sup>3</sup>/s, Dec. 25, 1953, result of freezeup; minimum daily, 16 ft<sup>3</sup>/s, Sept. 17, 18, 26-28, 1964; minimum gage height, 2.19 ft, Dec. 24, 1943.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	2130	*3,400	*7.79	No other peak equal to or greater than base discharge.			

Minimum discharge, 31 ft<sup>3</sup>/s, Oct. 17, gage height, 2.51 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	43	175	732	1370	607	302	120	164	52	92	94
2	72	40	144	761	2530	507	266	116	143	55	396	82
3	53	37	125	937	1410	417	251	128	144	55	259	75
4	43	36	110	1430	918	356	238	124	128	53	164	69
5	38	37	100	1410	686	324	219	110	143	54	124	64
6	36	44	105	898	604	285	237	102	165	51	107	61
7	34	45	94	668	508	245	236	96	147	46	105	59
8	33	43	81	522	387	228	266	90	138	43	154	58
9	35	40	103	411	310	316	276	86	123	39	177	61
10	36	39	106	339	300	333	274	84	109	38	136	59
11	37	58	124	297	282	329	274	84	198	46	111	56
12	36	99	171	254	345	358	277	86	180	56	95	55
13	35	77	164	211	287	336	267	84	190	60	82	52
14	34	59	148	200	238	315	253	80	161	135	73	50
15	33	50	132	189	237	292	245	79	135	86	66	46
16	34	48	121	140	203	258	377	144	129	65	95	44
17	33	45	113	185	204	242	377	227	129	58	128	42
18	34	43	106	167	174	227	329	264	110	49	924	40
19	34	86	105	152	191	206	297	286	97	44	823	39
20	33	211	118	125	216	189	269	230	88	42	462	38
21	32	148	129	95	301	176	247	185	82	48	315	37
22	34	111	146	104	468	185	224	160	74	48	234	36
23	36	92	178	131	765	312	204	340	68	47	187	35
24	38	81	181	111	1070	462	190	742	62	46	161	36
25	40	76	261	122	1210	643	181	968	58	53	187	36
26	52	69	366	105	1290	546	167	661	59	67	176	37
27	48	64	309	95	1030	463	154	464	52	85	144	39
28	43	112	259	100	766	401	150	346	49	84	123	39
29	49	317	220	103	---	355	142	297	47	74	110	40
30	54	226	193	94	---	307	129	233	45	72	98	36
31	49	---	447	111	---	271	---	192	---	77	99	---
TOTAL	1261	2476	5134	11199	18300	10491	7318	7208	3417	1828	6407	1515
MEAN	40.7	82.5	166	361	654	338	244	233	114	59.0	207	50.5
MAX	72	317	447	1430	2530	643	377	968	198	135	924	94
MIN	32	36	81	94	174	176	129	79	45	38	66	35
CFSM	.18	.37	.74	1.62	2.93	1.52	1.09	1.04	.51	.26	.93	.23
IN.	.21	.41	.86	1.87	3.05	1.75	1.22	1.20	.57	.30	1.07	.25

CAL YR 1984	TOTAL	119205	MEAN	326	MAX	4310	MIN	26	CFSM	1.46	IN.	19.89
WTR YR 1985	TOTAL	76554	MEAN	210	MAX	2530	MIN	32	CFSM	.94	IN.	12.77

## KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA  
(National stream-quality accounting network station)

LOCATION.--Lat 37°22'22", long 80°51'39", Giles County, Hydrologic Unit 05050002, on right bank at upstream side of bridge on U.S. Highway 460 at Glen Lyn, 0.3 mi upstream from East River, and 6.3 mi downstream from Wolf Creek.

DRAINAGE AREA.--3,768 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1927 to current year.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1305: 1928(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 1,490.24 ft above National Geodetic Vertical Datum of 1929. Aug. 11, 1927, to Oct. 16, 1934, on left bank just upstream from highway bridge at same datum, and Oct. 17, 1934, to June 16, 1939, on left bank 200 ft upstream from highway bridge at same datum.

REMARKS.--Estimated daily discharges: Oct. 1 to Nov. 17, Jan. 7-31, Feb. 13-18, May 27 to Aug. 16, and Sept. 2-30. Records fair. Flow regulated since 1939 by Claytor Reservoir (station 03169000) 55 mi upstream from station. U.S. Army Corps of Engineers satellite gage-height telemeter at station.

AVERAGE DISCHARGE.--58 years, 5,001 ft<sup>3</sup>/s, 18.02 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 226,000 ft<sup>3</sup>/s, Aug. 14, 1940, gage height, 27.50 ft, from rating curve extended above 89,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 717 ft<sup>3</sup>/s, Jan. 5, 1981, result of freezeup; minimum daily, 820 ft<sup>3</sup>/s, Sept. 8, 1930; minimum gage height, 2.10 ft, Sept. 8, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,700 ft<sup>3</sup>/s, Aug. 19, gage height, 8.95 ft; minimum daily, 1,100 ft<sup>3</sup>/s, July 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1400	3200	5250	3970	4680	8050	1870	2570	4800	1400	2500	2130		
2	4800	2600	2890	2800	19600	7500	2960	2400	2000	2200	4500	1500		
3	4600	2400	1570	5730	16200	4930	2920	2370	1500	3000	5000	1450		
4	3600	1300	2480	12300	9510	2170	4540	3460	1450	3200	1800	2200		
5	3900	1300	2710	13000	8120	5080	5190	1550	1400	1400	2800	2400		
6	1500	2400	3240	7780	5900	5310	4000	1360	2400	1800	2700	2500		
7	1200	2500	3470	5000	6390	4940	1860	2860	2500	1350	2300	2400		
8	1300	2500	1530	8000	4870	4520	1650	2710	3700	1300	1700	1500		
9	1700	2400	1380	6000	4020	3100	4920	2170	1700	1900	2100	1400		
10	1900	2000	1410	5400	1880	1970	4470	2260	1600	2100	2500	2100		
11	1600	1400	2410	4900	1770	1990	4620	2070	3000	1500	1500	2200		
12	1400	1300	2250	3000	5570	6150	3650	1310	3300	1600	1300	2400		
13	1500	4000	3810	1800	12000	3780	4030	1290	3500	2400	2800	2400		
14	1250	3500	3020	1700	6500	4520	1710	2480	3000	1700	2500	1400		
15	1350	2600	3060	3200	3600	3190	1630	2980	2600	3000	1300	1400		
16	1400	2500	1460	2200	3400	3090	3270	2830	1500	3100	1700	1300		
17	1800	2700	1400	2400	1600	1720	6040	4350	1400	2700	2830	1250		
18	2400	1340	2450	2300	1550	1530	5240	5790	2600	2600	13100	1500		
19	2300	1210	2550	2200	3660	2620	6290	3650	2400	1800	20500	1350		
20	2200	2880	3740	1500	4410	2650	5330	1810	2500	1300	12100	1400		
21	1400	2980	4180	1400	4500	2360	2020	3160	2300	1200	8420	1350		
22	1300	2530	3180	4500	5300	2700	1690	2890	1400	1150	6420	1350		
23	2500	1350	1640	2000	5790	3300	3610	2890	1300	1100	4710	1300		
24	2400	1340	1670	1400	5570	5670	3080	7240	1250	1400	3510	1200		
25	2700	1310	2870	1300	7260	3820	3330	9770	1300	2000	2970	1300		
26	4000	1240	1820	1400	12200	7160	3980	7740	1500	5600	2400	1300		
27	3900	2040	4810	1300	9700	6160	5520	4500	1800	1600	3830	1400		
28	1500	3110	3700	1350	8880	5210	1770	7000	1900	9000	6200	1900		
29	1400	10900	4320	2300	---	5530	1520	5600	1300	1700	4800	1400		
30	3000	9450	1660	2500	---	4030	2840	5000	1250	1600	5020	1200		
31	3500	---	1790	2950	---	1920	---	4500	---	1700	4190	---		
TOTAL	70700	82280	83720	117580	184430	126670	105550	112560	64150	69400	140000	49880		
MEAN	2281	2743	2701	3793	6587	4086	3518	3631	2138	2239	4516	1663		
MAX	4800	10900	5250	13000	19600	8050	6290	9770	4800	9000	20500	2500		
MIN	1200	1210	1380	1300	1550	1530	1520	1290	1250	1100	1300	1200		
(*)	-75	-97	+120	-10	-22	+36	+27	-127	+150	-21	-96	+118		
MEAN†	2206	2646	2821	3783	6565	4122	3545	3504	2288	2218	4420	1781		
CFSM†	.59	.70	.75	1.00	1.74	1.09	.94	.93	.61	.59	1.17	.47		
IN.†	.68	.78	.86	1.16	1.81	1.26	1.05	1.07	.68	.68	1.35	.53		
CAL YR 1984	TOTAL	2152620	MEAN	5881	MAX	41200	MIN	1200	MEAN†	5889	CFSM†	1.56	IN.†	21.28
WTR YR 1985	TOTAL	1206920	MEAN	3307	MAX	20500	MIN	1100	MEAN†	3307	CFSM†	.88	IN.†	11.92

\* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; provided by Appalachian Power Company.

† Adjusted for change in contents.

## KANAWHA RIVER BASIN

315

03176500 NEW RIVER AT GLEN LYN, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1955-56, 1965 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1968 to current year.

WATER TEMPERATURE: October 1964 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 350 microsiemens, Nov. 6, 1968; minimum, 70 microsiemens, Mar. 26, 27, 1979.

WATER TEMPERATURE: Maximum, 30.5°C, June 24, 1983; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 260 microsiemens, Jan. 22; minimum daily, 116 microsiemens, Aug. 20.

WATER TEMPERATURE: Maximum daily, 29.0°C, Aug. 14; minimum, 2.5°C on several days in January and February.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV 28...	10:45	4120	--	182	7.8	7.8	10.5	721	4.0	9.9	--
JAN 29...	09:05	2300	220	203	7.6	7.6	1.0	724	2.0	14.2	105
MAR 20...	08:30	3150	185	174	7.9	7.2	7.0	726	1.5	11.6	100
MAY 29...	09:00	5600	140	134	7.4	7.4	18.0	722	1.1	8.0	89
JUL 23...	08:30	1100	190	200	7.7	7.8	22.0	723	1.0	6.4	77
SEP 04...	08:30	2200	180	182	7.7	7.6	24.5	728	1.0	8.6	108

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
NOV 28...	49	K35	83	83	19	8.6	4.7	1.5	59	80	24
JAN 29...	48	56	89	89	22	8.2	6.3	1.6	64	64	21
MAR 20...	K3	37	74	74	19	6.4	4.1	1.3	56	51	15
MAY 29...	440	1200	56	56	13	5.6	3.7	1.4	46	37	14
JUL 23...	45	270	85	85	19	9.2	5.3	1.7	61	57	24
SEP 04...	63	220	81	81	19	8.2	4.0	1.8	60	53	19



## KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CHLORIDE, DIS- SOLVED (MG/L AS CL)	FLUORIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
NOV 28...	4.5	<0.1	5.9	113	120	1.60	<0.01	1.6	0.07	0.05	0.03
JAN 29...	7.6	<0.1	6.9	150	110	1.90	0.08	0.2	0.07	0.07	0.06
MAR 20...	5.9	0.1	2.9	107	86	1.60	0.03	0.5	0.05	0.03	0.02
MAY 29...	4.2	0.1	6.3	93	71	0.48	0.09	0.7	0.03	0.02	0.03
JUL 23...	5.1	0.1	6.7	115	110	1.20	0.04	0.5	0.10	0.10	0.08
SEP 04...	5.9	<0.1	6.2	111	96	0.98	0.06	0.3	0.07	0.07	0.04

DATE	ALUMINUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYLLIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHROMIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
NOV 28...	20	<1	27	<0.5	<1	<1	<3	2	23	5	6
JAN 29...	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	20	<1	31	<0.5	<1	<1	<3	8	45	<1	14
MAY 29...	10	1	27	<0.5	<1	3	<3	7	25	1	<4
JUL 23...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	30	<1	32	<0.5	<1	<1	<3	4	31	1	10

DATE	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYBDENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELENIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRONTIUM, DIS- SOLVED (UG/L AS SR)	VANADIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 28...	2	<0.1	<10	<1	<1	<1	97	<6	13	6	78
JAN 29...	--	--	--	--	--	--	--	--	--	7	79
MAR 20...	14	0.1	<10	3	<1	<1	81	<6	7	8	78
MAY 29...	9	<0.1	<10	1	<1	<1	58	<6	20	15	86
JUL 23...	--	--	--	--	--	--	--	--	--	5	87
SEP 04...	9	<0.1	<10	1	<1	<1	84	<6	4	6	85

## 03176500 NEW RIVER AT GLEN LYN, VA--Continued

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218	178	136	162	176	130	160	188	150	210	180	152
2	200	180	150	170	120	140	180	170	160	200	160	158
3	155	170	162	136	120	140	178	170	160	170	160	170
4	160	178	190	139	122	158	---	170	165	170	160	184
5	179	200	180	124	138	160	140	182	195	180	---	188
6	180	182	170	130	140	145	142	170	200	180	---	160
7	190	180	170	138	150	---	160	---	200	165	185	157
8	200	180	180	155	142	140	162	162	178	180	---	170
9	218	170	180	144	158	150	184	162	178	190	178	180
10	200	175	180	155	170	162	150	165	175	180	170	180
11	230	180	190	160	178	165	140	179	165	200	182	190
12	222	198	210	159	190	175	140	179	185	184	190	185
13	220	---	180	180	140	138	162	196	150	190	184	168
14	220	---	170	190	150	142	162	178	165	180	183	166
15	220	179	180	190	150	142	160	180	155	180	163	192
16	230	170	165	210	198	170	175	170	160	175	168	185
17	---	185	178	180	200	178	150	170	181	176	170	203
18	210	180	180	200	180	170	140	145	180	180	143	204
19	200	198	198	200	190	178	135	---	170	178	125	204
20	190	195	162	200	162	165	130	---	172	176	116	203
21	200	198	158	220	162	160	142	150	172	182	---	218
22	220	170	150	260	150	160	155	165	190	200	135	216
23	210	---	162	200	140	160	175	170	190	204	138	213
24	184	190	175	180	132	162	162	120	192	218	160	220
25	180	195	180	210	120	140	150	120	192	225	165	222
26	160	200	190	205	120	144	155	120	200	176	160	222
27	160	198	158	240	120	130	---	122	218	160	140	225
28	180	198	140	238	122	130	---	138	218	160	178	220
29	199	140	142	210	---	140	161	140	218	140	127	219
30	182	130	160	220	---	140	182	---	210	160	123	238
31	182	---	160	179	---	160	---	---	---	180	133	---
MEAN	197	181	171	183	151	152	157	161	181	182	158	194
WTR YR 1985	MEAN	173	MAX	260	MIN	116						

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.5	19.5	10.0	11.0	4.0	7.0	15.0	18.0	19.5	24.0	26.0	24.0
2	15.0	18.5	8.0	12.0	5.0	7.0	13.0	18.5	22.0	23.0	25.0	23.0
3	16.5	16.0	9.5	11.0	4.0	7.5	12.0	17.0	22.0	23.0	24.0	24.0
4	17.5	14.5	7.0	9.0	4.5	9.5	12.5	16.5	24.0	24.0	23.5	25.0
5	18.5	14.5	8.0	8.0	4.5	10.0	13.0	15.5	25.0	24.5	23.5	25.0
6	19.5	14.0	5.0	7.0	5.0	9.0	14.0	18.5	25.0	25.0	24.0	26.0
7	18.5	13.0	4.5	7.0	5.5	8.0	13.0	19.0	24.5	25.0	24.0	26.0
8	19.0	12.5	5.0	7.0	3.5	9.0	11.0	18.0	24.0	24.0	24.5	26.0
9	19.0	12.5	5.0	5.5	2.5	9.0	9.5	18.5	24.0	26.0	25.0	27.0
10	20.0	13.0	5.5	6.0	2.5	9.0	8.5	18.5	24.0	26.0	25.0	27.0
11	20.5	13.5	7.0	5.5	4.0	9.5	10.0	19.0	26.0	25.0	26.0	26.0
12	19.0	12.5	7.5	4.0	4.5	10.0	13.5	20.0	25.0	27.0	27.0	25.0
13	19.0	10.5	8.0	3.0	4.0	9.0	14.0	21.0	22.0	26.0	28.0	23.0
14	18.5	9.5	9.5	3.0	4.0	9.0	14.5	---	20.0	25.0	29.0	20.0
15	19.0	10.0	9.5	4.0	4.0	9.5	17.0	22.0	20.0	26.0	28.0	20.0
16	20.0	11.5	10.0	2.5	4.0	9.5	16.0	22.5	22.0	26.0	27.0	20.0
17	19.0	10.0	10.5	4.0	4.5	10.0	16.5	21.0	22.0	26.5	26.0	20.0
18	21.5	9.5	11.0	4.0	7.0	11.0	15.0	18.5	24.0	27.0	23.0	21.0
19	21.0	9.0	11.0	4.0	7.0	8.5	17.5	19.0	24.0	27.0	23.0	26.0
20	21.5	8.0	11.5	3.0	6.0	10.5	17.0	18.5	22.5	27.0	24.0	22.0
21	21.5	7.0	11.5	2.5	6.5	10.5	17.0	19.5	24.0	27.0	23.5	22.0
22	22.0	6.0	11.0	3.0	7.0	9.5	18.0	19.5	24.0	27.0	22.0	23.0
23	21.5	6.0	8.0	3.5	7.0	9.0	20.0	20.0	24.5	27.0	22.0	22.0
24	21.0	5.5	7.0	5.0	8.0	9.0	19.5	19.5	25.0	26.0	22.0	23.0
25	21.0	5.0	7.5	5.0	9.5	10.0	18.0	19.0	27.0	25.0	22.0	21.5
26	20.5	6.5	6.0	3.5	9.0	10.0	17.5	16.5	27.0	24.0	22.0	22.0
27	21.0	8.5	7.0	3.5	8.5	12.0	17.0	17.0	25.0	24.0	24.0	21.0
28	20.5	11.5	8.5	5.5	8.0	14.0	16.5	18.5	26.0	24.0	23.0	20.0
29	21.0	10.0	9.0	3.0	---	15.0	17.5	20.0	23.0	24.0	25.0	19.0
30	20.5	9.0	10.0	2.5	---	15.0	18.0	20.0	25.0	25.0	25.0	19.0
31	19.5	---	10.5	3.5	---	17.0	---	20.0	---	26.0	23.0	---
MEAN	19.5	11.0	8.5	5.0	5.5	10.0	15.0	19.0	23.5	25.5	24.5	23.0
WTR YR 1985	MEAN	16.0	MAX	29.0	MIN	2.5						

## 03177710 BLUESTONE RIVER AT FALLS MILLS, VA

LOCATION.--Lat 37°16'17", long 81°18'18", Tazewell County, Hydrologic Unit 05050002, on right bank at upstream side of bridge on State Highway 717, 0.3 mi upstream from Brush Fork, and 0.4 mi southeast of Falls Mills.

DRAINAGE AREA.--44.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,310.41 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16, 21-30. Records good. Some diurnal fluctuation caused by discharge from sewage treatment plant 2.3 mi upstream. About sixty-five percent of water discharged from the treatment plant was diverted from another drainage basin for municipal supply. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 59.3 ft<sup>3</sup>/s, 18.22 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,050 ft<sup>3</sup>/s, May 7, 1984, gage height, 8.37 ft, from rating curve extended above 670 ft<sup>3</sup>/s; minimum, 1.0 ft<sup>3</sup>/s, Jan. 18, 1981, gage height, 0.92 ft, result of freezeup; minimum daily, 3.9 ft<sup>3</sup>/s, Jan. 19, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 450 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	1600	*749	*6.33	No other peak equal to or greater than base discharge.			

Minimum discharge, 7.3 ft<sup>3</sup>/s, Sept. 19, gage height, 1.02 ft; minimum daily, 9.2 ft<sup>3</sup>/s, Aug. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	11	29	82	498	111	54	26	36	18	105	20
2	18	12	25	216	391	91	48	28	38	18	90	19
3	15	11	23	203	245	77	46	39	31	18	46	19
4	15	12	20	277	166	65	47	28	40	39	30	18
5	15	17	20	226	126	68	48	25	81	30	23	17
6	15	18	25	151	131	55	61	25	71	19	23	18
7	15	14	21	115	110	49	54	23	47	18	32	18
8	15	12	20	89	90	56	56	22	37	16	61	17
9	16	12	19	70	74	63	57	22	30	15	30	17
10	17	13	24	58	67	56	54	23	29	32	22	17
11	15	41	27	53	59	68	54	23	37	30	18	17
12	15	21	26	45	91	65	50	23	51	19	15	16
13	15	16	24	40	71	59	48	23	38	31	12	16
14	15	15	21	38	61	57	47	21	30	34	11	16
15	15	14	20	35	54	52	48	30	27	31	9.2	15
16	15	13	19	28	50	46	69	83	29	29	37	15
17	13	15	19	32	46	44	53	60	26	20	61	15
18	12	16	19	30	44	41	50	62	24	18	247	14
19	12	96	25	28	47	38	48	61	20	16	117	14
20	12	38	30	26	58	37	46	44	20	14	75	14
21	12	27	31	20	93	35	42	36	19	15	56	13
22	16	23	38	23	148	47	41	42	17	17	45	13
23	16	19	34	25	200	53	38	130	17	13	39	15
24	15	18	33	22	219	71	37	235	15	12	39	16
25	13	17	114	23	210	82	35	208	17	15	39	18
26	13	17	62	22	231	66	33	122	15	34	32	20
27	11	16	51	20	189	60	31	81	15	35	27	20
28	16	77	44	22	142	56	32	68	14	21	25	16
29	16	47	38	21	---	53	30	58	15	18	23	15
30	14	33	39	19	---	48	27	48	15	15	23	16
31	12	---	106	72	---	55	---	41	---	28	24	---
TOTAL	466	711	1046	2131	3911	1824	1384	1760	901	688	1436.2	494
MEAN	15.0	23.7	33.7	68.7	140	58.8	46.1	56.8	30.0	22.2	46.3	16.5
MAX	32	96	114	277	498	111	69	235	81	39	247	20
MIN	11	11	19	19	44	35	27	21	14	12	9.2	13
(*)	5.33	5.58	6.06	4.38	4.47	4.29	4.48	4.22	4.26	4.05	4.56	3.59
CAL YR 1984	TOTAL	25011.0		MEAN	68.3	MAX	840	MIN	8.0	* 5.95		
WTR YR 1985	TOTAL	16752.2		MEAN	45.9	MAX	498	MIN	9.2	* 4.61		

\* Discharge from sewage treatment plant, equivalent in cubic feet per second; provided by the Sanitary Board of Bluefield.

## BIG SANDY RIVER BASIN

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03207800 LEVISA FORK AT BIG ROCK, VA

LOCATION.--Lat 37°21'13", long 82°11'45", Buchanan County, Hydrologic Unit 05070202, on left bank at Big Rock, 2,000 ft downstream from Rocklick Creek, and 2,500 ft downstream from bridge on State Highway 645.

DRAINAGE AREA.--297 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 866.37 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 7, 8, 22-24. Records good. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--18 years, 378 ft<sup>3</sup>/s, 17.28 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,000 ft<sup>3</sup>/s, Apr. 4, 1977, gage height, 27.38 ft, from rating curve extended above 7,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 5.0 ft<sup>3</sup>/s, Oct. 1, 13, 14, 17, 18, 19, 20, 1969; minimum gage height, 3.17 ft, Sept. 25, 26, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 23.0 ft, information from local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	1400	*7,100	*10.41	No other peak equal to or greater than base discharge.			

Minimum discharge, 19 ft<sup>3</sup>/s, Sept. 21, 30, gage height, 3.19 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	49	271	697	4150	458	356	118	131	117	955	57
2	60	50	198	1090	2320	410	327	120	121	85	1030	46
3	41	49	171	795	1040	353	313	298	127	76	360	41
4	32	47	144	984	698	317	291	271	113	106	205	38
5	27	79	128	868	623	300	263	226	217	80	144	37
6	24	118	177	640	1140	259	306	187	654	67	119	41
7	25	95	165	510	1140	233	261	160	308	63	149	45
8	30	77	170	440	796	252	269	140	227	70	141	39
9	85	78	163	353	612	368	265	122	172	53	110	35
10	76	78	177	302	517	333	250	110	141	57	93	44
11	46	87	172	286	460	343	246	106	196	97	78	62
12	35	109	169	246	518	361	240	102	271	66	70	40
13	30	89	158	212	444	328	232	94	245	51	63	32
14	27	75	142	214	381	317	227	89	182	66	60	28
15	28	68	132	201	349	297	226	100	145	54	53	27
16	27	71	126	164	311	273	232	168	127	75	54	26
17	28	62	121	200	333	262	209	211	166	51	97	23
18	26	90	148	180	315	245	182	261	153	42	103	22
19	25	1650	340	171	409	219	173	215	120	37	80	21
20	70	655	470	126	517	204	168	158	120	35	65	20
21	88	305	526	81	694	198	164	148	101	36	66	19
22	71	201	510	130	995	239	157	140	87	44	59	20
23	166	154	420	150	1540	284	149	194	81	43	49	21
24	306	127	430	140	1260	391	144	709	77	36	48	21
25	139	112	414	154	891	508	144	850	70	34	76	21
26	92	100	391	135	753	458	131	535	65	103	70	23
27	72	89	332	116	627	400	131	340	60	649	60	22
28	63	425	280	128	524	362	151	244	56	270	52	21
29	64	634	242	125	---	326	164	214	53	218	44	21
30	61	376	271	116	---	293	129	173	65	114	51	20
31	55	---	375	295	---	285	---	145	---	101	75	---
TOTAL	1996	6199	7933	10249	24357	9876	6500	6948	4651	2996	4679	933
MEAN	64.4	207	256	331	870	319	217	224	155	96.6	151	31.1
MAX	306	1650	526	1090	4150	508	356	850	654	649	1030	62
MIN	24	47	121	81	311	198	129	89	53	34	44	19
CFSM	.22	.70	.86	1.11	2.93	1.07	.73	.75	.52	.33	.51	.10
IN.	.25	.78	.99	1.28	3.05	1.24	.81	.87	.58	.38	.59	.12
CAL YR 1984	TOTAL	139534	MEAN	381	MAX	16300	MIN	18	CFSM	1.28	IN.	17.48
WTR YR 1985	TOTAL	87317	MEAN	239	MAX	4150	MIN	19	CFSM	.80	IN.	10.94



## BIG SANDY RIVER BASIN

03208000 LEVISA FORK BELOW FISHTRAP DAM, NEAR MILLARD, KY

LOCATION.--Lat 37°25'33", long 82°24'45", Pike County, Hydrologic Unit 05070202, on right bank, 0.4 mi downstream from Fishtrap Dam, 1.1 mi upstream from Lower Pompey Branch, 1.9 mi northeast of Millard, 2.4 mi upstream from confluence with Russell Fork, and at mile 129.6.

DRAINAGE AREA.--392 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1938 to current year. Prior to April 1968, published as "Levisa Fork at Fishtrap."

REVISED RECORDS.--WSP 953. Drainage area. WSP 1335: 1938(M), 1939, 1940(M), 1942-43, 1944-45(M), 1946, 1948.

GAGE.--Water-stage recorder. Datum of gage is 600.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Apr. 19, 1968, nonrecording gage at site 3.7 mi upstream at different datum. Apr. 19, 1968, to June 18, 1973, water-stage recorder at site 1.0 mi downstream at datum 59.96 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Fishtrap Lake beginning October 1968. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--47 years, 476 ft<sup>3</sup>/s, 16.49 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft<sup>3</sup>/s, Jan. 29, 1957, gage height, 33.9 ft, from floodmark, site and datum then in use, from rating curve extended above 15,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; maximum gage height, 107.55 ft, Apr. 5, 1977, from floodmark, backwater from Russell Fork; no flow Apr. 5, 1977, all gates on Fishtrap Dam closed; minimum observed discharge prior to Fishtrap Lake, 0.1 ft<sup>3</sup>/s, Nov. 8, 9, 1939, site then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,660 ft<sup>3</sup>/s, Feb. 1, gage height, 81.36 ft; minimum daily, 45 ft<sup>3</sup>/s, Apr. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	192	268	466	489	2860	770	159	53	113	67	689	74
2	215	220	299	837	4100	697	45	53	158	68	1810	74
3	216	238	247	1620	2420	538	56	54	203	264	999	74
4	217	215	158	1400	2090	485	57	55	201	68	237	74
5	217	302	156	1630	1470	416	58	55	201	68	148	76
6	177	331	156	1490	1190	414	61	55	714	68	161	76
7	151	268	156	1040	1690	350	61	55	641	67	480	75
8	151	267	201	682	1610	378	61	55	329	132	550	74
9	151	265	232	549	1160	591	61	55	137	141	269	76
10	192	265	235	463	739	533	57	55	337	75	74	158
11	262	266	279	305	665	581	51	55	300	63	118	231
12	288	264	308	293	731	630	51	55	645	66	126	226
13	214	262	178	342	669	533	51	55	586	68	75	225
14	171	270	147	341	524	494	52	55	246	68	75	222
15	171	288	230	300	431	412	53	55	230	70	76	219
16	171	288	197	183	431	412	53	54	178	101	154	222
17	171	286	209	224	529	412	53	54	196	102	228	233
18	171	266	152	279	435	376	53	54	248	68	115	234
19	171	1540	195	257	677	308	55	53	203	68	74	234
20	171	1790	321	209	785	308	55	53	178	68	73	234
21	190	626	645	131	1050	282	52	53	137	68	74	225
22	242	298	868	68	1430	310	49	53	66	68	74	196
23	295	298	834	68	2110	401	50	55	64	68	73	173
24	565	296	718	200	2130	508	51	86	86	68	92	173
25	532	295	615	245	1550	757	52	517	119	68	126	173
26	278	292	696	114	1280	750	53	852	89	67	73	174
27	209	288	690	114	1030	593	53	646	89	606	73	173
28	209	425	474	164	834	600	53	349	77	469	73	171
29	209	887	409	196	---	466	53	349	67	163	74	170
30	208	839	373	147	---	414	53	292	67	135	74	168
31	266	---	384	276	---	391	---	188	---	136	74	---
TOTAL	7043	12703	11228	14656	36620	15110	1722	4528	6905	3676	7411	4907
MEAN	227	423	362	473	1308	487	57.4	146	230	119	239	164
MAX	565	1790	868	1630	4100	770	159	852	719	606	1810	234
MIN	151	215	147	68	431	282	45	53	64	63	73	74
CAL YR 1984	TOTAL	191631		MEAN	524	MAX	6020	MIN	57			
WTR YR 1985	TOTAL	126509		MEAN	347	MAX	4100	MIN	45			

03208500 RUSSELL FORK AT HAYSI, VA

LOCATION.--Lat 37°12'25", long 82°17'45", Dickenson County, Hydrologic Unit 05070202, on right bank 180 ft downstream from bridge on State Highway 63, at Haysi, and 700 ft downstream from McClure River.

DRAINAGE AREA.--286 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1003: 1926-43. WSP 1385: 1928(M), 1929, 1933(M), 1935(M), 1937-38(M).

GAGE.--Water-stage recorder. Datum of gage is 1,237.61 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 21, 1939, nonrecording gage at highway bridge 180 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Oct. 4-23, Dec. 5-19, and Jan. 16, 19-30. Records good except those for periods of doubtful or no gage-height record, Oct. 4-23 and Dec. 5-19, and periods with ice effect, Jan. 16, 19-30, which are fair. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--59 years, 330 ft<sup>3</sup>/s, 15.67 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,000 ft<sup>3</sup>/s, Apr. 4, 1977, gage height, 28.24 ft, from rating curve extended above 32,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum observed, 0.2 ft<sup>3</sup>/s, June 27, 28, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	1400	*8,280	*9.11	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 12 ft<sup>3</sup>/s, Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	26	211	374	4690	414	245	102	116	77	330	46
2	43	26	150	914	2390	368	214	103	111	82	555	37
3	26	27	143	899	993	305	204	400	112	64	228	33
4	17	26	131	780	624	270	196	293	93	203	134	30
5	14	50	98	1200	547	252	185	213	102	91	96	27
6	12	65	110	792	958	214	245	168	382	61	83	27
7	13	53	110	555	951	186	235	146	200	51	83	37
8	15	41	94	408	686	200	262	128	151	45	81	33
9	45	38	100	300	503	311	275	107	126	39	68	30
10	38	35	96	248	429	302	273	94	114	46	59	36
11	23	37	105	226	361	308	273	87	612	89	54	35
12	18	50	115	188	505	312	259	85	345	57	51	37
13	16	44	120	153	448	269	242	81	235	61	45	29
14	14	36	120	164	397	252	229	73	156	49	41	25
15	15	34	100	159	346	229	224	75	115	61	38	23
16	14	35	95	120	301	207	217	79	102	287	42	21
17	14	31	90	149	298	201	187	119	134	132	149	20
18	13	52	85	143	262	188	159	153	100	79	156	19
19	13	1490	100	120	336	166	147	126	79	58	93	19
20	35	540	226	100	463	156	146	89	69	47	124	18
21	60	233	279	90	675	152	146	78	59	42	107	17
22	37	149	399	100	970	175	141	71	50	40	73	17
23	100	134	392	110	1410	200	132	148	47	38	57	17
24	345	104	311	100	1130	274	129	459	45	33	49	17
25	152	81	316	105	829	376	127	463	70	31	129	18
26	97	70	274	95	704	344	112	312	51	49	102	20
27	75	62	253	85	579	308	108	202	40	494	77	20
28	66	430	215	90	473	292	138	151	36	192	61	20
29	59	594	184	88	---	264	141	143	33	105	50	18
30	45	315	168	86	---	234	116	122	38	74	47	16
31	29	---	244	327	---	222	---	103	---	63	54	---
TOTAL	1511	4908	5434	9268	23258	7951	5707	4973	3923	2840	3316	762
MEAN	48.7	164	175	299	831	256	190	160	131	91.6	107	25.4
MAX	345	1490	399	1200	4690	414	275	463	612	494	555	46
MIN	12	26	85	85	262	152	108	71	33	31	38	16
CFSM	.17	.57	.61	1.05	2.91	.90	.66	.56	.46	.32	.37	.09
IN.	.20	.64	.71	1.21	3.03	1.03	.74	.65	.51	.37	.43	.10

CAL YR 1984	TOTAL	129307	MEAN	353	MAX	17500	MIN	12	CFSM	1.23	IN.	16.82
WTR YR 1985	TOTAL	73851	MEAN	202	MAX	4690	MIN	12	CFSM	.71	IN.	9.61

## BIG SANDY RIVER BASIN

03208680 NORTH FORK POUND RIVER LAKE AT POUND, VA

LOCATION.--Lat 37°07'27", long 82°37'52", Wise County, Hydrologic Unit 05070202, in control tower of North Fork Pound Dam at Pound, 1,200 ft upstream from Stacy Branch, and 1.2 mi upstream from South Fork Pound River.

DRAINAGE AREA.--17.2 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Aug. 29, 1966, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by rockfill dam. Spillway with crest at elevation 1,644.0 ft is in a saddle 350 ft southeast of dam. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,556.5 ft. Storage began in September 1964 during construction with peak discharge affected thereafter; initial filling for regular operation started July 13, 1966. Total capacity at elevation 1,644.0 ft, top of spillway, is 11,290 acre-ft of which 8,110 acre-ft is flood-control storage for summer operations between elevations 1,611.0 ft, top of summer conservation pool, and 1,644.0 ft; an additional 1,290 acre-ft is available for flood control during the period December to March between elevations 1,601.0 ft, top of winter conservation pool, and 1,611.0 ft; contents at established minimum pool, 1,601.0 ft, is 1,900 acre-ft; dead storage is 7 acre-ft below elevation 1,556.5 ft. Figures given herein represent total contents. Lake is used for flood control, low-water augmentation for water-quality control, and recreation. U.S. Army Corps of Engineers satellite elevation telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 6,920 acre-ft, Apr. 8, 1977, elevation, 1,629.41 ft; minimum (after initial filling for regular operation), 1,660 acre-ft, Jan. 23, 1969, elevation, 1,598.62 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,320 acre-ft, June 10, elevation, 1,611.89 ft; minimum, 1,970 acre-ft, Mar. 21, elevation, 1,601.71 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,609.38	2,942	-
Oct. 31.....	1,606.86	2,591	-351
Nov. 30.....	1,602.47	2,055	-536
Dec. 31.....	1,603.22	2,140	+85
CAL YR 1984.....	-	-	+126
Jan. 31.....	1,602.42	2,049	-91
Feb. 28.....	1,601.77	1,977	-72
Mar. 31.....	1,602.70	2,081	+104
Apr. 30.....	1,609.18	2,913	+832
May 31.....	1,611.35	3,238	+325
June 30.....	1,610.97	3,179	-59
July 31.....	1,610.20	3,063	-116
Aug. 31.....	1,610.52	3,111	+48
Sept. 30.....	1,609.03	2,891	-220
WTR YR 1985.....	-	-	-51

## 03208700 NORTH FORK POUND RIVER AT POUND, VA

LOCATION.--Lat 37°07'32", long 82°37'36", Wise County, Hydrologic Unit 05070202, on right bank at Pound, 700 ft downstream from Stacy Branch, 1,600 ft downstream from North Fork Pound River Dam, and 0.9 mi upstream from confluence with South Fork.

DRAINAGE AREA.--18.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,500.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1965, on left bank at datum 44.88 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since August 1966 by North Fork Pound River Lake (station 03208680). U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--24 years, 28.5 ft<sup>3</sup>/s, 20.92 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,480 ft<sup>3</sup>/s, Mar. 12, 1963, gage height, 61.58 ft, present datum, from rating curve extended above 650 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 0.02 ft<sup>3</sup>/s, Sept. 16, 1964, Aug. 11, 12, Oct. 28, Nov. 10, 1969; minimum daily, 0.04 ft<sup>3</sup>/s, Sept. 15, 1964, Aug. 11, 1969; minimum gage height, 47.66 ft, Sept. 16, 1964, present datum. Maximum discharge since construction of North Fork Pound River Dam in 1966, 1,230 ft<sup>3</sup>/s, Sept. 14, 1982, gage height, 55.79 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 63.9 ft, present datum, from U.S. Army Corps of Engineers floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 213 ft<sup>3</sup>/s, Feb. 1, gage height, 50.60 ft; minimum, 2.8 ft<sup>3</sup>/s, May 7, gage height, 48.31 ft; minimum daily, 3.8 ft<sup>3</sup>/s, Aug. 14, 15, 23, 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	5.3	7.1	21	62	134	29	7.2	4.6	7.0	4.9	6.1	4.0		
2	5.3	7.3	21	88	179	21	5.3	5.2	7.0	4.6	5.4	4.0		
3	5.3	7.3	29	98	129	20	5.4	6.0	6.9	4.4	4.7	4.0		
4	5.3	7.3	27	82	62	20	5.3	5.8	5.1	4.4	4.4	4.0		
5	5.2	12	12	61	38	18	5.5	5.5	5.1	4.3	4.4	4.0		
6	5.3	16	8.9	59	68	14	7.2	5.2	4.9	4.4	4.2	4.5		
7	5.3	19	8.7	48	82	13	7.3	4.9	6.6	4.3	5.5	4.0		
8	5.6	19	8.7	33	53	14	7.1	8.1	7.5	4.3	4.9	4.0		
9	5.6	19	8.7	33	21	15	7.0	9.1	7.3	4.4	4.3	4.0		
10	5.4	19	12	33	46	14	6.3	9.1	7.5	4.6	4.2	4.0		
11	5.6	19	15	26	56	52	5.8	9.1	25	4.4	4.0	4.0		
12	5.6	19	22	17	42	60	5.5	9.1	37	4.4	4.0	4.0		
13	5.8	19	24	17	71	49	5.3	9.1	27	4.4	3.9	4.0		
14	5.9	14	21	17	70	49	5.1	8.8	10	4.4	3.8	4.0		
15	5.6	12	16	17	50	35	5.3	8.9	7.1	4.6	3.8	4.0		
16	5.6	8.5	16	16	21	17	5.2	8.8	6.7	4.4	3.9	4.0		
17	5.6	6.0	11	16	21	16	4.9	9.6	6.7	4.4	4.3	4.0		
18	5.6	8.9	8.4	13	21	16	4.7	11	6.7	4.4	4.0	4.0		
19	5.8	94	8.9	8.3	36	16	4.7	9.8	5.7	4.4	4.0	4.0		
20	6.6	105	28	8.3	43	16	4.6	13	4.2	4.4	4.0	4.0		
21	6.1	79	48	8.3	64	16	4.6	14	4.2	4.4	4.0	4.0		
22	6.2	52	44	8.3	99	13	4.5	14	4.2	4.4	3.9	4.0		
23	7.2	37	43	8.3	109	9.6	4.4	15	4.2	4.4	3.8	4.0		
24	18	21	32	8.3	162	12	4.4	35	4.4	4.4	3.9	4.0		
25	25	20	24	8.3	151	17	4.4	29	4.3	4.4	4.0	4.0		
26	20	20	49	8.1	100	42	4.3	32	4.2	4.4	4.0	4.3		
27	14	20	59	8.0	54	50	4.6	40	4.2	5.0	3.9	4.1		
28	14	43	39	8.0	44	49	5.0	29	4.2	4.4	3.8	4.0		
29	14	52	17	8.0	---	33	4.7	9.7	4.2	4.4	3.8	4.0		
30	12	38	17	8.0	---	11	4.6	7.2	4.3	4.4	3.9	4.0		
31	8.7	---	38	11	---	11	---	7.0	---	4.4	4.0	---		
TOTAL	256.5	820.4	737.3	845.2	2026	767.6	160.2	392.6	243.4	137.8	130.8	120.9		
MEAN	8.27	27.3	23.8	27.3	72.4	24.8	5.34	12.7	8.11	4.45	4.22	4.03		
MAX	25	105	59	98	179	60	7.3	40	37	5.0	6.1	4.5		
MIN	5.2	6.0	8.4	8.0	21	9.6	4.3	4.6	4.2	4.3	3.8	4.0		
(*)	-6	-9	+1	-1	-1	+2	+14	+5	-1	-2	+1	-4		
MEAN*	2.27	18.3	24.8	26.3	71.4	26.8	19.3	17.7	7.11	2.45	5.22	.03		
CFSM*	.12	.99	1.34	1.42	3.86	1.45	1.04	.96	.38	.13	.28	.002		
IN.*	.14	1.11	1.54	1.64	4.02	1.67	1.17	1.10	.43	.15	.33	.00		
CAL YR 1984	TOTAL	10022.7	MEAN	27.4	MAX	342	MIN	2.5	MEAN*	27.4	CFSM*	1.48	IN.*	20.15
WTR YR 1985	TOTAL	6638.7	MEAN	18.2	MAX	179	MIN	3.8	MEAN*	18.2	CFSM*	.98	IN.*	13.35

\* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake; provided by U.S. Army Corps of Engineers.

\* Adjusted for change in contents.



03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA

LOCATION.--Lat 37°07'26", long 82°26'20", Dickenson County, Hydrologic Unit 05070202, on left bank on State Highway 649, 500 ft downstream from Clinchfield Railway bridge, 1,000 ft downstream from Rush Creek, and 2.1 mi southeast of Clintwood.

DRAINAGE AREA.--66.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORDS.--WDR VA-77-1: 1967(M).

GAGE.--Water-stage recorder. Datum of gage is 1,440.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16-30. Records good. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--22 years, 80.6 ft<sup>3</sup>/s, 16.46 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft<sup>3</sup>/s, Apr. 4, 1977, gage height, 26.09 ft, from flood-mark, from rating curve extended above 3,100 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 0.48 ft<sup>3</sup>/s, Sept. 28, 1964, gage height, 0.91 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 20.0 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	0400	1,000	6.74	Feb. 1	1200	*1,360	*7.88

Minimum daily discharge, 5.0 ft<sup>3</sup>/s, Oct. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	12	54	139	924	99	55	32	21	9.4	130	11
2	11	16	41	202	428	89	44	32	20	29	84	8.8
3	8.2	14	40	180	212	73	40	47	21	21	35	7.8
4	9.1	13	33	211	149	66	40	34	16	19	23	7.1
5	6.8	17	27	260	137	64	36	28	30	12	18	10
6	9.1	19	37	171	191	54	79	25	38	10	16	21
7	9.8	18	35	130	170	48	73	25	25	9.5	19	24
8	11	14	38	100	132	51	78	25	22	8.3	19	12
9	15	17	31	78	104	80	77	22	16	7.8	14	9.9
10	9.0	16	32	68	94	67	76	18	20	13	17	12
11	7.5	17	37	65	84	67	68	18	126	24	11	44
12	9.4	17	37	56	138	69	62	19	57	11	9.3	15
13	6.7	15	36	47	119	58	58	18	37	16	8.3	11
14	6.2	16	32	50	105	54	54	16	24	9.2	11	12
15	5.8	13	26	44	93	52	53	18	20	9.0	7.7	8.1
16	5.4	17	25	32	99	49	55	22	21	92	26	7.2
17	5.0	13	25	40	86	48	49	39	19	25	63	6.9
18	6.9	26	25	38	71	44	43	41	19	17	45	8.3
19	6.3	459	36	32	90	37	39	25	18	12	23	6.3
20	51	133	55	24	125	34	36	20	17	12	22	8.3
21	29	68	67	26	182	35	34	17	13	8.5	21	8.4
22	17	46	112	27	256	47	33	20	14	8.4	14	6.3
23	110	35	95	30	321	61	32	49	12	7.4	13	5.4
24	111	30	74	28	267	79	33	89	18	9.4	14	5.9
25	44	26	95	29	196	83	32	77	22	9.2	35	9.9
26	28	23	79	26	172	71	28	53	15	22	21	6.2
27	23	22	71	23	140	68	28	39	14	102	15	12
28	18	112	64	25	115	63	48	32	12	30	14	9.3
29	16	101	57	24	---	58	41	28	11	17	10	6.2
30	14	69	57	23	---	53	33	23	8.3	14	11	5.4
31	16	---	117	102	---	51	---	19	---	17	16	---
TOTAL	645.2	1414	1590	2330	5200	1872	1457	970	726.3	611.1	785.3	325.7
MEAN	20.8	47.1	51.3	75.2	186	60.4	48.6	31.3	24.2	19.7	25.3	10.9
MAX	111	459	117	260	924	99	79	89	126	102	130	44
MIN	5.0	12	25	23	71	34	28	16	8.3	7.4	7.7	5.4
CFSM	.31	.71	.77	1.13	2.80	.91	.73	.47	.36	.30	.38	.16
IN.	.36	.79	.89	1.30	2.91	1.05	.82	.54	.41	.34	.44	.18
CAL YR 1984	TOTAL	29248.9	MEAN	79.9	MAX	3160	MIN	4.6	CFSM	1.20	IN.	16.36
WTR YR 1985	TOTAL	17926.6	MEAN	49.1	MAX	924	MIN	5.0	CFSM	.74	IN.	10.03

## 03208990 JOHN W. FLANNAGAN RESERVOIR NEAR HAYSI, VA

LOCATION.--Lat 37°14'00", long 82°20'56", Dickenson County, Hydrologic Unit 05070202, in control tower of John W. Flannagan Dam on Pound River, 1.3 mi upstream from Blacklog Branch, and 3.7 mi northwest of Haysi.

DRAINAGE AREA.--221 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Mar. 31, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by rockfill dam. Spillway with crest at elevation 1,410.0 ft is in a saddle 0.3 mi upstream from dam and is equipped with 6 radial gates 36 ft high by 42 ft wide. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,230.0 ft. Storage began in September 1961 during construction with peak discharge affected thereafter; initial filling for regular operations started in March 1965. Total capacity at elevation 1,446.0 ft, top of gates, is 145,700 acre-ft of which 78,600 acre-ft is controlled flood storage for summer operations between elevations 1,396.0 ft, top of summer conservation pool, and 1,446.0 ft; an additional 16,500 acre-ft is available for flood control during the period December to March between elevations 1,380.0 ft, top of winter conservation pool, and 1,396.0 ft; contents at established minimum pool, 1,314.0 ft, is 12,000 acre-ft; dead storage is 300 acre-ft below elevation 1,230.0 ft. Figures given herein represent total contents. Reservoir is used for flood control, low-water augmentation for water-quality control, and recreation. U.S. Army Corps of Engineers satellite elevation telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 116,500 acre-ft, Apr. 7, 1977, elevation, 1,430.80 ft; minimum (after initial filling for regular operation), 11,800 acre-ft, Apr. 1, 1965, elevation, 1,313.42 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 67,500 acre-ft, Aug. 11, elevation, 1,396.33 ft; minimum, 27,800 acre-ft, Nov. 4, elevation, 1,349.81 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,393.34	64,100	-
Oct. 31.....	1,350.75	28,400	-35,700
Nov. 30.....	1,350.57	28,200	-200
Dec. 31.....	1,351.50	28,800	+600
CAL YR 1984.....	-	-	-11,900
Jan. 31.....	1,356.18	31,800	+3,000
Feb. 28.....	1,380.44	51,000	+19,200
Mar. 31.....	1,381.96	52,400	+1,400
Apr. 30.....	1,388.77	59,200	+6,800
May 31.....	1,392.36	63,000	+3,800
June 30.....	1,394.74	65,700	+2,700
July 31.....	1,395.19	66,200	+500
Aug. 31.....	1,395.83	66,900	+700
Sept. 30.....	1,393.56	64,300	-2,600
WTR YR 1985.....	-	-	+200

## BIG SANDY RIVER BASIN

03209000 POUND RIVER BELOW FLANNAGAN DAM, NEAR HAYSI, VA

LOCATION.--Lat 37°14'13", long 82°20'36", Dickenson County, Hydrologic Unit 05070202, on right bank 1,100 ft upstream from Blacklog Branch, 1,700 ft downstream from John W. Flannagan Dam, 1.4 mi upstream from mouth, and 3.4 mi northwest of Haysi.

DRAINAGE AREA.--221 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1963, published as Pound River near Haysi.

REVISED RECORDS.--WSP 953: 1940-41. WSP 1003: 1942, 1943(P). WSP 1275: 1927-30, 1931(M), 1932-39.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Dec. 20, 1939, nonrecording gage at site 3.8 mi upstream at different datum. Dec. 20, 1939, to Sept. 30, 1963, water-stage recorder at site 4.6 mi upstream at datum 79.91 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated since March 1965 by John W. Flannagan Reservoir (station 03208990) 1,700 ft upstream and since August 1966 by North Fork Pound River Lake (station 03208680) 33 mi upstream. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--59 years, 275 ft<sup>3</sup>/s, 16.90 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 30,000 ft<sup>3</sup>/s, Mar. 23, 1929, gage height, 16.5 ft, from floodmarks, site and datum then in use; minimum, less than 0.1 ft<sup>3</sup>/s on several days in September 1932. Maximum discharge since construction of John W. Flannagan Dam in 1965, 4,540 ft<sup>3</sup>/s, Apr. 8, 1977, gage height, 8.20 ft; minimum, 1.2 ft<sup>3</sup>/s, Feb. 16, 1968, gage height, 1.42 ft; minimum daily, 2.3 ft<sup>3</sup>/s, June 26-29, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,360 ft<sup>3</sup>/s, Feb. 4, gage height, 6.18 ft; minimum, 7.3 ft<sup>3</sup>/s, Jan. 29, gage height, 1.74 ft; minimum daily, 9.4 ft<sup>3</sup>/s, Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	309	237	380	17	323	94	54	54	54	57	77
2	327	56	236	667	16	275	56	54	54	54	57	77
3	765	57	148	887	16	275	57	54	54	54	87	93
4	670	57	106	886	1010	274	57	54	54	53	94	104
5	575	57	106	826	921	254	57	54	54	53	61	104
6	506	57	106	825	12	218	57	54	54	52	54	104
7	504	58	84	811	12	218	56	54	56	52	56	104
8	504	57	73	577	12	138	56	54	54	69	56	104
9	493	57	73	315	12	100	56	54	54	66	56	104
10	715	57	117	248	12	100	56	54	54	54	56	83
11	712	57	138	226	12	415	55	54	54	54	56	45
12	604	57	138	200	12	580	55	54	54	54	56	46
13	826	57	166	200	12	579	54	54	54	54	57	47
14	821	56	166	118	12	427	54	54	54	54	74	49
15	604	55	140	105	139	203	54	54	54	54	89	49
16	720	57	140	111	331	177	54	54	54	54	88	49
17	718	57	119	28	331	179	54	54	54	54	87	49
18	715	57	109	12	331	180	54	54	53	54	87	49
19	518	565	110	11	270	180	54	54	53	54	71	49
20	595	938	232	12	241	183	53	54	53	55	51	49
21	592	677	289	12	482	183	52	54	52	56	52	49
22	536	317	290	12	763	186	52	54	52	70	52	49
23	738	275	293	11	845	186	52	54	52	85	73	47
24	910	209	327	11	847	186	52	54	52	85	87	47
25	970	209	343	11	1520	276	52	54	52	85	87	47
26	742	209	396	12	1260	319	52	54	52	85	65	47
27	965	138	595	12	572	319	53	54	52	87	51	47
28	742	173	525	12	412	319	54	54	53	85	52	47
29	389	400	293	11	---	264	54	54	52	65	66	46
30	571	409	293	9.4	---	177	53	54	53	54	77	46
31	597	---	331	13	---	177	---	54	---	56	77	---
TOTAL	19700	5794	6719	7571.4	10432	7870	1669	1674	1601	1915	2089	1907
MEAN	635	193	217	244	373	254	55.6	54.0	53.4	61.8	67.4	63.6
MAX	970	938	595	887	1520	580	94	54	56	87	94	104
MIN	56	55	73	9.4	12	100	52	54	52	52	51	45
(*)	-587	-12	+11	+48	+345	+25	+128	+67	+44	+6	+12	-48
MEAN†	48.5	181	228	292	718	279	184	121	97.4	67.8	79.4	15.6
CFSM†	.22	.82	1.03	1.32	3.25	1.26	.83	.55	.44	.31	.36	.07
IN.†	.25	.91	1.19	1.52	3.38	1.46	.93	.63	.49	.35	.41	.08
CAL YR 1984	TOTAL	113195	MEAN	309	MAX	3990	MIN	23	MEAN†	293	CFSM†	1.33
WTR YR 1985	TOTAL	68941.4	MEAN	189	MAX	1520	MIN	9.4	MEAN†	189	CFSM†	.86
											IN.†	18.07
											IN.†	11.60

\* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake and John W. Flannagan Reservoir; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## 03471500 SOUTH FORK HOLSTON RIVER AT RIVERSIDE, NEAR CHILHOWIE, VA

LOCATION.--Lat 36°45'37", long 81°37'53", Smyth County, Hydrologic Unit 06010102, on right bank 400 ft upstream from highway bridge at Riverside, 900 ft upstream from Spring Branch, 3.2 mi downstream from Redstone Branch, 4.0 mi southeast of Chilhowie, and at mile 97.2.

DRAINAGE AREA.--76.1 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1920 to December 1931, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1306. Prior to October 1924, published as "near Chilhowie." June 1907 to December 1909, at site 4.5 mi downstream also published as "near Chilhowie"; records not equivalent.

REVISED RECORDS.--WSP 1033: 1943-44(m). WSP 1306: Drainage area, 1921-31(M).

GAGE.--Water-stage recorder. Datum of gage is 2,106.77 ft above National Geodetic Vertical Datum of 1929. Nov. 1, 1920, to Nov. 14, 1931, nonrecording gage at site 400 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 20-30. Records good. Prior to August 1951, diurnal fluctuation at low flow caused by mill 500 ft upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 112 ft<sup>3</sup>/s, 19.99 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,600 ft<sup>3</sup>/s, Nov. 6, 1977, gage height, 10.20 ft, from rating curve extended above 3,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum recorded, 2 ft<sup>3</sup>/s, Aug. 26, Oct. 15, 1943, Aug. 9, 11, 1944, Oct. 19, 1945, but may have been less in 1925 and 1926 before installation of water-stage recorder; minimum daily, 8 ft<sup>3</sup>/s, July 19, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 650 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	2100	770	3.63	July 27	2030	*842	*3.77

Minimum daily discharge, 22 ft<sup>3</sup>/s, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	28	68	148	400	197	79	52	72	33	74	37
2	33	28	56	168	738	168	73	52	68	35	78	35
3	30	27	51	258	558	142	70	57	64	35	65	34
4	28	27	47	474	359	127	67	51	59	34	56	32
5	27	29	45	432	256	120	64	49	55	34	50	31
6	28	30	49	293	207	106	80	48	53	37	49	31
7	28	28	44	213	166	96	83	46	52	34	48	31
8	28	27	43	166	131	90	91	45	49	31	45	29
9	28	26	42	133	115	98	93	44	48	30	40	29
10	28	27	43	114	114	90	92	44	44	29	38	28
11	26	45	49	103	109	92	89	48	43	31	36	27
12	26	36	50	89	168	93	85	50	47	29	36	27
13	26	32	52	79	132	87	81	45	43	28	34	27
14	25	30	50	76	116	85	80	43	40	43	32	25
15	26	29	48	72	107	82	80	44	38	36	31	25
16	27	29	46	65	95	79	140	69	42	71	44	24
17	26	28	44	67	91	76	140	71	53	43	52	24
18	26	27	44	63	84	74	117	70	53	35	115	23
19	26	39	45	60	83	71	102	65	46	32	82	23
20	26	39	73	50	87	68	91	59	41	29	67	23
21	25	33	75	40	104	66	84	56	39	28	57	23
22	28	31	78	45	145	68	77	57	37	28	51	23
23	29	30	72	50	213	75	72	185	36	28	46	23
24	29	30	71	43	302	82	69	347	67	27	50	23
25	28	29	149	50	322	93	66	490	46	30	66	23
26	28	28	175	45	358	96	62	312	40	34	53	23
27	28	28	138	40	323	93	60	197	37	240	49	23
28	29	100	112	41	246	91	62	145	35	312	46	23
29	36	122	95	40	---	88	58	116	34	134	43	23
30	32	86	87	38	---	82	53	95	33	94	40	22
31	29	---	116	50	---	79	---	82	---	78	39	---
TOTAL	883	1128	2157	3605	6129	2954	2460	3134	1414	1742	1612	794
MEAN	28.5	37.6	69.6	116	219	95.3	82.0	101	47.1	56.2	52.0	26.5
MAX	44	122	175	474	738	197	140	490	72	312	115	37
MIN	25	26	42	38	83	66	53	43	33	27	31	22
CFSM	.37	.49	.91	1.52	2.88	1.25	1.08	1.33	.62	.74	.68	.35
IN.	.43	.55	1.05	1.76	3.00	1.44	1.20	1.53	.69	.85	.79	.39
CAL YR 1984	TOTAL	43148	MEAN	118	MAX	1850	MIN	24	CFSM	1.55	IN.	21.09
WTR YR 1985	TOTAL	28012	MEAN	76.7	MAX	738	MIN	22	CFSM	1.01	IN.	13.69



## 03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA

LOCATION.--Lat 36°39'06", long 81°50'39", Washington County, Hydrologic Unit 06010102, on right bank 500 ft upstream from bridge on U.S. Highway 58, 0.7 mi downstream from Laurel Creek, 3.2 mi northwest of Damascus, 4.9 mi upstream from Middle Fork, and at mile 77.2.

DRAINAGE AREA.--301 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306. Published as "at Vestal" prior to October 1978.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1932-33(M).

GAGE.--Water-stage recorder. Datum of gage is 1,792.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 2, 3, Jan. 22 to Feb. 22, and Feb. 27 to Apr. 5. Records good except those for periods of doubtful or no gage-height record, Jan. 2, 3, Jan. 31 to Feb. 22, and Feb. 27 to Apr. 5, and period with ice effect, Jan. 22-30, which are fair. Some diurnal fluctuation caused by powerplant upstream from station. Tennessee Valley Authority gage-height radio transmitter at station, receiver and recorder at Kingsport, TN.

AVERAGE DISCHARGE.--54 years, 478 ft<sup>3</sup>/s, 21.57 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft<sup>3</sup>/s, Apr. 5, 1977, gage height, 17.11 ft, from rating curve extended above 10,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 30 ft<sup>3</sup>/s, Oct. 14, 1941, Dec. 24, 1943, gage height, 2.16 ft; minimum daily, 40 ft<sup>3</sup>/s, Dec. 27, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	Unknown	*3,970	*8.13	July 27	2100	3,750	7.93

Minimum daily discharge, 97 ft<sup>3</sup>/s, Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	202	106	298	479	1800	900	340	325	329	148	466	179
2	139	106	244	650	3300	750	325	307	307	147	696	165
3	119	106	224	1200	3000	650	310	391	292	174	493	155
4	109	104	200	1530	1900	580	300	351	265	177	377	150
5	104	126	193	1430	1200	540	290	327	246	155	310	145
6	102	159	270	1010	900	480	417	303	252	200	280	142
7	100	130	234	788	680	430	419	283	244	172	271	145
8	102	116	224	634	580	400	483	262	263	145	258	137
9	105	111	217	521	520	430	474	242	224	132	227	132
10	107	112	219	449	510	390	455	232	200	129	214	130
11	103	307	271	414	500	400	438	226	200	167	190	127
12	99	199	271	363	780	420	414	247	301	133	176	123
13	98	155	264	319	600	390	390	214	271	212	179	124
14	97	136	245	304	520	380	374	204	220	214	162	119
15	99	127	226	288	450	360	366	233	196	152	148	113
16	105	125	213	254	420	350	419	320	223	372	222	112
17	103	121	203	284	390	340	444	379	264	214	479	109
18	101	117	196	262	370	330	397	528	272	165	783	106
19	99	201	202	250	380	320	366	441	244	142	501	103
20	98	200	370	216	400	300	345	362	213	134	381	101
21	98	161	375	153	450	290	333	315	194	124	319	101
22	104	143	449	170	520	300	307	299	179	187	274	100
23	135	135	450	200	681	330	290	1750	168	149	242	99
24	132	131	399	170	910	370	278	1930	267	130	252	101
25	115	126	754	190	1020	400	276	2020	200	164	334	105
26	108	122	789	175	1200	440	254	1290	170	221	264	101
27	104	117	606	150	1100	420	247	858	158	1270	239	118
28	106	399	484	165	1000	400	362	638	147	1810	222	109
29	133	526	406	160	---	390	430	525	140	814	200	103
30	129	366	360	150	---	370	365	430	138	542	191	99
31	114	---	446	200	---	350	---	370	---	455	203	---
TOTAL	3469	5090	10302	13528	26081	13200	10908	16602	6787	9350	9553	3653
MEAN	112	170	332	436	931	426	364	536	226	302	308	122
MAX	202	526	789	1530	3300	900	483	2020	329	1810	783	179
MIN	97	104	193	150	370	290	247	204	138	124	148	99
CFSM	.37	.56	1.10	1.45	3.09	1.42	1.21	1.78	.75	1.00	1.02	.41
IN.	.43	.63	1.27	1.67	3.22	1.63	1.35	2.05	.84	1.16	1.18	.45
CAL YR 1984	TOTAL	180399	MEAN	493	MAX	9400	MIN	88	CFSM	1.64	IN.	22.30
WTR YR 1985	TOTAL	128523	MEAN	352	MAX	3300	MIN	97	CFSM	1.17	IN.	15.88

## TENNESSEE RIVER BASIN

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03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1949 to September 1950, October 1967 to September 1973.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM)	PH (STAND- ARD UNITS)	PH LAB (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)
OCT 03...	10:15	122	205	196	8.1	7.6	10.0	718	2	9.1
NOV 15...	11:15	128	185	185	7.8	7.6	6.5	718	6	11.6
JAN 03...	09:55	878	92	95	7.5	7.4	7.5	722	5	10.8
FEB 22...	08:30	501	130	138	7.5	7.3	5.5	725	10	12.8
APR 05...	10:00	328	122	125	7.9	7.4	13.0	709	5	10.4
MAY 16...	08:00	338	130	132	7.6	7.2	16.0	714	30	8.4
JUL 03...	10:30	179	145	144	8.1	7.8	17.0	718	10	9.1
AUG 16...	10:00	235	148	148	8.1	7.8	21.0	717	15	8.2

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT 03...	86	86	86	22	7.6	5.8	1.9	79	16
NOV 15...	100	88	88	23	7.4	3.3	1.5	82	9.3
JAN 03...	95	39	39	10	3.5	1.6	1.1	36	5.3
FEB 22...	107	58	58	15	5.0	3.2	1.6	53	6.6
APR 05...	106	51	51	13	4.4	4.1	1.5	46	10
MAY 16...	91	56	56	14	5.0	3.3	1.9	52	7.7
JUL 03...	100	68	68	17	6.3	1.7	1.4	66	4.5
AUG 16...	98	63	63	16	5.7	4.1	1.6	66	9.2

## TENNESSEE RIVER BASIN

03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 03...	4.6	<0.1	6.4	98	110	<0.01	0.33	0.02	23
NOV 15...	3.0	<0.1	6.1	94	100	<0.01	0.44	<0.01	23
JAN 03...	2.3	<0.1	5.9	54	51	0.01	0.52	0.04	31
FEB 22...	4.9	<0.1	5.4	77	74	<0.01	0.74	0.05	15
APR 05...	3.3	0.1	4.4	68	68	0.01	0.28	<0.01	16
MAY 16...	3.3	<0.1	6.0	78	73	<0.01	0.50	0.03	41
JUL 03...	1.9	<0.1	5.7	85	78	<0.01	0.42	<0.01	16
AUG 16...	2.7	<0.1	5.1	87	84	<0.01	0.43	<0.01	29

03475000 MIDDLE FORK HOLSTON RIVER NEAR MEADOWVIEW, VA

LOCATION.--Lat 36°42'47", long 81°49'08", Washington County, Hydrologic Unit 06010102, on left bank 48 ft downstream from bridge on State Highway 803, 0.9 mi upstream from Cedar Creek, 4.1 mi southeast of Meadowview, and at mile 13.2.

DRAINAGE AREA.--211 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1931 to September 1953, May 1976 to current year. Monthly discharge only for October 1931, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1276: 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,820.22 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-30. Records good. Prior to 1954, flow regulated by powerplant 0.9 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--31 years, 241 ft<sup>3</sup>/s, 15.51 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft<sup>3</sup>/s, Nov. 7, 1977, gage height, 13.41 ft; minimum, 6 ft<sup>3</sup>/s, Nov. 10, 1933, Dec. 4, 1936, Jan. 21, 22, Feb. 1, 1940, Jan. 8, 1942, Oct. 15, 16, 31, 1943; minimum daily, 7 ft<sup>3</sup>/s, Nov. 19, 1950.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of 11.8 ft, from floodmark, discharge, 10,000 ft<sup>3</sup>/s, and flood of Dec. 10, 1972, reached a stage of 11.0 ft, from floodmark, discharge, 8,540 ft<sup>3</sup>/s, from information by Tennessee Valley Authority. Flood of Mar. 30, 1975, reached a stage of 10.37 ft, discharge, 7,410 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	2200	*3,690	*7.66	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 49 ft<sup>3</sup>/s, Sept. 25, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	67	107	582	1690	392	201	118	120	72	126	72
2	87	83	94	460	2450	342	188	117	112	78	173	68
3	71	82	88	552	1200	298	182	129	113	85	131	66
4	66	83	82	936	694	266	176	125	105	97	107	65
5	64	83	81	965	511	258	167	115	99	82	96	63
6	62	69	97	554	447	238	185	111	113	81	94	63
7	61	62	97	395	385	217	184	108	111	80	97	67
8	61	56	88	315	323	208	277	105	102	73	110	61
9	65	56	85	258	287	247	282	101	96	70	99	62
10	64	59	85	222	268	256	253	102	91	70	89	61
11	61	116	92	203	252	249	232	108	86	72	83	60
12	61	92	96	184	303	249	214	120	107	69	78	59
13	59	71	93	165	273	231	198	111	110	67	75	57
14	59	64	87	155	247	218	188	103	91	113	74	56
15	59	60	81	150	232	209	182	104	84	84	71	55
16	60	59	78	154	214	196	212	158	90	125	74	54
17	60	58	77	140	206	189	224	141	141	87	120	52
18	60	57	76	137	196	183	198	136	125	74	199	51
19	57	101	80	131	203	174	184	126	102	69	170	50
20	58	112	111	126	240	167	174	114	92	67	122	50
21	58	81	108	90	377	162	166	107	86	64	102	50
22	62	70	114	100	524	170	156	103	81	67	91	50
23	77	65	128	110	639	189	147	195	78	66	85	50
24	72	62	121	95	704	217	142	478	102	63	87	51
25	68	60	248	105	634	315	140	733	80	70	112	49
26	62	58	305	100	734	270	133	398	76	90	110	50
27	58	57	203	85	631	234	129	263	72	198	93	58
28	58	96	160	95	474	217	146	205	70	222	86	61
29	65	214	137	90	---	206	138	175	68	140	80	53
30	69	131	127	85	---	191	125	148	69	117	75	49
31	62	---	413	141	---	182	---	131	---	111	75	---
TOTAL	2007	2384	3839	7880	15338	7140	5523	5288	2872	2823	3184	1713
MEAN	64.7	79.5	124	254	548	230	184	171	95.7	91.1	103	57.1
MAX	101	214	413	965	2450	392	282	733	141	222	199	72
MIN	57	56	76	85	196	162	125	101	68	63	71	49
CFSM	.31	.38	.59	1.20	2.60	1.09	.87	.81	.45	.43	.49	.27
IN.	.35	.42	.68	1.39	2.70	1.26	.97	.93	.51	.50	.56	.30
CAL YR 1984	TOTAL	91674	MEAN	250	MAX	4100	MIN	56	CFSM	1.18	IN.	16.16
WTR YR 1985	TOTAL	59991	MEAN	164	MAX	2450	MIN	49	CFSM	.78	IN.	10.58



## TENNESSEE RIVER BASIN

03478400 BEAVER CREEK AT BRISTOL, VA

LOCATION.--Lat 36°37'54", long 82°08'02", Bristol City, Hydrologic Unit 06010102, on right bank 50 ft upstream from bridge on State Highway 1405, 75 ft downstream from Goose Creek, 0.9 mi downstream from Clear Creek, 3.7 mi northeast of Bristol, VA post office, and at mile 20.6.

DRAINAGE AREA.--27.7 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1957 to current year. Published as "near Bristol" prior to October 1974.

GAGE.--Water-stage recorder. Datum of gage is 1,780.98 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Small diurnal fluctuation at low flow caused by withdrawal of water, which is returned to stream 600 ft upstream from station, for car-washing operation. Since September 1965, some regulation at high flow by flood-control reservoirs, capacity, 7,600 acre-ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--28 years, 35.3 ft<sup>3</sup>/s, 17.31 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,600 ft<sup>3</sup>/s, Oct. 2, 1977, gage height, 9.94 ft, from rating curve extended above 390 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 3.4 ft<sup>3</sup>/s, Dec. 30, 1963; minimum daily, 7.4 ft<sup>3</sup>/s, Sept. 28, 29, Oct. 5, 15, 18, 19, 23, 24, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1936 reached a stage of about 12 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 216 ft<sup>3</sup>/s, Feb. 1, gage height, 4.89 ft; minimum daily, 10 ft<sup>3</sup>/s, Nov. 14, July 14, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	12	12	21	157	37	22	17	15	13	38	12
2	45	12	12	37	136	36	21	18	16	15	27	12
3	31	11	12	36	87	35	20	19	16	14	21	12
4	14	12	11	44	66	34	20	17	16	13	19	12
5	13	13	12	42	59	33	21	16	15	12	17	12
6	13	12	14	35	55	31	23	16	15	12	17	12
7	13	12	13	31	51	31	22	16	17	11	17	11
8	13	11	12	29	45	30	22	16	16	11	16	11
9	13	11	12	27	42	31	21	16	15	11	15	11
10	12	13	12	25	40	29	20	16	14	12	15	11
11	12	16	12	25	39	29	20	16	15	13	13	11
12	12	12	12	23	45	28	20	16	20	11	13	11
13	12	11	12	22	39	26	19	16	16	11	13	12
14	12	10	11	22	37	26	19	15	15	10	13	12
15	12	11	11	21	35	26	20	15	14	14	12	12
16	12	11	11	20	34	25	20	16	14	27	13	12
17	12	11	11	20	33	25	19	17	14	14	28	12
18	12	11	11	20	32	24	18	16	17	12	22	12
19	11	22	13	19	35	23	17	14	14	12	17	11
20	12	14	15	19	39	23	17	14	13	12	16	12
21	11	12	13	18	42	23	17	14	13	12	15	11
22	12	11	15	18	42	24	16	15	13	13	14	11
23	13	11	13	18	42	24	16	28	13	12	14	11
24	14	11	13	17	41	26	17	33	12	11	16	12
25	13	11	25	17	41	24	17	26	12	13	16	11
26	13	11	18	16	44	23	16	21	12	20	14	12
27	13	11	16	16	40	22	18	19	12	39	14	11
28	14	20	14	16	38	22	23	19	11	24	13	11
29	13	15	13	16	---	22	20	18	11	20	13	11
30	13	13	13	15	---	22	18	17	15	17	14	10
31	12	---	24	20	---	22	---	16	---	17	13	---
TOTAL	456	374	418	725	1436	836	579	548	431	458	518	344
MEAN	14.7	12.5	13.5	23.4	51.3	27.0	19.3	17.7	14.4	14.8	16.7	11.5
MAX	45	22	25	44	157	37	23	33	20	39	38	12
MIN	11	10	11	15	32	22	16	14	11	10	12	10
CFSM	.53	.45	.49	.84	1.85	.97	.70	.64	.52	.53	.60	.42
IN.	.61	.50	.56	.97	1.93	1.12	.78	.74	.58	.62	.70	.46
CAL YR 1984	TOTAL	12927	MEAN	35.3	MAX	353	MIN	10	CFSM	1.27	IN.	17.36
WTR YR 1985	TOTAL	7123	MEAN	19.5	MAX	157	MIN	10	CFSM	.70	IN.	9.57

## 03488000 NORTH FORK HOLSTON RIVER NEAR SALTVILLE, VA

LOCATION.--Lat 36°53'48", long 81°44'47", Smyth County, Hydrologic Unit 06010101, on right bank 0.5 mi upstream from Cedar Branch bridge, 1.5 mi northeast of Saltville, 7.8 mi downstream from Laurel Creek, and at mile 85.0.

DRAINAGE AREA.--222 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1907 to December 1908 (published as "at Saltville"), October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1113: 1944-47. WSP 1306: 1907(M), 1921-22(M), 1924-30(M), 1932-34(M), drainage area at site used 1907-8. WSP 1726: 1947, monthly and yearly runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,703.53 ft above National Geodetic Vertical Datum of 1929. June 11, 1907, to Nov. 12, 1908, nonrecording gage on highway bridge 2.1 mi downstream at different datum. Nov. 2, 1920, to May 23, 1934, nonrecording gage on highway bridge 0.5 mi downstream at datum 7.74 ft lower.

REMARKS.--Estimated daily discharges: Jan. 20-30. Records fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--66 years, 300 ft<sup>3</sup>/s, 18.35 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft<sup>3</sup>/s, Jan. 29, 1957, gage height, 13.20 ft; maximum gage height, 13.57 ft, Nov. 6, 1977; minimum discharge, 1.0 ft<sup>3</sup>/s, Oct. 15, 16, 1947, gage height, 0.13 ft, flow retarded by mine cave-in; minimum daily, 2.0 ft<sup>3</sup>/s, Oct. 15, 1947.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	2035	*5,150	*7.25	No other peak equal to or greater than base discharge.			

Minimum discharge, 22 ft<sup>3</sup>/s, Sept. 23, gage height, 0.64 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	34	111	839	2570	482	254	112	150	53	315	65
2	55	32	85	808	3160	402	233	110	132	58	783	59
3	48	31	73	883	1430	336	222	130	130	61	321	53
4	39	32	63	1210	797	292	213	124	112	63	182	49
5	35	35	58	1250	560	271	198	109	106	58	124	45
6	32	39	68	693	489	241	220	104	186	53	102	42
7	31	42	65	476	420	210	229	100	153	51	100	40
8	29	39	67	362	340	200	293	94	126	48	297	40
9	31	36	64	283	284	283	323	88	112	45	243	38
10	34	37	66	234	270	313	299	84	96	43	152	38
11	32	82	81	205	252	307	281	84	234	46	112	39
12	31	98	112	179	300	307	267	84	262	52	87	36
13	34	70	108	142	280	277	250	79	269	51	72	33
14	30	53	92	140	280	252	236	73	189	99	62	32
15	31	45	78	141	240	235	225	69	144	65	54	31
16	32	42	71	118	211	213	348	131	130	58	59	29
17	32	40	65	141	195	202	380	183	124	49	117	28
18	33	39	61	117	165	192	309	304	111	43	386	27
19	33	114	65	109	182	176	266	301	99	38	437	26
20	33	192	73	90	224	164	235	199	89	35	286	26
21	34	116	83	80	341	157	212	150	81	33	198	25
22	37	80	98	85	529	174	192	127	74	31	147	24
23	41	63	140	100	806	241	174	532	70	31	115	24
24	43	54	147	90	1000	384	162	1480	66	31	103	25
25	42	49	268	95	936	617	155	1200	64	35	158	24
26	38	45	379	84	1060	464	143	634	60	47	149	26
27	36	42	252	75	864	376	131	414	55	77	116	26
28	37	81	184	80	623	331	145	305	50	94	97	31
29	37	210	147	78	---	295	146	269	47	77	84	33
30	35	154	125	76	---	258	123	210	46	60	75	28
31	36	---	608	205	---	235	---	172	---	58	70	---
TOTAL	1120	2026	3957	9468	18808	8887	6864	8055	3567	1643	5603	1042
MEAN	36.1	67.5	128	305	672	287	229	260	119	53.0	181	34.7
MAX	55	210	608	1250	3160	617	380	1480	269	99	783	65
MIN	29	31	58	75	165	157	123	69	46	31	54	24
CFSM	.16	.30	.58	1.37	3.03	1.29	1.03	1.17	.54	.24	.82	.16
IN.	.19	.34	.66	1.59	3.15	1.49	1.15	1.35	.60	.28	.94	.17
CAL YR 1984	TOTAL	103965	MEAN	284	MAX	5660	MIN	25	CFSM	1.28	IN.	17.42
WTR YR 1985	TOTAL	71040	MEAN	195	MAX	3160	MIN	24	CFSM	.88	IN.	11.90

## 03521500 CLINCH RIVER AT RICHLANDS, VA

LOCATION.--Lat 37°05'10", long 81°46'52", Tazewell County, Hydrologic Unit 06010205, on right bank 1.0 mi southeast of Richlands, 1.6 mi downstream from Middle Creek, 2.2 mi upstream from Big Creek, and at mile 321.0.

DRAINAGE AREA.--137 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 1306: 1946(M), 1948-50(M).

GAGE.--Water-stage recorder. Datum of gage is 1,924.08 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1950, nonrecording gage at bridge 1.1 mi downstream at datum 6.53 ft lower.

REMARKS.--Estimated daily discharges: Jan. 19-30. Records fair. Prior to October 1970, diurnal fluctuation at low flow caused by mill 1.7 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--40 years, 192 ft<sup>3</sup>/s, 19.03 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft<sup>3</sup>/s, Jan. 29, 1957, gage height, 19.3 ft, from floodmark, from rating curve extended above 4,900 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; minimum, 3.2 ft<sup>3</sup>/s, Sept. 8, 1955; minimum daily, 8.8 ft<sup>3</sup>/s, July 6, Sept. 10, 16, 1964; minimum gage height, 0.45 ft, July 2, 3, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1901, reached a stage of 21.3 ft, present site and datum, from floodmark, discharge, 11,500 ft<sup>3</sup>/s, from report by Tennessee Valley Authority. Flood of Feb. 18, 1944, reached a stage of 13.7 ft, present site and datum, from floodmark, discharge, 5,500 ft<sup>3</sup>/s, from report by Tennessee Valley Authority.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 1	0400	1,600	5.90	Feb. 1	1900	*3,680	*10.38

Minimum discharge, 14 ft<sup>3</sup>/s, Sept. 23, gage height, 0.69 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	35	135	395	2680	277	156	88	107	45	525	52
2	47	32	102	882	2090	239	136	89	103	46	612	44
3	35	30	87	832	1030	202	130	124	96	46	214	40
4	29	29	76	911	609	177	124	109	105	46	130	38
5	26	36	70	980	444	171	115	96	235	42	96	35
6	25	49	89	550	517	145	133	87	268	40	86	36
7	24	47	92	384	474	129	128	81	182	39	79	39
8	24	40	92	285	342	132	155	74	150	37	81	36
9	26	37	83	219	265	180	155	67	122	34	75	35
10	29	42	81	186	233	160	152	65	106	36	65	34
11	29	107	94	168	208	159	151	73	341	47	57	34
12	26	95	98	144	235	168	146	64	372	45	51	33
13	24	66	96	127	204	152	139	60	306	68	46	32
14	23	51	87	120	185	146	134	73	195	79	44	30
15	24	43	78	110	161	138	131	132	145	54	43	28
16	25	40	73	103	146	127	210	199	129	52	88	27
17	25	37	69	102	139	122	218	185	112	44	154	27
18	25	37	66	97	128	114	183	189	99	36	236	25
19	24	424	74	85	136	106	164	158	86	33	199	25
20	31	256	95	70	176	100	148	123	85	30	138	24
21	31	129	117	65	272	99	136	101	75	29	111	23
22	36	90	147	75	450	113	125	95	66	31	89	23
23	50	72	153	80	692	131	115	317	62	45	76	21
24	57	63	139	70	776	197	109	782	60	37	72	22
25	45	57	268	80	645	251	108	803	56	37	83	25
26	37	52	271	70	582	214	98	401	52	70	74	26
27	35	47	212	62	462	186	96	251	49	116	61	37
28	38	244	166	68	344	169	114	194	45	98	55	37
29	49	351	138	64	---	154	106	197	43	61	50	29
30	52	184	126	62	---	139	94	146	43	50	49	25
31	42	---	274	170	---	137	---	122	---	55	61	---
TOTAL	1042	2822	3748	7616	14625	4934	4109	5545	3895	1528	3800	942
MEAN	33.6	94.1	121	246	522	159	137	179	130	49.3	123	31.4
MAX	57	424	274	980	2680	277	218	803	372	116	612	52
MIN	23	29	66	62	128	99	94	60	43	29	43	21
CFSM	.25	.69	.88	1.80	3.81	1.16	1.00	1.31	.95	.36	.90	.23
IN.	.28	.77	1.02	2.07	3.97	1.34	1.12	1.51	1.06	.41	1.03	.26
CAL YR 1984	TOTAL	73352	MEAN	200	MAX	4360	MIN	21	CFSM	1.46	IN.	19.92
WTR YR 1985	TOTAL	54606	MEAN	150	MAX	2680	MIN	21	CFSM	1.09	IN.	14.83

## 03524000 CLINCH RIVER AT CLEVELAND, VA

LOCATION.--Lat 36°56'41", long 82°09'18", Russell County, Hydrologic Unit 06010205, on right bank 500 ft upstream from highway bridge at Cleveland, 0.5 mi downstream from Muddy Hollow, 2.3 mi downstream from Weaver Creek, 4.4 mi downstream from Thompson Creek, and at mile 271.6.

DRAINAGE AREA.--528 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1921-23(M), 1926(M), 1929-31(M). WSP 1706: 1927(M).

GAGE.--Water-stage recorder. Datum of gage is 1,500.24 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1931, nonrecording gage on highway bridge 500 ft downstream at datum 1.0 ft lower.

REMARKS.--Estimated daily discharges: Jan. 19-30. Records good. Tennessee Valley Authority gage-height Automatic Data Acquisition System at station, called at 6-hour intervals by computer at Knoxville, TN. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--65 years, 710 ft<sup>3</sup>/s, 18.26 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,500 ft<sup>3</sup>/s, Apr. 5, 1977, gage height, 26.40 ft; minimum, 35 ft<sup>3</sup>/s, Sept. 28, 1964; minimum gage height, 0.96 ft, Feb. 10, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 5,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 2	0130	*10,000	*13.66	No other peak equal to or greater than base discharge.			

Minimum discharge, 73 ft<sup>3</sup>/s, Oct. 16, gage height, 1.41 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	114	572	1330	5980	1070	537	292	376	173	842	191
2	130	106	416	2400	8150	933	511	279	333	182	2500	174
3	131	98	327	3020	3940	804	469	392	329	170	1150	156
4	112	94	275	2560	2370	700	448	427	294	181	652	143
5	99	95	241	3320	1730	656	421	368	308	168	447	136
6	90	110	259	2270	1710	596	461	326	1280	153	346	130
7	83	128	304	1610	1740	520	484	298	774	143	312	127
8	83	128	278	1260	1400	483	583	274	550	136	297	132
9	88	122	275	981	1110	588	614	251	440	136	270	127
10	93	111	258	790	963	644	581	233	359	129	258	141
11	110	164	276	691	849	601	556	223	723	145	224	164
12	96	274	315	601	909	619	538	229	1240	160	204	136
13	92	247	328	498	896	589	511	216	1280	149	184	122
14	86	182	304	454	743	540	487	201	786	249	169	115
15	82	149	271	430	678	512	471	197	549	241	154	110
16	81	135	244	341	594	473	497	394	444	233	183	104
17	82	121	227	377	577	444	595	525	479	175	598	101
18	82	114	217	360	527	427	559	476	384	156	878	97
19	82	877	226	300	546	394	501	448	327	132	814	96
20	95	1260	269	250	699	370	465	373	284	118	792	96
21	120	618	327	230	981	353	430	317	263	110	516	137
22	129	376	421	250	1380	369	401	306	236	109	392	125
23	140	272	501	280	1960	432	371	494	219	114	313	93
24	183	221	486	250	2180	564	349	1690	209	123	282	93
25	184	193	826	270	1980	844	337	1920	201	135	354	93
26	141	173	1100	240	1790	805	325	1410	183	193	316	96
27	119	159	868	210	1590	692	307	925	171	514	267	96
28	108	374	679	230	1290	627	345	681	158	575	226	100
29	115	1210	546	220	---	581	376	596	149	338	199	114
30	136	835	465	210	---	529	329	522	154	233	187	108
31	123	---	720	497	---	490	---	414	---	196	197	---
TOTAL	3407	9060	12821	26730	49262	18249	13859	15697	13482	5969	14523	3653
MEAN	110	302	414	862	1759	589	462	506	449	193	468	122
MAX	184	1260	1100	3320	8150	1070	614	1920	1280	575	2500	191
MIN	81	94	217	210	527	353	307	197	149	109	154	93
CFSM	.21	.57	.78	1.63	3.33	1.12	.87	.96	.85	.37	.89	.23
IN.	.24	.64	.90	1.88	3.47	1.29	.98	1.11	.95	.42	1.02	.26
CAL YR 1984	TOTAL	270040	MEAN	738	MAX	12700	MIN	70	CFSM	1.40	IN.	19.03
WTR YR 1985	TOTAL	186712	MEAN	512	MAX	8150	MIN	81	CFSM	.97	IN.	13.15



## 03528000 CLINCH RIVER ABOVE TAZEWEILL, TN

LOCATION.--Lat 36°25'30", long 83°23'54", Claiborne County, Hydrologic Unit 06010205, on right bank 0.4 mi upstream from Grissom Island, 4.6 mi downstream from Big War Creek, 10 mi east of Tazewell, and at mile 159.8.

DRAINAGE AREA.--1,474 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1918 to current year. Published as "near Lone Mountain" October 1918 to September 1927; as "near Tazewell" August 1927 to December 1936; and as "above Tazewell" July 1935 to current year. Prior to April 1919 monthly discharge only, published in WSP 1306. Gage-height record "near Tazewell" January 1937 to July 1941.

REVISED RECORDS.--WSP 803: Drainage area at site "near Tazewell". WSP 1306: Drainage area at site "near Lone Mountain". WSP 1336: 1928.

GAGE.--Water-stage recorder. Datum of gage is 1,060.7 ft above National Geodetic Vertical Datum of 1929. Apr. 1, 1919, to Sept. 30, 1927, nonrecording gage on railroad bridge 23.3 mi downstream at datum 102.7 ft lower. Aug. 8, 1927, to July 16, 1941, water-stage recorder at site 8.0 mi downstream at datum 47.2 ft lower. Water-stage recorder at present site and datum since July 29, 1935.

REMARKS.--Estimated daily discharges: Jan. 22-30. Records good.

AVERAGE DISCHARGE.--67 years, 2,089 ft<sup>3</sup>/s, 19.25 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,100 ft<sup>3</sup>/s, Apr. 5, 1977, gage height, 29.32 ft, from floodmarks; minimum, 108 ft<sup>3</sup>/s, Sept. 11, 1925; minimum gage height, at present site and datum, 0.33 ft, Sept. 20, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1862 reached a stage of about 24 ft, present site and datum, from information by local resident; discharge, about 66,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 14,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage Height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage Height (ft)
Feb. 2	2300	*22,500	*12.66	No other peak equal to or greater than base discharge.			

Minimum discharge, 195 ft<sup>3</sup>/s, Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	339	2060	2580	5560	3070	1460	1180	874	354	701	574
2	211	339	1550	4200	19100	2650	1520	1040	789	376	1770	543
3	234	321	1240	6180	19700	2320	1480	1030	808	433	4360	497
4	250	305	1030	6690	10300	2040	1390	1400	728	516	2640	452
5	253	304	884	6280	5920	1870	1300	1350	678	509	1590	412
6	248	320	902	6720	4760	1700	2180	1150	671	448	1120	385
7	232	325	1030	4990	4470	1540	2460	997	773	427	880	373
8	222	333	1070	3600	4170	1400	2360	891	1650	389	737	360
9	227	340	1020	2800	3450	1360	2370	803	1120	357	650	372
10	223	353	928	2250	2830	1340	2280	731	876	342	611	349
11	212	433	860	1900	2460	1420	2040	679	802	436	553	341
12	210	516	805	1650	3260	1430	1820	637	1190	397	535	367
13	208	539	773	1450	3820	1390	1650	640	2860	350	496	505
14	211	579	767	1280	3150	1370	1530	620	2540	359	477	396
15	215	578	752	1160	2600	1290	1450	588	1790	411	406	340
16	214	520	712	1070	2310	1220	1430	555	1270	358	377	311
17	212	493	668	988	2040	1160	1360	531	994	678	498	295
18	210	470	626	963	1910	1100	1290	695	902	696	1110	285
19	214	1080	616	950	1930	1040	1300	906	1100	492	1890	273
20	244	3620	645	876	2430	988	1200	842	905	390	1580	264
21	294	3060	869	670	3050	944	1120	776	743	343	1900	255
22	340	1830	1080	653	3580	948	1050	699	648	312	1400	250
23	532	1220	1450	653	4260	1040	987	676	583	317	1000	244
24	778	920	1680	674	5230	1290	937	757	552	296	826	242
25	784	752	1800	767	5480	1640	893	2260	564	298	943	242
26	707	646	2440	804	4900	1820	847	2960	508	274	1300	242
27	538	577	2720	782	4230	1890	816	2470	462	333	1240	241
28	443	1000	2240	752	3660	1720	836	1750	426	645	953	237
29	388	1640	1790	709	---	1580	1080	1330	391	1530	766	237
30	357	2170	1500	694	---	1460	1410	1120	365	1070	646	237
31	344	---	1400	749	---	1380	---	976	---	789	601	---
TOTAL	9952	25922	37907	66484	140560	47410	43846	33039	28562	14925	34556	10121
MEAN	321	864	1223	2145	5020	1529	1462	1066	952	481	1115	337
MAX	784	3620	2720	6720	19700	3070	2460	2960	2860	1530	4360	574
MIN	197	304	616	653	1910	944	816	531	365	274	377	237
CFSM	.22	.59	.83	1.46	3.41	1.04	.99	.72	.65	.33	.76	.23
IN.	.25	.65	.96	1.68	3.55	1.20	1.11	.83	.72	.38	.87	.26
CAL YR 1984	TOTAL	761710	MEAN	2081	MAX	39500	MIN	197	CFSM	1.41	IN.	19.22
WTR YR 1985	TOTAL	493284	MEAN	1351	MAX	19700	MIN	197	CFSM	.92	IN.	12.45

## 03531500 POWELL RIVER NEAR JONESVILLE, VA

LOCATION.--Lat 36°39'43", long 83°05'42", Lee County, Hydrologic Unit 06010206, on right bank 175 ft downstream from highway bridge, 2 mi southeast of Jonesville, 10 mi upstream from Wallen Creek, and at mile 143.1.

DRAINAGE AREA.--319 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1033: 1932-44. WSP 1436: 1946(M), 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 1,259.08 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-11 and July 23 to Aug. 14. Records good except those for periods of no gage-height record, Oct. 1-11 and July 23 to Aug. 14, which are fair. Tennessee Valley Authority gage-height Automatic Data Acquisition System at station, called at 6-hour intervals by computer at Knoxville, TN. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 538 ft<sup>3</sup>/s, 22.90 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft<sup>3</sup>/s, Apr. 5, 1977, gage height, 44.32 ft, from flood-mark, from rating curve extended above 20,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 17 ft<sup>3</sup>/s, Sept. 19, 20, 1954, and as result of storage behind temporary dam Oct. 18, 1961; minimum gage height, 0.68 ft, Oct. 18, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 5,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 19	1500	5,290	10.59	Feb. 1	2130	*5,640	*11.14

Minimum discharge, 40 ft<sup>3</sup>/s, Oct. 18, gage height, 1.16 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	112	643	1510	3390	754	519	526	230	89	300	156
2	450	104	481	1710	3920	664	467	450	206	100	900	111
3	170	100	409	1610	2100	566	439	562	281	140	400	93
4	75	102	351	1450	1380	504	418	477	250	172	300	85
5	58	112	306	1720	1090	478	393	396	204	151	240	79
6	52	149	379	1340	1180	425	945	345	201	123	200	77
7	48	159	413	1050	1100	377	1020	310	198	111	180	81
8	50	138	362	835	931	355	957	277	201	99	150	82
9	55	120	349	662	776	387	838	247	174	89	120	75
10	130	113	322	553	691	361	719	226	155	90	100	73
11	70	160	314	514	625	341	622	212	512	174	90	130
12	56	200	296	445	1510	379	544	205	803	156	82	129
13	49	181	277	380	1370	406	481	203	761	109	75	87
14	46	156	259	355	1020	377	443	208	473	88	70	76
15	47	142	235	345	855	363	420	199	328	81	66	72
16	44	171	219	287	707	340	435	202	255	88	69	70
17	43	199	209	307	635	326	384	233	211	155	390	66
18	42	179	205	299	564	315	345	387	303	93	868	64
19	45	3190	236	277	627	295	322	401	279	76	461	62
20	115	1950	551	257	898	278	309	289	205	68	279	65
21	290	862	641	181	1090	268	299	234	175	66	240	63
22	158	540	997	208	1240	290	286	205	151	64	185	63
23	443	399	1130	267	1610	426	278	293	136	66	148	60
24	1020	325	843	243	1930	510	271	600	137	70	138	59
25	419	274	1150	225	1730	602	266	576	146	80	268	77
26	239	237	1170	208	1370	556	246	476	136	250	248	96
27	170	210	922	208	1100	496	237	362	116	700	181	61
28	137	1100	715	196	888	460	440	291	105	350	145	65
29	126	1450	577	193	---	430	1030	249	98	250	121	61
30	153	852	488	182	---	389	724	220	93	150	112	52
31	132	---	831	304	---	372	---	196	---	120	155	---
TOTAL	5002	13986	16280	18321	36327	13090	15097	10057	7523	4418	7281	2390
MEAN	161	466	525	591	1297	422	503	324	251	143	235	79.7
MAX	1020	3190	1170	1720	3920	754	1030	600	803	700	900	156
MIN	42	100	205	181	564	268	237	196	93	64	66	52
CFSM	.50	1.46	1.65	1.85	4.07	1.32	1.58	1.02	.79	.45	.74	.25
IN.	.58	1.63	1.90	2.14	4.24	1.53	1.76	1.17	.88	.52	.85	.28
CAL YR 1984	TOTAL	199739	MEAN	546	MAX	10700	MIN	36	CFSM	1.71	IN.	23.29
WTR YR 1985	TOTAL	149772	MEAN	410	MAX	3920	MIN	42	CFSM	1.29	IN.	17.47

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to these events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at low-flow partial-record sites and at miscellaneous sites and for special studies are given in separate tables.

#### Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1985

Annual Maximum discharge at crest stage partial record stations during water year 1960-1985					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
POTOMAC RIVER BASIN							
01622400	Buffalo Branch tributary near Christian, Va.	Lat 38°11'55", long 79°13'10", Augusta County, at culvert on State Highway 42, 1.3 mi north of Christian. Datum of gage is 1,622.53 ft above National Geodetic Vertical Datum of 1929.	0.49	1967-85	-	<2.77	(*)
01629945	Chub Run near Stanley, Va.	Lat 38°34'31", long 78°27'32", Page County, at culvert on State Highway 689, 2.2 mi east of Stanley. Datum of gage is 1,023.05 ft above National Geodetic Vertical Datum of 1929.	3.16	1959-69a, 1970-85	2- 4-85	4.19	428
01632970	Crooked Run near Mt. Jackson, Va.	Lat 38°45'44", long 78°41'06", Shenandoah County, at culvert on State Highway 263, 2.3 mi west of Mt. Jackson. Datum of gage is 962.84 ft above National Geodetic Vertical Datum of 1929.	6.49	1972-85	2-12-85	5.80	1,070
01633650	Pughs Run near Woodstock, Va.	Lat 38°55'48", long 78°32'43", Shenandoah County, at culvert on State Highway 623, 4.0 mi northeast of Woodstock. Datum of gage is 1,027.27 ft above National Geodetic Vertical Datum of 1929.	3.66	1972-85	2-12-85	5.37	155
01652500	Fourmile Run at Alexandria, Va.	Lat 38°50'35", long 77°05'09", Arlington County, at upstream side of bridge on Shirlington Road, at Arlington County-Alexandria City line, 0.1 mi upstream from Interstate Highway 95, and 2.5 mi upstream from mouth. Datum of gage is 28.57 ft above National Geodetic Vertical Datum of 1929.	13.8	1951-69*, 1970-73, 1974-75*, 1976-77b, 1979-82*, 1983-85	9-10-85	10.36	4,480

\* Discharge not determined.

† Operated as a continuous-record gaging station.

< Less than.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

b Prior to Sept. 28, 1973, at site 0.4 mi downstream at datum 6.02 ft lower.

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

Annual Maximum Discharge at Crest-Stage Partial-Record Stations during Year 1985					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
POTOMAC RIVER BASIN--Continued							
01653000	Cameron Run at Alexandria, Va.	Lat 38°48'23", long 77°06'36", Fairfax County, at left downstream side of Southern Railway bridge, at Alexandria, and 800 ft downstream from confluence of Holmes Run and Backlick Run. Datum of gage is 31.07 ft above National Geodetic Vertical Datum of 1929.	33.7	1955-80*, 1981-85	11- 5-84	6.40	3,950
01656200	Broad Run near Warrenton, Va.	Lat 38°48'25", long 77°48'47", Fauquier County, at culvert on State Highway 17, 7 mi north of Warrenton.	2.94	1950-78, 1983-85	2-12-85	(c)	(*)
GREAT WICOMICO RIVER BASIN							
01661600	Great Wicomico River near Horse Head, Va.	Lat 37°53'15", long 76°27'00", Northumberland County, at culvert on State Highway 604, 1.7 mi west of Horse Head.	6.98	1969-85	9-26-85	5.04	710
RAPPAHANNOCK RIVER BASIN							
01661900	Carter Run near Marshall, Va.	Lat 38°47'57", long 77°52'09", Fauquier County, on left bank 50 ft upstream from farm road, 1.2 mi downstream from Horner Run, 4.7 mi south of Marshall, 6.7 mi southwest of The Plains, and 9 mi upstream from mouth. Datum of gage is 388.39 ft above National Geodetic Vertical Datum of 1929.	19.5	1976-82*, 1983-85	2-12-85	6.21	970
01665050	Pony Mountain Branch near Culpeper, Va.	Lat 38°27'04", long 77°57'24", Culpeper County, at culvert on State Highway 3, 2.7 mi southeast of Culpeper.	.30	1958-69a, 1970-85	6-20-85	2.28	92
01668300	Farmers Hall Creek near Champlain, Va.	Lat 38°00'05", long 76°58'40", Essex County, at culvert on U.S. Highway 17, 1.2 mi southeast of Champlain. Datum of gage is 42.10 ft above National Geodetic Vertical Datum of 1929.	2.18	1966-85	8-18-85	6.71	150
PIANKATANK RIVER BASIN							
01669800	My Ladys Swamp near Saluda, Va.	Lat 37°34'34", long 76°31'30", Middlesex County, at culvert on State Highway 629, 4.4 mi southeast of Saluda. Datum of gage is 4.16 ft above National Geodetic Vertical Datum of 1929.	4.81	1969-85	1- 2-85	8.38	592
YORK RIVER BASIN							
01671615	Foster Creek near Ferncliff, Va.	Lat 37°57'35", long 78°11'20", Louisa County, at culvert on U.S. Highway 250, 4.6 mi northwest of Ferncliff. Datum of gage is 424.22 ft above National Geodetic Vertical Datum of 1929.	.61	1960-68a, 1969-85	8-18-85	9.04	(*)

\* Discharge not determined.

† Operated as a continuous-record gaging station.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

c Gage height unknown.



Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

Annual maximum discharge at crest-stage partial-record stations during year 1983--Continued					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
YORK RIVER BASIN--Continued							
01671650	Waldrop Creek near Louisa, Va.	Lat 38°00'08", long 78°04'22", Louisa County, at culvert on State Highway 632, 4.2 mi southwest of Louisa. Datum of gage is 361.41 ft above National Geodetic Vertical Datum of 1929.	2.85	1969-85	8-18-85	9.01	581
01671750	Harris Creek near Trevilians, Va.	Lat 38°01'02", long 78°03'06", Louisa County, at culvert on State Highway 632, 2.7 mi southeast of Trevilians.	3.31	1969-85	8-18-85	7.07	714
01674200	Reedy Creek near Dawn, Va.	Lat 37°52'55", long 77°21'35", Caroline County, at bridge on U.S. Highway 301, 3.3 mi north of Dawn.	16.8	1950-69, 1972-85	8-18-85	3.66	105
01674700	Aylett Creek at Aylett, Va.	Lat 37°47'05", long 77°06'23", King William County, at culvert on U.S. Highway 360 at Aylett. Datum of gage is 26.72 ft above National Geodetic Vertical Datum of 1929.	6.17	1969-85	8-18-85	3.14	(*)
JAMES RIVER BASIN							
02012950	Sweet Springs Creek tributary at Sweet Chalybeate, Va.	Lat 37°39'25", long 80°14'10", Alleghany County, at culvert on State Highway 311, 0.9 mi north of Sweet Chalybeate. Datum of gage is 1,926.94 ft above National Geodetic Vertical Datum of 1929.	.66	1966-75, 1978-85	2- 2-85	4.33	43
02015600	Cowpasture River near Head Waters, Va.	Lat 38°19'30", long 79°26'14", Augusta County, at bridge on U.S. Highway 250, 1.2 mi west of Head Waters. Datum of gage is 1,985.65 ft above National Geodetic Vertical Datum of 1929.	11.3	1949-85	5- 3-85	3.74	228
02017300	Craig Creek at New Castle, Va.	Lat 37°30'06", long 80°06'18", Craig County, at bridge on State Highway 616, at New Castle. Datum of gage is 1,245.69 ft above National Geodetic Vertical Datum of 1929.	112	1967-85	8-18-85	11.93	5,500
02017700	Craig Creek tributary near New Castle, Va.	Lat 37°33'21", long 79°59'52", Craig County, at culvert on State Highway 606, 7.1 mi northeast of New Castle.	2.05	1968-85	2- 2-85	3.46	53
02018800	North Fork near Fincastle, Va.	Lat 37°32'07", long 79°56'03", Botetourt County, at culvert on State Highway 606, 3.9 mi northwest of Fincastle. Datum of gage is 1,248.65 ft above National Geodetic Vertical Datum of 1929.	4.17	1968-85	2- 2-85	3.89	126
02020100	Renick Run near Buchanan, Va.	Lat 37°35'27", long 79°38'04", Botetourt County, at culvert on Frontage Road of Interstate Highway 81, 4.8 mi northeast of Buchanan. Datum of gage is 1,261.85 ft above National Geodetic Vertical Datum of 1929.	2.06	1967-85	8-18-85	3.13	113

\* Discharge not determined.

## Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

Annual Maximum Discharge at Crest-Stage Partial-Record Stations during Water Year 1985--Continued					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued							
02021700	Cedar Grove Branch near Rockbridge Baths, Va.	Lat 37°53'00", long 79°23'10", Rockbridge County, at culvert on State Highway 39, 1.8 mi southeast of Rockbridge Baths. Datum of gage is 1,041.22 ft above National Geodetic Vertical Datum of 1929.	12.3	1967-85	6-10-85	5.57	217
02023300	South River near Steeles Tavern, Va.	Lat 37°55'50", long 79°09'55", Augusta County, at bridge on State Highway 608, 3 mi east of Steeles Tavern.	15.7	1951-85	11-28-84	3.73	715
02027700	Buffalo River tributary near Amherst, Va.	Lat 37°33'45", long 78°57'35", Amherst County, at culvert on U.S. Highway 60, 5.2 mi south-east of Amherst. Datum of gage is 583.66 ft above National Geodetic Vertical Datum of 1929.	.46	1966-85	8-18-85	(c)	(*)
02030800	Stockton Creek near Afton, Va.	Lat 38°01'48", long 78°48'30", Albemarle County, at culvert on State Highway 6, 1.7 mi east of Afton. Datum of gage is 835.27 ft above National Geodetic Vertical Datum of 1929.	2.80	1967-85	8-19-85	4.50	68
02032200	Doyles River near White Hall, Va.	Lat 38°12'10", long 78°40'17", Albemarle County, at bridge on State Highway 810, 5.9 mi north of White Hall. Datum of gage is 928.08 ft above National Geodetic Vertical Datum of 1929.	6.70	1967-85	-	<10.10	(*)
02032300	Muddy Run near Stanardsville, Va.	Lat 38°14'05", long 78°37'02", Albemarle County, at bridge on State Highway 810, 11 mi southwest of Stanardsville. Datum of gage is 756.79 ft above National Geodetic Vertical Datum of 1929.	3.36	1967-85	2-12-85	6.39	(*)
02032540	Haneytown Creek near Stanardsville, Va.	Lat 38°16'48", long 78°30'50", Greene County, at bridge on State Highway 810, 4.5 mi west of Stanardsville. Datum of gage is 616.34 ft above National Geodetic Vertical Datum of 1929.	4.45	1967-85	-	<12.33	(*)
02032550	Lynch River at Nortonsville, Va.	Lat 38°14'16", long 78°32'32", Albemarle County, at bridge on State Highway 810, 7 mi southwest of Stanardsville. Datum of gage is 591.70 ft above National Geodetic Vertical Datum of 1929.	13.6	1967-85	-	<12.01	(*)
02032700	Schenks Branch at Charlottesville, Va.	Lat 38°02'32", long 78°28'30", Charlottesville City, at bridge just upstream from U.S. Highway 250 bypass. Datum of gage is 371.63 ft above National Geodetic Vertical Datum of 1929.	1.34	1950-77, 1979-85	5-23-85	4.96	284
02033300	Moore's Creek near Charlottesville, Va.	Lat 38°00'25", long 78°34'25", Albemarle County, at culvert on access road, 150 ft north of U.S. Highway 29, and 4 mi southwest of Charlottesville.	3.52	1967-77, 1979-85	-	<13.81	(*)

\* Discharge not determined.

&lt; Less than.

c Gage height unknown.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued							
02037800	Falling Creek near Midlothian, Va.	Lat 37°27'15", long 77°35'20", Chesterfield County, at bridge on State Highway 653, 4 mi southeast of Midlothian. Datum of gage is 170.06 ft above National Geodetic Vertical Datum of 1929.	18.1	1951-85	8-18-85	7.23	919
02040500	Flat Creek near Amelia, Va.	Lat 37°23'27", long 78°03'45", Amelia County, at bridge on State Highway 681, 6.0 mi northwest of Amelia.	73.0	1946-70, 1972-85	2- 1-85	6.80	788
02042250	Bailey Branch tributary at Spring Grove, Va.	Lat 37°10'29", long 76°59'13", Surry County, at culvert on State Highway 10, 1.0 mi northwest of Spring Grove. Datum of gage is 61.39 ft above National Geodetic Vertical Datum of 1929.	.71	1967-85	9-27-85	5.73	203
02042300	Horsepen Branch at Richmond, Va.	Lat 37°35'45", long 77°30'40", Henrico County, at culvert on U.S. Highway 250 (Broad Street), at Richmond.	1.35	1965-85	8-18-85	7.50	2,700
02042400	Jordans Branch at Richmond, Va.	Lat 37°35'10", long 77°29'55", Henrico County, at bridge on U.S. Highway 250 (Broad Street), at Richmond.	2.41	1965-85	8-18-85	12.44	(*)
02042780	West Branch Long Hill Swamp near Lightfoot, Va.	Lat 37°18'50", long 77°46'01", James City County, at culvert on State Highway 612, 2.0 mi south of Lightfoot.	2.47	1970-76, 1978-85	9-26-85	4.54	163
CHOWAN RIVER BASIN							
02044200	Falls Creek tributary near Victoria, Va.	Lat 37°02'04", long 78°10'26", Lunenburg County, at culvert on State Highway 49, 3.6 mi northeast of Victoria.	.34	1962-85	2- 1-85	3.20	27
02050050	Blackwater River tributary near Holland, Va.	Lat 36°38'44", long 76°51'29", Nansemond County, at culvert on State Highway 189, 4.9 mi southwest of Holland. Datum of gage is 29.25 ft above National Geodetic Vertical Datum of 1929.	2.76	1967-85	9-26-85	6.78	289
ROANOKE RIVER BASIN							
02057700	Powder Mill Creek at Rocky Mount, Va.	Lat 37°00'26", long 79°52'25", Franklin County, at culvert on U.S. Highway 220 bypass at Rocky Mount.	.64	1967-85	8-18-85	14.38	107
02065100	Snake Creek near Brookneal, Va.	Lat 37°00'42", long 78°57'52", Halifax County, at culvert on U.S. Highway 501, 2.1 mi south of Brookneal.	1.68	1967-85	8-18-85	(d)	(*)
02065300	Right Hand Fork near Appomattox, Va.	Lat 37°16'12", long 78°49'14", Appomattox County, at culvert on State Highway 727, 5.2 mi south of Appomattox.	2.08	1967-85	8-18-85	4.31	84

\* Discharge not determined.

d Gage height unknown. High-water mark destroyed by flood of Nov. 4, 1985.

## Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

Annual Maximum discharge at crest-stage partial-record stations during water year 1983--Continued					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
ROANOKE RIVER BASIN--Continued							
02075350	Powells Creek near Turbeville, Va.	Lat 36°34'50", long 79°11'20", Halifax County, at culvert on U.S. Highway 58, 8.8 mi south-west of Turbeville. Datum of gage is 383.95 ft above National Geodetic Vertical Datum of 1929.	0.28	1958-69a, 1970-85	8-18-85	5.51	261
02076000	Dan River at South Boston, Va.	Lat 36°41'37", long 78°54'09", South Boston City, on left bank 100 ft upstream from Norfolk and Western Railroad bridge at South Boston.	2,730	1900-07†, 1923-52†, 1953-62f, 1980-85f	8-21-85	26.36	(*)
02076200	Bearskin Creek near Chatham, Va.	Lat 36°50'30", long 79°29'05", Pittsylvania County, at culvert on State Highway 57, 4.5 mi west of Chatham.	4.06	1967-85	8-18-85	(d)	(*)
02076700	Blacks Creek near Mt. Airy, Va.	Lat 36°56'40", long 79°09'56", Pittsylvania County, at culvert on State Highway 40, 1.5 mi east of Mt. Airy.	3.44	1966-85	8-18-85	(d)	(*)
KANAWHA RIVER BASIN							
03165700	Cripple Creek at Cedar Springs, Va.	Lat 36°49'31", long 81°16'45", Wythe County, at bridge on State Highway 749, 0.6 mi southeast of Cedar Springs.	11.3	1967-85	-	<13.88	<344
03167300	Mira Fork tributary near Dugspur, Va.	Lat 36°50'16", long 80°35'47", Carroll County, at culvert on U.S. Highway 221, 2.2 mi northeast of Dugspur. Datum of gage is 2,602.96 ft above National Geodetic Vertical Datum of 1929.	.62	1967-85	-	<2.79	<44
03167700	Beaverdam Creek at Hillsville, Va.	Lat 36°46'05", long 80°43'33", Carroll County, at culvert on State Highway 1009, 0.2 mi east of Hillsville corporate limits. Datum of gage is 2,373.04 ft above National Geodetic Vertical Datum of 1929.	4.75	1968-85	2- 2-85	3.20	160
03168750	Thorne Springs Branch near Dublin, Va.	Lat 37°05'30", long 80°44'34", Pulaski County, at pond dam just upstream from U.S. Highway 11, 3.3 mi southwest of Dublin.	4.77	1957-69a, 1970-85	2- 2-85	.57	4.7
BIG SANDY RIVER BASIN							
03208040	Russell Fork at Council, Va.	Lat 37°04'41", long 82°03'56", Buchanan County, on left bank 50 ft upstream from bridge on State Highway 80, 750 ft downstream from Ball Creek, 0.6 mi southeast of Council, and 4.7 mi upstream from Hurricane Creek.	10.2	1981-83†, 1984-85	2- 1-85	(c)	(*)

\* Discharge not determined.

† Operated as a continuous-record gaging station.

&lt; Less than.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

c Gage height unknown.

d Gage height unknown. High-water mark destroyed by flood of Nov. 4, 1985.

f Operated as a stage-only station.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

Annual Maximum Discharge at Crest-Stage Partial-Record Stations during water year 1985--Continued					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
BIG SANDY RIVER BASIN--Continued							
03208100	Russell Fork at Birchleaf, Va.	Lat 37°09'50", long 82°15'20", Dickenson County, on right bank 125 ft upstream from bridge on State Highway 80, 150 ft upstream from Fryingpan Creek, and 1.3 mi southeast of Birchleaf.	87.4	1981-83†, 1984-85	2- 1-85	9.15	3,730
03208800	Pound River above Indian Creek at Pound, Va.	Lat 37°07'26", long 82°36'29", Wise County, on left bank at Pound, 1,600 ft downstream from confluence of North and South Forks, 0.5 mi upstream from U.S. Highway 23, and 0.7 mi upstream from Indian Creek. Datum of gage is 1,535.64 ft above National Geodetic Vertical Datum of 1929.	36.7	1966-78†, 1979-85	2- 1-85	6.46	466
03208850	Pound River below Bold Camp Creek, at Pound, Va.	Lat 37°07'19", long 82°35'55", Wise County, on left bank at Pound, 1,000 ft upstream from State Highway 83, 0.3 mi downstream from Bold Camp Creek, and 0.5 mi downstream from Indian Creek. Datum of gage is 1,527.36 ft above National Geodetic Vertical Datum of 1929.	61.2	1966-78†, 1979-85	2- 1-85	11.18	1,150
03208900	Pound River near Georges Fork, Va.	Lat 37°09'51", long 82°31'30", Dickenson County, on right bank 50 ft upstream from bridge on State Highway 624, 150 ft upstream from Camp Creek, and 2.6 mi northwest of Georges Fork. Datum of gage is 1,470.39 ft above National Geodetic Vertical Datum of 1929.	82.5	1964-82†, 1983-85	2- 1-85	6.42	1,270
03209200	Russell Fork at Bartlick, Va.	Lat 37°14'45", long 82°19'25", Dickenson County, on left bank at Bartlick, just upstream from bridge on State Highway 611, and 0.2 mi downstream from Pound River. Datum of gage is 1,165.00 ft above National Geodetic Vertical Datum of 1929.	526	1963-82†, 1983-85	2- 1-85	13.65	6,530
03213590	Knox Creek at Kelsa, Va.	Lat 37°27'02", long 82°03'34", Buchanan County, on left bank at bridge on State Highway 697, 0.3 mi downstream from Pawpaw Creek, and 0.8 mi northeast of Kelsa.	84.3	1980-81†, 1982-85	2- 1-85	7.86	2,040
TENNESSEE RIVER BASIN							
03471200	South Fork Holston River at Teas, Va.	Lat 36°46'22", long 81°27'05", Smyth County, at bridge on State Highway 601, at Teas. Datum of gage is 2,496.98 ft above National Geodetic Vertical Datum of 1929.	31.1	1967-85	-	<10.88	<20

† Operated as a continuous-record gaging station.  
 < Less than.

## Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued							
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Annual Maximum		
					Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
TENNESSEE RIVER BASIN--Continued							
03472500	Beaverdam Creek at Damascus, Va.	Lat 36°37'40", long 81°47'28", Washington County, at Damascus, 0.6 mi upstream from mouth. Datum of gage is 1,946.66 ft above National Geodetic Vertical Datum of 1929.	56.0	1948-59†, 1960-85	2- 1-85	3.60	1,300
03473500	Middle Fork Holston River at Groseclose, Va.	Lat 36°53'19", long 81°20'51", Smyth County, 10 ft downstream from bridge on State Highway 679, at Groseclose. Datum of gage is 2,442.86 ft above National Geodetic Vertical Datum of 1929.	7.39	1948-57†, 1958-85	2- 1-85	2.51	34
03474000	Middle Fork Holston River at Seven Mile Ford, Va.	Lat 36°48'26", long 81°37'20", Smyth County, on right bank at downstream side of bridge on U.S. Highway 11, at Seven Mile Ford, and 0.3 mi upstream from Meade Creek. Datum of gage is 1,960.00 ft above National Geodetic Vertical Datum of 1929.	132	1942-81†, 1982-85e	2- 1-85	3.61	2,100
03474700	Hutton Creek near Chilhowie, Va.	Lat 36°47'00", long 81°44'05", Washington County, at bridge on U.S. Highway 11, 3.3 mi southwest of Chilhowie.	8.32	1967-85	2- 1-85	10.86	262
03474800	Hall Creek near Glade Spring, Va.	Lat 36°45'47", long 81°48'15", Washington County, at bridge on U.S. Highway 11, 2.5 mi south of Glade Spring.	7.90	1967-85	-	<9.60	<200
03475600	Cedar Creek near Meadowview, Va.	Lat 36°44'50", long 81°51'20", Washington County, at culvert on U.S. Highway 11, 1.2 mi south of Meadowview. Datum of gage is 2,034.66 ft above National Geodetic Vertical Datum of 1929.	3.38	1967-85	2- 1-85	5.56	22
03465700	Spring Creek near Abingdon, Va.	Lat 36°40'43", long 82°02'29", Washington County, at culvert on U.S. Highway 11, 3.8 mi southwest of Abingdon. Datum of gage is 1,977.54 ft above National Geodetic Vertical Datum of 1929.	2.99	1967-85	7-28-85	3.07	46
03487800	Lick Creek near Chatham Hill, Va.	Lat 36°57'44", long 81°28'21", Smyth County, 270 ft upstream from bridge on State Highway 42, 2.9 mi east of Chatham Hill. Datum of gage is 2,076.97 ft above National Geodetic Vertical Datum of 1929.	25.5	1966-68†, 1969-85	2- 1-85	5.64	1,230
03488450	Brumley Creek at Brumley Gap, Va.	Lat 36°47'30", long 82°01'10", Washington County, on left bank 20 ft downstream from bridge on State Highway 611, 0.2 mi upstream from mouth, and 0.8 mi southeast of Brumley Gap. Datum of gage is 1,489.16 ft above National Geodetic Vertical Datum of 1929.	21.1	1979-81†, 1982-85	2- 2-85	5.12	768

† Operated as a continuous-record gaging station.

&lt; Less than.

e Records provided by Tennessee Valley Authority since Jan. 1, 1982.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

Annual maximum discharge at crest-stage partial-record stations during water year 1983--Continued					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi. <sup>2</sup> )	Period of record	Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
TENNESSEE RIVER BASIN--Continued							
03489800	Cove Creek near Shelleys, Va.	Lat 36°39'13", long 82°21'16", Scott County, at bridge on U.S. Highway 58, 2 mi north of Shelleys. Datum of gage is 1,381.53 ft above National Geodetic Vertical Datum of 1929.	17.3	1951-85	2- 1-85	6.04	940
03489870	Big Moccasin Creek at Collinwood, Va.	Lat 36°44'16", long 82°19'25", Russell County, at bridge on State Highway 612, at Collinwood. Datum of gage is 1,796.34 ft above National Geodetic Vertical Datum of 1929.	41.9	1967-68†, 1969-85	2- 1-85	5.04	2,130
03490000	North Fork Holston River near Gate City, Va.	Lat 36°36'31", long 82°34'05", Scott County, on left bank 75 ft upstream from bridge on U.S. Highway 23, 1.6 mi downstream from Big Moccasin Creek, and 2.1 mi southeast of Gate City. Datum of gage is 1,197.56 ft above National Geodetic Vertical Datum of 1929.	672	1931-81†, 1982-85e	2- 2-85	11.45	15,400
03524500	Guest River at Coeburn, Va.	Lat 36°55'45", long 82°27'23", Wise County, on right bank 30 ft downstream from bridge on State Highway 72, 1.0 mi southeast of Coeburn, and 6.3 mi upstream from mouth. Datum of gage is 1,925.80 ft above National Geodetic Vertical Datum of 1929.	87.3	1949-59†, 1960-78, 1979-81†, 1982-85	2- 1-85	6.65	1,590
03524900	Stony Creek at Ka, Va.	Lat 36°48'57", long 82°37'02", Scott County, on left bank along State Highway 619, at Ka, and 4.2 mi upstream from mouth.	30.9	1980-81†, 1982-85	-	<5.03	<1,450
03526000	Copper Creek near Gate City, Va.	Lat 36°40'26", long 82°33'57", Scott County, on right bank at upstream side of highway bridge, 2.6 mi northeast of Gate City. Datum of gage is 1,301.95 ft above National Geodetic Vertical Datum of 1929.	106	1948-72†, 1973-85	2- 2-85	9.65	2,910
03527000	Clinch River at Speers Ferry, Va.	Lat 36°38'55", long 82°45'02", Scott County, on right bank 200 ft downstream from bridge on U.S. Highway 58, 0.5 mi downstream from Copper Creek, and 0.8 mi northwest of Speers Ferry. Datum of gage is 1,196.52 ft above National Geodetic Vertical Datum of 1929.	1,126	1920-76†, 1977-78, 1979-81†, 1982-85	2- 2-85	18.11	18,700

† Operated as a continuous-record gaging station.

&lt; Less than.

e Records provided by Tennessee Valley Authority since Jan. 1, 1982.

## Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

Annual Maximum Discharge at Crest-Stage Partial-Record Stations during Water Year 1983--Continued							
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Annual Maximum		
					Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
TENNESSEE RIVER BASIN--Continued							
03529500	Powell River at Big Stone Gap, Va.	Lat 36°52'08", long 82°46'32", Wise County, on right bank 10 ft upstream from bridge on U.S. Highway 23, at Big Stone Gap, and 1.0 mi upstream from South Fork Powell River. Datum of gage is 1,459.07 ft above National Geodetic Vertical Datum of 1929.	112	1945-59†, 1960-77, 1979-81†, 1982-85	2- 1-85	4.71	2,240
03530500	North Fork Powell River at Pennington Gap, Va.	Lat 36°46'26", long 83°01'59", Lee County, near right bank on downstream side of bridge on State Highway 621, 0.8 mi north of Pennington Gap, and 4.7 mi upstream from mouth. Datum of gage is 1,363.02 ft above National Geodetic Vertical Datum of 1929.	71.4	1945-51†, 1952-77, 1979-81†, 1982-85	2- 1-85	5.35	1,700

† Operated as a continuous-record gaging station.



## Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. These measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream when continuous records are available, will give a picture of the low-flow potentiality of a stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1985						
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
POTOMAC RIVER BASIN						
01613570	Back Creek at Gainesboro, Va.	Lat 39°17'09", long 78°15'51", Frederick County, at bridge on State Highway 684, 0.25 mi upstream from Winchester and Western Railroad, and 0.7 mi northwest of Gainesboro.	34.4	1951-54, 1982-84	9- 9-85	3.24
01621000	Dry River at Rawley Springs, Va.	Lat 38°30'10", long 79°03'14", Rockingham County, at bridge on State Highway 847, at Rawley Springs, and 1.2 mi downstream from Harrisonburg Reservoir.	72.6	1946-48†, 1952-55, 1963, 1982-84	9-10-85	6.52
01622230	Middle River at Trimbles Mill, near Swoope, Va.	Lat 38°08'10", long 79°13'06", Augusta County, at bridge on State Highway 707, at Trimbles Mill, and 1.7 mi southwest of Swoope.	20.6	1982-84	9-11-85	4.60
01631500	North Fork Shenandoah River at Fulks Run, Va.	Lat 38°40'18", long 78°55'47", Rockingham County, at bridge on State Highway 917, 0.75 mi upstream from Little Dry River, and 0.8 mi northwest of old site of Fulks Run.	106	1952-54, 1982-84	9-10-85	1.46
01632840	Smith Creek near Lacey Spring, Va.	Lat 38°32'18", long 78°45'03", Rockingham County, at low-water culvert on State Highway 717, 0.4 mi upstream from Dry Fork, and 0.9 mi east of Lacey Spring.	21.3	1982-84	9-10-85	2.88
01635250	Passage Creek near Detrick, Va.	Lat 38°47'49", long 78°27'42", Shenandoah County, at bridge on State Highway 776, 0.4 mi upstream from Buck Run, and 4.0 mi southwest of Detrick.	31.7	1963, 1982-84	9-10-85	2.40
01636270	Bordon Marsh Run near Boyce, Va.	Lat 39°00'09", long 78°05'51", Warren County, at culvert on State Highway 624, 1.1 mi upstream from mouth, and 6.6 mi southwest of Boyce.	8.71	1982-84	9- 9-85	2.25
JAMES RIVER BASIN						
02002000	Jackson River at Vanderpool, Va.	Lat 38°22'05", long 79°37'35", Highland County, at bridge on U.S. Highway 220, at Vanderpool, and 0.35 mi upstream from North (East) Fork Jackson River.	13.0	1982-84	9-11-85	1.76
02015800	Thompson Creek near Bath Alum, Va.	Lat 38°02'38", long 79°41'05", Bath County, at bridge on State Highway 39, 1.3 mi upstream from mouth, and 1.3 mi east of Bath Alum.	15.7	1963, 1982-84	9-11-85	2.64
02015930	Pads Creek near Longdale Furnace, Va.	Lat 37°51'54", long 79°43'56", Alleghany County, 200 ft downstream from footbridge, 0.2 mi upstream from mouth, and 4.7 mi northwest of Longdale Furnace.	26.3	1982-84	9-11-85	.372

† Operated as a continuous-record gaging station.

## Discharge measurements made at low-flow partial-record stations during water year 1985--Continued

Discharge measurements made at low flow partial record stations during water year 1985					Measurements	
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Discharge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued						
02016600	Craig Creek near McDonalds Mill, Va.	Lat 37°21'16", long 80°17'23", Craig County, at private road off State Highway 621, 0.1 mi upstream from Muddy Branch, and 3.9 mi north of McDonalds Mill.	23.0	1982-84	9-10-85	1.75
02019100	Spreading Springs Branch at Springwood, Va.	Lat 37°32'57", long 79°44'42", Botetourt County, at bridge on State Highway 632, at Springwood, and 0.1 mi upstream from mouth.	6.76	1982-84	9-12-85	2.49
02020170	East Fork Elk Creek at Belfast Trail near Natural Bridge, Va.	Lat 37°34'17", long 79°29'31", Rockbridge County, at footbridge along State Highway 781, 2.0 mi upstream from mouth, and 6.0 mi southeast of Natural Bridge.	4.15	1983-84	9-12-85	1.73
02020200	Calfpasture River at West Augusta, Va.	Lat 38°16'24", long 79°18'02", Augusta County, at bridge on U.S. Highway 250, 0.15 mi upstream from Barn Lick Branch, and 0.4 mi northeast of West Augusta.	12.8	1942, 1953-54, 1956, 1963, 1982-84	9-10-85	.451
02023300	South River near Steeles Tavern, Va.	Lat 37°55'50", long 79°09'55", Augusta County, at bridge on State Highway 608, 0.1 mi downstream from confluence of St. Marys River and Spy Run, and 2.1 mi east of Steeles Tavern.	15.7	1941, 1952-53, 1963, 1982-84	9-10-85	2.68
02024240	South Buffalo Creek near Lexington, Va.	Lat 37°44'14", long 79°34'18", Rockbridge County, at bridge on State Highway 611, 0.2 mi upstream from junction with North Buffalo Creek, and 8.5 mi southwest of Lexington.	21.1	1982-84	9-11-85	6.99
02025650	Harris Creek near Monroe, Va.	Lat 37°29'35", long 79°09'10", Amherst County, at bridge on State Highway 675, 1.3 mi west of Monroe, and 1.6 mi upstream from Graham Creek.	34.5	1981-84	9- 9-85	14.1
02030300	Slate River near Dillwyn, Va.	Lat 37°37'08", long 78°29'10", Buckingham County, at bridge on State Highway 20, 0.3 mi downstream from Flat Creek, and 5.2 mi north of Dillwyn.	154	1942, 1952-54, 1963, 1981-84	9- 9-85	54.2
CHOWAN RIVER BASIN						
02046230	Sappony Creek at Rt. 681, near Stony Creek, Va.	Lat 36°56'36", long 77°27'08", Sussex County, at bridge on State Highway 681, 1.5 mi upstream from mouth, and 2.5 mi west of Stony Creek.	64.0	1981-84	9- 9-85	0
02051175	Meherrin River near Northview, Va.	Lat 36°48'03", long 78°10'04", Mecklenburg County, at bridge on State Highway 636, 1.2 mi upstream from Crooked Creek, and 4.5 mi northeast of Northview.	305	1982-84	9-10-85	24.2

Discharge measurements made at low-flow partial-record stations during water year 1985--Continued

Discharge measurements made at low-flow partial-record stations during water year 1985--Continued						
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
ROANOKE RIVER BASIN						
02054120	North Fork Roanoke River near Lusters Gate, Va.	Lat 37°13'18", long 80°21'56", Montgomery County, at private road bridge off State Highway 723, 1.4 mi south of Lusters Gate, and 1.4 mi downstream from Indian Run.	44.6	1969, 1982-84	9-12-85	12.3
02054650	Mason Creek at Mason Cove, Va.	Lat 37°22'18", long 80°04'02", Roanoke County, at bridge on State Highway 864, at Mason Cove, and 1.9 mi upstream from Jumping Run Creek.	11.9	1983-84	9-11-85	1.81
02059400	North Fork Goose Creek near Montvale, Va.	Lat 37°22'14", long 79°41'55", Bedford County, at bridge on U.S. Highway 460, 0.1 mi upstream from junction with South Fork Goose Creek, and 1.7 mi southeast of Montvale.	31.5	1952-54, 1981-84	9-12-85	11.1
02061000	Big Otter River near Bedford, Va.	Lat 37°21'50", long 79°25'10", Bedford County, at bridge on U.S. Highway 221, 4.0 mi northeast of Bedford, and 8.9 mi upstream from Little Otter River.	116	1942, 1944-60†, 1981-84	9- 9-85	56.4
02061200	Little Otter River at Rt. 122, near Bedford, Va.	Lat 37°21'41", long 79°30'03", Bedford County, at bridge on State Highway 122, 0.4 mi north of Bedford.	18.3	1942, 1952-54, 1978, 1981-84	9- 9-85	9.00
02063400	Reddy Creek near Spring Mills, Va.	Lat 37°16'54", long 78°54'14", Appomattox County, at bridge on State Highway 679, 100 ft upstream from mouth, and 2.3 mi north of Spring Mills.	12.6	1951-54, 1977, 1981-84	9-10-85	3.20
KANAWHA RIVER BASIN						
03162415	Helton Creek near Whitetop, Va.	Lat 36°36'33", long 81°33'52", Grayson County, at bridge on U.S. Highway 58, 2.0 mi upstream from Middle Fork, and 3.2 mi northeast of Whitetop.	5.28	1983-84	9-11-85	3.82
03162650	Wilson Creek at Volney, Va.	Lat 36°37'20", long 81°23'36", Grayson County, at bridge on U.S. Highway 58, 0.4 mi southwest of Volney.	17.7	1983-84	9-11-85	4.42
03163500	Elk Creek at Mt. Carmel Church, near Galax, Va.	Lat 36°41'53", long 81°03'26", Grayson County, along State Highway 650, at Mt. Carmel Church, 2.9 mi upstream from mouth, and 10 mi northwest of Galax.	63.5	1982-84	9-11-85	12.8
03165350	Brush Creek near Ivanhoe, Va.	Lat 36°45'59", long 80°59'05", Carroll County, at bridge on State Highway 94, 3.2 mi upstream from mouth, and 5.0 mi southwest of Ivanhoe.	15.1	1982-84	9-11-85	2.63
03165750	Blue Springs Creek near Cedar Springs, Va.	Lat 36°48'14", long 81°18'22", Smyth County, at bridge on State Highway 675, 0.3 mi downstream from Dry Creek, and 1.8 mi southwest of Cedar Springs.	12.9	1983-84	9-11-85	2.57
03166400	Stony Fork near Favonia, Va.	Lat 37°00'30", long 81°11'27", Wythe County, at bridge on U.S. Highway 52, 300 ft upstream from East Fork, and 3.1 mi north of Favonia.	7.77	1983-84	9-12-85	.191

† Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1985--Continued

Discharge measurements made at low-flow partial-record stations during water year 1985--Continued						
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
KANAWHA RIVER BASIN--Continued						
03167200	Laurel Fork near Laurel Fork, Va.	Lat 36°44'34", long 80°31'49", Carroll County, at bridge on State Highway 638, 1.8 mi northwest of Laurel Fork, and 5.8 mi upstream from mouth.	28.3	1982-84	9-12-85	28.7
03167700	Beaverdam Creek at Hillsville, Va.	Lat 36°45'45", long 80°43'42", Carroll County, at culvert on U.S. Highway 58, at Hillsville, and 2.9 mi upstream from mouth.	4.13	1952-55, 1982-84	9-12-85	2.73
03168750	Thorne Springs Branch near Dublin, Va.	Lat 37°05'30", long 80°44'34", Pulaski County, at culvert on U.S. Highway 11, 2.8 mi west of Dublin, and 3.7 mi upstream from mouth.	4.77	1957-70+, 1978, 1982-84	9-11-85	.048
03169150	Pine Creek near Floyd, Va.	Lat 36°57'03", long 80°17'03", Floyd County, at bridge on State Highway 682, 0.6 mi upstream from mouth, and 2.8 mi northeast of Floyd.	10.7	1982-84	9-12-85	8.59
03169370	Brush Creek near Riner, Va.	Lat 37°01'57", long 80°23'49", Montgomery County, at bridge on State Highway 616, 2.2 mi upstream from mouth, and 3.3 mi southeast of Riner.	19.1	1982-84	9-12-85	2.57
03171400	Neck Creek near Belspring, Va.	Lat 37°11'03", long 80°37'24", Pulaski County, at culvert on State Highway 617, 0.9 mi southwest of Belspring, and 1.5 mi upstream from mouth.	7.92	1982-84	9-11-85	1.97
03171550	Sinking Creek near Newport, Va.	Lat 37°18'40", long 80°30'55", Giles County, at bridge on State Highway 700, 1.6 mi northwest of Newport, and 6.9 mi upstream from mouth.	65.4	1942, 1952-55, 1982-84	9-11-85	30.0
03171900	Kimberling Creek near Holly Brook, Va.	Lat 37°10'38", long 80°58'54", Bland County, at bridge on State Highway 612, 0.5 mi upstream from East Wilderness Creek, and 1.8 mi southwest of Holly Brook.	27.3	1983-84	9-12-85	.433
03177600	Bluestone River above Bluefield, Va.	Lat 37°13'57", long 81°18'00", Tazewell County, at private road bridge off State Highway 720, 0.2 mi west of Bluefield.	16.7	1983-84	9-12-85	9.36
BIG SANDY RIVER BASIN						
03213590	Knox Creek at Kelsa, Va.	Lat 37°27'02", long 82°03'34", Buchanan County, on left bank at bridge on State Highway 697, 0.3 mi downstream from Pawpaw Creek, and 0.8 mi northeast of Kelsa.	84.3	1980-81+, 1983-84	10-16-84 11-26-84 10- 1-85	3.59 17.3 1.94
TENNESSEE RIVER BASIN						
03474000	Middle Fork Holston River at Seven Mile Ford, Va.	Lat 36°48'26", long 81°37'20", Smyth County, on right bank at downstream side of bridge on U.S. Highway 11, at Seven Mile Ford, and 0.3 mi upstream from Meade Creek.	132	1942-81+, 1983-84	11- 7-84 9- 9-85	42.0 33.6
03475700	Spring Creek near Abingdon, Va.	Lat 36°40'43", long 82°02'29", Washington County, at culvert on U.S. Highway 11, 3.8 mi southwest of Abingdon.	2.99	1969, 1983-84	9-10-85	.956

† Operated as a continuous-record gaging station.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record stations during water year 1985--Continued

Discharge measurements made at low-flow partial-record stations during water year 1983					Measurements	
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Discharge (ft <sup>3</sup> /s)	
					Date	
TENNESSEE RIVER BASIN--Continued						
03488450	Brumley Creek at Brumley Gap, Va.	Lat 36°47'30", long 82°01'10", Washington County, on left bank 20 ft downstream from bridge on State Highway 611, 0.2 mi upstream from mouth, and 0.8 mi southeast of Brumley Gap.	21.1	1979-81†, 1983-84	11- 7-84	8.21
					9- 9-85	3.23
03489870	Big Moccasin Creek at Collinwood, Va.	Lat 36°41'16", long 82°19'25", Russell County, at left downstream side of bridge on State Highway 612, 50 ft downstream from Meade Branch, and at Collinwood.	41.9	1944, 1954, 1966-68†, 1973, 1983-84	11- 7-84	9.06
					9-10-85	7.46
03489900	Big Moccasin Creek near Gate City, Va.	Lat 36°38'47", long 82°33'12", Scott County, on left bank at downstream side of bridge on State Highway 71, 0.2 mi downstream from Franklin Branch, and 1.6 mi east of Gate City.	79.6	1953-59†, 1983-84	11- 7-84	17.4
					9-10-85	17.0
03521950	Maiden Spring Creek near Thompson Valley, Va.	Lat 37°03'28", long 81°31'26", Tazewell County, at bridge on State Highway 16, 1.7 mi southeast of Thompson Valley.	17.8	1947, 1952-55, 1983-84	9-12-85	8.36
03522000	Little River at Wardell, Va.	Lat 37°02'16", long 81°47'52", Tazewell County, at bridge on U.S. Highway 19, 0.5 mi downstream from Indian Creek, and 0.5 mi northwest of Wardell.	103	1949-52†, 1983-84	11- 7-84	33.9
					9- 9-85	46.0
03523000	Big Cedar Creek near Lebanon, Va.	Lat 36°54'29", long 82°02'20", Russell County, on right bank 200 ft upstream from U.S. Highway 19, 0.8 mi west of Lebanon, and 7.2 mi upstream from mouth.	51.5	1952, 1953-59†, 1980, 1983-84	11- 7-84	12.5
					9- 9-85	9.52
03524500	Guest River at Coeburn, Va.	Lat 36°55'45", long 82°27'23", Wise County, on right bank 30 ft downstream from bridge on State Highway 72, 1.0 mi southeast of Coeburn, and 6.3 mi upstream from mouth.	87.3	1949-59†, 1979-81†, 1983-84	11- 7-84	47.4
					9-10-85	31.5
03524900	Stony Creek at Ka, Va.	Lat 36°48'57", long 82°37'02", Scott County, on left bank on State Highway 619, 0.1 mi downstream from straight Fork, and at Ka.	30.9	1980-81†, 1983-84	11- 7-84	22.2
					9-10-85	7.10
03526000	Copper Creek near Gate City, Va.	Lat 36°40'26", long 82°33'57", Scott County, on right bank at upstream side of bridge on State Highway 619, 2.6 mi northeast of Gate City.	106	1948-72†, 1983-84	11- 7-84	26.2
					9-10-85	40.9

† Operated as a continuous-record gaging station.

## Special study and miscellaneous sites

Discharge measurements in the following table were made at special study and miscellaneous sites throughout the State. Data for miscellaneous sites provided by the Virginia Water Control Board are noted by an "[a]".

## Discharge measurements made at special study and miscellaneous sites during water year 1985

Discharge measurements made at special study and miscellaneous sites during water year 1985					Measurements	
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Date	Discharge (ft <sup>3</sup> /s)
NASSAWADOX CREEK BASIN						
Nassawadox Creek [a]	Chesapeake Bay	Lat 37°31'31", long 75°52'37", Northampton County, at culvert on State Highway 606, 2.7 mi upstream from Kelly Cove, and 3.5 mi north of Nassawadox.	b4.2	1968-84	12- 5-84	*1.15
					2-27-85	3.48
					5-22-85	*.62
					8-27-85	*.29
POTOMAC RIVER BASIN						
01626500 South Fork Shenandoah River [a]	South Fork Shenandoah River	Lat 38°03'40", long 78°53'50", Waynesboro City, at bridge on Wayne Avenue just upstream from Baker Spring, at Waynesboro.	144	1928-52†	3- 4-85	c165
					4- 8-85	c125
					7- 3-85	c57.5
					8-26-85	c366
					9-30-85	c56.7
Accotink Creek	Accotink Bay	Lat 38°43'07", long 77°10'40", Fairfax County, on Elhers Road at Davison Airfield, at Fort Belvoir, and 2.5 mi upstream from mouth.	-	1984	5-16-85	7.99
					3-12-85	43.6
01658425 Quantico Creek tributary No. 3	Quantico Creek	Lat 38°36'27", long 77°23'59", Prince William County, along Farms to Forest Trail, 200 ft upstream from mouth, and 3.1 mi southeast of Independent Hill.	.65	1983-84	3-27-85	.624
01658430 Quantico Creek	Potomac River	Lat 38°36'26", long 77°23'57", Prince William County, along Farms to Forest Trail, 300 ft downstream from unnamed tributary, and 3.1 mi southeast of Independent Hill.	2.92	1983-84	3-27-85	2.73
01658450 Quantico Creek	Potomac River	Lat 38°36'09", long 77°22'09", Prince William County, at ford on Burma Fire Road, 5.0 mi southeast of Independent Hill.	4.86	1973, 1983-84	10-23-84	.808
					11-28-84	1.94
					12-27-84	2.09
					1-30-85	2.18
					2- 2-85	31.2
					2-13-85	19.4
					2-26-85	7.02
					3-26-85	5.50
					4-24-85	2.37
					5-29-85	4.22
6-25-85	.898					
01658460 Quantico Creek	Potomac River	Lat 38°35'23", long 77°21'26", Prince William County, 50 ft downstream from Camp 4 Lake, 1.8 mi northwest of Dumfries.	5.92	1983-84	10-23-84	1.08
					12- 2-84	4.82
					12-27-84	2.77
					2- 1-85	11.0
					2-13-85	25.4
					2-26-85	7.96
					3-26-85	7.22
					4-24-85	2.60
					5-29-85	6.90
					6-26-85	.775
01658475 Quantico Creek	Potomac River	Lat 38°34'35", long 77°21'05", Prince William County, 100 ft upstream from pyrite mine, 1.1 mi northwest of Dumfries.	6.80	1983-84	10-23-84	1.05
					12- 2-84	4.99
					12-27-84	3.70
					1-30-85	4.49
					2-26-85	7.89
					3-26-85	8.69
					4-24-85	3.44
					5-29-85	6.99
6-25-85	1.67					

\* Base flow.

† Operated as a continuous-record gaging station.

a Provided by the Virginia Water Control Board.

b Approximately.

c Adjusted for pumpage.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1983--Continued						
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Date	Discharge (ft <sup>3</sup> /s)
POTOMAC RIVER BASIN--Continued						
01658480 Quantico Creek	Potomac River	Lat 38°34'22", long 77°20'51", Prince William County, at Pyrite Mine Road, 100 ft upstream from South Fork Quantico Creek, 1,000 ft downstream from Pyrite Mine, and 0.8 mi west of Dumfries.	6.90	1983-84†	10-23-84	1.29
					11-28-84	3.06
					12-19-84	3.93
					1-29-85	3.02
					2- 1-85	(d)
					2- 2-85	71.1
					2-12-85	214
					2-13-85	30.9
					2-27-85	7.80
					3-28-85	7.46
					4-24-85	2.87
					5-29-85	7.60
					6-26-85	1.11
01658530 South Fork Quantico Creek	Quantico Creek	Lat 38°35'07", long 77°24'46", Prince William County, at bridge on Mawavi Fire Road, 0.2 mi upstream from Camp 5 Lake, and 2.2 mi northwest of Joplin.	9.01	1982-84	10-23-84	1.50
					10-29-84	11.9
					11- 5-84	23.1
					11- 6-84	6.36
					11-20-84	12.8
					11-27-84	3.83
					12- 6-84	35.7
					12-17-84	5.70
					12-22-84	5.44
					1- 4-85	22.8
					1-29-85	4.58
					2- 2-85	64.2
					2-12-85	294
					2-26-85	15.9
					3-27-85	8.28
4-24-85	3.35					
5-29-85	7.73					
6-25-85	3.45					
01658540 South Fork Quantico Creek tributary No. 8	South Fork Quantico Creek	Lat 38°34'47", long 77°24'47", Prince William County, at Camp 2, 50 ft upstream from Camp 5 Lake, and 2.0 mi northwest of Joplin.	.27	1983-84	10-24-84	.138
					10-29-84	.798
					11- 6-84	.271
					11- 6-84	.217
					11-19-84	.500
					11-28-84	.195
					12- 6-84	.314
					12-27-84	.223
					1- 4-85	.376
					2- 1-85	.838
					2- 2-85	1.12
					2-12-85	2.31
					2-13-85	.571
					2-26-85	.604
					3-26-85	.300
4-24-85	.141					
5-29-85	1.01					
6-26-85	.057					
01658550 South Fork Quantico Creek	Quantico Creek	Lat 38°34'38", long 77°24'36", Prince William County, 400 ft downstream from Camp 5 Lake, 1.7 mi northwest of Joplin.	9.62	1982, 1983-84†	10-23-84	2.21
					11-27-84	5.00
					12-18-84	5.88
					1-30-85	4.79
					2- 2-85	140
					2-13-85	40.3
					2-26-85	15.3
					3-27-85	11.4
					4-24-85	3.72
					5-29-85	10.9
6-25-85	4.52					
01658602 South Fork Quantico Creek tributary No. 1	South Fork Quantico Creek	Lat 38°34'35", long 77°22'53", Prince William County, 100 ft upstream from mouth, 1.0 mi north of Joplin.	1.31	1975, 1982, 1984	2-13-85	4.55
					3-27-85	1.52

† Operated as a continuous-record gaging station.  
d Frozen.

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
POTOMAC RIVER BASIN--Continued						
01658603 South Fork Quantico Creek	Quantico Creek	Lat 38°34'34", long 77°22'47", Prince William County, at park road bridge, 1.1 mi north of Joplin.	12.9	1983-84	10-23-84 10-29-84 11- 5-84 11- 5-84 11- 6-84 11-20-84 11-27-84 12- 6-84 12-17-84 12-22-84 1- 4-85 1-29-85 2- 2-85 2-12-85 2-26-85 3-27-85 4-24-85 5-29-85 6-25-85	2.91 20.6 45.6 37.2 12.6 19.8 5.19 50.1 7.79 10.2 29.5 7.06 203 431 15.9 13.2 5.27 13.6 6.39
01658605 South Fork Quantico Creek tributary No. 2	South Fork Quantico Creek	Lat 38°34'31", long 77°22'31", Prince William County, 10 ft upstream from mouth, 1.0 mi northeast of Joplin.	.46	1975, 1982, 1984	2- 2-85 2-12-85 2-13-85 3-27-85	2.74 7.48 1.53 1.42
01658608 South Fork Quantico Creek tributary No. 4	South Fork Quantico Creek	Lat 38°34'03", long 77°21'56", Prince William County, 15 ft upstream from mouth, 1.2 mi northeast of Joplin.	.12	1982, 1984	2- 1-85 2-12-85 2-13-85 3-26-85	.515 .915 .353 .147
01658610 South Fork Quantico Creek	Quantico Creek	Lat 38°34'03", long 77°21'54", Prince William County, at bridge on park road at Carters Day Camp, 1.2 mi northeast of Joplin.	14.5	1975, 1982-84	10-23-84 10-29-84 10-29-84 11- 5-84 11- 5-84 11- 6-84 11-19-84 11-27-84 12- 6-84 12-17-84 12-22-84 1- 4-85 1-29-85 2- 1-85 2-26-85 3-26-85 4-24-85 5-29-85 6-25-85	3.79 29.6 20.1 56.7 39.9 13.4 51.2 6.12 61.5 8.88 10.6 32.0 11.2 32.4 14.6 17.1 6.26 18.3 6.41
01658612 South Fork Quantico Creek tributary No. 3	South Fork Quantico Creek	Lat 38°34'02", long 77°21'52", Prince William County, 20 ft upstream from mouth, 1.2 mi northeast of Joplin.	.18	1982, 1984	2- 1-85 3-26-85	.869 .271
01658618 Mary Bird Branch	South Fork Quantico Creek	Lat 38°34'04", long 77°21'39", Prince William County, 70 ft upstream from mouth, 1.3 mi west of Dumfries.	.80	1984	2- 1-85 2-13-85 3-26-85	4.13 3.14 .948
01658625 South Fork Quantico Creek tributary No. 5	South Fork Quantico Creek	Lat 38°33'49", long 77°21'28", Prince William County, at cul- vert on Orenda Fire Road, near Camp 3, 0.1 mi upstream from mouth, and 1.1 mi west of Dumfries.	.19	1982-84	10-23-84 10-29-84 11- 5-84 11- 6-84 11-19-84 11-27-84 12- 6-84 12-17-84 1-29-85 2- 1-85 2-12-85 2-13-85 2-13-85 2-26-85 3-26-85 4-24-85 5-29-85 6-25-85	.18 .223 .307 .160 .682 .099 .301 .195 .154 1.23 1.88 .923 .684 .410 .284 .160 .161 .073



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1983--Continued						
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
POTOMAC RIVER BASIN--Continued						
01658630 South Fork Quantico Creek	Quantico Creek	Lat 38°33'59", long 77°21'12", Prince William County, at ford on Orenda Fire Road, 0.8 mi west of Dumfries.	16.2	1982	2- 1-85 2-13-85	45.2 60.9
01658635 South Fork Quantico Creek tributary No. 6	South Fork Quantico Creek	Lat 38°34'00", long 77°21'11", Prince William County, 75 ft upstream from mouth, 0.8 mi west of Dumfries.	.21	1982, 1984	3-26-85	.222
01658650 South Fork Quantico Creek	Quantico Creek	Lat 38°34'18", long 77°20'57", Prince William County, 0.1 mi upstream from mouth, 0.8 mi west of Dumfries.	16.6	1973, 1983-84†	10-23-84 11-28-84 12-19-84 1-29-85 2- 1-85 2- 2-85 2-13-85 2-27-85 3-28-85 4-24-85 5-30-85 6-26-85	3.99 6.54 9.65 9.41 47.0 176 72.6 20.8 16.3 7.37 7.69 3.07
01658653 Quantico Creek tributary No. 1	Quantico Creek	Lat 38°34'48", long 77°20'37", Prince William County, at private road, 0.9 mi northwest of Dumfries.	1.18	1984	2- 1-85 2-13-85 3-28-85	8.13 4.76 1.22
JAMES RIVER BASIN						
Bubbling Spring [a]	Lick Run	Lat 37°55'37", long 79°37'32", Bath County, at culvert on State Highway 630, 3.5 mi southwest of Millboro.	-	-	8-15-85	*.81
Unnamed tributary	James River	Lat 37°25'19", long 77°26'47", Chesterfield County, 200 ft upstream from mouth, down- stream from fence on National Guard property.	-	-	9-21-84† 9-21-84† 9-21-84† 9-21-84† 9-21-84† 9-26-84† 9-26-84†	.191 .223 .182 .210 .199 .217 .217
02042060 Swift Creek [a]	Appomattox River	Lat 37°16'58", long 77°24'42", Chesterfield County-Colonial Heights City line, 200 ft downstream from bridge on U.S. Highway 1, 4.7 mi up- stream from mouth.	-	1984	10-18-84	8.42
02042260 Chicka- hominy River	James River	Lat 37°41'43", long 77°35'34", Hanover-Henrico County line, at bridge on State Highway 624.	-	-	3-14-85 8- 8-85 8-16-85	1.46 (f) e.002
02042270 Chicka- hominy River	James River	Lat 37°41'10", long 77°32'35", Hanover County, at bridge on U.S. Highway 33, 2.7 mi north- west of Glen Allen.	-	1976	3-14-85 8- 8-85 8-16-85	7.25 4.79 1.28
02042275 Chicka- hominy River	James River	Lat 37°42'02", long 77°30'49", Hanover-Henrico County line, at bridge on State Highway 625, 2.1 mi north of Glen Allen.	-	1984	3-14-85 8- 8-85 8-16-85	9.49 28.7 .937

\* Base flow.

† Not previously published.

‡ Operated as a continuous-record gaging station.

a Provided by the Virginia Water Control Board.

e Estimated.

f Ponded, no apparent flow.

## Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued				Measured previously (water years)	Measurements	
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )		Date	Discharge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued						
02042280 Chickahominy River	James River	Lat 37°41'38", long 77°29'28", Hanover-Henrico County line, at bridge on State Highway 626, 1.2 mi south of Elmont.	56	1957-58, 1976, 1984	3-14-85 8- 8-85 8-16-85	9.55 3.53 2.26
02042282 Chickahominy River	James River	Lat 37°40'40", long 77°27'23", Hanover-Henrico County line, at bridge on Telegraph Road, 1.0 mi northeast of Greenwood.	-	1984	3-14-85 8- 8-85 8-16-85	11.1 4.75 2.77
02042284 Stony Run	Chickahominy River	Lat 37°41'05", long 77°26'58", Hanover County, 50 ft upstream from culvert on State Highway 656, 3.0 mi northwest of Atlee.	17.9	1984	3-13-85 8- 8-85 8-16-85	6.02 8.31 .581
02042286 Chickahominy River	James River	Lat 37°39'09", long 77°25'52", Hanover-Henrico County line, at westbound lane of Inter- state Highway 295, 1.4 mi west of Atlee.	-	1984	3-14-85 3-15-85 8- 8-85 8-16-85	13.6 18.2 3.51 2.06
02042288 Chickahominy River	James River	Lat 37°36'41", long 77°22'18", Hanover-Henrico County line, at bridge on State Highway 627, 2.2 mi northeast of Richmond.	-	1984	3-15-85 8- 8-85 8-16-85	19.0 3.05 (f)
02042427 Upham Brook	Chickahominy River	Lat 37°36'37", long 77°24'34", Henrico County, at bridge on State Highway 627, 2.2 mi northeast of Richmond.	-	1984	3-15-85 8- 8-85 8-16-85	13.4 1.76 .324
02042430 Chickahominy River	James River	Lat 37°35'43", long 77°22'57", Hanover-Henrico County line, at bridge on U.S. Highway 360, 1.0 mi south of Mechanicsville.	-	-	3-15-85 8- 8-85 8-16-85	(f) (f) (f)
02042433 Beaverdam Creek	Chickahominy River	Lat 37°35'45", long 77°21'32", Hanover County, at bridge on State Highway 156, 0.7 mi southeast of Mechanicsville.	-	1984	3-15-85 8- 8-85 8-16-85	8.01 4.68 3.05
02042435 Chickahominy River	James River	Lat 37°34'36", long 77°20'03", Hanover-Henrico County line, at bridge on State Highway 615, 1.5 mi north of Highland Springs.	-	1976, 1984	3-15-85 8- 8-85 8-16-85	41.2 34.0 32.7
02042440 Chickahominy River	James River	Lat 37°33'07", long 77°16'17", Hanover-Henrico County line, at bridge on State Highway 156, 2.7 mi northeast of Seven Pines.	-	1953-54, 1984	3-15-85 8- 8-85 8-16-35	54.9 53.7 48.4
02042443 Chickahominy River	James River	Lat 37°31'03", long 77°12'34", New Kent-Henrico County line, at bridge on Interstate High- way 64, 2.2 mi northwest of White Oak Swamp.	164	-	8- 8-85 8-16-85	78.7 61.0
02042445 Chickahominy River	James River	Lat 37°30'53", long 77°12'19", New Kent-Henrico County line, at bridge on U.S. Highway 60, 2.0 mi northwest of White Oak Swamp.	-	-	3-15-85	67.6
02042455 White Oak Swamp	Chickahominy River	Lat 37°28'05", long 77°12'32", Henrico County, at bridge on State Highway 156, at Elko.	-	1984	3-15-85 8- 8-85 8-16-85	8.65 1.76 1.73
02042465 Toe Ink Swamp	Chickahominy River	Lat 37°29'03", long 77°07'56", New Kent County, at outfall, downstream from Kent Lake dam, and 1.5 mi north of Roxbury.	-	1984	3-15-85 8- 8-85 8-16-85	4.60 1.37 1.13
02042470 Chickahominy River	James River	Lat 37°28'11", long 77°08'17", New Kent-Charles City County line, 600 ft upstream from bridge on State Highway 609, 0.4 mi north of Roxbury.	-	1942, 1984	3-15-85 8- 8-85 8-16-85	(f) 71.6 20.6

f Ponded, no apparent flow.

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued					Measurements	
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Date	Discharge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued						
02042474 Possum Run	Chickahominy River	Lat 37°27'35", long 77°07'48", Charles City County, at culvert on State Highway 609, 0.7 mi east of Roxbury.	-	1984	3-15-85 8- 8-85 8-16-85	2.62 .338 .291
02042480 Schiminoe Creek	Chickahominy River	Lat 37°27'14", long 77°04'52", New Kent County, at culvert on U.S. Highway 60.	-	1968, 1984	3-15-85 8- 8-85 8-16-85	2.34 .423 .357
02042500 Chickahominy River	James River	Lat 37°26'10", long 77°03'40", New Kent County, 600 ft downstream from State Highway 618.	248	1942-84†	3-15-85 8- 8-85 8-16-85	114 140 62.6
02042610 Jones Run	Chickahominy River	Lat 37°26'28", long 77°02'48", New Kent County, at Chesapeake and Ohio railroad bridge, at Providence Forge.	-	-	3-15-85 8- 8-85 8-16-85	8.07 4.18 3.22
CHOWAN RIVER BASIN						
02044500 Nottoway River	Chowan River	Lat 36°59'00", long 77°48'00", Brunswick-Dinwiddie County line, 100 ft downstream from bridge on State Highway 612, 2.6 mi northwest of Rawlings.	185	1951-84†	9-11-85	27.1
Nottoway River	Chowan River	Lat 37°58'30", long 77°46'11", Brunswick-Dinwiddie County line, 100 ft downstream from Baskerville Mill Dam, 300 ft downstream from State Highway 610, and 1.9 mi north of Rawlings.	-	1984	9-11-85	26.4
02045000 Nottoway River	Chowan River	Lat 36°56'45", long 77°44'01", Brunswick-Dinwiddie County line, under bridge on northbound lane of U.S. Highway 1, 2.5 mi south of McKenney.	362	1942, 1946-50†, 1963, 1984	9-11-85	26.0
Waqua Creek	Nottoway River	Lat 36°55'07", long 77°44'10", Brunswick County, 125 ft downstream from bridge on State Highway 712, 4.3 mi south of McKenney.	-	1984	9-11-85	2.00
Sturgeon Creek	Nottoway River	Lat 36°53'19", long 77°48'29", Brunswick County, 25 ft upstream from bridge on State Highway 631, 5.0 mi north of Smoky Ordinary.	-	1976, 1984	9-11-85	2.03
Nottoway River	Chowan River	Lat 36°54'04", long 77°40'25", Brunswick-Dinwiddie County line, 100 ft downstream from bridge on State Highway 609, 5.6 mi southeast of McKenney.	-	1963, 1984	9-11-85	33.0
Buckskin Creek	Nottoway River	Lat 36°53'43", long 77°37'53", Dinwiddie County, 300 ft upstream from bridge on unnamed road, 0.5 mi upstream from mouth, and 2.7 mi south of Cherry Hill.	-	1984	9-11-85	(f)
Nottoway River	Chowan River	Lat 36°50'56", long 77°33'51", Greensville County, 600 ft downstream from bridge on State Highway 619, 2.1 mi northeast of Purdy.	-	1984	9-11-85	35.6
Nottoway River	Chowan River	Lat 36°50'52", long 77°29'36", Sussex-Greensville County line, 150 ft downstream from bridge on State Highway 630, just upstream from pumping station, and 2.1 mi northwest of Jarratt.	-	1984	9-11-85 9-11-85	34.8 c24.3

† Operated as a continuous-record gaging station.

c Adjusted for pumpage.

f Pounded, no apparent flow.

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1985-Continued				Measurements		
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Date	Discharge (ft <sup>3</sup> /s)
CHOWAN RIVER BASIN--Continued						
Nottoway River	Chowan River	Lat 36°52'57", long 77°26'21", Sussex County, 75 ft downstream from bridge on State Highway 645, 4.1 mi north of Jarratt.	-	1984	9-11-85	32.1
02045500 Nottoway River	Chowan River	Lat 36°54'00", long 77°24'00", Sussex County, 600 ft upstream from bridge on U.S. Highway 301, 3.3 mi south of Stony Creek.	579	1930-84†	9-11-85	32.4
Nottoway River	Chowan River	Lat 36°57'00", long 77°22'52", Sussex County, 150 ft downstream from bridge on State Highway 40, 0.6 mi east of Stony Creek, and 0.9 mi upstream from Stony Creek.	-	1984	9-11-85	33.1
Stony Creek	Nottoway River	Lat 36°56'58", long 77°23'34", Sussex County, at bridge on northbound lane of Interstate Highway 95, at Stony Creek.	-	1952-54, 1963, 1984	9-12-85	4.24
02046370 Rowanty Creek	Nottoway River	Lat 36°58'57", long 77°23'32", Sussex County, at bridge on State Highway 602, 2.5 mi northeast of Stony Creek.	-	1981-84	9-12-85	.946
Nottoway River	Chowan River	Lat 36°59'47", long 77°19'30", Sussex County, 200 ft downstream from bridge on State Highway 637, 5.0 mi northeast of Stony Creek.	-	1984	9-12-85	45.1
Nottoway River	Chowan River	Lat 36°58'37", long 77°16'08", Sussex County, at bridge on State Highway 626, 4.3 mi north of Sussex.	-	1984	9-12-85	42.7
Nebletts Mill Run	Nottoway River	Lat 36°58'39", long 77°13'05", Sussex County, at bridge on State Highway 35, 3.2 mi northwest of Homeville.	32.7	1980, 1984	9-12-85	(f)
Nottoway River	Chowan River	Lat 36°53'48", long 77°12'06", Sussex County, at bridge on State Highway 634, 2.8 mi west of Littleton.	-	1984	9-12-85	47.0
Hunting Quarter Swamp	Nottoway River	Lat 36°52'42", long 77°13'36", Sussex County, at bridge on State Highway 632, 4.6 mi southwest of Littleton.	-	1942, 1984	9-12-85	(f)
Nottoway River	Chowan River	Lat 36°51'32", long 77°11'24", Sussex County, 40 ft downstream from bridge on State Highway 631, 3.2 mi southwest of Littleton.	-	1984	9-12-85	53.6
Raccoon Creek	Nottoway River	Lat 36°48'11", long 77°12'28", Southampton County, at bridge on State Highway 608, 4.7 mi northwest of Sebrell.	65.0	1942, 1952-54, 1978, 1980-84	9-12-85	(f)
Three Creek	Nottoway River	Lat 36°46'32", long 77°11'08", Southampton County, at bridge on State Highway 609, 3.3 mi west of Sebrell.	215	1942, 1944, 1952-54, 1978, 1980, 1984	9-12-85	(f)
02047000 Nottoway River	Chowan River	Lat 36°46'13", long 77°09'59", Southampton County, 1,900 ft downstream from bridge on State Highway 653, 2.5 mi southwest of Sebrell.	1,421	1942-84	9-12-85	57.4

† Operated as a continuous-record gaging station.

f Ponded, no apparent flow.



Discharge measurements made as special study and miscellaneous sites during water year 1985						Measurements	
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Date	Discharge (ft <sup>3</sup> /s)	
CHOWAN RIVER BASIN--Continued							
Buckhorn Swamp [a]	Nottoway River	Lat 36°43'17", long 77°09'35", Southampton County, at bridge on State Highway 652, 5.0 mi west of Courtland.	-	1982-84	10-23-84	0.42	
					12- 4-84	9.13	
					1-15-85	7.29	
					2-26-85	62.3	
					4-10-85	1.98	
					5-21-85	.19	
					7-10-85	0	
Buckhorn Swamp [a]	Nottoway River	Lat 36°45'00", long 77°09'33", Southampton County, at bridge on State Highway 651, 5.4 mi northwest of Courtland.	-	1982-84	8-22-85	.66	
					10-23-84	0	
					12- 4-84	20.2	
					1-15-85	10.3	
					2-26-85	94.9	
					4-10-85	3.67	
					5-21-85	.35	
Nottoway Swamp [a]	Nottoway River	Lat 36°43'22", long 76°59'43", Southampton County, at bridge on State Highway 611, 2.4 mi northwest of Hunterdale.	-	1982-84	7-10-85	.08	
					8-22-85	.89	
					10-24-84	0	
					12- 5-84	11.5	
					1- 5-85	6.64	
					2-26-85	49.2	
					4-10-85	3.18	
					5-21-85	.58	
					7-10-85	0	
					8-22-85	6.76	
BIG SANDY RIVER BASIN							
Unnamed mine drain	Aus Keen Fork	Lat 37°12'16", long 81°56'57", Buchanan County, below mouth of abandoned mine, 100 ft upstream from Aus Keen Fork, off State Highway 629, and 2.0 mi east of Keen Mountain.	-	-	10-23-84	.012	
					11-13-84	.012	
					12-18-84	.021	
					1-29-85	.069	
					2-20-85	.123	
					3-26-85	.106	
					4- 8-85	.127	
					5-22-85	.046	
					6-25-85	.051	
					7-23-85	.036	
					8-27-85	.040	
Unnamed mine drain	Dismal Creek	Lat 37°13'51", long 81°48'28", Buchanan County, below mouth of abandoned mine, 100 ft upstream from Dismal Creek, and 2.4 mi east of Whitewood.	-	-	9-24-85	.030	
					10-22-84	.124	
					11-13-84	.108	
					12-18-84	.191	
					1-28-85	.887	
					2-19-85	1.01	
					3-25-85	.891	
					4- 8-85	.895	
					5-21-85	.554	
					6-25-85	.781	
					7-22-85	.398	
Unnamed mine drain	Laurel Fork	Lat 37°11'23", long 81°48'16", Buchanan County, below mouth of abandoned mine, 100 ft upstream from Laurel Fork, and 1.1 mi west of Jewell Ridge.	-	-	8-26-85	.405	

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Discharge measurements made at Special Study and Miscellaneous Sites during water year 1985						Measurements	
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Date	Discharge (ft <sup>3</sup> /s)	
BIG SANDY RIVER BASIN--Continued							
Unnamed mine drain	Burnt Chestnut Branch	Lat 37°14'27", long 81°54'03", Buchanan County, below mouth of abandoned mine, 300 ft upstream from Burnt Chestnut Branch, and 5.2 mi northeast of Keen Mountain.	-	-	10-22-84	0.053	
					11-13-84	.076	
					12-18-84	.145	
					1-28-85	.302	
					2-20-85	.373	
					3-25-85	.405	
					4- 8-85	.450	
					5-22-85	.270	
					6-25-85	.257	
					7-22-85	.161	
Unnamed mine drain	Burnt Popular Fork	Lat 37°18'33", long 82°11'05", Buchanan County, below mouth of abandoned mine, 50 ft upstream from Burnt Popular Fork, and 1.2 mi west of Harmon Junction.	-	-	8-26-85	.153	
					9-23-85	.097	
					10-23-84	.436	
					11-14-84	.189	
					12-19-84	.284	
					1-29-85	.350	
					2-20-85	.645	
					3-26-85	.716	
					4- 9-85	.670	
					5-22-85	.582	
Unnamed mine drain	Levisa Fork	Lat 37°21'09", long 82°11'24", Buchanan County, below mouth of abandoned mine, 200 ft upstream from Levisa Fork off U.S. Highway 460, and at Big Rock.	-	-	6-26-85	.563	
					7-23-85	.327	
					8-27-85	.341	
					9-24-85	.349	
					10-23-84	.031	
					11-14-84	.017	
					12-18-84	.057	
					1-29-85	.018	
					2-20-85	.095	
					3-26-85	.110	
Unnamed mine drain	Dog Fork	Lat 37°19'23", long 82°11'50", Buchanan County, below mouth of abandoned mine, 50 ft upstream from Dog Fork, and 2.0 mi north of Harmon.	-	-	4- 9-85	.111	
					5-22-85	.057	
					6-25-85	.035	
					7-23-85	.006	
					8-27-85	.025	
					9-24-85	.021	
					10-23-84	.031	
					11-15-84	.040	
					12-19-84	.051	
					1-29-85	.075	
Unnamed mine drain	Tiller Fork	Lat 37°03'13", long 82°09'50", Dickenson County, below mouth of abandoned mine, 200 ft upstream from Tiller Fork off State Highway 601, and 2.1 mi south of Duty.	-	-	2-20-85	.141	
					3-26-85	.133	
					4- 9-85	.136	
					5-22-85	.085	
					6-26-85	.075	
					7-23-85	.041	
					8-27-85	.083	
					9-24-85	.063	
					10-24-84	.175	
					11-14-84	.158	

Discharge measurements made at special study and miscellaneous sites during water year 1985						Continued
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
BIG SANDY RIVER BASIN--Continued						
Unnamed mine drain	Phillips Creek	Lat 37°02'48", long 82°42'11", Wise County, below mouth of abandoned mine, 200 ft upstream from Phillips Creek, and 2.1 mi south of Flat Gap.	-	-	10-24-84	0.143
					11-14-84	.184
					12-19-84	.200
					1-31-85	.290
					2-22-85	.553
					5-23-85	.324
					6-27-85	.274
					7-24-85	.145
					8-28-85	.207
					9-25-85	.141
Unnamed mine drain	Meade Fork	Lat 37°07'36", long 82°34'04", Wise County, below mouth of abandoned mine, 250 ft upstream from Meade Fork, and 1.6 mi east of Pound.	-	-	10-23-84	.454
					11-14-84	.597
					12-19-84	.644
					1-31-85	.634
					2-21-85	.535
					3-28-85	.679
					4- 9-85	.573
					5-23-85	.746
					6-26-85	.515
					7-24-85	.597
Unnamed mine drain	Georges Fork	Lat 37°07'46", long 82°32'07", Dickenson County, below mouth of abandoned mine, 1,000 ft upstream from Georges Fork, and 5.1 mi southwest of Clintwood.	-	-	10-23-84	.525
					11-14-84	.585
					12-19-84	.556
					1-29-85	.644
					2-21-85	.901
					3-26-85	.777
					4- 9-85	.773
					5-23-85	.600
					6-26-85	.696
					7-24-85	.776
Unnamed mine drain	Georges Fork	Lat 37°09'50", long 82°29'13", Dickenson County, below mouth of abandoned mine, 200 ft upstream from Georges Fork off State Highway 621, and 1.1 mi north of Georges Fork.	-	-	10-24-84	.005
					11-14-84	.003
					12-19-84	.009
					1-29-85	.011
					2-20-85	.051
					3-27-85	.017
					4- 9-85	.017
					5-22-85	.011
					6-26-85	.007
					7-28-85	.004
Unnamed mine drain	Dotson Creek	Lat 37°00'35", long 82°33'27", Wise County, below mouth of abandoned mine, 50 ft upstream from Dotson Creek, and 3.1 mi northeast of Wise.	-	-	10-24-84	.030
					11-15-84	.006
					12-18-84	.030
					1-30-85	.057
					2-22-85	.117
					3-27-85	.088
					4-10-85	.097
					5-23-85	.063

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Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1985 continued						Measurements	
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Date	Discharge (ft <sup>3</sup> /s)	
TENNESSEE RIVER BASIN							
Unnamed mine drain	Laurel Branch	Lat 37°00'39", long 82°13'08", Russell County, below mouth of abandoned mine, 50 ft upstream from Laurel Branch, and 1.6 mi southwest of Carrie.	-	-	10-24-84	0.022	
					11-15-84	.035	
					12-19-84	.062	
					1-30-85	.092	
					2-21-85	.117	
					3-27-85	.094	
					4-10-85	.122	
					5-25-85	.097	
					6-24-85	.042	
					7-29-85	.037	
					8-29-85	.019	
					9-26-85	.029	
Unnamed mine drain	Right Fork	Lat 36°58'59", long 82°15'55", Russell County, below mouth of abandoned mine, 400 ft upstream from Right Fork, and 2.0 mi east of Dante.	-	-	10-24-84	.149	
					11-15-84	.111	
					12-19-84	.095	
					1-30-85	.193	
					2-21-85	.696	
					3-27-85	.362	
					4-10-85	.352	
					5-24-85	.392	
					6-24-85	.212	
					7-29-85	.136	
					8-29-85	.237	
					9-26-85	.189	
Unnamed mine drain	Unnamed tributary to Sepulcher Creek	Lat 36°59'24", long 82°35'10", Wise County, below mouth of abandoned mine, 600 ft upstream from unnamed tributary to Sepulcher Creek, and 1.0 mi north of Wise.	-	-	10-22-84	.102	
					11-15-84	.082	
					12-18-84	.111	
					1-31-85	.117	
					2-22-85	.316	
					3-28-85	.175	
					4-10-85	.170	
					5-23-85	.060	
					6-27-85	.106	
					7-29-85	.097	
					8-28-85	.144	
					9-25-85	.104	
Unnamed mine drain	Mud Lick Creek	Lat 36°57'57", long 82°50'07", Wise County, below mouth of abandoned mine, 300 ft upstream from Mud Lick Creek, and at Roda.	-	-	10-25-84	.021	
					11-13-84	.018	
					12-19-84	.032	
					1-31-85	.015	
					2-25-85	.040	
					3-28-85	.026	
					4-10-85	.035	
					5-24-85	.022	
					6-27-85	.011	
					7-30-85	.090	
					8-28-85	.025	
					9-26-85	.017	
Unnamed mine drain	Looney Creek	Lat 36°54'58", long 82°49'21", Wise County, below mouth of abandoned mine, 200 ft upstream from Looney Creek, and 1.1 mi northwest of Inman.	-	-	10-23-84	1.16	
					11-13-84	1.92	
					12-20-84	2.63	
					1-31-85	2.89	
					2-25-85	7.42	
					3-29-85	3.66	
					4-11-85	4.48	
					5-24-85	3.01	
					6-27-85	2.99	
					7-30-85	1.61	
					8-30-85	2.32	
					9-26-85	1.65	
Unnamed mine drain	Baileys Trace	Lat 36°49'41", long 83°04'41", Lee County, below mouth of abandoned mine, 100 ft upstream from Baileys Trace, and 2.2 mi northwest of St. Charles.	-	-	10-25-84	.223	
					11-14-84	.307	
					12-20-84	.783	
					2- 1-85	.889	
					2-26-85	2.88	
					3-28-85	1.24	
					4-11-85	1.82	
					5-24-85	.836	
					6-28-85	.408	
					7-30-85	.246	
					8-30-85	.430	
					9-27-85	.201	



## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

Samples are collected at partial-record, special study, and miscellaneous sites to give better areal coverage. The results of these samples are given herein.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

## POTOMAC RIVER BASIN

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)
01658530 SOUTH FORK QUANTICO CREEK AT MAWAVI ROAD NEAR JOPLIN, VA (LAT 38 35 07 LONG 077 24 46)					
OCT 1984					
23...	12:00	1.5	57	19.0	14
29...	15:00	12	--	--	23
NOV					
05...	14:10	23	--	--	26
06...	11:55	6.4	--	--	12
20...	12:15	13	--	5.0	13
27...	13:25	3.8	48	5.0	3
DEC					
06...	13:30	36	--	5.0	40
17...	13:25	5.7	46	10.5	6
22...	12:00	5.4	--	9.0	26
JAN 1985					
04...	13:18	23	--	5.0	9
29...	14:25	4.6	44	1.0	2
FEB					
02...	10:55	64	46	0.5	279
12...	11:30	294	46	2.0	545
13...	14:10	--	38	3.5	16
26...	13:20	16	42	10.0	11
MAR					
27...	12:55	8.3	45	10.0	4
APR					
24...	12:35	3.4	52	--	--
MAY					
29...	13:30	7.7	48	18.0	--
JUN					
25...	12:50	3.4	54	21.0	--
01658602 SOUTH FORK QUANTICO CREEK TRIBUTARY 1 AT MOUTH NEAR JOPLIN, VA (LAT 38 34 35 LONG 077 22 53)					
FEB 1985					
02...	12:20	10	34	3.0	40
12...	12:55	29	35	4.0	162
13...	14:40	46	35	4.0	12
MAR					
27...	11:20	1.5	33	10.0	1
01658603 SOUTH FORK QUANTICO CREEK BELOW TRIBUTARY 1 NEAR JOPLIN, VA (LAT 38 34 34 LONG 077 22 47)					
OCT 1984					
23...	11:00	2.9	50	19.0	2
29...	14:00	21	--	--	4
NOV					
05...	13:15	46	--	--	30
06...	13:05	13	--	--	18
20...	13:45	20	--	5.0	23
27...	11:50	7.8	43	10.0	8
DEC					
06...	14:20	50	--	5.0	12
17...	11:50	7.8	43	10.0	8
22...	13:20	10	--	9.0	18
JAN 1985					
04...	14:40	30	--	5.5	4
29...	12:55	7.1	42	1.0	--
FEB					
02...	14:05	203	46	1.0	98
12...	15:00	431	40	2.0	393
13...	13:35	--	39	3.0	4
26...	11:55	16	38	9.0	5
MAR					
27...	10:25	13	45	7.5	6
APR					
24...	11:10	5.3	46	18.0	--
MAY					
29...	11:55	14	48	19.0	--
JUN					
25...	11:30	6.4	45	21.0	--

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

## POTOMAC RIVER BASIN--Continued

	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)
01658605	SOUTH FORK QUANTICO CREEK TRIBUTARY 2 AT MOUTH NEAR JOPLIN, VA (LAT 38 34 31 LONG 077 22 31)					
	FEB 1985					
	02...	15:00	2.7	41	4.0	14
	12...	15:40	7.5	38	4.5	50
	13...	13:15	1.5	40	5.5	1
	MAR					
	27...	09:05	1.4	44	6.0	--
01658608	SOUTH FORK QUANTICO CREEK TRIBUTARY 4 AT MOUTH NEAR JOPLIN, VA (LAT 38 34 03 LONG 077 21 56)					
	FEB 1985					
	01...	13:10	0.52	68	3.0	134
	12...	16:25	0.92	69	5.0	27
	13...	10:35	0.35	70	5.0	6
	MAR					
	26...	11:30	0.15	77	10.0	16
01658610	SOUTH FORK QUANTICO CREEK AT PARK ROAD NEAR JOPLIN, VA (LAT 38 34 03 LONG 077 21 54)					
	OCT 1984					
	23...	10:05	3.8	55	18.5	2
	29...	12:40	30	--	--	4
	29...	16:20	20	--	--	3
	NOV					
	05...	11:45	57	--	--	23
	05...	15:21	40	--	--	19
	06...	14:00	13	--	--	13
	19...	16:30	51	--	--	22
	27...	10:10	6.1	46	7.0	2
	DEC					
	06...	10:05	62	--	5.0	34
	17...	10:35	8.9	44	10.0	7
	22...	14:30	11	--	10.0	13
	JAN 1985					
	04...	16:00	32	--	5.0	9
	29...	12:30	11	45	0.0	--
	FEB					
	01...	14:30	32	39	0.0	27
	02...	15:35	--	47	1.0	107
	12...	17:00	--	44	2.0	444
	13...	09:50	--	42	2.0	69
	26...	10:40	15	41	9.0	3
	MAR					
	26...	13:50	17	51	9.0	9
	APR					
	24...	09:55	6.3	48	18.0	--
	MAY					
	29...	10:50	18	50	19.0	--
	JUN					
	25...	10:15	6.4	48	21.0	--
01658612	SOUTH FORK QUANTICO CREEK TRIBUTARY 3 AT MOUTH NEAR JOPLIN, VA (LAT 38 34 02 LONG 077 21 52)					
	FEB 1985					
	01...	12:35	0.87	43	3.0	--
	MAR					
	26...	12:15	0.27	53	10.5	15
01658618	MARY BIRD BRANCH AT MOUTH NEAR DUMFRIES, VA (LAT 38 34 04 LONG 077 21 39)					
	FEB 1985					
	01...	15:35	4.1	37	1.0	61
	13...	12:15	3.1	40	4.0	5
	MAR					
	26...	15:00	0.95	44	11.5	3

## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

## POTOMAC RIVER BASIN--Continued

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)
01658625 SOUTH FORK QUANTICO CREEK TRIBUTARY 5 NEAR DUMFRIES, VA (LAT 38 33 49 LONG 077 21 28)					
OCT 1984					
23...	09:15	0.18	78	18.5	5
NOV					
06...	15:05	0.16	--	--	2
19...	12:30	0.68	--	--	14
27...	08:45	0.1	75	4.0	3
DEC					
06...	09:22	0.3	--	2.0	11
17...	09:10	0.2	70	10.0	11
JAN 1985					
29...	08:55	0.15	65	0.5	20
FEB					
01...	11:40	1.2	64	0.0	101
12...	16:45	1.9	55	5.0	54
13...	09:15	0.92	66	3.5	9
13...	11:00	0.68	55	5.0	9
26...	09:25	0.41	67	8.0	4
MAR					
26...	09:20	0.28	67	6.0	1
APR					
24...	08:45	0.16	68	15.0	--
MAY					
29...	09:00	0.16	65	--	--
JUN					
25...	08:55	0.08	63	18.0	--
01658630 SOUTH FORK QUANTICO CREEK AT ORENDA ROAD NEAR DUMFRIES, VA (LAT 38 33 59 LONG 077 21 12)					
FEB 1985					
01...	14:25	45	--	0.0	49
13...	14:08	61	--	3.5	32
01658635 SOUTH FORK QUANTICO CREEK TRIBUTARY 6 AT MOUTH NEAR DUMFRIES, VA (LAT 38 34 00 LONG 077 21 11)					
MAR 1985					
26...	10:45	0.22	65	8.0	2
01658653 QUANTICO CREEK TRIBUTARY 1 AT PRIVATE ROAD NEAR DUMFRIES, VA (LAT 38 34 48 LONG 077 20 37)					
FEB 1985					
01...	13:00	8.1	--	0.0	33
13...	12:20	4.8	--	5.0	6
MAR					
28...	12:30	1.2	--	14.0	2

GROUND-WATER-QUALITY RECORDS

REMARK CODES.--The following remark codes may appear with the water-quality data in this section:

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated value
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant



## GROUND-WATER LEVELS

## ACCOMACK COUNTY

375622075280101. Local number, 67M2.

LOCATION.--Lat 37°56'23", long 75°28'02", Hydrologic Unit 02060010, Wallops Flight Center well B31. Owner: National Aeronautics and Space Administration (formerly U.S. Naval Air Station, Wallops Island).

AQUIFER.--Columbia Group sand of Pleistocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in., depth 60 ft, screen depth unknown.

INSTRUMENTATION.--Monthly measurement with chalked tape by NASA personnel.

DATUM.--Elevation of land-surface datum is 35 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.38 ft above land-surface datum. Measuring point reported as 6.09 ft. above land-surface datum from 1963 to 1975.

REMARKS.--Records provided by the National Aeronautics and Space Administration.

PERIOD OF RECORD.--May 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.82 ft below land-surface datum, May 9, 1963; lowest measured, 25.22 ft below land-surface datum, Dec. 1, 1981, Aug. 6, 1985.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	21.97	DEC 3	23.47	FEB 1	21.27	APR 1	24.12	JUN 3	23.37	AUG 6	25.22
OCT 31	22.62	JAN 1	22.47	MAR 1	22.62	MAY 1	24.62	JUL 5	24.52	SEP 4	24.79

## ALBEMARLE COUNTY

380333078264801. Local number, 43N1.

LOCATION.--Lat 38°03'33", long 78°26'48", Hydrologic Unit 02080204, at Key West Subdivision, Charlottesville.

Owner: Key West Development Corporation.

AQUIFER.--Lynchburg Formation of Precambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 409 ft, cased to 52 ft, open hole 52 to 409 ft.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 345 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 28. Manual measurements published from June 1974 to April 1981.

PERIOD OF RECORD.--February 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.65 ft below land-surface datum, May 3, 1984; lowest recorded, 22.10 ft below land-surface datum, Nov. 30, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.27	15.70	15.90	15.70	15.20	14.89	14.95	15.71	16.90	18.01	17.31	17.09
10	15.31	15.80	15.70	15.70	15.23	14.93	15.12	15.74	16.68	18.23	17.28	17.01
15	15.29	15.82	15.76	15.70	14.32	14.98	15.11	15.86	16.50	18.00	17.40	17.23
20	15.40	15.80	15.70	15.61	15.00	15.00	15.35	16.00	17.68	17.69	17.09	17.40
25	15.70	15.90	15.79	15.61	14.94	14.89	15.58	16.61	17.65	17.49	17.02	17.63
EOM	15.73	15.90	15.93	15.70	15.00	14.90	15.63	17.20	17.66	17.40	17.20	17.57

WTR YR 1985 HIGHEST 14.26 FEB 14, 15, 1985 LOWEST 18.36 JUL 12, 1985

## APPOMATTOX COUNTY

372133078493701. Local number, 40G1.

LOCATION.--Lat 37°21'33", long 78°49'37", Hydrologic Unit 02080207, in the town of Appomattox. Owner: Town of Appomattox.

AQUIFER.--Metamorphic rock of uncertain age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in., depth 288 ft, cased to 40 ft, open hole 40 to 288 ft.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 860 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 12.

PERIOD OF RECORD.--October 1967 to current year. Unpublished record available in May 1949.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.78 ft below land-surface datum, June 13, 1973; lowest recorded, 58.21 ft below land-surface datum, Nov. 17, 18, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	46.80	46.50	47.34	47.60	48.70	48.92	49.07	49.37	49.50	49.90	50.07	49.92
10	46.87	46.90	47.26	47.80	48.73	48.90	49.11	49.40	49.51	49.92	50.19	49.87
15	46.69	47.10	47.60	47.97	48.79	49.11	48.98	49.37	49.69	49.92	50.29	50.00
20	46.70	47.21	47.52	47.81	48.88	49.00	49.28	49.49	49.80	50.10	50.22	49.90
25	46.80	46.90	47.26	48.12	48.80	49.14	49.33	49.40	49.71	50.23	50.00	49.87
EOM	46.80	47.02	47.32	48.50	48.90	49.10	49.42	49.39	49.90	50.09	49.92	49.70

WTR YR 1985 HIGHEST 45.90 NOV 5, 1984 LOWEST 50.33 AUG 17, 1985

## 369

372514078394301. Local number, 41H2.

LOCATION.--Lat 37°25'14", long 78°39'43", Hydrologic Unit 02080207, 1 mi south of intersection of State Highway 636 on the east side of State Highway 640. Owner: U.S. Geological Survey.

AQUIFER.--Candler Formation of Paleozoic age.

WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in. to 68 ft, 1.25 in. 68 to 73 ft, depth 73 ft, screened 68 to 73 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 640 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available March 1971 through September 1977.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.99 ft below land-surface datum, May 20, 1973;  
lowest measured, 49.41 ft below land-surface datum, Mar. 30, 1971.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	41.25	FEB 14	43.52	MAY 1	44.29	JUN 11	44.59	AUG 12	46.57	SEP 23	45.74
JAN 8	42.93	MAR 21	43.96								

385346077073701. Local number, 53V1.

LOCATION.--Lat 38°53'46", long 77°07'37", Hydrologic Unit 02070010, at Langston School, 4854 Lee Highway, Arlington. Owner: Arlington County School Board.

AQUIFER.--Brandywine Formation of Pleistocene age and Bryn Mawr (?) gravel of Pliocene (?) age, overlying the Sykesville Formation of Precambrian age.

WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in., depth 35 ft, terracotta casing.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 410 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Inner flange of manhole at land-surface datum.

PERIOD OF RECORD.--October 1931 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.74 ft below land-surface datum, Apr. 20, 1935;  
lowest measured, 34.81 ft below land-surface datum, Dec. 5, 1931.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 29	25.09	JAN 29	26.00	MAR 21	25.41	APR 30	25.87	JUN 25	25.85	AUG 30	27.41

385253077042301. Local number, 54V3.

LOCATION.--Lat 38°52'53", long 77°04'23", Hydrologic Unit 02070010, at Arlington National Cemetery. Owner: NPS National Capitol Parks.

**AQUIFER.**--Terrace gravels of Holocene age and sand of Early Cretaceous age.

WELL CHARACTERISTICS.--Dug unused water well, diameter 48 in., depth 50 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 205 ft above National Geodetic Vertical Datum map. Measuring point: Top of brick and stone casing, 3 ft above land-surface datum.

PERIOD OF RECORD.--January 1958 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.34 ft below land-surface datum, June 26, 1978;  
lowest measured, 44.90 ft below land-surface datum, Mar. 4, 1966.

[illegible]



## GROUND-WATER LEVELS

371

## CITY OF COLONIAL HEIGHTS

371644077244601. Local number, 51G1.

LOCATION.--Lat 37°16'44", long 77°24'46", Hydrologic Unit 02080207, at Matoaka Manor, Colonial Heights. Owner: Dean Whittington.

AQUIFER.--Petersburg granite of Late Paleozoic age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth 100 ft, cased to 50 ft, open hole 50 to 100 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 57.30 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1 ft above land-surface datum.

PERIOD OF RECORD.--October 1939 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.73 ft below land-surface datum, Jan. 26, 1978; lowest measured, 19.26 ft below land-surface datum, Dec. 3, 1963.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	17.29	JAN 1	17.31	MAR 18	15.62	APR 26	16.09	JUN 25	16.63	AUG 30	17.00
NOV 28	17.65	FEB 27	15.48	27	15.77	MAY 28	16.32	JUL 29	17.10	SEP 25	17.44
DEC 27	17.89										

## FAIRFAX COUNTY

384518077163501. Local number, 52U4.

LOCATION.--Lat 38°45'18", long 77°16'35", Hydrologic Unit 02070010, east of intersection of State Highways 641 and 643, Springfield. Owner: Sydenstricker Church.

AQUIFER.--Granite of undetermined age.

WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in., depth 28 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 340 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Hole in cement platform, 0.67 ft above land-surface datum.

PERIOD OF RECORD.--May 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.54 ft below land-surface datum, Apr. 30, 1973; lowest measured, 27.57 ft below land-surface datum, Nov. 30, 1964.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	19.93	JAN 30	18.17	MAR 20	17.84	APR 30	17.38	JUN 27	18.54	AUG 29	21.74
NOV 29	20.23	FEB 28	18.41	26	17.87	MAY 29	17.71	JUL 30	20.66	SEP 26	22.84
DEC 26	19.71										

385638077220101. Local number, 52V2.

LOCATION.--Lat 38°56'58", long 77°22'01", Hydrologic Unit 02070008, at U.S. Geological Survey, National Center, Reston. Owner: U.S. Geological Survey.

AQUIFER.--Manassas sandstone of Triassic age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 8 in., depth 205 ft, cased to 35 ft, open hole 35 to 205 ft.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 390 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

PERIOD OF RECORD.--October 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.47 ft below land-surface datum, Mar. 30, 1984; lowest recorded, 17.30 ft below land-surface datum, Oct. 24, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.36	15.44	14.91	---	13.36	12.17	11.41	12.63	13.45	---	16.26	17.04
10	15.45	15.41	14.51	14.23	13.20	12.38	11.84	12.06	13.60	14.96	16.42	17.17
15	15.53	15.48	14.66	---	11.75	12.35	11.89	13.06	13.90	15.27	16.68	17.13
20	15.64	15.41	14.62	---	---	12.54	12.13	13.13	14.06	15.54	16.68	---
25	15.66	15.36	14.68	---	---	12.39	12.31	12.96	14.26	---	16.83	---
EOM	15.51	15.03	---	14.35	---	11.33	12.56	13.25	---	---	16.94	17.24

WTR YR 1985    HIGHEST 11.16 MAR 30, 1985    LOWEST 17.24 SEP 30, 1985



364047076552401. Local number, 55B22.

LOCATION.--Lat 36°40'47", long 76°55'24", Hydrologic Unit 03010202, at 5th Avenue and Middle Street, Franklin.

Owner: City of Franklin.

**AQUIFER.**--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Jetted observation water well, diameter 4 in., depth 354 ft, screened 335 to 354 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 21.24 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of manhole at land-surface datum.

REMARKS.--Water level affected by local pumpage.

PERIOD OF RECORD.--June 1942 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.50 ft below land-surface datum, June 25, 1942;  
lowest measured, 192.69 ft below land-surface datum, Aug. 2, 1985.

DATE		WATER LEVEL		DATE		WATER LEVEL		DATE		WATER LEVEL	
NOV 2	179.36	FEB 4	176.39	MAY 6	183.37	JUN 19	189.68	AUG 2	192.69	SEP 17	192.00
DEC 3	177.29	MAR 19	177.66								

364033076562603. Local number, 55B66.

LOCATION.--Lat 36°40'33", long 76°56'26", Hydrologic Unit 03010202, at P. D. Camp Community College, Franklin.

Owner: U.S. Geological Survey.

AQUIFER.--Sands of lower Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 360 ft, screened 350 to 360 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATEM.--Elevation of land-surface datum is 34 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.58 ft above land-surface datum.

REMARKS.--Water level affected by local pumpage.

PERIOD OF RECORD.--November 1984 to September 1985.

EXTREMES FOR PERIOD NOVEMBER 1984 TO SEPTEMBER 1985.--Highest water level measured, 175.39 ft below land-surface datum, Dec. 27, 1984; lowest measured, 185.52 ft below land-surface datum, Aug. 2, 1985.

[illegible]

364033076562604. Local number, 55B67.

LOCATION.--Lat 36°40'33", long 76°56'26", Hydrologic Unit 03010202, at P. D. Camp Community College, Franklin.

Owner: U.S. Geological Survey.

AQUIFER.--Sands of Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 140 ft, screened 130 to 140 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 34 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.15 ft above land-surface datum.

REMARKS.--Water level affected by local pumpage.

PERIOD OF RECORD.--November 1984 to September 1985.

EXTREMES FOR PERIOD NOVEMBER 1984 TO SEPTEMBER 1985.--Highest water level measured, 29.51 ft below land-surface datum, Mar. 19, 1985; lowest measured, 30.81 ft below land-surface datum, Sept. 16, 1985.

[illegible]

## GROUND-WATER LEVELS

373

## HALIFAX COUNTY

364550078562301. Local number, 39C1.

LOCATION.--Lat 36°45'50", long 78°56'23", Hydrologic Unit 03010105, in the town of Halifax. Owner: Town of Halifax.

AQUIFER.--Granite and gneiss of uncertain age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in., depth 302 ft, cased to 52 ft, open hole 52 to 302 ft.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 380 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.20 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 11.

PERIOD OF RECORD.--October 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.28 ft below land-surface datum, June 8, 1980; lowest recorded, 45.09 ft below land-surface datum, Dec. 30, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	37.00	37.39	---	37.64	38.03	---	38.19	38.40	38.62	38.96	39.08
10	---	---	---	---	37.63	---	38.18	38.18	38.40	38.70	38.95	39.08
15	---	---	---	---	---	---	38.01	---	38.49	38.71	39.00	39.17
20	---	---	---	37.63	---	---	38.10	---	38.55	38.80	39.07	39.15
25	37.00	---	---	37.63	37.90	---	38.13	38.28	38.57	38.86	39.06	39.20
EOM	36.99	---	---	37.64	38.03	---	38.20	38.31	38.60	38.90	39.07	39.21

WTR YR 1985      HIGHEST 36.90 OCT 28, 1984      LOWEST 39.29 SEP 28, 1985

## CITY OF HOPEWELL

371801077164201. Local number, 52G1.

LOCATION.--Lat 37°18'01", long 77°16'42", Hydrologic Unit 02080206, in the city of Hopewell. Owner: Virginia American Water Corporation.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 300 ft, screen depth unknown.

INSTRUMENTATION.--Weekly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 50.26 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.34 ft above land-surface datum.

PERIOD OF RECORD.--May 1939 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.56 ft below land-surface datum, Sept. 7, 1979; lowest measured, 56.95 ft below land-surface datum, Aug. 14, 1943.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	34.66	DEC 7	34.40	FEB 8	32.60	APR 12	35.05	JUN 14	35.09	AUG 16	35.12
12	37.70	14	34.68	15	34.90	19	35.15	21	35.23	23	29.93
19	34.70	21	34.80	22	35.05	26	35.04	28	35.29	30	33.79
26	34.69	28	35.07	MAR 1	35.15	MAY 3	35.07	JUL 5	35.10	SEP 6	34.99
NOV 2	34.45	JAN 4	32.67	8	35.21	10	35.15	12	35.18	13	35.14
9	34.82	11	34.32	15	35.01	17	35.16	19	35.24	20	35.24
16	34.55	18	34.66	22	35.10	24	35.14	26	33.10	27	31.85
23	32.61	25	34.88	29	34.97	31	35.13	AUG 2	34.58		
30	33.51	FEB 1	28.87	APR 5	34.92	JUN 7	35.12	9	35.04		

## GROUND-WATER LEVELS

## ISLE OF WIGHT COUNTY

364059076544901. Local number, 55B16.

LOCATION.--Lat 36°40'59", long 76°54'49", Hydrologic Unit 03010202, at lumberyard well, near Franklin. Owner: Union Camp Corporation.

AQUIFER.--Sand of undifferentiated Cretaceous aquifer.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 305 ft, screened 285 to 305 ft.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.45 ft above land-surface datum. Measuring point changed from top edge of recorder shelf, 3.50 ft above land-surface datum, Nov. 28, 1979.

REMARKS.--Water level affected by local pumpage.

PERIOD OF RECORD.--June 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 99.00 ft below land-surface datum, Dec. 27, 1960; lowest recorded, 197.77 ft below land-surface datum, Sept. 22, 23, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	186.61	186.09	184.47	180.47	182.93	183.30	183.00	e191.50	193.39	195.83	195.84	187.63
10	187.22	185.82	184.44	181.40	183.56	184.59	187.55	191.82	195.40	195.89	196.39	193.54
15	186.73	185.53	184.54	181.69	182.59	183.72	188.55	192.73	195.75	196.11	196.64	194.91
20	186.18	185.31	184.69	181.88	183.09	184.55	189.13	193.01	195.77	196.15	196.67	197.35
25	187.14	185.28	182.57	182.86	183.28	183.45	190.49	193.39	196.32	196.53	196.56	197.34
EOM	186.26	184.62	179.53	182.61	183.26	183.32	191.83	192.89	196.47	196.13	195.56	194.20

e Estimated.

WTR YR 1985      HIGHEST 177.52 DEC 28, 29, 1984      LOWEST 197.77 SEP 22, 23, 1985

364116076545001. Local number, 55B35.

LOCATION.--Lat 36°41'16", long 76°54'50", Hydrologic Unit 03010202, near Franklin. Owner: Union Camp Corporation.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 623 ft, screened 430 to 435 ft, 475 to 480 ft, 580 to 585 ft, 618 to 623 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 32 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 2.15 ft above land-surface datum. Measuring point changed from top of casing, 2 ft above land-surface datum, Oct. 26, 1979.

REMARKS.--Water level affected by local pumpage. Recorder removed Nov. 14, 1971; manual measurements thereafter. Recorder reinstalled Oct. 12, 1982.

PERIOD OF RECORD.--February 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 154.99 ft below land-surface datum, Aug. 23, 1974; lowest measured, 217.08 ft below land-surface datum, Sept. 22, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	205.58	203.49	199.90	202.83	---	202.89	210.50	213.07	215.34	214.43	207.33
10	---	205.03	203.74	199.99	202.97	203.93	206.78	211.56	215.28	215.28	216.20	213.03
15	---	204.85	203.94	---	201.35	203.77	208.22	212.41	215.07	215.68	216.30	214.87
20	205.89	204.84	204.27	---	---	203.73	208.10	212.76	215.71	215.87	216.28	216.88
25	---	204.56	199.91	---	---	202.63	210.16	212.67	215.98	216.10	215.55	216.54
EOM	205.78	203.64	198.75	---	---	202.32	211.37	212.43	215.79	215.88	213.21	213.67

WTR YR 1985      HIGHEST 194.71 DEC 28, 1984      LOWEST 217.08 SEP 22, 1985

## GROUND-WATER LEVELS

375

## ISLE OF WIGHT COUNTY--Continued

364125076544801. Local number, 55B36.

LOCATION.--Lat 36°41'25", long 76°54'48", Hydrologic Unit 03010202, near Franklin. Owner: Union Camp Corporation.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 860 ft, screened 720 to 725 ft, 800 to 805 ft, 855 to 860 ft.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 37 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 4.56 ft above land-surface datum. Measuring point changed from 4.25 ft above land-surface datum, Oct. 25, 1979; published incorrectly as 4.25 ft in 1980 and 1981.

REMARKS.--Water level affected by local pumpage.

PERIOD OF RECORD.--March 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 156.65 ft below land-surface datum, Dec. 27, 1969; lowest measured, 219.29 ft below land-surface datum, May 18, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	188.92	189.04	188.57	---	---	---	187.41	186.97	187.49	188.21	188.24	187.75
10	188.93	189.03	188.40	---	---	186.80	187.21	186.99	187.65	188.22	188.18	186.24
15	188.95	189.01	188.28	---	---	187.01	187.14	187.00	187.93	188.22	188.18	185.78
20	188.96	188.96	188.26	---	---	187.20	187.04	187.12	188.01	188.22	188.22	185.53
25	188.98	188.88	188.23	---	---	187.28	186.94	187.27	188.08	188.22	188.24	185.52
EOM	189.05	188.71	186.70	---	---	187.42	186.96	187.37	188.12	188.23	188.26	185.55

WTR YR 1985 HIGHEST 185.30 FEB 4, 1985 LOWEST 189.05 OCT 27-31, NOV 1, 2, 1984

364425076532701. Local number, 55B45.

LOCATION.--Lat 36°44'25", long 76°53'27", Hydrologic Unit 03010202, near Maynards Crossroads. Owner: R. J. Goodrich.

AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 348 ft, screened 338 to 348 ft.

INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 37 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum. Measuring point changed from top edge of recorder shelf, 2.20 ft above land-surface datum, Apr. 13, 1981.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 33. Recorder removed Sept. 30, 1980; manual measurements thereafter.

PERIOD OF RECORD.--December 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 130.06 ft below land-surface datum, Aug. 15, 1974; lowest measured, 167.00 ft below land-surface datum, Aug. 12, 1981.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 26	156.18	JUN 12	157.58	JUL 17	157.31	AUG 19	158.67				

## JAMES CITY COUNTY

371311076463601. Local number, 56F1.

LOCATION.--Lat 37°13'11", long 76°46'36", Hydrologic Unit 02080206, Colonial Parkway near Jamestown. Owner: U.S. Department of Interior. Colonial National Historical Park.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 346 ft, screened 336 to 346 ft.

INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top edge of recorder shelf, 3.15 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 18. Recorder removed Sept. 30, 1980; manual measurements thereafter.

PERIOD OF RECORD.--May 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 43.29 ft below land-surface datum, May 8, 1969; lowest measured, 78.78 ft below land-surface datum, Sept. 30, 1985.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	76.35	MAR 26	73.53	JUN 13	76.25	JUL 9	77.22	AUG 20	77.44	SEP 30	78.78



## GROUND-WATER LEVELS

## KING AND QUEEN COUNTY

373126076454101. Local number, 56J11.

LOCATION.--Lat 37°31'26", long 76°45'41", Hydrologic Unit 02080105, at West Point Airport. Owner: Chesapeake Corporation.

AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 1,254 ft, screened 1,233 to 1,248 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS and Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 73 through the 1979 water year; by U.S. Geological Survey thereafter. Recorder removed June 3, 1975; manual measurements thereafter.

PERIOD OF RECORD.--October 1974 to current year. Unpublished records available in March 1962 and June 1972.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 73.08 ft below land-surface datum, Apr. 25, 1975; lowest measured, 89.77 ft below land-surface datum, Sept. 23, 1985.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	84.65	DEC 13	87.82	MAR 27	88.05	JUN 4	88.73	AUG 20	89.08	SEP 23	89.77
31	88.16	MAR 18	88.10	MAY 10	88.60	JUL 11	88.22	22	89.24	30	89.75

373008076425601. Local number, 57J3.

LOCATION.--Lat 37°30'08", long 76°42'56", Hydrologic Unit 02080107, Gressitt observation well, near West Point. Owner: Chesapeake Corporation.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in. to 200 ft, diameter 4 in. from 200 to 760 ft, depth 760 ft, screened 741 to 756 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS and Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 51 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.20 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 74 through the 1979 water year; by U.S. Geological Survey thereafter. Recorder removed June 10, 1976; manual measurements thereafter.

PERIOD OF RECORD.--November 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 109.90 ft below land-surface datum, Jan. 26, 1975; lowest measured, 126.25 ft below land-surface datum, Sept. 30, 1985.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 13	123.38	MAR 18	123.62	JUL 9	125.30	AUG 20	125.66	AUG 22	125.58	SEP 30	126.25
FEB 15	123.19	MAY 10	124.16	11	125.17						

## KING WILLIAM COUNTY

373226076481201. Local number, 56J2.

LOCATION.--Lat 37°32'26", long 76°48'12", Hydrologic Unit 02080106, in West Point, 0.1 mi west of State Highway 30. Owner: Chesapeake Corporation.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled withdrawal well, diameter 18 in. to 300 ft, diameter 8 in. from 300 to 600 ft, depth 600 ft, screened 390 to 400 ft, 550 to 570 ft, 580 to 600 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

REMARKS.--This well replaces previously published 56J1 which was discontinued April 1982.

PERIOD OF RECORD.--November 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 141.48 ft below land-surface datum, Feb. 15, 1983; lowest measured, 162.05 ft below land-surface datum, June 7, 1985.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	144.99	JAN 31	145.45	MAR 18	157.77	JUN 7	162.05	JUL 10	161.34		

## GROUND-WATER LEVELS

377

## KING WILLIAM COUNTY--Continued

373206076481201. Local number, 56J18.

LOCATION.--Lat 37°32'06", long 76°48'12", Hydrologic Unit 02080106, near State Route 33 at Chesapeake Corporation, northeast corner of 13th and A Streets in brick pump house. Owner: Chesapeake Corporation of Virginia.

AQUIFER.--Sand and clay of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused well, diameter 18 in. to 180 ft, diameter 8 in. from 165 to 446 ft, depth 446 ft, screened 210 to 240 ft, 380 to 390 ft, 405 to 445 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.45 ft above land-surface datum. Measuring point changed from 1.22 ft above land-surface datum, Oct. 3, 1983.

REMARKS.--Water levels affected by local pumpage.

PERIOD OF RECORD.--March 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 111.86 ft below land-surface datum, Dec. 29, 1978; lowest measured, 173.08 ft below land-surface datum, Feb. 23, 1979.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	154.67	JAN 31	153.69	MAR 18	153.56	JUN 7	160.60	JUL 10	164.78		

## LOUDOUN COUNTY

391542077423801. Local number, 49Y1.

LOCATION.--Lat 39°15'42", long 77°42'38", Hydrologic Unit 02070008, near Harpers Ferry. Owner: American Telephone and Telegraph Company.

AQUIFER.--Bedrock of Precambrian or Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6.5 in. Prior to 1974, diameter reported as 8 in.

Depth 516 ft, cased to 45 ft, open hole 45 to 516 ft.

INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 1,100 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to 1974, elevation reported as 940 ft above mean sea level. Measuring point: Top of casing, 1 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 22. Recorder removed July 26, 1974; manual measurements thereafter.

PERIOD OF RECORD.--August 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 48.00 ft below land-surface datum, June 22, 1972; lowest measured, 61.70 ft below land-surface datum, Sept. 27, 1983.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	60.20	JAN 16	59.26	APR 10	56.92	JUL 9	59.89	AUG 21	60.16	SEP 30	60.41
DEC 4	58.48	FEB 26	57.35	MAY 22	59.28						

390623077314201. Local number, 50W4C.

LOCATION.--Lat 39°06'23", long 77°31'42", Hydrologic Unit 02070008, east of Highway 7 on east side of town of Leesburg, under water tower. Owner: Town of Leesburg.

AQUIFER.--Slightly metamorphosed Balls Bluff Formation of Triassic age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 535 ft, cased to 6 ft, open hole 6 to 535 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 400 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum. Measuring point was land-surface datum for the following dates: Oct. 8, 1981, Nov. 18, 1981, and Mar. 23, 1982.

PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.69 ft below land-surface datum, Apr. 30, 1984; lowest measured, 48.97 ft below land-surface datum, Feb. 19, 1981.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	46.23	JAN 30	46.53	MAR 21	44.39	MAY 30	42.83	JUL 31	44.35	SEP 27	47.43

## GROUND-WATER LEVELS

## LOUISA COUNTY

380217078133701. Local number, 45N1.

LOCATION.--Lat 38°02'17", long 78°13'43", Hydrologic Unit 02080106, near Thelma, 3 mi southwest of Boswells Tavern on Tyler property near State Highway 640. Owner: Tyler.

AQUIFER.--Wissahickon Formation of Late Precambrian (?) age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 56 ft, length of casing unknown.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 500 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.95 ft above land-surface datum. Measuring point changed from top edge of recorder shelf, 3.10 ft above land-surface datum, Mar. 14, 1973.

REMARKS.--Records provided by the Virginia Water Control Board.

PERIOD OF RECORD.--July 1952 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.97 ft below land-surface datum, Apr. 30, 1973; lowest measured, 35.17 ft below land-surface datum, Dec. 2, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	23.63	24.90	25.93	25.98	24.63	22.44	22.93	24.21	25.03	25.40	23.89	21.80
10	23.83	25.08	25.81	25.86	24.15	22.39	23.31	24.41	24.69	25.69	---	21.61
15	24.03	25.40	25.82	25.40	23.41	22.52	23.26	24.65	24.60	24.58	24.39	21.83
20	24.30	25.69	25.75	25.10	22.95	22.61	23.48	24.88	24.68	24.02	23.78	22.00
25	24.63	25.71	26.01	24.92	22.60	22.81	23.68	24.90	24.87	23.72	22.90	22.36
EOM	24.88	25.76	26.04	25.10	22.56	22.83	24.02	24.97	25.19	23.68	22.00	22.70

WTR YR 1985      HIGHEST 21.58      SEP 10, 1985      LOWEST 26.06      JAN 3, 1985

380043078111301. Local number, 45N4.

LOCATION.--Lat 38°00'45", long 78°11'14", Hydrologic Unit 02080106, near Thelma, 4 mi southeast of Boswells Tavern, east of U.S. Highway 15. Owner: Virginia Department of Correction.

AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 200 ft, cased to 42 ft, open hole 42 to 200 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 415 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.30 ft above land-surface datum.

PERIOD OF RECORD.--February 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.40 ft below land-surface datum, Apr. 28, 1980; lowest measured, 14.43 ft below land-surface datum, Aug. 26, 1981.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	12.53	DEC 21	11.96	FEB 27	11.14	APR 26	11.90	JUN 26	12.07	SEP 27	12.48
NOV 28	12.34	JAN 29	11.85	MAR 27	11.37	MAY 29	11.48	JUL 29	12.32		

380231078132801. Local number, 45N5.

LOCATION.--Lat 38°02'31", long 78°13'28", Hydrologic Unit 02080106, near Thelma, 3 mi southwest of Boswells Tavern on Tyler property near State Highway 640. Owner: Tyler.

AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 14.15 ft, length of casing unknown.

INSTRUMENTATION.--Monthly measurements with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 440 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.35 ft above land-surface datum.

PERIOD OF RECORD.--February 1977 to July 1985, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.04 ft below land-surface datum, Mar. 28, 1984; lowest measured, 6.81 ft below land-surface datum, July 31, 1978.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	0.72	DEC 21	1.44	FEB 27	0.97	APR 26	1.36	JUN 26	2.85	JUL 29	2.09
NOV 28	1.70	JAN 29	1.87	MAR 27	.62	MAY 29	.69				

## GROUND-WATER LEVELS

379

## LOUISA COUNTY--Continued

380236078132301. Local number, 45N6.

LOCATION.--Lat 38°02'36", long 78°13'23", Hydrologic Unit 02080106, near Thelma, 3 mi southwest of Boswells

Tavern on Tyler property near State Highway 640. Owner: Tyler.

AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 11.75 ft, length of casing unknown.

INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 440 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.20 ft above land-surface datum.

PERIOD OF RECORD.--February 1977 to July 1985, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.06 ft below land-surface datum, July 31, 1978; lowest measured, 9.85 ft below land-surface datum, Sept. 28, 1977.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	6.59	DEC 21	6.19	FEB 27	4.90	APR 26	6.50	JUN 26	7.24	JUL 29	6.37
NOV 28	6.56	JAN 29	6.16	MAR 27	5.62	MAY 29	7.54				

380131078001001. Local number, 46N1.

LOCATION.--Lat 38°01'31", long 78°00'10", Hydrologic Unit 02080106, in the town of Louisa. Owner: Town of Louisa.

AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 132 ft, length of casing unknown.

INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 455 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 56. Recorder removed Apr. 30, 1979; manual measurements thereafter.

PERIOD OF RECORD.--March 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.27 ft below land-surface datum, May 18, 1973; lowest measured, 34.78 ft below land-surface datum, Dec. 8, 1981.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 25	30.95	JUN 16	31.55	JUL 12	31.79	AUG 23	31.93				

## MONTGOMERY COUNTY

370812080261901. Local number, 27F2.

LOCATION.--Lat 37°08'12", long 80°26'19", Hydrologic Unit 05050001, in the town of Christiansburg. Owner: Town of Christiansburg.

AQUIFER.--Beekmantown Formation of Early Ordovician age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in., depth 450 ft, length of casing unknown.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 1,970 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.50 ft below land-surface datum. Prior to 1985, casing was published as being 1.6 ft below land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 19. Lowest recorded water level, 7.39 ft, result of Sept. 19, 1985 earthquake in Mexico.

PERIOD OF RECORD.--May 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.50 ft below land-surface datum, Apr. 10-16, 23-25, 1983, and Apr. 10-17, 1984, water flowing over top of casing; lowest recorded, 7.39 ft below land-surface datum, Sept. 19, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.14	5.00	5.23	4.13	3.90	4.27	---	5.40	5.30	5.62	5.85	5.31
10	5.27	5.26	5.12	4.50	4.30	4.34	4.90	5.48	5.22	5.73	5.96	5.55
15	5.23	5.32	5.32	4.91	4.30	4.64	4.93	5.57	5.47	5.85	6.21	5.78
20	5.40	5.35	5.36	5.18	3.82	---	5.06	5.41	5.47	5.82	5.10	5.78
25	5.00	5.41	5.33	5.26	3.89	---	4.88	4.33	5.63	5.98	5.28	5.90
EOM	5.11	4.87	5.27	5.31	3.77	---	5.28	5.07	5.88	5.77	5.00	6.08

WTR YR 1985      HIGHEST 3.50 FEB 26, 1985      LOWEST 7.39 SEP 19, 1985





## GROUND-WATER LEVELS

381

## ORANGE COUNTY

381002078094201. Local number, 45P1.

LOCATION.--Lat 38°10'02", long 78°09'42", Hydrologic Unit 02080106. Gordonsville. Owner: M. L. Johnson.

AQUIFER.--Phyllite of Evington Group of Cambrian or Precambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 98 ft, length of casing unknown.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 480 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 30.

PERIOD OF RECORD.--February 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.83 ft below land-surface datum, Apr. 10, 1973; lowest recorded, 35.90 ft below land-surface datum, Jan. 31, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	27.28	28.89	28.79	27.41	24.51	23.17	23.47	25.56	26.40	26.91	---	27.14
10	27.60	29.22	27.82	26.07	24.20	23.36	24.17	25.84	26.70	27.20	29.20	27.58
15	27.78	29.57	27.89	25.67	22.89	23.74	24.17	26.17	25.77	27.53	29.20	28.23
20	28.16	29.88	28.13	25.63	22.98	23.91	24.63	26.33	26.02	27.95	28.72	28.50
25	28.50	29.97	28.66	25.51	23.00	23.92	24.80	26.02	26.34	28.35	26.79	28.80
EOM	28.87	29.17	28.77	26.07	23.10	23.47	25.30	25.90	26.72	28.70	26.85	---

WTR YR 1985      HIGHEST 22.63 FEB 24, 1985      LOWEST 30.07 NOV 26, 1984

## PRINCE WILLIAM COUNTY

384931077420301. Local number, 49U1.

LOCATION.--Lat 38°49'30", long 77°42'08", Hydrologic Unit 02070010, north of State Highway 55 near Thoroughfare Gap, 3.7 mi west of Haymarket. Owner: Virginia Department of Highways and Transportation.

AQUIFER.--Shale and sandstone of Newark Group of Triassic age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in., depth 345 ft, cased to 20 ft, open hole 20 to 345 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 383 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

REMARKS.--Recorder removed Feb. 9, 1980; manual measurements thereafter.

PERIOD OF RECORD.--June 1969 to current year. Unpublished records available October 1968 to May 1969.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.59 ft below land-surface datum, Mar. 19, 1975; lowest recorded, 10.22 ft below land-surface datum, Nov. 8, 9, 1968.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 9	7.69	DEC 19	6.23	MAR 22	6.05	JUN 18	6.79	AUG 6	8.40	SEP 19	8.85
NOV 14	7.97	FEB 5	5.21	MAY 9	6.95						

385607077381101. Local number, 49V1.

LOCATION.--Lat 38°56'07", long 77°38'11", Hydrologic Unit 02070010, north of Haymarket at intersection of State Highways 600 and 615. Owner: J. H. Hutchison.

AQUIFER.--Shale and sandstone of Newark Group of Triassic age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in., depth 165 ft, cased to 10 ft, open hole 10 to 65 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 420 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1 ft above land-surface datum. Readings from 1979 to 1981 should be 0.7 ft lower than previously published.

PERIOD OF RECORD.--November 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.85 ft below land-surface datum, Oct. 12, 1979; lowest recorded, 12.28 ft below land-surface datum, July 12, 13, 1970.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.29	10.06	8.65	8.62	9.25	9.15	8.99	10.07	10.30	11.25	11.81	11.68
10	10.41	10.13	8.44	8.74	9.36	9.26	9.44	10.29	10.37	11.33	11.89	11.79
15	10.42	10.29	8.80	9.13	8.72	---	9.63	10.37	10.53	11.56	12.26	11.73
20	10.45	10.08	9.09	9.44	9.03	---	9.84	10.33	10.70	11.54	11.66	11.90
25	10.47	10.05	9.25	9.57	8.84	9.23	9.92	10.14	10.87	11.86	11.51	12.20
EOM	10.20	8.93	9.40	9.83	8.78	8.96	10.22	10.33	11.13	11.58	11.54	11.77

WTR YR 1985      HIGHEST 8.17 DEC 8, 1984      LOWEST 12.27 AUG 16, 1985

## GROUND-WATER LEVELS

## PRINCE WILLIAM COUNTY--Continued

383423077245901. Local number, 51S7.

LOCATION.--Lat 38°34'23", long 77°24'59", Hydrologic Unit 02070011, 0.7 mi southeast of Belfair Crossroads and 700 ft north of State Highway 619. Owner: National Park Service.

AQUIFER.--Wissahickan Formation of Paleozoic age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 490 ft, cased to 50 ft, open hole 50 to 490 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 295 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

PERIOD OF RECORD.--December 1977 to current year. Unpublished records available September 1973 to November 1975.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.14 ft below land-surface datum, Apr. 20, 1983; lowest measured, 11.51 ft below land-surface datum, Sept. 28, 1983.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 28	4.50	JAN 29	3.71	MAR 20	3.12	MAY 29	5.53	JUL 30	9.15	SEP 26	10.90

## PULASKI COUNTY

370516080411501. Local number, 25E2.

LOCATION.--Lat 37°05'16", long 80°41'15", Hydrologic Unit 05050001, in the town of Dublin. Owner: Town of Dublin.

AQUIFER.--Conococheague Formation of Late Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 370 ft, length of casing unknown.

INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 2,170 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum. Measuring point changed from top of recorder shelf, 2.23 ft above land-surface datum, July 21, 1974.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 59. Recorder removed July 21, 1974; manual measurements thereafter.

PERIOD OF RECORD.--April 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 60.00 ft below land-surface datum, Mar. 18, 1973; lowest measured, 82.50 ft below land-surface datum, Oct. 5, 1982.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	79.42	JAN 15	78.58	APR 9	77.90	MAY 23	78.20	JUL 9	78.22	AUG.20	70.30
DEC 4	81.40	FEB 26	77.45								

## CITY OF ROANOKE

371653079552101. Local number, 31G1.

LOCATION.--Lat 37°16'53", long 79°55'21", Hydrologic Unit 03010101, in the city of Roanoke. Owner: Nelson-Roanoke Corporation.

AQUIFER.--Rome Formation of Cambrian age. Prior to 1974, reported as Elbrook formation.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 48 ft, length of casing unknown.

INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 930 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.9 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 8. Recorder removed July 21, 1974; manual measurements thereafter.

PERIOD OF RECORD.--August 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.97 ft below land-surface datum, June 22, 1972; lowest measured, 23.15 ft below land-surface datum, May 23, 1977.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	17.96	JAN 14	17.66	APR 8	17.71	JUL 8	17.78	AUG 19	16.34	SEP 30	17.86
DEC 3	17.46	FEB 25	17.62	MAY 20	17.88						

## GROUND-WATER LEVELS

383

## ROCKBRIDGE COUNTY

373758079271601. Local number, 35K1.

LOCATION.--Lat 37°37'58", long 79°27'16", Hydrologic Unit 02080202, in the town of Glasgow. Owner: Town of Glasgow.

AQUIFER.--Rome Formation of Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 695 ft, cased to 101 ft, open hole from 101 to 695 ft.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 745 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 63.

PERIOD OF RECORD.--June 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 15.92 ft below land-surface datum, July 8, 1972; lowest recorded, 29.13 ft below land-surface datum, Dec. 13, 14, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	25.67	26.29	25.60	24.58	24.00	23.86	24.27	25.21	25.57	---	27.25	26.48
10	25.82	26.38	25.30	24.40	24.01	24.00	24.60	25.40	25.72	---	27.36	26.69
15	25.91	26.57	25.40	24.53	23.32	24.28	24.60	25.56	25.92	26.73	27.53	26.87
20	26.12	26.61	25.47	24.71	23.50	24.44	24.80	25.70	---	26.90	26.60	27.02
25	26.20	26.62	25.48	24.80	23.57	24.09	24.94	25.48	---	27.08	26.43	27.24
BOM	26.30	25.80	25.50	25.01	23.62	24.13	25.17	25.32	---	27.11	26.38	27.40

WTR YR 1985 HIGHEST 23.26 FEB 15, 1985 LOWEST 27.59 AUG 17, 1985

## ROCKINGHAM COUNTY

382150078424001. Local number, 41Q1.

LOCATION.--Lat 38°21'50", long 78°42'40", Hydrologic Unit 02070005, at Virginia Department of Highways and Transportation garage near McGaheysville. Owner: U.S. Geological Survey.

AQUIFER.--Conococheague limestone of Late Cambrian age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 1/4 in., depth 310 ft, cased to 131 ft, open hole 131 to 310 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 1,105 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top edge of recorder shelf, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 60.38 ft below land-surface datum, Dec. 26, 1972; lowest recorded, 87.18 ft below land-surface datum, Oct. 26, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	67.13	67.94	67.83	67.15	66.53	65.97	66.85	67.96	68.87	68.84	70.13	69.49
10	67.26	68.09	67.51	66.90	66.51	66.16	67.08	68.07	68.94	69.14	70.57	69.79
15	67.45	68.31	67.44	66.89	65.07	66.39	67.26	68.28	67.75	68.89	71.08	70.34
20	67.74	68.54	67.43	67.01	65.33	66.63	67.49	68.43	67.83	69.00	70.94	70.93
25	67.91	68.70	67.50	67.26	65.65	66.71	67.70	68.54	68.11	69.34	70.28	71.54
BOM	68.00	68.27	67.58	67.52	65.76	66.78	67.87	68.69	68.50	69.72	70.28	72.15

WTR YR 1985 HIGHEST 64.93 FEB 16, 1985 LOWEST 72.15 SEP 30, 1985



## GROUND-WATER LEVELS

## SOUTHAMPTON COUNTY

364109077230701. Local number, 51B3.

LOCATION.--Lat 36°41'09", long 77°23'07", Hydrologic Unit 03010201, 150 ft east of the intersection of State Highway 615 and U.S. 58, near Adams Grove. Owner: U.S. Geological Survey.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 253 ft, screened 165 to 175 ft, open hole from 175 to 253 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 126 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.20 ft above land-surface datum.

PERIOD OF RECORD.--July 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 54.21 ft below land-surface datum, Apr. 30, 1978; lowest recorded, 60.03 ft below land-surface datum, Oct. 24, 25, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	57.03	57.52	57.34	56.66	56.02	55.68	55.93	56.33	56.96	58.00	57.57	57.67
10	57.12	57.63	57.15	56.45	55.95	55.80	55.97	56.48	57.11	58.20	57.55	57.87
15	57.20	57.65	57.10	56.43	55.80	55.84	56.01	56.55	57.29	58.03	57.70	58.13
20	57.35	57.63	57.01	56.34	55.79	55.87	56.05	56.75	57.46	57.80	57.65	58.30
25	57.45	57.61	57.00	56.33	55.78	55.81	56.11	56.74	57.72	57.85	57.54	58.35
BOM	57.53	57.53	56.99	56.32	55.74	55.84	56.28	56.75	57.92	57.64	57.53	57.66

WTR YR 1985      HIGHEST 55.66 MAR 5, 1985      LOWEST 58.35 SEP 25, 26, 1985

364706077072301. Local number, 54C1.

LOCATION.--Lat 36°47'06", long 77°07'23", Hydrologic Unit 03010201, in the town of Sebrell. Owner: Norfolk and Western Railway.

AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in., depth 344 ft, screen depth unknown.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 58.4 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, at land-surface datum.

PERIOD OF RECORD.--1907, July 1938, April 1940 to December 1946, September 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.00 ft below land-surface datum, 1907; lowest measured, 97.48 ft below land-surface datum, Oct. 14, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	95.80	JAN 3	95.89	MAR 18	95.52	JUN 19	95.56	AUG 2	95.75	SEP 5	96.09
NOV 2	95.89	FEB 4	95.44	MAY 6	95.32						

## CITY OF SUFFOLK

363834076382301. Local number, 57B8.

LOCATION.--Lat 36°38'27", long 76°38'05", Hydrologic Unit 03010205, 0.3 mi southwest of State Highway 664 and 0.8 mi east of U.S. Highway 13. Owner: Soren F. Andresen.

AQUIFER.--Sand of Chesapeake Group.

WELL CHARACTERISTICS.--Drilled flowing water well, diameter 2 in., depth 65 ft, screened 50 to 65 ft.

INSTRUMENTATION.--Bimonthly measurement by USGS personnel using a manometer.

DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: At land-surface datum.

REMARKS.--All water levels from Apr. 13 to Sept. 28, 1978, should be 1.20 ft higher than previously published.

PERIOD OF RECORD.--November 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.51 ft above land-surface datum, Mar. 9, 1979; lowest measured, at land-surface datum, Sept. 26, 1980.

WATER LEVEL, IN FEET ABOVE LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	2.45	FEB 6	6.20	MAR 19	5.88	JUN 20	4.55	AUG 1	4.48	SEP 17	1.70
DEC 4	2.90										

NOTE.--Flowing well, readings given are above land-surface datum.

## 385

363810076381001. Local number, 57B9.

**AQUIFER.--**Sand of Chesapeake Group.

WELL CHARACTERISTICS.--Drilled flowing unused water well, diameter 1.25 in., depth 85 ft, screened 70 to 85 ft.

INSTRUMENTATION.--Bimonthly measurement by USGS personnel using a manometer.

DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: At land-surface datum.

REMARKS.--All water levels from Apr. 13 to Sept. 28, 1978, should be 0.78 ft higher than previously published.

PERIOD OF RECORD.--November 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.85 ft above land-surface datum, Feb. 7, 1983;

lowest measured, 0.22 ft below land-surface datum, Sept. 26, 1980.

[illegible]

NOTE.--Flowing well, readings given are above land-surface datum.

363928076332901. Local number, 58B13.

LOCATION.--Lat 36°39'28", long 76°33'29", Hydrologic Unit 03010205, 4 mi south of Suffolk and east of State Highway 642. Owner: Melvin Brinkley.

AQUIFER.--Sand of Pleistocene age.

WELL CHARACTERISTICS.--Dug unused water well, diameter 22 in., depth 15 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 40 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.90 ft above land-surface datum.

PERIOD OF RECORD.--August 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.95 ft below land-surface datum, May 25, 1979;

lowest recorded, 13.44 ft below land-surface datum, Jan. 23-26, 1981.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.50	11.01	11.40	10.34	7.71	7.25	7.66	9.13	10.33	10.48	10.84	11.38
10	10.61	11.08	10.89	10.52	7.56	7.54	8.01	9.35	10.08	10.62	10.91	11.49
15	10.71	11.14	10.75	10.31	6.66	7.88	8.19	9.56	10.06	10.63	11.00	11.59
20	10.83	11.21	10.88	9.98	7.30	8.10	8.41	9.75	10.07	10.63	11.08	11.71
25	10.89	11.28	10.93	10.04	7.54	7.69	8.63	9.93	10.20	10.69	11.17	11.81
EOM	10.95	11.34	11.00	9.47	7.38	7.38	8.90	10.15	10.34	10.77	11.28	11.53

WTR YR 1985      HIGHEST 6.60 FEB 12, 13, 1985      LOWEST 11.83 SEP 26, 1985

364330076345101. Local number, 58B235.

LOCATION.--Lat 36°43'30", long 76°34'51", Hydrologic Unit 02080208, in the Planters Plant in the city of Suffolk.

Owner: Planters Peanut Company.

**AQUIFER.**--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in. to 254 ft, 8 in. from 254 to 422 ft, 6 in. from 422 to 570.0 ft, depth 570 ft, screened 530 to 561.6 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 53 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.50 ft above land-surface datum.

PERIOD OF RECORD.--November 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 124.60 ft below land-surface datum, Sept. 5, 1984;

lowest measured, 142.30 ft below land-surface datum, July 2, 1981.

[illegible]

## GROUND-WATER LEVELS

## CITY OF SUFFOLK--Continued

364512076343702. Local number, 58C53.

LOCATION.--Lat 36°45'12", long 76°34'37", Hydrologic Unit 02080208, 750 ft northeast of Virginia Department of Highways and Transportation fuel storage area and 2,000 ft east of U.S. Highway 460. Owner: Virginia State Water Control Board.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in. to 294 ft, diameter 2 in. from 294 to 881 ft, depth 896 ft, screened 881 to 896 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.40 ft above land-surface datum.

REMARKS.--Water levels for Mar. 5 and 10, 1983, published in WDR VA-83-1 are in error because the float hung in the well. These values should not be used.

PERIOD OF RECORD.--February 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 69.41 ft below land-surface datum, Apr. 24, 1983; lowest recorded, 94.22 ft below land-surface datum, Sept. 24, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	71.15	73.51	74.95	78.46	78.49	78.89	79.73	84.56	86.60	86.99	82.05	84.90
10	71.16	73.00	75.12	78.47	78.25	79.14	80.09	83.19	83.04	82.99	83.20	82.85
15	72.98	74.48	75.54	78.47	78.34	79.26	80.09	84.66	85.78	81.81	83.45	84.90
20	71.54	73.52	79.67	78.48	78.59	79.44	80.29	85.07	86.40	81.05	81.24	92.23
25	71.41	73.98	78.44	78.48	78.67	79.48	80.58	85.62	86.40	80.53	81.25	93.61
BOM	71.24	75.13	78.45	78.49	78.80	79.53	80.88	86.80	87.23	79.86	82.35	88.73

WTR YR 1985 HIGHEST 70.47 OCT 1, 1984 LOWEST 94.22 SEP 24, 1985

364512076343705. Local number, 58C56.

LOCATION.--Lat 36°45'12", long 76°34'37", Hydrologic Unit 02080208, 750 ft northeast of Virginia Department of Highways and Transportation fuel storage area and 2,000 ft east of U.S. Highway 460. Owner: Virginia State Water Control Board.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in. to 557 ft, depth 567 ft, screened from 557 to 567 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.35 ft above land-surface datum. Measuring point changed from 3.40 ft above land-surface datum July 9, 1985.

REMARKS.--Water levels for Aug. 25 and 31, 1983, published in WDR VA-83-1 are in error because the float hung in the well. These values should not be used.

PERIOD OF RECORD.--February 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 77.24 ft below land-surface datum, Oct. 1, 1984; lowest recorded, 91.28 ft below land-surface datum, July 3, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	77.92	77.81	81.84	83.92	85.51	86.37	87.23	90.17	91.18	90.88	87.79	85.84
10	77.92	78.20	82.14	84.31	85.69	86.58	88.43	90.74	90.29	90.77	87.26	85.77
15	77.96	78.98	82.62	84.49	85.86	86.75	88.51	90.91	90.07	90.51	87.06	85.86
20	77.99	79.86	82.97	84.77	86.08	86.92	88.85	90.64	89.86	90.07	86.70	85.79
25	78.08	80.62	83.41	84.90	86.12	86.91	89.55	90.89	90.56	89.68	86.34	85.67
BOM	77.96	81.64	83.75	85.23	86.22	86.95	90.00	91.19	90.89	88.55	85.98	85.19

WTR YR 1985 HIGHEST 77.24 OCT 1, 1984 LOWEST 91.28 JUL 3, 1985

## GROUND-WATER LEVELS

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## SURREY COUNTY

370408076460101. Local number, 56E1.

LOCATION.--Lat 37°04'08", long 76°40'01", Hydrologic Unit 03010202, on State Highway 617, 3.2 mi southwest of Bacons Castle. Owner: Buster E. Cox.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 18 in. to 360 ft, 8 in. from 333.5 to 705 ft, depth 705 ft, screened 401 to 411 ft, 431 to 441 ft, 463 to 473 ft, 495 to 505 ft, 540 to 555 ft, 700 to 705 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 93 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top edge of recorder shelf, 3.6 ft above land-surface datum.

PERIOD OF RECORD.--March 1942, April 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 73.52 ft below land-surface datum, Mar. 10, 1942; lowest recorded, 151.94 ft below land-surface datum, Sept. 22, 25, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	149.47	149.40	149.36	149.06	149.08	149.13	149.11	149.45	149.73	150.41	150.99	151.60
10	149.52	149.47	149.24	149.10	149.05	149.16	149.25	149.54	149.72	150.51	151.06	151.70
15	149.46	149.51	149.31	149.04	148.99	149.21	149.20	149.61	149.88	150.66	151.24	151.90
20	149.45	149.52	149.25	149.00	149.13	149.22	149.27	149.63	150.04	150.73	151.23	151.93
25	149.53	149.46	149.36	148.95	149.13	149.15	149.31	149.50	150.20	150.82	151.33	151.94
EOM	149.54	149.32	149.31	149.11	149.14	149.12	149.43	149.63	150.32	150.82	151.51	151.54

WTR YR 1985      HIGHEST 148.77 FEB 12, 1985      LOWEST 151.94 SEP 22, 25, 1985

## WESTMORELAND COUNTY

381110076550501. Local number, 55P5.

LOCATION.--Lat 38°11'10", long 76°55'05", Hydrologic Unit 02070011, behind craft shop at George Washington birthplace. Owner: National Park Service.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 471 ft, screened 451 to 466 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 24 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--June 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.05 ft below land-surface datum, June 24, 1974; lowest recorded, 37.65 ft below land-surface datum, Sept. 20, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	35.25	34.55	34.83	34.56	34.57	34.47	34.27	34.57	34.72	35.10	35.65	35.56
10	35.23	34.69	34.93	34.83	35.17	34.60	34.69	34.76	34.70	35.16	35.58	35.55
15	34.74	35.16	34.69	34.87	34.35	34.59	34.39	34.75	34.92	35.30	35.88	35.72
20	34.80	34.95	34.56	34.66	34.65	34.51	34.56	34.90	34.86	35.39	35.61	35.74
25	35.02	34.87	34.81	34.66	34.65	34.40	34.26	34.54	35.04	35.52	35.42	35.63
EOM	34.80	34.71	34.70	34.56	34.60	34.24	34.59	34.56	34.96	35.66	35.62	35.54

WTR YR 1985      HIGHEST 33.63 FEB 13, 1985      LOWEST 35.88 AUG 15, 1985

381132076551001. Local number, 55P9.

LOCATION.--Lat 38°11'32", long 76°55'10", Hydrologic Unit 02080104, 0.6 mi north of the end of State Highway 204, off State Highway 3 at George Washington Birthplace National Monument. Owner: National Park Service.

AQUIFER.--Sand of Quaternary age.

WELL CHARACTERISTICS.--Dug unused water well, diameter 36 in., depth 22.6 ft.

INSTRUMENTATION.--Bimonthly measurements with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 17 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of concrete lip on casing, 1.65 ft above land-surface datum.

PERIOD OF RECORD.--July 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.11 ft below land-surface datum, Oct. 11, 1979; lowest measured, 11.38 ft below land-surface datum, Dec. 1, 1981.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 13	10.13	FEB 15	1.03	MAR 21	2.53	MAY 10	6.44	JUL 11	9.73		



## GROUND-WATER LEVELS

## WESTMORELAND COUNTY--Continued

380538076490801. Local number, 56N1.

LOCATION.--Lat 38°05'38", long 76°49'08", Hydrologic Unit 02080104, at Washington and Lee School near Montross.

Owner: Westmoreland County Public Schools.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in. to 189 ft, 2 in. from 189 to 641 ft, depth 641 ft, screened 608 to 628 ft.

INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 149 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum. Top of casing previously reported as 1 ft.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 16. Recorder removed Mar. 31, 1979; manual measurements thereafter.

PERIOD OF RECORD.--August 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 133.47 ft below land-surface datum, Aug. 28, 1967; lowest measured, 157.20 ft below land-surface datum, Jan. 28, 1980.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 27	153.00	JUN 11	153.27	JUL 11	154.08	AUG 21	153.75				

## YORK COUNTY

371916076375901. Local number, 57G2.

LOCATION.--Lat 37°19'16", long 76°37'59", Hydrologic Unit 02080107, at Building 3101, Camp Peary, Williamsburg.

Owner: Camp Peary Naval Reservation.

AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused well, diameter 10 in. to 352 ft, diameter 8 in. from 352 to 387 ft, depth 387 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.20 ft above land-surface datum. Prior to May 1981, measuring point at land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board from January 1968 to September 1976.

PERIOD OF RECORD.--January 1968 to September 1975, May 1981 to current year. Unpublished record available January to August 1976.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 43.09 ft below land-surface datum, Mar. 7, 1968; lowest recorded, 88.62 ft below land-surface datum, Sept. 16, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	83.61	83.69	83.18	81.66	80.61	80.07	80.35	81.97	83.44	---	86.75	88.02
10	83.48	---	82.95	81.78	80.80	80.11	80.68	81.86	83.52	85.08	86.64	88.10
15	82.73	---	82.45	81.31	80.30	79.88	80.33	81.88	83.77	85.74	87.42	88.60
20	82.99	---	82.31	81.23	80.49	79.82	81.09	82.57	---	86.13	87.31	88.54
25	83.21	---	82.33	80.83	80.35	79.63	80.97	82.51	---	86.38	87.55	88.17
EOM	83.75	---	81.66	80.21	80.24	79.52	81.65	83.14	---	86.70	87.86	88.30

WTR YR 1985      HIGHEST 78.58 MAR 22, 24, 1985      LOWEST 88.62 SEP 16, 1985

## QUALITY OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

## JAMES CITY COUNTY

LOCAL IDENT- I- FIER	STATION	NUMBER	GEO- LOGIC UNIT	DATE	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO TOP OF SAMPLE INTER- VAL (FT)	DEPTH TO BOT- TOM OF SAMPLE INTER- VAL (FT)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	PUMP OR FLOW PERIOD PRIOR TO SAM- PLING (MIN)
56H 25	372506076511701		217PTXN	04-09-85	158.30	929.00	888	908	103	240
56H 26	372506076511702		217PPSC	04-10-85	156.50	581.00	550	560	103	120
56H 27	372506076511703		211CRCSU	04-10-85	153.40	401.00	370	380	103	115
56H 28	372506076511704		125PLCN	04-11-85	153.10	321.00	290	300	103	90
56H 29	372506076511705		124EOCN	04-11-85	111.70	240.00	204	214	103	45
56H 30	372506076511706		121CSPKU	04-11-85	20.30	60.00	50	60	103	105

LOCAL IDENT- I- FIER	DEPTH OF HOLE, TOTAL (FEET)	FLOW RATE, INSTAN- TANEOUS (GPM)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	BARO- METRIC PRES- SURE (MM OF HG)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
56H 25	1110	7.5	2200	7.8	19.0	10	0.2	767	18	5.1	1.2
56H 26	581	7.5	540	7.9	18.5	--	0.1	775	54	18	2.3
56H 27	401	7.5	725	7.8	17.0	10	0.2	773	13	3.5	0.97
56H 28	400	3.8	640	8.2	18.0	10	1.3	770	40	11	3.1
56H 29	240	7.5	315	7.6	16.0	10	0.1	771	140	48	3.7
56H 30	60	1.0	390	7.3	16.0	15	2.3	770	200	78	1.1

LOCAL IDENT- I- FIER	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
56H 25	450	5.7	484	480	61	340	0.3	15	1190	1200	<0.10
56H 26	100	8.6	262	258	11	6.0	1.1	20	310	320	<0.10
56H 27	160	8.4	350	347	16	15	2.2	30	432	450	<0.10
56H 28	120	11	305	298	19	13	1.8	20	357	380	<0.10
56H 29	10	5.2	147	149	4.8	3.9	0.2	56	204	220	<0.10
56H 30	4.7	0.8	182	194	6.5	9.0	<0.1	12	218	220	<0.10

LOCAL IDENT- I- FIER	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	BORON, DIS- SOLVED (UG/L AS B)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	ZINC, DIS- SOLVED (UG/L AS ZN)	C-13/ C-12 STABLE ISOTOPE RATIO PER MIL	CARBON, ORGANIC TOTAL (MG/L AS C)
56H 25	0.09	0.03	100	1200	1000	500	30	40	20	-6.2	1.5
56H 26	0.04	0.06	100	40	780	170	60	68	<3	-5.3	1.5
56H 27	0.15	0.39	100	790	250	32	<10	12	<3	-4.6	1.8
56H 28	0.19	0.12	<100	<20	2200	27	20	14	<3	-7.5	1.8
56H 29	--	0.02	<100	40	380	270	30	23	<3	-12.3	1.3
56H 30	0.02	0.09	<100	20	8700	38	210	170	6	-12.7	2.7

## GEOLOGIC UNIT (AQUIFER):

121CSPKU - UPPER CHESAPEAKE SERIES  
 124EOCN - EOCENE SERIES  
 125PLCN - PALEOCENE SERIES  
 211CRCSU - UPPER CRETACEOUS SERIES  
 217PPSC - PATAPSCO FORMATION  
 217PTXN - PATUXENT FORMATION

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## FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	$2.54 \times 10^1$	millimeters (mm)
	$2.54 \times 10^{-2}$	meters (m)
feet (ft)	$3.048 \times 10^{-1}$	meters (m)
miles (mi)	$1.609 \times 10^0$	kilometers (km)
<i>Area</i>		
acres	$4.047 \times 10^3$	square meters (m <sup>2</sup> )
	$4.047 \times 10^{-1}$	square hectometers (hm <sup>2</sup> )
	$4.047 \times 10^{-3}$	square kilometers (km <sup>2</sup> )
square miles (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometers (km <sup>2</sup> )
<i>Volume</i>		
gallons (gal)	$3.785 \times 10^0$	liters (L)
	$3.785 \times 10^0$	cubic decimeters (dm <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic meters (m <sup>3</sup> )
million gallons	$3.785 \times 10^3$	cubic meters (m <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
cubic feet (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeters (dm <sup>3</sup> )
	$2.832 \times 10^{-2}$	cubic meters (m <sup>3</sup> )
acre-feet (acre-ft)	$1.233 \times 10^3$	cubic meters (m <sup>3</sup> )
	$1.233 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
	$1.233 \times 10^{-6}$	cubic kilometers (km <sup>3</sup> )
<i>Flow</i>		
cubic feet per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liters per second (L/s)
	$2.832 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$2.832 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
gallons per minute (gal/min)	$6.309 \times 10^{-2}$	liters per second (L/s)
	$6.309 \times 10^{-2}$	cubic decimeters per second (dm <sup>3</sup> /s)
	$6.309 \times 10^{-5}$	cubic meters per second (m <sup>3</sup> /s)
million gallons per day	$4.381 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$4.381 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
<i>Mass</i>		
tons (short)	$9.072 \times 10^{-1}$	megagrams (Mg) or metric tons

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