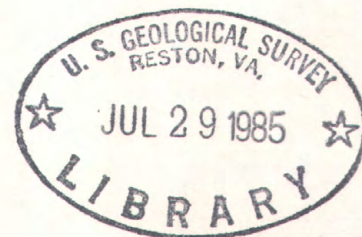


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# Water Resources Data Virginia Water Year 1984



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-84-1  
Prepared in cooperation with the State of Virginia  
and with other agencies



# CALENDAR FOR WATER YEAR 1984

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1983

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OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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1984

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JANUARY							FEBRUARY							MARCH						
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29	30	31					26	27	28	29				25	26	27	28	29	30	31

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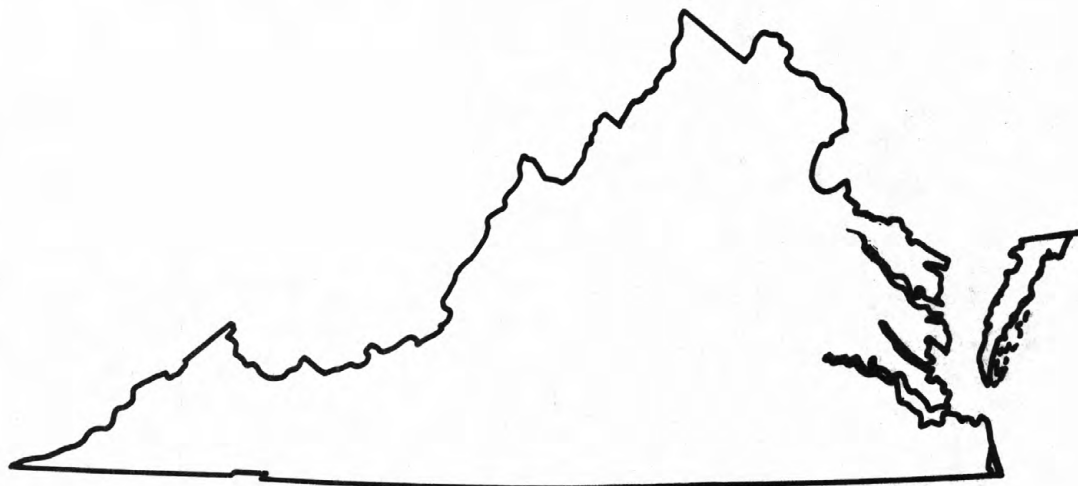
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# Water Resources Data Virginia Water Year 1984

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-84-1  
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

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Richmond, Virginia 23220

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Charlottesville, Virginia 22903



## 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 State Water Control Board who collected, compiled, analyzed, verified, and organized the data. 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 State 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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<b>15. Supplementary Notes</b> Prepared in cooperation with the State of Virginia and with other agencies				
<b>16. Abstract (Limit: 200 words)</b>  Water resources data for the 1984 water year for Virginia consist of 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 192 gaging stations; stage only at 1 gaging station; stage and contents at 10 lakes and reservoirs; water quality at 43 gaging stations and 5 wells; and water levels at 56 observation wells. Also included are data for 78 crest-stage partial-record stations. Locations of these sites are shown on Figures 5 and 6. Additional water data were collected at various sites not involved in the systematic data-collection program. Discharge measurements were made at 172 low-flow partial-record stations. Miscellaneous data were collected at 133 measuring sites and 31 water-quality sampling sites. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.				
<b>17. Document Analysis a. Descriptors</b>  *Virginia, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water levels, Water analyses.  <b>b. Identifiers/Open-Ended Terms</b>          <b>c. COSATI Field/Group</b>				
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## WATER RESOURCES DATA FOR VIRGINIA, 1984

### INTRODUCTION

Water resources data for the 1984 water year for Virginia consist of 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 192 gaging stations; stage only at 1 gaging station; stage and contents at 10 lakes and reservoirs; water quality at 43 gaging stations and 5 wells; and water levels at 56 observation wells. Also included are data for 78 crest-stage partial-record stations. Locations of these sites are shown on figures 5 and 6. Additional water data were collected at various sites not involved in the systematic data-collection program. Discharge measurements were made at 172 low-flow partial-record stations. Miscellaneous data were collected at 133 measuring sites and 31 water-quality sampling sites. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from the Branch of Distribution, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

For water years 1961 through 1970, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1970 were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1971 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report VA-84-1." 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 organizations of the State of Virginia have had cooperative agreements for the systematic collection of streamflow records since 1925, for ground-water levels from 1931 to 1957 and since 1967, and for water-quality records from 1944 to 1957 and since 1967. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Virginia State 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 P. Epling, Executive Director.

Assistance in the form of funds and/or services was given by the Corps of Engineers, U.S. Army, 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 furnished financial assistance for the operation of 5 gaging stations, the records for which are published herein.

Assistance was also furnished by the Water Quality Office, Environmental Protection Agency.

The Appalachian Power Company and the City of Radford aided in collecting records.

Organizations that supplied data are acknowledged in station descriptions.

#### SUMMARY OF HYDROLOGIC CONDITIONS

Streamflows in Virginia were consistently above average during the 1984 water year. For 10 months of the year, the Statewide monthly average of flows was above normal and in 3 months--February, March, and April--new monthly record-high flows were established at several gaging stations. The above-average flows generally were the result of frequent rainfall events rather than extreme instantaneous peaks from single storm events.

The chronology of streamflow conditions for Virginia during 1984 progressed from below normal at the end of last year, through above normal for most of the year, to below normal at the end of the year (figures 2 and 3). In October, streamflows west of the Blue Ridge generally were above normal, whereas those farther east continued an existing trend by remaining below normal. In November and December, the entire State had above-average flows, with the exception of the Big Sandy River basin in the extreme southwest. Flows returned to near normal in January, except in the southeast where flows in the Chowan River basin were well above normal. In February, flows were high across the entire State, with several new or near-record monthly highs established in the upper Rappahannock, Rivanna, and South Fork Shenandoah River basins. Flow conditions varied in March, becoming progressively higher to the north and east. On the South Fork Shenandoah River at Front Royal, the March average flow was the highest since 1902. Flows in April were even higher than those in March, and many sites in the Coastal Plain as well as in the Rappahannock and Shenandoah River basins established new record highs. The following table presents mean monthly flows for April 1984 for seven selected locations representative of five major river basins.

<u>Gaging Station</u>	<u>Basin</u>	<u>Mean flow April 1984 (cfs)</u>	<u>Rank</u>	<u>Year record high occurred</u>	<u>Length of record (years)</u>
SF Shenandoah River at Front Royal, Va.	Potomac	5,770	2nd	1901	61
Rappahannock River at Remington, Va.	Rappahannock	2,690	1st	1984	42
Rapidan River near Culpeper, Va.	Rappahannock	1,680	3rd	1937	54
Mattaponi River near Beulahville, Va.	York	3,290	1st	1984	43
Rivanna River at Palmyra, Va.	James	2,460	2nd	1937	51
Blackwater River near Franklin, Va.	Chowan	2,210	1st	1984	40
Nottoway River near Sebrell, Va.	Chowan	4,880	1st	1984	43

Flows remained above average during May and were highest in the southwest. The monthly mean flow on the Russell Fork at Haysi was the second highest on record (58 years) and the highest since 1958. On the New River at Allisonia, the May flow was also the second highest on record (55 years) and the highest since 1973.

Some scattered flooding occurred May 6-8 in southwest Virginia. The peak of 37,000 cubic feet per second (cfs) on the Russell Fork at Haysi had a return frequency of 17 years. During this period, peak flows on other streams in the Big Sandy and Clinch River basins had return frequencies of 6 to 12 years. The South Fork Holston River near Damascus peaked at 17,700 cfs, a 55-year return frequency. Other streams in the Tennessee River basin had peaks with less than a 10-year frequency.

Flows declined rapidly in June and generally were below average for the first time since September 1983. Exceptions to the general pattern were seen on the eastern Coastal Plain and in the New and Big Sandy River basins in the southwest where flows remained above normal. Streamflows increased again in July throughout most of the State. Flows in Coastal Plain streams and in the Big Sandy River basin had the greatest departures from normal; those in the upper Rappahannock and Tennessee River basin had the least. Above-normal flow conditions continued across the

State through August. Flows on the Rapidan River near Culpeper were the second highest ever recorded for August (54 years) and the highest since 1955.

The water year ended in September, with average flows that were below normal for only the second time during the year. In the southwest, flows were well below normal, and, on the New River at Allisonia, flows were the lowest for September since 1965.

In summary, streamflows during the 1984 water year in Virginia were characterized by a record-setting trend during the spring, with above-normal flow conditions common for most of the year. The following table shows annual flow conditions at six representative sites across the State.

<u>Gaging Station</u>	<u>Portion of State</u>	<u>Annual mean flow for 1984 (cfs)</u>	<u>Percent of median annual flow</u>	<u>Length of record (years)</u>
Nottoway River near Stony Creek, Va.	Southeast	787	159	55
NF Holston River near Saltville, Va.	Southwest	320	108	65
James River at Buchanan, Va.	Western	3,400	147	86
Slate River near Arvonnia, Va.	Central	314	147	58
Rapidan River near Culpeper, Va.	Northeast	890	175	54
SF Shenandoah River at Front Royal, Va.	Northwest	2,530	188	61

Ground-water levels at the beginning of the 1984 water year showed strong contrasts across the State. In the northern two-thirds of the State, ground-water levels were below normal while in the south and southwest, they were at or above normal. By the end of December, almost all index wells were above their long-term averages for the first time since the drought of 1980-81. Levels continued to rise through the winter and spring and reached their highest levels in March and April. After reaching their annual highs, levels were erratic during the summer and early fall. In Appomattox County, levels continued to rise while at Colonial Heights, 70 miles to the east, the water levels steadily declined. By the end of the water year, however, levels at most index wells were declining rapidly.

Because of above-normal precipitation in the 1984 water year, ground-water levels in 1983 finally were able to overcome the effects of the drought of 1980-81. New record highs for the months of April and June were established in the Matoaka Manor well at Colonial Heights. Previous highs had been recorded in 1983 and 1946, respectively. The Tyler well in Louisa County set new record highs for May, July, and August, exceeding the old records for these months set in 1958, 1958, and 1955, respectively. In addition the annual high in the Tyler well was the highest since 1973 (figure 4).

Dissolved-solids concentrations in surface waters measured at most stations during the 1984 water year were near normal. Specific conductance, an indicator of dissolved-solids concentration, averaged about 95 percent of the mean for the previous 10 years for the stations in the table below. Specific conductance was highest at most stations during the beginning and end of the water year because of dry conditions and lowest between February and April because of dilution by storm runoff during these months.

Surface-water temperatures throughout the State were generally 0.5 to 1.0 degree Celsius below the mean for the past 10 years. At most stations, the coldest temperatures were observed between late December and the end of January. Water temperatures in July were the highest for the year but were well below record-breaking levels.

The suspended-sediment load at Rappahannock River at Remington was about 164,800 tons during the 1984 water year. This is 116 percent of the mean load for the previous 10 years and reflects the higher-than-normal flows during this time. Ninety percent of the sediment load occurred during 10 percent of the days. The largest daily loads were associated with three storms between mid-February and mid-April, which reduced 110,000 tons of suspended sediment in 10 days. Trends in discharge, annual suspended-sediment load, specific conductance and temperature are given in the following table.



## WATER RESOURCES DATA FOR VIRGINIA, 1984

Gaging Station	Mean discharge (cfs)		Annual suspended- sediment load (tons)		Mean specific conductance (umhos/cm)		Mean water temperature (°C)	
	Previous 10 years	1984	Previous 10 years	1984	Previous 10 years	1984	Previous 10 years	1984
Rappahannock River at Remington, Va.	747	1,160	141,800	164,800	---	---	---	---
James River at Buchanan, Va.	2,540	3,400	---	---	286	251	14.5	14.0
New River at Glen Lyn, Va.	5,480	6,450	---	---	141	149	15.0	14.5
Roanoke River at Altavista, Va.	1,960	2,110	---	---	140	140	15.0	14.0

Concentrations of trace metals in rivers were almost below critical concentrations established for various uses. However, concentrations of dissolved iron occasionally reached high levels in several rivers, especially those in the southeastern part of the State. Dissolved-iron concentrations as high as 1,600 micrograms per liter were measured at the Blackwater River near Franklin.

The concentration of total phosphorus (an essential nutrient for algal growth) at the 10 National Stream-Quality Accounting Network (NASQAN) stations throughout the State averaged 0.06 milligrams per liter. Orthophosphorus concentrations averaged 0.03 milligrams per liter. However, phosphorus concentrations at James River at Cartersville were two to three times higher than concentrations at the other nine NASQAN stations. Concentrations at this station averaged 0.13 and 0.09 milligrams per liter for total phosphorus and orthophosphorus, respectively.

## RECORDS COLLECTED BY THE STATE OF VIRGINIA

In addition to data collected by the U.S. Geological Survey, there are included herein records for 100 gaging stations and 16 index wells operated by the Virginia State Water Control Board. These records are published as furnished and are acknowledged in the "COOPERATION" paragraph of each individual station. The State 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 Office of Water Resources Planning, Dale F. Jones, director.

## DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting inch-pound units to International System of Units (SI) 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 the primary energy donor in cellular life process. 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, 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 the organisms which produce colonies within 24 hours when incubated at 35°C ± 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 intestines 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 which produce blue colonies within 24 hours when incubated at 44.5°C ± 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 intestines 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 ± 1.0°C on M-enterococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material 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 micro-organisms, 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 (g/m<sup>3</sup>), and periphyton and benthic organisms in grams per square meter (g/m<sup>2</sup>).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for 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).

Cfs-day is the volume of water represented by 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 2,447 cubic meters.

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 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 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 (CFSM) 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 (FT<sup>3</sup>/S, ft<sup>3</sup>/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

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 is 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.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = - \sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where  $n_i$  is the number of individuals per taxon,  $n$  is the total number of individuals, and  $s$  is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

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 river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

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 attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ( $\text{CaCO}_3$ ).

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 8-digit number.

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 substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

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

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 represent 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 sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) 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.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

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 meters ( $\text{m}^2$ ), acres, or hectares. 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 milliliters (mL) or liters (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.

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 suspended sediment or bed material 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 recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
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 growing upon solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton is a useful indicator of water quality.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

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  $3.7 \times 10^{10}$  radioactive 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/mL of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of 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.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

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  $\text{mg C}/(\text{m}^3 \cdot \text{time})$  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  $\text{mg O}_2/(\text{m}^3 \cdot \text{time})$  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.

Recoverable from bottom material refers to 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 only 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.

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.

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 (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is the quantity of suspended sediment passing a section in a specified period.

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 weight or volume, that passes a section during a given time.

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

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks 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 micromhos 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 micromhos). 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 lived.

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

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 multi-plate 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 planimeted. All areas shown are those for the stage when the planimeted map was made.

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

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 would be 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.....Hexagenia limbata

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 in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total refers to 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 determines all of the constituent in the sample.)

Total in bottom material refers to the total amount of a given constituent in a representative sample of bottom material. 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 judge when the results should be reported as "total in bottom material."

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.



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 would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual basic-data reports.

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 references to previously published reports.

#### DOWNSTREAM ORDER AND STATION NUMBER

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 main-stream station are listed before that station. A station on a tributary that enters between two main-stream 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 on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indentation in a list of stations in the front of the report. Each indentation represents one rank. This downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. 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 8-digit number for each station such as 03041000, which appears just to the left of the station name, includes the 2-digit part number "03" plus the 6-digit downstream order number "041000".

#### NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude and the next 7 digits denote degrees, minutes, and seconds of longitude of a point believed to represent the location of the site; the last 2 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 numbers; however, its true latitude and longitude will be listed in the LOCATION paragraph. See figure 1.

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 State Water Control Board.



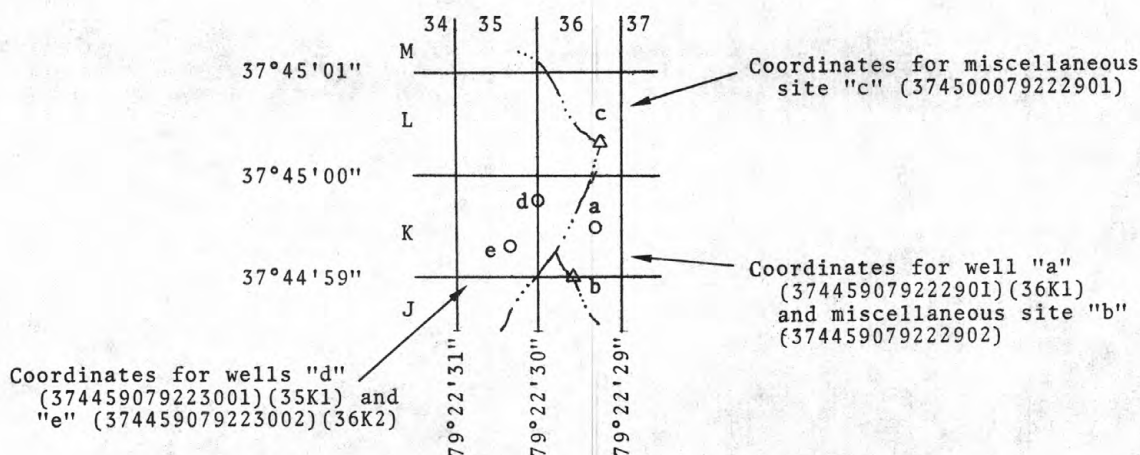


Figure 1. System for numbering wells and miscellaneous sites

#### SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

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 STAGE AND WATER-DISCHARGE RECORDS

##### Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct

readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard textbooks, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables; then the monthly and yearly mean discharge are computed from the daily figures. 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 computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by hydrologists and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

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.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

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 on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are

all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revisions, the fact is brought out by notations 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 revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage referred to National Geodetic Vertical Datum, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 7.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

Those records which have been computed and furnished by the Virginia State Water Control Board are identified under "COOPERATION."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with "EXTREMES FOR THE CURRENT YEAR"; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following "EXTREMES FOR THE CURRENT YEAR," for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the 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 may be 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, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharges are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.



For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis but is not published for reservoirs for which only monthly data are given.

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 discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage 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. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

#### Accuracy of field data and computed results

The accuracy of streamflow data 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 observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft<sup>3</sup>/s; to tenths 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 above 1,000 ft<sup>3</sup>/s. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

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 data available

Information of a more detailed nature than that published for most of the gaging stations, such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the offices whose addresses are given on the back of the title page of this report. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

#### Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22902, maintains an index of records of discharge collected by other agencies but not published by the Geological Survey. Information on records available at specific sites can be obtained upon request.

#### 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 minimum 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 each of the Water Resources Division's district offices.



General inquiries about WATSTORE may be directed to:

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

## EXPLANATION OF WATER-QUALITY RECORDS

### Collection and examination of data

Surface-water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

### Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

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.

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 U.S.G.S. Virginia office 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 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 diel 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.

### 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 loads 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 in predicting long-term sediment-discharge characteristics of the stream.

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

#### 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 the 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.

### EXPLANATION OF GROUND-WATER LEVEL RECORDS

#### Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number and (2) a local number that is provided for local needs (see figure 1). The 15-digit number is an identifier, formed initially from the latitude and longitude of a point believed to represent the location of the site. This site identification number, once assigned, is a pure number and has no locational significance. It is used primarily as an internal control number within the computer files.

Measurements are made in many types of wells under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will insure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either National Geodetic Vertical Datum of 1929 (NGVD) or land-surface datum (lsd). National Geodetic Vertical Datum of 1929 is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above National Geodetic Vertical Datum of 1929 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 at 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 in 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 only to a tenth of a foot or a larger unit.

### PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-seven manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing 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) is on 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 Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering 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-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-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. Greeson, T. A. Ehlike, 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. I. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 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-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.



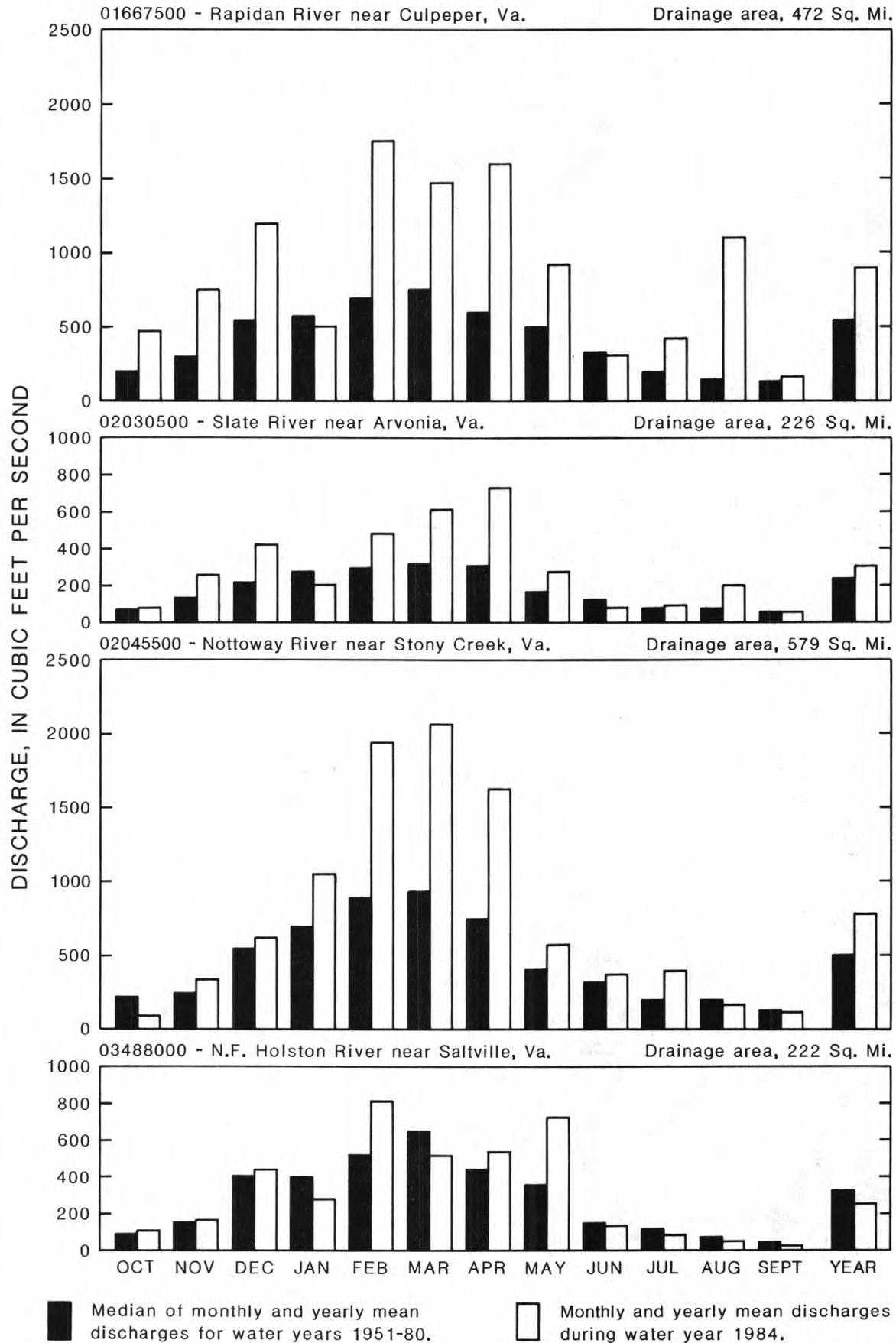


Figure 2. - Discharge during 1984 water year compared with median discharge for period 1951-80 for four representative gaging stations.



# WATER RESOURCES DATA FOR VIRGINIA, 1984

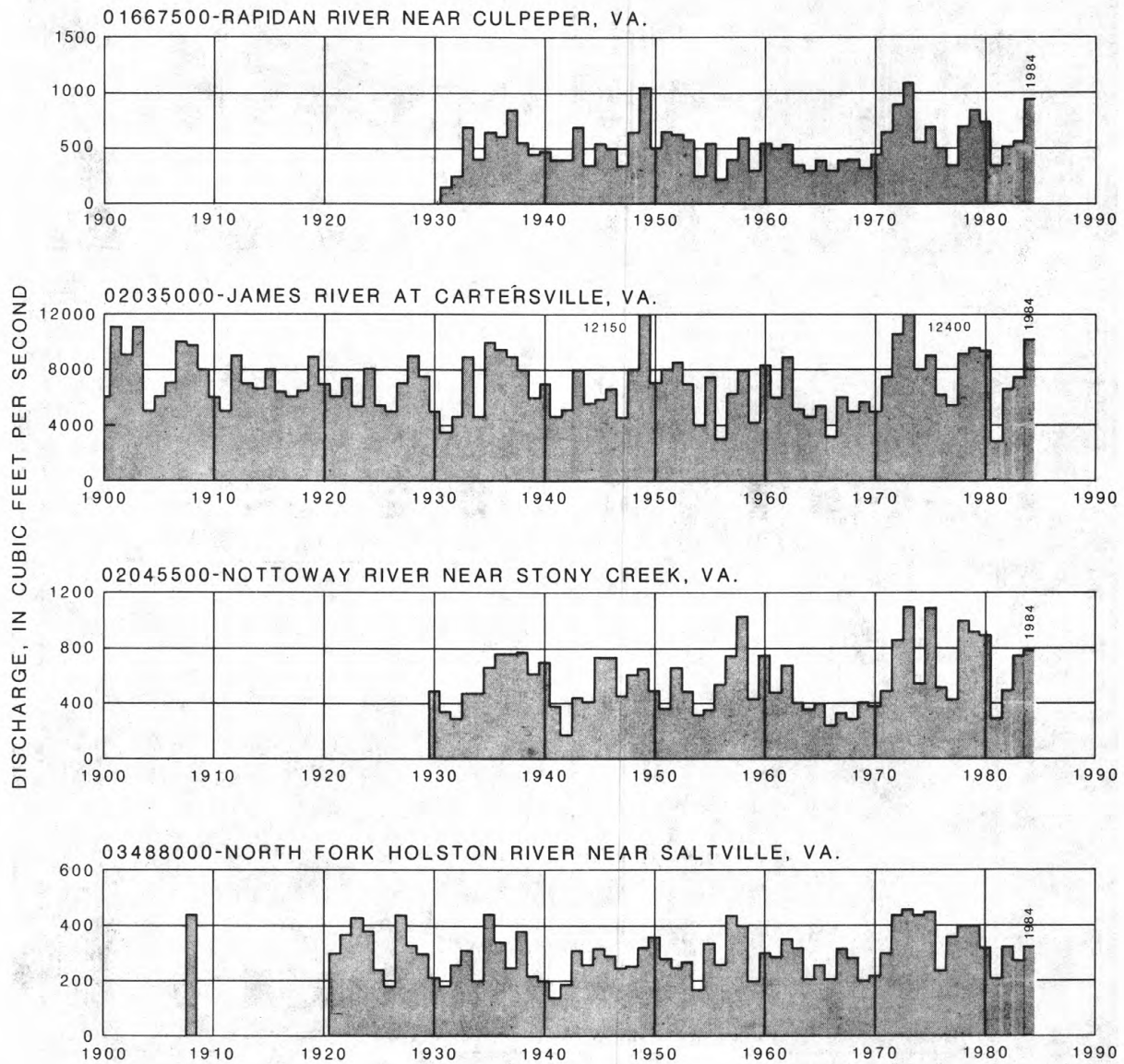


Figure 3. - Annual mean discharge at selected gaging stations.

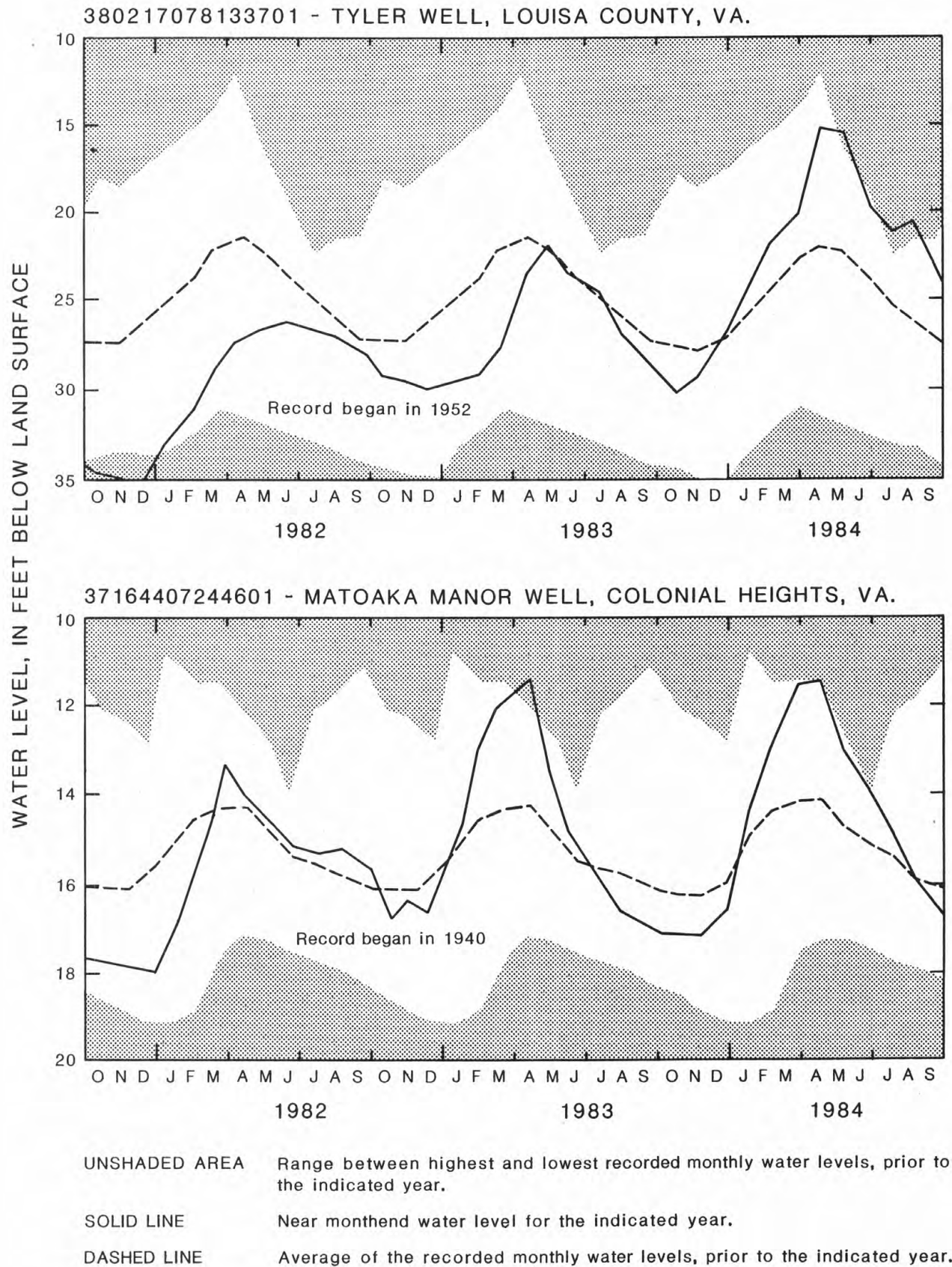


Figure 4. - Monthly ground-water levels at key observation wells.

# WATER RESOURCES DATA FOR VIRGINIA, 1984

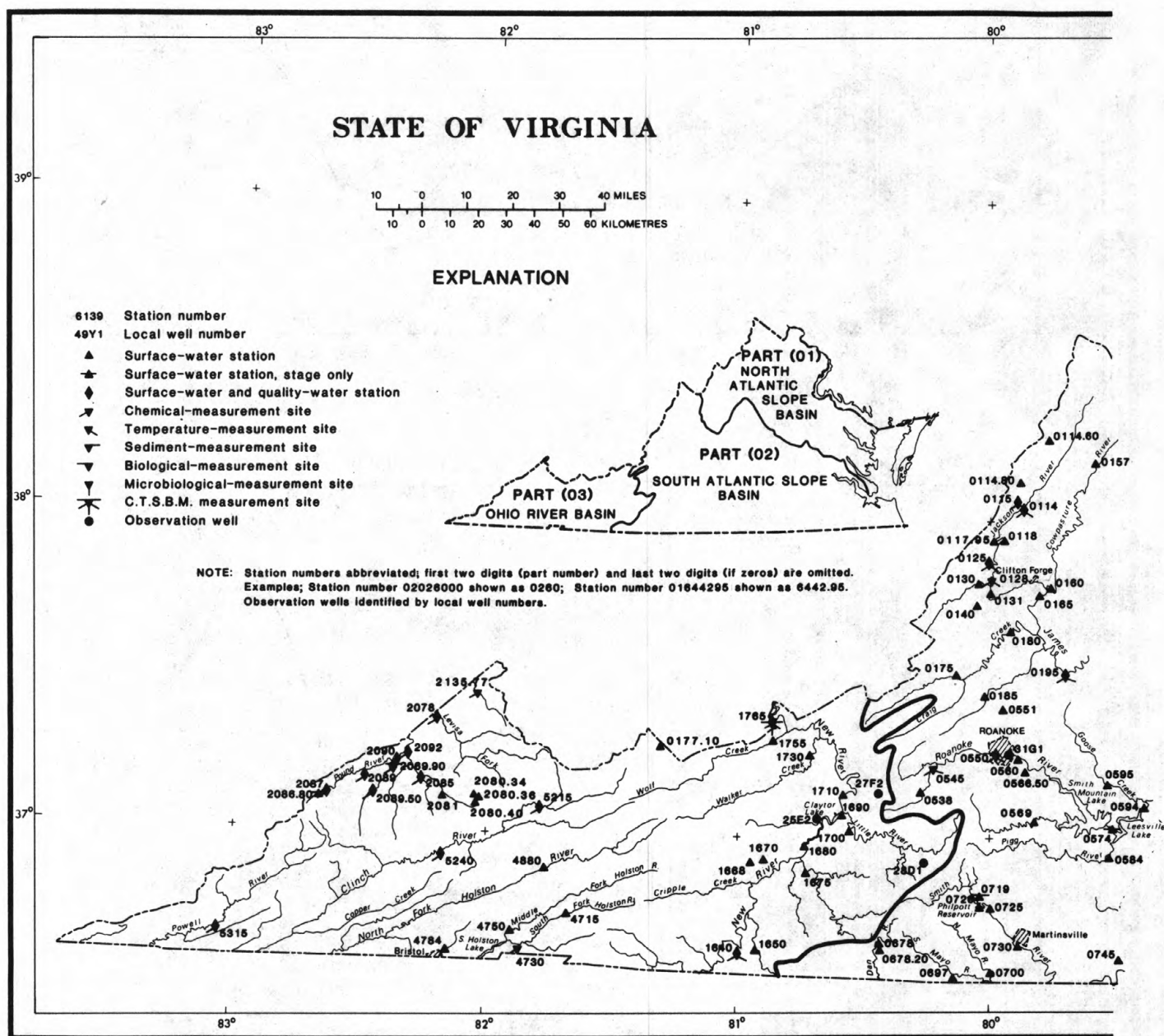


Figure 5. -- Map of Virginia showing location of data-collection stations.



This map illustrates the Potomac River drainage basin, extending from the Appalachian Mountains in the west to the Chesapeake Bay and Atlantic Ocean in the east. Major cities shown include Washington, D.C., Arlington, Virginia, and parts of Maryland and West Virginia. The map features numerous elevation points marked with numbers and symbols (triangles, circles, squares). Key rivers depicted include the Potomac, Rappahannock, James, York, and James. The map also shows the Chesapeake Bay, the Atlantic Ocean, and various smaller rivers and tributaries. A scale bar at the bottom indicates distances in miles (0 to 100) and kilometers (0 to 160). The map is oriented with North at the top.

# WATER RESOURCES DATA FOR VIRGINIA, 1984

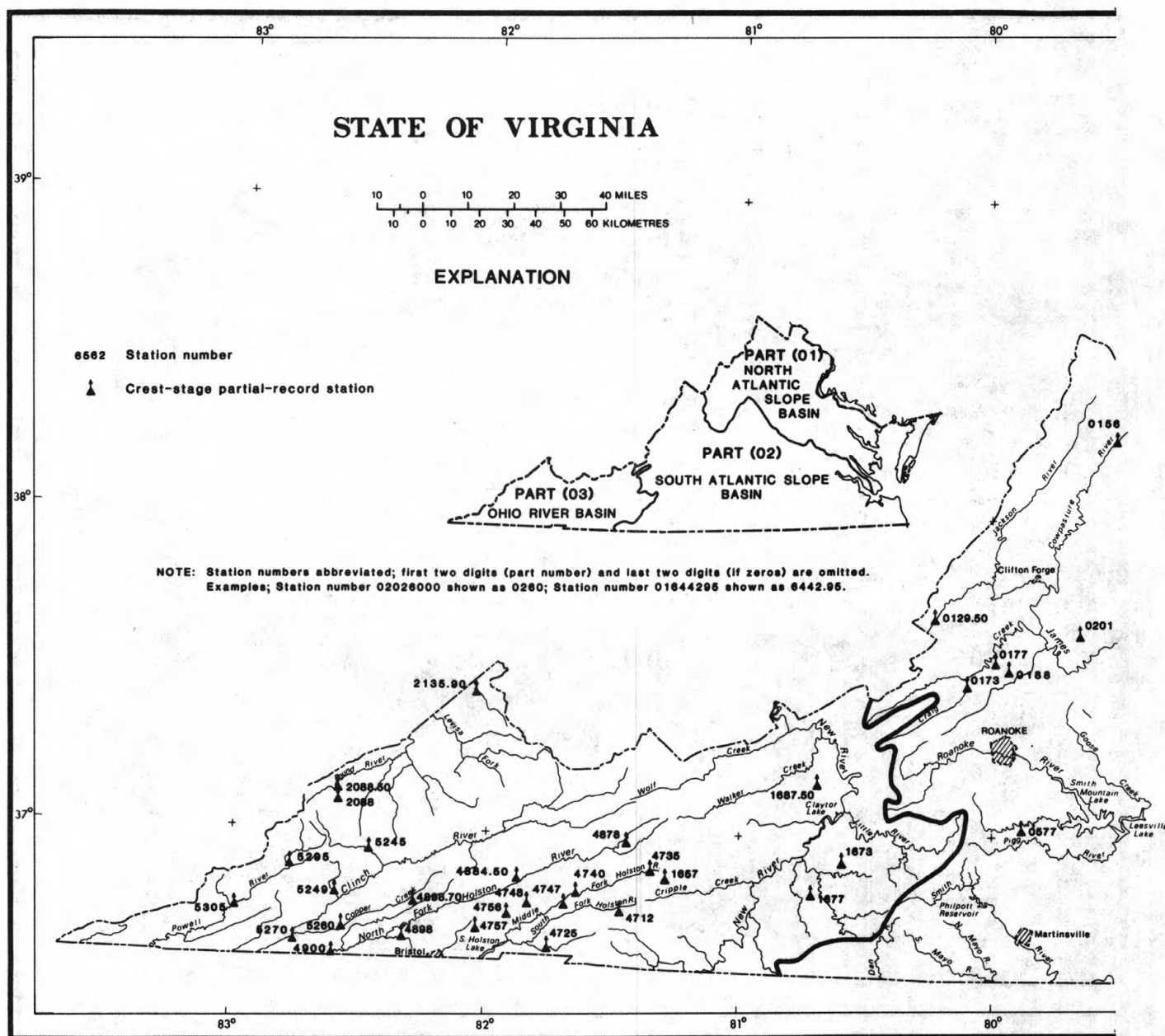
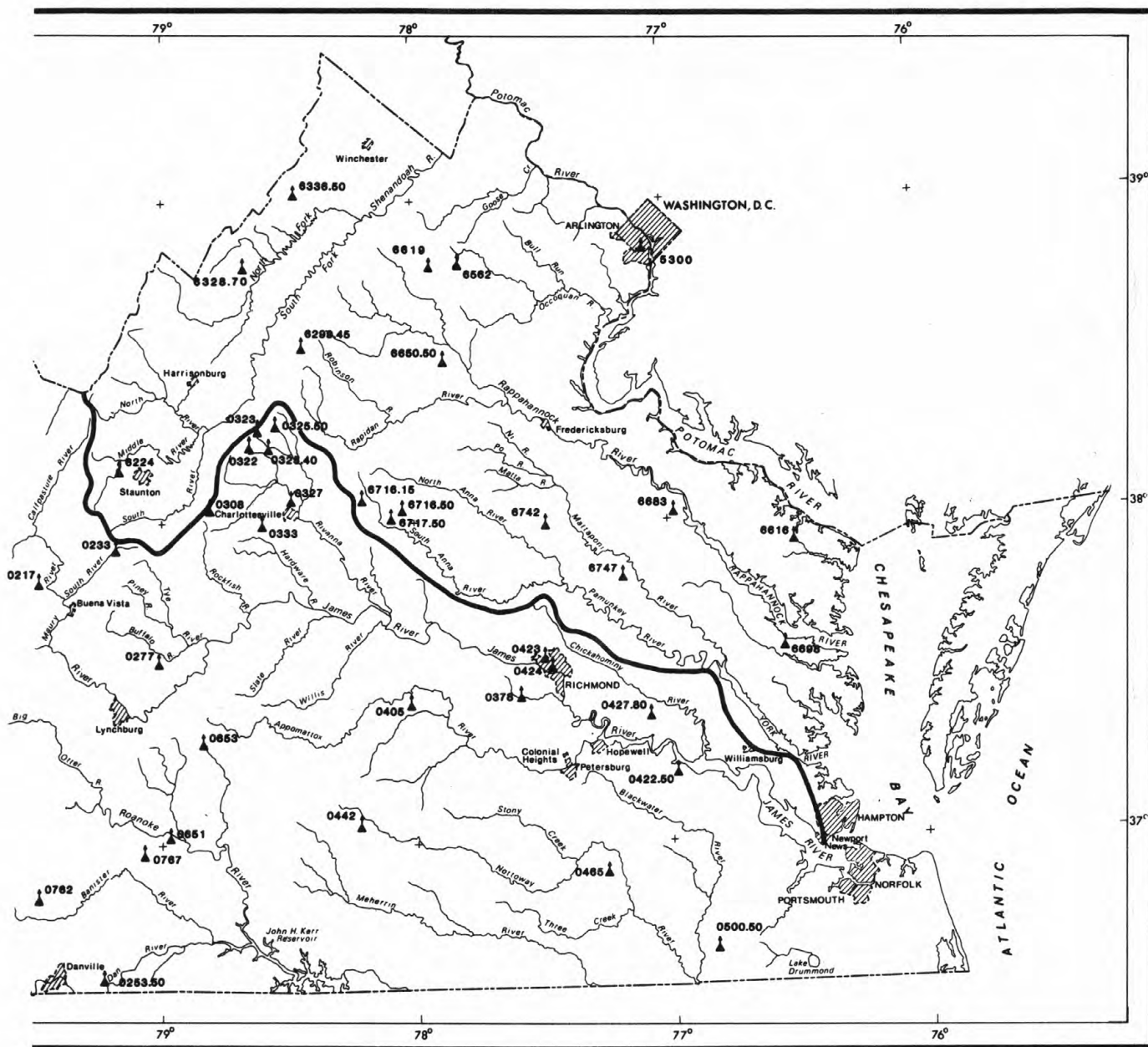


Figure 6. -- Map of Virginia showing location of crest-stage partial-record stations.

## WATER RESOURCES DATA FOR VIRGINIA, 1984





## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--20 years (water years 1965-84), 1.43 ft<sup>3</sup>/s, 11.29 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, 1983, and 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Feb. 15	0345	*43	4.22	Mar. 29	0545	27	3.51
Mar. 13	1945	21	3.23	Apr. 5	0730	35	3.91

No flow part of each day Aug. 31, Sept. 1, 2, 3, 23, result of pumpage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.26	.43	1.1	1.9	2.2	2.7	3.7	2.3	4.0	.74	.53	.01
2	.24	.43	.99	1.4	2.1	2.5	3.3	2.1	2.9	.58	.53	.01
3	.22	.43	1.1	1.5	2.1	2.3	3.0	2.2	2.2	.53	.66	.01
4	.19	.43	3.2	1.5	3.2	2.1	6.0	2.1	2.0	.53	.53	.31
5	.20	.43	2.5	1.5	3.5	2.3	27	1.7	1.6	.53	.53	.43
6	.30	.43	2.8	1.5	2.9	12	10	2.1	1.5	.48	.53	.39
7	.22	.44	3.1	1.5	2.5	8.4	5.2	2.0	1.1	.48	.43	.35
8	.19	.43	2.3	1.3	2.2	5.2	4.1	1.8	.98	.48	.43	.35
9	.17	.43	1.9	1.2	2.2	5.4	3.6	1.4	.53	.39	.39	.35
10	.17	.60	1.7	3.2	2.1	3.9	3.3	1.3	.48	.43	.43	.39
11	.25	.58	1.5	13	2.1	3.5	3.1	1.4	.48	.39	.39	.43
12	1.9	.49	1.9	4.9	2.6	3.0	2.9	1.4	.39	.43	.43	.39
13	.49	.48	7.1	3.7	2.6	10	2.8	1.5	.43	.43	.53	.39
14	.43	.48	4.6	3.3	5.7	11	7.9	1.6	.48	.39	.58	.43
15	.34	.93	4.3	2.9	32	4.9	7.9	1.2	.66	.31	.53	.43
16	.29	2.1	3.7	2.6	13	4.0	11	.90	.58	.35	.48	.19
17	.28	1.0	2.7	2.4	6.0	3.4	6.1	.90	.90	.43	.43	.07
18	.25	.82	2.3	6.8	4.4	3.1	4.3	1.1	.66	.74	.43	.08
19	.25	.75	6.5	14	3.8	2.9	3.6	1.2	.48	.53	.48	.08
20	.27	.73	3.6	5.6	3.4	2.8	3.3	1.1	.35	.48	.53	.07
21	.27	1.8	2.7	3.9	3.0	2.8	3.0	.74	.27	.90	.53	.05
22	.25	1.2	4.1	2.9	2.7	2.6	2.9	.66	.35	.90	.27	.02
23	.31	1.0	3.9	2.7	3.2	2.4	6.0	1.1	.23	.66	.08	.01
24	.64	1.1	3.0	3.0	3.8	2.2	4.5	1.3	.39	.58	.07	.01
25	1.3	3.7	2.4	4.9	3.2	2.5	3.6	1.1	.48	.53	.04	.01
26	.70	2.2	1.6	4.0	2.7	4.1	3.1	1.1	.35	.53	.07	.01
27	.51	1.6	1.5	3.5	2.7	3.7	2.8	.58	.48	1.1	.09	.04
28	.43	1.4	4.5	3.0	4.1	12	2.7	.98	.53	.58	.17	.27
29	.42	1.3	4.0	2.7	3.2	22	2.4	1.1	.53	.58	.43	.35
30	.42	1.1	3.7	2.6	---	7.3	2.4	3.4	.58	.58	.19	.35
31	.43	---	2.2	2.5	---	4.4	---	8.2	---	.58	.02	---
TOTAL	12.59	29.24	92.49	111.4	129.2	161.4	155.5	51.56	26.89	17.17	11.76	6.28
MEAN	.41	.97	2.98	3.59	4.46	5.21	5.18	1.66	.90	.55	.38	.21
MAX	1.9	3.7	7.1	14	32	22	27	8.2	4.0	1.1	.66	.43
MIN	.17	.43	.99	1.2	2.1	2.1	2.4	.58	.23	.31	.02	.01
CFSM	.24	.56	1.73	2.09	2.59	3.03	3.01	.97	.52	.32	.22	.12
IN.	.27	.63	2.00	2.41	2.79	3.49	3.36	1.11	.58	.37	.25	.14
CAL YR 1983	TOTAL 848.76	MEAN 2.33	MAX 21	MIN .01	CFSM 1.36	IN 18.35						
WTR YR 1984	TOTAL 805.48	MEAN 2.20	MAX 32	MIN .01	CFSM 1.28	IN 17.41						

## POTOMAC RIVER BASIN

27

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--24 years, 15.2 ft<sup>3</sup>/s, 13.76 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 above base 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)
Feb. 14	1430	*1810	7.62	Apr. 5	0130	422	3.87
Mar. 28	2100	607	4.54	Aug. 14	1700	1250	6.37

Minimum discharge, 1.0 ft<sup>3</sup>/s Oct. 3-5, Sept. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	4.2	12	16	14	27	140	18	5.7	4.1	1.5	1.2
2	1.3	3.2	10	12	12	23	118	14	5.4	2.9	2.1	1.2
3	1.0	3.2	9.0	9.0	12	19	86	26	5.1	2.1	3.1	1.2
4	1.0	3.4	78	6.9	18	16	76	67	4.1	1.5	2.3	1.7
5	1.1	3.2	46	8.4	33	20	211	34	3.9	2.1	1.9	1.5
6	1.5	3.4	59	11	24	18	102	47	3.9	3.3	1.7	1.2
7	1.5	3.4	67	11	14	15	67	63	3.3	3.9	1.5	1.2
8	1.6	2.9	36	8.4	13	15	48	54	3.1	2.9	1.3	1.2
9	1.8	2.9	25	7.4	12	13	36	40	2.9	1.9	6.8	2.6
10	1.8	29	20	13	10	11	30	32	2.5	4.4	16	1.7
11	2.4	28	15	16	13	10	25	27	3.1	3.1	55	1.2
12	4.2	13	88	15	15	9.6	21	25	2.9	3.1	30	1.2
13	4.2	10	136	13	16	11	19	19	2.5	3.3	16	1.2
14	3.7	7.4	84	11	683	18	21	16	2.5	2.1	205	1.2
15	2.6	6.9	50	8.4	171	32	74	14	2.3	1.7	71	1.3
16	2.4	8.4	31	7.4	80	40	102	12	2.3	2.1	15	1.2
17	1.6	6.9	22	6.9	52	29	77	9.9	3.1	1.7	7.1	1.2
18	1.6	5.6	18	6.6	35	22	84	10	3.3	2.3	5.1	1.2
19	1.8	5.2	15	6.4	27	18	59	9.2	3.9	2.3	4.6	1.2
20	2.9	9.2	12	6.1	22	14	42	8.8	2.5	1.3	3.9	1.2
21	9.5	38	9.5	6.0	17	58	32	8.2	2.3	2.9	2.1	1.2
22	4.5	18	16	5.8	15	47	66	7.1	1.9	2.7	2.1	1.2
23	35	13	21	5.8	57	30	109	14	1.9	2.9	3.1	1.2
24	23	15	16	8.0	142	21	64	11	2.7	1.9	2.5	1.2
25	12	120	15	30	74	20	44	8.2	2.9	1.5	2.1	1.2
26	8.4	44	14	57	44	76	33	7.1	2.1	1.3	1.7	1.2
27	5.6	24	18	56	34	*49	27	6.8	1.9	1.7	1.5	1.8
28	4.2	22	30	38	45	261	24	6.8	1.7	1.5	2.2	3.3
29	3.7	20	34	30	39	256	28	7.8	1.9	1.3	3.5	1.7
30	3.7	15	23	24	---	139	22	6.5	2.3	1.3	2.1	1.7
31	4.2	---	20	18	---	146	---	6.0	---	1.5	1.5	---
TOTAL	155.6	488.4	1049.5	478.5	1743	1483.6	1887	635.4	89.9	72.6	475.3	42.5
MEAN	5.02	16.3	33.9	15.4	60.1	47.9	62.9	20.5	3.00	2.34	15.3	1.42
MAX	35	120	136	57	683	261	211	67	5.7	4.4	205	3.3
MIN	1.0	2.9	9.0	5.8	10	9.6	19	6.0	1.7	1.3	1.3	1.2
CFSM	.34	1.09	2.26	1.03	4.01	3.19	4.19	1.37	.20	.16	1.02	.10
IN.	.39	1.21	2.60	1.19	4.32	3.68	4.68	1.58	.22	.18	1.18	.11

CAL YR 1983	TOTAL	7807.41	MEAN	21.4	MAX	470	MIN	.74	CFSM	1.43	IN	19.36
WTR YR 1984	TOTAL	8601.30	MEAN	23.5	MAX	683	MIN	1.0	CFSM	1.57	IN	21.33

## 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 National Geodetic Vertical Datum of 1929. Prior to July 26, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of doubtful or no gage-height record, Jan. 10 to Feb. 14, which are fair. Diurnal fluctuation at low flow caused by mills above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--41 years, 42.9 ft<sup>3</sup>/s, 10.15 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 above base 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)
Oct. 23	2000	1120	5.80	Feb. 24	0400	1660	7.01
Nov. 25	0800	1300	6.20	Mar. 29	0300	3280	9.18
Dec. 4	1200	914	5.27	Mar. 31	2100	1220	6.02
Dec. 12	1900	929	5.31	Apr. 5	0530	1530	6.72
Feb. 14	1630	*5150	10.56	Apr. 15	0300	1000	5.49

Minimum discharge, 4.5 ft<sup>3</sup>/s Oct. 5-6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	21	44	33	39	107	481	52	24	18	11	12
2	8.3	19	37	29	39	80	253	45	24	15	12	12
3	6.0	18	34	28	77	63	161	50	23	13	14	12
4	5.0	16	400	32	98	49	142	160	22	12	13	12
5	5.0	14	172	31	181	52	841	100	20	12	12	12
6	4.5	13	183	48	112	54	278	64	19	16	11	11
7	5.0	11	218	46	74	41	154	170	18	29	12	10
8	5.0	9.5	102	31	50	34	112	130	17	15	11	10
9	5.0	10	72	26	37	33	90	88	17	13	17	10
10	5.5	41	57	37	37	29	76	67	16	14	121	10
11	6.0	194	47	82	74	32	64	57	15	16	114	10
12	8.5	102	399	41	94	33	55	51	15	14	77	10
13	124	53	760	36	96	34	51	45	15	13	45	10
14	132	33	274	32	2970	103	117	41	15	12	105	9.7
15	24	26	134	30	848	187	577	38	15	12	85	9.7
16	13	26	92	28	204	139	410	36	14	12	30	10
17	10	21	70	25	128	84	180	34	15	12	21	10
18	12	16	55	22	98	67	145	33	15	20	17	9.7
19	7.5	14	48	21	77	46	107	33	16	12	16	9.7
20	9.5	24	41	20	63	101	88	31	15	11	15	9.3
21	62	274	36	19	46	281	80	30	14	17	14	8.9
22	47	114	50	19	33	150	160	29	13	15	13	8.9
23	446	77	86	20	125	80	300	33	13	13	17	8.9
24	370	80	59	21	838	54	170	36	13	12	17	8.9
25	152	703	35	25	206	70	110	29	24	11	14	8.9
26	102	177	30	256	125	300	82	27	16	11	13	8.5
27	65	93	34	352	96	176	70	25	14	13	13	8.5
28	46	74	130	134	173	1020	62	26	13	12	13	10
29	34	79	165	78	204	1740	66	29	13	11	16	10
30	27	55	56	60	---	634	58	28	13	11	14	9.7
31	24	---	34	44	---	778	---	25	---	11	13	---
TOTAL	1791.8	2407.5	3954	1706	7242	6651	5540	1642	496	428	916	300.3
MEAN	57.8	80.3	128	55.0	250	215	185	53.0	16.5	13.8	29.5	10.0
MAX	446	703	760	352	2970	1740	841	170	24	29	121	12
MIN	4.5	9.5	30	19	33	29	51	25	13	11	11	8.5
CFSM	1.01	1.40	2.23	.96	4.36	3.75	3.22	.92	.29	.24	.51	.17
IN.	1.16	1.56	2.56	1.11	4.69	4.31	3.59	1.06	.32	.28	.59	.19
CAL YR 1983	TOTAL	24416.8	MEAN	66.9	MAX	990	MIN	4.5	CFSM	1.17	IN	15.82
WTR YR 1984	TOTAL	33074.6	MEAN	90.4	MAX	2970	MIN	4.5	CFSM	1.58	IN	21.43



## POTOMAC RIVER BASIN

29

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Slight diurnal fluctuation caused by sewage disposal plant above station at Winchester. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by Virginia State Water Control Board.

AVERAGE DISCHARGE.--16 years, 21.1 ft<sup>3</sup>/s, 17.37 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 above base 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. 13	1930	271	3.08	Apr. 5	0200	582	3.95
Nov. 25	0600	203	2.72	Apr. 15	0300	534	3.78
Feb. 14	1530	*982	5.34	Apr. 16	0100	254	2.70
Feb. 23	2300	478	3.57	Apr. 22	2030	254	2.70
Mar. 26	0730	200	2.40	July 6	2130	336	3.04
Mar. 28	2130	728	4.47	Aug. 13	1700	462	3.52
Mar. 30	1900	237	2.63	Aug. 14	0930	420	3.36
Mar. 31	1800	304	2.91				

Minimum discharge, 13.0 ft<sup>3</sup>/s Oct. 3, 4, Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	19	23	20	24	58	147	44	30	27	20	20
2	15	19	22	20	24	54	101	44	27	21	23	19
3	15	20	21	20	26	50	75	60	24	19	29	21
4	15	19	74	20	28	43	78	66	24	20	24	21
5	17	19	42	22	37	46	239	50	26	21	23	19
6	16	18	50	22	33	44	98	55	26	50	23	18
7	17	19	42	22	28	43	68	55	24	34	23	18
8	17	19	33	20	26	41	57	57	24	23	22	17
9	16	19	29	21	24	43	53	51	24	23	30	17
10	17	36	28	26	24	39	50	46	24	26	27	17
11	19	35	26	26	28	39	46	42	24	23	56	18
12	26	24	73	24	28	37	46	39	24	23	30	18
13	70	20	101	22	29	39	44	37	24	23	92	18
14	33	21	48	20	564	46	48	37	24	22	109	18
15	26	21	37	21	177	52	214	37	26	21	39	17
16	23	19	30	20	87	50	142	37	26	22	29	16
17	24	18	29	19	70	44	81	36	27	27	26	17
18	24	18	27	18	60	41	75	36	30	20	23	17
19	27	17	26	17	52	41	64	36	30	18	23	18
20	38	30	24	17	50	39	55	30	26	16	22	18
21	48	37	24	17	46	54	50	31	24	24	22	17
22	30	24	30	17	44	50	86	33	23	18	23	17
23	99	21	29	17	99	46	90	37	23	18	29	16
24	47	27	26	18	154	44	64	34	23	18	23	16
25	34	98	24	19	78	46	57	31	24	18	23	16
26	27	35	23	30	60	121	51	30	23	19	22	16
27	24	27	23	35	54	64	48	29	23	23	22	17
28	22	27	37	34	78	307	46	30	21	20	31	22
29	20	27	39	29	72	331	48	33	21	20	22	18
30	19	24	30	28	---	183	46	30	23	20	21	19
31	19	---	21	26	---	199	---	29	---	21	20	---
TOTAL	862	777	1091	687	2104	2334	2367	1242	742	698	951	536
MEAN	27.8	25.9	35.2	22.2	72.6	75.3	78.9	40.1	24.7	22.5	30.7	17.9
MAX	99	98	101	35	564	331	239	66	30	50	109	22
MIN	15	17	21	17	24	37	44	29	21	16	20	16
CFSM	1.69	1.57	2.13	1.35	4.40	4.56	4.78	2.43	1.50	1.36	1.86	1.09
IN.	1.94	1.75	2.46	1.55	4.74	5.26	5.34	2.80	1.67	1.57	2.14	1.21

CAL YR 1983 TOTAL 10995 MEAN 30.1 MAX 198 MIN 12 CFSM 1.82 IN 24.79  
WTR YR 1984 TOTAL 14391 MEAN 39.3 MAX 564 MIN 15 CFSM 2.38 IN 32.44

## 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 National Geodetic Vertical Datum of 1929. Prior to June 10, 1958, at site 575 ft downstream at datum 6.0 ft lower.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--38 years, 25.9 ft<sup>3</sup>/s, 20.45 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 above base 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)
Dec. 12	2000	280	3.64	Mar. 29	0515	354	3.74
Feb. 14	1315	*528	4.20	Apr. 5	0945	200	3.19
Mar. 21	1500	358	3.75	Aug. 12	0415	404	3.88

Minimum discharge, 0.28 ft<sup>3</sup>/s Oct. 3, 4, 5, 6-11, gage height, 1.67 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	12	48	31	16	36	89	82	6.5	2.6	3.1	3.9
2	.32	10	37	27	15	32	64	59	6.0	3.9	3.5	3.4
3	.31	9.0	31	23	14	28	55	55	5.6	3.0	4.9	2.9
4	.30	8.2	56	20	15	24	59	65	5.0	2.3	4.4	2.9
5	.31	7.4	76	19	15	23	180	66	4.3	1.9	4.0	2.7
6	.29	6.8	70	17	15	26	143	76	3.9	2.3	3.9	2.5
7	.28	6.0	59	16	15	29	103	90	3.5	3.3	4.3	2.4
8	.28	5.4	49	14	14	30	70	85	3.0	2.4	3.8	2.1
9	.28	5.0	40	13	12	28	55	64	2.7	1.9	3.5	1.9
10	.28	7.6	35	14	11	30	48	54	2.5	5.9	8.8	1.8
11	.32	20	29	19	13	24	42	47	2.6	13	42	1.6
12	.41	25	163	20	17	22	38	42	2.6	6.5	301	1.5
13	.49	24	206	19	22	22	35	37	2.2	4.4	260	1.5
14	6.8	21	124	18	380	23	34	34	2.1	3.3	242	1.4
15	3.6	20	84	17	244	31	47	29	1.9	2.7	141	1.4
16	2.4	22	60	16	121	40	96	26	1.8	2.2	79	1.2
17	1.9	24	41	14	83	60	111	24	1.9	2.0	48	1.2
18	1.5	24	33	14	62	60	92	21	1.8	1.9	36	1.1
19	1.3	22	28	13	49	52	66	19	1.8	1.6	28	1.0
20	1.4	20	23	12	43	45	54	18	1.6	1.5	22	.94
21	5.6	21	19	11	40	230	47	16	1.5	11	17	.85
22	12	20	51	10	36	218	49	14	1.3	14	14	.78
23	83	19	61	9.8	43	124	66	13	1.3	8.6	12	.76
24	126	21	52	10	81	81	105	12	1.4	6.2	9.6	.70
25	69	60	42	16	99	57	92	11	1.3	4.8	7.5	.66
26	43	66	33	18	82	52	63	9.1	1.2	4.6	6.3	.63
27	32	56	26	19	64	46	53	8.1	1.2	5.4	5.6	.64
28	24	53	36	19	53	104	58	8.6	1.0	4.7	5.3	.86
29	19	65	40	19	43	302	130	9.1	.92	4.3	4.8	.86
30	16	62	39	18	---	165	112	7.8	1.3	3.7	4.5	1.3
31	13	---	35	17	---	113	---	6.9	---	3.3	4.7	---
TOTAL	465.69	742.4	1726	522.8	1717	2157	2256	1108.6	75.72	139.2	1334.5	47.38
MEAN	15.0	24.7	55.7	16.9	59.2	69.6	75.2	35.8	2.52	4.49	43.0	1.58
MAX	126	66	206	31	380	302	180	90	6.5	14	301	3.9
MIN	.28	5.0	19	9.8	11	22	34	6.9	.92	1.5	3.1	.63
CFSM	.87	1.44	3.24	.98	3.44	4.05	4.37	2.08	.15	.26	2.50	.09
IN.	1.01	1.61	3.73	1.13	3.71	4.66	4.88	2.40	.16	.30	2.89	.10

CAL YR 1983	TOTAL	10293.59	MEAN	28.2	MAX	234	MIN	.28	CFSM	1.64	IN	22.26
WTR YR 1984	TOTAL	12292.29	MEAN	33.6	MAX	380	MIN	.28	CFSM	1.95	IN	26.58

## 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 National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1938, nonrecording gage at site 3.0 mi downstream at different datum.

REMARKS.--Records good. At a point 26.8 mi above 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 observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--56 years, 373 ft<sup>3</sup>/s, 13.37 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, 1965, 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 above base 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)
Dec. 13	0200	3640	7.82	Mar. 29	0730	*7480	11.94
Dec. 28	1730	3060	7.10	Apr. 5	0500	3340	7.45
Feb. 14	1930	6380	10.88	Apr. 22	2100	2500	6.37
Feb. 24	0300	2740	6.70	Aug. 13	2130	4970	9.32
Mar. 22	0400	2700	6.65				

Minimum discharge, 60 ft<sup>3</sup>/s Oct. 8, gage height, 1.91 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	178	616	561	310	786	1770	1170	204	397	142	197
2	72	165	510	505	291	688	1430	979	197	284	187	190
3	70	159	428	455	284	605	1200	918	187	259	248	190
4	68	147	1090	418	298	550	1100	1180	181	204	282	200
5	68	139	1220	386	306	525	2900	1010	175	184	302	181
6	68	136	1140	366	298	505	2460	1170	168	187	268	175
7	66	130	1000	343	273	480	1860	1270	156	255	238	172
8	64	127	858	317	255	465	1420	1210	150	168	230	159
9	64	124	726	295	259	455	1130	1070	144	156	248	156
10	66	142	600	464	244	428	924	930	150	274	204	156
11	68	147	505	678	248	410	781	798	147	238	280	147
12	90	139	1620	428	252	393	676	698	142	187	1500	147
13	78	213	3190	397	266	423	600	605	142	168	2920	147
14	83	262	2170	382	3510	441	632	530	159	162	2820	136
15	74	262	1570	362	4390	525	1260	465	133	156	1890	133
16	70	269	1170	347	2860	566	2080	428	124	153	1300	130
17	72	269	880	321	1920	600	1940	393	136	147	984	127
18	70	280	676	306	1460	660	1570	366	136	147	748	122
19	72	273	556	291	1150	654	1270	347	122	142	561	124
20	80	266	460	248	918	605	1050	324	117	136	423	119
21	159	280	410	230	759	1150	874	306	114	207	366	117
22	111	255	661	210	654	2560	1270	284	111	168	324	114
23	227	244	1280	230	836	1860	1620	277	109	150	298	111
24	1060	252	1220	576	2170	1380	1520	269	117	139	280	114
25	974	704	950	528	1700	1120	1390	248	117	136	262	109
26	682	908	770	366	1430	990	1190	238	104	182	248	109
27	450	808	382	358	1210	825	1000	230	101	214	234	106
28	328	715	1350	358	1130	1710	944	230	96	144	234	136
29	262	688	897	351	974	5660	1550	227	106	133	259	119
30	224	682	726	347	---	3330	1390	217	104	130	220	122
31	197	---	622	332	---	2240	---	210	---	127	213	---
TOTAL	6120	9363	30253	11756	30655	33589	40801	18597	4149	5734	18713	4265
MEAN	197	312	976	379	1057	1084	1360	600	138	185	604	142
MAX	1060	908	3190	678	4390	5660	2900	1270	204	397	2920	200
MIN	64	124	382	210	244	393	600	210	96	127	142	106
CFSM	.52	.82	2.58	1.00	2.79	2.86	3.59	1.58	.36	.49	1.59	.38
IN.	.60	.92	2.97	1.15	3.01	3.30	4.00	1.83	.41	.56	1.84	.42

CAL YR 1983 TOTAL 190067 MEAN 521 MAX 4000 MIN 64 CFSM 1.38 IN 18.66  
WTR YR 1984 TOTAL 213995 MEAN 585 MAX 5660 MIN 64 CFSM 1.54 IN 21.00



## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by mill above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--17 years, 184 ft<sup>3</sup>/s, 14.04 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 above base 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)
Dec. 12	2130	1580	5.59	Mar. 21	1800	1710	5.81
Feb. 14	1900	2800	7.74	Mar. 29	0930	*2850	7.81
Feb. 24	0300	1550	5.46				

Minimum discharge, 41 ft<sup>3</sup>/s Oct. 5, 6-7, 8, 9, gage height, 0.78 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	62	127	199	120	325	583	374	146	164	78	98
2	46	60	109	175	115	296	481	520	140	103	86	93
3	46	59	102	158	112	277	415	602	133	90	78	92
4	44	58	547	144	129	255	404	500	125	87	78	95
5	42	57	536	136	122	248	1160	560	122	87	86	87
6	43	57	337	128	118	253	798	650	117	95	81	86
7	42	56	243	122	106	236	576	750	113	107	78	82
8	42	56	183	113	102	229	468	626	110	87	82	82
9	42	58	151	107	103	222	397	527	106	82	103	80
10	44	60	132	120	101	212	356	436	106	98	178	79
11	45	85	117	204	101	210	328	377	107	110	328	77
12	53	72	628	163	102	200	301	336	102	92	606	79
13	50	69	1070	150	101	231	284	309	113	85	794	77
14	47	68	561	144	1690	301	299	284	120	84	1040	75
15	47	69	369	135	1470	468	602	262	102	79	674	74
16	44	75	266	126	754	453	1020	246	99	78	404	72
17	44	75	208	121	534	397	750	234	100	77	294	72
18	44	78	173	117	422	347	548	222	124	79	255	72
19	43	78	154	110	353	306	439	210	100	76	222	73
20	46	77	136	96	333	279	374	198	93	73	191	70
21	50	76	125	90	296	894	333	185	93	96	166	69
22	72	74	316	85	267	958	468	178	82	102	150	67
23	110	73	694	92	350	551	886	193	90	91	138	67
24	155	75	447	356	1230	408	658	182	93	87	131	67
25	120	248	288	395	762	365	509	164	99	82	122	66
26	100	281	200	194	534	359	429	156	87	80	116	67
27	88	179	170	173	436	325	371	162	85	82	110	66
28	78	147	507	168	415	678	746	172	82	79	106	78
29	70	152	498	157	387	2130	590	196	84	76	106	75
30	68	150	285	146	---	1120	439	168	114	74	102	75
31	64	---	228	134	---	750	---	154	---	75	107	---
TOTAL	1881	2784	9907	4758	11665	14283	16012	10133	3187	2757	7090	2312
MEAN	60.7	92.8	320	153	402	461	534	327	106	88.9	229	77.1
MAX	155	281	1070	395	1690	2130	1160	750	146	164	1040	98
MIN	42	56	102	85	101	200	284	154	82	73	78	66
CFSM	.34	.52	1.80	.86	2.26	2.59	3.00	1.84	.60	.50	1.29	.43
IN.	.39	.58	2.07	.99	2.44	2.98	3.35	2.12	.67	.58	1.48	.48
CAL YR 1983	TOTAL	74310	MEAN	204	MAX	1970	MIN	42	CFSM	1.15	IN	15.53
WTR YR 1984	TOTAL	86769	MEAN	237	MAX	2130	MIN	42	CFSM	1.33	IN	18.13

## 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. Altitude of gage is 1,230 ft, from topographic map.

REMARKS.--Records good. Some diurnal fluctuation caused by discharge of about 1.8 ft<sup>3</sup>/s from sewage treatment plant just above station. Most of the water discharged from the treatment plant was diverted from another drainage basin for municipal supply. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--17 years, 72.2 ft<sup>3</sup>/s, 13.99 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 above base 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)
Dec. 12	1300	1720	7.50	Apr. 5	0230	1770	7.62
Dec. 28	1900	1230	6.08	Apr. 16	0030	1040	5.38
Jan. 24	2100	1290	6.26	Apr. 23	0330	1220	5.95
Feb. 14	1400	2590	9.84	Apr. 28	2400	1000	5.26
Feb. 23	2100	1410	6.53	May 6	1430	1350	6.34
Mar. 28	1400	1450	6.67	Aug. 11	0100	1370	6.41
Mar. 29	0500	*3060	10.87	Aug. 12	1500	2030	8.38

Minimum daily discharge, 18 ft<sup>3</sup>/s Oct. 7-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	30	42	84	50	166	279	170	64	62	32	45
2	20	29	39	78	49	146	240	152	61	41	33	44
3	20	28	38	66	53	130	215	307	59	39	31	45
4	19	27	361	63	60	114	301	421	57	37	32	49
5	19	26	117	63	60	128	796	230	55	37	65	43
6	19	25	95	63	56	130	301	601	53	39	39	41
7	18	25	80	61	48	122	242	360	51	37	38	39
8	18	25	66	56	44	116	207	276	51	34	57	39
9	18	25	59	55	44	107	182	237	50	34	51	38
10	19	65	54	75	44	99	164	200	53	44	164	38
11	22	56	50	115	47	96	150	172	56	44	508	37
12	39	37	796	67	48	89	138	156	51	36	880	37
13	25	33	395	59	54	233	132	140	52	34	295	36
14	25	31	176	58	1400	293	185	130	48	33	371	36
15	22	36	132	56	511	227	619	118	45	33	205	35
16	21	41	111	54	307	177	517	108	45	33	132	34
17	20	35	96	52	235	148	262	102	45	32	102	34
18	20	33	87	54	187	132	207	98	47	34	132	34
19	20	31	80	51	158	118	168	93	43	31	95	33
20	24	33	73	48	148	107	160	89	41	30	82	33
21	66	56	67	45	124	210	146	84	41	68	73	33
22	38	41	454	40	108	156	559	80	40	48	67	32
23	167	36	227	47	532	126	703	84	40	63	63	31
24	141	40	128	343	565	108	335	82	46	43	59	31
25	72	258	80	204	287	154	253	74	44	38	55	31
26	55	93	74	97	212	185	215	72	39	37	53	32
27	44	66	70	79	182	138	187	89	37	36	51	31
28	38	59	470	69	265	655	262	81	37	34	50	40
29	34	55	190	64	227	1540	421	79	37	34	49	36
30	32	46	100	60	---	472	215	70	39	34	48	38
31	31	---	85	56	---	343	---	66	---	33	54	---
TOTAL	1150	1421	4892	2382	6105	6965	8761	5021	1427	1212	3966	1105
MEAN	37.1	47.4	158	76.8	211	225	292	162	47.6	39.1	128	36.8
MAX	167	258	796	343	1400	1540	796	601	64	68	880	49
MIN	18	25	38	40	44	89	132	66	37	30	31	31
CFSM	.53	.68	2.25	1.10	3.01	3.21	4.17	2.31	.68	.56	1.83	.53
IN.	.61	.75	2.60	1.26	3.24	3.70	4.65	2.66	.76	.64	2.10	.59
CAL YR 1983	TOTAL	32877	MEAN	90.1	MAX	1370	MIN	18	CFSM	1.29	IN	17.45
WTR YR 1984	TOTAL	44407	MEAN	121	MAX	1540	MIN	18	CFSM	1.73	IN	23.57

## 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 National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good. At a point 24.4 mi above 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 above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--57 years, 311 ft<sup>3</sup>/s, 11.26 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 above base 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. 15	0200	6390	13.98	Mar. 29	1700	*7140	14.70

Minimum discharge, 95 ft<sup>3</sup>/s Oct. 8, gage height, 3.44 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	144	287	435	292	640	1030	781	300	354	155	213
2	119	140	256	382	275	569	862	667	291	255	182	195
3	106	137	234	358	274	528	751	664	277	204	172	191
4	104	136	815	339	300	486	706	1220	266	193	204	210
5	101	131	963	328	327	471	2100	948	257	187	209	193
6	99	128	642	321	324	496	1370	1130	249	214	201	188
7	99	126	508	313	282	466	992	1430	240	205	183	181
8	98	125	405	286	251	449	812	1100	233	191	182	173
9	98	125	356	272	250	440	710	909	227	175	264	170
10	101	137	318	288	246	418	647	765	228	205	421	169
11	108	240	292	516	253	407	592	667	256	266	840	165
12	152	178	1020	401	263	389	549	599	226	211	980	162
13	150	157	2240	342	274	485	516	550	228	184	1200	162
14	138	153	1080	328	2670	780	548	514	264	173	1260	159
15	123	154	744	319	3640	802	1270	480	227	169	1040	154
16	114	175	573	302	1340	751	1880	450	212	161	674	149
17	111	166	472	289	955	669	1270	430	215	161	500	145
18	111	160	416	288	771	597	944	415	224	165	438	145
19	111	157	381	285	652	543	768	403	230	167	403	145
20	114	156	349	250	594	496	669	382	202	154	358	142
21	203	211	323	220	536	612	600	369	196	196	323	141
22	216	192	631	190	487	1350	853	351	192	292	296	139
23	281	175	1260	230	643	849	2050	361	189	230	277	136
24	652	178	851	356	2230	640	1310	378	196	215	266	136
25	390	603	525	1120	1270	586	1030	337	221	186	250	136
26	270	599	420	578	924	660	837	320	198	176	235	136
27	215	425	380	434	754	572	729	335	181	181	227	135
28	187	347	708	393	744	1080	660	360	176	172	222	153
29	168	330	1270	366	846	5340	1390	372	175	163	219	175
30	154	309	579	343	---	2350	952	346	180	159	212	159
31	147	---	469	324	---	1320	---	313	---	157	224	---
TOTAL	5180	6394	19767	11196	22667	26241	29397	18346	6756	6121	12617	4857
MEAN	167	213	638	361	782	846	980	592	225	197	407	162
MAX	652	603	2240	1120	3640	5340	2100	1430	300	354	1260	213
MIN	98	125	234	190	246	389	516	313	175	154	155	135
CFSM	.45	.57	1.70	.96	2.09	2.26	2.61	1.58	.60	.53	1.09	.43
IN.	.51	.63	1.96	1.11	2.25	2.60	2.92	1.82	.67	.61	1.25	.48

CAL YR 1983 TOTAL 148870 MEAN 408 MAX 5030 MIN 95 CFSM 1.09 IN 14.77  
WTR YR 1984 TOTAL 169539 MEAN 463 MAX 5340 MIN 98 CFSM 1.24 IN 16.82



## 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 post office at Waynesboro, 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. At a point 13.8 mi above 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> above station slightly regulated by flood-detention reservoirs (sixteen of which were built by Soil Conservation Service between 1954 and 1961). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--32 years, 141 ft<sup>3</sup>/s, 15.08 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 above base 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. 14	1430	*3270	8.07	Apr. 5	1230	1470	5.87
Mar. 29	0530	1790	6.43	Aug. 12	1400	1090	5.18

Minimum discharge, 30 ft<sup>3</sup>/s Oct. 3-4, 7-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	64	170	253	137	415	608	391	131	92	60	68
2	31	60	152	229	130	360	518	342	125	70	61	64
3	30	58	142	213	136	322	454	355	117	65	59	61
4	30	55	351	199	168	289	479	641	109	62	63	66
5	33	53	365	191	161	280	1350	586	103	62	85	63
6	33	52	302	182	152	298	911	663	99	63	66	59
7	30	51	257	172	138	288	647	858	94	62	74	57
8	30	49	214	158	127	279	521	654	91	60	66	55
9	30	48	189	150	126	266	450	548	88	59	72	54
10	30	119	169	163	124	245	399	465	86	65	76	54
11	35	178	153	246	124	235	356	405	84	75	180	54
12	67	129	519	190	124	217	320	360	81	63	659	52
13	60	107	916	167	133	254	293	318	81	59	689	52
14	79	94	635	161	1700	345	322	285	78	58	551	52
15	42	93	469	156	1750	397	511	259	74	56	430	52
16	35	99	364	150	1080	372	586	238	72	56	277	50
17	33	89	294	145	716	345	515	220	74	57	189	48
18	33	82	248	146	542	323	439	206	76	60	174	48
19	32	78	221	142	463	296	379	196	71	58	152	48
20	34	80	197	124	382	273	338	180	67	56	137	47
21	86	133	177	117	324	430	305	167	65	88	117	49
22	78	124	495	107	281	538	356	156	64	88	104	47
23	212	114	718	116	362	444	732	162	62	104	97	47
24	356	115	536	160	777	372	646	175	67	83	91	49
25	183	411	350	355	829	375	510	150	73	70	82	49
26	141	356	270	249	634	420	432	139	64	67	78	50
27	113	259	240	199	520	385	380	146	61	67	74	50
28	95	223	374	181	507	480	358	160	58	64	70	55
29	82	218	526	168	511	1600	539	165	59	62	70	57
30	72	191	388	158	---	1190	461	153	72	62	68	57
31	68	---	291	150	---	790	---	138	---	61	78	---
TOTAL	2246	3782	10692	5497	13158	13123	15115	9881	2446	2074	5049	1614
MEAN	72.5	126	345	177	454	423	504	319	81.5	66.9	163	53.8
MAX	356	411	916	355	1750	1600	1350	858	131	104	689	68
MIN	30	48	142	107	124	217	293	138	58	56	59	47
CFSM	.57	.99	2.72	1.39	3.58	3.33	3.97	2.51	.64	.53	1.28	.42
IN.	.66	1.11	3.13	1.61	3.85	3.84	4.43	2.89	.72	.61	1.48	.47

CAL YR 1983	TOTAL	79898	MEAN 219	MAX 2570	MIN 30	CFSM 1.72	IN 23.40
WTR YR 1984	TOTAL	84677	MEAN 231	MAX 1750	MIN 30	CFSM 1.82	IN 24.80

## 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 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.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--10 years, 208 ft<sup>3</sup>/s, 18.96 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 above base 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)
Dec. 13	0200	1360	5.70	Apr. 5	0300	2080	7.27
Dec. 22	2230	1020	4.92	Apr. 23	1600	1010	4.90
Feb. 14	1530	*5180	10.85	May 7	0630	1120	5.15
Feb. 24	2130	1140	5.21	Aug. 12	1100	2560	8.06
Mar. 29	0600	3000	8.76				

Minimum discharge, 54 ft<sup>3</sup>/s Oct. 8, gage height, 2.18 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	97	219	295	172	476	726	438	157	140	78	104
2	60	94	196	271	163	413	594	387	151	99	78	98
3	58	92	186	252	167	374	512	416	142	94	76	104
4	57	91	460	239	199	342	626	756	134	90	97	102
5	58	88	435	230	196	330	1850	676	128	88	125	98
6	63	87	366	222	185	347	1130	814	125	88	87	95
7	58	84	320	212	170	337	765	1020	119	87	91	92
8	58	82	271	198	157	327	591	770	116	85	83	90
9	58	81	239	185	157	313	506	617	112	83	89	88
10	58	184	218	211	154	294	454	513	109	101	119	88
11	91	241	198	292	155	281	411	448	107	98	187	87
12	130	179	833	233	155	265	373	396	104	89	1100	86
13	126	151	1230	207	173	318	349	358	103	84	831	84
14	136	133	788	201	2790	392	386	328	103	82	676	86
15	83	131	543	191	2450	453	638	301	101	81	504	87
16	72	137	420	184	1330	427	716	278	98	80	342	84
17	68	125	347	181	857	394	595	260	100	78	246	82
18	66	117	300	180	618	372	504	245	101	83	226	82
19	68	113	270	176	519	349	437	235	99	79	203	82
20	95	127	243	157	427	324	387	219	94	76	183	82
21	159	181	221	140	371	530	354	204	92	140	163	82
22	138	172	633	135	331	630	483	191	91	127	146	80
23	337	158	890	151	494	509	958	214	90	129	137	79
24	467	167	623	192	974	429	787	210	101	107	131	79
25	249	565	400	384	1020	443	590	182	100	92	122	78
26	193	439	320	292	755	485	494	170	94	87	115	80
27	159	329	250	240	596	445	434	181	90	85	112	80
28	135	286	440	220	587	628	417	190	87	82	109	93
29	121	273	570	206	584	2410	617	200	86	80	106	84
30	110	242	451	193	---	1530	513	182	119	80	108	101
31	103	---	390	184	---	968	---	166	---	79	115	---
TOTAL	3696	5246	13270	6654	16906	16135	18197	11565	3253	2873	6785	2637
MEAN	119	175	428	215	583	520	607	373	108	92.7	219	87.9
MAX	467	565	1230	384	2790	2410	1850	1020	157	140	1100	104
MIN	57	81	186	135	154	265	349	166	86	76	76	78
CFSM	.80	1.17	2.87	1.44	3.91	3.49	4.07	2.50	.73	.62	1.47	.59
IN.	.92	1.31	3.31	1.66	4.22	4.03	4.54	2.89	.81	.72	1.69	.66

CAL YR 1983	TOTAL	99944	MEAN 274	MAX 3710	MIN 56	CFSM 1.84	IN 24.95
WTR YR 1984	TOTAL	107217	MEAN 293	MAX 2790	MIN 57	CFSM 1.97	IN 26.77

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 National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--42 years, 256 ft<sup>3</sup>/s, 16.40 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 above base 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)
Dec. 13	0430	1980	6.27	Apr. 5	0600	3230	7.64
Dec. 23	0330	1260	5.24	Apr. 16	0230	1200	5.13
Feb. 14	2000	*8250	10.60	Apr. 23	0600	1500	5.59
Feb. 24	0100	1570	5.69	May 7	1130	1360	5.38
Mar. 29	0930	4630	8.69	Aug. 12	1630	2370	6.76

Minimum discharge, 70 ft<sup>3</sup>/s Oct. 7, 8, 9, gage height, 2.31 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	131	326	411	241	656	1050	606	221	224	105	150
2	76	123	293	380	231	570	851	545	212	142	105	136
3	74	118	272	356	229	521	728	555	201	125	105	133
4	73	113	591	336	266	475	760	967	190	124	107	150
5	73	110	657	324	272	452	2640	921	183	119	181	136
6	76	108	552	316	260	469	1660	1020	175	119	129	126
7	72	105	487	304	237	455	1120	1280	168	116	120	119
8	72	103	406	281	219	436	860	1060	162	112	115	116
9	71	100	357	265	219	420	718	866	157	109	116	114
10	72	193	324	282	216	391	633	715	154	136	124	113
11	77	379	295	421	217	375	570	616	151	135	250	111
12	174	275	942	337	218	355	520	550	146	121	1140	109
13	133	224	1810	299	224	421	483	496	146	112	1060	107
14	215	196	1210	288	3890	523	520	454	146	107	815	108
15	114	185	832	279	3710	603	849	415	140	106	643	110
16	95	190	627	266	1780	579	1090	383	136	105	466	106
17	90	177	515	259	1180	535	905	358	146	105	340	104
18	86	163	442	259	873	506	744	339	143	114	301	103
19	84	154	397	254	717	474	633	326	137	105	276	104
20	98	155	357	225	603	442	560	303	128	103	246	104
21	196	253	325	200	522	664	510	285	124	162	224	102
22	197	251	693	180	477	903	690	267	123	186	202	101
23	343	232	1180	209	654	732	1410	284	121	177	191	99
24	783	230	901	255	1470	601	1210	293	134	155	185	98
25	411	705	550	497	1390	600	916	258	137	127	174	98
26	301	692	430	416	1060	665	734	241	127	119	163	96
27	239	525	370	329	840	616	632	249	121	116	157	96
28	199	447	609	306	818	863	572	266	115	111	157	115
29	173	422	752	288	812	3470	828	271	113	109	152	107
30	153	365	591	273	---	2200	712	257	117	108	147	109
31	141	---	462	261	---	1370	---	233	---	106	157	---
TOTAL	5046	7424	18555	9356	23845	22342	26108	15679	4474	3915	8653	3380
MEAN	163	247	599	302	822	721	870	506	149	126	279	113
MAX	783	705	1810	497	3890	3470	2640	1280	221	224	1140	150
MIN	71	100	272	180	216	355	483	233	113	103	105	96
CFSM	.77	1.17	2.83	1.43	3.88	3.40	4.10	2.39	.70	.59	1.32	.53
IN.	.89	1.30	3.26	1.64	4.18	3.92	4.58	2.75	.79	.69	1.52	.59

CAL YR 1983	TOTAL	140628	MEAN 385	MAX 6680	MIN 71	CFSM 1.82	IN 24.68
WTR YR 1984	TOTAL	148777	MEAN 406	MAX 3890	MIN 71	CFSM 1.92	IN 26.11



## 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. Altitude of gage is 1,480 ft, from topographic map.

REMARKS.--Records good except those below 0.10 ft<sup>3</sup>/s, which are fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 2.70 ft<sup>3</sup>/s, 18.90 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 348 ft<sup>3</sup>/s Feb. 14, 1984; maximum gage height, 3.53 ft Mar. 18, 1983; no flow many days in 1980-84.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Dec. 12	2215	65	2.32	Mar. 29	0345	121	2.67
Feb. 14	1215	*348	3.51	Apr. 5	0530	109	2.61

No flow many days during October, June through September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.73	4.7	2.6	1.2	4.5	9.9	3.4	.35	.03	.00	.01
2	.00	.64	3.5	2.2	1.1	3.6	7.7	3.1	.32	.06	.00	.00
3	.00	.55	3.0	1.9	1.1	3.0	6.2	3.5	.29	.03	.00	.00
4	.00	.53	8.3	1.7	1.1	2.5	9.6	7.2	.26	.02	.00	.00
5	.00	.47	9.2	1.6	1.2	2.2	65	8.1	.21	.02	.02	.00
6	.00	.42	8.5	1.4	1.1	2.1	18	8.9	.19	.02	.02	.00
7	.00	.34	6.1	1.3	.97	1.8	11	10	.17	.02	.02	.00
8	.00	.29	4.2	1.2	.85	1.6	6.8	9.6	.14	.02	.01	.00
9	.00	.24	3.3	1.0	.83	1.4	4.9	7.4	.12	.01	.00	.00
10	.00	4.5	2.8	1.0	.83	1.2	3.9	5.6	.09	.02	.02	.00
11	.00	10	2.2	1.2	.94	1.2	3.3	4.4	.09	.09	.43	.00
12	.38	6.7	35	1.1	1.1	1.1	2.7	3.6	.08	.04	7.2	.00
13	1.2	4.1	37	1.1	1.3	1.5	2.4	2.9	.06	.02	2.5	.00
14	1.3	3.0	16	1.1	199	2.6	2.3	2.4	.05	.01	.80	.00
15	.42	2.5	9.1	1.1	50	5.0	5.5	1.9	.04	.00	.34	.00
16	.20	2.1	5.9	1.1	16	5.5	12	1.7	.03	.00	.16	.00
17	.11	1.7	4.1	1.0	9.7	5.0	12	1.4	.04	.00	.10	.00
18	.07	1.4	3.2	.99	6.7	4.7	8.4	1.2	.06	.00	.08	.00
19	.06	1.3	2.8	.94	5.1	4.3	6.0	1.1	.04	.01	.08	.00
20	.06	1.6	2.2	.84	4.2	3.7	4.5	1.0	.02	.00	.07	.00
21	.62	5.0	1.7	.78	3.5	12	3.6	.93	.02	.01	.06	.00
22	.80	5.2	8.7	.74	2.9	17	4.7	.78	.01	.02	.04	.00
23	6.3	4.3	12	.65	6.3	12	14	.84	.00	.03	.04	.00
24	14	3.7	8.3	.70	18	7.5	14	.74	.01	.01	.03	.00
25	5.7	19	5.2	1.2	18	6.1	11	.61	.02	.00	.03	.00
26	3.1	13	4.0	1.6	14	5.4	7.2	.53	.02	.00	.02	.00
27	2.1	9.5	3.5	1.7	9.6	5.5	5.4	.53	.01	.00	.02	.00
28	1.5	8.0	3.6	1.7	7.7	13	4.3	.51	.00	.00	.02	.00
29	1.3	7.0	3.7	1.6	5.9	70	3.8	.48	.00	.00	.02	.00
30	1.0	6.0	3.3	1.5	---	19	3.5	.44	.00	.00	.02	.00
31	.84	---	2.9	1.4	---	13	---	.37	---	.00	.02	---
TOTAL	41.06	123.81	228.0	39.94	390.22	239.0	273.6	95.16	2.74	.49	12.17	.01
MEAN	1.32	4.13	7.35	1.29	13.5	7.71	9.12	3.07	.091	.016	.39	.000
MAX	14	19	37	2.6	199	70	65	10	.35	.09	7.2	.01
MIN	.00	.24	1.7	.65	.83	1.1	2.3	.37	.00	.00	.00	.00
CFSM	.68	2.13	3.79	.67	6.96	3.97	4.70	1.58	.05	.008	.20	.000
IN.	.79	2.37	4.37	.77	7.48	4.58	5.24	1.82	.05	.01	.23	.00

CAL YR 1983 TOTAL 1455.08 MEAN 3.99 MAX 120 MIN .00 CFSM 2.06 IN 27.89  
WTR YR 1984 TOTAL 1446.20 MEAN 3.95 MAX 199 MIN .00 CFSM 2.04 IN 27.72

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation at low flow prior to 1960 caused by mill at Lynnwood. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--54 years, 1,005 ft<sup>3</sup>/s, 12.59 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 above base 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)
Dec. 13	0530	9210	10.68	Mar. 29	1500	17100	14.66
Feb. 14	2400	*18400	15.21	Apr. 5	1000	9960	11.15
Feb. 24	0600	7740	9.70	Aug. 14	0200	7160	9.31

Minimum discharge, 258 ft<sup>3</sup>/s Oct. 7, 8, 9, 10, gage height, 2.24 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	368	475	1260	1460	905	2320	4250	2820	811	1010	447	613
2	308	451	1110	1340	858	2000	3520	2370	784	816	577	569
3	285	435	995	1230	843	1800	2990	2280	755	712	611	557
4	276	423	2510	1160	913	1640	2730	3780	724	605	577	602
5	272	405	3110	1100	971	1550	8110	3190	689	561	843	562
6	267	396	2440	1060	970	1570	6190	3550	669	592	632	531
7	267	385	2090	1020	862	1500	4380	4380	639	668	676	511
8	260	379	1710	952	787	1440	3460	3690	618	559	542	493
9	258	372	1470	900	781	1410	2860	3150	599	504	733	483
10	261	422	1290	913	770	1320	2440	2640	593	610	651	476
11	275	752	1140	1850	772	1280	2140	2270	627	853	1380	467
12	388	604	3050	1270	790	1230	1900	2010	583	611	3390	458
13	395	554	8070	1110	812	1370	1740	1790	566	538	5190	454
14	433	610	4890	1060	8410	1950	1820	1630	644	505	5500	444
15	349	602	3430	1020	12900	2090	3730	1490	577	492	3930	435
16	306	633	2570	972	6730	2050	5500	1380	534	479	2660	423
17	293	612	1990	929	4470	1930	4560	1290	549	472	1970	415
18	287	605	1620	913	3440	1860	3610	1230	579	482	1590	406
19	283	589	1400	892	2780	1770	2970	1170	563	477	1370	410
20	295	583	1240	795	2330	1630	2510	1110	514	452	1140	407
21	483	734	1120	700	1960	2090	2170	1060	498	549	1000	400
22	572	718	1880	600	1720	5100	2840	999	481	738	905	394
23	655	661	4020	720	2120	3790	5890	991	468	612	836	384
24	2310	659	3260	850	6650	2870	4470	1040	487	583	792	379
25	1860	1880	2270	2730	4840	2460	3720	940	541	508	748	379
26	1310	2320	1700	1630	3780	2480	3070	885	491	493	701	372
27	975	1820	1400	1210	3080	2160	2620	891	460	674	670	369
28	766	1520	2530	1120	2910	3620	2290	946	447	503	663	415
29	638	1440	3690	1070	2980	14000	3980	954	449	466	696	452
30	559	1360	2050	1020	---	9230	3350	915	453	456	633	424
31	509	---	1630	979	---	5540	---	842	---	446	640	---
TOTAL	16763	23399	72935	34575	82134	87050	105810	57683	17392	18026	42693	13684
MEAN	541	780	2353	1115	2832	2808	3527	1861	580	581	1377	456
MAX	2310	2320	8070	2730	12900	14000	8110	4380	811	1010	5500	613
MIN	258	372	995	600	770	1230	1740	842	447	446	447	369
CFSM	.50	.72	2.17	1.03	2.61	2.59	3.25	1.72	.54	.54	1.27	.42
IN.	.58	.80	2.50	1.19	2.82	2.99	3.63	1.98	.60	.62	1.47	.47

CAL YR 1983	TOTAL	502767	MEAN	1377	MAX	14400	MIN	258	CFSM	1.27	IN	17.25
WTR YR 1984	TOTAL	572144	MEAN	1563	MAX	14000	MIN	258	CFSM	1.44	IN	19.63

## POTOMAC RIVER BASIN

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 National Geodetic Vertical Datum of 1929. April 1925 to September 1930, nonrecording gage at same site and datum.

REMARKS.--Records good. Diurnal fluctuation at low and medium flow caused by powerplant 10 mi above station. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--23 years, 1,326 ft<sup>3</sup>/s, 13.08 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 above base 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)
Dec. 13	1430	13000	9.81	Apr. 5	1730	14900	10.52
Feb. 14	2330	*32300	15.62	Apr. 16	1700	8640	8.07
Feb. 24	1330	11700	9.28	Apr. 23	1030	9270	8.32
Mar. 29	2130	26000	14.03	Aug. 14	1130	8900	8.17

Minimum discharge, 361 ft<sup>3</sup>/s Oct. 9, 10-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	437	764	1750	1940	1290	3410	6530	3580	1040	756	547	804
2	498	709	1590	1810	1210	2820	5260	3000	1010	1360	554	780
3	457	678	1430	1670	1170	2440	4360	2740	980	1120	1120	748
4	418	663	2210	1570	1190	2200	3790	4560	940	972	876	748
5	398	634	4540	1490	1270	2060	10700	4460	900	828	1050	772
6	392	626	3410	1430	1340	2040	10200	3940	998	748	1010	732
7	379	605	2830	1380	1270	1980	6600	5800	844	764	772	694
8	379	597	2310	1330	1150	1880	4990	5110	828	820	788	663
9	373	583	1970	1260	1080	1820	3970	4310	780	725	686	648
10	361	605	1760	1230	1060	1750	3330	3550	756	694	852	634
11	367	1090	1580	1830	1070	1670	2880	3020	740	886	1020	634
12	411	1220	1870	1790	1100	1610	2650	2620	804	948	2150	634
13	583	1020	11100	1500	1120	1630	2890	2300	732	772	7100	568
14	812	924	8270	1400	13200	2240	2950	2070	694	732	7300	605
15	619	916	5220	1360	25300	2700	3910	1890	748	641	5660	590
16	484	916	3760	1310	11300	2710	7300	1770	702	663	3940	561
17	430	924	2830	1270	6950	2510	6840	1660	663	612	2860	547
18	404	900	2240	1230	5050	2350	5160	1580	709	612	2240	540
19	398	868	1910	1200	3940	2250	4140	1520	725	590	1920	532
20	398	884	1720	1140	3240	2110	3430	1460	740	590	1650	525
21	518	1070	1560	1050	2720	2450	2940	1370	694	626	1400	532
22	732	1250	1920	860	2340	5540	3000	1310	702	663	1250	525
23	948	1120	4920	890	2380	5370	7890	1260	686	836	1130	511
24	2300	1050	4740	1060	9620	3900	6620	1280	686	740	1020	504
25	2880	2530	3310	2340	8030	3180	5320	1260	709	671	980	498
26	1970	3860	2580	2520	5800	3080	4270	1150	764	612	932	491
27	1550	2860	2300	1780	4540	2880	3550	1120	702	634	892	484
28	1220	2270	2340	1570	4100	4090	3050	1130	663	780	860	504
29	1080	2010	5380	1470	4210	19400	3970	1200	678	626	868	540
30	924	1870	3130	1400	---	17400	4380	1180	663	568	892	605
31	828	---	2200	1340	---	9100	---	1090	---	561	812	---
TOTAL	23948	36016	98680	45420	128040	120570	146870	74290	23280	23150	55131	18153
MEAN	773	1201	3183	1465	4415	3889	4896	2396	776	747	1778	605
MAX	2880	3860	11100	2520	25300	19400	10700	5800	1040	1360	7300	804
MIN	361	583	1430	860	1060	1610	2650	1090	663	561	547	484
CFSM	.56	.87	2.31	1.06	3.21	2.82	3.56	1.74	.56	.54	1.29	.44
IN.	.65	.97	2.67	1.23	3.46	3.26	3.97	2.01	.63	.63	1.49	.49
CAL YR 1983	TOTAL	684993	MEAN	1877	MAX	19200	MIN	355	CFSM	1.36	IN	18.51
WTR YR 1984	TOTAL	793548	MEAN	2168	MAX	25300	MIN	361	CFSM	1.57	IN	21.44

## 01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA

LOCATION:--Lat 38°54'50", 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 National Geodetic Vertical Datum of 1929. June 1899 to July 1906, nonrecording gage at site 1.0 mi upstream at different datum.

REMARKS.--Records good. Large diurnal fluctuation at low and medium flow caused by powerplants above station prior to 1954; occasional large diurnal fluctuation thereafter. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--51 years, 1,605 ft<sup>3</sup>/s, 13.27 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 flood-mark 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 above base 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)
Dec. 13	2400	14000	8.77	Apr. 6	0345	15900	9.40
Feb. 15	0900	*38500	15.85	Apr. 17	0415	8990	6.75
Feb. 24	2345	12200	8.08	Apr. 23	2115	9260	6.88
Mar. 30	0730	27400	12.86				

Minimum discharge, 301 ft<sup>3</sup>/s Oct. 7, 9, gage height, 1.19 ft; minimum daily, 317 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	471	912	2280	2800	1520	4540	8660	4320	1240	836	612	793
2	420	852	2070	2350	1430	3670	6920	3700	1200	847	600	780
3	444	762	1850	2160	1370	3200	5810	3280	1150	1360	703	783
4	433	748	2140	1980	1380	2880	5100	4330	1120	1060	1250	912
5	387	729	4170	1870	1430	2690	9380	5590	1060	961	1010	780
6	355	697	4610	1790	1560	2550	13500	4810	1040	778	1170	775
7	323	673	3830	1670	1580	2500	8640	5530	1100	784	1110	732
8	330	624	3200	1600	1380	2370	6400	5940	898	770	871	677
9	318	666	2700	1520	1280	2270	5130	5110	977	816	926	659
10	317	746	2340	1450	1190	2150	4450	4410	873	757	791	649
11	328	1080	2070	1600	1200	2050	3920	3760	863	720	997	636
12	463	1620	2290	2380	1230	1950	3560	3290	857	915	1560	627
13	687	1470	7700	1960	1270	1940	3260	2940	925	910	4210	623
14	1000	1220	11300	1720	10200	2090	3110	2660	858	760	6550	601
15	1060	1120	6950	1600	35100	3130	3510	2430	782	663	6310	631
16	702	1110	5030	1540	17200	3270	6830	2240	842	679	4630	597
17	529	1060	3890	1480	9150	3160	8210	2080	821	598	3340	575
18	451	1020	3110	1440	6550	2950	6490	1960	809	629	2580	562
19	403	998	2620	1380	5160	2820	5210	1860	815	610	2080	558
20	406	971	2270	1350	4420	2680	4420	1760	814	571	1810	554
21	527	1280	2010	1150	3650	2930	3780	1680	783	649	1490	538
22	667	1390	2060	930	3140	4290	3540	1570	722	672	1270	551
23	1140	1510	4000	869	3040	6660	6460	1500	687	661	1190	530
24	2010	1360	5780	939	7990	5030	8100	1450	709	853	1020	531
25	3680	2850	4730	1130	10200	4090	6410	1470	745	726	979	522
26	3110	4640	3600	3450	7240	3420	5300	1410	722	689	925	520
27	2260	4140	3090	2800	5590	3730	4460	1340	743	656	897	495
28	1740	3290	2980	2140	4970	4250	3870	1250	709	665	846	551
29	1330	2790	4940	1880	4940	14400	3520	1350	647	805	927	543
30	1140	2490	5050	1740	---	24400	5050	1450	666	664	838	545
31	1030	---	3300	1630	---	12700	---	1370	---	607	866	---
TOTAL	28501	44868	117960	54298	156360	141260	173000	87840	26177	23671	54358	18830
MEAN	919	1496	3805	1752	5392	4557	5767	2834	873	764	1753	628
MAX	3640	4690	11300	3450	35100	24400	13500	5940	1240	1360	6550	912
MIN	317	624	1850	869	1190	1940	3110	1250	647	571	600	495
CFSM	.56	.91	2.32	1.07	3.28	2.78	3.51	1.73	.53	.47	1.07	.38
IN.	.65	1.02	2.67	1.23	3.54	3.20	3.92	1.99	.59	.54	1.23	.43

CAL YR 1983	TOTAL	792685	MEAN	2172	MAX	19700	MIN	317	CFSM	1.32	IN	17.96
WTR YR 1984	TOTAL	927123	MEAN	2533	MAX	35100	MIN	317	CFSM	1.54	IN	21.00



## POTOMAC RIVER BASIN

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 TEMPERATURES: 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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT 05...	1345	371	383	9.1	20.0	742	7	9.7
NOV 15...	1115	1110	225	8.4	7.0	744	5	10.6
JAN 10...	1030	1420	266	8.0	3.0	748	5	13.3
FEB 22...	1345	3080	194	8.0	8.0	747	7	12.2
APR 24...	1500	7790	212	7.7	9.5	735	12	10.8
JUN 05...	0730	1090	320	8.6	21.0	750	10	8.1
JUL 19...	0845	740	340	8.5	25.0	750	1	7.6
AUG 28...	1345	810	310	9.0	25.5	746	3	11.2

DATE	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)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 05...	160	0	40	14	14	3.1	160	29	14
NOV 15...	96	7	25	8.2	9.2	2.0	89	19	8.1
JAN 10...	120	17	34	9.5	6.5	1.9	107	16	8.2
FEB 22...	90	15	25	6.8	4.1	1.4	76	12	6.2
APR 24...	95	12	27	6.7	3.8	2.3	83	13	6.4
JUN 05...	140	9	38	12	7.3	2.0	135	16	8.9
JUL 19...	150	13	39	13	8.5	3.0	138	19	11
AUG 28...	150	17	38	13	8.5	2.2	132	25	10

POTOMAC RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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 05...	.20	.4	209	210	<.010	.81	.260	16
NOV 15...	.10	2.6	135	130	.030	.94	.170	26
JAN 10...	<.10	4.7	157	150	<.010	1.9	.080	7
FEB 22...	<.10	6.3	130	110	<.010	1.4	.050	21
APR 24...	.10	5.0	125	110	.020	1.1	.080	53
JUN 05...	.10	1.1	203	170	.020	1.4	.070	16
JUL 19...	.10	5.3	200	180	.020	1.4	.200	8
AUG 28...	.10	1.8	210	180	<.030	<1.1	.030	9

< Actual value is known to be less than the value shown.

## POTOMAC RIVER BASIN

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 National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Nov. 15, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good. National Weather Service gage-height telemeter at station. Several observations 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, 193 ft<sup>3</sup>/s, 12.48 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 above base 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)
Dec. 12	1530	*7880	11.54	Mar. 29	0230	6940	10.80
Feb. 14	1715	7690	11.41	Apr. 5	0345	5100	9.24

Minimum discharge, 2.3 ft<sup>3</sup>/s Oct. 10, 11; minimum gage height, 1.94 ft Oct. 10, 11, Sept. 26-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	59	191	190	167	315	1020	273	28	254	11	18
2	3.9	50	167	170	154	282	738	237	27	122	14	16
3	3.5	43	146	155	151	267	564	226	24	271	18	15
4	3.0	38	747	138	157	253	554	259	22	134	15	18
5	3.0	35	797	128	165	259	3610	236	21	91	15	14
6	2.6	33	600	127	160	301	1470	335	24	73	15	13
7	2.6	30	695	122	133	309	751	491	19	60	20	11
8	2.4	28	491	108	119	291	490	481	17	46	14	10
9	2.4	26	355	100	117	261	376	409	15	37	13	9.3
10	2.3	42	269	183	115	219	311	333	16	65	113	8.5
11	2.6	209	212	337	121	206	264	275	16	152	181	7.6
12	4.0	248	3990	238	136	184	224	232	15	96	180	7.0
13	4.5	194	2660	224	166	177	197	198	14	64	149	6.7
14	13	152	1000	198	5140	188	198	172	13	47	188	6.2
15	19	131	553	172	3140	307	984	150	12	41	217	5.6
16	13	139	375	156	1190	327	1620	132	11	35	140	5.2
17	10	131	279	144	669	332	1180	117	12	27	99	4.9
18	8.8	118	221	135	477	327	712	105	12	24	75	4.6
19	7.5	106	187	124	383	296	493	97	9.9	20	59	4.4
20	9.6	100	160	84	329	262	386	87	8.9	18	45	4.2
21	196	119	135	83	281	1050	316	78	8.4	40	36	3.9
22	240	108	254	79	239	1540	581	69	7.6	29	29	3.7
23	914	97	601	76	415	765	1210	62	7.0	24	27	3.4
24	1050	105	481	86	1830	481	862	61	7.4	20	23	3.3
25	424	977	310	167	1350	389	583	51	7.6	17	20	3.1
26	265	623	250	250	755	465	434	44	6.2	15	17	3.0
27	195	391	190	275	518	452	349	40	5.5	15	16	2.6
28	147	302	240	258	466	2830	296	39	5.0	14	25	5.2
29	112	258	310	235	406	4570	328	38	24	13	54	4.7
30	89	219	290	213	---	1790	308	35	26	12	27	4.6
31	72	---	215	194	---	1260	---	31	---	11	22	---
TOTAL	3826.3	5111	17371	5149	19449	20955	21409	5393	441.5	1887	1877	226.7
MEAN	123	170	560	166	671	676	714	174	14.7	60.9	60.5	7.56
MAX	1050	977	3990	337	5140	4570	3610	491	28	271	217	18
MIN	2.3	26	135	76	115	177	197	31	5.0	11	11	2.6
CFSM	.59	.81	2.67	.79	3.20	3.22	3.40	.83	.07	.29	.29	.04
IN.	.68	.91	3.08	.91	3.45	3.71	3.79	.96	.08	.33	.33	.04
CAL YR 1983	TOTAL	97247.4	MEAN 266	MAX 4200	MIN 1.2	CFSM 1.27	IN 17.23					
WTR YR 1984	TOTAL	103095.5	MEAN 282	MAX 5140	MIN 2.3	CFSM 1.34	IN 18.26					

01632900 SMITH CREEK NEAR NEW MARKET, VA

LOCATION.--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 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.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--24 years, 74.4 ft<sup>3</sup>/s, 10.84 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 above base 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)
Dec. 12	2330	1010	6.17	Mar. 28	2100	1780	8.40
Dec. 28	1730	1060	6.32	Mar. 30	2000	912	5.84
Jan. 25	Unknown	660	a5.00	Apr. 5	0730	1330	7.18
Feb. 14	1630	*4790	11.93	Apr. 16	0600	915	5.85
Feb. 24	0300	1540	7.77	Apr. 22	2330	1080	6.40

a About.

Minimum discharge, 14 ft<sup>3</sup>/s Oct. 4-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	24	64	100	72	192	447	144	65	172	29	34
2	20	23	59	97	68	175	354	137	63	61	31	33
3	18	23	56	93	71	162	296	148	60	52	81	34
4	16	23	310	91	80	149	266	343	57	44	86	38
5	17	23	185	92	97	145	850	218	59	41	80	34
6	18	23	144	92	92	144	391	248	143	41	62	32
7	17	22	123	88	77	133	300	250	69	45	70	30
8	17	21	98	77	69	124	252	210	66	39	50	30
9	18	20	86	72	67	120	216	183	58	36	49	30
10	19	30	79	149	67	112	194	159	56	49	46	29
11	21	50	72	254	76	110	178	145	64	64	56	28
12	27	39	394	108	79	104	164	135	63	44	57	28
13	26	30	652	90	79	112	151	126	74	38	107	28
14	26	26	286	84	2510	161	170	118	59	34	132	28
15	23	26	192	79	1230	210	406	112	54	40	85	28
16	21	28	148	75	468	175	732	106	52	34	71	28
17	21	26	124	71	328	151	430	101	55	35	63	27
18	21	25	109	71	268	145	304	97	52	35	57	27
19	21	24	100	67	218	130	246	95	50	34	55	27
20	26	26	91	61	189	120	212	91	47	33	52	26
21	52	69	84	58	165	236	189	87	47	41	47	26
22	42	55	138	58	151	210	386	82	46	38	45	26
23	74	43	207	73	300	159	582	83	45	35	44	26
24	90	47	148	149	908	140	332	80	47	34	42	26
25	53	385	126	332	371	138	260	75	46	32	41	25
26	41	158	115	187	268	161	214	72	42	31	38	26
27	34	102	110	123	224	138	189	71	42	33	37	26
28	31	87	339	102	238	796	176	70	40	31	36	32
29	28	80	320	90	234	1350	185	71	40	30	37	29
30	27	71	137	84	---	796	159	68	42	30	36	28
31	26	---	104	78	---	568	---	65	---	30	34	---
TOTAL	915	1629	5200	3245	9064	7566	9231	3990	1703	1336	1756	869
MEAN	29.5	54.3	168	105	313	244	308	129	56.8	43.1	56.6	29.0
MAX	90	385	652	332	2510	1350	850	343	143	172	132	38
MIN	16	20	56	58	67	104	151	65	40	30	29	25
CFSM	.32	.58	1.80	1.13	3.36	2.62	3.31	1.38	.61	.46	.61	.31
IN.	.37	.65	2.08	1.30	3.62	3.02	3.68	1.59	.68	.53	.70	.35
CAL YR 1983	TOTAL	36600	MEAN 100	MAX	907	MIN 16	CFSM 1.07	IN 14.61				
WTR YR 1984	TOTAL	46504	MEAN 127	MAX	2510	MIN 16	CFSM 1.36	IN 18.56				



## POTOMAC RIVER BASIN

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 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.--Records good. Some diversion during low flow by irrigation at points above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--41 years, 391 ft<sup>3</sup>/s, 10.49 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 above base 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)
Dec. 12	2130	11300	12.20	Mar. 29	0730	12200	12.61
Feb. 14	1900	*15500	14.06	Apr. 5	0830	8000	10.52

Minimum discharge, 49 ft<sup>3</sup>/s Oct. 7, 8-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	146	398	505	384	896	2270	767	216	565	93	115
2	69	131	352	480	366	806	1810	696	212	352	98	109
3	58	121	316	466	356	756	1500	684	205	388	204	109
4	56	115	1230	461	384	712	1310	986	194	316	239	128
5	52	109	1530	442	418	696	5270	800	194	228	208	112
6	54	107	1140	446	418	718	2790	884	336	205	175	104
7	51	104	1240	418	352	718	1770	1140	205	190	284	98
8	49	96	980	361	316	684	1320	1100	228	166	169	96
9	51	90	740	334	316	652	1080	974	183	146	169	93
10	52	109	586	497	302	575	944	830	173	163	258	90
11	56	264	480	1180	311	560	848	723	180	306	514	88
12	71	413	3710	596	334	515	762	657	183	243	398	85
13	74	347	5770	510	352	520	706	586	187	187	526	83
14	71	272	2140	470	8040	575	718	530	169	163	927	83
15	76	232	1310	418	7010	789	1850	485	156	163	586	80
16	83	235	950	384	2490	800	3300	446	150	166	427	80
17	76	232	745	356	1640	767	2640	418	166	137	324	80
18	71	212	618	338	1260	740	1770	394	160	131	272	78
19	67	194	540	316	1040	696	1360	379	150	121	239	78
20	74	190	480	264	914	635	1110	352	140	115	208	78
21	197	272	422	250	800	1170	956	329	140	146	187	78
22	413	259	545	250	712	2230	1340	306	134	173	166	76
23	726	220	1100	260	904	1370	2700	298	134	143	160	76
24	1810	228	1060	376	3560	992	1890	293	134	128	153	76
25	802	1700	696	1150	2360	842	1440	272	137	118	137	74
26	500	1300	640	954	1590	962	1140	255	128	109	128	74
27	370	824	580	718	1220	944	1050	247	121	109	121	71
28	285	624	1080	602	1120	3880	884	247	115	104	121	88
29	232	540	1300	535	1090	9830	896	247	109	98	156	93
30	190	456	723	485	---	4010	836	235	146	98	143	90
31	166	---	570	442	---	2820	---	224	---	96	124	---
TOTAL	6982	10142	33971	15264	40359	42860	48260	16784	5085	5773	7914	2663
MEAN	225	338	1096	492	1392	1383	1609	541	170	186	255	88.8
MAX	1810	1700	5770	1180	8040	9830	5270	1140	336	565	927	128
MIN	49	90	316	250	302	515	706	224	109	96	93	71
CFSM	.45	.67	2.17	.97	2.75	2.73	3.18	1.07	.34	.37	.50	.18
IN.	.51	.75	2.50	1.12	2.97	3.15	3.55	1.23	.37	.42	.58	.20
CAL YR 1983 TOTAL	202564			MEAN 555	MAX 5770	MIN 49	CFSM 1.10	IN 14.89				
WTR YR 1984 TOTAL	236057			MEAN 645	MAX 9830	MIN 49	CFSM 1.28	IN 17.35				

## 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 National Geodetic Vertical Datum of 1929. Prior to Sept. 21, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good. Large diurnal fluctuation at low and medium flow from unknown cause. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--59 years, 591 ft<sup>3</sup>/s, 10.45 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 above base 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)
Dec. 13	1230	10500	12.54	Mar. 29	1545	15500	15.83
Feb. 15	1045	*17200	16.86	Apr. 5	2200	8340	10.87
Feb. 24	1700	6060	8.95				

Minimum discharge, 68 ft<sup>3</sup>/s Oct. 8, 9; minimum gage height, 1.75 ft Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	253	629	870	618	1520	3720	1230	415	295	169	218
2	115	232	557	800	547	1290	3020	1110	369	673	172	183
3	108	216	498	750	528	1190	2450	1050	385	505	163	202
4	169	187	650	700	534	1110	2110	1200	362	446	204	181
5	117	180	1960	680	597	1050	4280	1420	353	460	361	191
6	124	181	1800	669	633	1040	5450	1210	325	380	295	218
7	104	168	1760	649	594	1040	3110	1570	405	316	257	193
8	101	107	1700	592	513	1010	2270	1650	400	310	346	149
9	108	155	1300	520	460	971	1830	1530	343	246	289	179
10	140	162	1020	525	453	905	1570	1350	343	260	272	157
11	91	211	828	1240	464	830	1400	1180	292	261	341	179
12	208	334	819	1220	502	803	1260	1050	308	364	689	124
13	144	545	7130	823	527	778	1140	958	280	366	508	171
14	124	475	4070	706	3730	797	1100	874	308	300	792	143
15	80	394	2310	643	14300	979	1760	798	311	261	1070	170
16	154	343	1610	582	4940	1240	3890	739	154	241	721	169
17	185	330	1240	532	2900	1220	4340	689	286	261	548	140
18	140	316	1010	513	2210	1130	3070	648	280	233	437	135
19	120	313	857	483	1790	1080	2310	622	279	222	370	143
20	83	301	754	460	1520	996	1880	601	270	199	340	142
21	129	384	670	410	1330	1140	1600	572	234	237	303	140
22	177	409	674	380	1170	2590	1610	570	232	196	283	160
23	746	398	967	410	1160	2480	3890	529	231	255	258	153
24	1770	363	1510	460	4100	1730	3260	494	247	228	252	136
25	1890	746	1300	600	3900	1390	2490	503	238	249	239	141
26	1030	2540	946	1500	2770	1460	1980	467	251	207	223	142
27	687	1540	890	1380	2040	1580	1660	429	242	198	210	136
28	527	1090	966	1020	1770	2280	1460	431	189	157	222	149
29	423	862	1880	833	1740	13200	1380	515	202	185	233	151
30	352	741	1420	747	---	8660	1350	464	206	177	219	162
31	303	---	1120	676	---	4880	---	433	---	181	259	---
TOTAL	10588	14476	44845	22373	58340	62369	72640	26886	8740	8869	11045	4857
MEAN	342	483	1447	722	2012	2012	2421	867	291	286	356	162
MAX	1890	2540	7130	1500	14300	13200	5450	1650	415	673	1070	218
MIN	80	107	498	380	453	778	1100	429	154	157	163	124
CFSM	.45	.63	1.88	.94	2.62	2.62	3.15	1.13	.38	.37	.46	.21
IN.	.51	.70	2.17	1.08	2.83	3.02	3.52	1.30	.42	.43	.53	.24
CAL YR 1983	TOTAL	294525	MEAN 807	MAX 7760	MIN 80	CFSM 1.05	IN 14.27					
WTR YR 1984	TOTAL	346028	MEAN 945	MAX 14300	MIN 80	CFSM 1.23	IN 16.76					

## POTOMAC RIVER BASIN

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 TEMPERATURES: October 1948 to September 1949, October 1955 to September 1956.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT									
05...	1035	86	470	8.5	18.5	--	8	--	--
NOV									
15...	1530	389	353	8.3	5.5	--	6	--	--
JAN									
10...	1355	482	353	8.0	3.5	--	14	--	--
FEB									
22...	0840	1190	295	8.0	6.0	--	10	--	--
APR									
24...	1215	3210	199	7.8	8.5	735	20	11.1	98
JUN									
04...	1300	361	410	8.6	21.0	--	5	--	--
JUL									
19...	1330	256	346	8.5	26.0	750	3	11.2	141
AUG									
28...	1200	206	405	8.7	24.0	747	3	10.3	125

DATE	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)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT									
05...	180	2	43	18	20	2.3	180	19	34
NOV									
15...	160	18	44	13	9.1	2.3	146	18	14
JAN									
10...	170	22	48	11	8.4	2.4	143	18	14
FEB									
22...	140	20	40	9.7	5.2	1.6	120	19	9.0
APR									
24...	89	13	26	5.8	3.3	1.9	76	13	5.1
JUN									
04...	190	35	50	16	9.8	1.9	156	16	15
JUL									
19...	160	14	40	14	9.0	2.3	144	14	15
AUG									
28...	180	16	45	16	14	2.1	162	26	22

POTOMAC RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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 05...	.10	.2	252	240	<.010	.26	.010	<3
NOV 15...	.10	2.2	193	200	.030	2.0	.130	19
JAN 10...	<.10	4.7	211	190	<.010	2.5	.100	23
FEB 22...	<.10	5.9	185	170	.010	2.5	.040	15
APR 24...	.10	5.3	121	110	.030	1.0	.050	42
JUN 04...	.10	.9	277	200	.030	1.8	.010	8
JUL 19...	<.10	4.0	207	180	<.010	.79	.090	10
AUG 28...	.10	2.4	272	220	<.010	1.4	.040	9

< Actual value is known to be less than the value shown.



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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--47 years, 94.8 ft<sup>3</sup>/s, 12.50 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 above base 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. 25	0830	1200	5.02	Mar. 30	1900	1540	5.69
Dec. 12	2030	1000	4.60	Mar. 31	2100	1190	5.00
Feb. 14	1600	*7240	14.28	Apr. 5	0400	2500	7.45
Feb. 24	0300	2640	7.68	Apr. 22	2230	2020	6.60
Mar. 28	2330	4900	11.34	Aug. 14	1930	1280	5.17

Minimum discharge, 6.7 ft<sup>3</sup>/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	30	125	130	132	220	834	156	48	58	13	16
2	26	26	112	110	103	193	644	140	45	36	25	15
3	18	25	103	90	103	166	511	146	40	24	24	14
4	9.7	24	372	70	123	147	429	309	37	23	22	14
5	8.7	21	311	70	145	144	1500	208	35	23	18	15
6	8.2	23	280	107	135	147	721	250	35	32	16	14
7	7.7	20	365	110	95	127	459	345	32	42	19	13
8	8.2	18	263	100	88	118	348	319	29	23	16	13
9	7.7	17	206	78	86	112	282	296	27	18	22	25
10	8.2	76	180	98	82	103	240	236	25	23	40	16
11	9.7	175	150	170	95	106	208	202	24	29	216	11
12	61	107	410	140	112	100	180	174	22	23	160	11
13	50	78	755	120	114	101	161	149	36	19	115	11
14	44	63	470	107	3770	115	154	132	26	16	340	11
15	29	58	332	95	1820	213	454	118	22	15	234	12
16	18	76	254	100	680	289	683	107	20	15	87	11
17	16	62	200	83	429	230	437	98	23	15	59	10
18	15	53	185	74	338	193	440	93	25	19	45	10
19	15	50	152	72	276	169	345	89	26	15	37	10
20	18	50	130	70	230	149	279	80	21	14	32	10
21	150	206	114	66	193	475	230	75	19	20	25	10
22	85	125	145	64	161	402	521	69	18	20	23	10
23	324	99	192	64	233	289	890	82	19	23	29	10
24	288	99	140	90	1480	223	467	89	20	19	30	10
25	148	665	70	209	559	202	345	68	37	15	21	10
26	110	320	72	263	362	530	276	61	23	14	19	10
27	83	221	90	296	282	348	233	57	20	18	18	17
28	63	188	170	263	296	1850	199	54	17	16	21	32
29	50	180	280	215	312	2870	214	62	16	14	35	18
30	40	150	200	180	---	1240	180	57	21	14	21	15
31	33	---	150	155	---	1020	---	49	---	14	20	---
TOTAL	1805.1	3305	6978	3859	12834	12591	12864	4370	808	669	1802	404
MEAN	58.2	110	225	124	443	406	429	141	26.9	21.6	58.1	13.5
MAX	324	665	755	296	3770	2870	1500	345	48	58	340	32
MIN	7.7	17	70	64	82	100	154	49	16	14	13	10
CFSM	.57	1.07	2.18	1.20	4.30	3.94	4.17	1.37	.26	.21	.56	.13
IN.	.65	1.19	2.52	1.39	4.64	4.55	4.65	1.58	.29	.24	.65	.15
CAL YR 1983	TOTAL	54706.8	MEAN 150	MAX 2100	MIN 5.7	CFSM 1.46	IN 19.76					
WTR YR 1984	TOTAL	62289.1	MEAN 170	MAX 3770	MIN 7.7	CFSM 1.65	IN 22.50					

## 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 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.--Records good except those for January, which are fair. Occasional diurnal fluctuation during low flow caused by State Fish Hatchery 2 mi above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--52 years, 69.6 ft<sup>3</sup>/s, 10.77 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 above base 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. 25	1330	1060	6.14	Apr. 5	1030	1190	6.34
Feb. 14	2030	*4980	10.69	Apr. 16	1030	1040	6.10
Feb. 24	0900	1470	6.77	Apr. 23	0330	1150	6.27
Mar. 29	0300	3050	8.90				

Minimum discharge, 1.9 ft<sup>3</sup>/s Sept. 27, gage height, 2.86 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	13	60	160	82	176	729	128	20	59	5.0	6.7
2	13	13	52	130	78	150	560	114	19	34	4.8	5.6
3	7.6	12	49	100	78	130	402	116	17	17	5.2	4.8
4	6.2	11	267	90	96	118	332	324	18	13	6.9	25
5	5.2	11	224	80	107	114	888	268	15	11	8.6	19
6	4.2	12	166	72	114	114	495	280	13	11	11	12
7	3.8	12	240	67	88	98	328	328	12	10	6.9	8.0
8	3.8	10	140	60	72	90	256	252	11	9.4	5.4	6.5
9	3.8	10	109	52	72	88	205	205	9.1	10	11	6.0
10	4.4	14	92	57	72	82	172	166	8.3	9.4	12	5.6
11	4.4	63	78	130	82	82	150	140	8.0	9.1	13	5.4
12	9.7	63	161	92	94	76	132	125	8.0	9.7	26	5.2
13	16	38	641	80	88	78	120	109	9.4	7.6	23	4.6
14	12	29	364	74	2220	94	132	96	7.8	6.5	32	4.8
15	10	23	212	70	2110	205	552	84	7.1	5.8	39	8.8
16	9.1	24	150	68	592	205	806	74	6.9	5.2	18	9.7
17	7.3	22	120	64	368	153	530	67	6.7	5.0	12	6.0
18	6.2	18	100	62	300	132	352	60	8.8	7.6	9.4	5.4
19	6.2	17	90	58	228	120	264	57	12	6.2	7.8	6.4
20	7.1	20	76	54	190	109	212	50	8.6	5.4	7.1	7.0
21	35	182	67	50	156	308	176	44	6.9	5.8	6.9	5.2
22	38	92	94	48	130	308	275	39	6.2	6.7	6.5	4.0
23	146	58	209	48	173	197	756	38	6.0	9.4	6.9	3.5
24	226	60	135	60	1050	156	372	40	6.9	8.0	6.5	3.8
25	78	665	90	100	412	160	268	32	12	6.9	6.0	3.3
26	55	236	90	340	272	328	212	28	9.1	5.8	5.8	2.2
27	35	132	110	292	209	276	176	24	6.9	5.4	4.6	2.1
28	23	102	202	176	228	850	156	23	5.6	4.8	5.2	4.4
29	19	90	398	145	244	2220	169	26	5.0	4.8	23	9.7
30	16	72	240	114	---	884	145	28	5.0	5.6	14	9.4
31	14	---	200	98	---	812	---	22	---	5.8	8.8	---
TOTAL	851.0	2124	5226	3091	10005	8913	10322	3387	295.3	320.9	358.3	210.1
MEAN	27.5	70.8	169	99.7	345	288	344	109	9.84	10.4	11.6	7.00
MAX	226	665	641	340	2220	2220	888	328	20	59	39	25
MIN	3.8	10	49	48	72	76	120	22	5.0	4.8	4.6	2.1
CFSM	.31	.81	1.93	1.14	3.93	3.28	3.92	1.24	.11	.12	.13	.08
IN.	.36	.90	2.21	1.31	4.24	3.78	4.37	1.44	.13	.14	.15	.09
CAL YR 1983	TOTAL	38133.4	MEAN 104	MAX 1320	MIN 2.0	CFSM 1.19	IN 16.16					
WTR YR 1984	TOTAL	45103.6	MEAN 123	MAX 2220	MIN 2.1	CFSM 1.40	IN 19.11					

## POTOMAC RIVER BASIN

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 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.--Records good. Regulation by hydroelectric plants, particularly that of Potomac Light and Power Co., 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.--69 years (water years 1896-1908, 1929-84), 2,712 ft<sup>3</sup>/s, 12.11 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 flood marks; 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 in 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 above base 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)
Dec. 14	0500	25200	10.93	Apr. 6	1215	27900	11.48
Feb. 15	2245	*58600	16.66	Apr. 17	1345	16700	8.89
Feb. 25	0815	21400	10.10	Apr. 24	0730	16600	8.85
Mar. 30	1230	44400	14.49				

Minimum discharge, 497 ft<sup>3</sup>/s Oct. 7, gage height, 1.42 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	702	1530	3660	5040	3060	8380	20200	7220	2080	1210	856	1230
2	827	1350	3260	4580	2820	7120	15600	6270	1960	1400	1020	1180
3	827	1290	2940	4090	2780	6200	12700	5700	1850	1690	1060	1110
4	638	1110	3050	3980	2860	5610	10700	6370	1810	1960	1090	1130
5	673	1120	5060	3510	2990	5220	15600	8200	1720	1630	1580	1240
6	718	1140	7770	3410	3240	5010	24700	7850	1660	1690	1500	1130
7	578	987	6970	3300	3170	4780	18000	7710	1610	1600	1560	1080
8	533	1090	6250	3100	2910	4660	12700	9450	1700	1400	1490	1050
9	558	1010	5330	2870	2570	4510	9880	8600	1580	1280	1360	985
10	552	1030	4470	2710	2440	4220	8240	7530	1520	1260	1480	926
11	527	1440	3840	2990	2390	4040	7180	6550	1430	1310	1770	990
12	604	2060	3710	4020	2490	3850	6400	5800	1380	1160	1910	834
13	817	2320	9710	4170	2620	3730	5820	5220	1370	1450	2890	879
14	1430	2250	22300	3280	12500	3740	5460	4760	1430	1560	6600	852
15	1480	1980	14000	2990	50400	4590	6750	4340	1350	1370	8400	902
16	1360	1780	9450	2780	41900	5880	11400	3990	1260	1200	6600	866
17	1190	1680	7180	2660	18800	6030	16100	3660	1240	1080	4940	919
18	804	1600	5840	2560	13000	5610	14000	3400	1240	1080	3750	826
19	876	1530	4950	2530	10000	5250	10700	3240	1350	1140	2970	747
20	752	1520	4340	2460	8200	5000	8680	3050	1310	1040	2490	692
21	737	1840	3830	2240	7030	5000	7380	2920	1280	1040	2220	781
22	944	2500	3690	1820	6150	6880	6530	2760	1160	1160	1920	777
23	1420	2280	4170	1610	5600	10500	9880	2620	1120	1170	1810	758
24	3930	2280	7290	1700	11500	9340	15500	2470	1090	1150	1650	761
25	5330	3530	7300	2000	19600	7380	12100	2370	1180	1330	1460	767
26	5600	7270	5730	2160	14500	7310	9770	2330	1250	1210	1410	745
27	4050	7550	4680	6570	10800	7910	8160	2170	1110	1180	1400	697
28	3030	5780	4990	5330	9220	7600	7050	2130	1130	1040	1240	738
29	2370	4790	6140	4170	9120	28100	6540	2310	1060	1010	1310	783
30	1920	4090	9720	3620	---	42600	6720	2330	954	1170	1360	805
31	1690	---	7270	3370	---	30100	---	2160	---	1120	1220	---
TOTAL	47467	71727	198890	101620	284660	266150	330440	145480	42184	40090	72316	27180
MEAN	1531	2391	6416	3278	9816	8585	11010	4693	1406	1293	2333	906
MAX	5600	7550	22300	6570	50400	42600	24700	9450	2080	1960	8400	1240
MIN	527	987	2940	1610	2390	3730	5460	2130	954	1010	856	692
CFSM	.50	.79	2.11	1.08	3.23	2.82	3.62	1.54	.46	.43	.77	.30
IN.	.58	.88	2.43	1.24	3.48	3.26	4.04	1.78	.52	.49	.88	.33

CAL YR 1983	TOTAL	1366363	MEAN	3743	MAX	29400	MIN	527	CFSM	1.23	IN	16.72
WTR YR 1984	TOTAL	1628204	MEAN	4449	MAX	50400	MIN	527	CFSM	1.46	IN	19.92

## POTOMAC RIVER BASIN

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01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to September 1983.

WATER TEMPERATURES: October 1980 to September 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE, AIR (DEG C)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM 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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 29...	1015	4850	240	7.4	8.0	8.0	746	12	11.7	101	630	1200
JAN 23...	1100	1460	398	8.0	-5.0	.0	774	2.4	15.0	101	K3	<1
MAR 06...	1000	5000	305	7.8	2.0	5.0	751	5.2	13.0	103	K6	190
MAY 09...	1030	8680	245	7.7	13.0	14.0	754	16	9.6	94	360	34
JUL 09...	1030	1300	440	8.4	17.0	22.0	763	3.6	9.0	103	--	K14
SEP 10...	1130	1030	420	7.8	23.0	21.0	759	1.7	9.5	107	K14	110

DATE	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 LAB (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)
NOV 29...	96	17	27	7.0	9.2	17	.4	2.4	79	6.1	26	7.3
JAN 23...	150	22	43	11	15	17	.5	1.9	131	2.4	40	12
MAR 06...	130	25	37	8.4	9.0	13	.4	1.6	102	3.1	25	10
MAY 09...	100	17	30	7.2	6.2	11	.3	1.6	88	3.4	24	6.1
JUL 09...	180	28	50	14	19	18	.6	2.5	155	1.2	55	14
SEP 10...	160	24	40	14	24	25	.9	2.4	134	4.1	55	17



## POTOMAC RIVER BASIN

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	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 P04)
NOV 29...	.10	6.7	139	130	.19	1820	1.4	.100	.13	1.2	.170	.52
JAN 23...	.10	5.3	218	210	.30	859	2.1	.040	.05	.60	.100	.31
MAR 06...	<.10	6.4	171	160	.23	2310	1.8	<.010	--	.90	.040	.12
MAY 09...	.20	6.2	124	130	.17	2910	1.2	.080	.10	.50	.180	.55
JUL 09...	.10	6.6	283	250	.38	993	1.5	<.010	--	.90	.120	--
SEP 10...	.10	.5	250	230	.34	695	.68	.060	.08	.40	.020	--

DATE	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 P04)	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)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 29...	.110	.120	.37	10	1	42	<.5	<1	<1	<3	2	1
JAN 23...	.080	.060	.18	--	--	--	--	--	--	--	--	--
MAR 06...	.030	.030	.09	<10	<1	39	<.5	<1	<1	<3	1	5
MAY 09...	.120	.050	.15	<10	1	36	<1.0	<1	<1	<3	4	1
JUL 09...	.100	.070	.21	--	--	--	--	--	--	--	--	--
SEP 10...	.020	.020	.06	<10	1	44	<.0	<1	4	<3	1	10

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)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 29...	3	<.1	<10	1	<1	<1	94	<6	8	23	301	100
JAN 23...	--	--	--	--	--	--	--	--	--	1	3.9	80
MAR 06...	7	.1	<10	3	<1	<1	110	<6	26	10	135	77
MAY 09...	2	.1	<10	2	<1	<1	92	<6	9	57	1340	84
JUL 09...	--	--	--	--	--	--	--	--	--	9	32	78
SEP 10...	3	.2	<10	<1	<1	<1	160	<6	<3	5	14	74

## POTOMAC RIVER BASIN

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01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA

LOCATION (REVISED).--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. Prior to Nov. 3, 1983, at site 60 ft upstream.

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 National Geodetic Vertical Datum of 1929. Prior to Nov. 3, 1983, at site 60 ft upstream at datum 1.78 ft higher.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--13 years, 111 ft<sup>3</sup>/s, 16.82 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 daily, 1.9 ft<sup>3</sup>/s Sept. 14-17, 1977, site then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Dec. 13	0700	1900	7.43	Apr. 5	0500	2550	8.51
Feb. 14	1300	5460	13.11	May 3	2400	2220	7.97
Mar. 29	0530	3680	10.40	Aug. 13	1430	*7320	15.32
Mar. 30	2000	1780	7.23				

Minimum discharge, 4.0 ft<sup>3</sup>/s Oct. 6-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	24	112	96	71	249	539	173	75	78	15	27
2	15	21	96	91	70	208	436	149	68	53	17	27
3	8.5	21	90	90	190	182	358	372	61	33	42	29
4	6.8	21	465	86	334	156	514	1040	56	28	86	50
5	5.1	19	243	84	216	180	1350	365	53	28	35	37
6	4.1	19	259	87	161	190	516	312	51	42	24	30
7	4.1	20	288	88	90	147	382	354	49	80	19	26
8	4.1	20	173	76	72	125	306	341	45	53	16	24
9	4.1	18	144	71	72	125	262	322	43	31	15	23
10	4.1	68	125	110	74	112	235	246	42	31	62	23
11	4.3	203	108	162	121	116	211	214	40	35	342	23
12	32	114	365	55	133	118	190	195	39	29	258	22
13	42	68	1620	50	125	116	178	175	38	25	3500	20
14	56	57	678	57	3400	182	196	156	38	22	316	21
15	25	53	368	67	1140	260	806	142	35	20	151	23
16	13	59	262	55	479	205	734	129	33	19	97	21
17	10	53	208	60	348	168	428	121	38	17	77	17
18	7.6	43	170	61	300	147	368	116	42	19	65	16
19	7.2	38	153	61	240	136	297	112	61	23	59	16
20	7.6	39	131	51	205	125	254	105	42	19	65	16
21	45	176	114	45	175	243	222	97	34	35	50	14
22	40	87	394	40	158	214	211	90	32	36	43	14
23	150	67	312	40	234	158	382	100	31	28	61	13
24	370	66	178	41	686	133	265	123	43	24	59	13
25	140	521	80	42	334	138	214	88	49	19	42	14
26	94	234	76	63	249	424	185	79	37	16	36	13
27	63	151	90	91	205	254	168	72	32	20	32	12
28	45	166	277	150	560	1090	153	74	29	23	32	22
29	37	272	283	84	379	2370	329	105	29	18	66	30
30	30	140	107	65	---	1240	200	120	33	16	42	23
31	27	---	96	70	---	802	---	84	---	16	32	---
TOTAL	1325.6	2858	8065	2289	10821	10313	10889	6171	1298	936	5756	659
MEAN	42.8	95.3	260	73.8	373	333	363	199	43.3	30.2	186	22.0
MAX	370	521	1620	162	3400	2370	1350	1040	75	80	3500	50
MIN	4.1	18	76	40	70	112	153	72	29	16	15	12
CFSM	.48	1.06	2.90	.82	4.16	3.72	4.05	2.22	.48	.34	2.08	.25
IN.	.55	1.19	3.35	.95	4.49	4.28	4.52	2.56	.54	.39	2.39	.27
CAL YR 1983	TOTAL	51406.3	MEAN 141	MAX 2810	MIN 3.6	CFSM 1.57	IN 21.34					
WTR YR 1984	TOTAL	61380.6	MEAN 168	MAX 3500	MIN 4.1	CFSM 1.88	IN 25.48					

## POTOMAC RIVER BASIN

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 Catoclin 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 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.--Records good. Low flow affected slightly since 1913 by Stony River Reservoir, since December 1950 by Savage River Reservoir, and since July 1981, by Bloomington Reservoir. Low flow affected extensively at times by run-of-the-river hydroelectric plants. Gage-height telemeter at station.

AVERAGE DISCHARGE.--89 years, 9,420 ft<sup>3</sup>/s, 13.25 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, 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 above base 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)
Dec. 14	1400	81100	15.10	Apr. 6	1730	117000	19.49
Feb. 16	0330	*199000	28.14	Apr. 17	1930	47500	10.39
Feb. 25	1900	46900	10.14	Apr. 24	1530	55100	11.53
Mar. 23	1530	49500	10.69	Aug. 15	1730	36100	8.58
Mar. 30	0930	128000	20.80				

Minimum discharge, 1,340 ft<sup>3</sup>/s Oct. 11, gage height, 0.76 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1620	4330	15200	12600	10100	26600	70700	25000	7690	4270	3260	4410
2	1770	3860	13400	11000	8830	22500	61100	22800	7140	6310	2940	4100
3	1830	3540	12000	9900	8410	19300	50800	20100	6690	9640	3280	3920
4	1690	3300	11900	9560	9390	17400	42700	24100	6320	9120	3740	4080
5	1750	3060	15200	9220	9910	16100	52600	28200	5950	7100	4550	3930
6	1760	3030	24900	8900	11200	15700	106000	25900	5750	6390	4850	3750
7	1670	2950	26600	8980	11000	15500	86300	23500	5370	8710	4500	3460
8	1440	2780	31100	9080	10100	15600	54400	26600	5330	12800	4420	3420
9	1440	2690	26800	8820	8590	15300	40200	30000	5130	11000	3940	3320
10	1410	2700	21400	8320	7900	14400	31800	28200	4720	8280	3940	3220
11	1380	4240	17400	8100	8220	13200	26400	25200	4530	6840	6250	3080
12	1630	5750	15500	7900	8630	12500	23100	22000	4340	5960	10000	3000
13	1790	8370	27700	7700	9280	12200	20000	19500	4240	6950	24200	2850
14	2700	8590	75600	7300	27200	11900	18200	17900	4090	8030	26300	2830
15	3680	7390	58200	6900	141000	12500	20400	16100	4050	6630	34100	2930
16	3210	6460	37100	6500	174000	15300	31600	14600	4050	5660	29700	2800
17	3360	6260	27200	6300	80500	19500	45800	13300	4030	5260	19900	3410
18	2940	6620	21400	5900	49000	22100	43800	12200	4060	5040	14700	3180
19	2320	6750	17400	5700	37700	21900	35500	11100	4220	4650	11400	2730
20	2120	6340	14900	5000	30500	20100	29000	10500	4230	4200	9500	2450
21	2100	7110	13100	4500	25900	19000	24600	10000	4280	4280	8360	2520
22	2170	9390	12900	4000	22500	25700	21700	9520	4000	4130	7300	2530
23	3350	9480	12900	3600	19900	46400	24000	9530	3750	4050	6620	2450
24	7650	8680	15000	3900	25800	39400	49300	9220	3620	4190	6360	2450
25	15500	10500	15500	5000	41900	29300	45300	8560	3840	4260	5800	2400
26	17300	17400	11800	6000	42100	25500	36300	8230	4160	4120	5610	2390
27	12100	21900	9710	11000	35600	28800	29300	7620	4070	3970	5470	2270
28	8920	18100	11400	16200	30500	34400	24400	7060	3910	3690	4830	2400
29	7040	15500	14300	15800	28700	70400	22300	7240	3650	3500	4590	2260
30	5700	15700	17800	13500	---	124000	21500	7780	3390	3480	4620	2580
31	4820	---	15100	11500	---	92100	---	8320	---	3390	4700	---
TOTAL	128160	232770	660410	258680	934360	874600	1189100	509880	140600	185900	289730	91120
MEAN	4134	7759	21300	8345	32220	28210	39640	16450	4687	5997	9346	3037
MAX	17300	21900	75600	16200	174000	124000	106000	30000	7690	12800	34100	4410
MIN	1380	2690	9710	3600	7900	11900	18200	7060	3390	3390	2940	2260
CFSM	.43	.80	2.21	.87	3.34	2.92	4.11	1.70	.49	.62	.97	.32
IN.	.49	.90	2.55	1.00	3.60	3.37	4.58	1.97	.54	.72	1.12	.35

CAL YR 1983 TOTAL 4398830 MEAN 12050 MAX 109000 MIN 1380 CFSM 1.25 IN 16.96  
WTR YR 1984 TOTAL 5495310 MEAN 15010 MAX 174000 MIN 1380 CFSM 1.56 IN 21.18

POTOMAC RIVER BASIN

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

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

SEDIMENT LOADS: 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 TEMPERATURES: Maximum daily, 28.0°C Aug. 3; minimum daily, 0.0°C Jan. 12-14.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,470 mg/L Feb. 15; minimum daily mean, 3 mg/L Oct. 9, 10, Nov. 5-9.

SEDIMENT LOADS: Maximum daily, 564,000 tons Feb. 15; minimum daily, 11 tons Oct. 10.

WATER QUALITY DATA. WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	
DEC 14...	1140	80000	445	96100	--	43	56	
FEB 16...	0900	192000	625	324000	--	46	59	
16...	1218	182000	555	273000	61	68	79	
16...	1238	180000	649	315000	45	47	68	
16...	1302	179000	507	245000	42	58	70	
16...	1322	178000	515	248000	55	60	74	
MAR 30...	1105	128000	581	201000	--	33	43	
DATE		SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM
DEC 14...	67	76	84	91	97	100	--	
FEB 16...	71	78	84	90	96	100	--	
16...	87	93	97	98	100	--	--	
16...	80	86	96	98	99	100	--	
16...	82	89	94	96	98	99	100	
16...	80	94	98	100	--	--	--	
MAR 30...	51	57	68	77	87	99	100	



## POTOMAC RIVER BASIN

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

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	10.0	7.0	---	1.0	4.0	6.0	15.0	17.0	25.0	25.0	22.0
2	19.0	10.0	5.0	---	1.0	3.0	7.0	15.0	19.0	27.0	26.0	25.0
3	17.0	14.0	6.0	---	2.0	4.0	8.0	15.0	20.0	26.0	28.0	24.0
4	17.0	10.0	6.0	---	3.0	4.0	8.0	15.0	19.0	24.0	26.0	24.0
5	19.0	9.0	6.0	1.0	3.0	3.0	9.0	15.0	20.0	27.0	27.0	21.0
6	20.0	9.0	6.0	1.0	2.0	4.0	10.0	13.0	21.0	24.0	25.0	21.0
7	17.0	9.0	5.0	1.0	2.0	4.0	8.0	13.0	23.0	24.0	26.0	20.0
8	16.0	9.0	6.0	1.0	1.0	4.0	9.0	13.0	23.0	24.0	26.0	19.0
9	20.0	9.0	5.0	---	2.0	3.0	8.0	13.0	24.0	22.0	27.0	21.0
10	17.0	10.0	5.0	---	3.0	3.0	9.0	12.0	25.0	22.0	26.0	21.0
11	15.0	10.0	5.0	---	3.0	4.0	9.0	12.0	26.0	23.0	26.0	22.0
12	17.0	7.0	6.0	.0	5.0	4.0	10.0	14.0	26.0	23.0	25.0	23.0
13	19.0	8.0	6.0	.0	5.0	4.0	11.0	14.0	27.0	23.0	25.0	22.0
14	16.0	8.0	7.0	.0	5.0	4.0	12.0	15.0	27.0	23.0	24.0	23.0
15	15.0	7.0	8.0	1.0	6.0	3.0	12.0	14.0	26.0	24.0	23.0	23.0
16	17.0	7.0	8.0	1.0	6.0	5.0	12.0	15.0	23.0	26.0	21.0	---
17	15.0	6.0	7.0	1.0	7.0	7.0	10.0	15.0	21.0	25.0	22.0	18.0
18	15.0	6.0	6.0	---	8.0	7.0	11.0	14.0	22.0	27.0	22.0	18.0
19	15.0	7.0	5.0	---	9.0	8.0	10.0	14.0	24.0	26.0	23.0	18.0
20	14.0	6.0	3.0	---	8.0	7.0	10.0	16.0	24.0	24.0	23.0	19.0
21	13.0	8.0	---	---	7.0	9.0	10.0	21.0	23.0	24.0	21.0	20.0
22	13.0	8.0	---	---	8.0	8.0	10.0	18.0	23.0	25.0	22.0	20.0
23	13.0	9.0	---	1.0	6.0	7.0	9.0	20.0	23.0	25.0	24.0	23.0
24	13.0	9.0	---	---	8.0	7.0	9.0	18.0	22.0	25.0	22.0	22.0
25	13.0	8.0	---	2.0	7.0	7.0	9.0	19.0	24.0	24.0	22.0	22.0
26	13.0	8.0	---	2.0	6.0	8.0	10.0	20.0	22.0	25.0	24.0	22.0
27	12.0	9.0	---	2.0	5.0	7.0	12.0	20.0	23.0	25.0	22.0	17.0
28	11.0	8.0	---	1.0	5.0	7.0	12.0	20.0	25.0	24.0	23.0	15.0
29	12.0	8.0	---	1.0	4.0	5.0	12.0	20.0	23.0	24.0	24.0	15.0
30	11.0	7.0	---	1.0	---	5.0	15.0	18.0	24.0	24.0	24.0	15.0
31	11.0	---	---	1.0	---	5.0	---	17.0	---	24.0	24.0	---
MEAN	15.0	8.5	6.0	1.0	5.0	5.5	10.0	16.0	23.0	24.5	24.0	20.5
WTR YR 1984	MEAN	14.0		MAX	28.0	MIN	.0					



## POTOMAC RIVER BASIN

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 National Geodetic Vertical Datum of 1929. October 1965 to September 1967, at site 300 ft downstream at datum 0.73 ft lower.

REMARKS--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE--17 years, 142 ft<sup>3</sup>/s, 15.68 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; minimum, 0.10 ft<sup>3</sup>/s Sept. 1-4, 8-12, 1966.

EXTREMES FOR CURRENT YEAR--Peak discharges above base 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)
Dec. 13	0600	1490	7.31	Mar. 30	1830	1990	8.22
Feb. 14	1530	*6810	16.66	Apr. 5	0530	2410	9.33
Feb. 24	0030	1870	7.90	Apr. 15	0730	1370	6.60
Mar. 29	0630	2680	10.00				

Minimum daily discharge, 2.1 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	45	195	180	133	424	1000	242	87	64	8.4	11
2	25	41	171	152	123	386	857	221	78	45	20	9.4
3	13	41	162	140	185	338	742	286	68	37	82	13
4	8.8	41	521	132	257	309	930	598	62	29	23	31
5	6.2	39	346	131	239	306	1740	373	60	24	19	20
6	4.6	40	385	135	200	290	1070	373	58	28	16	13
7	3.0	40	352	130	152	251	763	373	55	28	11	10
8	2.5	35	271	121	140	236	594	376	53	22	8.4	8.4
9	2.3	33	236	114	135	233	494	363	49	19	140	7.8
10	2.1	125	210	144	126	212	434	309	45	20	77	7.8
11	3.0	257	185	213	137	215	386	274	43	31	648	8.4
12	20	162	504	135	144	206	347	248	41	21	233	8.9
13	40	111	1290	120	154	218	322	227	39	16	144	8.4
14	50	92	805	110	4160	286	411	206	38	13	290	9.4
15	35	86	537	121	2580	334	1040	185	35	12	167	11
16	20	98	394	96	1140	302	997	170	32	11	80	11
17	13	78	318	96	814	267	742	158	41	11	58	11
18	11	66	271	100	691	254	644	150	49	10	45	9.4
19	10	60	242	90	526	242	501	144	55	10	40	8.4
20	11	60	210	70	446	224	427	126	38	8.9	37	8.4
21	45	255	190	70	389	363	379	119	33	8.9	30	9.4
22	31	148	417	70	338	302	414	109	31	15	27	16
23	260	124	374	74	484	264	648	131	30	22	28	11
24	434	142	285	100	1110	242	482	142	36	17	28	11
25	226	843	185	164	698	290	418	101	47	13	22	13
26	142	399	180	359	515	515	360	91	36	9.4	20	16
27	100	285	190	403	437	411	325	84	28	9.4	18	16
28	80	287	612	260	691	1170	296	87	24	10	17	22
29	66	315	329	190	529	2260	312	109	24	8.9	22	31
30	54	226	200	164	---	1680	277	173	28	7.8	20	22
31	49	---	190	148	---	1240	---	99	---	7.8	15	---
TOTAL	1830.5	4574	10757	4532	17673	14270	18352	6647	1343	589.1	2393.8	393.1
MEAN	59.0	152	347	146	609	460	612	214	44.8	19.0	77.2	13.1
MAX	434	843	1290	403	4160	2260	1740	598	87	64	648	31
MIN	2.1	33	162	70	123	206	277	84	24	7.8	8.4	7.8
CFSM	.48	1.24	2.82	1.19	4.95	3.74	4.98	1.74	.36	.15	.63	.11
IN.	.55	1.38	3.25	1.37	5.34	4.32	5.55	2.01	.41	.18	.72	.12

CAL YR 1983 TOTAL 71083.9 MEAN 195 MAX 3000 MIN 1.6 CFSM 1.59 IN 21.50  
WTR YR 1984 TOTAL 83354.5 MEAN 228 MAX 4160 MIN 2.1 CFSM 1.85 IN 25.21

## POTOMAC RIVER BASIN

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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 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.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--56 years (water years 1910, 1912, 1931-84), 320 ft<sup>3</sup>/s, 13.09 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 above base 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)
Dec. 13	1000	4590	7.49	Mar. 30	2330	4740	7.72
Dec. 29	0230	4220	6.94	Apr. 5	1030	5070	8.19
Feb. 15	0130	*14000	16.36	Apr. 11	1730	4660	7.59
Feb. 24	0630	4310	7.07	Aug. 13	0900	6330	9.82
Mar. 29	0830	8080	11.94				

Minimum discharge, 10 ft<sup>3</sup>/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	114	477	470	318	1140	2360	657	293	179	28	72
2	71	109	414	430	290	967	1950	565	265	182	56	66
3	40	108	388	399	482	833	1690	680	226	112	247	115
4	28	113	1540	360	1000	727	2010	2340	207	96	137	193
5	21	106	998	350	710	727	3990	1410	189	81	67	100
6	18	103	993	350	657	727	2430	1100	186	81	52	74
7	16	106	1090	333	428	614	1840	1230	182	92	45	62
8	11	100	686	293	310	552	1470	1230	169	92	36	56
9	15	93	579	274	310	558	1200	1240	156	70	66	53
10	17	252	514	303	310	500	1020	912	145	67	680	53
11	14	796	456	665	366	519	890	778	137	86	2640	53
12	46	596	1170	265	394	526	786	687	132	79	1080	55
13	97	351	4150	260	405	519	710	614	124	62	3340	55
14	150	269	2230	255	6010	687	823	552	129	52	1560	53
15	109	223	1340	274	9000	1070	2900	506	115	46	735	64
16	49	254	958	193	2660	842	2660	464	104	46	377	59
17	35	220	747	180	1950	718	2070	428	117	42	256	55
18	30	175	623	190	1750	650	1840	405	151	43	193	52
19	29	158	561	210	1310	614	1460	405	179	46	172	53
20	31	161	488	145	1110	565	1190	366	134	40	211	52
21	59	714	438	140	901	934	1000	344	108	37	140	52
22	118	478	1170	135	769	934	923	318	98	45	115	49
23	405	374	1200	140	967	702	1860	371	94	59	124	50
24	1380	377	742	180	3080	621	1350	464	106	58	129	49
25	584	2410	425	252	1800	710	1070	318	132	46	102	46
26	413	1110	425	500	1320	1830	880	278	120	37	90	45
27	280	684	455	1000	1060	1290	778	256	94	35	83	45
28	209	669	986	1700	1890	2670	702	260	83	36	77	72
29	172	896	2190	607	1640	7190	956	382	79	34	85	92
30	141	572	560	464	---	4280	735	628	92	30	90	90
31	122	---	520	399	---	3330	---	371	---	28	85	---
TOTAL	4804	12691	29513	11716	43197	38546	45543	20559	4346	2039	13098	1985
MEAN	155	423	952	378	1490	1243	1518	663	145	65.8	423	66.2
MAX	1380	2410	4150	1700	9000	7190	3990	2340	293	182	3340	193
MIN	11	93	388	135	290	500	702	256	79	28	28	45
CFSM	.47	1.27	2.87	1.14	4.49	3.74	4.57	2.00	.44	.20	1.27	.20
IN.	.54	1.42	3.31	1.31	4.84	4.32	5.10	2.30	.49	.23	1.47	.22

CAL YR 1983 TOTAL 188386.8 MEAN 516 MAX 8820 MIN 8.4 CFSM 1.55 IN 21.11  
WTR YR 1984 TOTAL 228037.0 MEAN 623 MAX 9000 MIN 11 CFSM 1.88 IN 25.55



## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--50 years, 60.4 ft<sup>3</sup>/s, 14.17 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 above base 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. 14	1900	1630	8.68	Mar. 29	1000	*1770	8.96

Minimum daily discharge, 10 ft<sup>3</sup>/s Oct. 7-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	22	51	60	51	85	152	80	74	217	25	25
2	16	21	45	51	48	76	136	70	64	53	116	24
3	14	24	45	50	59	69	110	72	56	52	279	85
4	12	26	478	50	141	65	390	500	51	37	265	104
5	11	23	117	51	121	79	628	220	48	37	54	33
6	12	22	218	52	93	91	206	160	46	82	38	27
7	10	22	162	51	63	70	141	150	45	40	38	25
8	10	25	75	49	53	66	132	160	44	32	28	24
9	10	29	59	48	51	78	134	170	42	30	45	24
10	11	132	56	84	51	67	102	110	41	51	444	23
11	11	189	51	152	63	70	94	90	39	38	324	24
12	109	72	77	65	64	72	84	80	38	32	142	23
13	32	45	647	52	65	150	79	76	38	28	464	23
14	65	36	243	54	820	171	92	72	36	27	192	27
15	19	35	98	54	360	120	196	67	34	25	83	49
16	14	67	72	49	176	90	257	65	34	30	51	23
17	13	40	61	47	108	78	130	64	40	30	43	21
18	13	31	55	51	122	74	106	64	61	75	38	21
19	16	29	52	51	88	76	93	66	94	51	41	20
20	20	33	48	50	77	86	84	60	41	28	168	20
21	59	208	46	45	68	190	80	57	37	130	46	19
22	24	54	393	43	61	138	80	54	35	64	39	18
23	409	39	142	44	156	120	200	138	33	47	37	17
24	321	49	80	56	342	88	130	100	42	33	35	17
25	157	685	52	113	115	133	90	61	43	28	31	19
26	63	125	51	150	83	679	76	68	35	27	30	17
27	35	67	49	125	72	174	70	152	32	53	29	16
28	28	176	284	91	202	472	70	67	71	33	29	56
29	24	128	169	65	141	1310	100	199	50	27	28	33
30	22	65	75	59	---	344	90	250	43	27	29	24
31	22	---	67	60	---	187	---	93	---	27	27	---
TOTAL	1613	2519	4118	2022	3914	5568	4332	3635	1387	1491	3238	881
MEAN	52.0	84.0	133	65.2	135	180	144	117	46.2	48.1	104	29.4
MAX	409	685	647	152	820	1310	628	500	94	217	464	104
MIN	10	21	45	43	48	65	70	54	32	25	25	16
CFSM	.90	1.45	2.30	1.13	2.33	3.11	2.49	2.02	.80	.83	1.80	.51
IN.	1.04	1.62	2.65	1.30	2.51	3.58	2.78	2.34	.89	.96	2.08	.57

CAL YR 1983	TOTAL	28100.0	MEAN	77.0	MAX	897	MIN	6.7	CFSM	1.33	IN	18.05
WTR YR 1984	TOTAL	34718.0	MEAN	94.9	MAX	1310	MIN	10	CFSM	1.64	IN	22.31

## 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 above 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 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.--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); and since April 1964, at Violets Lock to Chesapeake and Ohio Canal. Low flow affected slightly by Stony River Reservoir and since December 1950 by Savage River Reservoir, and since July 1981, by Bloomington Lake. Gage-height telemeter at station.

AVERAGE DISCHARGE.--54 years, 11,560 ft<sup>3</sup>/s, 13.58 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 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 (adjusted), 601 ft<sup>3</sup>/s Sept. 10, 1966, includes 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 Mar. 19, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Dec. 14	2215	103000	8.98	Mar. 30	2000	151000	10.74
Feb. 16	1130	*222000	13.73	Apr. 5	Unknown	132000	9.95
Feb. 26	0300	54800	6.94	Apr. 17	1515	56800	7.04
Mar. 23	2215	54800	6.94	Apr. 24	2230	61200	7.25

Minimum daily discharge, 1,250 ft<sup>3</sup>/s Oct. 10, does not include diversion for municipal use; minimum daily (adjusted) discharge, 1,710 ft<sup>3</sup>/s Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1480	6660	18900	15100	13100	34700	85400	27000	11100	4730	3340	4660
2	1590	6210	16800	13600	11700	29300	72900	27500	9500	4950	3770	4380
3	1690	4700	14900	12600	9970	24900	61400	23000	8450	7530	3570	4270
4	1710	4310	17100	11600	12800	22100	53600	29000	7740	10400	4680	5150
5	1670	3850	19600	11400	15400	20300	103000	36000	7170	8680	8800	5020
6	1610	4620	25900	11000	15400	20000	115000	31000	6660	7070	5640	4360
7	1600	4780	33100	10700	14100	19900	82900	28000	6400	8670	5150	3940
8	1600	4840	35400	10700	12600	19000	65100	30000	5930	18200	4670	3660
9	1440	4040	33600	10500	11000	18600	50200	36000	5700	13900	4530	3490
10	1250	4880	26900	10100	9860	17700	39200	31000	5360	11200	5440	3380
11	1270	4710	21700	11100	9650	16400	32600	28000	4880	8510	10100	3280
12	1850	7330	18600	9840	11600	15600	28300	25000	4650	7120	17000	3160
13	1670	9640	33300	9530	12300	15300	24600	23000	4440	6140	24900	3100
14	2010	10900	83000	9540	26600	15400	22100	20500	4310	7580	34000	2880
15	2810	8520	82400	8460	132000	17600	28000	19000	4130	7790	36200	2980
16	3780	8100	48900	7890	209000	18600	37100	17500	4130	6520	37700	2950
17	3400	7190	34900	7490	123000	21500	53600	16000	4330	5720	25800	2920
18	3310	7200	27000	7690	63800	24800	54200	15100	4370	5360	18300	3330
19	3100	7240	22000	7270	47100	25600	44500	14300	4830	5440	14100	3280
20	2640	7290	18900	6270	37800	23900	36200	13400	5430	4840	12000	2850
21	2540	8770	16500	5390	31200	22700	30200	12700	5390	4680	10200	2530
22	2510	10500	17500	4580	27400	26200	26500	12100	4580	4550	8800	2550
23	3760	11700	22800	4100	24500	46000	26600	11800	4160	4380	7530	2550
24	9300	10700	18900	5010	34100	49000	46200	12700	3870	4260	6920	2450
25	14800	16500	16600	5700	51500	36700	55000	11700	4030	4240	7060	2390
26	20400	20800	14200	8540	52400	34900	43600	10600	4510	4230	6170	2330
27	17700	24300	12400	14000	44600	31500	35800	10100	4680	4240	5780	2280
28	13400	23500	13000	20700	39100	40700	29500	9020	4340	4010	5440	2500
29	10400	22500	21700	21300	40700	85400	27300	9180	4030	3850	4870	2580
30	8700	20900	20700	18000	---	145000	25200	14000	3890	3590	4610	2500
31	7640	---	18800	14600	---	128000	---	13500	---	3480	4670	---
TOTAL	152670	297180	826000	324300	1144280	1067300	1435800	617700	162990	205860	351740	97700
MEAN	4925	9906	26650	10460	39460	34430	47860	19930	5433	6641	11350	3257
MAX	20400	24300	83000	21300	209000	145000	115000	36000	11100	18200	37700	5150
MIN	1250	3850	12400	4100	9650	15300	22100	9020	3870	3480	3340	2280
(*)	507	486	500	496	471	459	474	510	593	560	577	567
MEAN#	5432	10400	27150	10960	39930	34860	48310	20440	6028	7199	11930	3825
CFSM#	.47	.90	2.35	.95	3.45	3.02	4.18	1.77	.52	.62	1.03	.33
IN#	.54	1.00	2.71	1.09	3.73	3.48	4.66	2.04	.58	.72	1.19	.37

CAL YR 1983 TOTAL 5394050 MEAN 14780 MAX 121000 MIN 1200 MEAN# 15300 CFSM# 1.32 IN# 17.97  
WTR YR 1984 TOTAL 6683520 MEAN 18260 MAX 209000 MIN 1250 MEAN# 18770 CFSM# 1.62 IN# 22.11

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 15...	1230	8640	395	7.8	6.0	8.0	757	3.7	11.8	100	270	1300
JAN 26...	1215	8640	375	7.6	12.0	2.0	770	7.7	14.5	104	K6	97
FEB 16...	1400	217000	146	7.3	11.0	7.0	--	190	13.0	--	1400	51000
MAR 26...	1000	36400	180	7.6	9.0	7.0	756	26	12.9	107	K250	460
MAY 07...	1200	29500	215	7.8	13.0	14.0	769	9.6	9.8	94	350	86
SEP 12...	1100	3100	337	8.0	21.0	23.0	768	3.4	9.7	112	220	42

K Result based on colony count outside optimal range.

DATE	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L CAC03)	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- LITY LAB (MG/L AS CAC03)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 15...	160	58	47	9.5	17	19	.6	2.7	99	3.0	62	20
JAN 26...	130	35	39	8.9	14	18	.5	2.0	99	5.2	37	20
FEB 16...	54	13	16	3.3	3.7	12	.2	2.6	41	4.0	18	7.0
MAR 26...	69	22	20	4.7	5.2	14	.3	1.5	47	2.3	21	9.0
MAY 07...	89	24	26	5.7	4.9	11	.2	1.5	65	2.0	22	7.0
SEP 12...	150	46	42	11	13	16	.5	2.4	105	2.0	50	16

## POTOMAC RIVER BASIN

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	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 P04)
NOV 15...	.20	3.1	230	220	.31	5370	1.5	.210	.27	2.3	.110	.34
JAN 26...	<.10	6.2	204	190	.28	4760	2.5	.090	.12	.50	.080	.25
FEB 16...	<.10	5.1	113	81	.15	66200	1.3	.450	.58	1.5	.290	.89
MAR 26...	<.10	6.1	106	96	.14	10400	1.3	<.010	--	.50	.060	.18
MAY 07...	<.10	6.5	151	110	.21	12000	1.4	.040	.05	.70	.080	.25
SEP 12...	.50	1.5	254	200	.35	2130	1.1	.020	.03	.80	.050	--

&lt; Actual value is known to be less than the value shown.

DATE	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 P04)	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)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 15...	.070	.080	.25	10	<1	54	<.5	<1	<1	<3	2	5
JAN 26...	.050	.050	.15	--	--	--	--	--	--	--	--	--
FEB 16...	.050	.030	.09	50	1	43	<.5	<1	<1	<3	5	3
MAR 26...	.020	<.010	--	<10	<1	36	<.5	<1	<1	<3	2	5
MAY 07...	.020	.030	.09	<10	1	40	<1.0	<1	<1	<3	8	4
SEP 12...	.030	.020	.06	20	1	53	<.0	<1	4	<3	2	1

&lt; Actual value is known to be less than the value shown.

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)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 15...	7	<.1	<10	<1	<1	<1	210	<6	23	12	280	84
JAN 26...	--	--	--	--	--	--	--	--	--	11	257	88
FEB 16...	50	.3	<10	4	<1	1	58	<6	14	--	--	--
MAR 26...	10	<.1	<10	2	<1	<1	84	<6	9	73	7170	90
MAY 07...	3	<.1	<10	3	<1	<1	100	<6	16	48	3820	82
SEP 12...	4	<.1	<10	3	<1	<1	190	<6	6	15	126	83

&lt; Actual value is known to be less than the value shown.



## POTOMAC RIVER BASIN

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA

LOCATION.--Lat 38°48'46", long 77°13'43", Fairfax County, Hydrologic Unit 02070010, on left bank 800 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 National Geodetic Vertical Datum of 1929 (levels by Stone and Webster Engineering Corp.). 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.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--37 years, 28.1 ft<sup>3</sup>/s, 16.24 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, 26, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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. 14	1600	1950	8.80	Aug. 13	1330	*4250	all.31
Mar. 29	0900	2130	9.07				

a From high-water mark.

Minimum discharge, 1.2 ft<sup>3</sup>/s Oct. 8, 9, gage height, 1.30 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	6.1	15	14	14	22	34	38	17	184	9.1	4.7
2	2.9	6.1	14	14	13	20	30	22	15	41	33	4.7
3	2.2	7.1	15	13	22	19	28	46	14	33	217	56
4	1.9	14	309	13	56	18	245	175	13	11	41	30
5	1.8	6.2	35	13	61	36	424	34	12	56	15	7.3
6	1.8	7.2	150	13	28	31	78	43	12	95	9.4	5.7
7	1.7	9.7	49	13	18	20	39	39	12	16	8.4	5.0
8	1.4	9.4	22	11	15	21	32	95	11	10	7.7	4.4
9	1.5	9.4	18	11	15	36	29	46	11	8.7	34	4.3
10	1.7	153	19	64	15	21	28	27	10	31	61	4.5
11	2.0	111	15	60	24	22	27	23	10	15	99	4.4
12	141	19	47	22	19	20	26	25	9.4	13	16	4.8
13	47	11	365	15	18	110	28	20	9.4	7.7	846	4.7
14	29	9.6	62	14	510	55	51	19	9.1	6.7	152	16
15	4.3	17	28	14	99	32	102	19	8.0	6.4	23	13
16	3.1	43	21	15	47	25	137	18	8.0	6.4	16	5.0
17	2.9	12	18	15	29	22	41	17	9.8	6.1	12	3.8
18	4.4	9.3	17	16	33	21	30	17	38	29	11	3.6
19	4.5	9.0	16	15	22	20	27	17	23	12	12	3.6
20	16	43	15	14	20	19	25	16	9.1	6.1	38	3.5
21	40	127	14	13	19	101	23	15	8.4	142	9.8	3.1
22	6.0	16	301	12	18	29	39	14	7.7	32	8.4	2.8
23	346	12	44	13	114	22	99	98	7.7	21	8.0	2.7
24	110	36	23	28	104	20	36	26	13	9.4	7.7	2.9
25	91	411	14	65	31	83	27	16	10	8.4	7.0	3.0
26	24	35	13	53	22	424	25	22	7.0	7.3	6.7	2.8
27	10	19	14	39	20	47	23	60	6.1	29	6.1	3.3
28	7.5	91	183	26	106	364	22	18	63	9.8	6.1	50
29	6.5	37	43	19	35	826	57	67	16	6.7	5.9	11
30	5.9	18	21	18	---	104	27	68	22	6.7	6.4	6.7
31	5.8	---	15	19	---	47	---	20	---	6.4	5.3	---
TOTAL	932.2	1314.1	1935	684	1547	2657	1839	1180	421.7	872.8	1738.0	277.3
MEAN	30.1	43.8	62.4	22.1	53.3	85.7	61.3	38.1	14.1	28.2	56.1	9.24
MAX	346	411	365	65	510	826	424	175	63	184	846	56
MIN	1.4	6.1	13	11	13	18	22	14	6.1	6.1	5.3	2.7
CFSM	1.28	1.86	2.66	.94	2.27	3.65	2.61	1.62	.60	1.20	2.39	.39
IN.	1.48	2.08	3.06	1.08	2.45	4.21	2.91	1.87	.67	1.38	2.75	.44
CAL YR 1983	TOTAL	13549.37	MEAN	37.1	MAX	826	MIN	.43	CFSM	1.58	IN	21.45
WTR YR 1984	TOTAL	15398.10	MEAN	42.1	MAX	846	MIN	1.4	CFSM	1.79	IN	24.37

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. 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 observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--34 years, 13.1 ft<sup>3</sup>/s, 14.46 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 of each day Aug. 11-14, 1967, probably caused by dam 400 ft above 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 above base 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. 14	1200	*1370	7.97	May 3	2300	292	5.17
Mar. 29	0330	505	6.32	Aug. 13	0930	537	6.46

Minimum daily discharge, 0.03 ft<sup>3</sup>/s Oct. 3-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	2.0	14	9.8	12	30	86	16	18	11	1.0	1.0
2	.05	1.8	11	9.8	11	26	63	14	14	7.7	2.5	1.0
3	.03	2.5	10	8.7	19	22	48	47	12	9.6	4.1	1.9
4	.03	2.8	56	8.7	29	20	76	124	9.9	4.9	3.8	5.2
5	.03	.84	29	8.7	28	20	138	56	8.8	3.6	2.4	3.0
6	.03	1.3	30	9.4	24	20	83	52	7.7	3.8	1.4	2.0
7	.03	1.3	24	9.1	17	16	56	42	7.1	4.3	1.0	1.0
8	.03	1.4	18	8.4	14	15	41	48	7.1	2.8	.90	1.0
9	.03	1.4	16	7.8	13	14	32	50	6.0	2.0	9.9	1.1
10	.03	11	14	16	13	13	27	36	5.7	2.5	11	1.3
11	.03	18	13	24	14	13	23	28	5.5	2.7	63	1.1
12	.36	12	46	12	15	12	20	23	4.7	2.8	21	1.3
13	.50	6.8	111	10	15	18	22	20	3.8	2.0	184	1.0
14	.36	6.1	53	9.8	639	26	49	18	3.8	1.3	66	1.3
15	.14	6.4	35	9.4	199	30	115	14	3.4	1.0	27	2.2
16	.11	8.4	26	8.7	95	27	98	13	3.4	1.0	15	.13
17	.11	6.1	21	8.1	63	23	69	11	4.9	.70	10	.18
18	.11	4.4	17	8.7	49	20	54	11	8.9	1.1	7.7	.35
19	.11	4.1	15	8.4	35	18	39	11	9.6	.62	7.7	.29
20	.17	7.0	13	6.1	28	16	32	9.9	4.5	.29	7.1	.21
21	.42	23	11	5.1	23	29	25	9.6	3.2	2.5	4.9	.35
22	.30	12	44	4.8	20	25	52	8.8	2.6	2.6	4.3	.18
23	2.3	8.7	35	4.8	32	21	59	13	2.8	3.0	4.5	.29
24	34	13	26	6.1	65	18	42	12	4.3	2.2	3.4	.35
25	14	99	16	14	48	34	33	8.8	4.1	1.0	2.8	.35
26	9.1	31	13	34	32	125	26	9.2	2.8	.62	2.4	1.1
27	6.3	21	13	34	27	73	22	13	2.0	1.4	2.5	.13
28	3.6	24	55	24	53	192	20	14	4.4	.41	2.5	1.4
29	3.6	25	30	19	39	322	20	44	5.5	.55	2.5	1.9
30	2.0	17	14	17	---	173	18	54	7.7	.48	2.5	1.3
31	2.2	---	10	15	---	117	---	24	---	.48	2.4	---
TOTAL	80.19	379.34	839	379.4	1671	1528	1488	854.3	188.2	80.95	481.20	33.91
MEAN	2.59	12.6	27.1	12.2	57.6	49.3	49.6	27.6	6.27	2.61	15.5	1.13
MAX	34	99	111	34	639	322	138	124	18	11	184	5.2
MIN	.03	.84	10	4.8	11	12	18	8.8	2.0	.29	.90	.13
CFSM	.21	1.02	2.20	.99	4.68	4.01	4.03	2.24	.51	.21	1.26	.09
IN.	.24	1.15	2.54	1.15	5.05	4.62	4.50	2.58	.57	.24	1.46	.10

CAL YR 1983	TOTAL	6453.27	MEAN	17.7	MAX	495	MIN	.02	CFSM	1.44	IN	19.52
WTR YR 1984	TOTAL	8003.49	MEAN	21.9	MAX	639	MIN	.03	CFSM	1.78	IN	24.20

## POTOMAC RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--34 years, 90.2 ft<sup>3</sup>/s, 13.11 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 above base 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. 25	1100	2480	9.65	Mar. 29	0630	4440	12.35
Feb. 14	1930	*5510	13.63	Apr. 16	1100	2040	8.89
Mar. 26	1030	2150	9.10	Aug. 14	1430	3570	11.22

Minimum discharge, 0.25 ft<sup>3</sup>/s Oct. 7-8, 11, gage height, 1.83 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	9.6	105	110	67	139	268	101	74	265	4.8	9.3
2	4.0	9.6	81	75	56	119	202	76	57	88	4.6	7.5
3	3.4	8.8	75	55	65	105	166	98	44	92	10	7.3
4	1.4	8.1	812	63	240	91	623	882	36	30	21	11
5	.90	13	294	65	287	101	951	294	31	22	10	15
6	.56	9.1	419	69	224	127	418	241	27	31	6.7	10
7	.33	7.3	322	62	125	95	246	236	25	72	5.3	7.3
8	.47	8.6	155	57	86	76	181	287	23	18	4.3	7.5
9	.55	7.3	121	50	74	84	154	282	21	13	80	6.0
10	.41	95	104	90	71	72	137	159	19	17	495	5.8
11	.35	270	85	370	106	80	116	122	18	19	515	6.2
12	.90	132	449	170	123	78	103	105	16	25	294	6.9
13	13	63	1230	110	132	147	111	90	14	14	1140	7.3
14	41	44	406	90	2820	323	425	76	13	9.3	1330	6.5
15	13	40	221	93	1700	267	1030	63	13	6.9	410	6.2
16	4.3	75	158	80	410	168	1080	56	12	6.0	263	7.1
17	2.3	52	124	60	269	131	400	49	13	6.9	199	6.2
18	1.6	34	103	54	271	108	239	47	18	7.1	113	5.0
19	3.3	29	91	56	185	98	182	48	34	7.1	54	4.6
20	1.9	38	73	50	156	85	158	44	19	5.6	142	4.6
21	6.1	354	60	40	124	201	133	39	13	27	45	4.3
22	18	112	535	30	104	179	173	37	11	32	32	4.3
23	187	69	371	30	188	117	728	54	10	33	25	4.0
24	381	74	172	35	525	91	280	80	10	15	22	4.0
25	120	1670	105	150	223	155	187	42	14	9.6	18	4.0
26	86	322	80	400	154	1450	144	35	11	6.9	14	4.0
27	46	167	75	400	126	384	124	43	9.3	12	12	3.7
28	31	253	345	235	329	1380	109	47	7.9	8.2	13	5.3
29	20	293	360	130	213	3630	114	122	11	6.5	11	11
30	17	143	180	101	---	910	109	316	40	5.3	11	6.7
31	11	---	150	96	---	411	---	115	---	4.8	10	---
TOTAL	1017.77	4410.4	7861	3476	9453	11402	9291	4286	664.2	915.2	5314.7	198.6
MEAN	32.8	147	254	112	326	368	310	138	22.1	29.5	171	6.62
MAX	381	1670	1230	400	2820	3630	1080	882	74	265	1330	15
MIN	.33	7.3	60	30	56	72	103	35	7.9	4.8	4.3	3.7
CFSM	.35	1.57	2.72	1.20	3.49	3.94	3.32	1.48	.24	.32	1.83	.07
IN.	.41	1.76	3.13	1.38	3.76	4.54	3.70	1.71	.26	.36	2.12	.08

CAL YR 1983	TOTAL	48476.71	MEAN	133	MAX	3230	MIN	.00	CFSM	1.42	IN	19.31
WTR YR 1984	TOTAL	58289.87	MEAN	159	MAX	3630	MIN	.33	CFSM	1.70	IN	23.22

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Occasional diurnal fluctuation during low flow caused by irrigation dam 4.5 mi above gage. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--12 years, 199 ft<sup>3</sup>/s, 17.43 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 above base 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. 25	1600	6150	11.96	Apr. 4	2330	4180	10.73
Dec. 13	1030	3840	10.52	Apr. 16	1600	4560	10.97
Feb. 14	2330	9780	13.67	July 1	0730	4160	10.72
Mar. 26	1500	5630	11.64	Aug. 13	2300	4000	10.62
Mar. 29	1130	*10400	13.90	Aug. 14	2200	5990	11.86

Minimum daily discharge, 0.63 ft<sup>3</sup>/s Oct. 5-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	16	146	122	110	222	408	138	85	1870	15	11
2	1.0	15	118	86	95	182	305	104	66	204	14	10
3	.76	13	106	80	93	159	240	112	51	310	246	8.5
4	.76	12	1830	73	370	138	1460	1760	42	94	201	12
5	.63	13	547	78	500	145	2770	493	35	72	82	22
6	.63	15	675	89	430	209	850	373	31	254	40	15
7	.63	11	604	87	199	158	433	420	28	518	26	11
8	.63	10	229	79	136	123	294	612	25	112	20	9.3
9	.76	10	167	72	114	128	231	714	22	53	50	8.5
10	1.0	132	142	140	115	114	197	294	20	51	692	6.6
11	1.3	671	120	662	156	125	167	203	17	54	736	6.0
12	3.0	254	720	230	185	120	149	159	16	43	479	6.6
13	2.3	110	2960	151	190	272	163	136	14	33	1770	7.9
14	11	73	767	110	4470	612	751	114	12	19	3030	8.2
15	9.8	63	350	128	5000	485	2180	90	10	14	1640	7.6
16	8.6	151	221	111	735	289	2540	78	10	12	356	8.2
17	4.6	104	165	78	458	209	745	68	10	10	251	7.9
18	3.2	65	136	71	517	169	396	61	15	16	174	6.0
19	2.6	52	122	78	328	152	284	60	29	40	94	4.4
20	2.6	54	101	65	257	136	229	55	22	18	165	3.4
21	4.8	718	86	51	199	303	186	47	13	424	77	2.8
22	15	197	1040	40	165	307	223	43	10	231	50	2.8
23	266	120	817	42	322	178	1520	48	9.3	149	39	2.6
24	691	114	283	49	1080	140	515	109	8.8	69	34	2.5
25	216	4320	122	216	413	210	305	54	11	36	27	2.2
26	142	937	100	677	262	4060	214	41	14	25	21	2.2
27	77	264	91	646	199	862	176	42	9.0	62	18	2.3
28	51	384	459	352	550	2500	150	48	8.5	37	18	3.2
29	34	492	549	180	378	8540	152	77	18	23	15	4.4
30	27	206	243	146	---	2490	143	334	58	19	15	9.6
31	21	---	168	139	---	637	---	138	---	18	14	---
TOTAL	1601.80	9596	14184	5128	18026	24374	18376	7025	719.6	4890	10409	214.7
MEAN	51.7	320	458	165	622	786	613	227	24.0	158	336	7.16
MAX	691	4320	2960	677	5000	8540	2770	1760	85	1870	3030	22
MIN	.63	10	86	40	93	114	143	41	8.5	10	14	2.2
CFSM	.33	2.07	2.96	1.07	4.01	5.07	3.96	1.47	.16	1.02	2.17	.05
IN.	.38	2.30	3.40	1.23	4.33	5.85	4.41	1.69	.17	1.17	2.50	.05

CAL YR 1983	TOTAL	90039.59	MEAN	247	MAX	5740	MIN	.50	CFSM	1.59	IN	21.61
WTR YR 1984	TOTAL	114544.10	MEAN	313	MAX	8540	MIN	.63	CFSM	2.02	IN	27.49



## POTOMAC RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--33 years, 52.8 ft<sup>3</sup>/s, 14.20 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 above base 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. 25	0730	860	4.82	May 4	0030	1020	5.15
Feb. 14	1600	*2450	7.54	Aug. 13	1230	1880	6.66
Mar. 29	0500	1590	6.18	Aug. 14	1230	1010	5.12

Minimum discharge, 3.9 ft<sup>3</sup>/s Oct. 6, gage height, 1.72 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	16	70	48	45	124	262	75	78	62	8.7	10
2	9.2	15	56	46	42	107	205	66	60	34	11	9.6
3	6.1	15	54	45	70	93	169	125	49	34	42	13
4	4.6	15	293	44	122	84	308	448	43	21	24	35
5	4.6	14	161	43	105	88	506	184	38	17	15	19
6	4.3	14	154	45	88	88	260	158	36	19	13	15
7	4.6	14	150	43	58	73	187	150	33	19	14	12
8	4.3	14	93	39	46	66	150	235	29	15	10	11
9	5.0	13	75	36	43	66	128	260	26	13	57	12
10	5.4	57	70	64	43	58	115	166	25	16	68	11
11	5.7	126	58	97	54	64	103	135	25	20	268	11
12	21	78	214	49	58	64	93	115	22	19	113	11
13	24	44	613	42	60	73	89	99	21	14	582	11
14	32	32	270	43	1510	122	130	88	20	12	346	11
15	11	30	166	40	801	138	410	76	19	11	138	10
16	6.1	44	117	35	291	107	363	71	18	10	66	9.6
17	5.4	33	93	35	205	89	252	63	22	9.2	49	8.7
18	5.0	25	76	36	197	78	205	60	24	10	38	8.7
19	5.0	23	66	33	145	73	153	58	28	10	58	8.7
20	5.7	25	56	27	122	66	126	52	19	8.2	58	8.2
21	23	152	49	25	103	131	113	48	17	14	31	7.7
22	17	66	199	24	88	113	129	44	16	15	24	7.7
23	142	44	192	27	126	84	239	61	17	17	23	7.7
24	237	52	113	33	315	71	158	64	19	14	22	7.7
25	103	535	60	49	187	128	124	46	22	11	18	7.7
26	63	171	60	117	131	409	105	54	17	9.2	16	7.7
27	38	103	70	189	111	202	93	60	15	11	15	7.7
28	28	137	193	111	221	615	84	54	13	10	14	15
29	23	161	165	75	174	1160	103	227	20	8.7	14	17
30	19	91	75	64	---	572	88	250	29	8.2	14	15
31	17	---	50	56	---	390	---	105	---	8.7	13	---
TOTAL	894.0	2159	4131	1660	5561	5596	5450	3697	820	500.2	2182.7	346.4
MEAN	28.8	72.0	133	53.5	192	181	182	119	27.3	16.1	70.4	11.5
MAX	237	535	613	189	1510	1160	506	448	78	62	582	35
MIN	4.3	13	49	24	42	58	84	44	13	8.2	8.7	7.7
CFSM	.57	1.43	2.63	1.06	3.80	3.58	3.60	2.36	.54	.32	1.39	.23
IN.	.66	1.59	3.04	1.22	4.10	4.12	4.01	2.72	.60	.37	1.61	.26
CAL YR 1983 TOTAL	28952.5			MEAN 79.3	MAX 1660	MIN 1.9	CFSM 1.57	IN 21.33				
WTR YR 1984 TOTAL	32997.3			MEAN 90.2	MAX 1510	MIN 4.3	CFSM 1.79	IN 24.31				

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. Altitude of gage is 185 ft, from topographic map.

REMARKS.--Records good. Town of Manassas diverts about 3.0 ft<sup>3</sup>/s daily from municipal water-supply reservoir 6.0 mi upstream. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--10 years, 105 ft<sup>3</sup>/s, 15.91 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 above base 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. 25	0900	1550	7.52	Apr. 16	0830	1480	7.35
Dec. 4	0930	992	6.00	Aug. 10	1930	1380	7.10
Dec. 13	1300	1300	6.90	Aug. 11	1400	1050	6.16
Feb. 14	2330	3510	11.68	Aug. 13	1730	1980	8.60
Mar. 26	0800	1420	7.21	Aug. 14	0430	1610	7.68
Mar. 29	0600	*3730	12.05	Aug. 14	1200	2320	9.45
Apr. 4	1600	1440	7.26				

Minimum discharge, 2.1 ft<sup>3</sup>/s Sept. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	28	132	76	87	216	386	95	112	44	8.4	4.0
2	6.7	28	74	70	76	163	278	66	76	30	8.0	2.3
3	6.0	27	80	66	91	141	222	94	50	30	19	2.3
4	6.0	26	544	66	222	119	604	779	36	22	22	8.0
5	6.7	26	401	64	248	114	975	378	29	15	21	17
6	6.4	25	356	66	230	130	514	251	25	13	16	36
7	6.7	25	308	66	152	114	308	242	22	12	14	16
8	7.0	24	182	59	100	93	213	244	19	12	13	9.6
9	7.3	45	138	53	84	97	166	380	15	10	45	8.0
10	7.6	120	117	86	76	80	138	233	14	8.4	469	7.3
11	7.6	316	87	194	87	84	117	166	14	11	574	7.3
12	10	230	281	119	105	84	105	132	13	19	299	7.0
13	11	105	1150	84	114	112	95	107	12	20	926	7.0
14	16	92	612	74	1990	220	140	95	12	16	1180	7.0
15	13	93	326	70	2020	263	674	72	13	13	328	7.6
16	11	76	219	61	581	205	904	61	12	6.0	109	13
17	10	25	191	57	347	149	489	52	11	5.4	55	9.2
18	9.4	26	157	57	296	117	305	47	12	5.7	32	9.9
19	9.2	24	127	61	233	102	224	49	24	6.4	32	15
20	11	34	102	47	194	91	180	44	23	7.0	89	24
21	16	314	84	43	154	151	143	49	18	9.2	39	8.8
22	16	227	301	40	127	196	141	35	15	11	23	12
23	92	154	404	35	198	152	401	46	14	18	17	12
24	98	136	260	36	512	107	272	76	14	17	14	11
25	49	1150	117	59	641	176	180	50	14	16	11	11
26	88	468	51	152	216	1050	135	36	14	13	8.8	11
27	124	224	53	269	166	458	117	102	14	13	7.6	11
28	76	232	266	251	304	1140	100	63	12	14	6.7	14
29	36	314	320	163	323	2950	109	144	11	9.9	5.4	14
30	33	202	174	132	---	1150	105	497	13	9.2	3.2	14
31	30	---	102	117	---	648	---	222	---	8.8	3.8	---
TOTAL	833.9	4816	7716	2793	9974	10872	8740	4907	683	445.0	4398.9	336.3
MEAN	26.9	161	249	90.1	344	351	291	158	22.8	14.4	142	11.2
MAX	124	1150	1150	269	2020	2950	975	779	112	44	1180	36
MIN	6.0	24	51	35	76	80	95	35	11	5.4	3.2	2.3
CFSM	.30	1.80	2.78	1.01	3.84	3.92	3.25	1.76	.25	.16	1.59	.13
IN.	.35	2.00	3.20	1.16	4.14	4.51	3.63	2.04	.28	.18	1.83	.14

CAL YR 1983 TOTAL 49701.0 MEAN 136 MAX 2880 MIN 4.8 CFSM 1.52 IN 20.63  
WTR YR 1984 TOTAL 56515.1 MEAN 154 MAX 2950 MIN 2.3 CFSM 1.72 IN 23.46

## POTOMAC RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--15 years, 35.4 ft<sup>3</sup>/s, 18.63 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, and 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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. 25	0630	1230	5.70	Apr. 4	1600	1330	6.05
Dec. 4	0830	1250	5.74	May 3	2400	1400	6.16
Feb. 14	1300	2250	7.26	Aug. 10	1930	1690	6.60
Feb. 23	2130	867	5.16	Aug. 11	1300	1360	6.10
Mar. 28	1630	1800	6.76	Aug. 14	0600	3410	8.07
Mar. 29	0400	1920	6.91	Aug. 14	1230	*4380	8.61
Mar. 29	1600	916	5.27				

Minimum discharge, 0.15 ft<sup>3</sup>/s Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	5.9	37	19	20	54	87	30	18	13	.74	3.1
2	1.1	5.9	30	19	19	46	68	28	14	5.8	5.3	3.1
3	.75	5.9	28	18	57	38	56	120	12	4.2	46	4.5
4	.39	6.3	363	18	81	34	362	396	11	3.3	2.9	11
5	.27	5.9	77	19	77	39	284	98	9.4	2.9	1.4	5.5
6	.24	5.9	165	19	50	42	100	77	9.0	2.9	.96	3.8
7	.21	6.7	97	19	28	31	71	75	8.1	2.7	.63	3.1
8	.21	5.9	52	14	22	29	55	197	6.8	2.2	.52	3.1
9	.18	5.5	42	14	18	27	48	112	6.1	1.6	.75	3.1
10	.18	88	37	37	19	26	43	64	4.8	1.6	322	3.3
11	.18	95	29	50	26	34	37	49	4.5	3.3	408	3.8
12	2.3	33	346	20	28	34	34	42	3.5	2.4	71	4.2
13	3.9	18	503	17	32	37	31	34	3.5	1.4	124	4.2
14	6.3	14	114	16	1050	113	70	29	3.5	1.1	1370	4.5
15	2.0	14	70	16	244	78	206	25	2.9	.85	94	7.2
16	1.0	25	50	14	103	55	270	23	2.9	.74	40	3.8
17	1.0	15	40	14	78	42	98	20	3.8	.74	22	2.9
18	.84	12	33	14	87	36	81	19	5.2	.74	16	2.7
19	.84	10	29	14	59	32	58	19	5.5	1.1	21	2.7
20	1.0	27	24	12	50	29	48	17	3.5	.74	25	2.9
21	4.4	128	20	11	41	97	41	16	2.7	1.1	11	2.9
22	3.3	32	260	11	35	55	60	14	2.2	2.0	8.6	2.7
23	154	23	90	11	164	38	126	36	2.4	3.3	9.0	3.1
24	148	46	50	14	204	31	66	26	3.1	1.8	8.1	3.3
25	53	614	35	20	75	85	48	14	5.5	1.1	5.8	3.5
26	26	77	24	91	51	366	39	12	3.8	.63	5.2	4.5
27	14	48	23	121	44	86	34	11	2.7	.52	5.2	5.2
28	10	196	142	69	171	643	30	13	12	.85	5.5	9.0
29	7.9	127	69	42	89	970	53	40	7.7	.74	4.2	9.4
30	6.7	52	30	33	---	256	36	92	7.2	.52	4.2	6.8
31	7.5	---	20	26	---	128	---	27	---	.74	3.8	---
TOTAL	459.69	1747.9	2929	832	3022	3611	2640	1775	187.3	66.61	2717.05	132.9
MEAN	14.8	58.3	94.5	26.8	104	116	88.0	57.3	6.24	2.15	87.6	4.43
MAX	154	614	503	121	1050	970	362	396	18	13	1370	11
MIN	.18	5.5	20	11	18	26	30	11	2.2	.52	.52	2.7
CFSM	.57	2.26	3.66	1.04	4.03	4.50	3.41	2.22	.24	.08	3.40	.17
IN.	.66	2.52	4.22	1.20	4.36	5.21	3.81	2.56	.27	.10	3.92	.19
CAL YR 1983	TOTAL	17962.84	MEAN	49.2	MAX	1230	MIN	.00	CFSM	1.91	IN	25.90
WTR YR 1984	TOTAL	20120.45	MEAN	55.0	MAX	1370	MIN	.18	CFSM	2.13	IN	29.01

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--12 years, 60.2 ft<sup>3</sup>/s, 16.38 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 above base 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. 25	1430	1760	9.97	Aug. 11	0400	2310	10.86
Feb. 14	1900	2640	11.34	Aug. 14	1800	2810	11.52
Mar. 29	1200	*2950	11.66				

Minimum discharge, 1.0 ft<sup>3</sup>/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	64	28	38	80	115	47	33	77	3.5	5.0
2	4.6	11	46	22	29	60	85	31	24	25	6.0	4.4
3	2.9	11	37	20	37	49	68	34	17	16	322	7.1
4	1.9	11	641	19	203	40	519	519	14	9.4	129	16
5	1.8	12	205	19	175	40	763	177	12	7.0	28	7.8
6	1.8	11	276	22	138	66	210	88	11	9.8	14	5.9
7	2.1	10	273	23	63	49	112	102	11	7.8	10	4.7
8	1.6	9.4	95	20	42	38	77	139	9.4	5.9	8.6	4.7
9	1.2	7.4	64	17	29	39	62	210	7.8	5.6	55	4.4
10	1.2	52	56	29	26	35	54	78	8.5	5.9	461	4.1
11	1.2	246	46	132	36	36	43	50	8.2	6.6	1150	3.8
12	20	97	202	60	58	55	40	36	6.2	9.0	195	3.5
13	17	35	1020	34	68	75	33	30	5.6	5.3	106	3.5
14	32	23	373	27	1310	244	40	24	5.3	4.4	1070	3.8
15	9.2	18	131	26	602	201	258	19	4.7	3.8	219	4.1
16	5.5	37	80	22	265	97	555	16	4.4	3.5	52	4.1
17	4.1	32	57	19	139	69	186	15	4.4	3.2	30	3.5
18	3.6	20	46	19	163	52	97	15	10	6.8	20	3.5
19	3.6	16	40	19	97	40	73	15	16	12	16	3.5
20	5.5	18	31	17	75	35	57	14	6.6	5.9	48	3.5
21	7.4	292	26	14	60	116	42	12	5.0	22	21	3.5
22	16	79	411	14	50	119	40	12	4.4	19	13	3.5
23	255	38	260	14	101	60	220	25	4.4	12	11	3.2
24	453	42	91	15	552	40	109	33	4.7	7.4	10	3.5
25	129	1160	49	29	147	157	69	15	5.9	5.6	9.0	3.8
26	72	251	31	114	79	966	47	16	5.3	4.7	7.8	4.1
27	35	102	27	216	58	210	36	42	4.4	11	7.4	4.1
28	23	250	168	160	259	643	31	16	7.0	5.9	6.6	8.8
29	16	295	220	77	191	2120	55	126	23	4.4	7.4	9.0
30	12	100	61	64	---	479	45	230	12	4.1	6.2	6.2
31	11	---	39	54	---	194	---	68	---	3.5	5.6	---
TOTAL	1161.2	3295.8	5166	1365	5090	6504	4141	2254	295.2	329.5	4048.1	150.6
MEAN	37.5	110	167	44.0	176	210	138	72.7	9.84	10.6	131	5.02
MAX	453	1160	1020	216	1310	2120	763	519	33	77	1150	16
MIN	1.2	7.4	26	14	26	35	31	12	4.4	3.2	3.5	3.2
CFSM	.75	2.20	3.35	.88	3.53	4.21	2.77	1.46	.20	.21	2.63	.10
IN.	.87	2.46	3.85	1.02	3.79	4.85	3.09	1.68	.22	.25	3.02	.11
CAL YR 1983	TOTAL	27132.70	MEAN	74.3	MAX	1540	MIN	.50	CFSM	1.49	IN	20.23
WTR YR 1984	TOTAL	33800.40	MEAN	92.4	MAX	2120	MIN	1.2	CFSM	1.85	IN	25.20



## POTOMAC RIVER BASIN

01657415 BULL RUN NEAR CLIFTON, VA

LOCATION.--Lat 38°45'59", long 77°24'52", Fairfax County, Hydrologic Unit 02070010, on left bank 0.6 mi downstream from Popes Head Creek, 1.6 mi upstream from Buckhall Branch, and 1.8 mi southwest of Clifton.

DRAINAGE AREA.--185 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1972 to September 1984 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 120.24 ft National Geodetic Vertical Datum of 1929. September 1972 to June 1978, at site 500 ft upstream at datum 3.59 ft higher.

REMARKS.--Records good except those above 700 ft<sup>3</sup>/s, which are fair. Slight diurnal fluctuation caused by Upper Occoquan Sewage Authority treatment plant 4.8 mi upstream. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--12 years, 234 ft<sup>3</sup>/s, 17.18 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft<sup>3</sup>/s Sept. 26, 1975, gage height, 19.52 ft, datum then in use, from rating curve extended above 400 ft<sup>3</sup>/s on basis of runoff comparison with upstream station near Manassas; minimum, 4.6 ft<sup>3</sup>/s Sept. 21, 1982, gage height, 1.85 ft, from recorded range in stage.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of about 35 ft, discharge, about 80,000 ft<sup>3</sup>/s, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Nov. 25	1900	5240	12.12	Mar. 29	1630	*11300	16.98
Dec. 13	1530	4200	11.18	Apr. 5	0430	5750	12.54
Feb. 15	0300	9400	15.54	Aug. 11	0800	4770	11.70
Mar. 26	1430	5570	12.39	Aug. 15	0100	7980	14.40

Minimum discharge, 12 ft<sup>3</sup>/s Oct. 9-10, gage height, 2.11 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	46	258	178	176	364	546	207	171	310	31	34
2	30	44	194	134	143	281	426	164	125	118	54	30
3	24	42	169	120	160	240	348	169	101	91	516	30
4	21	42	1850	113	613	209	1370	1680	89	57	345	80
5	18	39	767	119	557	214	3660	742	78	95	101	61
6	16	42	756	125	530	285	864	436	70	147	61	40
7	14	38	847	125	276	225	533	465	65	62	45	33
8	14	35	374	108	192	185	385	512	59	46	39	28
9	14	34	268	102	158	191	321	814	56	37	109	27
10	13	118	234	148	143	171	281	390	50	46	978	27
11	13	750	198	520	174	182	248	285	56	51	3340	26
12	92	390	582	232	240	228	225	230	46	75	843	26
13	59	160	3370	191	258	298	201	200	41	42	610	25
14	125	111	1310	143	3730	597	244	165	39	35	3140	24
15	66	92	526	142	4810	698	1010	137	36	32	2760	27
16	37	140	362	113	880	396	1810	122	33	29	312	24
17	28	120	272	110	538	305	745	113	35	24	205	26
18	23	95	223	105	572	246	460	107	40	24	145	23
19	21	85	196	106	408	214	344	106	66	39	116	22
20	22	90	157	99	334	189	279	100	46	33	182	20
21	85	800	122	92	272	400	227	91	38	136	120	20
22	69	302	974	80	232	451	220	85	34	104	84	19
23	850	174	976	73	342	268	818	153	30	82	71	20
24	1200	157	407	85	1590	205	484	205	30	56	63	21
25	480	3640	200	150	563	408	328	105	39	42	56	23
26	278	964	190	343	350	3600	252	89	37	36	50	27
27	143	362	160	651	274	820	209	213	34	71	45	35
28	100	500	432	584	770	2090	183	108	50	41	41	56
29	80	918	922	325	648	10100	260	232	106	32	40	58
30	65	376	285	258	---	3340	228	845	69	32	41	40
31	53	---	216	232	---	825	---	299	---	29	37	---
TOTAL	4107	10706	17797	5906	19933	28225	17509	9569	1769	2054	14580	952
MEAN	132	357	574	191	687	910	584	309	59.0	66.3	470	31.7
MAX	1200	3640	3370	651	4810	10100	3660	1680	171	310	3340	80
MIN	13	34	122	73	143	171	183	85	30	24	31	19
CFSM	.71	1.93	3.10	1.03	3.71	4.92	3.16	1.67	.32	.36	2.54	.17
IN.	.83	2.15	3.58	1.19	4.01	5.68	3.52	1.92	.36	.41	2.93	.19

CAL YR 1983	TOTAL	103269.8	MFAN 283	MAX	5720	MIN 9.8	CFSM 1.53	IN 20.77
WTR YR 1984	TOTAL	133107.0	MEAN 364	MAX	10100	MIN 13	CFSM 1.97	IN 26.77

## POTOMAC RIVER BASIN

75

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 current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those above 100 ft<sup>3</sup>/s, 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, 430 ft<sup>3</sup>/s Mar. 29, gage height, 6.85 ft; minimum, 0.15 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.1	5.5	7.1	6.3	9.2	38	12	6.4	15	1.5	1.3
2	.78	1.1	4.9	6.5	5.8	8.2	33	11	5.7	5.1	1.3	1.3
3	.50	1.0	4.7	6.2	5.5	7.4	31	13	4.7	11	7.2	1.3
4	.35	.91	30	6.0	6.6	7.1	57	35	3.9	4.0	25	2.8
5	.23	.91	15	6.0	8.9	7.6	140	18	3.4	2.4	7.3	2.3
6	.17	1.4	13	7.0	10	10	64	17	3.2	3.3	4.0	1.5
7	.17	1.0	15	6.4	8.2	8.7	43	19	3.1	10	2.7	1.3
8	.16	1.0	8.7	5.8	6.3	7.7	36	28	2.8	5.0	2.1	1.3
9	.16	.91	6.8	5.6	5.0	8.1	32	38	2.5	2.7	1.7	1.3
10	.15	3.4	5.7	8.0	6.0	7.7	30	20	2.3	2.5	3.5	1.0
11	.18	23	5.2	18	5.8	7.6	29	16	2.0	2.9	4.0	1.0
12	4.2	8.5	9.2	13	5.8	7.4	27	14	2.0	2.0	4.6	1.0
13	2.8	3.6	52	10	5.8	12	30	12	1.8	1.5	42	1.0
14	2.0	3.0	24	7.6	80	18	73	11	2.7	1.3	34	1.0
15	1.8	3.1	12	7.2	40	16	55	9.7	3.2	1.0	16	1.3
16	1.1	9.6	8.3	7.0	23	12	70	9.5	1.9	1.0	8.7	1.3
17	.72	6.2	7.0	6.5	17	10	36	9.0	2.7	1.0	5.7	.87
18	.58	4.3	6.3	7.4	16	8.9	25	8.8	2.8	3.1	4.4	.87
19	.50	3.6	5.9	6.5	13	8.6	20	8.1	2.4	3.0	3.8	.87
20	.58	3.5	5.7	6.0	11	10	18	7.3	1.8	1.5	3.9	.87
21	1.5	17	5.5	5.8	9.6	13	16	6.6	1.7	13	3.0	.87
22	1.6	7.6	30	5.8	8.6	13	17	6.1	1.5	11	2.6	.87
23	14	5.2	22	6.2	10	8.9	47	6.9	1.3	5.2	2.5	.69
24	24	5.4	15	6.3	21	8.6	27	10	1.3	3.8	2.5	.69
25	8.2	78	10	8.0	12	9.6	20	6.6	1.7	2.4	2.2	.69
26	5.8	20	7.0	10	9.9	75	17	5.4	1.5	1.9	2.2	.69
27	3.0	9.6	6.0	13	9.0	34	15	6.2	1.3	2.9	2.0	.69
28	2.0	7.7	10	9.9	17	93	14	6.5	1.0	2.3	1.5	.69
29	1.5	8.9	24	7.6	12	238	13	6.7	1.5	1.8	1.5	1.3
30	1.2	6.4	17	6.0	---	67	13	9.7	3.4	1.7	1.5	1.5
31	1.2	---	11	6.6	---	46	---	8.5	---	1.7	1.5	---
TOTAL	82.33	246.93	402.4	239.0	395.1	798.3	1086	395.6	77.5	127.0	206.4	34.16
MEAN	2.66	8.23	13.0	7.71	13.6	25.8	36.2	12.8	2.58	4.10	6.66	1.14
MAX	24	78	52	18	80	238	140	38	6.4	15	42	2.8
MIN	.15	.91	4.7	5.6	5.0	7.1	13	5.4	1.0	1.0	1.3	.69
CFSM	.39	1.19	1.88	1.12	1.97	3.74	5.25	1.86	.37	.59	.97	.17
IN.	.44	1.33	2.17	1.29	2.13	4.30	5.85	2.13	.42	.68	1.11	.18

WTR YR 1984 TOTAL 4090.72 MEAN 11.2 MAX 238 MIN .15 CFSM 1.62 IN 22.04

## POTOMAC RIVER BASIN

01658480 QUANTICO CREEK NEAR DUMFRIES, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1983 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)
OCT 18...	1415	.58	153	15.0	--
NOV 16...	1040	11	55	8.0	--
DEC 15...	1040	12	--	9.5	--
FEB 24...	1147	20	--	8.0	--
MAR 20...	1330	8.4	--	7.5	4
APR 25...	1005	20	65	11.0	3
MAY 23...	0930	6.7	75	20.5	29
JUN 27...	1035	1.2	--	21.5	6
JUL 18...	1100	3.1	50	24.5	96
AUG 29...	1005	1.4	120	18.0	9
SEP 19...	1015	.90	113	11.5	11

## POTOMAC RIVER BASIN

77

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--33 years, 6.99 ft<sup>3</sup>/s, 12.42 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.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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. 14	1330	384	6.60	Apr. 5	0615	273	5.89
Mar. 29	0630	*599	7.39	Apr. 14	0130	272	5.88

Minimum discharge, 0.18 ft<sup>3</sup>/s Oct. 4-5, gage height, 2.00 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.38	.86	6.0	7.0	6.7	10	17	9.2	5.1	22	1.6	.67
2	.37	.83	5.0	6.8	5.7	9.0	14	7.4	4.6	4.6	1.4	.59
3	.32	.90	4.5	6.6	6.6	8.0	12	8.5	3.8	6.5	36	.60
4	.24	1.0	41	6.8	10	7.0	40	50	3.3	3.0	44	2.2
5	.18	1.2	16	7.0	19	7.9	155	19	2.9	2.2	8.1	1.6
6	.22	1.2	19	7.2	15	13	40	20	2.6	3.3	4.4	1.0
7	.22	1.3	18	6.2	9.6	10	23	21	2.3	7.8	3.0	.77
8	.26	1.5	9.0	5.6	7.4	8.2	17	40	2.1	3.7	2.3	.65
9	.32	1.0	7.0	5.0	7.0	9.4	14	42	1.7	3.0	1.8	.60
10	.38	5.0	6.0	7.0	7.1	8.6	12	18	1.5	2.9	2.0	.60
11	.45	48	5.0	29	7.2	8.8	12	13	1.4	2.9	3.9	.60
12	1.6	15	30	11	7.4	8.3	11	11	1.2	2.0	12	.60
13	1.7	5.0	79	7.0	7.2	20	20	9.5	1.1	1.4	4.6	.60
14	1.7	3.5	24	8.0	148	27	101	9.0	1.2	1.1	8.8	4.3
15	1.4	5.0	14	8.5	44	19	65	8.0	1.2	.90	7.8	4.2
16	.69	16	9.0	7.0	26	14	72	7.6	1.0	.79	3.9	1.6
17	.52	8.3	7.0	6.6	17	11	35	7.4	1.5	.69	2.7	.97
18	.38	4.7	6.0	6.9	22	9.4	22	7.2	1.7	1.4	2.0	.73
19	.34	3.5	5.4	6.2	15	8.0	16	7.1	1.6	1.7	1.8	.69
20	.55	4.0	4.9	5.6	11	7.1	13	6.0	1.2	1.4	1.7	.69
21	1.7	25	4.5	5.8	9.0	21	12	5.0	.90	34	1.4	.69
22	7.0	9.4	59	5.7	7.2	15	15	4.2	.69	11	1.3	.69
23	22	5.0	30	5.9	13	11	60	6.7	.60	5.1	1.1	.75
24	26	5.2	15	6.0	29	7.7	35	9.4	.60	3.5	1.1	.79
25	18	70	8.0	9.0	15	10	19	5.3	.79	2.3	.99	.79
26	7.6	23	6.0	14	11	132	13	4.3	.69	1.8	.90	.79
27	4.0	9.0	5.0	15	9.6	40	11	4.8	.62	2.9	.79	.72
28	2.5	10	27	11	24	100	10	4.8	.60	2.3	.73	.73
29	1.8	14	33	10	17	273	9.6	5.3	1.2	1.8	.69	1.0
30	1.2	7.9	14	8.6	---	35	9.6	8.9	1.7	1.8	.69	1.0
31	.90	---	11	7.5	---	23	---	6.6	---	1.8	.69	---
TOTAL	104.92	306.29	528.3	259.5	533.7	891.4	905.2	386.2	51.39	141.58	164.18	32.21
MEAN	3.38	10.2	17.0	8.37	18.4	28.8	30.2	12.5	1.71	4.57	5.30	1.07
MAX	26	70	79	29	148	273	155	50	5.1	34	44	4.3
MIN	.18	.83	4.5	5.0	5.7	7.0	9.6	4.2	.60	.69	.69	.59
CFSM	.44	1.34	2.23	1.10	2.41	3.77	3.95	1.64	.22	.60	.69	.14
IN.	.51	1.49	2.57	1.26	2.60	4.34	4.41	1.88	.25	.69	.80	.16

CAL YR 1983	TOTAL	3173.16	MEAN	8.69	MAX	215	MIN	.00	CFSM	1.14	IN	15.45
WTR YR 1984	TOTAL	4304.87	MEAN	11.8	MAX	273	MIN	.18	CFSM	1.55	IN	20.96



## POTOMAC RIVER BASIN

01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1983 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)
OCT					
18...	1125	.37	50	15.0	--
25...	1010	18	55	12.0	--
NOV					
15...	0915	3.7	52	8.5	--
DEC					
13...	0900	79	--	11.0	--
JAN					
31...	0930	7.5	--	--	--
FEB					
23...	1030	13	--	--	--
MAR					
21...	1350	20	40	11.0	--
APR					
26...	1010	14	38	12.0	2
MAY					
22...	1100	4.0	36	19.5	2
JUN					
26...	1100	.49	--	21.5	3
JUL					
17...	1045	.54	55	22.0	10
AUG					
28...	1045	.72	60	20.0	10
SEP					
18...	1025	.64	40	12.0	14

## POTOMAC RIVER BASIN

79

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 current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 527 ft<sup>3</sup>/s Mar. 29, 1984, gage height, 4.05 ft; minimum, 0.18 ft<sup>3</sup>/s July 17, Aug. 27, 1983, gage height, 0.70 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 527 ft<sup>3</sup>/s Mar. 29, gage height, 4.05 ft; minimum, 0.35 ft<sup>3</sup>/s Oct. 8-9; minimum gage height, 0.72 ft Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	1.4	6.9	8.0	7.8	11	21	12	7.5	27	2.6	1.6
2	.87	1.4	5.7	8.0	6.9	9.8	17	11	6.5	6.7	2.5	1.6
3	.70	1.6	5.3	7.6	7.4	9.1	15	14	5.7	9.5	43	1.6
4	.54	2.0	58	7.6	11	8.3	64	64	4.9	4.6	50	4.3
5	.47	2.0	21	8.0	20	10	176	22	4.4	3.3	11	3.2
6	.41	2.1	24	8.3	18	16	61	22	4.2	4.8	6.6	2.2
7	.41	2.3	23	8.0	11	11	29	23	3.8	11	5.1	1.8
8	.35	3.0	11	7.0	9.1	9.1	21	48	3.5	5.2	4.0	1.5
9	.41	1.9	8.5	6.3	8.7	11	17	54	3.1	3.4	3.5	1.4
10	.41	9.0	7.3	9.1	8.7	9.1	16	22	3.0	3.4	5.3	1.4
11	.47	58	6.4	35	9.1	10	15	16	2.8	3.7	6.2	1.5
12	5.7	16	20	12	9.1	9.1	13	13	2.5	2.8	13	1.6
13	3.9	5.8	88	9.4	8.7	24	25	12	2.4	2.3	7.1	1.4
14	5.7	4.2	32	9.1	151	33	113	10	2.7	2.1	13	5.6
15	2.7	4.4	15	9.6	62	23	92	9.5	2.9	1.8	11	7.1
16	1.6	16	10	8.1	32	15	99	9.3	2.5	1.7	6.2	3.0
17	1.2	7.6	8.6	7.7	19	12	45	9.0	3.2	1.6	4.6	2.1
18	.97	4.9	7.4	7.8	24	9.8	27	8.9	3.4	3.3	3.7	1.7
19	.97	3.9	6.9	7.7	15	9.2	20	8.9	3.2	4.1	3.5	1.7
20	1.1	4.1	6.4	7.0	12	8.3	17	7.8	2.5	2.4	3.4	1.5
21	2.0	32	5.6	6.6	10	23	15	7.3	2.3	37	3.0	1.4
22	2.8	9.4	65	6.4	9.0	17	18	6.5	2.0	13	2.6	1.4
23	38	6.0	31	6.8	15	11	74	8.2	1.9	6.9	2.5	1.4
24	41	6.6	15	7.4	36	8.9	31	12	2.0	5.1	2.4	1.2
25	19	123	9.1	10	16	15	20	7.5	2.3	3.7	2.3	1.1
26	9.1	29	7.0	15	11	140	16	6.3	1.9	2.9	2.2	1.3
27	4.1	13	6.6	17	9.4	44	15	7.6	1.7	4.1	2.0	1.0
28	2.7	13	15	14	28	113	14	7.8	1.6	3.5	2.0	1.9
29	2.0	17	32	10	18	276	13	8.2	2.2	2.8	2.0	2.4
30	1.6	8.9	13	9.5	---	59	13	12	4.0	2.9	2.0	2.4
31	1.4	---	9.1	9.6	---	29	---	9.2	---	2.9	2.0	---
TOTAL	153.58	409.5	579.8	303.6	602.9	993.7	1132	489.0	96.6	189.5	230.3	63.3
MEAN	4.95	13.7	18.7	9.79	20.8	32.1	37.7	15.8	3.22	6.11	7.43	2.11
MAX	41	123	88	35	151	276	176	64	7.5	37	50	7.1
MIN	.35	1.4	5.3	6.3	6.9	8.3	13	6.3	1.6	1.6	2.0	1.0
CFSM	.52	1.42	1.94	1.02	2.16	3.34	3.92	1.64	.34	.64	.77	.22
IN.	.59	1.58	2.24	1.17	2.33	3.84	4.38	1.89	.37	.73	.89	.24

WTR YR 1984 TOTAL 5243.78 MEAN 14.3 MAX 276 MIN .35 CFSM 1.49 IN 20.29

## POTOMAC RIVER BASIN

01658550 SOUTH FORK QUANTICO CREEK AT CAMP 5, NEAR JOPLIN, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)
OCT					
18...	1230	.72	50	15.0	--
26...	1113	8.7	55	12.0	23
NOV					
15...	1213	3.6	45	8.0	--
DEC					
14...	1315	28	55	10.0	--
JAN					
24...	1220	7.4	42	1.0	4
FEB					
15...	1422	52	40	7.0	40
MAR					
20...	1115	9.6	42	9.0	5
APR					
26...	1120	16	36	15.0	6
MAY					
22...	1215	6.8	42	20.0	7
JUN					
26...	1230	1.8	--	20.5	3
JUL					
17...	1220	1.6	45	22.0	18
AUG					
24...	1205	1.9	50	18.0	10
SEP					
18...	1145	1.5	53	13.0	15

## POTOMAC RIVER BASIN

81

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 current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except those above 100 ft<sup>3</sup>/s, 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, 910 ft<sup>3</sup>/s Mar. 29, gage height, 6.74 ft; minimum, 0.76 ft<sup>3</sup>/s Oct. 8-9, gage height, 1.67 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	3.4	13	16	14	22	39	23	12	38	4.7	3.3
2	2.1	3.4	11	14	14	20	31	21	11	13	4.5	3.2
3	1.8	3.7	9.6	13	12	18	27	24	9.2	20	43	3.1
4	1.4	4.5	83	13	18	17	90	86	8.2	8.3	81	5.2
5	1.3	4.3	37	14	25	18	285	36	7.6	5.9	18	5.0
6	1.1	4.5	35	15	29	25	107	34	7.0	6.6	10	3.9
7	1.1	4.8	37	14	19	20	53	39	6.6	15	7.8	3.3
8	.76	4.7	23	12	17	18	37	57	6.2	8.6	6.4	3.0
9	.76	5.7	15	11	16	19	31	124	5.9	5.9	5.6	2.8
10	.86	10	14	13	14	17	28	42	5.4	5.8	8.6	2.8
11	1.3	66	12	50	14	18	26	30	5.2	6.3	9.1	2.8
12	8.9	32	33	26	14	17	24	26	4.9	5.0	14	2.9
13	7.7	28	137	17	13	27	25	22	4.7	4.3	63	2.8
14	7.4	8.1	57	16	290	48	172	19	5.2	3.8	37	2.9
15	5.2	7.4	24	16	122	39	142	17	5.7	3.4	25	11
16	3.0	22	18	15	54	27	166	16	4.9	3.4	15	4.5
17	2.3	14	14	14	34	22	88	16	5.6	3.2	10	3.4
18	2.0	8.5	13	15	37	20	53	15	6.0	7.0	8.3	3.0
19	1.8	7.0	12	14	30	19	41	15	5.6	7.3	7.7	2.8
20	2.1	6.7	11	12	25	17	34	14	4.6	4.8	8.0	2.8
21	4.3	43	9.8	12	23	30	31	13	4.2	51	6.2	2.5
22	4.0	26	90	12	20	29	28	12	3.8	26	5.7	2.5
23	37	13	53	13	24	20	130	11	3.5	13	5.2	2.4
24	62	11	28	13	50	18	70	18	3.6	9.3	5.2	2.3
25	28	205	20	18	30	22	45	12	4.0	6.8	4.9	2.3
26	15	49	13	23	25	194	32	11	3.5	5.5	4.5	2.2
27	7.5	33	12	30	22	72	28	12	3.1	7.0	3.8	2.3
28	5.2	20	26	25	40	170	26	12	2.9	6.0	4.0	3.3
29	4.4	39	64	18	32	760	25	13	3.3	5.2	4.0	4.0
30	3.8	20	51	16	---	111	24	18	6.4	5.2	4.1	3.9
31	3.5	---	25	16	---	55	---	15	---	4.9	3.9	---
TOTAL	230.58	707.7	1000.4	526	1077	1929	1938	823	169.8	315.5	438.2	102.2
MEAN	7.44	23.6	32.3	17.0	37.1	62.2	64.6	26.5	5.66	10.2	14.1	3.41
MAX	62	205	137	50	290	760	285	124	12	51	81	11
MIN	.76	3.4	9.6	11	12	17	24	11	2.9	3.2	3.8	2.2
CFSM	.45	1.42	1.94	1.02	2.23	3.74	3.88	1.59	.34	.61	.85	.21
IN.	.52	1.58	2.24	1.18	2.41	4.31	4.33	1.84	.38	.70	.98	.23

WTR YR 1984 TOTAL 9257.38 MEAN 25.3 MAX 760 MIN .76 CFSM 1.52 IN 20.69



## POTOMAC RIVER BASIN

01658650 SOUTH FORK QUANTICO CREEK NEAR DUMFRIES, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1983 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)
OCT					
04...	1000	1.3	53	15.0	--
18...	1015	2.1	53	13.0	--
25...	1505	24	50	11.0	11
NOV					
16...	1200	28	42	8.0	--
DEC					
15...	1215	26	40	9.5	--
FEB					
15...	1130	90	38	7.0	--
24...	1255	45	38	8.0	--
MAR					
20...	1500	18	--	9.0	5
APR					
25...	1105	42	40	11.0	1
MAY					
23...	1205	11	48	20.0	5
JUN					
27...	1130	3.0	--	21.0	2
JUL					
18...	1225	7.8	43	24.5	11
AUG					
29...	1235	4.1	55	19.0	9
SEP					
19...	1205	2.6	37	12.0	3

POTOMAC RIVER BASIN

83

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. Altitude of gage is 120 ft, from topographic map.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--13 years, 39.1 ft<sup>3</sup>/s, 15.21 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 above base 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. 25	0830	667	3.84	July 2	2000	866	4.30
Feb. 14	1400	933	4.45	July 21	1000	658	3.82
Mar. 29	0500	*1780	6.18	Aug. 9	2330	1220	5.08
Apr. 5	0730	778	4.10	Aug. 11	0830	1010	4.62
Apr. 23	0530	522	3.44	Aug. 13	1230	910	4.40
July 1	0100	910	4.40	Aug. 14	1530	705	3.93

Minimum discharge, 0.47 ft<sup>3</sup>/s Oct. 8, 9-11, gage height, 0.75 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	6.6	28	45	30	42	70	52	23	326	11	8.1
2	3.3	6.5	23	36	29	36	58	44	21	150	12	7.6
3	2.0	6.3	21	31	26	33	54	54	17	79	38	7.6
4	1.1	6.2	163	25	40	30	200	247	15	32	40	9.8
5	.66	6.5	79	26	69	36	534	101	14	24	18	9.8
6	1.0	7.2	66	28	73	50	192	101	13	28	12	8.1
7	.82	7.6	68	27	46	39	102	110	12	66	11	7.6
8	.57	8.2	41	25	35	33	76	168	11	46	10	6.8
9	.49	7.6	32	23	32	34	65	211	11	25	170	6.8
10	.47	36	28	45	29	32	57	87	9.8	26	190	6.8
11	.97	72	25	135	30	33	53	66	9.2	26	314	6.8
12	16	42	73	55	31	30	49	55	11	20	78	6.4
13	10	22	245	43	30	66	48	49	16	16	309	6.0
14	12	15	108	37	484	96	88	44	9.8	15	347	7.2
15	7.9	75	59	38	227	72	185	40	8.1	14	174	16
16	4.4	60	42	36	98	51	289	36	7.2	11	59	12
17	3.4	31	33	28	66	41	148	33	8.7	10	35	8.7
18	2.8	21	29	28	71	35	90	32	9.8	22	25	7.2
19	2.4	17	27	29	58	35	72	32	8.7	24	22	6.8
20	2.8	20	25	27	46	31	61	30	7.6	17	19	6.4
21	9.2	89	23	26	38	52	55	26	6.0	382	16	5.6
22	11	38	184	25	33	52	72	24	5.1	107	15	4.7
23	74	25	113	27	51	38	326	24	4.3	45	14	5.1
24	84	29	58	37	156	31	128	32	5.6	30	16	5.1
25	46	463	38	66	68	45	82	25	5.6	21	14	5.1
26	29	112	32	88	47	395	68	22	4.7	15	13	4.7
27	17	51	30	74	39	152	60	21	3.5	20	13	3.5
28	12	42	104	54	75	409	54	24	20	18	14	6.4
29	8.6	52	132	39	62	1230	53	26	28	14	12	8.7
30	7.6	34	82	35	---	213	55	37	54	12	10	9.2
31	7.0	---	55	35	---	96	---	29	---	12	9.2	---
TOTAL	385.48	1408.7	2066	1273	2119	3568	3444	1882	379.7	1653	2040.2	220.6
MEAN	12.4	47.0	66.6	41.1	73.1	115	115	60.7	12.7	53.3	65.8	7.35
MAX	84	463	245	135	484	1230	534	247	54	382	347	16
MIN	.47	6.2	21	23	26	30	48	21	3.5	10	9.2	3.5
CFSM	.36	1.35	1.91	1.18	2.10	3.30	3.30	1.74	.36	1.53	1.89	.21
IN.	.41	1.50	2.20	1.36	2.26	3.80	3.67	2.01	.40	1.76	2.17	.24
CAL YR 1983	TOTAL	14112.63	MEAN	38.7	MAX	682	MIN	.00	CFSM	1.11	IN	15.04
WTR YR 1984	TOTAL	20439.68	MEAN	55.8	MAX	1230	MIN	.47	CFSM	1.60	IN	21.79

## GREAT WICOMICO RIVER BASIN

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 National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1969, 52 ft downstream at datum 0.82 ft higher.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--20 years (water years 1964-68, 1970-84), 7.61 ft<sup>3</sup>/s, 15.15 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 above base 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)
Jan. 11	0400	110	5.40	Mar. 26	1200	184	5.97
Jan. 25	0630	107	5.37	Mar. 28	1900	148	5.75
Mar. 13	2200	106	5.36	May 30	0330	*206	6.08
Mar. 25	1800	126	5.56				

Minimum discharge, 0.82 ft<sup>3</sup>/s Oct. 7, 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	2.4	7.3	6.5	9.8	8.1	27	14	17	16	4.4	1.7
2	2.1	2.4	6.8	6.7	8.8	7.5	23	13	13	6.9	3.8	1.8
3	1.6	2.4	6.5	6.9	9.8	7.3	20	15	12	5.2	27	1.7
4	1.5	2.6	24	6.5	21	7.4	42	15	11	4.4	7.0	1.7
5	1.2	2.4	11	6.8	16	12	79	13	9.3	3.9	4.1	1.5
6	1.2	2.7	11	7.0	12	43	38	18	8.7	4.4	3.2	1.2
7	.96	2.7	13	6.5	10	16	28	15	7.7	6.9	2.8	1.1
8	.96	2.5	8.3	5.7	8.5	15	24	14	6.9	6.6	2.5	1.1
9	1.0	2.6	7.0	5.4	8.5	17	21	14	6.3	4.2	2.6	1.8
10	1.1	16	6.5	17	8.8	11	20	11	5.6	5.3	2.7	1.4
11	1.4	11	6.2	63	9.3	11	19	11	5.1	5.0	2.8	1.4
12	15	4.9	24	14	13	9.6	18	10	4.9	4.2	2.5	1.2
13	4.2	3.3	72	11	10	48	18	9.7	4.5	3.7	2.5	1.2
14	6.6	2.7	23	12	18	45	22	9.2	4.3	3.5	3.0	1.4
15	2.7	8.8	14	11	42	19	34	8.6	4.3	3.1	3.2	1.5
16	2.0	17	11	9.2	18	16	65	8.1	4.6	3.7	2.5	1.2
17	1.7	7.2	9.5	8.6	13	14	37	7.9	6.1	4.1	2.2	1.0
18	1.6	5.2	8.7	16	12	13	24	8.0	5.6	7.7	2.2	1.1
19	1.7	4.8	8.3	16	11	13	20	8.0	4.6	7.5	2.5	1.2
20	2.6	5.4	7.4	9.6	10	12	20	6.9	4.0	4.1	2.4	1.2
21	3.1	25	7.1	8.2	9.2	21	18	6.3	3.7	9.8	2.2	1.1
22	2.4	9.2	21	7.2	8.6	13	20	5.8	3.3	11	2.2	1.1
23	7.8	6.8	12	8.4	14	11	47	7.4	3.1	5.8	2.2	1.1
24	20	17	8.3	16	14	11	23	8.7	8.9	4.2	2.7	1.1
25	6.5	63	5.5	67	9.7	63	19	6.0	7.1	3.5	2.2	1.1
26	4.4	22	5.7	20	8.3	124	17	5.4	4.7	3.8	2.1	1.1
27	3.2	13	7.1	15	8.6	52	16	7.5	3.8	4.3	2.1	1.0
28	2.9	10	20	13	13	74	15	8.1	3.6	3.9	2.0	3.1
29	2.6	9.3	16	11	10	113	15	20	3.6	4.0	2.2	3.5
30	2.5	7.9	7.6	11	---	48	15	123	29	9.5	2.4	2.9
31	2.8	---	6.6	12	---	32	---	29	---	5.5	2.0	---
TOTAL	112.92	292.2	402.4	434.2	364.9	906.9	804	456.6	216.3	175.7	110.2	44.5
MEAN	3.64	9.74	13.0	14.0	12.6	29.3	26.8	14.7	7.21	5.67	3.55	1.48
MAX	20	63	72	67	42	124	79	123	29	16	27	3.5
MIN	.96	2.4	5.5	5.4	8.3	7.3	15	5.4	3.1	3.1	2.0	1.0
CFSM	.53	1.43	1.91	2.05	1.85	4.30	3.93	2.16	1.06	.83	.52	.22
IN.	.62	1.59	2.19	2.37	1.99	4.95	4.38	2.49	1.18	.96	.60	.24

CAL YR 1983	TOTAL	3143.63	MEAN	8.61	MAX	172	MIN	.13	CFSM	1.26	IN	17.14
WTR YR 1984	TOTAL	4320.82	MEAN	11.8	MAX	124	MIN	.96	CFSM	1.73	IN	23.56

## RAPPAHANNOCK RIVER BASIN

85

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, 15 mi upstream from Hazel River, and at mile 53.0.

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 National Geodetic Vertical Datum of 1929. Oct. 8, 1942, to Dec. 17, 1944, nonrecording gage 50 ft upstream at present datum.

REMARKS.--Records good except those for period of doubtful gage-height record, Oct. 11 to Nov. 10, which are fair. Several observations 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, 198 ft<sup>3</sup>/s, 13.79 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 daily, 0.70 ft<sup>3</sup>/s Oct. 4, 5, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Oct. 24	Unknown	Unknown	Unknown	Mar. 29	0930	4340	12.42
Feb. 14	2200	*10600	18.83	Apr. 5	0830	3580	11.03

Minimum discharge, 5.7 ft<sup>3</sup>/s Oct. 9-11, gage height, 1.50 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	73	252	253	165	560	1180	402	211	157	54	31
2	26	67	216	237	164	500	976	353	188	139	115	29
3	18	64	201	220	180	449	863	429	160	133	80	28
4	13	60	613	215	335	403	901	1180	146	84	69	71
5	9.8	59	527	181	312	397	2560	671	134	70	58	59
6	8.2	57	441	183	304	387	1430	620	128	66	52	42
7	7.3	56	460	176	212	333	1020	624	120	75	42	34
8	6.6	54	327	162	184	309	827	611	114	67	37	30
9	6.0	50	275	155	185	308	715	629	106	53	34	29
10	5.7	80	250	178	171	277	641	519	99	59	34	29
11	8.6	412	219	366	176	288	578	457	95	91	283	28
12	20	279	540	175	188	277	523	414	95	80	323	27
13	130	158	1500	195	198	292	502	369	88	58	343	27
14	200	124	862	215	5630	373	587	331	86	46	845	34
15	130	110	601	176	5160	504	1240	302	83	41	407	82
16	66	137	461	176	1450	418	1150	281	81	41	172	44
17	50	113	368	167	960	362	980	262	93	38	118	32
18	39	94	306	148	867	326	825	251	103	37	91	27
19	33	86	273	151	690	309	687	250	124	36	82	26
20	30	86	238	120	597	288	605	231	83	33	71	24
21	70	353	214	155	512	438	545	218	72	40	62	23
22	150	217	543	125	449	457	574	198	67	50	54	20
23	180	160	645	177	465	372	1010	196	67	59	53	20
24	830	159	445	162	1420	327	756	215	83	51	52	19
25	360	1150	261	186	839	405	633	180	117	40	45	18
26	250	622	264	432	658	746	554	169	89	33	41	17
27	175	390	286	543	565	589	503	170	71	39	40	16
28	130	352	510	397	774	1390	464	173	69	37	39	27
29	110	445	653	244	719	3720	484	302	70	32	38	44
30	90	308	276	208	---	2210	442	538	72	30	45	34
31	80	---	220	191	---	1590	---	268	---	31	38	---
TOTAL	3264.2	6375	13247	6669	24529	19604	24755	11813	3114	1846	3817	971
MEAN	105	213	427	215	846	632	825	381	104	59.5	123	32.4
MAX	830	1150	1500	543	5630	3720	2560	1180	211	157	845	82
MIN	5.7	50	201	120	164	277	442	169	67	30	34	16
CFSM	.54	1.09	2.19	1.10	4.34	3.24	4.23	1.95	.53	.31	.63	.17
IN.	.62	1.22	2.53	1.27	4.68	3.74	4.72	2.25	.59	.35	.73	.19

CAL YR 1983	TOTAL	99945.8	MEAN 274	MAX 3980	MIN 3.4	CFSM 1.41	IN 19.07
WTR YR 1984	TOTAL	120004.2	MEAN 328	MAX 5630	MIN 5.7	CFSM 1.68	IN 22.89



## RAPPAHANNOCK RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--26 years, 27.0 ft<sup>3</sup>/s, 13.28 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 above base 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)
Dec. 28	1700	562	5.84	Mar. 30	1500	450	5.41
Jan. 26	1730	343	4.95	Apr. 5	0200	1090	7.52
Feb. 14	1830	*2310	9.97	May 3	2230	363	5.04
Feb. 23	2200	316	4.82	Aug. 13	2030	1280	8.04
Mar. 28	1600	631	6.07	Aug. 14	1730	1140	7.68
Mar. 29	0430	925	7.05				

Minimum discharge, 1.2 ft<sup>3</sup>/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	9.5	30	31	23	65	148	48	29	30	5.1	7.2
2	2.2	9.1	27	29	21	59	115	45	26	22	26	7.2
3	1.6	9.0	26	28	35	54	96	87	24	17	57	8.1
4	1.5	8.8	98	27	34	50	123	118	22	11	15	14
5	1.4	8.6	55	27	36	51	399	77	21	11	13	9.1
6	1.4	9.2	53	27	30	47	180	81	19	11	9.5	7.8
7	1.3	8.7	42	25	27	43	125	75	18	15	8.1	7.2
8	1.4	8.3	35	24	24	42	104	76	18	11	6.9	6.9
9	1.5	8.1	31	23	21	41	87	68	16	9.1	6.9	6.9
10	1.6	25	29	46	22	39	77	60	15	16	6.9	6.9
11	2.2	55	27	38	23	39	68	54	15	13	81	6.5
12	8.4	29	114	27	23	35	61	52	15	12	32	6.2
13	14	21	174	25	24	43	59	48	14	8.8	166	6.9
14	17	18	87	24	1210	53	68	44	13	7.7	216	14
15	5.9	18	62	23	363	53	124	41	12	6.2	90	12
16	4.5	20	48	22	154	48	118	38	12	6.9	42	7.2
17	4.2	16	40	21	108	44	98	36	15	5.9	29	6.2
18	3.9	14	36	22	92	42	85	36	15	6.5	24	5.9
19	3.7	13	32	21	75	40	73	35	12	5.3	21	6.2
20	5.4	15	29	19	64	38	70	32	10	5.1	17	5.6
21	16	40	27	17	57	63	63	30	9.8	9.1	15	5.3
22	11	26	104	16	53	51	94	29	9.5	7.5	14	5.1
23	60	25	75	15	92	45	109	30	10	7.5	13	6.2
24	56	26	55	18	132	42	88	29	12	6.2	12	4.8
25	26	163	39	52	90	53	74	27	21	5.3	11	4.8
26	19	65	36	95	73	74	66	26	11	5.3	11	4.6
27	15	43	34	53	65	62	60	25	9.5	7.8	11	4.4
28	13	45	157	32	98	254	56	28	8.8	5.9	10	10
29	12	45	55	28	77	580	57	56	8.8	5.1	11	7.5
30	9.9	34	35	26	---	336	54	50	11	5.1	9.8	7.2
31	9.6	---	32	24	---	210	---	32	---	5.1	8.1	---
TOTAL	334.7	835.3	1724	905	3146	2696	2999	1513	452.4	300.4	998.3	217.9
MEAN	10.8	27.8	55.6	29.2	108	87.0	100	48.8	15.1	9.69	32.2	7.26
MAX	60	163	174	95	1210	580	399	118	29	30	216	14
MIN	1.3	8.1	26	15	21	35	54	25	8.8	5.1	5.1	4.4
CFSM	.39	1.01	2.01	1.06	3.91	3.15	3.62	1.77	.55	.35	1.17	.26
IN.	.45	1.13	2.32	1.22	4.24	3.63	4.04	2.04	.61	.40	1.35	.29

CAL YR 1983 TOTAL 13491.38 MEAN 37.0 MAX 613 MIN .12 CFSM 1.34 IN 18.18  
WTR YR 1984 TOTAL 16122.00 MEAN 44.0 MAX 1210 MIN 1.3 CFSM 1.59 IN 21.73

## RAPPAHANNOCK RIVER BASIN

87

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations 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, 345 ft<sup>3</sup>/s, 16.32 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 above base 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. 14	2330	*21700	22.31	Apr. 5	0730	8120	16.00
Mar. 29	1530	10500	17.47				

Minimum discharge, 19 ft<sup>3</sup>/s Oct. 8, 9, 10, gage height, 2.00 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	183	452	506	300	802	1620	614	356	539	76	87
2	70	171	391	470	293	724	1340	563	329	293	87	81
3	45	162	357	442	320	658	1160	663	286	395	322	81
4	35	156	974	421	511	607	1180	1770	267	221	179	135
5	29	151	804	375	478	591	4980	1040	247	173	238	123
6	25	145	672	370	460	584	2430	997	260	193	151	95
7	22	139	627	352	364	533	1690	993	236	199	116	83
8	20	133	499	327	322	499	1310	944	212	201	96	78
9	19	128	437	310	328	495	1080	891	193	142	232	75
10	20	255	400	347	312	459	942	771	179	137	207	75
11	22	776	357	706	312	458	832	694	195	168	853	73
12	262	470	1010	380	330	431	750	641	212	138	773	71
13	331	333	2260	360	341	475	715	590	193	113	556	70
14	689	274	1290	411	9930	608	853	547	166	102	1230	96
15	269	248	927	342	10200	684	1650	506	157	95	1350	217
16	169	303	715	311	2430	604	1510	479	146	93	498	97
17	127	248	582	302	1650	556	1280	453	162	100	334	75
18	107	215	498	300	1360	524	1050	436	228	99	260	68
19	94	199	443	301	1070	503	910	431	183	97	233	65
20	93	195	387	238	898	480	813	395	144	84	206	63
21	378	506	345	280	757	740	741	360	132	122	175	60
22	359	386	1030	235	663	834	817	341	125	157	159	56
23	891	321	1110	327	675	716	1500	326	126	125	150	53
24	1780	316	790	315	1460	639	1110	340	133	115	144	53
25	756	1920	541	434	1070	675	935	316	225	96	128	52
26	520	1030	460	742	881	872	838	297	175	82	117	51
27	380	706	494	646	773	730	776	288	130	98	111	47
28	302	613	964	479	1040	2210	724	288	118	99	107	64
29	256	688	1080	387	986	8120	715	416	141	83	106	101
30	219	527	599	359	---	3390	662	848	149	78	112	85
31	197	---	478	337	---	2130	---	436	---	79	105	---
TOTAL	8579	11897	21973	12112	40514	32331	36913	18674	5805	4716	9411	2430
MEAN	277	397	709	391	1397	1043	1230	602	194	152	304	81.0
MAX	1780	1920	2260	742	10200	8120	4980	1770	356	539	1350	217
MIN	19	128	345	235	293	431	662	288	118	78	76	47
CFSM	.97	1.38	2.47	1.36	4.87	3.63	4.29	2.10	.68	.53	1.06	.28
IN.	1.11	1.54	2.85	1.57	5.25	4.19	4.78	2.42	.75	.61	1.22	.31

CAL YR 1983	TOTAL	172496.8	MEAN	473	MAX	6860	MIN	5.1	CFSM	1.65	IN	22.36
WTR YR 1984	TOTAL	205355.0	MEAN	561	MAX	10200	MIN	19	CFSM	1.96	IN	26.62

## RAPPAHANNOCK RIVER BASIN

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, 2.5 mi downstream from Hazel River, and at mile 35.2.

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 National Geodetic Vertical Datum of 1929. Prior to Nov. 21, 1951, nonrecording gage at bridge 80 ft downstream at same datum.

REMARKS.--Records good. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--42 years, 689 ft<sup>3</sup>/s, 15.09 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 above base 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)
Nov. 25	1600	6720	11.82	Mar. 29	2145	16500	16.99
Dec. 13	0930	6920	12.03	Apr. 5	1615	10900	14.88
Feb. 15	0730	*33000	21.21	May 4	0815	6000	11.08

Minimum discharge, 34 ft<sup>3</sup>/s Oct. 10, 11, gage height, 2.73 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	279	943	901	586	1700	3740	1240	774	786	138	155
2	154	262	817	933	547	1480	3000	1100	689	663	222	140
3	98	248	746	825	576	1330	2560	1140	593	722	642	136
4	72	238	2070	809	1080	1200	2720	4460	539	437	450	213
5	59	228	2030	697	1040	1160	8700	2370	485	322	514	247
6	47	225	1490	686	1110	1180	6070	1950	481	339	293	181
7	41	219	1540	659	799	1060	3640	2080	465	345	212	151
8	37	209	1140	613	635	974	2790	1920	425	359	177	136
9	35	197	978	576	637	978	2280	1970	398	265	324	130
10	35	269	879	619	625	893	1980	1620	374	240	566	127
11	36	1310	793	1520	610	897	1760	1410	368	316	1400	123
12	70	1150	1340	785	658	859	1580	1280	378	292	2090	119
13	532	697	5930	719	676	907	1450	1180	385	235	2550	116
14	807	548	3240	775	9910	1240	1920	1080	340	199	3730	130
15	483	477	2070	715	26000	1570	4480	993	326	177	2540	401
16	252	574	1570	603	7130	1280	3980	941	307	166	1010	212
17	177	521	1290	593	3620	1140	3220	886	324	167	646	140
18	143	430	1110	548	3000	1040	2450	845	410	173	468	120
19	120	387	991	556	2300	994	2030	836	405	169	397	114
20	111	375	881	399	1900	936	1770	780	326	154	351	109
21	314	1070	793	420	1590	1190	1590	733	281	184	295	106
22	595	907	1800	400	1370	1630	1590	680	264	269	260	99
23	753	679	2720	650	1330	1280	3670	657	257	228	243	93
24	3340	623	1690	610	3480	1130	2500	737	272	216	235	89
25	1330	4670	1140	790	2530	1200	1980	630	370	181	214	87
26	913	2610	974	1330	1940	2890	1710	582	400	154	193	85
27	640	1460	995	1610	1630	1910	1540	569	279	175	181	81
28	491	1240	1520	1180	2150	4100	1420	596	244	182	177	93
29	407	1480	2820	842	2290	14100	1400	808	275	153	172	148
30	345	1140	1220	726	---	10700	1310	2000	338	141	182	150
31	301	---	908	675	---	5370	---	1020	---	139	178	---
TOTAL	12838	24722	48428	23764	81749	68318	80830	39093	11772	8548	21050	4231
MEAN	414	824	1562	767	2819	2204	2694	1261	392	276	679	141
MAX	3340	4670	5930	1610	26000	14100	8700	4460	774	786	3730	401
MIN	35	197	746	399	547	859	1310	569	244	139	138	81
CFSM	.67	1.33	2.52	1.24	4.55	3.56	4.35	2.03	.63	.45	1.10	.23
IN.	.77	1.48	2.91	1.43	4.90	4.10	4.85	2.35	.71	.51	1.26	.25

CAL YR 1983	TOTAL	353733	MEAN	969	MAX	11100	MIN	10	CFSM	1.56	IN	21.22
WTR YR 1984	TOTAL	425343	MEAN	1162	MAX	26000	MIN	35	CFSM	1.87	IN	25.52

RAPPAHANNOCK RIVER BASIN

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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 TEMPERATURES: May 1951 to September 1956, October 1965 to September 1976, October 1977 to current year.

SUSPENDED-SEDIMENT DISCHARGE: April 1951 to current year.

REMARKS.--Daily sediment records Oct. 1, 1983, to July 19, 1984, based on fragmentary concentration and transport curves due to unreliable observer sampling.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 150 micromhos Sept. 3, 1974; minimum daily, 24 micromhos July 6, 1975.

WATER TEMPERATURES: Maximum, 32.5°C July 19, 1980, July 18, 21, 1981; minimum, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,870 mg/L June 13, 1982; minimum daily mean, 1 mg/L on many days during each year.

SEDIMENT LOADS: Maximum daily, 55,600 tons Sept. 26, 1975; minimum daily, 0.03 ton Sept. 9, 11, 1983.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 938 mg/L Apr. 5; minimum daily mean, 1 mg/L many days October and September.

SEDIMENT LOADS: Maximum daily, 23,000 tons Apr. 5; minimum daily, 0.09 ton Oct. 9, 10.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN, DIS- SOLVED (MG/L)
OCT									
06...	1040	46	81	7.1	17.0	757	3	8.3	86
NOV									
16...	1330	606	64	7.0	7.0	742	9	11.6	98
JAN									
12...	0945	793	71	6.5	.0	768	35	14.0	95
FEB									
23...	0800	1260	57	6.9	6.0	753	16	12.0	98
APR									
26...	1145	1700	58	6.8	13.5	755	7	10.4	101
JUN									
05...	1330	476	66	7.2	20.0	757	10	8.1	90
JUL									
19...	1230	172	72	7.4	24.0	757	<1	8.3	99
AUG									
29...	1230	172	72	7.4	22.5	754	4	8.1	95

< Actual value is known to be less than the value shown.

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT									
06...	25	0	6.8	2.0	4.1	2.4	27	7.4	5.0
NOV									
16...	21	3	5.5	1.8	3.1	1.4	18	8.2	4.2
JAN									
12...	24	7	6.0	2.1	3.1	2.3	17	9.1	5.3
FEB									
23...	19	6	4.9	1.7	2.9	1.0	13	7.1	3.6
APR									
26...	19	4	4.7	1.7	2.7	.90	15	7.1	3.1
JUN									
05...	23	3	5.9	1.9	3.4	1.3	20	5.6	3.8
JUL									
19...	25	0	6.7	2.0	3.8	1.7	25	4.1	4.3
AUG									
29...	24	0	6.5	2.0	3.7	1.6	25	5.2	4.0



## RAPPAHANNOCK RIVER BASIN

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO <sub>2</sub> )	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, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 06...	.10	4.5	50	49	.140	<.10	.030	100
NOV 16...	.10	11	48	48	.010	.48	.020	120
JAN 12...	<.10	9.9	58	48	<.010	.75	.010	220
FEB 23...	<.10	12	57	41	<.010	.71	.010	77
APR 26...	<.10	11	45	40	.040	.42	<.010	76
JUN 05...	.10	12	60	46	<.010	.51	<.010	130
JUL 19...	<.10	11	51	49	<.010	.30	.030	120
AUG 29...	<.10	8.8	68	47	<.010	.19	<.010	130

&lt; Actual value is known to be less than the value shown.

## RAPPAHANNOCK RIVER BASIN

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01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	75	75							---	73	70
2	68	---	70							68	76	72
3	68	65	72							---	58	72
4	73	60	65							---	66	74
5	75	62	72							---	65	75
6	77	60	78							---	70	74
7	58	63	70							---	72	70
8	61	65	75							---	75	72
9	52	65	72							---	75	75
10	73	63	75							---	70	70
11	51	63	72							---	70	72
12	51	60	80							---	60	74
13	75	63	68							78	60	75
14	65	63	70							---	56	74
15	68	63	80							---	60	75
16	68	60	72							---	70	75
17	58	60	65							---	70	80
18	62	62	70							---	72	78
19	62	62	80							72	70	75
20	62	62	80							70	75	75
21	64	64	80							70	75	76
22	60	64	75							75	72	75
23	62	64	74							70	75	77
24	73	66	66							70	72	80
25	60	70	66							70	72	78
26	62	70	74							70	74	83
27	62	68	80							72	74	82
28	---	65	75							72	74	82
29	63	66	75							70	74	85
30	75	65	75							70	70	82
31	75	---	78							70	72	---
MEAN	65	64	74							71	70	76
WTR YR. 1984	MEAN	70	MAX	85	MIN	51						

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	15.0	9.0							---	21.5	24.0
2	17.0	16.0	10.0							23.0	25.5	20.5
3	19.0	15.0	11.0							---	22.5	21.0
4	20.0	11.0	12.0							---	24.0	21.0
5	21.0	10.0	12.0							---	23.0	19.0
6	20.0	11.0	11.0							---	23.5	19.0
7	21.0	10.0	12.0							---	24.5	21.0
8	19.0	12.0	11.0							---	25.5	19.0
9	---	12.0	10.0							---	25.0	17.0
10	---	13.0	9.0							---	24.5	23.0
11	---	12.0	8.0							---	23.0	24.5
12	---	13.0	9.0							---	22.0	22.0
13	---	14.0	8.0							25.5	22.5	22.0
14	---	15.0	10.0							---	23.0	25.0
15	---	14.0	7.0							---	23.0	21.5
16	---	13.0	8.0							---	23.5	17.0
17	---	14.0	6.0							---	23.0	17.0
18	---	12.0	5.0							---	23.0	19.5
19	---	12.0	4.0							23.0	22.0	21.0
20	---	11.0	1.5							23.5	24.0	20.0
21	---	12.0	2.5							21.5	23.0	19.5
22	15.0	11.0	2.5							22.0	23.0	22.5
23	15.0	11.0	3.5							23.0	21.0	19.0
24	14.0	10.0	2.0							26.0	22.5	20.0
25	15.0	11.0	2.0							25.5	24.0	23.0
26	16.0	13.0	3.0							23.0	19.0	17.0
27	17.0	12.0	1.5							23.0	19.5	15.0
28	16.0	8.0	1.5							21.5	24.5	13.0
29	14.0	9.0	1.0							20.0	24.5	14.0
30	15.0	8.0	2.5							22.0	24.5	13.0
31	16.0	---	2.0							21.0	24.0	---
MEAN	17.0	12.0	6.5							23.0	23.0	19.5
WTR YR 1984	MEAN	16.0	MAX	26.0	MIN	1.0						

## 01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN CONCEN- TRATION (MG/L)		LOADS (T/DAY)		MEAN CONCEN- TRATION (MG/L)		LOADS (T/DAY)		MEAN CONCEN- TRATION (MG/L)		LOADS (T/DAY)		MEAN CONCEN- TRATION (MG/L)		LOADS (T/DAY)	
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH					
1	6	1.6	3	2.3	17	43	20	49	6	9.5	30	138				
2	10	4.2	3	2.1	13	29	20	50	5	7.4	26	104				
3	5	1.3	2	1.3	13	26	18	40	7	11	23	83				
4	5	.97	2	1.3	80	447	15	33	14	41	20	65				
5	5	.80	2	1.2	55	301	13	24	15	42	20	63				
6	2	.25	2	1.2	50	201	16	30	10	30	19	61				
7	2	.22	2	1.2	55	229	15	27	8	17	18	52				
8	2	.20	2	1.1	50	154	12	20	8	14	15	39				
9	1	.09	2	1.1	50	132	12	19	8	14	15	40				
10	1	.09	6	4.4	48	114	15	25	6	10	15	36				
11	1	.10	50	177	40	86	33	135	8	13	15	36				
12	3	.57	20	62	110	682	17	36	10	18	13	30				
13	40	57	6	11	255	4130	14	27	10	18	15	37				
14	60	131	4	5.9	142	1240	16	33	649	22500	20	67				
15	35	46	4	5.2	113	632	15	29	230	16100	30	127				
16	15	10	5	7.7	45	191	13	21	88	1690	23	79				
17	5	2.4	4	5.6	33	115	13	21	38	371	21	65				
18	5	1.9	4	4.6	25	75	10	15	35	283	23	65				
19	4	1.3	4	4.2	20	54	12	18	30	186	22	59				
20	3	.90	4	4.1	18	43	8	8.6	28	144	20	51				
21	16	14	25	72	18	39	10	11	27	116	38	122				
22	22	35	16	39	58	282	15	16	25	92	35	154				
23	52	208	10	18	60	441	20	35	25	90	26	90				
24	362	3450	7	12	30	137	15	25	60	564	25	76				
25	95	341	250	3150	13	40	20	43	42	287	33	107				
26	40	99	120	846	10	26	38	136	30	157	80	624				
27	17	29	33	130	15	40	43	187	27	119	40	206				
28	8	11	25	84	46	189	17	54	52	302	227	4590				
29	5	5.5	28	112	40	305	10	23	45	278	611	21700				
30	5	4.7	20	62	19	63	8	16	---	---	130	3760				
31	3	2.4	---	---	15	37	8	15	---	---	75	1090				
TOTAL	---	4460.49	---	4829.5	---	10523	---	1221.6	---	43523.9	---	33816				
APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER						
1	160	1620	20	67	15	31	38	81	2	.75	4	1.7				
2	50	405	20	59	10	19	22	39	6	3.6	4	1.5				
3	34	235	21	65	7	11	30	58	229	454	16	5.9				
4	40	294	140	1690	5	7.3	15	18	85	103	26	15				
5	938	23000	51	326	4	5.2	12	10	99	150	20	13				
6	720	11800	28	147	4	5.2	10	9.2	36	28	12	5.9				
7	360	3540	30	168	4	5.0	10	9.3	86	49	4	1.6				
8	170	1280	27	140	4	4.6	10	9.7	37	18	1	.37				
9	38	234	29	154	3	3.2	8	5.7	29	47	2	.70				
10	28	150	25	109	3	3.0	7	4.5	55	94	2	.69				
11	25	119	23	88	3	3.0	10	8.5	246	1510	1	.33				
12	20	85	20	69	5	5.1	8	6.3	237	1340	1	.32				
13	18	70	21	67	7	7.3	8	5.1	456	3930	1	.31				
14	58	301	20	58	5	4.6	7	3.8	465	5310	6	2.1				
15	100	1210	19	51	5	4.4	5	2.4	40	279	46	50				
16	65	698	16	41	7	5.8	5	2.2	42	115	11	6.3				
17	45	391	15	36	11	9.6	5	2.3	36	63	1	.38				
18	36	238	16	37	14	15	7	3.3	30	38	1	.32				
19	32	175	16	36	15	16	6	2.7	29	31	2	.62				
20	30	143	15	32	13	11	6	2.5	22	21	2	.59				
21	26	112	15	30	10	7.6	13	6.5	14	11	4	1.1				
22	28	120	13	24	8	5.7	12	8.7	16	11	2	.53				
23	87	862	11	20	10	6.9	8	4.9	10	6.6	1	.25				
24	44	297	12	24	10	7.3	5	2.9	8	5.1	2	.48				
25	36	192	12	20	20	20	3	1.5	3	1.7	1	.23				
26	27	125	10	16	21	23	4	1.7	11	5.7	3	.69				
27	25	104	10	15	10	7.5	7	3.3	20	9.8	3	.66				
28	21	81	10	16	8	5.3	7	3.4	4	1.9	1	.25				
29	23	87	15	33	10	7.4	9	3.7	3	1.4	2	.80				
30	22	78	52	281	11	10	4	1.5	4	2.0	3	1.2				
31	---	---	21	58	---	---	4	1.5	21	10	---	---				
TOTAL	---	48046	---	3977	---	277.0	---	323.1	---	13650.55	---	113.82				
TOTAL LOAD FOR YEAR: 164761.96 TONS.																

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. 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 observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 16.9 ft<sup>3</sup>/s, 14.43 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 above base 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. 14	0800	*648	6.51	May 3	2230	320	4.73
Mar. 28	1400	439	5.48	Aug. 11	1130	456	5.58
Mar. 29	0230	444	5.51	Aug. 14	1430	350	4.93

Minimum discharge, 1.8 ft<sup>3</sup>/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	7.6	15	16	13	26	83	24	19	35	6.2	8.7
2	3.2	7.6	13	15	12	23	69	21	16	20	6.0	8.2
3	2.6	7.6	12	14	15	22	58	54	14	28	10	15
4	2.3	7.6	59	14	21	21	52	144	12	14	46	23
5	2.3	7.3	34	14	24	22	193	74	11	10	43	13
6	2.1	7.3	30	14	23	24	94	53	12	12	20	10
7	2.0	7.3	27	14	18	22	60	50	11	15	20	8.7
8	2.0	7.3	20	13	15	21	35	46	10	12	17	7.6
9	2.0	7.3	17	13	14	21	31	42	9.0	9.4	27	7.0
10	2.2	22	16	24	14	20	28	35	8.4	11	53	7.3
11	2.6	43	15	51	14	20	26	30	7.9	11	160	6.8
12	5.6	22	53	22	14	20	24	28	7.6	9.0	82	6.5
13	5.6	14	124	18	14	25	24	26	7.0	7.6	107	6.0
14	7.9	11	48	18	347	37	37	24	6.8	6.8	147	13
15	4.5	11	27	18	208	37	126	22	6.0	6.0	122	17
16	3.6	14	21	16	174	29	96	21	5.6	6.0	67	9.0
17	3.6	11	18	15	87	25	54	21	7.3	9.0	53	7.3
18	3.8	10	16	15	68	24	39	20	9.4	8.4	22	6.0
19	3.9	9.7	16	15	58	22	33	20	7.9	7.3	19	5.8
20	5.4	12	14	13	29	21	28	20	6.5	6.2	18	5.4
21	12	27	13	12	22	32	26	18	5.6	14	15	5.2
22	7.3	17	63	12	21	28	47	18	5.2	13	13	4.7
23	34	14	53	11	32	24	105	20	4.9	11	12	4.5
24	47	15	30	13	51	21	52	22	5.6	9.4	12	4.3
25	21	152	20	31	35	29	39	18	9.4	7.9	11	4.5
26	15	60	16	33	27	60	31	16	6.5	6.5	10	4.5
27	11	24	16	22	24	39	28	16	5.2	12	10	4.1
28	9.4	21	50	18	37	190	26	18	4.7	9.4	10	6.0
29	8.2	21	56	16	32	296	26	29	6.8	7.6	10	6.5
30	7.6	17	24	15	---	215	25	49	14	7.0	10	6.2
31	7.6	---	18	14	---	155	---	25	---	6.8	9.7	---
TOTAL	252.0	614.6	954	549	1463	1571	1595	1024	262.3	348.3	1167.9	241.8
MEAN	8.13	20.5	30.8	17.7	50.4	50.7	53.2	33.0	8.74	11.2	37.7	8.06
MAX	47	152	124	51	347	296	193	144	19	35	160	23
MIN	2.0	7.3	12	11	12	20	24	16	4.7	6.0	6.0	4.1
CFSM	.51	1.29	1.94	1.11	3.17	3.19	3.35	2.08	.55	.70	2.37	.51
IN.	.59	1.44	2.23	1.28	3.42	3.68	3.73	2.40	.61	.81	2.73	.57

CAL YR 1983	TOTAL	8616.22	MEAN 23.6	MAX 275	MIN .48	CFSM 1.48	IN 20.16
WTR YR 1984	TOTAL	10042.90	MEAN 27.4	MAX 347	MIN 2.0	CFSM 1.72	IN 23.50



## RAPPAHANNOCK RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diversion 0.4 mi above 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 observations 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, 151 ft<sup>3</sup>/s, 17.99 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 above base 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)
Oct. 23	2200	1740	4.99	Apr. 5	0130	2830	6.54
Nov. 25	0700	2290	5.79	Aug. 8	2030	3080	6.89
Feb. 14	1500	*7630	11.63	Aug. 11	1030	2940	6.69
Mar. 29	0630	6380	10.57	Aug. 13	1830	1520	4.64

Minimum daily discharge, 9.6 ft<sup>3</sup>/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	104	261	232	96	325	587	224	121	391	50	52
2	16	95	231	178	93	299	492	209	111	259	70	50
3	15	90	209	165	112	273	428	300	100	255	55	48
4	14	86	507	156	132	251	517	508	90	135	81	57
5	12	82	363	150	157	243	1610	352	84	112	112	51
6	11	81	339	143	139	235	916	402	83	132	73	46
7	10	75	298	135	118	213	682	386	77	113	60	43
8	9.9	70	256	125	109	201	542	383	71	91	392	41
9	9.6	65	227	118	107	191	453	349	66	77	294	38
10	9.8	304	207	168	103	178	391	311	62	81	524	38
11	11	349	186	227	107	173	342	284	68	86	1130	36
12	24	247	503	149	109	164	304	262	71	66	577	34
13	80	204	733	136	115	228	279	237	60	58	566	33
14	235	176	498	136	4010	262	327	217	57	54	559	33
15	106	172	401	128	1850	250	598	200	50	49	446	33
16	73	178	329	120	972	234	463	186	49	48	295	27
17	57	150	281	114	691	217	402	175	60	48	227	26
18	49	135	244	114	535	206	357	166	73	54	190	24
19	45	125	218	108	440	198	320	158	53	47	167	24
20	54	140	194	96	376	189	293	146	45	41	142	23
21	244	299	174	100	325	353	268	137	43	57	124	20
22	175	220	713	105	286	351	440	128	41	57	113	19
23	846	196	466	115	390	313	696	136	42	51	105	20
24	893	205	362	122	631	283	465	132	47	45	97	20
25	450	1320	292	196	497	292	386	116	57	39	86	21
26	306	551	269	140	420	303	338	109	41	38	78	20
27	227	414	250	123	371	266	305	111	35	68	73	18
28	182	368	434	116	421	789	280	119	127	51	69	29
29	151	352	307	111	367	2770	266	183	104	43	72	35
30	129	295	240	107	---	1050	247	226	227	41	68	32
31	115	---	215	102	---	745	---	135	---	39	59	---
TOTAL	4577.3	7148	10207	4235	14079	12045	13994	6987	2215	2726	6954	991
MEAN	148	238	329	137	485	389	466	225	73.8	87.9	224	33.0
MAX	893	1320	733	232	4010	2770	1610	508	227	391	1130	57
MIN	9.6	65	174	96	93	164	247	109	35	38	50	18
CFSM	1.30	2.09	2.89	1.20	4.25	3.41	4.09	1.97	.65	.77	1.97	.29
IN.	1.49	2.33	3.33	1.38	4.59	3.93	4.57	2.28	.72	.89	2.27	.32
CAL YR 1983	TOTAL	70928.0	MEAN 194	MAX 2300	MIN 5.5	CFSM 1.70	IN 23.14					
WTR YR 1984	TOTAL	86158.3	MEAN 235	MAX 4010	MIN 9.6	CFSM 2.06	IN 28.11					

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Small diurnal fluctuation at low flow caused by Banco Mill 9 mi upstream at State Highway 231. Several observations 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, 222 ft<sup>3</sup>/s, 16.84 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 above base 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)
Oct. 24	0130	2260	9.55	May 4	0300	1790	8.34
Nov. 25	0730	3270	11.04	July 16	2400	2560	9.70
Dec. 13	0300	1870	7.96	Aug. 4	1930	1930	8.12
Feb. 14	1930	*9200	17.36	Aug. 10	0300	7250	15.16
Mar. 29	1130	7480	16.60	Aug. 11	1400	2300	9.06
Apr. 5	0530	3970	13.00	Aug. 14	1700	3140	10.79
Apr. 23	0500	1780	8.31				

Minimum discharge, 27 ft<sup>3</sup>/s Oct. 10, gage height, 1.53 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	149	334	288	173	440	782	354	231	439	107	111
2	54	138	299	262	167	403	657	329	216	285	132	109
3	44	131	278	245	180	370	587	355	195	626	338	111
4	38	124	744	235	273	339	721	1080	180	241	1030	146
5	34	118	525	230	296	333	2480	578	170	187	616	120
6	32	113	475	224	285	338	1120	611	174	216	291	108
7	29	108	438	215	221	309	804	599	164	217	222	103
8	28	105	357	203	196	291	647	627	154	178	237	100
9	28	100	316	194	190	283	555	593	145	150	808	98
10	28	256	291	239	184	262	498	469	139	144	2920	97
11	30	434	265	559	189	258	450	420	143	150	1630	94
12	174	292	646	256	194	246	414	388	154	127	831	90
13	189	231	1320	252	197	309	388	364	150	114	776	89
14	457	199	705	222	5060	401	482	345	130	108	1290	111
15	187	192	539	221	3210	387	1130	327	119	102	979	144
16	126	217	442	200	1020	346	926	300	115	332	538	92
17	100	183	379	192	731	321	696	282	129	738	375	85
18	87	164	335	193	592	302	568	277	187	205	287	82
19	78	154	306	190	499	291	495	270	135	160	256	81
20	81	161	274	170	440	277	448	250	116	130	225	79
21	288	360	249	175	393	444	410	241	111	370	197	75
22	249	262	865	180	359	498	596	228	106	229	182	72
23	907	226	702	190	454	420	1270	228	107	189	173	70
24	1310	228	508	250	812	374	697	253	108	155	166	69
25	560	2060	387	410	577	398	558	217	193	129	152	68
26	395	740	350	324	488	545	486	205	120	119	143	67
27	301	520	336	245	438	408	442	204	102	165	138	65
28	244	454	655	217	549	1710	409	220	96	131	134	83
29	207	455	559	202	513	4780	396	291	128	117	132	95
30	178	377	357	194	---	1710	376	499	180	114	131	82
31	162	---	306	188	---	1000	---	275	---	110	122	---
TOTAL	6735	9251	14542	7365	18880	18793	20488	11679	4397	6677	15558	2796
MEAN	217	308	469	238	651	606	683	377	147	215	502	93.2
MAX	1310	2060	1320	559	5060	4780	2480	1080	231	738	2920	146
MIN	28	100	249	170	167	246	376	204	96	102	107	65
CFSM	1.21	1.72	2.62	1.33	3.64	3.39	3.82	2.11	.82	1.20	2.80	.52
IN.	1.40	1.92	3.02	1.53	3.92	3.91	4.26	2.43	.91	1.39	3.23	.58

CAL YR 1983	TOTAL	103700	MEAN 284	MAX 4040	MIN 12	CFSM 1.59	IN 21.55
WTR YR 1984	TOTAL	137161	MEAN 375	MAX 5060	MIN 28	CFSM 2.10	IN 28.50

## RAPPAHANNOCK RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by mills at Rapidan and on Robinson River at State Highway 231. National Weather Service gage-height telemeter at station. Several observations 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, 530 ft<sup>3</sup>/s, 15.25 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 above base 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)
Oct. 24	0445	5260	7.95	Apr. 5	Unknown	6850	10.18
Nov. 25	1215	7150	10.55	Aug. 10	0300	7640	11.15
Dec. 13	0515	4670	7.10	Aug. 11	0100	5660	8.52
Feb. 15	0500	*16400	18.24	Aug. 14	1945	5170	7.82
Mar. 29	2115	12600	15.98				

a From gage height in well.

Minimum discharge, 48 ft<sup>3</sup>/s Oct. 9, 10, gage height, 0.54 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	268	320	771	687	393	1110	1940	874	495	1070	197	242
2	139	296	675	691	372	1010	1690	775	457	701	276	231
3	99	278	616	607	380	930	1470	811	408	1260	438	230
4	78	260	1800	519	642	856	1950	2470	376	544	1760	288
5	67	243	1360	506	751	827	5500	1480	353	384	1570	264
6	61	232	1100	497	913	858	2950	1440	351	405	593	234
7	55	223	1120	477	612	783	2000	1600	339	431	426	219
8	51	214	841	439	493	711	1600	1480	321	363	343	208
9	50	204	722	415	478	703	1300	1680	301	290	1580	204
10	49	527	647	448	450	634	1210	1240	286	267	4790	204
11	51	1330	582	1330	450	618	1100	1090	283	301	4730	200
12	127	796	1210	646	467	585	1020	980	289	260	2210	194
13	424	582	3000	531	464	705	960	885	296	222	1790	188
14	907	493	2150	500	7360	1150	1300	806	262	207	3200	206
15	430	458	1450	491	11700	1060	2650	723	246	194	2110	344
16	242	569	1150	440	3010	903	2250	673	232	284	1340	209
17	180	473	1000	414	2150	814	1650	625	250	1370	1040	182
18	153	405	830	407	1750	749	1350	600	328	360	870	172
19	134	372	710	414	1400	711	1200	586	281	298	703	168
20	130	371	602	329	1200	673	1100	543	233	226	598	165
21	501	958	574	324	1100	969	1010	510	216	885	513	159
22	661	711	2750	400	1080	1240	1400	479	209	581	463	151
23	1430	579	1580	475	1450	1020	2800	464	208	375	423	146
24	3760	564	1130	528	2750	908	1900	535	208	303	389	143
25	1540	5160	847	671	1900	959	1500	455	303	252	359	140
26	1050	2070	766	1010	1500	1490	1300	423	244	223	331	137
27	751	1320	758	658	1180	1100	1200	414	197	310	302	131
28	565	1110	1240	534	1380	1060	1060	464	188	285	289	147
29	471	1100	1690	480	1330	10100	1010	559	427	231	285	191
30	396	893	895	454	---	5800	940	1080	456	216	284	180
31	353	---	664	436	---	2540	---	630	---	207	267	---
TOTAL	15173	23111	35230	16758	49105	45956	50310	27374	9043	13305	34469	5877
MEAN	489	770	1136	541	1693	1482	1677	883	301	429	1112	196
MAX	3760	5160	3000	1330	11700	10100	5500	2470	495	1370	4790	344
MIN	49	204	574	324	372	585	940	414	188	194	197	131
CFSM	1.04	1.63	2.41	1.15	3.59	3.14	3.55	1.87	.64	.91	2.36	.42
IN.	1.20	1.82	2.78	1.32	3.87	3.62	3.97	2.16	.71	1.05	2.72	.46

CAL YR 1983 TOTAL 252286 MEAN 691 MAX 7270 MIN 22 CFSM 1.46 IN 19.88  
WTR YR 1984 TOTAL 325711 MEAN 890 MAX 11700 MIN 49 CFSM 1.89 IN 25.67



## RAPPAHANNOCK RIVER BASIN

97

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 Electric and Power Co., 2.2 mi downstream from Motts Run, 3.8 mi upstream from Fredericksburg, and at mile 4.4.  
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 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.--Records good except those for period of no gage-height record, Mar. 24 to June 14, which are fair.  
AVERAGE DISCHARGE.--77 years, 1,674 ft<sup>3</sup>/s, 14.24 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 above base 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)
Nov. 26	0200	18800	8.86	Apr. 15	Unknown	b12000	Unknown
Feb. 15	1900	*53000	14.79	Apr. 23	Unknown	b9900	Unknown
Mar. 29	Unknown	50400	a14.36	May 4	Unknown	b11900	Unknown
Apr. 5	Unknown	b21000	Unknown	Aug. 14	1700	19900	9.10

a From high-water mark.

b Daily mean discharge; actual peak is known to be greater than value shown.

Minimum discharge, 107 ft<sup>3</sup>/s Oct. 11, gage height, 1.32 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	733	2290	1950	1430	3530	9000	2600	1900	4650	426	516
2	325	674	1960	1950	1270	2990	7000	2500	1500	2710	411	468
3	355	631	1740	1850	1230	2720	5600	2550	1300	2040	1350	442
4	260	597	3570	1730	1860	2480	6000	11900	1100	1830	4270	486
5	206	569	6740	1590	2520	2330	21000	5400	1000	976	5500	647
6	176	548	3670	1530	3730	2500	14000	4350	910	857	2020	597
7	154	532	4370	1490	2420	2430	10000	4450	900	1700	1140	498
8	140	520	3140	1410	1760	2130	6600	4500	870	1340	840	444
9	130	503	2470	1320	1520	2040	5300	4200	810	836	1230	416
10	122	553	2150	1300	1480	1950	4300	3550	800	636	8770	403
11	119	2650	1950	4170	1440	1840	4000	3200	800	631	10300	399
12	142	3020	1910	2910	1570	1810	3700	2700	870	693	10900	394
13	212	1830	8730	1730	1580	1860	3500	2500	890	586	7950	383
14	1050	1370	8830	1630	9860	3380	3600	2300	730	494	14200	380
15	1920	1210	4980	1720	44600	4040	12000	2150	655	438	9800	507
16	858	1550	3650	1520	25300	3090	11000	2000	607	404	3860	850
17	555	1570	2910	1470	7760	2640	8300	1900	577	1470	2320	524
18	428	1210	2480	1350	5810	2330	6000	1880	624	1070	1700	419
19	363	1020	2200	1370	4620	2170	4800	1750	774	975	1380	383
20	332	942	1990	1230	3790	2050	4200	1650	684	611	1210	373
21	345	2440	1790	1100	3230	2250	3750	1600	566	2300	1060	366
22	1120	2810	2420	1260	2830	3720	3500	1520	509	3290	903	360
23	1360	1810	7280	1070	2620	3050	9900	1500	481	1220	835	351
24	8600	1530	4750	1350	7120	2560	6600	1610	478	872	790	348
25	4580	11400	3220	1690	5600	2650	4400	1500	502	677	749	354
26	2740	11200	2400	7790	4100	5000	3700	1320	675	545	681	360
27	1880	4310	2500	6670	3360	4000	3500	1290	600	541	612	350
28	1370	3100	4700	3410	3660	10500	3350	1400	496	712	575	372
29	1110	3670	7270	1970	4810	39500	3200	2500	506	572	554	391
30	960	2920	3590	1690	---	25000	2900	5000	1100	486	544	499
31	820	---	2390	1580	---	16000	---	2700	---	446	545	---
TOTAL	32873	67422	114040	64800	162880	164540	194700	89970	24214	36608	97425	13280
MEAN	1060	2247	3679	2090	5617	5308	6490	2902	807	1181	3143	443
MAX	8600	11400	8830	7790	44600	39500	21000	11900	1900	4650	14200	850
MIN	119	503	1740	1070	1230	1810	2900	1290	478	404	411	348
CFSM	.66	1.41	2.31	1.31	3.52	3.33	4.07	1.82	.51	.74	1.97	.28
IN.	.77	1.57	2.66	1.51	3.80	3.84	4.54	2.10	.56	.85	2.27	.31

CAL YR 1983 TOTAL 830889 MEAN 2276 MAX 32000 MIN 67 CFSM 1.43 IN 19.37  
WTR YR 1984 TOTAL 1062752 MEAN 2904 MAX 44600 MIN 119 CFSM 1.82 IN 24.77



## RAPPAHANNOCK RIVER BASIN

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 TEMPERATURES: October 1955 to September 1956, April 1968 to August 1974.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 17...	0930	1610	73	6.6	6.5	749	5.4	11.3	94	540	K2900
JAN 10...	1100	1250	67	6.7	2.0	757	7.5	13.4	98	23	82
MAR 14...	1000	3530	63	6.8	4.0	761	18	12.8	98	260	480
APR 26...	1000	3620	60	7.1	13.0	756	11	10.0	96	200	50
JUN 14...	1015	688	73	7.5	27.0	754	1.4	6.7	85	29	47
JUL 26...	1030	546	78	7.4	25.0	756	8.0	7.2	88	--	--
AUG 27...	1000	607	78	7.6	25.0	757	1.8	8.4	102	--	--
SEP 24...	1200	364	78	8.8	24.0	758	1.1	8.0	96	K10	58

K Result based on colony count outside optimal range.

DATE	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)	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 SI02)
NOV 17...	27	7	6.7	2.4	3.7	1.8	20	10	5.2	<.10	11
JAN 10...	22	3	5.5	1.9	3.4	1.2	19	6.0	4.1	<.10	11
MAR 14...	22	7	5.4	2.0	3.7	1.1	15	7.4	5.0	<.10	11
APR 26...	20	5	4.9	1.8	3.5	1.2	15	7.0	3.5	.10	10
JUN 14...	23	0	5.9	2.0	3.6	1.6	22	4.0	3.8	.10	10
JUL 26...	--	--	--	--	--	--	23	--	--	--	12
AUG 27...	27	2	6.8	2.4	3.7	1.6	25	5.3	4.6	.10	11
SEP 24...	--	--	--	--	--	--	28	--	--	--	4.5

&lt; Actual value is known to be less than the value shown.

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	ARSENIC DIS- SOLVED (UG/L AS AS)
NOV 17...	56	53	--	.67	.100	2.9	.050	.030	.050	30	<1
JAN 10...	55	45	--	.92	.030	.40	.050	.030	.010	--	--
MAR 14...	52	45	--	.72	.140	.60	.050	<.010	<.010	<10	1
APR 26...	46	41	--	.52	.030	.30	.040	.010	<.010	30	<1
JUN 14...	52	44	--	<.10	.130	.40	.030	<.010	<.010	--	--
JUL 26...	--	--	<.010	.55	<.010	.70	.040	--	.030	--	--
AUG 27...	56	51	<.010	.40	<.010	.60	.020	<.010	<.010	20	<1
SEP 24...	--	--	<.010	<.10	<.010	.20	.040	.010	.010	--	--

&lt; Actual value is known to be less than the value shown.

DATE	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)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)
NOV 17...	28	<.5	<1	<1	<3	1	160	4	<4	12	<.1
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
MAR 14...	22	<.5	1	<1	<3	<1	100	<1	<4	18	<.1
APR 26...	22	<1	<1	<1	<3	2	130	3	<4	10	<.1
JUN 14...	--	--	--	--	--	--	--	--	--	--	--
JUL 26...	--	--	--	--	--	--	--	--	--	--	--
AUG 27...	17	<.0	<1	<1	<3	1	170	2	11	8	<.1
SEP 24...	--	--	--	--	--	--	--	--	--	--	--

&lt; Actual value is known to be less than the value shown.

DATE	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
NOV 17...	<10	<1	<1	<1	32	<6	<3	--	9	96
JAN 10...	--	--	--	--	--	--	--	--	3	98
MAR 14...	<10	2	<1	<1	28	<6	4	--	25	92
APR 26...	<10	6	<1	<1	25	<6	14	--	22	93
JUN 14...	--	--	--	--	--	--	--	--	6	61
JUL 26...	--	--	--	--	--	--	--	3.6	6	81
AUG 27...	<10	2	<1	<1	36	<6	<3	1.8	6	37
SEP 24...	--	--	--	--	--	--	--	1.8	7	51

&lt; Actual value is known to be less than the value shown.

## 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 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.--Records good except those for January, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--41 years, 45.3 ft<sup>3</sup>/s, 13.49 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 above base 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)
Dec. 14	0400	272	5.45	Mar. 29	1530	*1130	6.99
Jan. 11	1230	345	5.70	Apr. 5	1100	277	5.47
Mar. 14	0200	252	5.37	May 30	1900	600	6.20
Mar. 26	1630	1050	6.89				

Minimum daily discharge, 4.0 ft<sup>3</sup>/s Sept. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	21	90	110	111	83	197	98	167	106	25	12
2	28	20	87	112	104	76	174	92	121	73	24	8.9
3	24	21	85	113	91	73	155	89	106	89	83	10
4	20	21	122	116	111	70	191	92	98	56	96	10
5	18	21	138	121	111	78	262	87	73	41	69	11
6	18	22	125	119	106	127	203	84	65	38	44	10
7	17	22	118	117	92	127	165	91	59	33	32	9.3
8	16	22	109	116	84	108	145	86	52	34	26	8.6
9	16	21	104	115	84	111	136	78	49	31	22	8.0
10	16	27	100	128	78	103	128	67	45	33	21	8.2
11	16	33	98	296	81	94	123	58	40	40	28	7.8
12	31	30	102	220	84	87	118	54	36	34	41	7.5
13	38	27	213	160	79	139	114	51	33	31	59	7.3
14	85	25	235	120	89	239	121	49	33	28	34	7.1
15	69	25	167	115	139	168	128	45	36	24	31	6.9
16	44	32	143	115	139	137	180	42	32	23	28	6.6
17	32	30	129	120	118	118	170	41	34	24	24	6.0
18	26	27	123	123	103	109	143	41	36	49	22	5.5
19	24	25	119	135	94	103	127	42	38	79	20	5.5
20	24	25	116	130	89	98	118	40	34	59	20	5.1
21	24	45	114	113	84	114	111	36	33	46	18	4.8
22	24	43	138	105	79	118	111	33	29	42	15	4.3
23	30	38	146	105	86	103	182	32	24	38	15	4.2
24	44	34	133	120	108	91	174	46	24	33	14	4.3
25	40	133	120	145	99	268	137	38	32	29	14	4.2
26	32	176	100	135	86	878	120	32	34	25	13	4.0
27	28	127	100	125	79	480	111	112	31	25	12	4.0
28	25	109	125	115	92	305	104	189	27	24	12	6.6
29	23	101	155	110	94	943	103	141	28	23	11	9.8
30	22	94	130	110	---	475	101	422	79	25	12	12
31	21	---	115	114	---	246	---	332	---	26	11	---
TOTAL	909	1397	3899	3998	2794	6269	4352	2740	1528	1261	896	219.5
MEAN	29.3	46.6	126	129	96.3	202	145	88.4	50.9	40.7	28.9	7.32
MAX	85	176	235	296	139	943	262	422	167	106	96	12
MIN	16	20	85	105	78	70	101	32	24	23	11	4.0
CFSM	.64	1.02	2.76	2.83	2.11	4.43	3.18	1.94	1.12	.89	.63	.16
IN.	.74	1.14	3.18	3.26	2.28	5.11	3.55	2.24	1.25	1.03	.73	.18

CAL YR 1983 TOTAL 21847.37 MEAN 59.9 MAX 836 MIN .35 CFSM 1.31 IN 17.82  
WTR YR 1984 TOTAL 30262.50 MEAN 82.7 MAX 943 MIN 4.0 CFSM 1.81 IN 24.69

RAPPAHANNOCK RIVER BASIN

101

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--19 years, 17.3 ft<sup>3</sup>/s, 15.16 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 above base 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)
Jan. 11	0700	131	4.00	Mar. 29	1030	*291	4.95
Mar. 26	1100	279	4.89	May 30	1230	149	4.14

Minimum discharge, 3.6 ft<sup>3</sup>/s Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	8.2	15	18	24	21	69	37	55	44	13	4.6
2	11	7.9	14	18	21	18	62	35	48	26	12	4.4
3	8.4	8.1	13	17	20	17	57	35	45	32	12	5.0
4	6.6	8.4	30	17	28	16	70	38	63	28	21	5.1
5	5.6	8.1	35	18	28	19	89	42	50	20	19	5.6
6	6.3	8.4	28	18	25	42	68	40	35	17	15	5.1
7	6.3	8.2	28	17	21	34	56	49	30	16	14	4.7
8	5.3	7.6	23	16	20	27	50	42	27	15	10	4.3
9	4.9	7.6	19	14	19	30	48	40	24	13	9.9	4.4
10	5.1	15	18	23	18	24	46	35	23	14	7.8	4.7
11	5.6	22	17	101	19	22	45	32	21	20	9.4	5.1
12	15	17	20	48	20	21	43	30	19	16	9.4	5.2
13	16	11	69	30	19	44	42	28	18	13	8.7	5.1
14	30	8.6	57	27	23	71	57	27	17	12	11	5.6
15	24	11	36	26	44	40	66	25	16	9.9	32	5.9
16	15	22	30	22	36	31	82	24	16	9.4	29	5.7
17	9.7	17	27	21	27	28	67	24	18	12	15	5.0
18	7.7	12	25	22	23	25	54	24	18	33	11	5.4
19	7.0	10	23	25	21	24	48	24	17	75	11	5.2
20	7.7	9.7	22	21	20	23	46	23	16	48	10	4.7
21	11	24	22	18	19	32	44	20	14	30	8.7	4.5
22	11	20	35	17	18	30	44	19	12	29	7.8	4.3
23	17	14	37	16	19	25	71	21	11	23	7.4	4.0
24	30	12	29	20	27	22	65	32	11	18	7.2	4.5
25	23	48	24	48	23	100	50	28	15	15	6.9	4.7
26	18	44	18	38	20	253	44	23	14	14	6.2	5.2
27	13	28	19	30	18	116	41	56	12	17	5.7	5.2
28	10	22	29	25	27	97	39	68	11	15	5.7	7.5
29	8.9	19	42	23	24	243	38	49	13	14	5.6	11
30	8.1	16	24	22	---	127	37	130	30	14	5.7	11
31	8.1	---	20	29	---	82	---	88	---	14	5.4	---
TOTAL	370.3	474.8	848	805	671	1704	1638	1188	719	676.3	352.5	162.7
MEAN	11.9	15.8	27.4	26.0	23.1	55.0	54.6	38.3	24.0	21.8	11.4	5.42
MAX	30	48	69	101	44	253	89	130	63	75	32	11
MIN	4.9	7.6	13	14	18	16	37	19	11	9.4	5.4	4.0
CFSM	.77	1.02	1.77	1.68	1.49	3.55	3.52	2.47	1.55	1.41	.74	.35
IN.	.89	1.14	2.04	1.93	1.61	4.09	3.93	2.85	1.73	1.62	.85	.39

CAL YR 1983	TOTAL	6565.5	MEAN 18.0	MAX 212	MIN 1.4	CFSM 1.16	IN 15.76
WTR YR 1984	TOTAL	9609.6	MEAN 26.3	MAX 253	MIN 4.0	CFSM 1.70	IN 23.06



## RAPPAHANNOCK RIVER BASIN

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 Henley 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--33 years, 32.6 ft<sup>3</sup>/s, 15.81 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, gage height, 0.33 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Mar. 26	0900	382	4.14	Mar. 29	1300	*418	4.26

Minimum discharge, 3.9 ft<sup>3</sup>/s Oct. 8-9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	8.4	17	27	48	44	130	68	75	57	18	6.9
2	13	8.6	16	26	43	40	116	64	64	41	16	6.2
3	8.9	10	15	27	44	39	105	66	67	33	17	5.9
4	7.0	12	35	27	55	38	120	76	109	25	33	6.2
5	6.1	12	45	28	58	43	170	75	68	20	34	6.4
6	5.7	12	32	28	55	82	128	74	55	18	22	6.6
7	4.6	12	33	26	48	81	103	94	49	18	16	6.2
8	4.1	12	28	24	43	60	93	73	45	17	14	5.8
9	4.3	12	22	22	43	61	87	68	41	15	12	5.9
10	4.0	19	19	35	42	55	84	61	38	18	11	5.6
11	4.7	37	18	172	44	50	81	56	34	26	11	7.4
12	13	25	22	108	46	48	79	54	31	21	20	8.2
13	20	16	95	63	44	77	77	52	30	16	31	7.7
14	32	12	84	55	49	146	91	49	28	14	26	7.7
15	25	14	46	53	76	83	116	46	26	13	26	7.8
16	15	28	32	48	68	68	186	45	26	13	25	7.2
17	10	26	26	46	55	62	141	44	28	16	17	6.7
18	7.9	18	24	48	50	59	103	44	30	40	13	6.2
19	7.3	14	22	58	47	57	91	44	28	58	15	5.9
20	8.6	14	21	52	45	55	86	42	24	40	15	5.8
21	12	33	20	44	43	64	81	38	22	27	13	5.8
22	15	33	38	41	41	68	82	35	20	34	11	5.3
23	21	20	52	41	44	56	144	39	18	31	10	5.2
24	39	18	32	44	57	51	119	66	20	25	9.9	5.2
25	33	68	23	103	51	141	89	50	25	20	9.8	5.1
26	21	88	17	83	43	356	80	39	23	18	9.2	5.0
27	16	39	18	61	41	219	76	82	18	24	8.6	4.8
28	14	26	36	53	51	177	72	78	17	24	8.6	6.4
29	12	23	69	48	52	376	70	71	19	19	8.3	10
30	11	20	44	47	---	235	68	179	38	19	8.0	13
31	10	---	32	54	---	154	---	128	---	19	7.5	---
TOTAL	423.2	690.0	1033	1592	1426	3145	3068	2000	1116	779	495.9	198.1
MEAN	13.7	23.0	33.3	51.4	49.2	101	102	64.5	37.2	25.1	16.0	6.60
MAX	39	88	95	172	76	376	186	179	109	58	34	13
MIN	4.0	8.4	15	22	41	38	68	35	17	13	7.5	4.8
CFSM	.49	.82	1.19	1.84	1.76	3.61	3.64	2.30	1.33	.90	.57	.24
IN.	.56	.92	1.37	2.12	1.89	4.18	4.08	2.66	1.48	1.03	.66	.26

CAL YR 1983 TOTAL 11812.55 MEAN 32.4 MAX 428 MIN .51 CFSM 1.16 IN 15.69  
WTR YR 1984 TOTAL 15966.20 MEAN 43.6 MAX 376 MIN 4.0 CFSM 1.56 IN 21.21

## PIANKATANK RIVER BASIN

103

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Jan. 16 to Feb. 15, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State 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 above base 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)
Mar. 27	2030	*1470	7.92	June 1	2200	724	6.76
Apr. 7	0200	632	6.53				

Minimum discharge, 3.6 ft<sup>3</sup>/s Sept. 27, gage height, 1.85 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	47	161	160	180	157	688	193	696	60	58	5.5
2	37	42	128	159	170	150	484	180	696	54	51	5.0
3	36	37	108	145	160	146	382	171	593	54	48	4.9
4	33	34	132	134	170	138	363	172	488	47	50	9.0
5	31	31	140	136	180	138	516	163	342	50	45	8.3
6	54	29	145	140	200	294	593	172	267	73	37	6.5
7	35	29	160	144	200	372	605	191	235	69	31	6.1
8	25	27	166	141	180	368	506	187	226	56	25	5.8
9	19	27	161	132	170	356	392	184	202	43	22	5.5
10	16	48	148	138	160	296	325	182	153	37	24	5.6
11	14	68	133	339	160	243	280	171	115	35	26	5.9
12	29	67	133	359	170	208	254	155	93	31	24	5.9
13	29	66	239	375	160	239	238	139	77	30	22	6.5
14	40	66	314	496	170	391	240	125	64	28	25	7.1
15	37	73	365	385	230	472	254	113	58	25	24	6.8
16	35	118	372	275	284	488	351	103	54	24	21	6.1
17	34	113	309	180	292	362	428	97	52	25	21	5.6
18	36	104	235	180	284	275	474	90	52	28	25	5.2
19	36	96	185	190	250	229	401	87	51	32	46	4.9
20	36	91	152	200	215	202	354	83	48	27	46	4.5
21	42	128	133	190	192	204	301	77	46	28	36	4.4
22	38	117	140	170	170	202	264	72	44	35	26	4.2
23	50	106	148	160	161	195	309	69	40	44	21	4.0
24	91	116	152	160	172	190	334	79	41	43	18	3.9
25	115	257	143	210	170	250	354	72	51	45	15	3.8
26	112	331	121	300	164	594	366	69	44	51	12	3.8
27	102	345	106	350	159	1270	325	88	37	62	10	3.7
28	90	314	126	270	166	1360	272	104	33	60	9.2	4.3
29	78	261	173	210	164	1360	233	146	32	55	8.3	5.3
30	64	210	169	170	---	1430	208	438	42	74	7.2	5.9
31	54	---	164	170	---	1110	---	605	---	68	6.3	---
TOTAL	1483	3398	5461	6768	5503	13689	11094	4777	4972	1393	840.0	164.0
MEAN	47.8	113	176	218	190	442	370	154	166	44.9	27.1	5.47
MAX	115	345	372	496	292	1430	688	605	696	74	58	9.0
MIN	14	27	106	132	159	138	208	69	32	24	6.3	3.7
CFSM	.44	1.05	1.63	2.02	1.76	4.09	3.43	1.43	1.54	.42	.25	.05
IN.	.51	1.17	1.88	2.33	1.90	4.72	3.82	1.65	1.71	.48	.29	.06

CAL YR 1983 TOTAL 49598.98 MEAN 136 MAX 2380 MIN .68 CFSM 1.26 IN 17.08  
WTR YR 1984 TOTAL 59542.00 MEAN 163 MAX 1430 MIN 3.7 CFSM 1.51 IN 20.51

## WARE RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 7.27 ft<sup>3</sup>/s, 14.89 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 above base 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)
Mar. 6	1100	80	3.48	Apr. 5	0700	*236	3.99
Mar. 29	0730	126	3.69	May 30	1100	168	3.82

Minimum daily discharge, 0.47 ft<sup>3</sup>/s Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	2.9	7.5	4.8	9.5	7.7	24	16	25	9.4	6.5	1.2
2	1.3	2.9	6.8	4.6	8.6	7.2	21	15	17	6.5	5.0	.95
3	1.3	3.0	6.5	5.2	9.5	6.9	20	15	13	7.8	5.0	1.0
4	1.4	3.1	19	5.2	20	6.8	36	18	14	5.2	9.0	2.4
5	1.3	3.2	20	5.2	16	11	131	14	10	3.4	5.9	2.2
6	1.2	3.3	14	5.2	12	61	43	15	8.0	3.1	3.8	1.1
7	1.1	3.1	13	5.1	9.8	39	30	16	7.1	4.7	2.9	1.0
8	1.1	2.8	11	4.2	8.3	27	25	13	6.4	8.0	2.4	.95
9	1.2	2.8	8.2	4.0	8.2	30	22	12	5.8	4.6	3.4	.90
10	1.4	6.5	6.4	10	8.6	22	21	11	5.2	3.9	5.2	.90
11	2.0	8.3	5.3	47	9.2	20	20	10	4.7	4.7	3.0	.95
12	6.6	5.6	9.8	23	13	17	18	10	4.4	3.8	2.6	1.1
13	6.9	4.0	35	14	10	29	16	7.8	4.0	3.8	6.2	1.1
14	6.9	3.0	30	11	17	38	31	6.5	3.5	3.6	11	1.0
15	4.8	5.4	20	9.0	30	25	31	6.1	3.8	2.9	7.2	1.0
16	3.5	20	15	8.0	17	21	41	5.9	4.1	3.8	4.8	.95
17	2.5	13	12	7.5	13	18	29	5.8	4.7	5.6	3.4	.90
18	2.2	6.9	10	13	12	17	24	5.8	4.7	9.8	3.0	.85
19	2.4	5.4	11	26	11	15	21	5.8	4.1	11	4.5	.85
20	4.0	5.1	9.0	15	10	15	22	5.3	3.4	6.1	5.7	.80
21	6.6	11	7.2	8.0	9.0	21	18	4.7	3.0	10	3.5	.80
22	6.6	9.8	15	7.3	8.6	19	19	4.1	2.7	26	2.1	.80
23	8.0	6.5	17	8.2	10	15	34	6.7	2.4	11	1.6	.80
24	11	9.4	13	16	12	13	25	21	2.9	6.5	1.5	.70
25	13	41	7.8	35	9.4	20	20	8.5	5.9	4.7	1.5	.60
26	9.0	32	5.8	19	7.8	30	18	5.6	4.5	4.7	1.4	.50
27	6.1	19	5.7	15	7.8	23	17	4.8	3.0	5.8	1.4	.47
28	4.6	14	10	13	10	42	17	5.4	2.6	5.4	1.4	1.2
29	3.6	11	18	11	9.2	93	17	21	2.7	5.6	1.3	1.5
30	3.2	9.0	8.6	11	---	38	16	118	6.2	14	1.3	1.4
31	3.0	---	5.7	12	---	27	---	46	---	9.8	1.2	---
TOTAL	129.1	273.0	383.3	382.5	336.5	774.6	827	459.8	188.8	215.2	118.7	30.87
MEAN	4.16	9.10	12.4	12.3	11.6	25.0	27.6	14.8	6.29	6.94	3.83	1.03
MAX	13	41	35	47	30	93	131	118	25	26	11	2.4
MIN	1.1	2.8	5.3	4.0	7.8	6.8	16	4.1	2.4	2.9	1.2	.47
CFSM	.63	1.37	1.87	1.86	1.75	3.77	4.16	2.23	.95	1.05	.58	.16
IN.	.72	1.53	2.15	2.15	1.89	4.35	4.64	2.58	1.06	1.21	.67	.17
CAL YR 1983 TOTAL	2763.44			MEAN 7.57	MAX 68	MIN .14	CFSM 1.14	IN 15.50				
WTR YR 1984 TOTAL	4119.37			MEAN 11.3	MAX 131	MIN .47	CFSM 1.70	IN 23.11				

## YORK RIVER BASIN

105

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 State 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. Altitude of gage is 275 ft, from topographic map.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--9 years, 5.24 ft<sup>3</sup>/s, 12.87 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 996 ft<sup>3</sup>/s Feb. 14, 1984, gage height, 3.62 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 above base 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. 14	1100	*996	3.62	Apr. 4	1200	615	3.10
Mar. 28	1330	496	2.91	Aug. 8	1900	317	2.56
Mar. 29	0300	496	2.91	Aug. 10	2230	836	3.42

Minimum discharge, 0.12 ft<sup>3</sup>/s Oct. 6, 7-8, gage height, 0.69 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.75	.94	3.1	4.3	4.8	5.7	12	6.2	3.6	2.2	1.4	1.0
2	.50	.94	2.9	3.8	4.1	4.8	9.4	5.7	3.1	1.6	1.3	.94
3	.31	1.0	2.9	3.6	4.3	4.8	8.5	7.5	2.6	1.6	1.4	1.0
4	.31	1.0	25	3.6	7.1	4.3	121	16	2.4	1.3	2.6	2.2
5	.31	.94	8.0	3.6	14	5.7	45	8.5	2.2	1.3	3.1	1.4
6	.20	1.2	8.0	3.6	11	13	18	19	2.2	1.6	1.6	1.3
7	.15	1.0	6.6	3.6	6.6	8.0	12	14	2.2	1.4	1.4	1.0
8	.12	1.2	4.3	3.4	5.3	5.7	9.4	10	2.2	1.4	27	1.0
9	.15	1.2	3.8	2.9	4.8	5.3	8.0	9.4	2.0	.94	7.3	1.0
10	.15	15	3.6	7.6	4.8	4.8	7.1	6.2	1.8	1.3	98	1.0
11	.25	5.3	3.4	16	4.8	4.6	6.6	4.6	1.6	1.3	50	1.0
12	.66	2.9	11	5.3	4.8	4.6	6.2	4.3	1.4	.94	8.5	1.2
13	.94	2.2	30	4.3	4.3	15	5.7	4.1	1.4	1.0	5.3	1.2
14	1.3	1.8	8.9	4.8	320	20	27	3.6	1.4	.84	26	2.0
15	.58	12	5.3	4.6	35	13	38	3.6	1.4	.75	12	2.2
16	.50	14	4.3	4.1	15	7.6	63	3.6	1.3	.84	4.1	1.3
17	.50	4.6	3.6	4.1	10	5.7	22	3.6	1.8	2.0	2.9	.94
18	.50	3.1	3.4	3.8	8.0	5.3	13	3.6	1.8	4.3	2.4	.84
19	.43	2.9	3.4	3.8	6.6	4.8	9.4	3.4	1.3	2.4	2.4	.84
20	1.3	4.7	3.1	3.8	5.7	4.6	8.9	3.4	1.2	1.4	2.4	.84
21	3.4	13	3.1	3.8	4.8	8.5	8.0	3.1	1.0	5.8	2.0	.75
22	1.6	4.3	37	3.8	4.6	6.2	38	2.6	.94	4.3	1.8	.75
23	17	3.4	16	3.8	31	4.8	62	8.0	.94	3.4	1.6	.75
24	10	4.1	6.6	5.7	24	4.3	21	5.7	1.2	2.2	1.6	.66
25	3.6	85	4.3	8.0	9.4	44	13	3.6	1.2	2.0	1.4	.66
26	2.4	14	4.1	8.5	6.6	57	10	3.4	1.0	1.8	1.3	.75
27	1.6	6.6	4.1	7.1	5.7	18	8.5	3.8	.94	2.4	1.3	.75
28	1.3	4.8	19	5.3	12	169	7.6	4.1	3.0	1.6	1.3	1.6
29	1.2	4.3	18	4.3	8.0	172	7.1	4.1	3.1	1.4	1.3	1.3
30	.94	3.4	6.2	4.8	---	30	7.1	7.1	3.4	1.4	1.3	1.4
31	.94	---	4.8	7.1	---	17	---	4.1	---	1.4	1.2	---
TOTAL	53.89	220.82	267.8	156.8	587.1	678.1	632.5	189.9	55.62	58.11	277.2	33.57
MEAN	1.74	7.36	8.64	5.06	20.2	21.9	21.1	6.13	1.85	1.87	8.94	1.12
MAX	17	85	37	16	320	172	121	19	3.6	5.8	98	2.2
MIN	.12	.94	2.9	2.9	4.1	4.3	5.7	2.6	.94	.75	1.2	.66
CFSM	.32	1.33	1.56	.92	3.65	3.96	3.82	1.11	.34	.34	1.62	.20
IN.	.36	1.49	1.80	1.05	3.95	4.56	4.25	1.28	.37	.39	1.86	.23

CAL YR 1983 TOTAL 1864.27 MEAN 5.11 MAX 153 MIN .04 CFSM .92 IN 12.54  
WTR YR 1984 TOTAL 3211.41 MEAN 8.77 MAX 320 MIN .12 CFSM 1.59 IN 21.60



## YORK RIVER BASIN

01670400 NORTH ANNA RIVER NEAR PARTLOW, VA

LOCATION.--Lat 38°00'46", long 77°42'06" (revised), 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Mar. 28-30, which are fair. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft 0.5 upstream. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--6 years, 316 ft<sup>3</sup>/s, 12.47 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, 9,030 ft<sup>3</sup>/s Mar. 30, gage height, 22.05 ft, from floodmark; minimum, 40 ft<sup>3</sup>/s July 16; minimum daily, 41 ft<sup>3</sup>/s June 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	60	170	282	322	337	1970	420	154	722	57	46
2	55	67	74	244	326	337	1220	348	84	776	59	47
3	55	67	49	170	311	337	1220	613	41	693	192	52
4	55	65	638	174	329	300	1870	816	43	67	1080	63
5	60	65	1480	282	337	296	3290	1680	43	49	2200	50
6	60	63	666	286	337	333	1940	555	44	50	2140	53
7	57	60	329	219	341	337	1260	698	45	638	493	48
8	56	59	329	144	341	341	1260	852	46	842	121	47
9	56	59	329	198	345	341	1220	1960	47	408	530	47
10	59	65	329	275	348	341	326	953	47	284	336	46
11	60	67	326	330	348	337	326	300	48	55	1150	47
12	65	76	329	1480	348	329	326	138	48	56	1480	47
13	71	67	1210	370	348	293	329	304	50	53	837	47
14	80	60	1480	318	6130	337	341	409	53	53	857	48
15	78	62	566	318	6880	348	1570	119	56	52	1910	62
16	78	69	286	318	3100	524	1640	693	53	83	609	57
17	76	74	289	138	2430	1590	1620	709	52	457	59	55
18	76	60	286	247	1260	262	1600	357	53	1310	59	52
19	74	50	286	322	1260	52	1730	112	56	1740	60	47
20	74	56	250	329	1260	55	760	112	62	328	62	43
21	76	57	154	329	1250	257	396	112	65	924	62	43
22	71	49	712	275	749	337	514	118	63	2280	52	44
23	76	49	1480	147	286	337	2960	283	67	1440	48	47
24	71	59	1310	147	1290	337	2380	709	76	1430	50	47
25	59	1180	348	233	1510	946	1800	341	78	1420	49	47
26	55	2140	191	333	974	1780	1020	128	78	258	47	47
27	55	1440	60	1130	244	1630	156	49	71	352	47	47
28	53	1420	219	990	322	3160	693	65	74	392	46	47
29	55	809	1470	154	329	7330	709	359	71	144	45	47
30	55	282	1190	95	---	5500	693	613	67	56	46	48
31	53	---	282	318	---	3730	---	502	---	56	47	---
TOTAL	1979	8756	17117	10595	33655	32771	37139	15427	1835	17468	14830	1468
MEAN	63.8	292	552	342	1161	1057	1238	498	61.2	563	478	48.9
MAX	80	2140	1480	1480	6880	7330	3290	1960	154	2280	2200	63
MIN	53	49	49	95	244	52	156	49	41	49	45	43
CFSM	.19	.85	1.61	.99	3.38	3.07	3.60	1.45	.18	1.64	1.39	.14
IN.	.21	.95	1.85	1.15	3.64	3.54	4.02	1.67	.20	1.89	1.60	.16
CAL YR 1983	TOTAL	124265	MEAN 340	MAX 4620	MIN 42	CFSM .99	IN 13.44					
WTR YR 1984	TOTAL	193040	MEAN 527	MAX 7330	MIN 41	CFSM 1.53	IN 20.88					

## 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 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.--Records good. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 20.5 mi upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--58 years, 388 ft<sup>3</sup>/s, 11.95 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, 11,700 ft<sup>3</sup>/s Mar. 30, gage height, 21.56 ft; minimum, 60 ft<sup>3</sup>/s Oct. 6, Nov. 1, 2, gage height, 0.73 ft; minimum daily, 61 ft<sup>3</sup>/s Nov. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	61	292	344	411	419	2680	710	341	426	100	78
2	66	66	169	331	392	396	1400	423	215	820	97	76
3	65	74	110	253	388	384	1380	585	152	815	99	76
4	62	74	317	236	400	374	1790	892	119	358	899	84
5	62	74	1570	284	440	328	3750	1610	114	102	2480	99
6	64	73	1290	338	521	482	2830	1060	112	97	2280	84
7	66	72	436	319	472	487	1540	961	110	254	1220	80
8	65	70	392	236	432	436	1460	925	107	824	181	78
9	64	70	370	193	415	432	1440	1810	105	730	423	76
10	64	97	364	344	408	408	831	1490	100	155	600	76
11	68	130	353	833	408	392	463	620	99	231	1070	78
12	75	121	378	1260	408	378	436	234	97	91	1960	78
13	76	112	1160	962	408	487	419	292	94	87	1020	78
14	86	91	1780	404	2250	745	620	400	93	84	1140	78
15	80	93	1190	400	8630	590	1830	292	94	81	1580	83
16	75	161	360	381	7480	506	2160	536	90	80	1290	86
17	74	181	338	304	3260	1420	2030	806	90	369	176	80
18	72	154	322	231	1460	1180	1840	690	91	1360	130	78
19	70	107	316	396	1360	191	1780	212	90	1850	132	75
20	74	97	310	381	1360	165	1390	193	87	1050	117	73
21	80	165	222	384	1350	219	610	188	87	419	107	68
22	80	161	477	360	1240	423	710	186	87	2390	102	68
23	99	136	1720	246	440	400	2910	198	87	1560	93	67
24	165	114	1660	210	1280	384	3380	694	90	1420	91	69
25	156	1100	674	260	1740	1000	2000	526	93	1380	90	69
26	126	2820	378	419	1330	3030	1740	287	93	722	87	68
27	90	1640	165	472	360	2270	298	193	88	260	84	68
28	75	1460	210	1330	404	2860	670	146	84	344	83	74
29	69	1280	1440	388	454	8900	917	222	93	276	81	76
30	65	347	1660	183	---	10900	896	896	193	140	81	76
31	62	---	548	353	---	6380	---	750	---	104	80	---
TOTAL	2463	11201	20971	13035	39901	46966	46200	19027	3395	18879	17973	2297
MEAN	79.5	373	676	420	1376	1515	1540	614	113	609	580	76.6
MAX	165	2820	1780	1330	8630	10900	3750	1810	341	2390	2480	99
MIN	62	61	110	183	360	165	298	146	84	80	80	67
CFSM	.18	.85	1.53	.95	3.12	3.44	3.49	1.39	.26	1.38	1.32	.17
IN.	.21	.94	1.77	1.10	3.37	3.96	3.90	1.60	.29	1.59	1.52	.19
CAL YR 1983	TOTAL	156772	MEAN 430	MAX 5630	MIN 56	CFSM .98	IN 13.22					
WTR YR 1984	TOTAL	242308	MEAN 662	MAX 10900	MIN 61	CFSM 1.50	IN 20.44					

## 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. Altitude of gage is 43 ft, from topographic map.

REMARKS.--Records good. 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 observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--5 years, 406 ft<sup>3</sup>/s, 11.91 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, 11,100 ft<sup>3</sup>/s Mar. 30, gage height, 21.28 ft; minimum, 55 ft<sup>3</sup>/s Nov. 2, gage height, 2.69 ft; minimum daily, 57 ft<sup>3</sup>/s Nov. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	57	365	420	481	531	3770	776	551	292	112	92
2	64	57	220	390	451	501	1880	531	284	708	108	90
3	62	69	158	315	443	481	1500	593	212	750	104	88
4	61	72	306	261	453	472	1630	838	150	493	610	96
5	59	69	1420	294	501	413	3680	1430	137	119	2390	113
6	59	68	1490	383	589	601	3540	1230	130	96	2460	98
7	63	68	569	377	549	621	1850	939	124	123	1550	93
8	61	67	481	270	491	561	1550	919	120	689	301	89
9	59	66	443	217	470	559	1440	1550	118	698	382	87
10	60	110	424	350	462	511	1010	1610	112	238	716	87
11	63	146	413	1010	466	491	601	746	107	262	935	88
12	72	125	434	1190	468	470	563	358	99	95	1720	88
13	74	118	1020	1230	462	642	547	320	98	83	1180	88
14	89	97	1840	505	1480	959	746	455	94	81	1140	89
15	77	97	1500	483	6920	757	1810	439	94	76	1550	90
16	73	169	476	453	8280	641	2460	436	90	75	1640	98
17	69	206	403	394	4350	1250	2440	770	90	233	319	89
18	67	184	379	254	2170	1400	2110	742	92	1070	190	84
19	66	126	363	445	1560	316	1820	296	89	1820	183	83
20	69	102	356	443	1350	214	1610	218	84	1260	201	81
21	78	178	281	439	1320	251	772	210	82	355	151	74
22	77	197	446	403	1250	525	723	202	82	2160	136	72
23	105	158	1620	304	585	511	2440	212	78	1680	125	70
24	174	129	1740	226	1170	479	3930	570	80	1370	117	74
25	166	877	938	301	1800	944	2510	621	88	1290	112	75
26	137	2880	466	477	1550	3390	2040	361	86	902	107	75
27	90	2200	245	551	537	3070	626	339	83	301	104	72
28	74	1600	234	1240	521	2890	634	195	80	365	101	80
29	66	1380	1310	581	581	7870	882	276	84	340	99	86
30	61	493	1730	257	---	10600	871	1040	171	173	99	86
31	58	---	818	372	---	7710	---	895	---	120	95	---
TOTAL	2420	12165	22888	14835	41710	50631	51985	20117	3789	18317	19037	2575
MEAN	78.1	406	738	479	1438	1633	1733	649	126	591	614	85.8
MAX	174	2880	1840	1240	8280	10600	3930	1610	551	2160	2460	113
MIN	58	57	158	217	443	214	547	195	78	75	95	70
CFSM	.17	.88	1.59	1.03	3.11	3.53	3.74	1.40	.27	1.28	1.33	.19
IN.	.19	.98	1.84	1.19	3.35	4.07	4.18	1.62	.30	1.47	1.53	.21
CAL YR 1983	TOTAL	176770	MEAN 484	MAX 5000	MIN 51	CFSM 1.05	IN 14.20					
WTR YR 1984	TOTAL	260469	MEAN 712	MAX 10600	MIN 57	CFSM 1.54	IN 20.92					

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 National Geodetic Vertical Datum of 1929 (levels by La Prade Bros., Engineers).

REMARKS.--Records good except those for period of no gage-height record, Oct. 14 to Nov. 17, which are fair. Frequent quarry dewatering by the General Crushed Stone Co. above gage adds about 0.5 ft<sup>3</sup>/s at times. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--23 years, 100 ft<sup>3</sup>/s, 12.69 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 above base 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. 26	2130	917	4.81	Apr. 5	2330	774	4.57
Feb. 15	2100	1820	5.84	Apr. 16	0700	917	4.81
Mar. 27	0630	1520	5.55	Apr. 24	0800	973	4.89
Mar. 30	0100	*3470	7.14				

Minimum discharge, 1.1 ft<sup>3</sup>/s Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	11	79	152	140	148	439	134	211	33	44	22
2	2.5	10	67	114	127	126	282	121	141	62	40	21
3	2.2	9.5	60	92	118	113	208	115	98	88	37	20
4	1.9	9.5	101	92	118	105	249	117	75	56	54	20
5	1.5	10	184	90	140	100	640	166	59	40	179	20
6	1.3	10	213	90	196	144	655	191	54	32	121	18
7	1.3	11	171	90	199	192	350	256	50	28	75	17
8	1.7	12	135	79	160	175	233	259	46	25	54	16
9	2.1	14	112	79	136	155	182	202	42	23	50	15
10	1.6	50	93	92	129	133	159	159	39	21	182	14
11	1.5	120	81	455	127	121	145	128	34	22	240	14
12	2.1	70	78	403	125	111	134	109	31	22	240	14
13	3.1	45	197	305	122	159	130	96	27	21	322	13
14	7.5	35	281	172	349	419	224	90	25	21	199	13
15	5.0	40	238	144	1310	370	675	81	23	21	322	14
16	5.5	180	150	131	1260	253	880	73	22	20	166	14
17	6.0	100	111	123	408	185	751	64	22	23	134	17
18	4.0	101	92	113	253	150	530	59	22	185	107	17
19	3.0	78	80	111	195	130	282	59	22	202	84	17
20	2.5	58	73	95	143	122	214	57	21	156	62	17
21	5.5	83	68	85	114	122	179	54	20	169	50	15
22	7.0	107	130	78	110	134	188	51	20	154	41	14
23	50	108	330	75	117	134	635	50	19	119	37	14
24	140	86	335	73	378	121	924	71	19	100	34	13
25	110	249	169	119	477	220	515	75	20	77	30	12
26	70	709	120	172	280	892	272	75	19	61	28	12
27	45	690	113	194	173	1400	208	138	19	68	26	11
28	25	239	117	174	158	858	174	105	19	59	24	12
29	15	135	404	142	163	2400	154	105	20	54	24	14
30	12	98	382	123	---	2750	143	249	21	51	24	14
31	11	---	230	133	---	1000	---	275	---	47	23	---
TOTAL	549.5	3478.0	4994	4390	7725	13442	16754	3784	1260	2060	3053	464
MEAN	17.7	116	161	142	266	434	358	122	42.0	66.5	98.5	15.5
MAX	140	709	404	455	1310	2750	924	275	211	202	322	22
MIN	1.3	9.5	60	73	110	100	130	50	19	20	23	11
CFSM	.17	1.08	1.51	1.33	2.49	4.06	3.35	1.14	.39	.62	.92	.15
IN.	.19	1.21	1.74	1.53	2.69	4.67	3.74	1.32	.44	.72	1.06	.16

CAL YR 1983	TOTAL	41303.43	MEAN 113	MAX 1140	MIN .51	CFSM 1.06	IN 14.36
WTR YR 1984	TOTAL	55953.50	MEAN 153	MAX 2750	MIN 1.3	CFSM 1.43	IN 19.45



## YORK RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Since 1966, diversion 150 ft above 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 above station. Several observations 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, 368 ft<sup>3</sup>/s, 12.68 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 above 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 above base 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. 17	1700	5290	14.42	Apr. 16	1230	2430	9.01
Mar. 29	0730	*5550	14.79	Apr. 24	0130	2440	9.03
Apr. 7	1300	2400	8.94	Aug. 12	2400	2210	8.50

Minimum discharge, 15 ft<sup>3</sup>/s Oct. 10-11, gage height, 1.28 ft.

DISCHARGE, IN CURIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	65	342	447	450	613	5120	510	521	193	185	90
2	34	59	252	385	354	501	3510	463	386	167	166	86
3	23	56	215	353	306	447	1010	432	307	286	150	79
4	19	54	509	312	324	419	1110	473	264	176	389	76
5	19	54	1080	306	458	415	2140	933	221	152	538	78
6	22	54	1050	284	802	625	2310	841	203	137	622	89
7	23	54	700	271	895	746	2380	1060	192	118	346	95
8	20	54	645	253	586	641	1290	1050	178	138	223	84
9	18	54	426	242	446	551	792	767	166	303	184	77
10	16	90	326	361	398	479	657	868	154	209	168	75
11	16	289	278	1350	401	430	579	661	142	157	686	76
12	20	745	291	1200	399	390	530	502	134	137	1370	75
13	21	341	838	648	386	620	497	421	125	125	1070	75
14	34	198	1610	460	1550	1310	874	370	119	110	636	83
15	29	167	1280	427	3370	1210	2010	324	119	94	710	86
16	32	323	605	410	4000	950	2340	295	109	87	647	79
17	26	848	421	357	5090	690	2380	274	110	89	352	74
18	25	445	326	340	4320	559	2030	260	113	637	252	66
19	36	245	277	376	1380	483	967	252	121	752	212	63
20	34	185	244	337	701	441	747	244	119	378	189	58
21	42	372	250	283	559	467	641	230	113	301	264	57
22	54	731	549	245	465	602	829	217	101	436	206	55
23	94	467	1260	246	542	621	2250	221	94	1310	164	53
24	292	288	1450	286	1360	484	2400	357	90	1010	145	53
25	711	1220	735	527	1870	930	2370	541	95	504	131	51
26	426	2000	392	542	1150	2970	1450	342	94	414	121	50
27	225	2000	300	672	664	2740	809	686	92	396	111	50
28	155	1900	536	613	644	3310	667	384	91	338	104	54
29	111	591	1160	466	653	5070	574	444	268	354	99	56
30	86	439	1340	391	---	4680	535	1440	253	251	97	63
31	74	---	673	444	---	4700	---	871	---	209	94	---
TOTAL	2774	14388	20360	13834	34523	39094	45798	16733	5094	9968	10631	2106
MEAN	89.5	480	657	446	1190	1261	1527	540	170	322	343	70.2
MAX	711	2000	1610	1350	5090	5070	5120	1440	521	1310	1370	95
MIN	16	54	215	242	306	390	497	217	90	87	94	50
CFSM	.23	1.22	1.67	1.13	3.02	3.20	3.88	1.37	.43	.82	.87	.18
IN.	.26	1.36	1.92	1.31	3.26	3.69	4.32	1.58	.48	.94	1.00	.20

CAL YR 1983 TOTAL 146021.4 MEAN 400 MAX 2920 MIN 3.9 CFSM 1.02 IN 13.79  
WTR YR 1984 TOTAL 215303.0 MEAN 588 MAX 5120 MIN 16 CFSM 1.49 IN 20.33

## YORK RIVER BASIN

111

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 National Geodetic Vertical Datum of 1929. Prior to Oct. 15, 1976, nonrecording gage at same site and datum, and since June 11, 1957, auxiliary nonrecording gage 1.2 mi downstream from base gage.

REMARKS.--Records good except those for period of no gage-height record, July 13 to Sept. 6, 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 above station. Unknown amount of diversion for irrigation above gage.

AVERAGE DISCHARGE.--43 years, 1,011 ft<sup>3</sup>/s, 12.70 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, 15,000 ft<sup>3</sup>/s Mar. 31, gage height, 24.16 ft; minimum, 87 ft<sup>3</sup>/s Oct. 6-7, gage height, 2.58 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	189	1120	1490	1340	1690	11900	1960	2570	640	440	218
2	121	170	850	1150	1240	1480	9680	1610	1500	951	405	205
3	118	157	641	1050	1110	1320	7560	1440	1060	1290	395	204
4	109	168	775	876	1090	1230	5480	1710	833	1220	900	200
5	96	162	2160	872	1210	1160	5110	2280	700	614	1840	210
6	88	152	3540	960	1620	1560	6530	3330	620	375	3850	220
7	87	155	2590	952	2020	2020	7270	2850	571	321	2500	202
8	93	157	1640	850	1700	1880	6450	2940	523	603	1500	202
9	92	149	1330	742	1360	1690	4990	2830	481	1060	700	198
10	89	203	1100	759	1230	1490	3450	3460	440	989	950	191
11	88	461	981	3020	1200	1340	2050	2690	396	550	1900	187
12	99	878	942	3520	1220	1240	1710	1610	362	441	3200	189
13	113	935	1680	3420	1190	1450	1580	1140	340	315	3900	189
14	138	583	3490	1930	1870	3420	2020	1170	315	270	2620	189
15	158	437	4130	1410	4890	3380	3610	1180	300	242	2890	193
16	146	573	2760	1300	8900	2790	4990	911	293	225	3450	196
17	129	972	1360	1190	10700	2380	6180	1300	276	218	1700	198
18	117	1210	1070	1020	9730	2900	6620	1350	283	1000	570	189
19	106	754	949	1120	8010	1820	6150	1080	281	2200	480	182
20	114	529	869	1170	5780	1110	4980	739	278	1400	450	178
21	129	610	818	1050	3650	1110	3220	697	263	1130	560	173
22	147	957	938	941	2530	1410	2080	658	249	2100	500	162
23	184	1170	2580	939	1760	1630	3910	630	231	4000	430	155
24	442	783	3860	781	2700	1440	5750	921	219	3500	355	154
25	792	1370	3490	1140	4010	2020	7330	1500	225	2550	335	154
26	1060	3850	1520	1550	4460	4920	6970	1260	230	1900	315	152
27	671	4750	964	1700	3100	7240	5570	1390	216	1120	290	149
28	440	5230	892	2030	1790	7990	2890	1480	212	970	263	149
29	325	4660	2290	2100	1830	10100	2190	1080	272	960	255	159
30	248	2430	3780	1180	---	13700	2050	3170	589	760	257	167
31	206	---	3300	1090	---	14500	---	3970	---	600	233	---
TOTAL	6854	34804	58409	43302	93240	103410	150270	54336	15128	34514	38433	5514
MEAN	221	1160	1884	1397	3215	3336	5009	1753	504	1113	1240	184
MAX	1060	5230	4130	3520	10700	14500	11900	3970	2570	4000	3900	220
MIN	87	149	641	742	1090	1110	1580	630	212	218	233	149
CFSM	.20	1.07	1.74	1.29	2.97	3.09	4.63	1.62	.47	1.03	1.15	.17
IN.	.24	1.20	2.01	1.49	3.21	3.56	5.17	1.87	.52	1.19	1.32	.19

CAL YR 1983 TOTAL 442343 MEAN 1212 MAX 8300 MIN 70 CFSM 1.12 IN 15.22  
WTR YR 1984 TOTAL 638214 MEAN 1744 MAX 14500 MIN 87 CFSM 1.61 IN 21.96

## 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 TEMPERATURES: October 1945 to September 1946, April 1968 to January 1976.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 21...	1330	620	100	6.6	10.5	755	6.2	10.2	92	K100	360
JAN 11...	0815	2820	63	6.8	2.0	760	95	13.2	96	K2900	K2600
MAR 23...	0800	1650	65	7.9	9.5	760	7.5	7.0	61	K39	210
MAY 15...	0815	1170	65	7.0	17.0	758	6.6	8.8	92	54	15
JUN 26...	0830	231	111	7.1	23.0	753	2.6	6.5	77	21	36
JUL 12...	0830	490	73	7.2	25.0	752	4.6	6.2	76	--	--
AUG 07...	0800	3500	55	6.7	25.0	754	10	6.8	83	50	560
SEP 06...	1130	214	128	6.6	21.0	772	1.4	8.0	89	--	--
21...	0900	173	118	7.2	17.0	755	1.0	7.8	81	--	--

K Result based on colony count outside optimal range.

DATE	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)	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 SI02)
NOV 21...	24	7	5.7	2.3	8.4	2.6	17	23	7.1	<.10	12
JAN 11...	17	6	3.9	1.8	4.6	2.2	11	13	5.1	<.10	9.0
MAR 23...	18	5	3.9	1.9	4.7	1.5	13	11	5.1	<.10	9.9
MAY 15...	19	3	4.3	2.1	4.4	1.4	16	9.0	3.5	.10	11
JUN 26...	29	3	6.8	2.8	9.9	2.0	26	19	5.0	.10	11
JUL 12...	--	--	--	--	--	--	17	--	--	--	11
AUG 07...	16	5	3.2	1.9	3.2	1.9	11	9.5	3.1	<.10	8.5
SEP 06...	--	--	--	--	--	--	27	--	--	--	13
21...	--	--	--	--	--	--	30	--	--	--	11

&lt; Actual value is known to be less than the value shown.

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	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)	ARSENIC DIS- SOLVED (UG/L AS AS)
NOV 21...	78	72	--	.18	<.010	1.0	.050	.030	.010	30	<1
JAN 11...	62	46	--	.40	.140	1.5	.280	.070	.040	--	--
MAR 23...	46	46	--	.20	<.010	.40	.040	.030	<.010	20	<1
MAY 15...	48	46	--	.23	<.010	2.8	.040	<.010	<.010	20	<1
JUN 26...	98	72	--	.36	.040	.70	.050	.040	.030	--	--
JUL 12...	--	--	<.010	.23	<.010	.30	.040	--	.020	--	--
AUG 07...	48	38	<.010	.13	<.010	.50	<.010	<.010	<.010	10	<1
SEP 06...	--	--	<.010	.22	.020	.30	.030	--	.070	--	--
21...	--	--	<.010	.16	.020	.60	.030	.020	.020	--	--

&lt; Actual value is known to be less than the value shown.

DATE	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)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)
NOV 21...	42	<.5	<1	<1	<3	1	310	1	<4	54	<.1
JAN 11...	--	--	--	--	--	--	--	--	--	--	--
MAR 23...	30	.7	<1	<1	<3	2	210	5	<4	24	<.1
MAY 15...	32	<1	1	<1	<3	4	370	1	<4	31	.4
JUN 26...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	30	<.0	<1	3	<3	3	270	5	<4	10	.1
SEP 06...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--

&lt; Actual value is known to be less than the value shown.

DATE	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SILVER, 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
NOV 21...	<10	1	<1	<1	36	<6	8	--	10	95
JAN 11...	--	--	--	--	--	--	--	--	156	93
MAR 23...	<10	2	<1	<1	27	<6	13	--	26	82
MAY 15...	<10	3	<1	<1	33	<6	13	--	13	96
JUN 26...	--	--	--	--	--	--	--	--	7	91
JUL 12...	--	--	--	--	--	--	--	3.7	8	76
AUG 07...	<10	<1	<1	<1	30	<6	8	5.2	16	63
SEP 06...	--	--	--	--	--	--	--	3.8	--	--
21...	--	--	--	--	--	--	--	3.2	2	65

&lt; Actual value is known to be less than the value shown.



## 01673550 TOTOPOTOMOY CREEK NEAR STUDLEY, VA

LOCATION.--Lat 37°29'44", 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--7 years, 32.0 ft<sup>3</sup>/s, 16.59 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 689 ft<sup>3</sup>/s Mar. 29, 1984; 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 above base 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)
Mar. 14	1200	168	5.83	Apr. 15	0900	220	5.82
Mar. 26	0600	539	7.70	Apr. 24	0200	265	6.20
Mar. 29	1500	*689	8.20	May 28	1400	201	5.64
Apr. 5	2000	182	5.45	May 31	0700	302	6.47

Minimum discharge, 6.3 ft<sup>3</sup>/s Sept. 26, gage height, 2.40 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	10	21	28	38	41	134	55	145	60	16	9.5
2	11	10	20	25	34	35	108	52	69	52	16	9.1
3	9.4	10	19	24	32	32	94	51	52	30	15	8.8
4	7.5	11	42	24	38	30	112	55	42	22	19	8.8
5	7.1	11	54	25	41	34	175	51	37	18	29	8.9
6	8.6	11	42	25	45	78	165	52	33	18	25	9.1
7	10	11	41	24	41	82	108	60	31	18	20	8.9
8	12	10	36	23	35	62	85	55	29	17	16	8.4
9	8.6	10	29	22	32	50	75	48	27	15	14	7.5
10	7.3	22	25	28	30	42	70	44	24	15	14	7.0
11	7.1	35	22	137	30	38	66	40	22	16	36	7.4
12	11	24	25	100	32	35	63	37	21	16	36	7.6
13	14	18	70	75	35	75	61	36	19	15	26	7.8
14	30	15	63	48	100	150	125	34	18	13	32	8.8
15	29	16	42	41	129	110	209	32	18	12	70	15
16	18	27	31	36	97	79	169	30	19	12	40	13
17	14	26	27	34	61	55	116	30	19	12	23	12
18	12	21	24	39	48	50	86	29	20	15	28	10
19	10	18	23	49	41	44	73	29	19	19	41	8.9
20	11	17	22	40	37	40	67	28	18	25	52	8.4
21	13	27	21	35	34	46	63	26	16	26	36	8.2
22	13	31	35	30	32	51	79	25	15	33	28	7.8
23	20	24	50	29	38	44	209	25	13	35	20	7.6
24	32	21	38	29	63	37	222	37	12	24	17	7.4
25	31	63	26	68	62	141	111	36	14	20	15	7.2
26	20	90	23	72	44	499	84	28	13	20	13	6.9
27	17	50	22	52	37	388	73	61	12	23	12	7.0
28	15	32	35	44	48	293	66	186	16	31	11	8.6
29	13	26	57	38	48	612	60	104	36	27	11	11
30	11	22	41	35	---	426	58	197	67	21	11	13
31	11	---	32	38	---	245	---	281	---	18	9.7	---
TOTAL	443.6	719	1058	1317	1382	3944	3186	1854	896	698	751.7	269.6
MEAN	14.3	24.0	34.1	42.5	47.7	127	106	59.8	29.9	22.5	24.2	8.99
MAX	32	90	70	137	129	612	222	281	145	60	70	15
MIN	7.1	10	19	22	30	30	58	25	12	12	9.7	6.9
CFSM	.55	.92	1.30	1.62	1.82	4.85	4.05	2.28	1.14	.86	.92	.34
IN.	.63	1.02	1.50	1.87	1.96	5.60	4.52	2.63	1.27	.99	1.07	.38

CAL YR 1983 TOTAL 10865.40 MEAN 29.8 MAX 314 MIN .72 CFSM 1.14 IN 15.43  
WTR YR 1984 TOTAL 16518.90 MEAN 45.1 MAX 612 MIN 6.9 CFSM 1.72 IN 23.45

## 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 National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1964, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--22 years, 77.9 ft<sup>3</sup>/s, 13.67 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 above base 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. 26	1400	1320	8.72	Apr. 5	1830	1490	9.19
Feb. 15	1530	2530	11.53	Apr. 24	0430	1470	9.15
Mar. 27	0700	1160	8.28	July 22	1400	1040	7.89
Mar. 29	2000	*3530	13.02				

Minimum discharge, 0.76 ft<sup>3</sup>/s Oct. 3-5, gage height, 1.26 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	6.4	71	118	99	109	221	92	54	97	37	13
2	2.2	5.5	59	83	81	90	143	83	46	144	33	12
3	1.1	5.6	50	74	75	81	129	80	37	67	41	11
4	.76	5.3	127	69	94	74	259	253	30	44	124	11
5	.79	5.7	316	68	128	75	1090	312	25	28	220	13
6	.82	6.1	134	68	219	105	887	149	23	28	134	14
7	1.8	6.3	133	68	151	119	345	270	22	29	64	12
8	1.3	6.9	103	61	109	97	181	202	21	70	42	11
9	.97	7.7	81	55	91	89	138	392	19	37	33	10
10	.91	29	71	62	85	81	120	241	17	24	31	9.7
11	1.0	110	63	223	83	75	109	132	15	22	49	10
12	1.9	80	79	208	82	70	99	103	14	22	265	10
13	2.6	42	292	126	80	97	93	90	13	18	410	10
14	5.9	25	360	93	400	231	112	77	13	15	602	10
15	3.1	28	147	91	1860	214	340	66	15	12	274	12
16	3.8	159	102	84	827	150	472	58	14	39	133	11
17	4.0	149	86	84	224	114	675	54	15	647	73	11
18	2.6	64	76	72	160	97	261	51	14	484	.53	9.7
19	1.7	41	68	74	133	88	162	51	14	394	43	8.4
20	1.6	31	64	70	110	82	129	48	13	124	37	8.1
21	4.2	131	52	68	94	91	112	41	11	414	30	7.5
22	4.8	144	167	66	83	130	139	37	9.7	877	24	6.9
23	37	68	480	65	93	101	795	36	8.4	264	22	6.9
24	151	50	211	70	273	83	1030	48	7.5	129	21	6.6
25	117	425	119	78	217	154	253	46	8.1	81	19	6.9
26	54	1080	97	141	131	739	162	37	7.5	59	17	7.2
27	28	289	76	166	101	957	130	40	7.5	89	16	6.0
28	16	111	103	137	112	589	112	45	14	94	15	8.1
29	9.3	97	356	106	147	2770	101	53	141	62	14	15
30	6.7	89	259	94	---	2460	96	81	113	48	14	18
31	6.6	---	139	107	---	544	---	78	---	42	14	---
TOTAL	474.95	3297.5	4541	2949	6342	10756	8895	3346	761.7	4504	2904	306.0
MEAN	15.3	110	146	95.1	219	347	297	108	25.4	145	93.7	10.2
MAX	151	1080	480	223	1860	2770	1090	392	141	877	602	18
MIN	.76	5.3	50	55	75	70	93	36	7.5	12	14	6.0
CFSM	.20	1.42	1.89	1.23	2.83	4.48	3.84	1.40	.33	1.87	1.21	.13
IN.	.23	1.58	2.18	1.42	3.05	5.17	4.28	1.61	.37	2.16	1.40	.15

CAL YR 1983 TOTAL 36697.46 MEAN 101 MAX 2020 MIN .59 CFSM 1.31 IN 17.64  
WTR YR 1984 TOTAL 49077.15 MEAN 134 MAX 2770 MIN .76 CFSM 1.73 IN 23.59

## 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 National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1978, gage located on left bank at same datum.

REMARKS.--Records good. Some diurnal fluctuation from gristmill upstream on Po River. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--42 years, 242 ft<sup>3</sup>/s, 12.79 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 above base 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. 16	2300	3300	11.36	Apr. 6	2400	2620	10.57
Mar. 27	2200	3470	11.56	Apr. 25	0700	2460	10.38
Mar. 30	1200	*7470	15.16				

Minimum discharge, 3.1 ft<sup>3</sup>/s Oct. 10, gage height, 1.38 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	27	298	688	367	407	2960	379	270	250	135	38
2	8.8	41	236	425	321	373	1490	344	214	217	120	32
3	7.4	43	196	320	290	315	925	314	174	266	107	29
4	6.4	20	227	278	292	277	712	311	142	260	130	42
5	5.5	15	347	266	323	260	851	325	121	162	236	52
6	5.4	14	458	259	383	315	2010	447	105	150	326	43
7	4.3	15	533	248	450	395	2300	533	94	152	324	39
8	3.6	15	437	226	447	408	1430	522	85	122	215	33
9	3.4	15	345	210	370	379	884	553	77	130	145	28
10	3.2	23	280	210	314	336	635	557	70	101	165	25
11	3.4	103	232	393	283	296	513	613	61	88	225	25
12	7.0	152	212	519	273	269	447	511	53	74	220	25
13	14	152	312	642	261	282	401	373	47	62	337	28
14	18	113	481	493	350	435	421	293	46	51	469	30
15	22	80	752	383	655	574	607	248	70	43	830	36
16	21	118	729	321	2520	645	975	216	66	36	1020	31
17	16	206	486	289	2660	557	1400	194	55	92	723	28
18	13	236	334	278	1260	446	1600	180	52	352	406	25
19	13	190	262	254	734	368	1250	172	49	671	236	23
20	13	130	226	245	540	321	801	167	43	835	190	20
21	18	142	202	245	433	316	593	157	38	747	152	18
22	24	215	246	235	356	349	501	143	33	648	120	17
23	47	248	410	225	312	356	638	135	26	949	99	15
24	165	217	635	216	379	328	1460	158	24	1090	87	14
25	230	308	788	230	506	381	2300	162	23	648	76	14
26	226	484	583	287	618	934	1370	146	23	350	66	14
27	173	1080	363	359	515	2810	798	134	21	248	58	14
28	111	1500	297	442	416	3280	585	143	19	230	50	17
29	70	822	429	446	411	4260	481	156	36	228	46	25
30	47	446	607	381	---	7170	419	235	212	196	44	38
31	32	---	880	370	---	5590	---	305	---	158	42	---
TOTAL	1338.0	7170	12823	10383	17039	33432	31757	9126	2349	9606	7399	818
MEAN	43.2	239	414	335	588	1078	1059	294	78.3	310	239	27.3
MAX	230	1500	880	688	2660	7170	2960	613	270	1090	1020	52
MIN	3.2	14	196	210	261	260	401	134	19	36	42	14
CFSM	.17	.93	1.61	1.30	2.29	4.20	4.12	1.14	.31	1.21	.93	.11
IN.	.19	1.04	1.86	1.50	2.47	4.84	4.60	1.32	.34	1.39	1.07	.12

CAL YR 1983	TOTAL	110506.1	MEAN 303	MAX 3920	MIN 1.2	CFSM 1.18	IN 16.00
WTR YR 1984	TOTAL	143240.0	MEAN 391	MAX 7170	MIN 3.2	CFSM 1.52	IN 20.73

## YORK RIVER BASIN

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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 Maracossic 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 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.--Records good. Diurnal fluctuation at times during low flow caused by gristmill on Po River.

AVERAGE DISCHARGE.--43 years, 598 ft<sup>3</sup>/s, 13.51 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, 9,960 ft<sup>3</sup>/s Apr. 1, gage height, 20.49 ft; minimum, 33 ft<sup>3</sup>/s Oct. 10, gage height, 2.21 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	140	1530	1130	953	1160	9810	1720	2150	567	435	177
2	82	122	1420	1240	883	1020	9310	1350	1790	711	383	167
3	69	108	698	1260	790	902	7320	1130	1280	922	350	156
4	58	102	572	969	741	786	5350	1030	948	843	406	147
5	51	120	730	716	740	694	4160	1020	763	651	435	153
6	52	111	849	647	796	793	3360	1080	563	479	529	161
7	48	101	946	612	847	972	2900	1200	485	364	622	167
8	41	98	982	573	881	1060	2840	1330	434	343	601	150
9	36	97	972	528	918	1120	3230	1440	381	321	474	139
10	35	128	826	510	857	1110	3310	1430	345	287	352	133
11	36	279	643	958	760	994	2870	1340	315	292	347	131
12	48	334	550	1330	698	838	2330	1240	295	279	487	127
13	89	362	720	1420	656	806	1890	1190	276	249	643	128
14	160	332	990	1470	699	1200	1660	1070	258	221	1030	134
15	187	310	1150	1510	1070	1540	1710	805	240	199	1270	150
16	157	360	1210	1360	1410	1610	1890	649	228	182	1270	156
17	115	390	1290	994	1590	1620	2080	572	246	186	1420	152
18	93	420	1330	775	1860	1590	2270	523	252	361	1480	141
19	79	432	1140	790	2500	1470	2530	501	242	961	1380	126
20	72	411	712	684	2930	1210	2790	484	225	1440	868	117
21	88	446	542	651	2530	979	2780	459	208	1780	558	115
22	112	471	562	633	1890	962	2520	424	189	1990	464	109
23	145	473	734	648	1240	990	2310	397	177	2070	364	101
24	286	469	885	622	960	939	2240	479	174	2070	314	97
25	395	631	1030	683	1010	1070	2220	546	198	1970	282	92
26	439	940	1140	808	1090	2020	2320	489	186	1810	257	89
27	400	1130	950	838	1180	3310	2770	720	161	1690	236	85
28	340	1210	600	889	1280	3720	3060	1090	142	1220	216	98
29	268	1260	620	929	1300	5220	2720	1080	181	685	201	129
30	204	1370	760	957	---	7720	2190	1550	285	549	193	153
31	167	---	930	987	---	8920	---	2200	---	494	186	---
TOTAL	4427	13157	28013	28121	35059	58345	98740	30538	13617	26186	18053	3980
MEAN	143	439	904	907	1209	1882	3291	985	454	845	582	133
MAX	439	1370	1530	1510	2930	8920	9810	2200	2150	2070	1480	177
MIN	35	97	542	510	656	694	1660	397	142	182	186	85
CFSM	.24	.73	1.50	1.51	2.01	3.13	5.48	1.64	.76	1.41	.97	.22
IN.	.27	.81	1.73	1.74	2.17	3.61	6.11	1.89	.84	1.62	1.12	.25
CAL YR 1983	TOTAL	260461	MEAN 714	MAX 4660	MIN 12	CFSM 1.19	IN 16.12					
WTR YR 1984	TOTAL	358236	MEAN 979	MAX 9810	MIN 35	CFSM 1.63	IN 22.17					



## YORK RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 21...	1045	453	60	6.4	10.0	755	8.6	10.6	95	700	1200
JAN 10...	1100	491	43	6.5	1.0	761	29	13.1	92	190	K3200
MAR 23...	1000	993	45	7.5	12.0	760	2.2	8.2	76	K16	230
MAY 07...	0930	1180	42	6.3	17.0	758	3.0	7.7	80	K20	300
JUN 26...	1100	189	41	6.8	22.5	754	4.6	7.1	83	64	160
JUL 12...	1130	282	45	6.9	25.0	752	--	7.5	92	--	--
AUG 07...	0930	618	40	6.4	24.5	752	4.3	6.7	82	42	390
SEP 06...	0900	156	49	6.8	20.0	772	2.3	7.4	80	--	--
21...	1030	115	48	6.7	17.0	755	2.8	8.2	86	--	--

K Result based on colony count outside optimal range.

DATE	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)	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)
NOV 21...	14	9	3.2	1.5	4.0	2.2	5.0	14	6.7	<.10	10
JAN 10...	12	4	2.7	1.2	3.0	1.3	8.0	9.0	4.0	<.10	7.6
MAR 23...	11	5	2.4	1.3	3.4	1.1	6.0	7.5	5.7	<.10	4.7
MAY 07...	12	5	2.5	1.3	2.7	1.0	7.0	6.0	6.0	.10	5.3
JUN 26...	12	3	2.6	1.4	2.6	.90	9.0	3.9	4.2	<.10	7.0
JUL 12...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	15	4	3.2	1.6	3.4	1.3	11	3.7	4.8	<.10	9.8
SEP 06...	--	--	--	--	--	--	12	--	--	--	9.4
21...	--	--	--	--	--	--	11	--	--	--	7.7

&lt; Actual value is known to be less than the value shown.

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	ARSENIC DIS- SOLVED (UG/L AS AS)
NOV 21...	53	45	--	<.10	.100	.80	.050	.010	<.010	50	<1
JAN 10...	48	34	--	.22	.050	.90	.100	.020	.020	--	--
MAR 23...	38	30	--	.14	<.010	.40	.030	<.010	<.010	40	1
MAY 07...	26	30	--	.12	.240	.70	.040	<.010	<.010	70	1
JUN 26...	--	28	--	.20	.030	1.8	.060	.020	<.010	--	--
JUL 12...	--	--	<.010	.16	<.010	.50	.070	--	.030	--	--
AUG 07...	46	35	<.010	.13	<.010	.60	<.010	<.010	<.010	<10	1
SEP 06...	--	--	<.010	.17	.030	.20	.040	--	<.010	--	--
21...	--	--	<.010	.15	.020	.50	.050	.030	.010	--	--

&lt; Actual value is known to be less than the value shown.

DATE	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)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)
NOV 21...	51	<.5	<1	<1	<3	1	430	2	<4	63	<.1
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
MAR 23...	36	.8	1	<1	<3	1	190	6	<4	55	<.1
MAY 07...	37	<1	<1	3	<3	1	610	<1	<4	85	<.1
JUN 26...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	35	<.0	<1	3	<3	<1	360	3	<4	56	.1
SEP 06...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--

&lt; Actual value is known to be less than the value shown.

DATE	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
NOV 21...	<10	3	<1	<1	22	<6	5	--	15	96
JAN 10...	--	--	--	--	--	--	--	--	50	96
MAR 23...	<10	1	<1	<1	18	<6	8	--	9	83
MAY 07...	<10	1	<1	<1	21	<6	7	--	8	100
JUN 26...	--	--	--	--	--	--	--	--	7	94
JUL 12...	--	--	--	--	--	--	--	7.1	7	56
AUG 07...	<10	1	<1	<1	26	<6	<3	8.4	10	67
SEP 06...	--	--	--	--	--	--	--	7.1	--	--
21...	--	--	--	--	--	--	--	4.3	10	31

&lt; Actual value is known to be less than the value shown.

## YORK RIVER BASIN

01677000 WARE CREEK NEAR TOANO, VA

LOCATION.--Lat 37°20'17", 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. Altitude of gage is 10 ft, from topographic map.

REMARKS.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 111 ft<sup>3</sup>/s May 30, 1984; maximum gage height, 2.30 ft Nov. 3, 1979; no flow at times September 1980 and July to September 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 111 ft<sup>3</sup>/s May 30, gage height, 1.78 ft; minimum daily, 0.31 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.8	4.4	3.6	8.0	5.5	11	11	14	34	9.0	3.5
2	6.0	3.3	4.2	3.8	5.8	5.2	10	10	12	11	8.0	3.6
3	4.0	4.2	5.1	4.6	5.4	5.3	9.6	10	13	7.2	8.0	3.9
4	3.0	4.1	17	4.5	8.8	5.4	17	11	26	6.2	20	19
5	2.5	3.2	10	4.7	14	7.9	27	10	13	5.2	10	11
6	2.3	2.9	7.8	4.9	11	34	16	12	10	4.9	6.5	6.1
7	2.0	2.8	7.9	5.1	8.7	18	13	14	9.3	5.7	5.0	4.8
8	1.6	3.0	5.5	4.9	6.6	12	12	11	9.0	17	4.0	4.2
9	1.2	3.4	4.6	4.6	5.0	12	10	15	8.4	9.0	7.0	4.2
10	.31	13	4.6	9.1	4.7	9.6	9.0	10	7.3	8.2	12	4.2
11	.89	11	4.6	34	4.9	8.7	8.4	9.1	6.6	13	7.0	4.5
12	8.7	4.4	7.5	11	5.8	7.8	8.2	9.0	6.3	8.8	4.4	4.6
13	11	4.0	24	6.7	6.0	16	8.0	8.9	6.2	8.7	10	5.0
14	10	3.4	12	6.0	10	20	19	8.5	5.7	8.6	25	5.5
15	9.1	5.8	7.3	5.7	17	11	18	7.8	8.6	6.8	15	5.7
16	5.5	17	5.9	5.0	10	9.5	25	7.6	7.5	6.0	8.0	4.9
17	3.8	7.8	5.0	4.7	7.6	8.8	16	7.9	7.0	6.6	4.6	4.1
18	3.3	4.9	5.0	9.6	6.4	8.6	13	8.3	7.3	9.8	7.7	3.8
19	3.2	4.0	5.5	20	6.0	8.6	12	8.4	6.8	15	27	3.8
20	3.1	4.4	5.2	9.3	5.9	8.5	12	7.8	6.1	11	9.5	3.9
21	6.2	16	4.7	5.9	5.8	14	11	7.3	5.7	23	6.2	3.7
22	7.8	8.8	10	4.1	5.5	12	14	7.1	5.1	32	5.1	3.4
23	9.2	5.7	9.9	4.1	7.2	9.1	28	8.5	4.9	13	4.9	3.3
24	24	8.7	6.6	7.3	11	8.0	17	17	6.2	8.9	4.9	3.3
25	13	39	4.3	24	7.1	16	13	9.3	8.9	7.9	4.6	3.5
26	9.0	15	3.6	12	5.4	22	12	7.6	7.0	8.2	4.3	3.6
27	5.8	8.0	3.2	7.6	5.7	14	12	7.1	5.8	9.5	4.2	3.3
28	4.1	6.6	8.6	6.2	8.8	25	12	8.0	4.8	9.2	4.0	5.0
29	3.4	5.6	13	5.9	7.7	34	11	18	4.6	9.0	4.0	5.9
30	2.7	4.9	6.7	6.0	---	17	11	71	20	15	4.2	5.5
31	2.8	---	4.1	12	---	13	---	23	---	12	4.1	---
TOTAL	172.00	227.7	227.8	256.9	221.8	406.5	415.2	381.2	263.1	350.4	258.2	150.8
MEAN	5.55	7.59	7.35	8.29	7.65	13.1	13.8	12.3	8.77	11.3	8.33	5.03
MAX	24	39	24	34	17	34	28	71	26	34	27	19
MIN	.31	2.8	3.2	3.6	4.7	5.2	8.0	7.1	4.6	4.9	4.0	3.3
CFSM	.88	1.21	1.17	1.32	1.22	2.08	2.19	1.96	1.39	1.80	1.32	.80
IN.	1.02	1.35	1.35	1.52	1.31	2.40	2.46	2.25	1.56	2.07	1.53	.89
CAL YR 1983	TOTAL	1928.17	MEAN	5.28	MAX	39	MIN	.19	CFSM	.84	IN	11.40
WTR YR 1984	TOTAL	3331.60	MEAN	9.10	MAX	71	MIN	.31	CFSM	1.45	IN	19.70

## SOUTH ATLANTIC SLOPE BASINS

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## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--10 years, 175 ft<sup>3</sup>/s, 15.04 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 above base 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. 14	2015	4250	10.88	Mar. 29	0500	1830	7.86
Feb. 23	2200	1750	7.74	Aug. 12	1615	3240	9.75
Mar. 21	1400	*4430	11.07				

Minimum discharge, 21 ft<sup>3</sup>/s Oct. 6, gage height, 3.03 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	40	168	150	89	293	479	347	85	90	48	75
2	26	38	138	138	85	254	395	299	82	73	61	65
3	24	37	122	128	87	224	342	313	76	55	165	64
4	23	36	558	118	111	203	362	624	73	47	98	71
5	22	34	430	112	129	203	856	520	69	46	90	61
6	22	33	354	107	108	229	654	793	66	76	76	57
7	22	32	359	101	90	229	503	744	64	79	73	54
8	22	31	276	90	80	213	401	665	61	49	96	52
9	22	30	220	83	75	200	339	534	59	44	78	49
10	23	93	185	101	79	183	299	433	57	88	81	48
11	25	170	158	176	143	178	269	359	56	167	218	48
12	38	123	917	114	224	165	237	310	54	92	2310	46
13	36	93	950	100	277	188	213	269	53	69	1600	45
14	39	76	576	91	3690	243	210	237	57	57	1010	44
15	32	81	398	86	1930	249	279	208	54	50	555	46
16	27	115	285	84	948	251	291	186	50	47	362	44
17	24	107	217	81	658	260	293	167	53	45	263	42
18	24	91	177	79	499	251	277	154	53	48	221	41
19	24	81	153	75	407	232	249	145	49	43	193	41
20	27	76	133	65	389	216	224	137	45	40	151	40
21	75	77	118	62	333	2430	203	127	45	374	125	40
22	86	72	472	60	269	1510	446	117	46	288	110	38
23	352	67	519	70	728	831	756	112	46	139	93	38
24	360	85	362	120	1090	584	624	112	57	100	92	37
25	167	271	180	281	839	482	489	101	59	81	82	37
26	108	223	160	191	595	449	383	96	47	72	75	37
27	79	171	140	139	465	371	325	93	44	79	71	37
28	63	185	250	125	433	559	291	96	43	68	68	50
29	54	265	396	115	362	1490	479	114	42	59	65	50
30	47	208	200	107	---	852	407	100	43	55	79	46
31	44	---	170	99	---	609	---	88	---	52	123	---
TOTAL	1967	3041	9741	3448	15212	14631	11575	8600	1688	2672	8732	1443
MEAN	63.5	101	314	111	525	472	386	277	56.3	86.2	282	48.1
MAX	360	271	950	281	3690	2430	856	793	85	374	2310	75
MIN	22	30	118	60	75	165	203	88	42	40	48	37
CFSM	.40	.64	1.99	.70	3.32	2.99	2.44	1.75	.36	.55	1.79	.30
IN.	.46	.72	2.29	.81	3.58	3.44	2.73	2.02	.40	.63	2.06	.34

CAL YR 1983	TOTAL	68033	MEAN 186	MAX 2250	MIN 22	CFSM 1.18	IN 16.02
WTR YR 1984	TOTAL	82750	MEAN 226	MAX 3690	MIN 22	CFSM 1.43	IN 19.48



## JAMES RIVER BASIN

02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: March 1978 to September 1981, October 1982 to current year.

INSTRUMENTATION.--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 TEMPERATURES: Maximum recorded (water years 1978-81, 1983-84), 29.5°C July 21, 1980; minimum recorded (water years 1978-81, 1984), 0.0°C on many days during winter periods.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 27.0°C June 11, 12, 19; minimum, 0.0°C on many days during winter period.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	13.0	12.0	12.5	11.0	7.0	9.0	6.0	4.0	5.0	.0	.0	.0
2	16.5	13.0	14.5	12.0	8.5	10.0	4.5	3.0	4.0	2.0	.0	1.0
3	17.5	14.0	15.5	12.5	10.5	11.5	6.5	4.0	5.5	3.0	2.0	2.0
4	17.5	14.0	16.0	12.0	8.5	10.0	7.0	5.5	6.5	2.5	.0	1.5
5	18.5	15.0	16.5	8.5	6.5	7.0	8.5	7.0	7.5	4.0	2.0	3.0
6	18.5	15.5	17.0	7.5	6.0	6.5	8.5	7.0	8.0	4.0	3.0	3.5
7	16.5	12.5	14.5	7.0	4.5	6.0	7.0	3.5	5.0	4.0	2.0	3.0
8	15.5	11.5	13.5	9.0	5.0	7.0	3.5	2.5	3.0	2.5	.0	1.0
9	16.0	11.5	14.0	9.5	5.0	7.5	5.0	2.5	3.5	3.5	.5	2.0
10	14.5	12.5	13.5	11.5	8.5	10.0	7.0	4.5	6.0	3.0	2.0	2.0
11	14.0	13.0	13.5	10.5	7.0	9.0	6.5	6.0	6.5	2.5	1.0	2.0
12	16.0	13.5	15.0	7.0	4.0	5.5	7.5	6.0	7.0	.5	.0	.0
13	17.5	16.0	16.5	5.0	2.5	4.0	8.5	7.5	8.0	.5	.0	.0
14	15.5	12.5	14.0	6.0	2.5	4.5	8.0	7.0	7.5	2.0	.5	1.0
15	14.5	10.5	12.5	5.5	4.0	5.0	7.5	6.5	7.0	2.5	1.0	2.0
16	14.5	10.5	12.5	6.5	5.5	6.0	6.5	5.0	6.0	2.0	1.0	1.5
17	15.0	11.0	13.0	5.5	5.0	5.0	5.5	3.5	5.0	3.0	2.0	2.0
18	15.5	12.5	14.0	7.0	3.5	5.0	4.0	2.0	3.0	2.0	.0	1.0
19	15.0	14.0	14.5	9.0	5.5	7.0	4.0	2.0	3.0	1.5	.0	.5
20	14.0	12.0	12.5	8.5	6.5	7.5	2.5	1.5	2.0	.0	.0	.0
21	12.0	10.5	11.0	9.0	7.0	8.0	1.5	.5	1.0	.0	.0	.0
22	10.5	9.5	10.0	8.5	5.0	7.0	4.0	1.0	2.5	.0	.0	.0
23	11.0	9.5	10.5	8.5	6.0	7.5	3.0	2.0	2.5	.0	.0	.0
24	13.0	11.0	12.0	9.5	8.5	9.0	3.0	.0	1.0	.0	.0	.0
25	13.0	12.0	12.5	9.0	6.0	7.0	.0	.0	.0	.5	.0	.0
26	12.5	10.5	11.5	7.0	5.0	6.0	.0	.0	.0	2.5	.0	1.0
27	11.5	9.0	10.0	7.0	5.0	6.0	.0	.0	.0	4.0	1.0	2.5
28	11.0	7.0	9.0	9.0	7.0	8.0	1.5	.0	.0	5.0	2.0	3.0
29	12.5	10.0	11.0	9.0	6.0	8.0	2.0	.5	2.0	3.5	2.5	3.0
30	10.0	7.5	9.0	6.5	5.0	5.5	.0	.0	.0	2.5	1.5	2.0
31	10.5	6.5	8.5	---	---	---	.0	.0	.0	1.5	.0	.5
MONTH	18.5	6.5	13.0	12.5	2.5	7.0	8.5	.0	4.0	5.0	.0	1.5

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	.0	.0	.0	3.5	1.0	2.0	8.5	5.0	6.5	15.0	12.0	13.5
2	1.5	.0	.5	4.5	2.0	3.0	9.5	5.5	7.5	12.5	11.0	12.0
3	2.0	.0	1.0	5.5	2.0	3.0	8.5	7.5	7.5	11.5	11.0	11.0
4	4.0	1.5	2.5	5.0	2.0	3.0	8.0	7.5	7.5	12.0	10.5	11.0
5	4.0	2.0	3.0	5.5	3.5	4.5	9.0	7.0	8.0	14.0	10.5	12.0
6	2.0	.0	1.0	8.0	5.0	6.0	8.5	7.0	7.5	13.0	11.5	12.0
7	.0	.0	.0	7.5	5.0	6.0	9.0	6.0	7.5	14.5	11.5	13.0
8	.0	.0	.0	5.0	2.0	4.0	10.5	7.0	8.5	14.0	12.0	13.5
9	2.0	.0	.5	4.0	.5	2.0	9.5	8.5	9.0	12.0	9.5	10.5
10	4.5	.0	2.0	4.5	.0	2.0	12.0	8.0	9.5	13.5	9.5	11.5
11	5.5	3.5	4.5	4.0	2.0	3.0	12.5	7.5	10.0	15.5	11.0	13.0
12	7.5	5.0	6.0	5.0	1.5	3.5	13.5	8.5	11.0	15.5	13.0	14.0
13	8.5	5.0	7.5	5.0	2.5	4.0	14.5	10.5	12.5	15.5	12.0	13.5
14	6.0	5.0	5.5	9.0	4.0	6.5	13.0	11.0	12.0	17.0	12.5	14.5
15	7.5	5.0	6.5	9.5	5.0	7.0	13.5	11.0	12.0	16.0	11.0	13.5
16	7.5	5.0	6.5	9.5	7.0	8.0	13.0	10.5	11.5	15.5	10.0	12.5
17	8.5	6.5	7.5	9.5	6.5	8.0	10.5	9.0	10.0	16.0	9.5	12.5
18	9.5	7.5	8.5	11.0	8.0	9.0	9.5	8.0	9.0	15.5	12.5	14.0
19	8.5	7.0	8.0	11.5	8.0	9.5	10.5	7.5	9.0	19.0	12.0	15.5
20	8.5	6.0	7.0	12.5	9.0	10.5	11.5	9.0	10.0	20.5	14.0	17.5
21	7.0	4.5	5.5	11.0	6.5	8.5	10.0	9.0	9.5	23.0	15.5	19.0
22	7.0	4.0	5.5	6.5	5.5	5.5	9.0	6.5	7.5	22.0	17.0	20.0
23	5.5	4.0	5.0	7.5	5.0	6.0	9.0	6.5	7.5	20.5	17.0	18.5
24	7.0	4.0	5.5	8.5	5.0	7.0	8.5	7.5	8.0	21.0	14.5	17.5
25	7.0	5.0	6.0	8.5	8.0	8.0	12.5	7.0	10.0	22.0	15.0	18.5
26	6.0	3.0	4.5	9.0	7.5	8.0	14.0	10.0	12.0	21.0	16.5	19.0
27	5.0	3.5	4.0	10.0	8.5	9.0	16.5	12.0	14.0	20.0	17.5	18.0
28	4.0	3.0	3.5	9.0	7.0	8.5	17.0	13.0	14.5	18.5	16.5	17.5
29	3.0	2.0	2.5	6.5	5.5	6.0	17.0	14.0	15.0	20.0	17.0	18.0
30	---	---	---	7.0	5.0	6.0	16.5	14.0	15.0	17.0	14.0	15.5
31	---	---	---	7.0	5.5	6.0	---	---	---	14.5	12.0	13.0
MONTH	9.5	.0	4.0	12.5	.0	6.0	17.0	5.0	10.0	23.0	9.5	14.5
	JUNE			JULY			AUGUST			SEPTEMBER		
1	16.0	11.0	13.5	21.0	20.0	20.5	24.0	20.5	22.0	21.0	17.0	19.5
2	20.0	13.0	16.5	22.0	18.0	20.0	24.5	20.5	22.0	22.5	18.5	20.0
3	21.5	16.5	19.0	24.0	19.5	21.5	22.5	18.5	20.0	22.0	19.5	20.5
4	22.0	16.5	19.5	23.0	20.5	21.5	21.5	17.5	19.5	20.5	18.5	19.5
5	23.5	17.0	20.0	24.5	21.0	22.5	22.0	18.0	20.0	20.0	16.5	18.0
6	24.5	19.5	22.0	24.0	20.0	22.0	24.5	18.0	21.5	20.5	16.0	18.0
7	25.5	19.5	22.5	24.0	20.0	21.5	25.5	21.0	23.5	19.5	15.5	17.5
8	26.0	21.0	23.5	24.0	18.0	21.0	25.0	19.5	22.5	20.0	16.0	17.5
9	26.5	21.5	24.0	22.5	18.0	20.5	25.0	20.0	23.0	18.5	16.5	17.5
10	26.0	22.0	24.0	21.0	18.5	20.0	26.0	21.0	24.0	21.0	17.0	18.5
11	27.0	21.5	24.0	23.0	14.5	19.5	24.0	19.0	21.0	22.0	18.0	19.5
12	27.0	22.5	24.5	25.0	20.5	22.5	21.0	16.0	19.5	21.0	19.0	20.5
13	26.0	22.5	24.0	25.0	21.0	23.0	19.0	15.5	17.5	21.5	19.5	20.5
14	26.0	21.5	23.5	26.5	21.5	24.0	20.0	18.0	19.0	22.5	19.5	21.0
15	26.0	21.0	23.5	26.0	22.0	24.0	19.5	16.0	17.5	21.0	18.0	20.0
16	23.5	21.0	22.0	25.5	22.5	24.0	19.5	16.0	17.5	18.0	16.0	17.0
17	24.5	20.0	22.0	24.5	22.0	23.5	21.0	17.0	18.5	17.0	14.5	16.0
18	26.0	21.5	23.5	24.5	21.0	22.5	20.0	17.0	18.0	16.5	14.0	15.0
19	27.0	22.5	24.5	24.5	19.0	22.0	19.5	16.5	18.0	16.5	13.0	14.5
20	26.0	22.0	24.0	24.5	20.0	22.0	20.5	17.5	19.0	17.0	14.5	15.5
21	24.5	21.5	23.5	22.5	15.0	19.5	21.0	17.0	19.0	18.0	15.5	16.5
22	23.5	21.5	22.5	20.0	16.5	18.0	24.0	18.0	20.5	18.5	15.0	17.0
23	22.0	20.5	21.0	21.0	17.5	19.0	22.5	19.5	21.0	20.5	17.0	18.5
24	22.0	19.0	20.5	24.0	19.5	21.5	21.5	18.0	20.0	19.5	16.0	18.5
25	24.0	19.0	21.5	22.5	21.0	21.5	21.5	17.5	20.0	20.0	16.5	19.0
26	24.5	18.0	21.5	22.0	19.5	20.5	22.0	18.0	20.0	19.0	16.0	18.0
27	24.5	18.0	21.5	21.5	20.0	20.5	22.5	18.5	20.5	16.5	13.5	14.5
28	23.5	21.0	22.0	21.5	18.0	20.0	22.0	19.5	21.0	14.5	12.5	14.0
29	24.5	20.5	22.5	20.0	18.0	19.0	23.5	20.0	21.5	13.5	13.5	13.5
30	23.5	21.0	22.0	20.5	17.5	19.0	23.5	20.5	21.5	13.5	13.5	13.5
31	---	---	---	22.5	18.0	20.0	22.5	19.0	20.5	---	---	---
MONTH	27.0	11.0	22.0	26.5	14.5	21.0	26.0	15.5	20.5	22.5	12.5	17.5
YEAR	27.0	.0	12.0									

## 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.--56.7 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 2,200.02 ft National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation).

REMARKS.--Records good except those for period of no gage-height record, Mar. 21 and 22, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--10 years, 95.7 ft<sup>3</sup>/s, 22.92 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 above base 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)
Oct. 23	1600	859	3.64	Feb. 14	0900	3380	5.88
Dec. 12	1500	1100	4.02	Mar. 21	Unknown	*3800	a6.10

a About.

Minimum discharge, 2.5 ft<sup>3</sup>/s Oct. 7, 10, gage height, 0.21 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	17	124	100	53	120	199	196	45	43	12	26
2	4.1	16	96	82	52	116	160	156	38	28	14	19
3	3.4	15	82	70	52	99	143	156	34	18	23	17
4	3.0	15	290	61	84	93	156	356	31	14	19	17
5	2.7	15	314	59	93	97	593	304	26	12	17	16
6	2.7	14	260	53	80	141	344	274	23	14	17	14
7	2.5	13	362	52	70	160	235	316	20	16	16	12
8	2.7	12	233	42	65	156	184	266	18	12	14	11
9	2.7	12	162	37	55	129	152	218	17	9.9	14	11
10	2.5	100	126	47	50	110	133	175	16	71	20	10
11	3.2	269	104	59	198	106	116	143	14	93	45	9.6
12	11	153	649	49	316	80	101	120	14	62	361	9.2
13	8.8	93	617	45	296	78	88	103	17	47	553	9.2
14	12	65	344	42	2560	101	82	86	19	34	498	8.8
15	9.2	67	233	36	825	148	91	68	14	25	238	8.5
16	6.8	126	172	34	397	206	99	59	12	19	135	8.5
17	6.0	122	131	34	277	246	116	54	12	17	88	8.1
18	5.4	96	106	30	223	199	118	49	12	16	65	7.4
19	5.1	97	84	26	192	168	108	45	11	15	53	7.4
20	5.7	110	68	22	184	148	97	42	10	12	41	6.7
21	61	124	58	22	172	2200	84	39	11	50	34	6.7
22	51	117	200	22	148	713	184	35	11	50	28	6.0
23	441	94	316	30	168	356	424	34	10	37	26	6.0
24	284	93	220	97	421	246	330	34	14	28	22	6.0
25	112	299	137	133	435	201	228	31	17	21	20	5.3
26	64	233	120	112	296	189	170	28	12	19	17	4.6
27	47	166	103	95	230	177	135	27	9.6	22	16	4.6
28	34	153	229	91	204	253	124	27	8.5	19	15	12
29	26	212	218	75	154	581	449	48	7.8	16	19	13
30	22	168	150	59	---	359	282	57	8.5	14	19	12
31	19	---	125	56	---	253	---	56	---	12	41	---
TOTAL	1264.6	3086	6433	1772	8350	8229	5725	3602	512.4	865.9	2500	312.6
MEAN	40.8	103	208	57.2	288	265	191	116	17.1	27.9	80.6	10.4
MAX	441	299	649	133	2560	2200	593	356	45	93	553	26
MIN	2.5	12	58	22	50	78	82	27	7.8	9.9	12	4.6
CFSM	.72	1.82	3.67	1.01	5.08	4.67	3.37	2.05	.30	.49	1.42	.18
IN.	.83	2.02	4.22	1.16	5.48	5.40	3.75	2.36	.34	.57	1.64	.21

CAL YR 1983 TOTAL 36975.3 MEAN 101 MAX 808 MIN 1.9 CFSM 1.78 IN 24.25  
WTR YR 1984 TOTAL 42652.5 MEAN 117 MAX 2560 MIN 2.5 CFSM 2.06 IN 27.97

## 02011480 BACK CREEK ON ROUTE 600, NEAR MOUNTAIN GROVE, VA

LOCATION.--Lat 38°08'03", long 79°51'55", Bath County, Hydrologic Unit 02080201, on left bank 100 ft downstream from bridge on State Highway 600, 2.8 mi northeast of Mountain Grove, and 3.0 mi upstream from Little Back Creek.

DRAINAGE AREA.--85.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1973 to December 1984 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,818.05 ft National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation). Prior to Aug. 2, 1979, at site 170 ft upstream at same datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--11 years, 143 ft<sup>3</sup>/s, 22.63 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,420 ft<sup>3</sup>/s Dec. 26, 1973, gage height, 9.90 ft, from rating curve extended above 5,200 ft<sup>3</sup>/s on basis of runoff comparisons with nearby stations; minimum, 1.3 ft<sup>3</sup>/s Sept. 12-13, 1983, probably result of dam construction.

EXTREMES FOR PERIOD OCTOBER 1983 TO DECEMBER 1984.--Peak discharges above base 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)
Oct. 23	1830	1360	5.38	Mar. 29	0800	1340	5.08
Dec. 12	1800	1800	5.94	Aug. 12	1230	2880	6.82
Feb. 14	0930	5100	8.57	Aug. 13	2030	2170	6.12
Mar. 21	1500	*5450	8.82				

Water year 1984: Minimum discharge, 1.5 ft<sup>3</sup>/s Oct. 9, gage height, 1.20 ft, probably result of dam construction.

October to December 1984: Maximum discharge during period, 221 ft<sup>3</sup>/s Nov. 28, gage height, 3.20 ft; minimum, 6.0 ft<sup>3</sup>/s Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.9	27	159	110	65	164	288	237	51	43	20	53
2	7.2	24	126	96	62	142	218	183	44	37	56	50
3	6.5	23	109	86	75	124	183	183	39	26	210	47
4	4.6	23	444	72	106	116	185	506	35	20	74	37
5	5.1	21	429	69	119	123	951	439	31	19	60	30
6	4.8	19	339	64	105	158	575	466	28	21	48	23
7	2.4	18	445	60	83	183	346	560	26	27	40	20
8	2.0	18	305	48	66	166	245	421	25	19	34	18
9	2.2	22	208	43	68	147	194	314	23	16	35	17
10	3.8	94	159	43	70	121	168	243	21	58	61	13
11	4.6	298	133	86	191	123	145	191	19	140	264	6.0
12	17	186	1040	56	339	108	124	162	18	82	2070	6.0
13	17	125	960	56	339	112	110	135	18	65	1610	3.8
14	18	96	461	55	4020	133	104	116	27	46	1210	7.6
15	12	96	289	50	1960	180	116	100	20	34	472	8.4
16	12	155	196	51	758	251	123	86	18	27	256	6.8
17	9.1	150	148	48	466	318	140	76	19	25	165	4.0
18	8.7	122	125	44	328	248	140	70	18	25	130	8.8
19	8.1	119	111	43	269	200	128	64	16	21	104	5.8
20	11	129	98	24	243	178	118	60	14	18	82	4.5
21	69	142	87	24	213	2940	106	53	14	208	65	6.0
22	87	136	226	24	176	1420	268	48	16	152	53	4.0
23	568	116	413	35	328	625	703	45	16	85	48	4.0
24	449	120	282	80	908	379	520	48	22	60	41	4.2
25	191	353	160	152	769	291	328	39	25	44	35	5.5
26	112	298	120	130	452	245	231	36	18	37	30	6.0
27	83	208	110	118	321	216	180	35	15	44	26	7.2
28	62	200	225	112	281	352	149	38	14	34	24	11
29	48	279	226	102	213	1120	516	57	13	30	26	13
30	37	218	159	89	---	645	346	64	14	25	38	14
31	31	---	127	82	---	400	---	58	---	23	66	---
TOTAL	1903.0	3835	8419	2152	13393	11928	7948	5133	677	1511	7453	444.6
MEAN	61.4	128	272	69.4	462	385	265	166	22.6	48.7	240	14.8
MAX	568	353	1040	152	4020	2940	951	560	51	208	2070	53
MIN	2.0	18	87	24	62	108	104	35	13	16	20	3.8
CFSM	.72	1.49	3.17	.81	5.38	4.49	3.09	1.93	.26	.57	2.80	.17
IN.	.82	1.66	3.65	.93	5.80	5.17	3.44	2.22	.29	.65	3.23	.19

CAL YR 1983	TOTAL	50292.8	MEAN 138	MAX 1200	MIN 1.4	CFSM 1.61	IN 21.79
WTR YR 1984	TOTAL	64796.6	MEAN 177	MAX 4020	MIN 2.0	CFSM 2.06	IN 28.08



## JAMES RIVER BASIN

02011480 BACK CREEK ON ROUTE 600, NEAR MOUNTAIN GROVE, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER TO DECEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	13	52									
2	24	12	39									
3	18	11	33									
4	14	12	28									
5	10	26	25									
6	9.6	26	27									
7	11	21	23									
8	13	17	22									
9	14	17	20									
10	12	16	20									
11	12	20	21									
12	12	18	24									
13	10	18	27									
14	11	14	25									
15	11	18	23									
16	13	18	22									
17	14	17	21									
18	14	18	21									
19	14	48	25									
20	12	62	30									
21	10	41	47									
22	11	32	85									
23	16	31	67									
24	20	28	55									
25	14	25	81									
26	14	23	65									
27	16	23	52									
28	17	94	42									
29	24	123	34									
30	17	71	31									
31	14	---	32									
TOTAL	453.6	913	1119	---	---	---	---	---	---	---	---	---
MEAN	14.6	30.4	36.1	---	---	---	---	---	---	---	---	---
MAX	32	123	85	---	---	---	---	---	---	---	---	---
MIN	9.6	11	20	---	---	---	---	---	---	---	---	---
CAL YR 1984	TOTAL	53125.2	MEAN	145	MAX	4020	MIN	3.8				

## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for December, which are fair. Corps of Engineers gage-height radio transmitter at station, receiver and recorder at Lake Moomaw Dam.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--33 years, 186 ft<sup>3</sup>/s, 18.85 in/yr.

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.--Peak discharges above base 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. 14	0915	*6960	8.65	Aug. 12	1300	6120	8.28
Mar. 21	1345	6440	8.42				

Minimum discharge, 5.9 ft<sup>3</sup>/s Oct. 9-10, gage height, 1.76 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	44	210	189	97	239	425	318	74	65	36	113
2	11	39	170	165	94	205	330	258	66	60	40	92
3	11	37	150	145	107	177	276	276	60	40	269	87
4	8.9	34	660	127	142	164	314	758	54	30	125	79
5	9.7	31	600	121	168	171	1210	638	48	29	100	66
6	9.7	29	470	113	150	212	764	815	43	30	83	57
7	8.9	27	640	106	121	251	502	867	39	41	71	48
8	6.8	26	420	90	95	235	361	640	36	30	61	45
9	6.5	30	300	89	98	208	290	480	34	25	60	43
10	8.4	94	230	92	100	171	252	366	32	119	117	40
11	11	395	190	150	234	170	222	290	29	243	430	29
12	21	283	1500	113	461	146	192	243	27	136	4140	27
13	21	183	1400	111	489	158	168	204	26	104	2000	25
14	25	136	700	108	4900	209	160	177	39	74	1270	27
15	16	140	400	98	2030	270	174	150	29	55	614	27
16	15	243	300	94	762	350	177	132	25	44	348	24
17	14	240	210	89	569	423	201	119	27	39	231	20
18	13	189	180	86	426	346	204	108	26	40	186	23
19	12	168	155	79	353	285	189	100	23	34	152	22
20	15	177	130	47	331	250	171	92	20	28	123	19
21	76	195	115	44	300	3290	155	85	20	602	98	20
22	100	186	385	44	256	1560	410	76	22	322	83	17
23	728	160	650	50	557	752	942	73	21	168	74	16
24	656	171	455	80	1320	502	722	73	33	115	68	17
25	420	578	273	216	1030	395	491	63	35	87	61	17
26	201	475	234	231	645	343	352	58	26	73	55	18
27	132	322	201	189	459	302	279	57	21	96	49	19
28	98	280	320	165	391	486	243	61	20	76	47	25
29	78	400	380	151	308	1430	590	81	20	61	48	25
30	62	290	252	134	---	867	440	88	21	52	81	27
31	52	---	195	121	---	572	---	83	---	44	165	---
TOTAL	2859.9	5602	12475	3637	16993	15139	11206	7829	996	2962	11285	1114
MEAN	92.3	187	402	117	586	488	374	253	33.2	95.5	364	37.1
MAX	728	578	1500	231	4900	3290	1210	867	74	602	4140	113
MIN	6.5	26	115	44	94	146	155	57	20	25	36	16
CFSM	.69	1.40	3.00	.87	4.37	3.64	2.79	1.89	.25	.71	2.72	.28
IN.	.79	1.56	3.46	1.01	4.72	4.20	3.11	2.17	.28	.82	3.13	.31
CAL YR 1983	TOTAL	73514.0	MEAN 201	MAX 1550	MIN 4.9	CFSM 1.50	IN 20.41					
WTR YR 1984	TOTAL	92097.9	MEAN 252	MAX 4900	MIN 6.5	CFSM 1.88	IN 25.57					

## JAMES RIVER BASIN

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: June 1978 to current year.

INSTRUMENTATION.--Temperature recorder since June 1978.

REMARKS.--Period of missing record, Nov. 23 to Jan. 5, due to instrument malfunction. Some record in prior years fragmentary due to instrument malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum recorded, 31.0°C Aug. 5, 11, 1980, July 21, Aug. 21, 1983; minimum recorded, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 29.0°C June 12, 19; minimum recorded, 0.0°C on many days during winter period.

## TEMPERATURE. WATER (DEG. C). WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.5	11.5	12.5	12.5	8.5	10.5	---	---	---	---	---	---
2	17.0	13.0	15.0	13.0	9.0	11.0	---	---	---	---	---	---
3	19.5	13.5	16.0	13.5	11.0	12.0	---	---	---	---	---	---
4	19.5	13.5	16.0	12.5	8.5	10.5	---	---	---	---	---	---
5	19.5	15.5	17.0	8.5	7.0	7.5	---	---	---	---	---	---
6	21.5	15.0	17.5	8.0	6.5	7.0	4.0	2.5	3.5	4.0	2.5	3.5
7	19.0	12.0	14.5	8.5	5.0	7.0	3.5	1.0	2.5	3.5	1.0	2.5
8	20.0	10.5	14.0	9.5	5.5	8.0	2.5	.0	1.0	2.5	.0	1.0
9	21.0	11.0	14.5	10.5	5.5	8.0	3.5	.5	2.0	3.5	.5	2.0
10	15.5	12.0	13.5	12.0	9.5	11.0	2.5	2.0	2.5	2.5	2.0	2.5
11	14.0	13.0	14.0	11.0	7.5	9.5	2.0	.5	1.5	2.0	.5	1.5
12	16.5	14.0	15.5	7.0	6.0	6.5	1.0	.0	.5	1.0	.0	.5
13	19.0	16.0	17.0	7.0	5.0	6.0	1.0	.0	.5	1.0	.0	.5
14	16.0	12.5	14.0	8.0	5.0	6.5	2.0	1.0	1.5	2.0	1.0	1.5
15	15.5	10.0	12.5	7.0	6.5	7.0	2.5	1.0	2.0	2.5	1.0	2.0
16	15.0	9.5	12.5	8.0	7.0	7.0	2.0	1.0	2.0	2.0	1.0	2.0
17	15.5	10.5	13.0	7.0	6.0	6.5	3.0	1.5	2.0	3.0	1.5	2.0
18	15.5	12.0	14.0	8.5	5.0	6.5	1.5	.0	1.0	1.5	.0	1.0
19	16.0	14.0	14.5	10.0	7.0	8.5	1.5	.0	1.0	1.5	.0	1.0
20	14.0	12.0	13.0	9.0	7.0	8.5	1.5	.5	.5	1.5	.5	.5
21	12.0	11.0	11.5	9.5	7.5	8.5	1.0	.0	.5	1.0	.0	.5
22	11.0	10.5	11.0	9.0	6.0	7.5	1.0	.0	.5	1.0	.0	.5
23	12.5	11.0	11.5	---	---	---	1.0	.0	.5	1.0	.0	.5
24	14.0	12.5	13.0	---	---	---	.5	.0	.0	.5	.0	.0
25	13.5	12.5	13.0	---	---	---	.0	.0	.0	.0	.0	.0
26	13.5	11.5	12.5	---	---	---	2.0	.0	1.0	2.0	.0	1.0
27	12.5	9.5	11.0	---	---	---	4.0	.5	2.0	4.0	.5	2.0
28	12.5	8.5	10.5	---	---	---	4.0	2.0	3.0	4.0	2.0	3.0
29	14.0	11.0	12.5	---	---	---	3.0	2.0	2.5	3.0	2.0	2.5
30	11.0	8.0	9.5	---	---	---	2.0	1.0	1.0	2.0	1.0	1.0
31	11.5	7.0	9.5	---	---	---	1.5	.0	.5	1.5	.0	.5
MONTH	21.5	7.0	13.5	13.5	5.0	8.0	4.0	.0	1.5	4.0	.0	1.5

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	.5	.0	.5	4.0	.0	2.0	8.5	5.0	6.5	16.0	10.5	13.0
2	2.0	.0	1.0	4.0	1.5	2.5	10.5	4.5	7.5	12.5	10.0	11.5
3	2.0	.0	1.0	5.5	.0	2.5	8.0	6.5	7.0	11.5	11.0	11.0
4	4.0	1.0	2.5	4.5	.5	2.5	7.5	7.0	7.0	12.0	10.5	11.0
5	3.5	1.5	2.5	4.5	3.0	4.0	9.0	7.0	8.0	14.0	10.0	12.0
6	1.5	.0	1.0	7.0	4.0	5.5	8.0	6.5	7.0	12.0	11.0	11.5
7	1.0	.0	.5	7.0	3.5	5.0	10.5	5.5	7.5	14.5	11.0	12.5
8	1.0	.0	.5	4.0	1.5	2.5	11.0	5.5	8.5	14.0	11.5	12.5
9	3.0	.0	1.0	4.5	.0	2.0	9.5	8.0	8.5	12.5	9.0	11.0
10	5.0	.0	2.5	4.0	.0	2.0	12.5	7.0	9.5	15.0	9.5	12.0
11	4.5	3.0	4.0	4.0	1.5	2.5	13.0	6.5	9.5	17.0	10.5	13.5
12	7.0	3.0	5.0	5.0	.5	3.0	14.0	7.0	10.5	16.0	12.0	14.0
13	7.0	6.0	6.5	4.5	2.0	3.5	14.5	9.5	11.5	15.5	11.0	13.5
14	7.0	5.5	6.5	9.0	4.0	6.0	12.5	9.5	11.0	18.0	12.0	14.5
15	8.0	5.5	6.5	9.0	3.5	6.0	13.0	10.0	11.5	17.0	10.0	13.5
16	7.5	4.5	6.0	8.0	5.5	7.0	12.5	10.0	11.0	17.0	9.5	13.0
17	8.0	5.0	6.5	9.0	5.0	7.0	11.5	8.5	9.5	17.0	9.0	13.0
18	8.5	6.0	7.0	10.0	6.5	8.0	10.0	8.0	9.0	15.5	12.0	14.0
19	8.0	5.5	7.0	11.0	6.5	8.5	11.0	7.0	9.0	21.0	11.5	15.5
20	7.0	4.5	6.0	11.5	7.5	9.5	12.5	8.0	10.0	20.5	13.5	17.0
21	6.5	3.0	4.5	10.5	6.5	8.5	9.5	8.5	9.0	23.5	15.0	19.0
22	7.0	2.5	5.0	6.5	6.0	6.0	9.0	7.0	8.0	22.0	16.0	19.0
23	5.0	3.5	4.5	8.5	5.5	6.5	9.0	7.0	8.0	19.0	16.0	17.5
24	7.5	4.5	5.5	9.5	4.5	7.0	8.5	7.0	7.5	22.5	13.5	17.5
25	6.0	4.0	5.5	8.5	7.5	8.0	13.5	7.0	10.0	23.5	14.0	18.5
26	6.5	2.5	4.5	10.0	7.5	8.5	15.0	9.0	11.5	22.0	15.5	19.0
27	4.5	3.0	3.5	10.5	8.0	9.0	16.5	10.5	13.5	19.0	16.5	17.5
28	4.0	2.5	3.5	9.0	7.0	8.0	17.0	12.0	14.0	19.0	16.0	17.0
29	3.5	1.5	2.0	7.0	5.5	6.5	16.0	12.5	14.0	19.5	15.5	17.5
30	---	---	---	7.0	5.0	6.0	16.0	13.0	14.0	15.5	12.0	14.0
31	---	---	---	7.0	5.0	6.0	---	---	---	15.0	11.0	12.5
MONTH	8.5	.0	4.0	11.5	.0	5.5	17.0	4.5	9.5	23.5	9.0	14.5
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.5	10.0	13.5	20.5	18.0	19.5	25.5	19.0	22.0	21.5	15.0	18.0
2	22.0	12.5	17.0	22.0	17.0	19.5	26.5	20.5	23.5	23.5	16.5	20.0
3	22.5	15.5	19.0	25.0	18.0	21.5	22.5	17.5	20.0	22.0	18.0	20.0
4	23.0	14.5	18.5	23.0	18.5	21.0	24.5	18.5	21.0	19.5	16.5	18.5
5	24.5	15.0	19.5	25.5	19.5	22.0	23.5	19.0	21.0	19.5	15.0	17.0
6	26.0	17.5	21.5	24.0	19.5	22.0	25.0	19.5	22.0	21.0	15.0	18.0
7	26.0	17.5	21.5	26.0	19.5	22.0	26.0	19.5	22.5	20.5	14.5	17.5
8	27.0	19.0	23.0	25.5	16.0	20.5	24.5	20.0	22.5	21.5	16.0	18.5
9	27.5	19.0	23.5	24.5	16.5	20.0	24.5	21.0	23.0	20.0	16.0	18.0
10	26.0	20.0	23.5	20.5	17.5	19.0	25.0	21.0	22.0	22.0	16.5	19.0
11	28.5	19.5	23.5	24.0	16.5	20.0	20.5	16.5	18.5	24.0	17.0	20.5
12	29.0	20.5	24.5	25.5	19.0	21.5	16.0	15.0	15.5	23.5	18.0	21.0
13	26.0	21.0	23.0	25.5	19.0	22.0	17.0	15.0	15.5	24.0	19.0	21.5
14	26.5	20.0	23.0	26.5	19.5	23.0	18.0	15.0	16.0	25.0	19.5	22.5
15	27.0	19.5	23.0	25.5	19.5	23.0	19.5	15.5	17.5	22.0	17.0	20.0
16	22.5	19.5	21.0	26.5	21.0	23.5	20.5	15.5	18.0	18.5	14.5	16.5
17	25.0	19.0	22.0	25.5	20.5	22.5	21.5	16.5	18.5	18.5	12.5	15.0
18	26.5	19.0	23.0	25.5	19.5	22.0	19.0	17.0	17.5	17.5	12.5	15.0
19	29.0	21.0	24.5	25.5	16.5	21.0	21.5	16.5	18.5	19.5	13.5	16.5
20	25.5	20.0	23.0	25.5	17.5	21.5	22.5	17.0	19.5	20.0	14.5	17.5
21	25.5	19.5	22.5	22.0	16.0	17.0	22.5	16.5	19.5	22.0	16.0	18.5
22	24.0	20.5	22.0	19.0	15.0	17.0	23.5	17.5	20.5	22.5	17.5	20.0
23	21.5	19.0	20.5	21.0	17.0	19.0	24.5	18.5	21.0	24.5	18.5	21.5
24	23.0	18.0	20.0	24.0	18.0	21.0	23.5	17.0	20.0	23.0	19.0	21.0
25	25.5	17.5	21.0	22.0	19.5	20.5	23.5	16.0	19.5	23.0	18.5	21.0
26	25.5	16.5	21.0	22.0	18.0	19.5	23.5	17.0	20.0	21.0	17.5	19.5
27	25.5	16.0	21.0	21.0	18.5	19.5	23.5	18.0	21.0	17.0	12.5	14.0
28	23.0	19.0	21.0	21.0	16.5	18.5	23.5	19.0	21.5	13.0	12.0	12.5
29	25.0	19.0	22.0	19.0	17.0	18.0	25.0	19.5	22.0	14.5	12.0	13.0
30	23.0	19.5	21.0	21.5	16.5	19.0	25.0	19.5	21.5	14.0	12.5	13.0
31	---	---	---	24.0	16.0	20.0	22.0	16.5	19.0	---	---	---
MONTH	29.0	10.0	21.5	26.5	15.0	20.5	26.5	15.0	20.0	25.0	12.0	18.0
YEAR	29.0	.0	12.5									



## JAMES RIVER BASIN

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 (Corps of Engineers benchmark).

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 furnished by 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, 142,000 acre-ft Jan. 15, elevation, 1,589.0 ft; minimum, 88,700 acre-ft Oct. 20, 21, elevation, 1,567.0 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400 WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1568.6	92100	
Oct. 31.....	1570.3	95900	+3800
Nov. 30.....	1575.6	108000	+12100
Dec. 31.....	1582.1	124000	+16000
CAL YR 1983.....			+800
Jan. 31.....	1582.0	123700	-300
Feb. 29.....	1581.8	123200	-500
Mar. 31.....	1582.2	124200	+1000
Apr. 30.....	1582.3	124500	+300
May 31.....	1581.7	123000	-1500
June 30.....	1578.3	114500	-8500
July 31.....	1577.4	112400	-2100
Aug. 31.....	1581.5	122500	+10100
Sept. 30.....	1578.5	115000	-7500
WTR YR 1984.....			+22900

## 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 National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Dec. 20, 1973, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated since December 1979 by Moomaw Lake (station 02011795). Corps of Engineers water-quality and gage-height transmitters at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--11 years, 466 ft<sup>3</sup>/s, 18.34 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, 5,320 ft<sup>3</sup>/s Aug. 14, gage height, 13.52 ft; minimum, 8.8 ft<sup>3</sup>/s Nov. 17, gage height, 7.84 ft; minimum daily, 133 ft<sup>3</sup>/s Nov. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	153	153	412	272	782	1280	1020	267	288	285	257
2	150	153	153	376	250	533	940	782	267	288	285	257
3	151	153	153	358	250	438	796	659	267	288	285	257
4	151	153	156	358	250	456	688	898	277	288	285	257
5	150	153	156	358	315	470	2070	1030	285	288	285	257
6	150	153	156	280	358	470	2050	1040	285	288	285	257
7	149	153	156	240	358	503	1290	1610	285	288	285	257
8	149	153	153	243	299	470	969	2700	285	285	285	257
9	149	153	153	243	226	538	877	2660	281	285	285	257
10	150	153	153	243	226	538	719	1310	281	285	285	257
11	151	153	258	341	226	442	631	856	281	285	285	257
12	151	153	655	349	394	390	503	809	281	285	288	250
13	151	153	1660	269	811	390	470	648	288	285	568	257
14	151	153	2360	243	1860	484	442	508	292	285	2980	257
15	151	153	2090	229	5040	583	498	341	288	285	5180	257
16	151	153	1210	226	5160	670	538	250	288	285	2600	257
17	151	133	500	226	5090	789	538	337	292	285	700	257
18	151	153	412	226	2900	836	538	345	288	285	433	257
19	151	156	385	226	1170	700	538	325	288	285	433	257
20	151	156	349	226	877	605	503	325	288	285	433	257
21	152	153	291	226	770	1970	479	325	288	285	333	257
22	152	151	697	226	706	4220	700	325	288	288	288	257
23	154	151	1000	226	706	4610	1780	292	288	288	288	257
24	153	151	1000	226	2320	2430	2230	270	288	285	288	257
25	153	153	1000	226	3350	1090	1560	270	288	285	288	257
26	153	153	667	465	2230	1090	1010	270	288	285	288	257
27	154	153	455	484	1390	891	770	270	288	288	288	257
28	154	153	455	412	992	776	637	270	288	285	288	257
29	153	153	818	412	926	2110	863	270	288	285	288	257
30	153	153	811	349	---	3470	1020	267	288	285	288	257
31	153	---	526	307	---	2240	---	267	---	285	281	---
TOTAL	4693	4570	19141	9231	39722	35984	27927	21549	8534	8865	19956	7703
MEAN	151	152	617	298	1370	1161	931	695	284	286	644	257
MAX	154	156	2360	484	5160	4610	2230	2700	292	288	5180	257
MIN	149	133	153	226	226	390	442	250	267	285	281	250
(*)	+62	+203	+260	-5	-9	+16	+5	-24	-143	-34	+164	-126
MEAN#	213	355	877	293	1361	1177	936	671	141	252	808	131
CFSM#	.62	1.03	2.54	.85	3.94	3.41	2.71	1.94	.41	.73	2.34	.38
IN#	.71	1.15	2.93	.98	4.25	3.93	3.03	2.24	.46	.84	2.70	.42
CAL YR 1983 TOTAL	174031			MEAN 477	MAX 3850	MIN 133	MEAN# 478	CFSM# 1.39	IN# 18.80			
WTR YR 1984 TOTAL	207875			MEAN 568	MAX 5180	MIN 133	MEAN# 600	CFSM# 1.74	IN# 23.68			

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.

# 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 year 1979 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1978 to current year.

pH: October 1978 to current year.

WATER TEMPERATURES: 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, 1981-84): Maximum recorded, 225 micromhos Apr. 13, 1981; minimum recorded, 78 micromhos May 14, 1979.

pH (water years 1979, 1981-84): Maximum recorded, 8.6 units Jan. 29, 1982, Jan. 13, 1983; minimum recorded, 6.9 units Aug. 14-17, 1984.

WATER TEMPERATURES (water years 1979, 1981-84): 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): 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, 189 micromhos Mar. 8; minimum, 102 micromhos May 2, 7-9.

pH: Maximum, 8.4 units May 26; minimum, 6.9 units Aug. 14-17.

WATER TEMPERATURES: Maximum, 23.5°C July 18, Aug. 7-11; minimum, 3.0°C Feb. 7, 8.

DISSOLVED OXYGEN: Maximum, 16.2 mg/L Feb. 18; minimum, 7.7 mg/L July 16, 18, 21, Aug. 7, 10.

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	148	146	147	146	142	145	---	---	---	140	140	140
2	148	146	147	146	144	146	---	---	---	140	140	140
3	148	146	147	148	144	146	---	---	---	140	138	140
4	148	144	146	---	---	---	---	---	---	140	140	140
5	148	142	146	---	---	---	---	---	---	140	138	140
6	148	146	147	---	---	---	---	---	---	140	138	140
7	148	146	147	---	---	---	154	150	153	142	140	140
8	148	146	147	---	---	---	154	150	154	142	140	140
9	148	146	147	---	---	---	154	150	154	140	140	140
10	148	146	148	148	142	145	154	154	154	140	140	140
11	148	146	147	150	148	148	154	146	150	140	138	139
12	148	146	147	148	146	148	148	140	145	138	136	138
13	150	146	148	148	146	147	144	142	144	140	138	139
14	148	146	147	148	142	146	146	144	144	140	138	139
15	148	146	147	148	146	147	144	140	143	140	138	138
16	148	142	147	148	146	146	146	140	143	138	138	138
17	148	142	146	---	---	---	150	140	143	138	138	138
18	148	142	146	---	---	---	142	138	140	140	138	139
19	148	146	148	---	---	---	140	138	138	140	139	140
20	148	148	148	---	---	---	142	138	140	139	138	139
21	150	148	148	---	---	---	144	142	143	139	138	139
22	148	142	146	---	---	---	144	140	141	140	138	139
23	148	146	147	---	---	---	142	140	140	140	138	139
24	148	142	145	---	---	---	140	140	140	140	139	139
25	148	146	147	---	---	---	140	138	140	140	139	140
26	148	142	146	---	---	---	142	138	140	140	135	136
27	146	142	146	---	---	---	142	140	140	137	135	136
28	146	142	145	---	---	---	140	140	140	137	135	136
29	146	142	144	---	---	---	140	138	139	136	135	136
30	148	142	145	---	---	---	140	138	139	137	135	136
31	146	144	144	---	---	---	140	138	140	137	136	136
MONTH	150	142	147	150	142	146	154	138	143	142	135	139

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	138	136	137	123	121	122	116	114	115	105	103	104
2	138	136	137	123	121	122	116	115	115	107	102	104
3	138	137	137	123	121	122	117	115	116	107	103	105
4	138	137	137	122	121	122	118	116	116	106	103	105
5	138	135	137	122	121	122	118	113	115	105	103	104
6	136	135	135	123	121	122	115	113	113	106	104	105
7	136	134	135	122	121	121	117	113	114	107	102	106
8	137	134	136	189	120	124	115	113	114	106	102	104
9	138	137	137	121	120	120	115	113	114	106	102	105
10	138	137	137	121	120	120	115	110	112	107	106	106
11	138	137	138	121	120	121	111	110	110	108	106	107
12	138	134	136	122	121	121	182	110	115	108	106	108
13	135	132	133	123	121	121	125	110	111	110	105	109
14	134	131	133	122	120	121	112	110	111	111	108	110
15	132	130	131	121	119	120	112	109	110	113	108	112
16	132	130	131	120	119	120	111	110	110	161	113	116
17	132	129	130	121	118	119	111	109	110	114	112	113
18	131	128	130	119	118	119	110	109	109	112	108	110
19	129	127	128	120	118	119	110	109	109	112	108	110
20	127	125	126	120	119	119	111	109	110	112	107	109
21	126	125	126	120	116	118	111	109	110	112	109	111
22	126	125	125	117	116	116	111	108	109	112	109	111
23	125	124	125	116	114	115	108	106	107	113	111	112
24	127	123	125	118	115	116	107	106	106	114	111	112
25	126	122	124	117	116	117	107	105	106	114	108	111
26	123	121	122	117	116	117	107	106	107	110	107	108
27	124	122	123	118	117	118	107	104	106	110	107	108
28	123	122	123	119	117	118	106	104	105	110	106	108
29	123	122	122	119	116	117	106	103	105	111	106	109
30	---	---	---	116	113	115	106	103	104	111	107	109
31	---	---	---	115	113	114	---	---	---	112	108	110
MONTH	138	121	131	189	113	119	182	103	110	161	102	108
JUNE				JULY			AUGUST			SEPTEMBER		
1	114	111	112	121	117	119	141	137	138	142	138	140
2	115	111	112	121	117	119	141	138	139	141	138	139
3	113	111	112	121	118	120	139	137	139	141	138	140
4	112	111	112	121	118	120	141	138	139	141	138	140
5	112	111	112	121	119	120	142	139	140	141	137	140
6	113	112	112	124	118	120	142	139	141	141	139	140
7	114	112	112	123	119	121	143	140	141	141	138	139
8	114	112	113	122	119	121	142	138	140	141	138	139
9	113	112	113	123	121	122	143	139	141	140	137	139
10	114	113	113	132	121	126	142	138	140	139	133	136
11	115	113	114	132	129	131	142	137	140	137	134	136
12	115	113	114	132	129	131	147	138	141	140	133	137
13	140	113	120	132	129	130	141	130	137	142	139	141
14	130	118	123	132	130	131	129	110	117	142	138	140
15	119	114	116	133	131	132	113	109	112	143	139	141
16	116	114	115	135	131	133	116	111	115	143	141	141
17	116	113	115	135	132	134	142	116	131	141	136	139
18	117	114	115	137	133	134	143	138	140	141	138	139
19	117	113	116	136	133	135	141	137	139	139	135	137
20	117	115	116	137	135	136	141	136	139	137	135	136
21	117	115	116	139	135	137	143	138	141	137	134	136
22	117	115	116	139	136	137	143	139	142	137	134	136
23	118	115	116	139	135	137	152	140	143	137	134	136
24	119	115	117	139	136	137	144	141	143	138	134	136
25	119	116	117	140	136	138	144	140	141	137	133	135
26	118	116	117	140	137	139	142	139	141	137	134	136
27	118	116	117	141	137	139	142	139	141	136	133	135
28	119	117	118	141	138	140	141	138	140	135	132	134
29	121	117	118	143	138	141	141	138	140	134	131	133
30	121	117	119	142	139	141	144	139	141	134	129	132
31	---	---	---	143	135	140	143	138	141	---	---	---
MONTH	140	111	115	143	117	131	152	109	138	143	129	138
YEAR	189	102	129									



02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	7.6	7.4	7.5	7.5	7.4	7.5	7.4	7.3	7.4	7.6	7.5	7.5
2	7.7	7.5	7.6	7.6	7.4	7.5	7.4	7.3	7.4	7.6	7.5	7.5
3	7.7	7.5	7.6	7.5	7.3	7.4	7.4	7.4	7.4	7.6	7.5	7.6
4	7.7	7.5	7.6	---	---	---	7.4	7.4	7.4	7.6	7.6	7.6
5	7.7	7.5	7.6	---	---	---	7.4	7.4	7.4	7.6	7.6	7.6
6	7.7	7.5	7.6	---	---	---	7.4	7.4	7.4	7.6	7.6	7.6
7	7.7	7.6	7.6	---	---	---	7.4	7.4	7.4	7.6	7.6	7.6
8	7.7	7.5	7.6	---	---	---	7.4	7.4	7.4	7.6	7.6	7.6
9	7.7	7.5	7.6	---	---	---	7.5	7.4	7.4	7.6	7.6	7.6
10	7.7	7.5	7.6	7.4	7.3	7.3	7.5	7.4	7.4	7.6	7.6	7.6
11	7.6	7.5	7.6	7.5	7.4	7.4	7.5	7.4	7.4	7.6	7.6	7.6
12	7.7	7.5	7.6	7.5	7.4	7.4	7.5	7.4	7.4	7.6	7.6	7.6
13	7.7	7.5	7.6	7.5	7.4	7.4	7.5	7.3	7.4	7.6	7.6	7.6
14	7.7	7.5	7.6	7.5	7.4	7.4	7.5	7.3	7.4	7.6	7.6	7.6
15	7.7	7.5	7.6	7.4	7.4	7.4	7.4	7.3	7.4	7.6	7.6	7.6
16	7.7	7.5	7.6	7.5	7.4	7.4	7.5	7.4	7.5	7.6	7.6	7.6
17	7.7	7.5	7.6	7.7	7.4	7.5	7.5	7.4	7.5	7.6	7.6	7.6
18	7.7	7.5	7.6	7.5	7.4	7.4	7.5	7.5	7.5	7.6	7.6	7.6
19	7.7	7.5	7.6	7.4	7.4	7.4	7.5	7.5	7.5	7.6	7.5	7.6
20	7.7	7.6	7.6	7.5	7.4	7.4	7.5	7.5	7.5	7.6	7.5	7.6
21	7.7	7.5	7.6	7.4	7.4	7.4	7.5	7.5	7.5	7.6	7.5	7.6
22	7.6	7.5	7.5	7.4	7.3	7.3	7.5	7.5	7.5	7.6	7.5	7.6
23	7.6	7.5	7.5	7.4	7.3	7.3	7.5	7.5	7.5	7.6	7.5	7.6
24	7.6	7.5	7.5	7.4	7.3	7.3	7.5	7.5	7.5	7.6	7.5	7.6
25	7.7	7.5	7.6	7.4	7.3	7.4	7.5	7.5	7.5	7.6	7.5	7.5
26	7.7	7.5	7.6	7.4	7.3	7.4	7.6	7.5	7.5	7.6	7.5	7.5
27	7.7	7.5	7.6	7.4	7.3	7.4	7.6	7.5	7.5	7.6	7.5	7.5
28	7.6	7.5	7.5	7.4	7.3	7.3	7.6	7.5	7.5	7.6	7.5	7.6
29	7.6	7.5	7.5	7.4	7.3	7.4	7.5	7.5	7.5	7.6	7.5	7.6
30	7.7	7.5	7.5	7.4	7.3	7.4	7.5	7.5	7.5	7.6	7.5	7.5
31	7.6	7.4	7.5	---	---	---	7.6	7.5	7.5	7.6	7.5	7.6
MONTH	7.7	7.4	7.6	7.7	7.3	7.4	7.6	7.3	7.5	7.6	7.5	7.6
FEBRUARY				MARCH			APRIL			MAY		
1	7.6	7.5	7.6	7.6	7.5	7.6	7.9	7.5	7.6	7.6	7.4	7.4
2	7.6	7.5	7.5	7.6	7.6	7.6	7.8	7.5	7.6	7.8	7.4	7.4
3	7.6	7.5	7.5	7.6	7.6	7.6	7.8	7.5	7.6	7.8	7.4	7.4
4	7.6	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.6	7.6	7.4	7.4
5	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.5	7.8	7.3	7.4
6	7.6	7.5	7.5	7.6	7.6	7.6	7.7	7.5	7.5	7.9	7.3	7.4
7	7.6	7.5	7.6	7.6	7.6	7.6	7.7	7.5	7.5	7.7	7.2	7.4
8	7.6	7.6	7.6	7.7	7.6	7.6	7.6	7.5	7.6	7.5	7.3	7.3
9	7.6	7.5	7.6	7.6	7.6	7.6	7.7	7.5	7.6	7.9	7.3	7.4
10	7.6	7.5	7.5	7.7	7.6	7.6	7.7	7.5	7.6	7.8	7.3	7.4
11	7.6	7.5	7.5	7.7	7.6	7.6	7.7	7.5	7.5	7.7	7.3	7.4
12	7.5	7.5	7.5	7.7	7.6	7.6	7.9	7.5	7.6	7.6	7.4	7.4
13	7.5	7.5	7.5	7.7	7.6	7.6	7.7	7.5	7.5	7.9	7.4	7.5
14	7.5	7.5	7.5	7.7	7.6	7.6	7.8	7.5	7.5	8.0	7.3	7.5
15	7.6	7.5	7.5	7.7	7.6	7.6	8.0	7.5	7.6	7.8	7.3	7.5
16	7.6	7.6	7.6	7.7	7.6	7.7	8.0	7.5	7.6	7.8	7.4	7.5
17	7.6	7.6	7.6	7.7	7.6	7.7	7.7	7.4	7.5	7.9	7.1	7.5
18	7.6	7.5	7.6	7.7	7.6	7.6	7.7	7.5	7.5	7.9	7.3	7.4
19	7.6	7.5	7.6	7.7	7.6	7.7	7.7	7.4	7.5	7.9	7.3	7.5
20	7.6	7.6	7.6	7.7	7.5	7.6	7.6	7.4	7.5	7.9	7.3	7.5
21	7.7	7.6	7.6	7.7	7.6	7.6	7.8	7.4	7.5	7.7	7.3	7.4
22	7.6	7.5	7.5	7.7	7.5	7.6	7.6	7.4	7.5	7.7	7.3	7.4
23	7.5	7.5	7.5	8.2	7.6	7.7	7.5	7.4	7.4	7.6	7.3	7.4
24	7.5	7.5	7.5	8.0	7.5	7.6	7.4	7.4	7.4	7.7	7.4	7.5
25	7.5	7.5	7.5	7.7	7.6	7.6	7.8	7.4	7.4	8.3	7.4	7.7
26	7.5	7.5	7.5	7.7	7.5	7.6	7.5	7.4	7.4	8.4	7.7	8.0
27	7.5	7.5	7.5	7.9	7.5	7.6	7.6	7.4	7.5	8.2	7.7	7.9
28	7.5	7.5	7.5	7.8	7.6	7.6	7.6	7.4	7.4	8.1	7.7	7.9
29	7.6	7.5	7.5	7.8	7.5	7.6	7.9	7.4	7.5	8.1	7.7	7.9
30	---	---	---	7.7	7.6	7.6	7.6	7.4	7.4	8.3	7.7	7.9
31	---	---	---	7.7	7.6	7.6	---	---	---	8.1	7.7	7.9
MONTH	7.7	7.5	7.5	8.2	7.5	7.6	8.0	7.4	7.5	8.4	7.1	7.5

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.1	7.7	7.9	7.9	7.6	7.7	8.1	7.8	7.9	7.8	7.6	7.7
2	8.2	7.7	7.9	7.9	7.6	7.7	8.0	7.8	7.9	7.8	7.6	7.7
3	8.0	7.6	7.8	8.0	7.6	7.8	8.1	7.8	7.9	7.8	7.6	7.7
4	8.0	7.6	7.8	8.0	7.7	7.8	8.1	7.8	7.9	7.8	7.6	7.7
5	8.1	7.6	7.8	7.9	7.6	7.8	8.0	7.8	7.9	7.8	7.6	7.7
6	8.0	7.6	7.7	8.0	7.7	7.8	8.2	7.8	8.0	7.8	7.6	7.7
7	7.9	7.6	7.8	8.0	7.7	7.8	8.1	7.9	8.0	7.8	7.6	7.7
8	8.1	7.6	7.8	8.0	7.7	7.8	8.2	7.9	8.0	7.8	7.6	7.7
9	8.0	7.6	7.8	8.0	7.7	7.8	8.2	7.9	8.0	7.8	7.6	7.7
10	7.9	7.7	7.8	8.0	7.7	7.8	8.1	7.9	8.0	7.7	7.5	7.6
11	8.0	7.7	7.8	8.1	7.8	7.9	8.0	7.9	7.9	7.7	7.5	7.6
12	8.0	7.7	7.8	8.0	7.8	7.9	8.1	7.9	8.0	7.8	7.5	7.6
13	8.1	7.7	7.9	8.1	7.8	7.9	8.0	7.2	7.7	7.9	7.6	7.7
14	7.9	7.7	7.8	8.0	7.8	7.9	7.2	6.9	7.0	7.9	7.6	7.7
15	7.8	7.6	7.7	8.1	7.8	7.9	7.3	6.9	7.0	7.9	7.6	7.7
16	7.8	7.6	7.7	8.1	7.8	7.9	7.1	6.9	7.0	7.8	7.7	7.7
17	7.8	7.6	7.7	8.0	7.8	7.9	8.0	6.9	7.5	7.9	7.6	7.7
18	7.8	7.6	7.7	8.1	7.8	7.9	7.9	7.8	7.8	7.9	7.6	7.7
19	8.0	7.6	7.8	8.0	7.8	7.9	7.9	7.7	7.8	7.8	7.6	7.7
20	7.8	7.6	7.7	8.1	7.8	7.9	7.8	7.7	7.7	7.8	7.5	7.6
21	8.0	7.6	7.7	8.0	7.8	7.9	7.9	7.6	7.9	7.7	7.5	7.6
22	7.8	7.6	7.7	8.0	7.8	7.9	7.8	7.6	7.7	7.8	7.5	7.6
23	7.8	7.6	7.7	8.0	7.7	7.8	8.0	7.6	7.8	7.8	7.5	7.6
24	7.8	7.6	7.7	8.0	7.7	7.8	7.8	7.7	7.8	7.8	7.6	7.7
25	7.8	7.6	7.7	8.0	7.7	7.8	7.8	7.7	7.7	7.8	7.6	7.7
26	7.8	7.6	7.7	8.0	7.7	7.8	7.9	7.6	7.7	7.8	7.6	7.7
27	7.8	7.6	7.7	8.0	7.8	7.9	7.9	7.7	7.8	7.8	7.6	7.6
28	7.8	7.6	7.7	8.0	7.8	7.9	7.8	7.6	7.7	7.7	7.5	7.6
29	7.8	7.6	7.7	8.0	7.8	7.9	7.8	7.6	7.7	7.7	7.5	7.6
30	7.9	7.6	7.7	8.0	7.8	7.9	7.9	7.6	7.7	7.6	7.5	7.5
31	---	---	---	8.1	7.8	7.9	7.9	7.7	7.8	---	---	---
MONTH	8.2	7.6	7.8	8.1	7.6	7.9	8.2	6.9	7.8	7.9	7.5	7.7
YEAR	8.4	6.9	7.6									

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	17.0	16.5	17.0	13.5	13.0	13.0	9.0	9.0	9.0	5.0	4.5	5.0
2	17.5	16.5	17.0	13.0	13.0	13.0	9.0	8.5	9.0	5.0	5.0	5.0
3	17.0	17.0	17.0	13.5	13.0	13.0	9.0	9.0	9.0	5.0	5.0	5.0
4	17.5	16.5	17.0	---	---	---	9.0	9.0	9.0	5.0	5.0	5.0
5	17.5	17.0	17.0	---	---	---	9.0	9.0	9.0	5.0	5.0	5.0
6	17.5	17.0	17.0	---	---	---	9.0	8.5	9.0	5.0	5.0	5.0
7	17.0	16.5	17.0	---	---	---	8.5	8.5	8.5	5.0	5.0	5.0
8	17.0	16.0	16.5	---	---	---	8.5	8.0	8.5	5.0	4.5	5.0
9	17.0	16.0	16.5	---	---	---	8.5	8.0	8.5	5.0	4.5	5.0
10	16.5	16.0	16.0	12.0	12.0	12.0	8.5	8.5	8.5	5.0	4.5	5.0
11	16.0	16.0	16.0	12.0	11.5	11.5	8.5	8.0	8.5	4.5	4.5	4.5
12	16.5	16.0	16.0	11.5	11.0	11.0	8.0	8.0	8.0	4.5	4.5	4.5
13	16.5	16.0	16.5	11.0	10.5	11.0	8.0	8.0	8.0	4.5	4.5	4.5
14	16.0	15.5	16.0	11.0	10.5	10.5	8.0	8.0	8.0	4.5	4.0	4.5
15	16.0	15.5	15.5	10.5	10.5	10.5	8.0	8.0	8.0	4.5	4.0	4.0
16	16.0	15.5	15.5	10.5	10.5	10.5	8.0	7.5	8.0	4.5	4.0	4.0
17	16.0	15.0	15.5	10.5	10.0	10.0	8.0	7.5	7.5	4.0	4.0	4.0
18	15.5	15.0	15.5	10.0	10.0	10.0	7.5	7.5	7.5	4.0	4.0	4.0
19	16.0	15.5	15.5	10.5	10.0	10.0	7.5	7.0	7.5	4.0	3.5	4.0
20	15.5	15.0	15.5	10.5	10.0	10.0	7.5	7.0	7.0	3.5	3.5	3.5
21	15.0	14.5	15.0	10.5	10.0	10.0	7.0	7.0	7.0	3.5	3.5	3.5
22	15.0	14.5	14.5	10.0	9.5	10.0	7.0	7.0	7.0	3.5	3.5	3.5
23	14.5	14.5	14.5	10.0	10.0	10.0	7.0	7.0	7.0	4.0	3.5	4.0
24	15.0	14.5	14.5	10.0	10.0	10.0	7.0	6.0	6.5	4.0	4.0	4.0
25	14.5	14.0	14.5	10.0	9.5	9.5	6.0	5.5	5.5	4.0	4.0	4.0
26	14.5	14.0	14.0	9.5	9.5	9.5	5.5	5.5	5.5	4.0	3.5	4.0
27	14.0	13.5	14.0	9.5	9.0	9.5	5.5	5.5	5.5	4.0	3.5	4.0
28	14.0	13.5	13.5	9.5	9.5	9.5	5.5	5.5	5.5	4.0	3.5	4.0
29	14.0	13.5	13.5	9.5	9.0	9.5	5.5	5.0	5.5	4.0	3.5	4.0
30	13.5	13.0	13.5	9.0	9.0	9.0	5.0	5.0	5.0	4.0	3.5	4.0
31	13.5	13.0	13.0	---	---	---	5.0	4.5	5.0	4.0	3.5	3.5
MONTH	17.5	13.0	15.5	13.5	9.0	10.5	9.0	4.5	7.5	5.0	3.5	4.5

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	3.5	3.5	3.5	4.5	4.5	4.5	6.0	6.0	6.0	8.0	7.5	8.0
2	4.0	3.5	3.5	4.5	4.5	4.5	6.5	6.0	6.0	8.0	7.5	7.5
3	4.0	4.0	4.0	5.0	4.5	4.5	6.0	6.0	6.0	8.0	7.5	7.5
4	4.0	4.0	4.0	5.0	4.5	4.5	6.0	6.0	6.0	8.0	7.5	8.0
5	4.0	3.5	4.0	5.0	4.5	5.0	6.5	5.5	6.0	8.0	7.5	8.0
6	3.5	3.5	3.5	5.0	5.0	5.0	6.5	6.5	6.5	8.0	8.0	8.0
7	3.5	3.0	3.5	5.0	5.0	5.0	6.5	6.5	6.5	8.0	7.5	8.0
8	3.5	3.0	3.5	7.5	4.5	5.0	7.0	6.5	6.5	8.5	7.5	8.0
9	4.0	3.5	3.5	5.0	4.5	4.5	6.5	6.5	6.5	8.5	8.0	8.0
10	4.0	3.5	4.0	5.0	4.5	4.5	6.5	6.5	6.5	9.0	8.0	8.5
11	4.0	4.0	4.0	5.0	4.5	5.0	7.0	6.5	6.5	9.0	8.5	9.0
12	4.0	4.0	4.0	5.0	4.5	5.0	11.5	6.5	7.0	9.0	9.0	9.0
13	4.0	4.0	4.0	5.0	4.5	5.0	9.0	6.5	7.0	9.0	9.0	9.0
14	4.0	3.5	3.5	5.0	5.0	5.0	7.0	6.5	7.0	9.5	9.0	9.5
15	4.0	3.5	3.5	5.0	5.0	5.0	7.0	6.5	7.0	9.5	9.0	9.0
16	4.0	4.0	4.0	5.0	5.0	5.0	7.0	6.5	7.0	10.5	8.5	9.0
17	4.0	4.0	4.0	5.0	5.0	5.0	7.0	6.5	7.0	9.0	9.0	9.0
18	4.0	4.0	4.0	5.0	5.0	5.0	7.0	6.5	7.0	9.5	9.0	9.0
19	4.5	4.0	4.5	5.0	5.0	5.0	7.0	6.5	7.0	10.0	9.0	9.0
20	4.5	4.5	4.5	5.0	5.0	5.0	7.0	7.0	7.0	9.5	9.0	9.5
21	4.5	4.5	4.5	5.5	5.0	5.0	7.0	7.0	7.0	10.0	9.0	9.5
22	4.5	4.5	4.5	5.0	5.0	5.0	7.0	7.0	7.0	9.5	9.0	9.5
23	4.5	4.5	4.5	5.5	5.0	5.5	7.0	6.5	7.0	9.5	9.5	9.5
24	4.5	4.5	4.5	5.5	5.0	5.5	7.0	7.0	7.0	10.0	9.0	9.5
25	5.0	4.5	5.0	5.5	5.5	5.5	7.5	7.0	7.0	16.5	9.0	12.0
26	5.0	4.5	4.5	5.5	5.5	5.5	7.5	7.0	7.5	18.0	15.5	16.5
27	4.5	4.5	4.5	5.5	5.0	5.5	7.5	7.5	7.5	17.0	16.5	17.0
28	4.5	4.5	4.5	5.5	5.5	5.5	8.0	7.5	7.5	17.0	16.5	17.0
29	4.5	4.5	4.5	6.5	5.5	6.0	7.5	7.5	7.5	18.0	16.0	17.0
30	---	---	---	6.5	6.5	6.5	8.0	7.5	7.5	18.0	17.0	17.5
31	---	---	---	6.5	6.0	6.0	---	---	---	17.5	16.0	17.0
MONTH	5.0	3.0	4.0	7.5	4.5	5.0	11.5	5.5	7.0	18.0	7.5	10.5
JUNE				JULY			AUGUST			SEPTEMBER		
1	17.5	16.0	17.0	21.5	20.5	21.0	22.5	21.5	22.0	22.0	21.5	21.5
2	18.0	16.5	17.5	21.5	20.5	21.0	22.5	21.5	22.0	22.0	21.5	21.5
3	18.5	17.0	17.5	21.5	20.5	21.0	23.0	22.0	22.5	22.0	21.5	21.5
4	18.0	17.0	17.5	21.5	20.5	21.0	23.0	22.0	22.5	22.0	21.0	21.5
5	18.0	17.0	17.5	22.0	20.0	21.0	23.0	22.5	22.5	21.5	21.0	21.5
6	19.0	17.5	18.0	22.0	20.5	21.0	23.0	22.5	22.5	21.5	21.0	21.0
7	18.5	17.5	18.0	22.0	20.5	21.5	23.5	22.5	23.0	21.0	20.5	20.5
8	19.0	18.0	18.5	22.0	20.5	21.5	23.5	22.5	23.0	21.0	20.0	20.5
9	19.0	18.5	18.5	21.5	21.0	21.5	23.5	23.0	23.0	21.0	20.0	20.5
10	19.5	18.5	19.0	21.5	21.0	21.5	23.5	23.0	23.0	20.5	19.5	20.0
11	20.0	19.0	19.5	22.5	21.0	21.5	23.5	23.0	23.0	20.0	19.5	20.0
12	20.0	19.0	19.5	22.5	21.5	22.0	23.0	22.0	22.5	21.0	19.5	20.0
13	20.0	19.0	19.5	23.0	22.0	22.5	22.0	13.5	18.5	21.5	20.5	21.0
14	21.5	19.5	20.5	23.0	22.0	22.5	13.5	9.0	11.5	21.5	21.0	21.0
15	20.5	19.5	20.0	23.0	22.5	22.5	11.0	10.0	10.5	21.5	21.0	21.0
16	20.5	19.5	20.0	23.0	22.0	22.5	11.0	10.0	10.0	21.0	20.5	20.5
17	20.0	19.5	19.5	23.0	22.0	22.5	22.0	9.5	17.0	20.5	20.0	20.5
18	21.5	19.5	20.0	23.5	22.0	22.5	21.5	21.5	21.5	20.5	19.5	20.0
19	22.0	19.5	21.0	23.0	22.0	22.5	21.5	21.5	21.5	19.5	19.5	19.5
20	21.5	20.5	21.0	23.0	22.0	22.5	22.0	21.5	21.5	20.0	19.0	19.5
21	21.5	20.5	21.0	22.5	22.0	22.5	22.0	21.0	21.5	20.0	19.0	19.5
22	21.5	20.0	21.0	22.5	22.0	22.5	22.0	21.0	21.5	20.0	19.5	19.5
23	21.0	20.0	20.5	22.5	22.0	22.0	22.0	21.0	21.5	20.0	19.5	19.5
24	21.0	20.5	20.5	23.0	22.0	22.5	22.0	21.5	21.5	20.0	19.5	20.0
25	22.0	20.5	21.0	22.5	22.0	22.5	22.0	21.5	21.5	20.5	20.0	20.0
26	21.5	20.5	21.0	22.5	22.0	22.0	22.0	21.0	21.5	20.0	19.5	20.0
27	22.0	20.5	21.0	22.5	21.0	22.0	22.0	21.5	21.5	19.5	19.0	19.5
28	21.5	20.5	21.0	22.5	21.5	22.0	22.0	21.0	21.5	19.0	18.5	18.5
29	21.5	20.5	21.0	22.0	21.5	21.5	22.0	21.5	21.5	18.5	18.5	18.5
30	21.5	20.5	21.0	22.0	21.5	21.5	22.0	21.5	22.0	18.5	18.0	18.0
31	---	---	---	22.0	21.5	21.5	22.5	21.5	22.0	---	---	---
MONTH	22.0	16.0	19.5	23.5	20.0	22.0	23.5	9.0	20.5	22.0	18.0	20.0
YEAR	23.5	3.0	12.5									

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	9.3	8.8	9.0	9.9	9.4	9.6	11.1	10.8	10.9	12.4	12.3	12.3
2	9.3	8.8	9.0	9.9	9.3	9.5	11.0	10.7	10.8	12.3	12.2	12.3
3	9.5	8.9	9.1	9.9	9.3	9.5	10.9	10.6	10.7	12.3	12.2	12.3
4	9.5	9.0	9.2	---	---	---	10.8	10.5	10.6	12.2	12.1	12.2
5	9.4	9.0	9.1	---	---	---	11.0	10.6	10.7	12.2	12.1	12.1
6	9.4	9.0	9.2	---	---	---	10.6	10.2	10.5	12.1	11.9	12.0
7	9.6	9.2	9.3	---	---	---	10.7	10.4	10.6	12.2	12.0	12.1
8	9.6	9.2	9.3	---	---	---	10.8	10.6	10.7	12.2	12.0	12.1
9	9.6	9.2	9.3	---	---	---	10.9	10.7	10.8	12.4	12.2	12.3
10	9.7	9.3	9.5	10.0	9.7	9.8	10.9	10.7	10.8	12.3	12.1	12.2
11	9.6	9.3	9.4	9.9	9.7	9.8	11.1	10.8	11.0	12.5	12.1	12.4
12	9.6	9.2	9.4	10.3	9.8	10.1	11.5	11.0	11.3	12.6	12.5	12.5
13	9.6	9.2	9.3	10.4	10.0	10.1	12.3	11.5	11.8	12.6	12.3	12.5
14	9.8	9.3	9.5	10.3	10.0	10.1	12.3	11.3	11.9	12.5	12.3	12.4
15	9.8	9.4	9.6	10.1	10.0	10.0	12.4	11.5	12.0	12.6	12.4	12.5
16	9.9	9.4	9.6	10.2	10.0	10.1	12.3	11.5	11.8	12.5	12.4	12.4
17	10.0	9.4	9.7	10.2	9.7	9.9	11.7	11.4	11.5	12.6	12.4	12.5
18	10.0	9.4	9.7	10.5	10.2	10.3	11.6	11.5	11.5	12.7	12.3	12.2
19	9.6	9.1	9.4	10.5	10.2	10.3	11.6	11.5	11.5	12.4	12.3	12.4
20	9.5	9.1	9.3	10.5	10.2	10.3	11.6	11.5	11.5	12.7	12.5	12.6
21	9.6	9.2	9.3	10.7	10.2	10.4	11.6	11.4	11.6	13.0	12.7	12.8
22	9.7	9.2	9.4	10.8	10.5	10.6	12.0	11.4	11.7	13.0	12.7	12.9
23	9.5	9.1	9.3	10.9	10.6	10.7	12.1	11.9	12.0	12.8	12.5	12.7
24	9.7	9.1	9.3	10.8	10.6	10.7	12.1	11.9	12.0	12.5	12.2	12.4
25	9.7	9.2	9.3	11.0	10.7	10.8	12.3	12.1	12.2	12.4	12.2	12.2
26	9.7	9.2	9.3	11.2	10.7	10.9	12.3	11.9	12.1	12.8	12.3	12.5
27	9.8	9.2	9.4	11.3	10.9	11.0	12.2	12.0	12.1	12.6	12.3	12.4
28	9.8	9.2	9.5	11.1	10.4	10.7	12.1	11.9	12.0	12.5	12.3	12.4
29	9.8	9.2	9.5	11.3	10.4	10.9	12.5	12.0	12.3	12.4	12.3	12.4
30	10.0	9.4	9.6	11.1	10.9	11.0	12.6	12.3	12.5	12.4	12.1	12.3
31	9.9	9.4	9.6	---	---	---	12.5	12.3	12.4	12.4	12.2	12.3
MONTH	10.0	8.8	9.4	11.3	9.3	10.3	12.6	10.2	11.5	13.0	11.9	12.4
FEBRUARY			MARCH			APRIL			MAY			
1	12.5	12.3	12.4	13.4	13.1	13.2	12.8	12.5	12.6	14.4	13.7	14.0
2	12.5	12.2	12.3	13.2	12.9	13.0	12.6	12.2	12.3	14.3	13.2	13.6
3	12.3	12.1	12.2	13.0	12.9	12.9	12.3	12.2	12.2	14.0	12.9	13.2
4	12.3	12.0	12.1	13.1	12.9	13.0	12.2	11.9	12.0	13.7	12.8	13.2
5	12.3	12.1	12.2	12.9	12.7	12.8	13.5	11.8	12.8	14.0	13.1	13.4
6	12.5	12.4	12.4	12.8	12.7	12.7	13.5	12.6	12.9	13.8	13.0	13.2
7	12.7	12.5	12.6	12.9	12.7	12.8	12.7	12.3	12.4	13.9	12.5	12.9
8	12.8	12.2	12.6	12.8	11.3	12.7	12.5	12.1	12.2	14.5	13.4	14.2
9	12.8	12.3	12.6	12.9	12.8	12.9	12.2	12.1	12.1	14.6	12.9	13.7
10	13.2	12.8	13.0	12.9	12.8	12.9	12.2	11.8	12.0	13.1	11.7	12.3
11	13.2	13.0	13.1	12.8	12.6	12.7	12.0	11.8	11.9	12.2	11.5	11.9
12	13.5	13.0	13.3	12.8	12.7	12.7	12.0	10.5	11.8	12.5	11.4	11.8
13	13.7	13.3	13.6	12.7	12.6	12.7	11.9	11.5	11.8	12.8	11.5	12.3
14	14.7	13.5	13.9	12.9	12.6	12.7	11.8	11.6	11.7	12.6	11.6	12.0
15	14.9	14.4	14.7	12.9	12.8	12.8	11.8	11.6	11.7	12.4	10.8	11.4
16	15.7	15.0	15.4	12.8	12.7	12.8	11.7	11.6	11.6	11.0	10.6	10.8
17	16.0	15.6	15.9	12.9	12.8	12.8	11.7	11.6	11.6	11.1	10.7	10.9
18	16.2	14.4	15.1	12.9	12.8	12.8	11.7	11.6	11.7	12.9	10.8	12.2
19	14.5	13.5	13.8	12.8	12.6	12.7	11.8	11.7	11.7	12.8	12.3	12.6
20	13.5	13.4	13.5	12.6	12.0	12.2	11.8	11.6	11.7	12.6	12.1	12.4
21	13.4	13.2	13.3	13.8	11.9	12.9	11.8	11.6	11.7	12.5	12.0	12.2
22	13.3	12.9	13.1	14.6	13.6	14.1	12.0	11.6	11.8	12.4	12.0	12.2
23	12.9	12.8	12.8	14.9	14.2	14.6	12.9	11.8	12.4	12.2	11.6	11.8
24	14.6	12.9	13.6	14.8	12.8	13.5	12.8	12.7	12.8	12.2	11.6	11.9
25	13.8	13.5	13.7	12.8	12.6	12.7	12.9	12.0	12.3	12.1	10.2	11.2
26	14.2	13.6	14.0	12.7	12.6	12.7	12.0	11.8	11.9	10.8	10.3	10.6
27	14.1	13.4	13.8	12.7	12.3	12.5	13.6	11.8	12.9	11.1	10.6	10.8
28	13.4	13.1	13.2	12.3	12.0	12.2	14.0	13.5	13.7	11.1	10.8	11.0
29	13.3	13.1	13.3	13.8	11.9	12.9	14.1	13.7	13.9	11.1	10.5	10.9
30	---	---	---	14.0	13.7	13.8	14.2	13.9	14.0	11.2	10.6	10.8
31	---	---	---	14.1	12.8	13.2	---	---	---	11.3	9.0	10.2
MONTH	16.2	12.0	13.4	14.9	11.3	12.9	14.2	10.5	12.3	14.6	9.0	12.1





## 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>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1925 to March 1984 (discontinued). Prior to October 1934, published as "at Barber."

REVISED RECORDS.--WSP 952: 1927, 1928(M), 1929-30, 1932-40. WSP 1303: 1926(M), 1930-34(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,333.49 ft National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 26, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 7.6 mi upstream.

AVERAGE DISCHARGE.--58 years, 490 ft<sup>3</sup>/s, 16.19 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,700 ft<sup>3</sup>/s Mar. 17, 1936, gage height, 14.74 ft, from rating curve extended above 17,000 ft<sup>3</sup>/s on basis of records for other stations in James River basin; minimum, 36 ft<sup>3</sup>/s Oct. 12, 1946, July 15, 1981; minimum daily, 52 ft<sup>3</sup>/s Sept. 8, 1966; minimum gage height, 2.65 ft Oct. 12, 1946.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of about 20 ft, discharge, about 50,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1983 to March 1984, 6,140 ft<sup>3</sup>/s Feb. 15, gage height, 9.50 ft; minimum, 70 ft<sup>3</sup>/s Nov. 17, gage height, 3.08 ft; minimum daily, 164 ft<sup>3</sup>/s Oct. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1983 TO MARCH 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	174	205	483	319	959						
2	166	173	198	446	284	696						
3	166	173	196	416	285	554						
4	164	171	437	411	292	554						
5	164	171	298	409	354	568						
6	165	170	261	343	403	568						
7	165	170	247	277	398	601						
8	165	168	229	273	352	568						
9	166	168	217	271	248	630						
10	166	190	209	291	250	625						
11	170	202	279	426	362	541						
12	174	190	1030	424	434	462						
13	175	185	1800	326	852	488						
14	176	182	2540	281	3390	611						
15	170	190	2290	264	5900	711						
16	168	201	1460	257	5730	797						
17	168	173	613	254	5510	911						
18	168	188	485	254	3420	959						
19	167	186	455	250	1390	842						
20	171	184	411	246	1040	727						
21	195	181	351	244	935	2660						
22	193	176	871	245	842	4720						
23	324	176	1200	241	1210	5030						
24	269	186	1140	268	2760	2950						
25	216	284	1100	331	3750	1270						
26	198	237	802	524	2610	1260						
27	189	215	530	585	1610	1080						
28	185	215	576	480	1200	1030						
29	181	228	891	473	1100	2630						
30	178	215	921	417	---	3830						
31	176	---	626	358	---	2640						
TOTAL	5665	5722	22868	10768	47230	42472						
MEAN	183	191	738	347	1629	1370						
MAX	324	284	2540	585	5900	5030						
MIN	164	168	196	241	248	462						
(*)	+62	+203	+260	-5	-9	+16						
MEAN#	245	394	998	342	1620	1386						
CFSM#	.60	.96	2.43	.83	3.94	3.37						
IN#	.69	1.07	2.80	.96	4.25	3.89						

CAL YR 1983 TOTAL 197768 MEAN 542 MAX 4140 MIN 164 MEAN# 543 CFSM# 1.32 IN# 17.93

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.

# Adjusted for change in contents.

## JAMES RIVER BASIN

02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1968 to current year.

WATER TEMPERATURES: December 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 500 micromhos Oct. 2, 1970; minimum daily, 61 micromhos Dec. 21, 26, 1977.

WATER TEMPERATURES: 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, 258 micromhos Oct. 24; minimum daily, 110 micromhos Dec. 17.

WATER TEMPERATURES: Maximum daily, 26.5°C July 14; minimum daily, 2.0°C Jan. 20-22.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT 20...	1210	168	195	7.9	14.0	735	3	9.8	99
NOV 29...	1230	228	214	8.4	9.0	721	3	12.8	117
JAN 17...	0945	255	177	7.7	3.5	729	5	12.7	100
FEB 23...	1415	917	141	7.5	5.0	714	13	12.2	102
MAY 17...	1230	345	165	8.7	10.5	725	7	--	--
JUL 10...	1615	310	150	8.2	21.5	729	5	8.5	101
AUG 22...	1045	335	187	7.9	20.0	731	1	8.6	99

DATE	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- LILITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 20...	91	19	29	4.4	2.1	1.5	72	23	2.2
NOV 29...	100	26	32	4.8	2.1	1.7	74	30	2.4
JAN 17...	84	19	27	4.0	2.1	1.4	65	22	2.4
FEB 23...	61	12	20	2.8	1.8	1.2	50	15	2.7
MAY 17...	76	16	25	3.3	1.8	1.3	60	20	2.7
JUL 10...	82	24	24	5.3	2.3	1.5	58	18	2.3
AUG 22...	83	17	27	3.9	1.9	1.6	67	25	2.2

## JAMES RIVER BASIN

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02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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 20...	.20	3.6	114	110	.010	<.10	.010	11
NOV 29...	.20	5.4	125	120	<.010	.24	<.010	7
JAN 17...	.10	4.5	116	100	.070	.22	.020	<3
FEB 23...	<.10	4.3	87	78	<.010	.32	<.010	27
MAY 17...	.10	4.0	117	94	--	--	--	7
JUL 10...	<.10	3.7	111	92	<.010	<.10	<.010	25
AUG 22...	.10	4.3	113	110	<.010	.14	<.010	10

&lt; Actual value is known to be less than the value shown.



## JAMES RIVER BASIN

## 02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	200	218	180	180	160	150	130	178	180	182	220
2	218	201	220	180	182	178	160	140	180	182	190	220
3	219	200	210	180	184	190	170	142	175	180	182	220
4	210	200	180	165	178	182	178	135	175	180	198	218
5	210	202	220	180	178	---	138	130	170	182	190	210
6	208	200	222	179	176	---	160	120	165	180	190	210
7	206	199	222	185	176	175	142	125	170	190	190	200
8	219	199	220	185	170	182	150	120	165	180	195	200
9	220	200	220	185	190	162	152	125	162	182	180	200
10	219	210	220	180	182	160	160	140	170	175	182	200
11	220	222	130	160	180	170	145	142	170	180	200	190
12	225	220	150	165	170	180	175	142	168	180	220	200
13	220	219	175	180	160	182	160	150	162	179	220	198
14	225	216	125	165	160	162	159	160	165	180	140	198
15	220	218	142	180	148	160	155	180	160	180	130	200
16	219	220	159	182	140	170	150	180	160	180	160	200
17	204	220	110	182	140	155	155	175	165	180	198	198
18	216	220	115	180	150	158	150	175	170	182	200	198
19	216	218	115	160	158	160	145	178	165	180	198	200
20	212	220	115	184	160	160	150	178	162	180	190	198
21	220	208	119	180	162	140	150	170	162	220	200	190
22	230	200	112	190	160	140	142	165	165	198	200	200
23	240	200	160	190	160	155	138	175	170	185	185	198
24	258	210	162	198	140	140	125	180	170	180	190	198
25	242	220	160	200	142	144	138	178	170	185	200	200
26	240	220	165	160	150	158	140	178	170	185	190	200
27	230	220	180	178	150	170	142	180	162	190	190	200
28	225	220	190	178	160	160	150	185	165	190	190	200
29	230	220	160	180	160	140	130	179	170	185	200	200
30	221	220	165	180	---	140	130	179	180	185	190	210
31	220	---	178	180	---	150	---	180	---	185	220	---
MEAN	222	211	169	179	164	161	150	159	168	184	190	202
WTR YR 1984	MEAN	180	MAX	258	MIN	110						

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	14.0	9.0	5.0	4.0	6.0	7.5	11.0	18.5	22.0	24.5	20.0
2	17.0	14.0	7.5	5.0	5.0	5.5	9.0	10.0	18.0	22.0	25.5	22.0
3	19.0	14.5	9.0	5.5	5.0	5.5	7.0	9.5	18.5	23.0	25.0	23.0
4	19.0	13.0	9.5	6.0	5.0	5.0	7.5	9.5	21.0	22.5	25.0	21.0
5	19.0	12.0	11.0	6.0	5.0	---	7.0	10.5	19.5	25.5	23.0	21.5
6	19.0	11.5	10.0	6.0	4.0	---	7.5	11.5	19.0	25.5	25.0	22.0
7	18.0	11.5	7.5	6.0	3.5	7.0	8.0	10.5	21.0	24.0	25.5	21.5
8	15.5	12.5	7.0	6.0	5.0	6.0	8.0	9.0	23.5	24.0	25.5	20.5
9	17.5	12.0	8.0	6.0	5.5	7.0	8.0	9.0	23.5	23.0	25.0	19.0
10	18.0	13.0	9.0	5.0	5.5	7.0	10.5	11.5	21.5	21.5	25.5	23.0
11	15.5	11.0	9.0	5.0	5.5	7.0	11.0	13.0	21.0	25.5	23.5	23.0
12	17.5	9.5	9.0	4.5	5.5	7.0	12.0	11.5	20.5	24.5	21.5	22.5
13	18.0	9.5	9.0	3.5	5.5	6.0	11.5	13.0	23.0	25.0	21.5	23.0
14	16.5	9.0	8.5	---	7.0	8.5	11.0	14.0	22.0	26.5	12.0	23.5
15	16.5	9.0	8.5	4.5	5.5	9.0	10.5	14.5	21.0	25.0	12.0	21.0
16	16.5	10.0	8.0	4.5	5.0	8.0	10.0	14.0	20.5	25.0	12.5	20.0
17	17.0	9.0	8.0	4.5	5.0	7.5	9.5	14.0	22.5	24.0	21.0	21.0
18	16.5	9.0	8.0	3.0	5.0	8.0	8.5	14.0	24.0	24.5	20.5	20.5
19	16.5	10.0	7.5	4.0	5.0	9.0	9.5	13.5	25.0	25.5	22.0	21.0
20	14.0	10.0	6.5	2.0	5.5	8.5	10.5	14.0	24.0	25.0	22.0	21.5
21	13.5	11.0	5.5	2.0	7.0	6.0	8.0	15.0	24.0	21.5	21.5	22.0
22	13.5	11.0	7.0	2.0	7.0	5.5	8.0	15.0	23.0	23.0	21.0	22.0
23	13.5	10.0	7.0	4.0	5.0	6.5	8.0	13.0	23.0	24.5	21.0	22.0
24	15.5	10.0	5.0	5.0	7.0	7.0	8.0	15.0	21.0	25.5	21.0	22.0
25	15.0	9.5	5.0	6.0	5.5	7.0	11.0	16.5	24.0	23.0	22.0	22.0
26	14.5	9.0	4.5	5.5	6.0	7.5	12.0	20.0	24.0	23.5	22.0	20.5
27	14.0	9.0	5.5	6.0	5.0	8.0	12.5	17.0	24.5	22.5	23.5	16.5
28	14.0	11.0	6.0	5.5	5.5	7.0	13.0	17.5	21.5	22.5	23.0	16.5
29	13.5	9.5	5.0	5.5	5.5	6.0	11.0	17.5	23.0	22.0	24.0	17.0
30	13.5	8.5	5.0	4.5	---	7.0	11.5	16.5	22.0	22.0	24.0	16.0
31	13.5	---	5.0	4.0	---	7.0	---	17.0	---	24.0	21.0	---
MEAN	16.0	11.0	7.5	4.5	5.5	7.0	9.5	13.5	22.0	24.0	22.0	21.0
WTR YR 1984	MEAN	13.5	MAX	26.5	MIN	2.0						

## 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 TEMPERATURES: June 1978 to current year.

INSTRUMENTATION.--Temperature recorder since June 1978.

REMARKS.--Period of missing record, Jan. 24 to Apr. 10, was due to temperature probe cable damage from construction activities. Some record in prior years fragmentary due to instrument malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum recorded, 30.5°C July 21, 1980; minimum recorded, 0.0°C Jan. 13, 1982, and on several days during winter period in 1984.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum recorded, 27.0°C Aug. 2, 10; minimum recorded, 0.0°C on several days during winter period.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	15.0	14.0	14.5	13.0	10.5	11.5	7.5	6.5	6.5	4.5	2.0	3.5
2	17.5	15.0	16.0	13.0	11.5	12.0	6.5	5.5	6.0	4.5	3.5	4.0
3	18.5	15.5	16.5	14.0	12.0	13.0	8.0	6.5	7.5	5.0	4.0	4.5
4	18.5	15.5	17.0	13.5	11.0	12.5	9.0	7.5	8.0	5.0	2.5	4.0
5	18.5	16.5	17.0	11.0	9.0	10.0	9.5	8.5	9.0	5.5	4.5	5.0
6	19.5	16.5	17.5	10.0	9.0	9.0	10.0	9.0	9.0	5.5	4.5	5.0
7	17.5	15.0	16.0	10.0	8.5	9.0	8.5	5.5	7.0	5.0	4.0	4.5
8	17.0	14.0	15.0	11.0	8.5	9.5	5.5	5.0	5.5	4.0	2.5	3.5
9	17.0	14.0	15.5	11.0	9.0	10.0	6.5	5.0	5.5	5.0	3.5	4.0
10	16.0	14.5	15.0	12.5	11.0	12.0	8.5	6.5	7.5	5.0	4.0	4.5
11	15.0	14.5	14.5	12.5	9.0	11.0	8.5	7.5	8.0	4.0	3.5	4.0
12	16.5	15.0	15.5	9.0	7.0	8.0	9.0	8.0	8.5	3.5	2.0	2.5
13	18.0	16.5	17.0	8.0	6.5	7.0	9.0	8.0	8.5	3.0	2.0	2.5
14	16.5	14.5	15.5	8.5	6.5	7.5	9.0	8.0	8.5	4.0	3.0	3.5
15	16.0	13.0	14.0	8.5	8.0	8.0	8.5	7.5	8.0	4.0	3.5	4.0
16	16.0	13.0	14.5	9.0	8.0	8.5	8.0	7.5	7.5	4.0	3.5	4.0
17	16.0	13.5	14.5	8.5	7.0	8.0	7.5	7.0	7.0	4.5	3.5	4.0
18	16.5	14.5	15.5	8.5	7.0	8.0	7.0	5.0	6.0	3.5	2.0	3.0
19	17.0	15.5	16.0	10.5	9.0	9.5	6.5	5.0	6.0	4.0	2.0	3.0
20	15.5	14.0	14.5	10.5	9.0	10.0	6.5	5.5	5.5	2.0	.0	.5
21	14.0	12.5	13.0	11.0	9.0	9.5	5.5	4.5	5.0	.5	.0	.0
22	12.5	12.0	12.5	9.5	8.0	9.0	6.5	5.0	5.5	.0	.0	.0
23	13.0	12.5	12.5	9.5	8.5	9.0	6.5	5.5	6.0	2.0	.0	1.0
24	14.5	13.0	13.5	10.5	9.5	10.0	6.5	3.0	5.0	---	---	---
25	15.0	14.0	14.5	10.0	8.0	9.0	4.0	2.5	3.0	---	---	---
26	14.5	13.0	13.5	8.5	7.0	7.5	4.0	3.0	3.5	---	---	---
27	13.0	12.0	12.5	8.5	7.0	7.5	5.0	3.5	4.0	---	---	---
28	13.0	10.5	11.5	10.0	8.5	9.5	5.5	5.0	5.0	---	---	---
29	14.5	12.0	13.0	10.0	8.0	9.0	5.5	4.0	5.0	---	---	---
30	12.5	10.5	11.5	7.5	6.5	7.0	4.0	3.0	3.5	---	---	---
31	12.0	9.5	10.5	---	---	---	3.5	2.0	3.0	---	---	---
MONTH	19.5	9.5	14.5	14.0	6.5	9.5	10.0	2.0	6.0	5.5	.0	3.0

02012800 JACKSON RIVER AT FILTRATON PLANT, AT COVINGTON, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

[illegible]

## 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 National Geodetic Vertical Datum of 1929. Prior to Dec. 8, 1949, nonrecording gage at same site and datum.

REMARKS.--Records fair. Occasional diurnal fluctuation caused by dam 7.9 mi above station. Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam. Several observations 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, 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 above base 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. 14	0630	7650	9.92	Aug. 12	1600	3560	6.93
Feb. 23	2230	3970	7.34	Aug. 13	0230	*8220	10.21
Mar. 21	1030	3270	6.66	Aug. 14	0230	3670	7.03
Mar. 29	0900	4200	7.57	Aug. 31	0230	4900	8.20
May 6	1800	4580	7.94				

Minimum discharge, 8.0 ft<sup>3</sup>/s June 15, gage height, 0.96 ft; minimum daily, 11 ft<sup>3</sup>/s Oct. 5-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	31	101	120	117	287	426	253	60	163	41	463
2	14	30	84	110	108	241	325	218	56	108	354	242
3	12	29	76	100	112	209	267	215	54	89	130	163
4	12	28	857	94	134	184	304	465	53	59	87	127
5	11	27	466	89	156	185	1200	656	53	51	66	102
6	11	26	261	83	153	271	673	2280	52	53	56	85
7	11	25	192	79	130	299	439	1880	52	89	49	73
8	12	24	152	70	105	259	327	901	51	61	43	65
9	12	24	128	65	95	224	266	597	50	48	48	58
10	12	41	109	70	90	186	273	437	49	42	463	54
11	14	72	94	188	104	174	299	338	48	40	1070	51
12	19	63	1080	174	121	153	263	278	45	36	2210	48
13	22	52	863	149	160	176	232	229	42	33	4370	45
14	20	46	411	129	4930	291	222	195	34	30	1940	43
15	19	51	262	112	1760	313	341	166	29	29	545	41
16	17	91	185	103	744	318	665	144	29	28	289	39
17	15	85	140	94	466	284	492	128	31	27	190	38
18	14	72	114	89	342	244	359	115	30	33	214	36
19	14	63	100	80	278	213	283	107	28	31	252	35
20	16	58	89	56	276	188	238	100	27	28	170	34
21	42	54	79	54	255	2250	208	93	27	79	124	33
22	64	49	386	52	230	1100	794	86	26	75	99	32
23	306	45	684	60	1220	554	1310	81	27	52	88	31
24	300	56	383	74	2380	381	771	79	38	44	78	30
25	122	244	200	259	1520	328	511	71	47	37	67	29
26	77	221	160	333	719	447	372	67	35	52	59	28
27	59	145	120	264	470	437	297	69	31	214	54	28
28	48	119	130	218	411	636	254	79	29	92	50	35
29	41	130	233	187	368	3280	369	76	30	63	49	36
30	37	124	190	162	---	1230	302	70	38	51	237	37
31	34	---	140	144	---	621	---	64	---	45	2450	---
TOTAL	1421	2125	8469	3861	17954	15963	13082	10537	1201	1882	15942	2161
MEAN	45.8	70.8	273	125	619	515	436	340	40.0	60.7	514	72.0
MAX	306	244	1080	333	4930	3280	1310	2280	60	214	4370	463
MIN	11	24	76	52	90	153	208	64	26	27	41	28
CFSM	.28	.43	1.67	.76	3.77	3.14	2.66	2.07	.24	.37	3.13	.44
IN.	.32	.48	1.92	.88	4.07	3.62	2.97	2.39	.27	.43	3.62	.49

CAL YR 1983	TOTAL	63182	MEAN 173	MAX 3370	MIN 10	CFSM 1.06	IN 14.33
WTR YR 1984	TOTAL	94598	MEAN 258	MAX 4930	MIN 11	CFSM 1.57	IN 21.46



## 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, 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 (revised) National Geodetic Vertical Datum of 1929.

REMARKS.--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. 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 above station. Diversion 2.0 mi above station for city of Covington water supply averages less than 4.0 ft<sup>3</sup>/s. Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--10 years, 746 ft<sup>3</sup>/s, 16.50 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, 11,900 ft<sup>3</sup>/s Feb. 14, gage height, 13.69 ft; minimum, 166 ft<sup>3</sup>/s Oct. 17, 19; minimum daily, 179 ft<sup>3</sup>/s Oct. 19; minimum gage height, 4.67 ft Nov. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	214	240	338	678	486	1340	2110	1440	336	482	362	1020
2	209	240	311	625	422	1030	1580	1230	329	420	756	679
3	204	235	302	560	426	808	1300	1030	322	408	479	543
4	204	235	1410	538	455	766	1230	1470	321	370	416	490
5	204	235	935	529	525	785	3270	1900	330	367	392	434
6	199	235	610	479	607	866	3370	3780	324	385	382	408
7	199	230	503	384	572	934	2100	3810	322	487	369	388
8	194	230	427	366	519	861	1580	3740	319	401	369	369
9	194	225	383	354	386	890	1340	3700	315	377	377	356
10	194	257	347	371	375	835	1230	2180	314	368	822	350
11	204	314	360	625	392	763	1100	1420	313	368	1690	344
12	209	290	2020	683	522	636	937	1250	311	356	3040	332
13	209	273	2610	541	976	694	862	1080	314	357	4940	332
14	199	262	3090	453	8060	947	793	846	318	351	4430	326
15	190	273	2730	415	6980	1060	962	655	315	355	5700	332
16	190	320	1950	392	6010	1140	1450	476	314	348	3740	326
17	183	302	863	378	5560	1220	1260	495	328	352	1250	320
18	182	290	654	373	3990	1230	1090	540	320	371	802	314
19	179	279	606	355	1850	1110	985	478	315	349	855	314
20	191	273	542	318	1360	936	896	463	311	351	741	314
21	236	268	478	319	1240	4460	818	452	314	494	612	314
22	263	251	1240	310	1090	5720	1780	439	313	455	461	314
23	718	246	2080	320	2380	5420	3430	418	316	391	444	308
24	771	273	1660	346	5080	3720	3450	375	355	375	426	308
25	421	592	1390	606	5420	1700	2600	362	347	365	406	308
26	326	542	1130	870	3690	1800	1690	353	330	386	394	308
27	290	411	751	950	2270	1640	1350	359	325	601	388	308
28	273	369	799	769	1740	1720	1100	370	327	430	391	326
29	257	392	1130	726	1570	5680	1420	364	331	382	394	314
30	251	378	1220	656	---	5240	1520	350	338	367	485	326
31	246	---	878	549	---	3620	---	342	---	362	3510	---
TOTAL	8003	8960	33747	15838	64953	59571	48603	36167	9687	12231	39823	11425
MEAN	258	299	1089	511	2240	1922	1620	1167	323	395	1285	381
MAX	771	592	3090	950	8060	5720	3450	3810	355	601	5700	1020
MIN	179	225	302	310	375	636	793	342	311	348	362	308
(*)	+62	+203	+260	-5	-9	+16	+5	-24	-143	-34	+164	-126
MEAN#	320	502	1349	506	2231	1938	1625	1143	180	361	1449	255
CFSM#	.52	.82	2.20	.82	3.63	3.16	2.65	1.86	.29	.59	2.36	.42
IN#	.60	.91	2.53	.95	3.92	3.64	2.95	2.15	.33	.68	2.72	.46

CAL YR 1983 TOTAL 279804 MEAN 767 MAX 5270 MIN 179 MEAN# 768 CFSM# 1.25 IN# 16.97  
WTR YR 1984 TOTAL 349008 MEAN 954 MAX 8060 MIN 179 MEAN# 986 CFSM# 1.61 IN# 21.85

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.  
\* Adjusted for change in contents.

## JAMES RIVER BASIN

147

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 National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1956, nonrecording gage at site 1.3 mi downstream at different datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--47 years, 180 ft<sup>3</sup>/s, 15.98 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 above base 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)
Feb. 14	0700	*4100	8.05	Mar. 29	1630	2410	6.49

Minimum discharge, 25 ft<sup>3</sup>/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	31	111	190	125	368	635	332	100	109	76	376
2	33	31	97	185	118	315	501	294	93	76	197	238
3	32	32	90	163	143	271	411	284	87	70	67	176
4	32	31	525	140	161	242	352	432	78	56	50	142
5	31	30	415	140	166	242	908	501	74	50	42	117
6	29	31	295	129	159	291	982	1150	70	47	41	100
7	27	30	276	123	138	301	696	1630	67	48	39	87
8	27	30	214	109	107	288	535	1170	61	47	36	76
9	29	29	174	104	120	265	429	768	60	42	48	70
10	32	46	144	106	123	232	372	560	58	44	84	67
11	39	64	124	165	121	222	510	434	54	41	684	63
12	70	57	838	138	118	197	470	364	52	39	714	60
13	75	51	864	119	139	245	407	312	56	39	1060	56
14	83	46	527	128	3190	380	360	268	50	36	851	53
15	80	51	369	121	1660	356	402	229	48	35	456	51
16	59	62	268	115	916	372	496	206	47	35	284	50
17	51	65	207	111	620	385	535	182	48	34	200	48
18	48	60	166	109	470	360	470	167	47	41	165	47
19	46	56	144	103	372	312	398	153	45	37	162	45
20	51	56	129	62	336	275	340	142	42	35	124	44
21	144	57	117	56	298	1480	294	132	42	122	105	42
22	211	57	411	70	258	1130	281	127	41	87	89	41
23	265	56	571	83	275	708	680	124	41	61	84	40
24	225	73	408	109	1450	510	678	112	67	53	74	40
25	105	232	240	235	1280	460	555	105	78	45	67	40
26	59	174	180	247	852	690	447	97	54	42	61	39
27	49	124	180	225	595	610	368	122	44	45	58	39
28	42	113	254	201	535	620	322	124	42	44	91	48
29	38	152	437	183	483	1860	416	132	42	41	87	47
30	35	134	273	169	---	1420	380	119	47	39	402	50
31	32	---	215	155	---	884	---	107	---	37	1130	---
TOTAL	2110	2061	9263	4293	15328	16291	14630	10879	1735	1577	7628	2392
MEAN	68.1	68.7	299	138	529	526	488	351	57.8	50.9	246	79.7
MAX	265	232	864	247	3190	1860	982	1630	100	122	1130	376
MIN	27	29	90	56	107	197	281	97	41	34	36	39
CFSM	.45	.45	1.95	.90	3.46	3.44	3.19	2.29	.38	.33	1.61	.52
IN.	.51	.50	2.25	1.04	3.73	3.96	3.56	2.65	.42	.38	1.85	.58

CAL YR 1983	TOTAL	70506	MEAN 193	MAX 2840	MIN 19	CFSM 1.26	IN 17.14
WTR YR 1984	TOTAL	88187	MEAN 241	MAX 3190	MIN 27	CFSM 1.58	IN 21.44

## 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 National Geodetic Vertical Datum of 1929. Prior to July 12, 1974, at site 700 ft upstream at datum 11.84 ft higher.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--24 years, 148 ft<sup>3</sup>/s, 18.27 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 above base 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. 14	1530	*4320	7.06	Apr. 5	0130	2000	5.57
Mar. 21	1330	3650	6.67	Aug. 10	2130	3700	6.70
Mar. 29	0300	2640	6.02	Aug. 12	0430	3700	6.70

Minimum discharge, 29 ft<sup>3</sup>/s Oct. 7, 8, 10-11, gage height, 2.50 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	47	154	113	77	194	371	290	73	70	45	54
2	34	45	127	110	73	180	294	242	72	55	47	50
3	32	45	116	107	81	169	255	304	67	46	235	52
4	30	45	736	101	127	154	352	781	64	44	80	52
5	30	44	382	101	122	156	1200	456	61	44	66	50
6	30	42	317	99	101	183	603	604	60	47	72	47
7	30	41	290	96	75	183	412	575	56	51	64	46
8	30	40	222	83	65	162	302	462	54	44	60	45
9	30	40	186	78	72	146	255	353	52	41	67	45
10	30	86	159	122	78	134	225	278	55	102	532	45
11	32	154	134	168	155	134	203	235	52	97	770	45
12	46	109	818	90	178	122	183	208	51	64	2120	44
13	44	87	790	85	194	151	167	183	67	54	1010	44
14	50	77	400	84	3030	200	164	162	67	47	685	42
15	39	90	266	83	1530	222	217	144	52	45	365	42
16	34	139	206	81	701	228	282	132	47	44	231	40
17	33	114	164	80	431	238	262	122	48	44	180	40
18	33	94	139	75	307	217	231	116	52	44	149	40
19	32	85	127	73	294	197	206	112	48	42	134	40
20	36	80	114	45	245	180	186	103	47	40	112	40
21	97	88	101	45	211	1830	167	97	48	150	97	39
22	80	81	417	45	183	1120	449	92	46	88	85	39
23	544	75	400	50	314	610	655	88	46	67	81	38
24	287	92	252	70	913	382	488	92	51	56	75	38
25	127	370	145	194	709	302	348	81	55	50	69	38
26	94	208	125	159	412	302	270	80	46	47	64	38
27	77	156	120	132	302	248	225	77	45	58	61	38
28	66	218	344	122	286	774	242	83	42	50	60	52
29	58	270	245	109	238	1760	672	114	42	46	61	50
30	52	197	140	99	---	805	388	85	44	45	58	46
31	48	---	115	90	---	520	---	77	---	44	70	---
TOTAL	2223	3259	8251	2989	11504	12203	10274	6828	1610	1766	7805	1319
MEAN	71.7	109	266	96.4	397	394	342	220	53.7	57.0	252	44.0
MAX	544	370	818	194	3030	1830	1200	781	73	150	2120	54
MIN	30	40	101	45	65	122	164	77	42	40	45	38
CFSM	.65	.99	2.42	.88	3.61	3.58	3.11	2.00	.49	.52	2.29	.40
IN.	.75	1.10	2.79	1.01	3.89	4.13	3.47	2.31	.54	.60	2.64	.45
CAL YR 1983	TOTAL	61822	MEAN 169	MAX 2210	MIN 30	CFSM 1.54	IN 20.91					
WTR YR 1984	TOTAL	70031	MEAN 191	MAX 3030	MIN 30	CFSM 1.74	IN 23.68					

## 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 highway bridge, 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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to October 1934, nonrecording gage at site 100 ft upstream at present datum.

REMARKS.--Records good. Low flow affected by springs and by occasional regulation from unknown source. Several observations 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, 528 ft<sup>3</sup>/s; 15.55 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 above base 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)
Dec. 13	0530	5320	7.55	Mar. 29	1800	8310	9.27
Feb. 15	0230	*13600	11.69	May 6	2200	5140	7.43
Feb. 24	0600	6510	8.28	Aug. 11	1500	5000	7.34
Mar. 22	0430	9540	9.89	Aug. 12	2300	9000	9.62

Minimum discharge, 66 ft<sup>3</sup>/s Oct. 9, 10, gage height, 1.59 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	138	661	450	374	843	1440	1060	231	317	150	373
2	88	131	516	430	330	703	1120	845	217	270	160	253
3	84	126	434	400	331	625	919	772	204	195	198	208
4	79	122	2500	383	351	560	832	1770	192	155	527	194
5	74	116	2320	351	425	535	2520	1890	180	150	306	189
6	70	112	1290	336	424	559	2390	2730	172	139	269	171
7	68	109	1070	321	360	584	1510	3280	164	501	237	157
8	68	107	858	294	299	569	1110	1970	157	430	292	150
9	67	104	688	265	295	549	888	1460	151	240	234	141
10	67	214	564	267	292	495	761	1130	145	178	247	136
11	72	692	481	553	301	472	670	903	142	557	2550	133
12	89	573	1850	608	429	454	594	763	151	460	4240	128
13	111	406	4200	437	528	599	537	658	146	285	5820	123
14	150	308	1980	402	7380	1060	535	571	172	213	3930	120
15	127	280	1220	369	9330	1100	851	506	160	173	2200	116
16	107	420	857	334	2930	998	1430	450	142	149	1230	113
17	91	471	648	314	1760	932	1610	406	141	140	807	110
18	83	379	524	303	1290	880	1180	374	151	149	614	106
19	80	309	450	288	1030	749	912	351	142	141	530	106
20	84	268	401	232	939	658	755	331	131	130	432	104
21	167	250	355	186	851	4680	654	310	122	936	351	104
22	361	241	1100	180	740	6450	1150	326	122	1010	298	102
23	1120	220	2570	200	1600	2450	3630	307	122	497	271	100
24	2340	270	1500	264	4990	1530	2380	276	154	338	243	97
25	895	1500	700	324	3160	1230	1690	259	168	261	222	97
26	482	1450	500	754	2020	1180	1230	239	148	223	200	97
27	323	799	450	701	1390	1020	966	259	126	212	186	101
28	246	639	500	601	1180	1210	813	281	118	204	178	114
29	201	1090	1040	533	1070	6520	1230	301	118	185	195	132
30	170	903	779	480	---	3890	1400	298	127	167	422	144
31	151	---	518	433	---	2050	---	260	---	156	940	---
TOTAL	8197	12747	33524	11993	46399	46134	37707	25336	4616	9161	28479	4219
MEAN	264	425	1081	387	1600	1488	1257	817	154	296	919	141
MAX	2340	1500	4200	754	9330	6520	3630	3280	231	1010	5820	373
MIN	67	104	355	180	292	454	535	239	118	130	150	97
CFSM	.57	.92	2.35	.84	3.47	3.23	2.73	1.77	.33	.64	1.99	.31
IN.	.66	1.03	2.71	.97	3.74	3.72	3.04	2.04	.37	.74	2.30	.34

CAL YR 1983 TOTAL 222784 MEAN 610 MAX 5730 MIN 64 CFSM 1.32 IN 17.98  
WTR YR 1984 TOTAL 268512 MEAN 734 MAX 9330 MIN 67 CFSM 1.59 IN 21.67



## JAMES RIVER BASIN

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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 26, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated by Moomaw Lake (station 02011795) 43.8 mi upstream. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--59 years, 1,617 ft<sup>3</sup>/s, 15.99 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, 27,800 ft<sup>3</sup>/s Feb. 14, gage height, 17.30 ft; minimum, 299 ft<sup>3</sup>/s Oct. 8, 10, gage height, 1.69 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	402	459	1370	1600	1220	3080	5070	3260	822	994	621	2350
2	357	441	1140	1550	1070	2510	3840	2800	793	937	1170	1470
3	344	436	1010	1370	1080	2050	3090	2420	764	801	913	1160
4	333	419	4930	1260	1140	1860	2810	4050	725	691	1120	1010
5	321	404	4730	1210	1270	1830	7200	5030	711	665	837	906
6	314	398	2760	1170	1390	1910	7960	8240	697	645	770	815
7	308	390	2250	1030	1270	2050	5090	10900	671	1150	714	755
8	304	381	1840	948	1110	2010	3790	7840	659	1010	765	700
9	307	376	1530	892	1020	1920	3050	7020	644	752	706	670
10	307	579	1300	894	977	1800	2810	4810	636	661	867	649
11	325	1270	1150	1420	981	1720	2600	3290	633	1040	5040	635
12	395	1120	4550	1720	1150	1520	2340	2770	628	945	9680	615
13	423	880	8960	1340	1630	1780	2070	2450	623	746	12600	593
14	492	740	6460	1190	20400	2780	1930	2000	656	657	9730	586
15	429	719	5080	1120	20500	2910	2510	1720	633	612	8950	581
16	390	964	3790	1030	11400	2910	3770	1400	610	584	6290	566
17	359	1050	2140	989	8940	2900	3960	1260	628	567	2730	554
18	338	876	1610	968	7160	2820	3160	1290	646	616	1770	545
19	338	782	1450	930	4040	2540	2640	1190	611	589	1730	542
20	345	716	1290	765	3110	2160	2310	1130	586	586	1470	537
21	605	691	1160	677	2850	10900	2040	1080	571	1520	1250	530
22	966	647	2820	673	2460	15500	3430	1070	574	1740	992	524
23	2310	615	6210	748	4020	9830	9050	1040	572	1070	928	517
24	3930	723	4330	845	13700	7330	7690	947	707	855	860	510
25	1820	2550	2950	1160	11500	4010	5990	890	731	745	801	500
26	1110	2710	2350	1970	8060	4150	4060	847	651	702	755	490
27	821	1680	1840	2210	5160	3920	3250	900	595	944	719	490
28	669	1400	1900	1850	4130	3940	2650	963	600	786	704	500
29	583	1920	2780	1700	3710	15200	3340	972	599	691	790	520
30	525	1750	2640	1580	---	12700	3800	944	627	648	1150	540
31	482	---	1890	1380	---	8020	---	871	---	630	6400	---
TOTAL	20952	28086	90210	38189	146448	140560	117300	85394	19603	25579	83822	21360
MEAN	676	936	2910	1232	5050	4534	3910	2755	653	825	2704	712
MAX	3930	2710	8960	2210	20500	15500	9050	10900	822	1740	12600	2350
MIN	304	376	1010	673	977	1520	1930	847	571	567	621	490
(*)	+62	+203	+260	-5	-9	+16	+5	-24	-143	-34	+164	-126
MEAN#	738	1139	3170	1227	5041	4550	3915	2731	510	791	2868	586
CFSM#	.54	.83	2.31	.89	3.67	3.31	2.85	1.99	.37	.58	2.09	.43
IN#	.62	.93	2.66	1.03	3.96	3.82	3.18	2.29	.41	.66	2.41	.48

CAL YR 1983 TOTAL 672949 MEAN 1844 MAX 14200 MIN 304 MEAN# 1845 CFSM# 1.34 IN# 18.25  
WTR YR 1984 TOTAL 817503 MEAN 2234 MAX 20500 MIN 304 MEAN# 2266 CFSM# 1.65 IN# 22.47

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.  
\* Adjusted for change in contents.

## JAMES RIVER BASIN

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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 National Geodetic Vertical Datum of 1929. Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--58 years, 128 ft<sup>3</sup>/s, 16.71 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.--Maximum discharge, 1,880 ft<sup>3</sup>/s Feb. 14 and May 6, gage height, 8.20 ft, no peak above base of 2,100 ft<sup>3</sup>/s; minimum, 9.9 ft<sup>3</sup>/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	25	120	187	105	296	523	235	49	56	18	128
2	15	24	101	166	96	250	426	212	45	101	18	79
3	14	23	87	143	106	211	352	231	41	66	15	57
4	13	22	554	129	115	186	380	392	37	31	14	46
5	12	22	322	113	117	182	975	363	34	27	13	36
6	12	22	270	104	112	189	619	1090	31	31	12	30
7	10	22	245	96	100	189	473	1180	29	26	12	26
8	10	22	199	84	97	186	384	855	26	22	12	24
9	11	21	170	77	96	179	330	626	24	18	11	22
10	11	31	146	78	85	164	515	492	22	17	14	21
11	16	41	123	130	81	156	504	406	21	16	204	20
12	27	35	510	121	80	142	394	349	20	16	134	18
13	23	32	515	112	109	189	340	289	19	15	372	18
14	24	31	337	100	1560	295	403	245	18	15	337	17
15	22	35	258	93	832	251	699	204	17	13	210	17
16	18	46	204	89	547	236	505	168	17	13	151	16
17	18	45	168	84	416	223	420	144	18	14	109	15
18	17	42	142	84	335	210	354	125	17	15	90	15
19	17	39	122	79	284	195	306	111	15	14	80	14
20	18	38	105	65	277	178	267	98	14	12	64	14
21	67	41	92	48	233	1040	237	87	14	22	52	13
22	74	41	255	50	200	635	390	77	15	26	41	13
23	166	40	393	62	606	443	571	80	15	23	35	13
24	167	74	276	77	1240	356	480	68	25	20	32	13
25	99	178	170	132	731	389	392	60	28	18	28	12
26	68	156	150	188	527	664	329	55	21	18	25	11
27	50	127	160	170	417	474	286	60	17	22	24	11
28	38	126	198	158	409	648	248	62	20	20	24	13
29	31	169	354	148	371	1550	272	67	20	18	31	14
30	28	142	257	138	---	956	255	60	23	17	90	16
31	26	---	210	128	---	673	---	53	---	17	440	---
TOTAL	1136	1712	7213	3433	10284	11935	12629	8544	712	759	2712	762
MEAN	36.6	57.1	233	111	355	385	421	276	23.7	24.5	87.5	25.4
MAX	167	178	554	188	1560	1550	975	1180	49	101	440	128
MIN	10	21	87	48	80	142	237	53	14	12	11	11
CFSM	.35	.55	2.24	1.07	3.41	3.70	4.05	2.65	.23	.24	.84	.24
IN.	.41	.61	2.58	1.23	3.68	4.27	4.52	3.06	.25	.27	.97	.27

CAL YR 1983 TOTAL 53042.3 MEAN 145 MAX 2000 MIN 8.4 CFSM 1.39 IN 18.97  
WTR YR 1984 TOTAL 61831.0 MEAN 169 MAX 1560 MIN 10 CFSM 1.63 IN 22.12

## JAMES RIVER BASIN

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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--59 years, 387 ft<sup>3</sup>/s, 15.97 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 above base 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)
Feb. 14	1800	*8460	11.63	Mar. 29	1830	4640	9.33
Feb. 24	1030	5000	9.58	May 7	0430	4540	9.25

Minimum discharge, 33 ft<sup>3</sup>/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	80	440	575	352	842	1310	566	168	88	64	637
2	43	76	360	525	300	710	1020	516	154	119	99	380
3	42	72	312	448	316	605	848	516	144	194	95	273
4	43	70	1390	428	340	534	764	824	134	146	75	234
5	40	66	1610	384	360	494	1710	990	125	106	67	224
6	38	65	920	352	360	516	1550	1720	116	99	62	171
7	35	64	890	328	336	516	1150	3740	110	102	62	139
8	34	61	710	292	264	507	908	2670	104	88	56	123
9	37	61	566	260	288	494	776	1800	97	81	55	110
10	34	80	468	248	272	452	908	1320	93	74	64	102
11	41	134	408	292	260	432	1590	1030	90	73	569	97
12	68	179	1440	368	252	408	1120	866	85	69	1280	90
13	127	139	2480	340	252	432	908	734	81	68	950	85
14	102	120	1410	328	5190	800	934	620	77	67	1230	81
15	87	115	927	312	3840	764	2190	543	74	66	752	77
16	77	132	692	292	1900	692	1780	464	73	62	480	73
17	65	179	538	280	1240	626	1300	404	73	61	356	72
18	58	175	452	272	934	570	997	360	72	63	276	68
19	56	152	392	264	770	530	830	328	72	64	244	68
20	56	137	348	190	698	489	710	300	68	63	210	67
21	85	132	308	150	610	2240	615	269	66	73	168	66
22	264	134	554	160	543	2380	722	244	64	73	139	63
23	396	127	1620	210	710	1440	1640	234	64	84	123	62
24	976	134	1150	230	4020	1050	1490	227	80	75	110	61
25	468	449	670	292	2280	941	1140	204	90	73	102	60
26	304	638	500	480	1530	1340	914	185	95	69	93	58
27	205	476	530	556	1120	1240	782	188	80	69	87	56
28	150	404	543	525	1030	1270	680	207	74	73	84	60
29	120	525	976	472	1060	3770	650	210	74	72	93	61
30	97	548	920	428	---	2940	605	213	88	68	126	66
31	87	---	640	400	---	1800	---	182	---	64	1300	---
TOTAL	4279	5724	25164	10681	31427	31824	32541	22674	2785	2546	9471	3784
MEAN	138	191	812	345	1084	1027	1085	731	92.8	82.1	306	126
MAX	976	638	2480	575	5190	3770	2190	3740	168	194	1300	637
MIN	34	61	308	150	252	408	605	182	64	61	55	56
CFSM	.42	.58	2.47	1.05	3.30	3.12	3.30	2.22	.28	.25	.93	.38
IN.	.48	.65	2.85	1.21	3.55	3.60	3.68	2.56	.31	.29	1.07	.43

CAL YR 1983 TOTAL 171330 MEAN 469 MAX 7850 MIN 31 CFSM 1.43 IN 19.37  
WTR YR 1984 TOTAL 182900 MEAN 500 MAX 5190 MIN 34 CFSM 1.52 IN 20.68

## 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 highway bridge, 1.0 mi downstream from Little Catawba Creek, 1.9 mi west of Haymakertown, and 8.2 mi north-east 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 National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1953, nonrecording gage at site 80 ft downstream at same datum.

REMARKS.--Records good. At a point 5.3 mi above 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 Corp. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--41 years, 36.1 ft<sup>3</sup>/s, 14.29 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, 1,880 ft<sup>3</sup>/s Feb. 14, gage height, 5.64 ft; minimum, 2.6 ft<sup>3</sup>/s Oct. 6-7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	6.1	20	42	26	72	117	47	20	7.4	5.9	34
2	4.3	5.6	18	38	25	61	95	44	18	7.3	6.1	23
3	3.7	5.6	17	35	25	52	79	61	17	6.7	5.5	20
4	3.5	5.9	82	32	27	46	85	105	16	5.5	5.0	18
5	3.4	5.7	36	30	26	48	115	85	17	5.4	4.8	14
6	3.2	5.6	34	29	25	50	95	326	16	8.2	5.3	11
7	3.2	5.7	30	27	22	46	79	301	15	7.7	5.1	10
8	3.1	5.7	25	24	18	43	67	202	15	6.8	4.8	9.1
9	3.1	5.8	21	23	19	40	59	140	14	7.1	4.8	8.3
10	3.2	14	18	24	20	37	156	104	14	6.7	11	8.2
11	5.0	12	16	31	20	35	152	83	14	6.5	164	7.9
12	8.6	10	119	26	20	33	119	68	13	6.2	169	7.2
13	7.6	9.3	63	24	83	56	99	58	14	6.9	52	6.7
14	8.0	8.5	40	23	1050	74	171	51	14	6.4	44	6.7
15	6.5	11	30	22	262	64	359	44	13	6.0	29	6.2
16	5.8	13	24	23	151	58	233	40	13	6.3	21	5.8
17	5.6	13	20	21	108	51	169	37	13	7.2	17	5.5
18	5.3	12	18	23	82	46	129	34	13	7.5	15	5.5
19	5.1	10	17	20	67	44	105	33	12	6.2	13	5.5
20	5.8	10	16	16	60	42	87	31	11	6.6	12	5.2
21	18	10	16	15	50	370	77	29	11	8.7	10	4.8
22	20	9.1	45	14	44	189	109	29	11	7.1	8.5	4.7
23	30	8.4	49	19	281	127	129	29	12	7.3	9.0	4.7
24	22	14	32	21	355	96	117	27	14	6.6	8.3	4.6
25	18	33	23	57	182	100	99	26	13	6.1	6.9	4.5
26	14	25	21	44	125	112	83	24	11	6.4	6.1	4.4
27	12	21	22	36	99	97	72	24	9.1	6.6	6.0	4.6
28	10	30	32	33	104	199	64	25	10	6.0	20	5.3
29	8.8	29	53	32	92	457	59	27	6.4	5.8	13	5.2
30	6.7	23	61	31	---	227	53	23	5.8	5.9	47	6.4
31	6.9	---	49	29	---	149	---	21	---	5.7	117	---
TOTAL	265.0	377.0	1067	864	3468	3121	3432	2178	395.3	206.8	846.1	267.0
MEAN	8.55	12.6	34.4	27.9	120	101	114	70.3	13.2	6.67	27.3	8.90
MAX	30	33	119	57	1050	457	359	326	20	8.7	169	34
MIN	3.1	5.6	16	14	18	33	53	21	5.8	5.4	4.8	4.4
(*)	3.6	3.1	46.8	0	0	0	0	0	0	0	3.1	0
MEAN#	12.2	15.7	81.2	27.9	120	101	114	70.3	13.2	6.67	30.4	8.90
CFSM#	.36	.46	2.37	.81	3.50	2.94	3.32	2.05	.38	.19	.89	.26
IN#	.41	.51	2.73	.94	3.77	3.40	3.71	2.36	.43	.22	1.02	.29

CAL YR 1983 TOTAL 15430.9 MEAN 42.3 MAX 1440 MIN 1.0 MEAN# 48.7 CFSM# 1.42 IN# 19.28  
WTR YR 1984 TOTAL 16487.2 MEAN 45.0 MAX 1050 MIN 3.1 MEAN# 49.8 CFSM# 1.45 IN# 19.77

\* Diversion, equivalent in cubic feet per second, furnished 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 National Geodetic Vertical Datum of 1929. Prior to July 1, 1927, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 79.6 mi upstream. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--86 years, 2,480 ft<sup>3</sup>/s, 16.23 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, 46,700 ft<sup>3</sup>/s Feb. 14, gage height, 19.10 ft; minimum, 368 ft<sup>3</sup>/s Oct. 8, 9, gage height, 2.00 ft; minimum daily, 372 ft<sup>3</sup>/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	514	701	2370	2500	1990	5210	8590	4720	1320	1330	837	5470
2	487	671	1940	2300	1750	4250	6460	4160	1250	1300	1790	2800
3	444	651	1680	2200	1670	3540	5190	3690	1200	1160	1630	2060
4	430	633	5320	2100	1730	3090	4530	4700	1130	1150	1330	1710
5	418	605	9600	1990	1890	2900	8300	7500	1080	987	1230	1530
6	398	588	5330	1880	2030	2950	12400	8960	1060	950	1030	1350
7	384	584	4180	1750	1980	3070	8210	20200	1020	957	965	1200
8	376	572	3470	1580	1750	3070	6150	13800	982	1530	934	1110
9	372	562	2810	1450	1600	2920	4940	11300	953	1120	925	1040
10	374	688	2370	1400	1510	2790	4510	8510	930	952	946	994
11	396	1470	2040	1670	1480	2610	5190	5870	915	888	4710	955
12	490	1650	3550	2500	1510	2440	4620	4770	902	1370	13400	931
13	558	1390	14600	2190	1890	2530	3880	4150	893	1070	17200	892
14	674	1140	10400	1910	22500	4310	3900	3510	903	922	16300	860
15	634	1030	7530	1780	36600	4600	6660	3020	899	842	11900	837
16	556	1180	5610	1650	17900	4460	8050	2580	872	804	9430	811
17	511	1440	3740	1580	12700	4270	7500	2240	855	777	4820	791
18	471	1370	2730	1540	10500	4110	6010	2120	897	783	2980	773
19	443	1200	2300	1500	6550	3790	4880	2020	869	815	2510	760
20	454	1080	2070	1340	4860	3330	4150	1870	829	774	2270	751
21	576	1020	1860	1060	4310	9600	3630	1770	800	1040	1910	742
22	1110	963	3240	1000	3740	23400	3890	1700	781	2300	1620	728
23	1820	917	9410	1130	4150	14300	12100	1740	779	1660	1370	718
24	5970	947	7620	1320	20600	10900	11900	1590	835	1220	1290	707
25	3810	2570	4500	1500	17300	6740	9500	1460	1040	1030	1190	697
26	2130	4490	3500	2500	12900	6620	6800	1370	962	948	1100	688
27	1480	2990	2700	3190	8270	6690	5380	1380	872	1070	1040	677
28	1160	2300	2900	2970	6750	6400	4450	1530	809	1170	1030	704
29	968	2710	4170	2650	6160	19200	4240	1650	848	976	1220	783
30	840	2970	4640	2450	---	22400	5420	1540	838	923	1330	782
31	754	---	3000	2260	---	13400	---	1450	---	868	8610	---
TOTAL	30002	41082	141180	58840	218570	209890	191430	136870	28323	33686	118847	34851
MEAN	968	1369	4554	1898	7537	6771	6381	4415	944	1087	3834	1162
MAX	5970	4490	14600	3190	36600	23400	12400	20200	1320	2300	17200	5470
MIN	372	562	1680	1000	1480	2440	3630	1370	779	774	837	677
(*)	+62	+203	+260	-5	-9	+16	+5	-24	-143	-34	+164	-126

CAL YR 1983 TOTAL 1033650 MEAN 2832 MAX 24200 MIN 372 MEAN# 2833 CFSM# 1.37 IN# 18.54  
WTR YR 1984 TOTAL 1243571 MEAN 3398 MAX 36600 MIN 372 MEAN# 3430 CFSM# 1.65 IN# 22.50

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.

\* 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 TEMPERATURES: 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 micromhos Sept. 27, 1954; minimum daily, 67 micromhos Oct. 20, 1975, Oct. 10, 1976.

WATER TEMPERATURES: Maximum daily, 31.0°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 micromhos Oct. 13; minimum daily, 78 micromhos Feb. 24.

WATER TEMPERATURES: Maximum daily, 27.5°C Aug. 8, 9; minimum daily, 0.5°C Dec. 26, 31.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT 18...	0815	475	415	8.0	15.0	746	22	9.2	93
DEC 05...	0945	10700	120	7.3	7.5	741	9	10.6	91
JAN 17...	1230	1580	205	7.9	3.0	745	11	13.2	100
FEB 21...	1045	4350	166	7.5	7.0	735	12	11.3	97
MAY 22...	1330	1660	260	8.3	21.0	744	15	9.3	107
JUL 12...	1015	1490	320	7.9	24.5	740	--	7.0	87
AUG 23...	0830	1390	250	7.9	22.0	739	2	7.6	90

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 18...	150	51	50	6.9	22	2.9	103	37	45
DEC 05...	49	17	15	2.7	3.6	1.3	32	16	5.7
JAN 17...	84	24	26	4.6	9.7	1.4	60	22	17
FEB 21...	61	14	19	3.4	5.7	1.2	48	15	10
MAY 22...	99	23	31	5.3	11	1.8	76	22	22
JUL 12...	110	34	35	5.4	16	2.6	76	--	--
AUG 23...	94	19	29	5.3	10	2.1	75	25	14

## JAMES RIVER BASIN

02019500 JAMES RIVER AT BUCHANAN, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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...	.10	3.9	261	230	.060	.16	.400	27
DEC 05...	.10	5.3	76	69	<.010	.29	.080	62
JAN 17...	<.10	4.3	139	120	.070	.47	.500	26
FEB 21...	<.10	4.9	107	88	<.010	.36	.070	27
MAY 22...	.10	2.8	162	140	.010	.13	.020	26
JUL 12...	<.10	4.5	206	--	<.010	.34	.500	22
AUG 23...	<.10	5.6	128	140	.010	.38	.020	30

&lt; Actual value is known to be less than the value shown.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	490	340	180	170	178	140	135	150	260	350	340	---
2	470	379	200	163	193	144	140	155	310	---	320	182
3	460	400	199	185	198	157	150	170	330	330	310	220
4	440	390	175	195	220	166	160	160	325	310	260	242
5	455	400	110	205	216	180	155	140	340	320	---	260
6	420	440	120	215	220	183	120	140	300	330	280	280
7	450	400	120	211	220	168	125	85	360	300	320	300
8	480	400	150	218	205	185	140	100	360	360	310	---
9	520	440	159	210	219	175	160	135	350	280	340	320
10	500	420	176	230	210	195	160	260	340	280	300	329
11	510	440	185	240	183	---	158	138	340	300	320	340
12	520	280	200	223	238	200	158	145	360	320	140	360
13	540	250	100	194	230	200	162	162	350	270	100	360
14	480	250	110	196	137	---	180	178	360	270	110	370
15	430	280	115	208	80	160	160	190	300	358	130	360
16	435	299	115	213	105	158	150	200	360	---	140	320
17	430	300	150	205	118	160	140	210	300	360	160	370
18	410	270	180	223	125	160	145	218	370	380	200	380
19	400	260	180	185	133	165	160	225	360	390	210	370
20	470	265	200	290	147	170	170	240	320	360	230	400
21	500	280	210	250	157	190	180	250	340	290	240	380
22	480	300	205	245	162	95	180	260	380	230	250	---
23	370	320	115	255	160	118	115	270	390	230	260	400
24	220	298	118	258	78	130	115	260	360	260	280	380
25	170	300	120	253	95	135	125	300	360	280	300	390
26	195	210	150	240	108	142	130	260	350	320	310	380
27	220	160	158	170	117	140	145	300	360	340	320	410
28	240	180	165	163	127	140	160	275	340	---	340	420
29	270	190	173	165	135	110	---	290	360	360	340	420
30	298	170	147	173	---	100	150	---	360	320	330	440
31	340	---	158	180	---	120	---	280	---	320	---	---
MEAN	407	310	156	211	163	155	149	205	343	315	258	348
WTR YR 1984	MEAN	251		MAX	540	MIN	78					

## JAMES RIVER BASIN

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02019500 JAMES RIVER AT BUCHANAN, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	12.5	7.0	1.0	3.5	4.0	8.5	16.5	17.0	22.0	23.5	---
2	17.5	13.0	6.0	1.5	3.5	4.5	9.5	15.0	19.5	---	25.5	23.0
3	18.5	13.5	6.0	2.5	3.5	5.5	9.5	17.5	20.5	22.5	26.0	22.0
4	18.5	13.0	8.0	2.5	4.0	5.0	9.0	17.5	22.5	22.5	26.5	21.5
5	19.0	11.0	8.5	4.0	4.0	5.5	9.0	14.0	23.0	23.5	---	22.0
6	19.5	11.0	9.0	4.5	4.0	7.0	8.5	14.5	24.5	23.0	26.5	21.0
7	19.0	10.0	7.5	5.0	3.0	8.0	10.0	15.0	26.5	23.5	27.0	20.5
8	18.5	10.5	6.0	4.0	3.0	7.0	10.0	14.0	24.0	23.5	27.5	---
9	18.5	10.0	5.5	5.0	3.5	5.5	10.0	12.5	25.0	22.5	27.5	21.5
10	17.5	11.0	6.0	4.0	4.0	5.5	10.5	12.5	26.0	21.5	27.0	21.5
11	16.0	10.5	6.5	4.0	5.0	---	11.5	14.5	26.0	24.0	25.5	22.5
12	17.5	9.5	7.5	3.0	6.5	6.0	12.0	16.0	26.5	25.0	21.5	23.5
13	18.0	7.5	9.0	1.5	9.0	5.5	13.5	16.5	24.5	25.0	20.5	23.5
14	17.0	8.0	8.5	2.5	9.0	---	12.5	16.5	26.0	25.5	20.0	24.5
15	17.0	6.5	8.0	3.0	9.0	9.0	13.0	16.5	26.5	---	19.0	22.5
16	17.0	7.0	7.5	3.5	8.0	10.0	11.5	16.0	23.0	---	17.0	22.0
17	16.5	7.0	7.0	4.0	8.0	10.0	11.5	16.0	24.0	---	19.0	20.5
18	16.0	8.0	5.5	3.0	8.0	11.0	10.5	16.5	24.5	25.5	20.0	19.0
19	16.0	8.5	5.0	3.0	9.0	12.0	10.0	18.5	25.5	24.5	21.5	19.0
20	15.0	8.5	4.0	1.5	8.5	12.5	12.0	20.0	25.0	25.5	22.5	20.5
21	13.5	9.5	3.5	1.0	8.0	11.5	11.5	21.5	25.0	24.5	23.0	20.0
22	13.0	10.0	3.5	1.0	8.0	7.5	10.0	21.5	24.5	24.0	24.0	---
23	12.5	10.0	4.0	1.5	7.0	7.5	9.0	21.5	22.5	23.5	24.0	---
24	13.0	10.0	3.0	1.5	7.0	8.0	9.0	21.5	21.5	23.5	23.5	22.0
25	13.5	9.0	1.0	2.0	7.0	8.5	11.0	22.0	22.5	25.0	24.0	23.0
26	14.0	8.0	.5	3.5	6.0	9.0	14.0	22.5	22.5	24.5	23.0	23.5
27	13.5	8.0	1.0	4.0	5.0	9.5	15.5	21.0	22.5	25.0	24.0	22.5
28	13.0	8.0	2.0	4.0	5.0	9.5	17.0	21.0	22.5	---	24.0	23.0
29	13.5	8.5	2.5	4.0	4.0	8.0	18.0	20.5	22.5	24.5	24.0	16.0
30	12.0	8.0	1.0	4.0	---	7.0	18.5	19.0	22.0	23.5	25.0	15.0
31	12.5	---	.5	3.0	---	8.0	---	17.5	---	22.5	---	---
MEAN	16.0	9.5	5.0	3.0	6.0	8.0	11.5	17.5	23.5	24.0	23.5	21.5
WTR YR 1984	MEAN	14.0		MAX	27.5		MIN	.5				



## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--46 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 above base 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)
Dec. 12	2200	3110	6.31	Mar. 29	1200	3540	6.71
Feb. 14	1630	*6740	8.70	Aug. 12	1200	3370	6.57
Feb. 24	0230	2830	6.03	Aug. 14	0630	3980	7.06
Mar. 21	1930	4620	7.55				

Minimum discharge, 3.4 ft<sup>3</sup>/s Oct. 7-8, gage height, 1.41 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	33	233	180	107	223	447	365	39	54	31	58
2	6.9	28	181	160	105	187	323	271	37	30	34	48
3	5.3	25	155	137	100	166	255	243	34	25	183	42
4	4.7	23	969	121	106	149	234	578	34	21	170	51
5	4.4	19	932	107	109	145	1410	597	34	20	147	45
6	4.3	18	532	98	104	149	934	775	31	22	119	40
7	3.7	16	376	90	80	147	548	1010	28	94	121	35
8	3.5	16	288	79	75	146	364	670	26	80	95	31
9	4.8	14	231	71	70	149	270	450	24	48	223	28
10	5.6	36	187	72	78	136	221	317	23	51	325	29
11	6.1	139	159	202	81	138	189	241	21	172	1570	27
12	10	152	1280	186	97	130	165	196	20	111	2290	25
13	12	117	1930	170	122	154	148	166	24	68	1640	24
14	17	90	822	152	4020	265	157	144	25	48	2920	23
15	14	84	477	132	2560	472	403	125	19	37	1120	23
16	9.4	119	313	117	957	438	1040	109	18	31	530	21
17	7.6	129	229	104	567	400	833	96	19	27	297	20
18	6.5	119	182	97	401	332	522	86	24	27	217	19
19	5.8	99	157	80	311	266	354	80	16	24	176	18
20	7.3	86	138	35	289	224	266	73	14	21	135	18
21	22	88	120	33	254	2240	214	68	13	154	107	16
22	26	81	737	33	223	2010	328	65	13	131	88	16
23	321	78	1130	45	445	826	957	65	14	92	77	15
24	774	92	624	59	2000	485	923	58	18	65	68	15
25	264	724	365	147	1110	365	611	52	19	49	59	15
26	152	588	260	245	668	324	405	48	15	42	52	15
27	107	329	210	230	445	282	297	50	13	52	46	15
28	80	252	260	192	363	576	240	50	14	44	62	19
29	63	324	332	172	295	2670	528	53	15	40	300	20
30	49	313	260	157	---	1310	527	48	19	37	92	19
31	40	---	205	141	---	689	---	42	---	34	75	---
TOTAL	2043.8	4231	14274	3844	16142	16193	14113	7191	663	1751	13369	790
MEAN	65.9	141	460	124	557	522	470	232	22.1	56.5	431	26.3
MAX	774	724	1930	245	4020	2670	1410	1010	39	172	2920	58
MIN	3.5	14	120	33	70	130	148	42	13	20	31	15
CFSM	.46	.98	3.19	.86	3.87	3.63	3.26	1.61	.15	.39	2.99	.18
IN.	.53	1.09	3.69	.99	4.17	4.18	3.65	1.86	.17	.45	3.45	.20

CAL YR 1983	TOTAL	78492.8	MEAN 215	MAX 2280	MIN 2.5	CFSM 1.49	IN 20.28
WTR YR 1984	TOTAL	94604.8	MEAN 258	MAX 4020	MIN 3.5	CFSM 1.79	IN 24.44

## JAMES RIVER BASIN

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## 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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. Several observations 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, 377 ft<sup>3</sup>/s, 15.56 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 above base 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)
Dec. 12	2300	5230	6.81	Mar. 29	1330	6200	7.27
Feb. 14	1830	*10900	8.89	Aug. 12	1600	5230	6.81
Feb. 24	0330	5870	7.12	Aug. 14	0330	8050	8.02
Mar. 21	2000	7930	7.98				

Minimum discharge, 24 ft<sup>3</sup>/s Oct. 3, gage height, 1.05 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	110	432	478	287	650	1180	923	141	252	93	184
2	29	97	332	404	271	549	904	740	125	154	88	141
3	27	74	277	346	270	482	740	715	112	102	220	118
4	48	61	1840	304	286	423	703	1310	101	79	288	117
5	60	51	1770	280	293	423	2750	1370	90	75	258	112
6	55	48	1050	262	269	460	1980	2090	83	91	259	99
7	68	47	778	243	223	431	1310	2590	75	187	230	92
8	62	45	590	211	190	419	952	1700	61	184	185	88
9	48	43	472	191	205	411	756	1260	61	117	323	85
10	48	172	384	195	200	372	640	925	59	98	551	83
11	64	356	314	536	207	370	550	657	59	356	2250	80
12	102	286	2520	497	234	341	476	552	54	264	3420	76
13	105	206	3510	404	269	478	423	497	53	167	3010	74
14	134	160	1700	365	6710	989	468	431	69	120	5560	72
15	91	155	1040	317	5210	1240	1280	365	61	94	2380	70
16	59	219	713	285	2220	1080	2150	314	52	80	1170	67
17	54	226	529	262	1440	919	1760	274	55	70	780	64
18	78	197	417	248	1060	787	1210	245	76	74	617	63
19	83	167	348	228	836	661	859	224	62	67	532	62
20	72	148	293	169	788	565	644	203	52	56	393	61
21	85	151	247	160	674	4730	472	183	47	1590	303	60
22	114	140	1650	163	581	4120	793	169	48	824	249	59
23	432	128	2370	162	1070	1930	1930	188	47	411	208	57
24	1310	152	1390	200	4310	1260	1760	184	54	289	155	57
25	561	1300	770	428	2330	1080	1510	154	81	208	138	55
26	313	1120	559	662	1520	1030	1110	137	60	161	124	54
27	223	646	542	595	1100	874	872	154	48	152	114	53
28	181	495	643	527	971	1310	723	195	44	153	109	65
29	159	596	949	463	852	4890	1160	249	43	132	405	73
30	137	562	671	411	---	2760	1180	200	56	119	202	70
31	129	---	493	361	---	1660	---	162	---	106	294	---
TOTAL	4959	8158	29593	10357	34876	37694	33245	19360	2029	6832	24908	2411
MEAN	160	272	955	334	1203	1216	1108	625	67.6	220	803	80.4
MAX	1310	1300	3510	662	6710	4890	2750	2590	141	1590	5560	184
MIN	27	43	247	160	190	341	423	137	43	56	88	53
CFSM	.49	.83	2.90	1.02	3.66	3.70	3.37	1.90	.21	.67	2.44	.24
IN.	.56	.92	3.35	1.17	3.94	4.26	3.76	2.19	.23	.77	2.82	.27

CAL YR 1983 TOTAL 175245 MEAN 480 MAX 5110 MIN 18 CFSM 1.46 IN 19.81  
WTR YR 1984 TOTAL 214422 MEAN 586 MAX 6710 MIN 27 CFSM 1.78 IN 24.24

## JAMES RIVER BASIN

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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Jan. 27, 1927, to Sept. 30, 1953, nonrecording gage at site 1,000 ft downstream at different datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--58 years, 35.7 ft<sup>3</sup>/s, 13.85 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 above base 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)
Dec. 12	0730	880	5.50	Aug. 12	0700	1710	6.56
Feb. 14	0530	1430	6.26	Aug. 12	0930	1730	6.58
Feb. 14	1130	1080	5.82	Aug. 13	1945	*3610	8.15
Feb. 23	1900	1070	5.80	Aug. 28	1715	1510	6.34
Mar. 21	0830	2200	7.04	Aug. 30	2115	710	5.18
Mar. 29	0200	786	5.33				

Minimum discharge, 6.7 ft<sup>3</sup>/s Oct. 6, gage height, 2.18 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	9.8	23	35	27	54	89	59	25	23	13	55
2	8.0	9.5	20	32	26	48	75	54	24	22	19	41
3	7.5	9.6	20	31	29	43	65	59	23	17	21	36
4	7.6	9.2	192	28	31	39	94	76	21	15	15	31
5	7.4	9.0	70	27	30	41	189	70	20	18	14	27
6	7.2	8.9	55	26	28	40	105	256	20	19	15	24
7	7.2	8.9	45	24	25	37	83	175	19	15	14	22
8	7.3	8.7	38	22	22	36	70	116	18	14	13	21
9	7.3	8.6	32	21	23	34	62	90	18	13	26	20
10	7.3	51	28	27	23	33	56	74	17	14	38	19
11	7.9	32	25	40	24	32	51	65	17	14	77	18
12	12	20	370	29	24	30	47	58	16	13	501	18
13	11	16	158	27	26	62	45	51	24	13	632	17
14	13	14	84	26	758	93	55	47	21	12	375	17
15	8.8	16	59	25	231	88	151	43	17	12	117	16
16	8.2	17	46	24	116	70	125	40	16	12	72	15
17	8.1	15	38	23	83	59	92	37	18	12	53	15
18	8.0	14	33	23	67	52	75	35	17	14	47	14
19	7.9	13	30	21	57	48	65	33	15	12	39	14
20	9.1	13	27	17	52	43	57	31	15	11	33	14
21	21	13	25	16	45	808	53	30	16	150	29	14
22	15	12	196	16	40	207	194	28	18	37	26	13
23	72	12	126	16	246	115	288	29	15	26	25	13
24	43	19	72	29	266	85	156	27	26	21	23	13
25	22	86	50	64	122	104	108	25	19	18	21	13
26	17	40	47	54	84	108	86	24	16	17	20	12
27	14	29	44	45	70	86	73	34	15	17	19	12
28	12	32	97	40	75	174	69	37	14	15	197	16
29	11	35	65	36	65	407	80	38	14	14	75	14
30	10	28	46	33	---	167	67	30	16	14	129	15
31	9.9	---	42	30	---	113	---	27	---	13	133	---
TOTAL	416.3	609.2	2203	907	2715	3356	2825	1798	550	637	2831	589
MEAN	13.4	20.3	71.1	29.3	93.6	108	94.2	58.0	18.3	20.5	91.3	19.6
MAX	72	86	370	64	758	808	288	256	26	150	632	55
MIN	7.2	8.6	20	16	22	30	45	24	14	11	13	12
CFSM	.38	.58	2.03	.84	2.67	3.09	2.69	1.66	.52	.59	2.61	.56
IN.	.44	.65	2.34	.96	2.89	3.57	3.00	1.91	.58	.68	3.01	.63

CAL YR 1983	TOTAL	14845.6	MEAN 40.7	MAX 685	MIN 7.2	CFSM 1.16	IN 15.78
WTR YR 1984	TOTAL	19436.5	MEAN 53.1	MAX 808	MIN 7.2	CFSM 1.52	IN 20.66



## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. Several observations 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, 664 ft<sup>3</sup>/s, 13.96 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 above base 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)
Dec. 13	0230	6730	8.20	Mar. 29	1700	7990	8.99
Feb. 14	2030	*14400	12.36	Aug. 12	1030	9100	9.64
Feb. 24	0800	7120	8.45	Aug. 14	0800	9580	9.91
Mar. 21	2330	8990	9.58				

Minimum discharge, 83 ft<sup>3</sup>/s Oct. 4, gage height, 1.22 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	204	629	801	477	1220	2150	1490	417	355	235	557
2	99	192	512	718	444	1050	1730	1260	390	383	256	434
3	93	165	443	630	462	936	1450	1240	363	301	247	405
4	88	149	2010	556	541	835	1390	2030	340	246	420	423
5	112	129	2420	518	508	805	4050	2220	320	239	370	358
6	117	120	1520	485	481	851	3260	3170	306	258	423	326
7	111	116	1150	460	422	812	2280	4240	292	275	380	302
8	127	113	886	421	361	775	1770	2890	275	355	342	287
9	115	110	730	383	372	766	1460	2230	262	288	461	275
10	102	218	611	380	376	707	1260	1770	258	248	747	268
11	110	495	521	718	368	681	1110	1420	251	364	3040	259
12	183	440	2790	737	383	650	990	1190	243	456	6140	250
13	208	347	5260	612	417	845	920	1080	240	342	5060	242
14	232	286	2620	578	8540	1540	967	965	256	277	7220	238
15	207	264	1670	515	8310	1830	2130	862	249	241	3780	230
16	150	308	1180	474	3640	1690	3090	778	233	218	1960	220
17	118	334	904	448	2380	1470	2740	707	234	205	1390	214
18	124	310	731	430	1810	1300	2030	653	260	228	1210	210
19	149	277	627	415	1460	1120	1590	613	249	214	1020	207
20	154	255	545	327	1310	986	1290	571	223	190	814	204
21	207	281	478	307	1140	5030	1050	532	229	1560	671	200
22	238	272	2190	311	999	6040	1530	495	281	1230	579	195
23	396	252	3590	319	1410	2970	3730	499	222	658	523	190
24	1660	280	2190	379	5770	2050	3020	512	256	536	454	187
25	882	1360	1300	908	3650	1850	2540	459	289	395	403	184
26	500	1690	1050	1010	2490	1800	2000	425	249	340	369	180
27	372	995	933	870	1870	1560	1640	471	217	303	345	176
28	300	738	1470	770	1680	1940	1400	507	203	306	475	196
29	266	764	1690	681	1520	6840	1670	589	201	283	659	221
30	239	761	1120	619	---	4660	1770	528	202	265	549	215
31	223	---	871	563	---	2880	---	455	---	252	1130	---
TOTAL	7981	12225	44641	17343	53591	58489	58007	36851	8010	11811	41672	7853
MEAN	257	408	1440	559	1848	1887	1934	1189	267	381	1344	262
MAX	1660	1690	5260	1010	8540	6840	4050	4240	417	1560	7220	557
MIN	88	110	443	307	361	650	920	425	201	190	235	176
CFSM	.40	.63	2.23	.87	2.86	2.92	2.99	1.84	.41	.59	2.08	.41
IN.	.46	.70	2.57	1.00	3.09	3.37	3.34	2.12	.46	.68	2.40	.45

CAL YR 1983	TOTAL	287019	MEAN 786	MAX 7200	MIN 75	CFSM 1.22	IN 16.53
WTR YR 1984	TOTAL	358474	MEAN 979	MAX 8540	MIN 88	CFSM 1.52	IN 20.64



## JAMES RIVER BASIN

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 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.--Records good. Some diurnal fluctuation caused by powerplants above station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 117.5 mi upstream. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--58 years, 3,603 ft<sup>3</sup>/s, 15.01 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 above base 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)
Feb. 15	0245	*61800	22.63	May 7	1200	29500	15.63
Feb. 24	1715	32400	16.36	Aug. 12	1430	31900	16.24
Mar. 22	0715	35500	17.14	Aug. 14	0300	31900	16.24
Mar. 30	0115	36500	17.39				

Minimum discharge, 245 ft<sup>3</sup>/s Nov. 9, gage height, 3.40 ft; minimum daily, 623 ft<sup>3</sup>/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	728	1200	3490	4210	2910	7350	13300	6800	2340	1770	1290	8000
2	767	1160	2940	3890	2600	6130	9750	5920	2210	2140	1700	3850
3	814	1030	2590	3540	2480	5210	7780	5710	2100	1990	2140	2880
4	746	1100	5350	3140	2650	4500	7010	7600	1990	1700	1820	2580
5	648	914	13400	2960	2730	4230	13300	10400	1890	1580	1930	2230
6	633	951	8320	2850	2770	4210	17900	12400	1840	1730	1740	2080
7	642	926	6240	2680	2770	4250	13100	25700	1790	1510	1600	1850
8	623	918	5150	2460	2530	4230	9550	19300	1720	1790	1450	1720
9	632	876	4180	2330	2300	4080	7570	15500	1650	1920	1460	1640
10	680	1820	3550	2260	2310	3870	6670	12200	1490	1470	1860	1570
11	637	2630	3110	2640	2250	3710	6700	8830	1560	1440	4660	1490
12	1010	2590	6190	3250	2220	3550	6470	6900	1520	1780	22100	1490
13	1090	2260	21200	3340	2390	3840	5580	6020	1450	1790	23000	1480
14	1170	1980	15700	2950	25300	5930	5560	5270	1550	1520	28600	1290
15	1140	1800	10700	2760	51300	7110	8480	4530	1490	1350	17900	1340
16	1010	1880	7920	2610	25900	6850	13200	3980	1460	1270	12600	1290
17	884	2030	5950	2470	17000	6290	12100	3620	1450	1210	7850	1340
18	877	2100	4180	2440	13600	5920	9580	3320	1450	1280	4860	1040
19	768	1930	3480	2370	9790	5460	7620	3160	1460	1250	3940	1150
20	830	1770	3140	2170	7030	4870	6360	3010	1360	1170	3520	1200
21	1160	1740	2880	1920	5980	10900	5490	2870	1310	2250	2970	1160
22	1420	1650	5700	1560	5270	32200	5560	2720	1360	3700	2660	1150
23	3020	1500	13800	1670	5690	20100	14700	2730	1310	3160	2280	1130
24	6910	1650	12100	2060	24300	14700	16900	2660	1420	2200	2140	1120
25	5910	3550	7760	2550	23500	10800	13800	2420	1590	1860	2000	1080
26	3400	6630	5310	3330	17600	9000	10400	2350	1560	1670	1840	1080
27	2380	4870	4900	4080	12200	9100	7990	2470	1440	1690	1740	1060
28	1940	3610	5020	4080	9570	9190	6690	2700	1310	1730	1730	1090
29	1640	3530	6530	3680	8550	24800	6220	2800	1280	1610	2100	1130
30	1430	3930	6450	3430	---	31600	7360	2730	1420	1410	2170	1230
31	1240	---	5130	3150	---	19200	---	2450	---	1390	7180	---
TOTAL	46779	64525	212360	88830	295490	293180	282690	199070	47770	54330	174830	52740
MEAN	1509	2151	6850	2865	10190	9457	9423	6422	1592	1753	5640	1758
MAX	6910	6630	21200	4210	51300	32200	17900	25700	2340	3700	28600	8000
MIN	623	876	2590	1560	2220	3550	5490	2350	1280	1170	1290	1040
(*)	+62	+203	+260	-5	-9	+16	+5	-24	-143	-34	+164	-126
MEAN#	1571	2354	7110	2860	10181	9473	9428	6398	1449	1719	5804	1632
CFSM#	.48	.72	2.18	.88	3.12	2.91	2.89	1.96	.44	.53	1.78	.50
IN#	.56	.81	2.52	1.01	3.37	3.35	3.23	2.26	.50	.61	2.05	.56

CAL YR 1983 TOTAL 1510717 MEAN 4139 MAX 36100 MIN 531 MEAN# 4140 CFSM# 1.27 IN# 17.25  
WTR YR 1984 TOTAL 1812594 MEAN 4952 MAX 51300 MIN 623 MEAN# 4984 CFSM# 1.53 IN# 20.82

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.

# 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 National Geodetic Vertical Datum of 1929. Prior to Sept. 12, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good. Large diurnal fluctuation caused by powerplants above station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 158.3 mi upstream. National Weather Service gage-height telemeter at station. Several observations 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, 4,203 ft<sup>3</sup>/s, 15.50 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 above base 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)
Feb. 15	1045	*64400	16.11	May 7	1930	29500	10.88
Feb. 24	2345	31800	11.29	Aug. 12	2230	31900	11.32
Mar. 22	1430	35000	11.85	Aug. 14	1100	32300	11.39
Mar. 30	0815	37600	12.28				

Minimum discharge, 529 ft<sup>3</sup>/s Oct. 9; minimum daily, 540 ft<sup>3</sup>/s Oct. 9; minimum gage height, 2.62 ft Oct. 18, 19, Nov. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	777	1360	4690	5760	3540	8990	15300	8210	2880	1780	1590	9610
2	871	1360	3830	5150	3590	7640	11400	7240	2930	2520	1620	5380
3	699	1020	3150	5130	2990	6690	9570	6850	2490	2690	2490	3660
4	817	1300	5420	4250	2830	5880	9010	9670	2960	2130	2560	3620
5	711	1120	12700	3560	3250	5570	15100	10400	2500	2480	2180	3080
6	699	1030	11200	3650	3960	5410	18300	13000	2090	2010	2420	2410
7	599	998	8290	3220	3400	5660	15400	23400	2420	1970	2140	2440
8	699	1020	6830	3140	3180	5150	11600	21800	2130	1520	2030	2110
9	540	1220	5750	3020	2860	5180	9340	16900	1900	2430	1750	1740
10	587	1500	5110	2630	2820	4910	8250	13900	1740	2050	2290	2060
11	661	2890	3930	3560	2280	4410	7790	10700	2060	1930	3860	1770
12	1640	2850	6200	3460	2670	4610	7950	8540	2050	1790	16400	1760
13	1080	2920	21300	4410	3240	5260	7080	7340	1570	2180	25100	1650
14	1090	2420	18900	3790	20900	7070	7930	6640	1980	2000	28500	1680
15	1210	2470	13000	3580	57600	8400	10500	6170	1570	1440	20300	1550
16	1230	3070	10100	3570	31700	8310	13400	5140	1970	2060	13700	1450
17	1030	2230	7750	2990	18600	7760	13200	4570	1510	1410	9820	1460
18	983	2490	5660	2970	14600	7050	11400	4220	1750	1790	6200	1590
19	820	2200	4860	3100	11900	6670	9430	3750	1950	2220	4920	1630
20	968	2110	3960	2890	8650	6350	8060	3650	1750	1200	4430	1040
21	1230	2570	3650	2140	7170	7320	7110	3780	1450	3780	3870	1460
22	1930	2270	5610	2100	6570	29000	6790	3570	1490	4890	2990	1370
23	2800	1780	13100	2280	7010	22900	11400	3550	1800	4540	3180	1290
24	6580	1960	14400	2130	19300	15800	17900	4040	1440	3340	2830	1300
25	8520	5550	10000	2590	25900	14000	15100	3270	1880	2450	2630	1350
26	5600	6710	6820	3820	19500	12400	12200	2580	1950	2200	2440	1350
27	3140	7080	6040	4760	14000	10700	9680	2820	1740	2580	2400	1230
28	2450	5340	6180	5160	11100	11600	8210	3350	1760	2130	2530	1250
29	1800	4050	8330	4650	10000	26400	7420	3980	1820	2040	2630	1330
30	1750	4540	7980	4290	---	34200	7900	3460	1830	2090	2800	1420
31	1580	---	7210	4280	---	21700	---	3110	---	1930	4240	---
TOTAL	55091	79428	251950	112030	325110	332990	323720	229600	59360	71570	186840	65040
MEAN	1777	2648	8127	3614	11210	10740	10790	7406	1979	2309	6027	2168
MAX	8520	7080	21300	5760	57600	34200	18300	23400	2960	4890	28500	9610
MIN	540	998	3150	2100	2280	4410	6790	2580	1440	1200	1590	1040
(*)	+62	+203	+260	-5	-9	+36	+5	-24	-143	-34	+164	-126

CAL YR 1983 TOTAL 1716959 MEAN 4704 MAX 40500 MIN 540 MEAN# 4705 CFSM# 1.28 IN# 17.39  
WTR YR 1984 TOTAL 2092729 MEAN 5718 MAX 57600 MIN 540 MEAN# 5750 CFSM# 1.56 IN# 21.26

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.  
# 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 National Geodetic Vertical Datum of 1929. Sept. 15, 1969, to Oct. 15, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--46 years, 156 ft<sup>3</sup>/s, 22.83 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 above base 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. 14	1415	4140	8.30	Aug. 12	1230	*5070	9.27

Minimum discharge observed, 12 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	88	219	225	106	308	488	295	150	83	53	73
2	21	86	196	206	107	283	414	270	139	63	55	64
3	16	82	183	192	137	258	366	410	126	59	53	58
4	14	78	443	180	170	231	445	667	117	57	49	82
5	14	77	361	170	151	241	975	536	108	58	54	60
6	13	77	375	157	140	240	707	668	103	61	51	53
7	13	77	331	145	129	223	581	647	96	59	48	50
8	13	75	280	136	124	211	504	604	89	54	102	49
9	13	75	247	129	127	199	446	537	84	51	68	45
10	12	197	223	137	123	187	397	466	78	52	64	43
11	16	222	201	176	124	182	356	411	74	59	167	42
12	121	162	548	131	121	170	322	368	70	50	1290	38
13	65	138	682	133	143	306	324	327	71	48	649	36
14	108	122	512	134	2030	323	403	298	71	47	762	37
15	38	143	410	127	1250	301	491	269	67	46	503	35
16	32	153	333	123	761	290	461	242	67	46	325	33
17	31	131	280	119	557	273	422	218	68	46	247	33
18	30	118	239	123	436	258	386	200	75	64	224	31
19	30	111	214	117	358	235	346	185	61	51	186	31
20	33	130	191	100	309	216	319	169	58	49	157	30
21	116	202	174	95	266	448	297	158	57	163	134	29
22	94	166	730	91	238	462	392	146	57	89	122	29
23	505	154	598	121	426	385	544	154	57	75	117	29
24	543	192	456	133	551	330	507	149	76	72	101	30
25	275	561	339	158	513	385	450	128	71	62	90	31
26	201	395	304	140	441	348	398	152	58	65	82	32
27	160	310	279	132	382	309	360	204	55	72	75	33
28	133	282	413	127	402	554	337	231	55	62	83	39
29	117	276	335	124	351	1130	368	256	55	59	87	41
30	107	241	273	119	---	783	321	195	68	56	86	42
31	97	---	238	115	---	599	---	166	---	55	110	---
TOTAL	3005	5121	10607	4315	10973	10668	13127	9726	2381	1933	6194	1258
MEAN	96.9	171	342	139	378	344	438	314	79.4	62.4	200	41.9
MAX	543	561	730	225	2030	1130	975	668	150	163	1290	82
MIN	12	75	174	91	106	170	297	128	55	46	48	29
CFSM	1.04	1.84	3.69	1.50	4.07	3.71	4.72	3.38	.86	.67	2.16	.45
IN.	1.20	2.05	4.25	1.73	4.40	4.28	5.26	3.90	.95	.77	2.48	.50

CAL YR 1983	TOTAL	69980.5	MEAN 192	MAX 1880	MIN 6.5	CFSM 2.07	IN 28.05
WTR YR 1984	TOTAL	79308.0	MEAN 217	MAX 2030	MIN 12	CFSM 2.34	IN 31.79



## 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 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.--Records good. Periodic dewatering of upstream quarries adds small amount of inflow. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 94.7 ft<sup>3</sup>/s, 27.02 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 above base 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)
Oct. 23	1930	997	3.42	Aug. 12	1000	2310	5.44
Feb. 14	1245	*2320	5.46	Aug. 14	0245	1090	3.58
Mar. 29	0245	886	3.23				

Minimum discharge, 4.8 ft<sup>3</sup>/s.Oct. 7-8, 9-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	67	190	130	52	198	359	191	134	51	20	45
2	7.0	61	171	120	50	186	308	257	122	34	22	40
3	6.0	56	158	110	62	171	270	312	110	31	20	38
4	5.6	52	293	100	71	156	305	352	99	28	18	44
5	5.4	48	264	90	68	153	489	337	90	29	17	35
6	5.2	46	284	83	65	145	405	324	83	32	18	33
7	5.0	43	262	78	61	138	339	350	77	31	18	32
8	5.0	41	234	71	58	130	290	310	71	25	18	30
9	4.8	39	210	67	58	123	249	280	66	23	24	29
10	5.0	104	189	72	56	117	217	270	61	24	46	29
11	7.0	134	169	80	55	114	192	231	57	26	42	27
12	66	127	391	66	54	107	171	206	53	20	815	23
13	54	120	512	64	69	161	170	184	51	19	419	21
14	77	109	410	64	1380	164	208	166	49	18	783	22
15	35	120	329	61	855	163	248	150	45	16	411	20
16	25	117	270	59	500	165	246	137	45	16	273	19
17	20	107	221	57	370	159	236	127	45	16	203	19
18	17	104	187	58	295	153	217	118	43	26	189	19
19	16	99	162	54	244	146	198	109	39	18	146	21
20	22	109	143	48	208	137	178	101	36	16	127	21
21	90	133	130	44	179	238	168	94	35	51	115	20
22	91	120	351	47	160	279	235	88	35	35	100	19
23	446	118	290	49	227	254	227	88	34	34	91	18
24	463	150	250	50	263	225	210	82	46	29	80	17
25	243	327	200	61	251	238	193	75	40	24	74	16
26	171	290	180	59	231	212	177	85	32	27	72	16
27	135	249	165	58	214	195	171	116	29	30	68	16
28	113	233	250	58	228	297	153	124	28	25	62	22
29	97	221	200	57	210	666	141	164	31	23	66	20
30	84	205	170	57	---	537	131	163	45	22	67	23
31	74	---	145	55	---	430	---	148	---	21	65	---
TOTAL	2403.5	3749	7380	2127	6594	6557	7101	5739	1731	820	4489	754
MEAN	77.5	125	238	68.6	227	212	237	185	57.7	26.5	145	25.1
MAX	463	327	512	130	1380	666	489	352	134	51	815	45
MIN	4.8	39	130	44	50	107	131	75	28	16	17	16
CFSM	1.63	2.63	5.00	1.44	4.77	4.45	4.98	3.89	1.21	.56	3.05	.53
IN.	1.88	2.93	5.77	1.66	5.15	5.12	5.55	4.49	1.35	.64	3.51	.59

CAL YR 1983	TOTAL	41366.3	MEAN 113	MAX 1220	MIN 3.2	CFSM 2.37	IN 32.33
WTR YR 1984	TOTAL	49444.5	MEAN 135	MAX 1380	MIN 4.8	CFSM 2.84	IN 38.64



## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Feb. 23 to Mar. 25, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--24 years, 172 ft<sup>3</sup>/s, 15.89 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 above base 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)
Dec. 13	0015	1450	5.97	Apr. 5	0515	1450	5.97
Feb. 14	1545	*8880	12.75	Aug. 12	1815	3440	8.64
Mar. 29	0700	3870	9.06	Aug. 14	0645	3590	8.79

Minimum discharge, 27 ft<sup>3</sup>/s Oct. 7, 8, 9-11, gage height, 0.70 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	76	171	210	122	350	468	254	212	170	117	167
2	33	73	152	195	121	340	420	236	201	144	113	145
3	31	70	140	180	129	330	370	288	188	140	107	130
4	29	66	546	165	178	300	426	798	174	101	104	160
5	29	64	382	155	165	380	1060	410	166	109	98	140
6	28	62	325	151	152	410	597	596	161	182	97	120
7	28	61	338	148	137	360	456	635	155	117	128	110
8	27	60	265	138	136	300	395	502	151	96	130	110
9	27	58	227	133	131	260	359	513	146	87	212	105
10	27	131	201	135	125	230	336	399	137	88	150	95
11	29	188	179	207	124	215	315	351	131	96	480	94
12	72	121	622	160	123	200	295	321	127	83	1410	90
13	72	103	999	177	128	300	281	295	124	78	1140	82
14	121	95	501	153	3560	619	381	276	119	76	1810	80
15	55	154	364	150	1380	450	552	256	112	74	780	80
16	42	256	297	143	844	380	424	242	113	82	458	77
17	38	160	254	140	633	320	374	231	126	77	359	78
18	36	127	222	145	560	290	341	222	137	164	353	80
19	36	111	196	146	480	270	316	215	115	105	352	80
20	39	114	177	126	400	250	300	202	105	80	290	82
21	126	239	163	120	330	350	283	193	100	257	257	81
22	107	169	656	115	250	478	348	185	99	220	238	79
23	397	143	573	140	477	420	483	217	98	168	228	77
24	634	159	366	155	832	350	395	215	130	153	219	76
25	265	726	350	171	625	450	345	181	149	126	199	74
26	179	397	320	174	520	628	316	174	104	123	189	72
27	137	265	472	154	450	547	298	223	92	246	179	71
28	108	227	384	146	455	787	284	265	88	164	174	84
29	95	222	268	139	420	2120	292	276	116	141	199	89
30	84	189	250	134	---	952	269	260	134	135	174	88
31	79	---	230	131	---	632	---	227	---	126	236	---
TOTAL	3046	4886	10590	4736	13987	14268	11779	9658	4010	4008	10980	2896
MEAN	98.3	163	342	153	482	460	393	312	134	129	354	96.5
MAX	634	726	999	210	3560	2120	1060	798	212	257	1810	167
MIN	27	58	140	115	121	200	269	174	88	74	97	71
CFSM	.67	1.11	2.33	1.04	3.28	3.13	2.67	2.12	.91	.88	2.41	.66
IN.	.77	1.24	2.68	1.20	3.54	3.61	2.98	2.44	1.01	1.01	2.78	.73
CAL YR 1983	TOTAL	68694	MEAN 188	MAX 2880	MIN 21	CFSM 1.28	IN 17.38					
WTR YR 1984	TOTAL	94844	MEAN 259	MAX 3560	MIN 27	CFSM 1.76	IN 24.00					

## 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 National Geodetic Vertical Datum of 1929. Prior to Aug. 21, 1943, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--41 years, 142 ft<sup>3</sup>/s, 20.38 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 above base 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)
Oct. 23	2000	1650	5.44	Apr. 5	0130	1750	5.60
Feb. 14	1500	4030	8.15	Aug. 12	1300	*5670	9.72
Mar. 29	0600	2390	6.45				

Minimum discharge, 12 ft<sup>3</sup>/s Oct. 6, gage height, 0.48 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	84	221	226	125	330	518	372	164	202	64	74
2	22	76	197	209	120	304	456	341	154	64	66	68
3	19	72	180	202	140	276	408	468	138	58	62	82
4	17	68	497	192	195	252	514	776	128	56	58	82
5	15	64	372	180	175	263	1010	643	120	59	89	68
6	13	63	352	175	160	276	665	709	112	62	71	62
7	13	60	316	175	150	263	557	708	105	63	62	59
8	13	58	260	164	140	226	474	661	98	52	53	58
9	13	56	232	158	140	214	428	582	94	48	57	56
10	14	152	206	179	132	199	386	477	89	59	129	56
11	18	154	192	229	132	197	352	428	84	66	395	54
12	132	122	574	187	130	180	318	388	78	52	2280	52
13	124	106	672	187	139	298	302	346	78	48	980	51
14	136	97	461	199	1960	341	385	318	82	44	1030	56
15	59	122	372	168	1030	344	571	288	74	42	643	57
16	45	130	296	160	690	318	496	263	72	41	442	48
17	39	112	250	158	532	296	442	242	75	41	335	46
18	35	103	214	162	444	276	397	229	74	65	279	43
19	32	98	192	148	380	258	360	211	68	48	234	43
20	45	126	164	124	335	242	332	192	63	40	192	43
21	232	220	150	110	296	387	304	178	62	434	164	43
22	142	162	722	90	263	366	396	166	62	157	142	41
23	660	144	589	138	498	330	640	194	60	168	134	41
24	623	156	436	152	694	302	490	173	80	128	120	39
25	318	659	360	197	600	341	442	148	75	100	105	39
26	237	408	316	180	456	346	397	140	62	89	97	39
27	170	313	274	175	402	310	360	185	57	118	92	38
28	138	288	441	160	425	636	352	224	53	89	89	49
29	116	296	386	145	372	1400	480	263	53	82	94	48
30	100	242	324	138	---	791	416	204	94	71	86	51
31	90	---	265	130	---	625	---	178	---	69	97	---
TOTAL	3657	4811	10483	5197	11255	11187	13648	10695	2608	2715	8741	1586
MEAN	118	160	338	168	388	361	455	345	86.9	87.6	282	52.9
MAX	660	659	722	229	1960	1400	1010	776	164	434	2280	82
MIN	13	56	150	90	120	180	302	140	53	40	53	38
CFSM	1.25	1.69	3.57	1.78	4.10	3.82	4.81	3.65	.92	.93	2.98	.56
IN.	1.44	1.89	4.12	2.04	4.43	4.40	5.37	4.21	1.03	1.07	3.44	.62
CAL YR 1983	TOTAL	70317.5	MEAN 193	MAX 2240	MIN 9.0	CFSM 2.04	IN 27.65					
WTR YR 1984	TOTAL	86583.0	MEAN 237	MAX 2280	MIN 13	CFSM 2.51	IN 34.05					

## 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 National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good. Large diurnal fluctuation caused by powerplants above station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 197.5 mi upstream. National Weather Service gage-height telemeter at station. Several observations 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, 5,174 ft<sup>3</sup>/s, 15.33 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 above base 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)
Feb. 15	2000	*66600	19.65	Aug. 12	2345	40500	15.55
Mar. 22	2300	35200	14.44	Aug. 14	1930	38300	15.00
Mar. 29	1215	50200	17.24				

Minimum discharge, 556 ft<sup>3</sup>/s Oct. 10, 11, gage height, 2.39 ft; minimum daily, 571 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	852	2270	5920	8030	4520	11800	21700	11000	4140	2370	1980	11000
2	913	1900	5630	7150	4480	10400	16400	9910	4220	2920	1960	7500
3	969	1780	4470	6450	4010	9090	13500	9060	3970	3370	2130	5500
4	804	1520	6530	5790	4140	8300	12300	15200	3490	3150	3200	4600
5	923	1600	11900	5120	4900	7230	24300	13700	3590	2470	2400	4100
6	800	1570	15400	4700	4440	7840	22900	16400	3590	3910	2760	3600
7	739	1390	11500	4260	4410	7320	21700	24500	2780	4230	3160	3150
8	628	1510	9060	4160	4200	7260	16400	28900	3240	2200	2290	2800
9	761	1340	7610	4130	4140	7050	13400	22700	2760	2230	2300	2450
10	571	1700	6600	3540	3630	6850	11500	18800	2670	3270	2720	2650
11	601	3400	5820	4480	3570	6010	10600	15200	2240	2480	5960	2400
12	976	3850	6120	4630	3340	6160	10500	12200	3290	2120	14100	2250
13	1980	3430	21200	4900	3520	6560	9860	10400	2430	2270	34200	2060
14	1570	3500	25100	5470	20700	9980	11100	9190	2330	2790	32900	2150
15	1580	3020	17300	4540	60900	10800	16600	8550	2290	1690	30500	1990
16	1390	4500	12900	4320	46300	11000	16500	7830	2420	1890	19700	1760
17	1300	3810	10200	4160	25600	10400	17400	6600	2040	2590	14600	1880
18	1150	3140	8140	3840	19500	9320	15500	6210	2410	1860	10100	1930
19	1290	3210	6540	4130	16400	8890	13000	5660	2840	2990	8240	2110
20	942	2880	5750	3790	12300	8450	11200	5150	2250	1930	6300	1550
21	1280	3630	4720	3480	10100	8630	9800	5160	2030	3500	5850	1610
22	2380	3720	7360	2590	8990	22300	9680	5280	2040	6260	4850	1690
23	2560	3170	14300	2710	9130	29600	13000	4720	2240	5600	4320	1470
24	10500	2760	18000	3360	19100	20200	21700	5890	1970	5210	3610	1600
25	10000	7470	13600	3210	31400	17800	19700	4680	2600	3780	3430	1680
26	8210	9870	9680	4430	24300	18700	16600	4400	2700	2840	2660	1620
27	5520	9290	7950	5200	19000	14100	13400	4000	2290	2880	2930	1480
28	3690	7830	7940	5920	14800	16500	11400	4570	2130	3260	2930	1680
29	2930	6370	10800	6080	13300	39900	10500	5990	2190	2260	2780	1540
30	2410	5320	9830	5110	---	39500	9830	5550	2630	2540	4100	1690
31	2250	---	9310	5150	---	31000	---	5150	---	2760	7000	---
TOTAL	72469	110750	317180	144830	405120	428940	441970	312550	81810	93620	245960	83490
MEAN	2338	3692	10230	4672	13970	13840	14730	10080	2727	3020	7934	2783
MAX	10500	9870	25100	8030	60900	39900	24300	28900	4220	6260	34200	11000
MIN	571	1340	4470	2590	3340	6010	9680	4000	1970	1690	1960	1470
(*)	+62	+203	+260	-5	-9	+16	+5	-24	-143	-34	+164	-126
CAL YR 1983 TOTAL	2205920			6044	48200		571	MEAN# 6045	CFSM# 1.32	IN# 17.91		
WTR YR 1984 TOTAL	2738689			7483	60900		571	MEAN# 7515	CFSM# 1.64	IN# 22.32		

\* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.

\* 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--46 years, 129 ft<sup>3</sup>/s, 15.10 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 above base 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. 14	1930	4180	13.62	May 4	1000	1810	9.75
Feb. 24	0330	1680	9.36	July 7	0700	1540	8.97
Mar. 29	1100	4450	13.94	July 21	1730	*4970	14.52
Apr. 5	0900	3090	12.23				

Minimum discharge, 20 ft<sup>3</sup>/s Oct. 9-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	57	103	177	103	237	350	228	151	121	121	81
2	33	55	94	162	99	220	298	209	144	93	114	77
3	28	54	91	131	107	208	271	225	135	84	120	76
4	24	52	507	124	166	200	421	1140	130	75	146	100
5	23	49	289	121	220	208	2030	440	121	150	362	82
6	22	48	212	120	187	228	620	642	118	123	161	76
7	21	47	194	116	146	209	404	671	114	743	143	71
8	21	47	152	108	124	197	329	504	108	144	118	69
9	21	46	131	106	120	187	293	533	106	103	125	69
10	21	127	120	110	116	177	276	354	102	101	253	69
11	23	172	111	216	114	177	256	304	97	114	700	68
12	70	92	459	144	111	170	239	271	93	87	470	65
13	68	76	945	121	111	277	234	250	91	80	454	64
14	154	70	355	128	2200	398	410	228	92	76	490	67
15	54	97	227	131	1620	315	988	212	88	73	316	64
16	36	163	177	120	498	254	531	202	85	72	205	58
17	31	98	152	116	346	220	382	191	98	70	165	56
18	28	80	137	118	293	206	315	187	141	135	152	56
19	31	74	127	119	259	198	271	183	93	91	166	56
20	32	79	118	104	239	187	254	173	84	81	140	55
21	138	184	110	94	220	244	235	163	79	2340	122	53
22	97	115	636	85	206	228	440	159	79	974	114	52
23	231	97	522	120	452	197	892	172	78	383	111	51
24	583	98	273	130	1050	188	464	213	88	249	106	51
25	180	802	173	141	406	256	335	158	102	189	97	51
26	119	313	165	172	297	474	284	149	78	168	94	50
27	92	177	155	160	259	297	266	156	70	202	90	49
28	78	149	360	139	314	1060	249	206	67	160	88	63
29	70	145	434	124	276	3400	290	224	74	143	90	68
30	63	115	225	118	---	1040	249	234	150	134	87	63
31	60	---	166	112	---	485	---	169	---	125	90	---
TOTAL	2507	3778	7920	3987	10659	12342	12876	9150	3056	7683	6010	1930
MEAN	80.9	126	255	129	368	398	429	295	102	248	194	64.3
MAX	583	802	945	216	2200	3400	2030	1140	151	2340	700	100
MIN	21	46	91	85	99	170	234	149	67	70	87	49
CFSM	.70	1.09	2.20	1.11	3.17	3.43	3.70	2.54	.88	2.14	1.67	.55
IN.	.80	1.21	2.54	1.28	3.42	3.96	4.13	2.93	.98	2.46	1.93	.62
CAL YR 1983	TOTAL	62033	MEAN 170	MAX 2390	MIN 20	CFSM 1.47	IN 19.89					
WTR YR 1984	TOTAL	81898	MEAN 224	MAX 3400	MIN 21	CFSM 1.93	IN 26.26					



## 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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Feb. 15, 1936, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations 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, 231 ft<sup>3</sup>/s, 13.88 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 above base 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)
Nov. 25	1200	2960	9.81	Mar. 26	0230	3700	10.77
Dec. 13	0430	2620	9.33	Mar. 29	1000	*6270	13.51
Feb. 14	1700	3410	10.41	Apr. 5	0400	3130	10.04
Feb. 24	0430	3120	10.03	Apr. 15	0200	3610	10.66

Minimum discharge, 25 ft<sup>3</sup>/s Oct. 8-10, 11, gage height, 2.16 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	60	148	223	172	299	515	284	172	99	89	80
2	51	60	137	210	159	257	387	257	164	92	85	74
3	39	60	131	190	156	236	337	283	156	87	81	69
4	34	60	851	184	184	219	857	669	144	89	80	73
5	31	59	631	176	308	228	2990	412	135	80	97	82
6	28	57	307	170	333	404	1470	508	131	87	93	76
7	27	57	353	164	232	413	559	836	128	88	92	70
8	26	57	234	156	191	306	424	474	124	82	87	68
9	25	57	190	150	183	269	364	379	118	71	78	65
10	25	89	170	158	178	235	330	312	112	69	119	65
11	27	175	159	650	177	223	308	276	109	78	1230	66
12	40	119	697	364	180	212	288	254	105	83	639	67
13	73	86	2200	232	174	407	302	238	103	74	859	65
14	73	76	641	215	2060	1020	1480	224	103	71	678	66
15	61	129	306	223	2210	710	3050	210	98	67	340	74
16	51	736	230	205	606	432	1150	201	95	63	184	83
17	40	310	193	192	371	332	608	196	104	73	134	65
18	37	167	173	190	296	282	453	193	110	121	115	60
19	36	126	162	205	253	257	380	192	108	207	121	58
20	40	116	154	189	230	240	344	184	93	98	259	59
21	100	387	146	169	209	327	317	174	86	99	184	58
22	159	253	626	138	194	373	647	164	83	236	122	55
23	196	161	1020	160	650	274	1580	164	85	168	106	53
24	683	152	386	177	2670	238	781	273	93	138	102	52
25	241	2240	221	222	738	1120	498	204	114	112	96	51
26	142	1330	189	256	398	3070	396	173	105	93	87	50
27	102	303	202	216	309	1010	346	175	86	123	82	48
28	79	217	284	199	364	1700	318	191	79	137	80	53
29	70	198	676	183	407	5480	313	196	80	101	81	65
30	65	169	363	176	---	3530	300	213	100	96	83	71
31	61	---	219	183	---	825	---	201	---	94	82	---
TOTAL	2711	8066	12399	6525	14592	24928	22092	8710	3323	3176	6565	1941
MEAN	87.5	269	400	210	503	804	736	281	111	102	212	64.7
MAX	683	2240	2200	650	2670	5480	3050	836	172	236	1230	83
MIN	25	57	131	138	156	212	288	164	79	63	78	48
CFSM	.39	1.19	1.77	.93	2.23	3.56	3.26	1.24	.49	.45	.94	.29
IN.	.45	1.33	2.04	1.07	2.40	4.10	3.64	1.43	.55	.52	1.08	.32

CAL YR 1983 TOTAL 86262 MEAN 236 MAX 3320 MIN 14 CFSM 1.04 IN 14.20  
WTR YR 1984 TOTAL 115028 MEAN 314 MAX 5480 MIN 25 CFSM 1.39 IN 18.93

## 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 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.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--14 years, 111 ft<sup>3</sup>/s, 15.80 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 above base of 1,200 ft<sup>3</sup>/s (revised) 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. 23	2300	1720	9.85	Mar. 29	0830	5560	16.40
Nov. 25	1000	1520	9.44	Apr. 5	0330	2880	12.16
Dec. 22	1030	1580	9.55	Apr. 15	0030	1240	8.87
Feb. 14	1800	*6420	17.54	Aug. 12	1500	2410	11.22
Feb. 23	2300	1460	9.32				

Minimum daily discharge, 14 ft<sup>3</sup>/s Oct. 8-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	61	115	150	90	216	322	191	107	96	55	46
2	26	57	103	125	87	193	270	181	104	74	57	44
3	21	56	97	118	98	172	234	246	98	67	54	44
4	19	54	458	114	129	159	319	567	94	67	58	51
5	18	52	270	112	120	158	1340	361	92	65	85	46
6	16	50	214	108	111	164	469	499	90	65	64	41
7	15	48	193	104	102	152	352	439	89	67	57	39
8	14	47	154	98	96	141	282	410	82	60	91	39
9	14	56	133	94	94	136	241	358	80	55	82	38
10	15	163	122	102	92	127	216	272	77	64	59	38
11	18	158	109	174	92	126	195	245	75	72	150	38
12	107	102	598	118	92	119	179	218	74	56	1160	37
13	93	82	765	111	102	196	172	195	71	51	468	36
14	133	76	370	109	3090	250	294	179	74	49	531	38
15	56	86	255	107	1160	234	704	164	68	47	279	37
16	40	96	191	102	499	205	421	154	66	47	154	32
17	36	84	158	98	331	179	315	147	104	46	115	31
18	32	74	135	102	258	164	262	141	101	58	97	30
19	30	70	123	100	207	156	229	141	69	51	95	31
20	40	83	111	92	179	147	205	130	62	45	84	30
21	186	206	104	88	156	234	189	122	58	180	74	30
22	104	129	862	80	141	216	352	117	56	108	69	29
23	616	109	495	85	394	187	719	131	56	107	65	28
24	602	114	295	94	649	170	412	132	63	83	63	28
25	197	742	200	144	367	205	322	115	67	71	58	27
26	129	302	170	129	275	262	272	109	56	65	55	26
27	99	189	155	114	238	218	238	132	50	71	54	26
28	85	161	365	107	300	750	218	143	48	63	53	39
29	75	174	286	102	262	2620	276	166	50	58	53	42
30	67	133	185	98	---	725	212	136	159	56	54	38
31	63	---	166	95	---	427	---	115	---	56	56	---
TOTAL	3006	3814	7957	3374	9811	9408	10231	6656	2340	2120	4449	1079
MEAN	97.0	127	257	109	338	303	341	215	78.0	68.4	144	36.0
MAX	616	742	862	174	3090	2620	1340	567	159	180	1160	51
MIN	14	47	97	80	87	119	172	109	48	45	53	26
CFSM	1.02	1.33	2.69	1.14	3.54	3.18	3.57	2.25	.82	.72	1.51	.38
IN.	1.17	1.49	3.10	1.32	3.83	3.67	3.99	2.60	.91	.83	1.73	.42

CAL YR 1983	TOTAL	63399	MEAN 174	MAX 4390	MIN 11	CFSM 1.82	IN 24.72
WTR YR 1984	TOTAL	64245	MEAN 176	MAX 3090	MIN 14	CFSM 1.85	IN 25.05

## JAMES RIVER BASIN

02031500 NORTH FORK MOORMANS RIVER NEAR WHITE HALL, VA

LOCATION.--Lat 38°08'25", long 78°45'05", Albemarle County, Hydrologic Unit 02080204, on left bank 0.5 mi upstream from confluence with South Fork, 0.8 mi upstream from city of Charlottesville dam, and 5.1 mi west of White Hall.

DRAINAGE AREA.--11.4 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1951 to September 1963, July 1982 to September 1984 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 999 ft, by barometer.

REMARKS.--Records good except those above 100 ft<sup>3</sup>/s, which are fair.

AVERAGE DISCHARGE.--13 years (water years 1953-63, 1983-84), 17.3 ft<sup>3</sup>/s, 20.61 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,400 ft<sup>3</sup>/s Aug. 18, 1955, gage height, 7.94 ft, from rating curve extended above 500 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; no flow at times in October 1953 and October 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 11.7 ft, from floodmarks, discharge, 7,620 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Oct. 13	1900	368	4.05	Feb. 14	1345	*1290	6.10
Oct. 23	2200	310	3.85	Mar. 29	0600	698	4.95
Nov. 10	1445	280	3.74	Apr. 5	0515	415	4.20
Dec. 12	2315	324	3.90	Aug. 12	1100	906	5.40

Minimum discharge, 0.12 ft<sup>3</sup>/s Oct. 9, gage height, 1.63 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	7.8	28	12	10	30	77	28	4.7	3.1	.47	1.2
2	.95	7.2	20	11	9.9	26	61	25	4.4	2.0	.45	1.0
3	.55	7.0	17	11	10	21	46	30	4.0	1.3	.43	1.0
4	.36	6.7	55	10	11	18	61	57	3.6	1.0	.58	1.2
5	.28	6.0	70	9.4	12	17	326	58	3.3	.89	.96	1.1
6	.22	5.5	60	8.8	10	16	166	73	3.1	.98	.72	1.1
7	.18	4.8	43	8.3	8.7	14	100	91	2.9	.92	1.2	1.0
8	.16	4.2	29	7.2	8.5	12	68	78	2.6	.74	1.0	.90
9	.14	3.8	22	6.9	8.0	11	49	56	2.4	.56	.77	.86
10	.15	140	17	7.5	8.2	10	39	41	2.2	2.3	5.6	.87
11	.80	145	14	11	9.4	10	30	31	2.1	2.7	11	.86
12	32	74	170	9.5	10	9.0	25	25	2.3	1.0	314	.85
13	69	44	244	9.2	14	13	22	19	2.2	.69	121	.86
14	52	28	123	9.6	744	24	23	17	2.5	.55	46	.89
15	12	22	70	9.2	351	38	52	15	1.8	.47	23	.82
16	6.4	20	44	8.8	156	39	82	12	1.8	.42	12	.70
17	4.1	15	32	8.5	87	33	80	11	2.3	.41	7.8	.60
18	2.8	12	26	8.2	59	28	59	10	2.6	.70	6.4	.53
19	2.2	11	23	8.0	44	23	43	9.4	1.7	.76	5.7	.52
20	4.5	15	20	7.8	35	19	32	8.6	1.4	.47	4.1	.52
21	44	40	18	7.3	27	88	26	8.0	1.3	1.4	3.1	.50
22	36	39	67	7.0	22	118	36	7.2	1.2	1.6	2.7	.47
23	153	31	108	7.4	47	75	105	7.6	1.2	2.0	2.6	.42
24	184	27	79	8.4	139	48	130	6.8	1.6	1.2	2.3	.40
25	77	119	50	14	110	44	89	6.0	2.0	.78	1.9	.40
26	42	100	37	13	72	47	59	5.6	1.3	.59	1.6	.38
27	25	75	22	13	49	47	42	6.3	1.0	.63	1.5	.35
28	17	60	23	13	46	126	34	6.8	.86	.61	1.4	.97
29	13	51	23	12	39	485	36	6.9	.80	.52	2.3	1.3
30	9.7	39	15	12	---	204	31	5.8	1.2	.50	1.7	1.3
31	8.5	---	13	11	---	116	---	5.0	---	.52	1.6	---
TOTAL	799.99	1160.0	1582	300.0	2156.7	1809.0	2029	767.0	66.36	32.31	585.88	23.87
MEAN	25.8	38.7	51.0	9.68	74.4	58.4	67.6	24.7	2.21	1.04	18.9	.80
MAX	184	145	244	14	744	485	326	91	4.7	3.1	314	1.3
MIN	.14	3.8	13	6.9	8.0	9.0	22	5.0	.80	.41	.43	.35
CFSM	2.26	3.40	4.47	.85	6.53	5.12	5.93	2.17	.19	.09	1.66	.07
IN.	2.61	3.78	5.16	.98	7.04	5.90	6.62	2.50	.22	.11	1.91	.08
CAL YR 1983	TOTAL	12004.78	MEAN	32.9	MAX	742	MIN	.05	CFSM	2.89	IN	39.17
WTR YR 1984	TOTAL	11312.11	MEAN	30.9	MAX	744	MIN	.14	CFSM	2.71	IN	36.91

## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow regulated by Rivanna Water and Sewer Authority at Sugar Hollow reservoir 12.0 mi upstream, 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 observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--5 years, 106 ft<sup>3</sup>/s, 19.30 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 above base 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)
Oct. 23	2100	1080	6.67	Mar. 29	0600	3990	12.65
Nov. 25	0800	1580	7.78	Apr. 5	0100	1760	8.17
Dec. 13	0030	1240	7.03	Apr. 23	0300	992	6.47
Dec. 22	0830	933	6.34	May 6	1300	713	5.82
Feb. 14	Unknown	*5670	a15.48	Aug. 12	1530	1470	7.54
Feb. 23	2100	1070	6.64				

a From floodmark.

Minimum discharge, 3.7 ft<sup>3</sup>/s Oct. 9-10, gage height, 2.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	37	137	116	80	220	382	188	80	96	19	10
2	12	34	120	105	78	190	331	183	60	42	18	9.0
3	7.2	34	107	99	82	170	288	280	56	30	12	9.6
4	5.6	30	386	97	94	160	424	420	53	25	17	13
5	5.1	26	303	94	99	145	1120	328	50	22	23	9.9
6	4.4	27	266	92	92	160	673	472	48	21	22	8.7
7	4.0	25	219	88	80	145	485	414	45	18	21	8.1
8	4.0	23	165	74	73	130	306	306	43	16	14	7.5
9	4.0	21	139	69	73	120	290	382	41	14	32	7.2
10	4.0	244	124	77	72	94	256	396	40	18	48	7.5
11	5.0	384	109	126	72	94	220	300	37	25	45	7.2
12	52	168	658	94	71	80	172	235	34	16	803	7.0
13	80	80	908	88	90	125	152	200	33	13	480	6.8
14	112	65	458	92	2700	152	245	175	31	12	225	7.2
15	36	115	339	86	1300	145	421	155	30	11	116	7.0
16	24	136	234	82	705	141	370	140	28	10	63	6.5
17	20	50	178	80	485	132	295	125	35	10	40	6.0
18	17	43	145	84	331	122	245	120	50	14	34	5.8
19	15	41	128	82	278	120	200	115	30	12	32	6.5
20	24	52	111	65	231	152	185	110	23	9.9	25	7.2
21	150	143	97	62	183	170	170	105	20	24	20	8.1
22	83	139	606	60	156	230	348	100	19	24	18	8.4
23	542	124	469	63	386	170	696	110	20	24	17	8.4
24	653	122	317	92	661	160	565	120	24	18	18	10
25	292	779	200	152	529	195	437	110	31	14	16	11
26	147	418	170	99	371	281	310	100	22	13	14	11
27	84	281	147	90	278	250	260	120	20	16	13	11
28	63	234	334	80	220	701	215	140	17	14	13	16
29	47	207	204	92	225	2280	266	180	20	12	13	18
30	42	165	145	94	---	739	210	130	91	12	15	17
31	43	---	128	88	---	537	---	100	---	12	15	---
TOTAL	2603.3	4247	8051	2762	10095	8510	10537	6359	1131	617.9	2261	276.6
MEAN	84.0	142	260	89.1	348	275	351	205	37.7	19.9	72.9	9.22
MAX	653	779	908	152	2700	2280	1120	472	91	96	803	18
MIN	4.0	21	97	60	71	80	152	100	17	9.9	12	5.8
CFSM	1.13	1.90	3.49	1.20	4.67	3.69	4.71	2.75	.51	.27	.98	.12
IN.	1.30	2.12	4.02	1.38	5.04	4.25	5.26	3.17	.56	.31	1.13	.14

CAL YR 1983	TOTAL	55114.4	MEAN 151	MAX 2650	MIN 2.3	CFSM 2.03	IN 27.49
WTR YR 1984	TOTAL	57450.8	MEAN 157	MAX 2700	MIN 4.0	CFSM 2.11	IN 28.66



## JAMES RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--5 years, 46.6 ft<sup>3</sup>/s, 17.10 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 above base 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)
Oct. 23	2045	856	4.48	Mar. 29	0615	2620	7.34
Nov. 25	0645	1080	4.97	Apr. 5	0100	1600	5.92
Dec. 13	0100	687	4.08	Apr. 23	0230	566	3.76
Dec. 22	0715	731	4.19	Aug. 9	2200	*3000	7.78
Feb. 14	1330	2970	7.74	Aug. 11	0800	1100	5.01
Feb. 23	2115	528	3.65	Aug. 14	0945	1440	5.64
Mar. 28	1415	937	4.66				

Minimum discharge, 2.4 ft<sup>3</sup>/s Oct. 9, 10, gage height, 0.59 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	19	46	50	30	76	131	57	30	74	16	13
2	6.9	19	39	42	29	68	101	53	28	26	17	12
3	4.9	17	37	40	33	61	82	102	26	20	13	15
4	4.2	16	202	35	37	55	191	166	24	16	18	18
5	3.7	16	98	35	44	54	584	104	23	15	24	13
6	3.3	16	83	34	38	55	198	178	22	16	31	12
7	2.8	15	72	33	32	47	139	143	21	14	24	11
8	2.6	15	58	31	29	45	105	132	20	12	25	11
9	2.5	14	50	30	29	43	87	101	19	13	315	11
10	2.5	85	44	44	29	40	80	82	18	21	273	11
11	4.2	84	37	57	30	39	73	72	17	19	431	10
12	33	54	393	37	31	38	61	65	16	13	314	9.5
13	65	39	362	37	34	76	61	59	15	12	274	9.7
14	52	33	152	35	1530	84	97	53	17	13	310	10
15	19	36	99	35	493	75	179	50	14	12	95	9.8
16	13	35	73	33	231	67	128	46	15	12	45	9.2
17	9.7	30	61	33	156	59	101	42	18	11	38	7.3
18	8.5	27	54	32	113	54	85	42	18	17	32	7.1
19	7.7	25	43	32	88	50	75	42	14	13	35	7.1
20	17	41	37	29	74	47	67	40	12	11	29	6.9
21	107	84	35	27	66	79	61	40	12	25	26	6.3
22	49	52	363	25	59	76	159	40	12	20	25	5.9
23	460	41	154	27	189	67	313	41	12	17	23	5.5
24	250	45	98	31	238	59	155	36	16	13	21	5.5
25	84	492	81	54	135	72	112	31	13	11	19	5.7
26	55	136	64	44	96	95	90	31	10	11	17	5.4
27	40	84	56	40	80	74	78	32	9.0	15	17	5.1
28	32	72	150	37	116	388	71	36	12	12	17	12
29	26	68	80	33	94	1100	76	53	16	11	18	13
30	22	53	57	33	---	275	65	38	60	11	17	13
31	21	---	55	32	---	176	---	31	---	11	16	---
TOTAL	1421.5	1763	3233	1117	4183	3594	3805	2038	559.0	517	2575	291.0
MEAN	45.9	58.8	104	36.0	144	116	127	65.7	18.6	16.7	83.1	9.70
MAX	460	492	393	57	1530	1100	584	178	60	74	431	18
MIN	2.5	14	35	25	29	38	61	31	9.0	11	13	5.1
CFSM	1.24	1.59	2.81	.97	3.89	3.13	3.43	1.78	.50	.45	2.25	.26
IN.	1.43	1.77	3.25	1.12	4.20	3.61	3.82	2.05	.56	.52	2.59	.29
CAL YR 1983	TOTAL	21982.50	MEAN	60.2	MAX	1230	MIN	.70	CFSM	1.63	IN	22.09
WTR YR 1984	TOTAL	25096.50	MEAN	68.6	MAX	1530	MIN	2.5	CFSM	1.85	IN	25.22

## JAMES RIVER BASIN

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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. Altitude of gage is 330 ft, from topographic map.

REMARKS.--Records good except those for period of no gage-height record, Dec. 6 to Jan. 4, 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 13.6 ft<sup>3</sup>/s is diverted for industrial and municipal use. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--5 years, 319 ft<sup>3</sup>/s, 16.66 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, 29, 30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,400 ft<sup>3</sup>/s Feb. 14, gage height, 19.80 ft; minimum, 22 ft<sup>3</sup>/s Oct. 8, 9, gage height, 2.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	132	162	368	420	242	580	988	558	274	406	207	120
2	70	154	319	370	242	537	837	508	264	212	242	108
3	46	146	297	340	252	486	728	612	246	164	128	108
4	38	138	1130	320	338	444	858	1540	234	148	148	128
5	32	128	846	313	350	432	3430	929	222	142	232	116
6	29	124	660	302	324	508	1590	1230	218	150	224	102
7	25	122	640	294	272	461	1100	1220	206	158	198	96
8	22	118	500	270	248	440	854	940	200	132	132	92
9	24	114	430	257	260	350	735	954	190	116	237	90
10	24	423	370	274	250	319	659	760	180	136	718	92
11	34	754	350	492	246	308	598	663	174	172	738	90
12	192	411	600	336	244	290	544	598	166	130	2460	88
13	244	252	2500	302	262	426	515	537	164	108	1680	86
14	476	222	1500	302	6390	620	660	486	158	100	1360	90
15	168	232	800	297	4040	562	1710	441	148	96	963	88
16	110	337	640	277	1570	504	1110	409	142	92	526	76
17	87	216	520	270	1050	444	904	387	160	92	368	68
18	75	188	440	280	784	412	780	374	258	120	302	64
19	68	182	390	274	656	412	645	371	170	114	294	62
20	98	190	350	232	573	396	598	336	146	90	236	62
21	500	483	330	210	501	573	548	316	136	435	206	62
22	354	387	1500	180	438	677	849	300	128	323	192	61
23	1410	319	1350	220	822	584	2070	313	128	252	178	57
24	2090	316	1000	257	1810	504	1290	352	142	184	168	55
25	788	2030	700	422	1080	555	980	294	166	144	152	55
26	461	1080	600	394	788	731	799	280	134	132	142	53
27	302	688	500	316	688	627	692	310	118	150	136	53
28	242	562	600	292	807	1800	634	371	110	132	132	72
29	208	558	1100	282	659	6370	717	412	122	114	132	100
30	182	438	650	272	---	2180	612	377	461	112	138	94
31	172	---	430	264	---	1350	---	300	---	108	146	---
TOTAL	8703	11474	22410	9331	26186	24882	29034	17478	5565	4964	13115	2488
MEAN	281	382	723	301	903	803	968	564	186	160	423	82.9
MAX	2090	2030	2500	492	6390	6370	3430	1540	461	435	2460	128
MIN	22	114	297	180	242	290	515	280	110	90	128	53
*FT <sup>3</sup> /S	14.1	13.2	13.0	12.9	13.1	12.4	12.7	13.4	14.9	14.1	14.3	14.9

CAL YR 1983 TOTAL 157411 MEAN 431 MAX 7310 MIN 14 \*FT<sup>3</sup>/S 13.5  
WTR YR 1984 TOTAL 175630 MEAN 480 MAX 6390 MIN 22 \*FT<sup>3</sup>/S 13.6

\* Diversion, in cubic feet per second, by city of Charlottesville; records furnished by Rivanna Water and Sewer Authority.

## JAMES RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Rivanna Water and Sewer Authority diverts about 0.2 ft<sup>3</sup>/s daily for municipal water supply 7.8 mi above station. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--14 years, 263 ft<sup>3</sup>/s, 20.29 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 above base 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)
Oct. 24	0400	2350	10.06	Mar. 29	1330	7390	17.33
Nov. 25	1400	3430	12.60	Apr. 5	0830	4190	13.94
Dec. 13	0530	2120	9.35	Apr. 23	1000	1910	8.68
Dec. 22	1500	1710	8.04	Aug. 11	1930	6530	16.67
Feb. 14	2130	*9790	18.73	Aug. 12	1500	2010	9.01

Minimum discharge, 22 ft<sup>3</sup>/s Oct. 7-8, gage height, 2.07 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	133	306	310	198	450	729	387	183	507	185	82
2	45	128	269	285	189	399	585	351	171	224	370	77
3	37	125	247	260	191	363	495	351	164	146	130	77
4	31	120	763	242	258	330	522	1100	157	119	128	110
5	27	116	615	237	309	309	2650	756	149	104	250	86
6	26	113	477	232	375	312	1180	688	164	113	166	80
7	24	112	447	206	291	300	801	762	149	156	162	74
8	23	110	360	191	240	277	615	639	141	116	157	71
9	23	107	306	183	223	258	522	663	132	94	231	70
10	23	369	271	187	213	235	441	501	127	95	822	70
11	24	621	242	423	218	227	399	426	122	122	3870	68
12	44	369	788	280	223	223	381	393	118	95	1730	66
13	87	269	1640	245	225	256	366	360	113	82	1000	65
14	288	215	804	232	4670	450	396	330	113	76	720	68
15	110	202	552	227	3950	447	1180	297	112	70	567	65
16	62	232	423	213	1310	399	926	277	102	68	312	61
17	47	202	357	202	820	363	708	258	104	68	223	57
18	41	179	309	198	590	330	597	245	108	83	185	57
19	38	171	274	198	460	309	525	237	106	82	169	56
20	41	171	245	175	380	288	471	223	98	65	149	56
21	260	435	220	170	350	387	429	204	94	306	130	54
22	246	321	1100	148	305	501	478	187	89	155	119	53
23	813	255	953	187	394	423	1540	181	89	118	114	53
24	1480	250	588	213	1080	366	951	195	92	100	112	52
25	555	1980	390	256	753	357	681	177	98	88	100	52
26	381	874	330	339	585	501	567	168	89	82	95	52
27	277	531	310	285	492	459	507	166	80	106	90	52
28	209	423	629	260	525	1280	453	185	82	89	89	62
29	175	411	669	242	537	5170	438	225	227	80	90	72
30	152	345	405	230	---	1730	414	312	362	74	94	68
31	141	---	324	218	---	979	---	223	---	76	102	---
TOTAL	5820	9889	15613	7274	20354	18678	20947	11467	3935	3759	12661	1986
MEAN	188	330	504	235	702	603	698	370	131	121	408	66.2
MAX	1480	1980	1640	423	4670	5170	2650	1100	362	507	3870	110
MIN	23	107	220	148	189	223	366	166	80	65	89	52
CFSM	1.07	1.88	2.86	1.34	3.99	3.43	3.97	2.10	.74	.69	2.32	.38
IN.	1.23	2.09	3.30	1.54	4.30	3.95	4.43	2.42	.83	.79	2.68	.42
CAL YR 1983	TOTAL	105018	MEAN 288	MAX 4540	MIN 16	CFSM 1.64	IN 22.20					
WTR YR 1984	TOTAL	132383	MEAN 362	MAX 5170	MIN 23	CFSM 2.06	IN 27.98					



## 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 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.--Records good. 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 above the gage. National Weather Service gage-height telemeter at station. Several observations 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, 728 ft<sup>3</sup>/s, 14.89 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 above base 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)
Oct. 24	0600	6270	11.84	Mar. 29	2030	21200	23.76
Nov. 25	2100	8180	14.39	Apr. 5	1500	11200	18.10
Dec. 13	1030	7520	13.51	Apr. 23	1330	7070	12.92
Dec. 22	2300	6170	11.70	Aug. 12	0600	6980	12.80
Feb. 15	1000	*22800	24.42				

Minimum discharge, 71 ft<sup>3</sup>/s Oct. 9-11, gage height, 2.63 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	504	304	911	987	549	1350	2530	1310	724	1180	301	333
2	241	288	770	860	508	1220	2040	1160	683	856	841	278
3	148	275	688	761	506	1110	1730	1150	649	481	491	263
4	114	262	2340	718	773	1000	2030	4100	573	355	421	304
5	98	246	2520	711	1020	948	8750	2560	524	318	2270	326
6	87	230	1650	692	1260	1090	4430	2560	521	425	822	279
7	83	227	1590	672	887	1040	2790	3430	523	1150	842	252
8	75	224	1230	612	691	924	2120	2480	483	484	517	237
9	71	217	1030	572	640	902	1770	2850	455	318	520	229
10	71	594	875	550	617	761	1550	1970	424	291	1800	225
11	72	1830	761	1220	599	682	1400	1600	392	405	5210	226
12	169	1120	1680	943	595	652	1260	1390	374	339	5500	230
13	404	682	6510	700	585	869	1190	1250	359	265	4680	222
14	870	519	3450	699	7490	1750	1500	1140	354	240	3720	218
15	530	515	2110	694	19300	1560	4500	1030	353	215	2860	227
16	277	890	1560	636	4970	1320	3500	939	328	205	1550	209
17	203	638	1250	603	2720	1150	2530	871	326	200	1070	186
18	173	476	1050	590	2020	1010	1970	827	413	235	840	172
19	152	415	898	622	1590	944	1590	811	422	270	823	166
20	152	401	783	536	1380	899	1410	793	335	240	706	165
21	700	1100	697	489	1220	1260	1280	736	301	470	554	162
22	999	1060	2670	405	1090	1630	1650	703	282	980	481	157
23	1270	785	4120	430	1450	1350	5970	762	275	700	438	151
24	5070	698	2220	527	4890	1150	3610	1080	277	540	414	144
25	2080	5320	1440	669	2780	1290	2520	729	319	480	375	141
26	1160	3640	1200	1060	1960	2460	1980	640	315	418	347	151
27	740	1810	1070	883	1560	1740	1640	650	270	633	333	156
28	535	1400	1480	755	1750	4390	1460	828	242	482	325	175
29	435	1350	2810	670	1720	17100	1560	957	362	377	317	229
30	370	1120	1500	639	---	10900	1420	1180	633	337	322	226
31	321	---	1020	607	---	3500	---	902	---	323	367	---
TOTAL	18174	28636	53883	21512	67120	67951	73680	43388	12491	14212	40057	6439
MEAN	586	955	1738	694	2314	2192	2456	1400	416	458	1292	215
MAX	5070	5320	6510	1220	19300	17100	8750	4100	724	1180	5500	333
MIN	71	217	688	405	506	652	1190	640	242	200	301	141
CFSM	.88	1.44	2.62	1.05	3.49	3.30	3.70	2.11	.63	.69	1.95	.32
IN.	1.02	1.60	3.02	1.21	3.76	3.81	4.13	2.43	.70	.80	2.24	.36

CAL YR 1983	TOTAL	356945	MEAN	978	MAX	12400	MIN	56	CFSM	1.47	IN	20.00
WTR YR 1984	TOTAL	447543	MEAN	1223	MAX	19300	MIN	71	CFSM	1.84	IN	25.07



## 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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Jan. 3, 1935, nonrecording gage at site 1,300 ft upstream at same datum.

REMARKS.--Records good. Regulation of flow from Trice Lake 0.4 mi upstream, total capacity, about 1,100 acre-ft, tributary to Willis River, slightly affects flow at gage. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--58 years, 255 ft<sup>3</sup>/s, 13.22 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 above base 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)
Feb. 15	2200	1920	13.59	Apr. 5	2400	1800	13.27
Feb. 25	0200	1760	13.13	Apr. 16	0930	1940	13.66
Mar. 30	0200	*3750	16.24				

Minimum discharge, 17 ft<sup>3</sup>/s Oct. 10, gage height, 3.33 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	53	232	364	241	484	1730	327	206	62	81	54
2	26	51	183	319	218	384	1210	290	180	65	72	51
3	27	54	157	263	206	319	904	282	159	60	66	48
4	27	50	524	234	229	279	993	392	137	55	62	49
5	26	50	738	231	343	269	1640	375	123	51	80	51
6	24	49	736	224	485	485	1750	384	115	51	65	51
7	22	48	698	214	384	592	1570	618	110	51	59	51
8	20	48	548	199	295	543	1160	609	112	49	59	49
9	20	49	396	184	249	439	702	512	101	46	58	47
10	18	72	282	205	232	349	517	394	93	44	158	45
11	18	133	229	860	228	300	415	320	85	46	125	45
12	21	119	268	924	223	269	356	273	83	50	240	45
13	32	96	930	912	213	468	340	244	78	48	463	45
14	52	82	1060	628	989	985	950	223	72	47	842	45
15	67	93	1060	431	1820	1040	1680	204	68	45	628	46
16	57	368	846	362	1840	1010	1900	189	64	43	405	45
17	50	384	455	304	1410	678	1750	178	104	44	231	43
18	43	316	312	277	684	482	1370	172	132	119	158	44
19	38	212	238	314	444	386	880	171	114	193	137	41
20	39	163	206	320	344	328	609	166	86	136	141	39
21	72	270	183	259	284	391	480	157	69	139	117	39
22	120	289	445	185	247	463	634	144	62	141	114	38
23	137	246	770	206	415	399	1340	141	58	144	94	37
24	318	252	700	236	1520	327	1450	195	58	131	81	36
25	330	972	540	351	1720	516	1310	192	64	102	72	35
26	298	1160	260	479	1480	1250	910	166	67	91	65	34
27	194	1030	283	448	956	1400	578	190	60	118	60	33
28	126	985	367	352	625	1620	456	183	56	121	56	33
29	94	618	788	290	572	2880	391	178	61	113	55	36
30	70	349	720	254	---	3530	352	269	58	101	61	42
31	59	---	556	263	---	2550	---	276	---	90	58	---
TOTAL	2464	8661	15710	11092	18896	25415	30327	8414	2835	2596	4963	1297
MEAN	79.5	289	507	358	652	820	1011	271	94.5	83.7	160	43.2
MAX	330	1160	1060	924	1840	3530	1900	618	206	193	842	54
MIN	18	48	157	184	206	269	340	141	56	43	55	33
CFSM	.30	1.10	1.94	1.37	2.49	3.13	3.86	1.03	.36	.32	.61	.17
IN.	.35	1.23	2.23	1.57	2.68	3.61	4.31	1.19	.40	.37	.70	.18

CAL YR 1983	TOTAL	117596	MEAN	322	MAX	2070	MIN	13	CFSM	1.23	IN	16.70
WTR YR 1984	TOTAL	132670	MEAN	362	MAX	3530	MIN	18	CFSM	1.38	IN	18.84

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 downstream 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 National Geodetic Vertical Datum of 1929. Prior to June 4, 1927, nonrecording gage at same site and datum.

REMARKS.--Records good. Moderate diurnal fluctuation caused by powerplants above station. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--86 years, 7,096 ft<sup>3</sup>/s, 15.40 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 above base 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)
Feb. 16	0300	*86800	22.42	Apr. 5	1900	49000	15.93
Feb. 25	1530	42100	14.43	Aug. 13	1130	49000	15.93
Mar. 30	0100	81000	21.62				

Minimum discharge, 828 ft<sup>3</sup>/s Oct. 11, gage height, 0.58 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1520	2600	7290	10500	6470	15500	31600	13500	6140	3950	3250	5720
2	1750	2640	7140	9240	5740	13700	23400	12900	5500	3690	2680	11400
3	1440	2370	6120	8060	5630	11900	18600	11700	5390	3910	2990	6850
4	1420	2200	8400	7610	5600	10700	18400	19600	4810	4100	2930	5020
5	1170	2050	16400	6960	6610	9610	39500	20300	4640	3580	6310	5000
6	1280	1920	20000	6180	8470	10400	37800	19800	4420	4090	4220	4800
7	1100	1880	16900	6140	7250	10400	30700	29800	4330	5510	3870	3600
8	1020	1730	12800	5640	6230	10100	23500	36500	3750	4950	3960	3200
9	900	1900	10300	5410	5740	9170	18500	30600	3970	2810	2940	3100
10	1030	2080	8660	5270	5420	8740	15600	24400	3580	2910	3860	3000
11	847	4430	7610	7690	5210	8150	14100	20100	3390	3720	12100	2900
12	946	5980	7130	8460	4910	7500	13200	16200	3070	3100	14700	3050
13	2180	4880	28900	7040	4860	8440	13000	13600	3830	2680	42000	2600
14	3000	4520	35700	7510	21500	14800	16300	11900	2990	2740	38500	2490
15	3260	4210	24700	6820	76500	15700	30600	10900	3130	3010	41100	2500
16	2560	6480	18100	6380	76500	15200	27000	10100	2790	1980	25600	2300
17	2090	6720	14100	5990	38700	13900	25800	8650	3110	2290	18200	2150
18	1820	4750	11200	5550	26000	12400	22200	8000	2770	3210	13300	2200
19	1750	4240	8630	5650	20900	11300	18400	7400	3360	3270	9990	2300
20	1410	4020	7510	5650	16800	10700	15400	6980	3470	3730	8070	2470
21	1880	5410	6470	5050	13200	10900	13500	6620	2830	3720	7180	1850
22	3410	6240	8800	4230	11300	17600	13600	6560	2500	14200	6010	1900
23	4590	5040	22300	3810	11700	36700	25800	6250	2510	8200	4930	2000
24	13900	4440	23100	4390	30500	25600	29400	7430	2840	6700	4770	1800
25	14700	14400	19200	5000	38400	23200	27600	7140	2650	5260	4010	1900
26	12100	22600	13400	6140	32900	32800	22800	5950	3320	4230	3830	1920
27	8140	13900	9980	7200	25400	22700	18400	5500	3100	3770	3370	1820
28	5270	11700	10300	7720	20100	24300	15300	5750	2670	4180	3330	1900
29	4140	9600	16700	7790	18000	63300	14000	6950	2690	3820	3340	1960
30	3390	7610	14900	7140	---	74600	13200	8270	2900	2990	3440	1890
31	3070	---	11800	6770	---	49200	---	7180	---	3190	3690	---
TOTAL	107083	172540	434540	202990	556540	609210	647200	406530	106450	129490	308470	95590
MEAN	3454	5751	14020	6548	19190	19650	21570	13110	3548	4177	9951	3186
MAX	14700	22600	35700	10500	76500	74600	39500	36500	6140	14200	42000	11400
MIN	847	1730	6120	3810	4860	7500	13000	5500	2500	1980	2680	1800
CFSM	.55	.92	2.24	1.05	3.07	3.14	3.45	2.10	.57	.67	1.59	.51
IN.	.64	1.03	2.58	1.21	3.31	3.62	3.85	2.42	.63	.77	1.83	.57

CAL YR 1983 TOTAL 3045001 MEAN 8342 MAX 69600 MIN 822 CFSM 1.33 IN 18.10  
WTR YR 1984 TOTAL 3776633 MEAN 10320 MAX 76500 MIN 847 CFSM 1.65 IN 22.45

## JAMES RIVER BASIN

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 TEMPERATURES: April 1968 to January 1976, October 1980 to May 1981.

SUSPENDED-SEDIMENT DISCHARGE: October 1980 to May 1981.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 18...	1030	4680	150	7.1	7.5	755	4.4	12.1	102	120	360
JAN 12...	1300	8100	123	7.1	2.0	767	20	13.7	98	150	1300
MAR 22...	1145	13400	120	8.5	11.0	759	5.3	9.2	84	80	160
APR 24...	1000	29100	73	7.2	11.0	759	36	11.8	107	1200	580
JUN 13...	0845	4420	163	8.2	29.0	754	3.0	6.9	91	--	50
JUL 13...	1030	2550	175	7.7	27.5	752	3.1	6.5	84	--	--
JUL 25...	1430	4740	195	8.1	28.0	751	16	8.0	104	--	--
AUG 06...	1245	4260	145	7.2	28.0	752	22	6.8	88	70	350
SEP 27...	1430	1980	215	7.9	20.0	759	.90	8.7	96	--	--

DATE	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)	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 SI02)
NOV 18...	55	9	16	3.6	6.4	1.9	46	14	9.9	<.10	8.1
JAN 12...	48	6	14	3.2	5.2	1.3	42	11	7.0	<.10	7.8
MAR 22...	51	10	15	3.2	4.2	1.1	41	12	6.7	<.10	6.0
APR 24...	27	5	7.3	2.1	2.7	1.2	22	6.9	3.6	<.10	8.4
JUN 13...	62	6	18	4.2	7.4	1.6	56	11	12	.10	4.7
JUL 13...	--	--	--	--	--	--	53	--	--	--	9.9
JUL 25...	--	--	--	--	--	--	61	--	--	--	8.2
AUG 06...	52	8	15	3.6	6.9	2.0	44	10	9.6	<.10	8.4
SEP 27...	--	--	--	--	--	--	70	--	--	--	9.9

&lt; Actual value is known to be less than the value shown.

## 02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	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)	ARSENIC DIS- SOLVED (UG/L AS AS)
NOV 18...	95	88	--	.26	<.010	1.4	.100	.080	.060	10	1
JAN 12...	88	75	--	.45	.050	.50	.150	.110	.090	--	--
MAR 22...	80	73	--	.23	<.010	.30	.070	.040	.030	10	1
APR 24...	49	46	--	.21	.050	1.4	.100	.020	<.010	<10	<1
JUN 13...	107	93	--	<.10	.090	.30	.110	.100	.100	--	--
JUL 13...	--	--	<.010	.28	<.010	.50	.210	--	.200	--	--
JUL 25...	--	--	<.010	.14	<.010	.70	.190	--	.140	--	--
AUG 06...	93	82	<.010	.34	<.010	.50	.090	.030	.050	30	<1
SEP 27...	--	--	<.010	<.10	.020	.20	.180	.170	.170	--	--

&lt; Actual value is known to be less than the value shown.

DATE	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)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)
NOV 18...	43	<.5	<1	<1	<3	1	160	2	<4	10	<.1
JAN 12...	--	--	--	--	--	--	--	--	2	--	--
MAR 22...	31	.7	<1	<1	<3	1	60	4	5	4	<.1
APR 24...	27	<.5	<1	<1	<3	<1	96	2	<4	8	<.1
JUN 13...	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--
JUL 25...	--	--	--	--	--	--	--	--	--	--	--
AUG 06...	38	<.0	2	2	<3	<1	130	4	<4	4	<.1
SEP 27...	--	--	--	--	--	--	--	--	--	--	--

&lt; Actual value is known to be less than the value shown.

DATE	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
NOV 18...	<10	<1	<1	<1	72	<6	<3	--	10	84
JAN 12...	--	--	--	--	--	--	--	--	19	100
MAR 22...	<10	1	<1	<1	59	<6	5	--	22	60
APR 24...	<10	1	<1	<1	33	<6	8	--	75	90
JUN 13...	--	--	--	--	--	--	--	--	13	85
JUL 13...	--	--	--	--	--	--	--	2.6	6	86
JUL 25...	--	--	--	--	--	--	--	3.4	17	77
AUG 06...	<10	<1	<1	<1	76	<6	4	3.8	31	91
SEP 27...	--	--	--	--	--	--	--	2.2	9	55

&lt; Actual value is known to be less than the value shown.



## JAMES RIVER BASIN

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 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.--Records good except those for period of no gage-height record, Mar. 29 to May 6, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--40 years, 20.4 ft<sup>3</sup>/s, 12.54 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 above base 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. 26	0230	256	3.05	Mar. 26	1430	346	3.29
Jan. 11	1645	273	3.10	Mar. 29	1130	1010	4.60
Feb. 14	1615	*2000	6.21	Apr. 23	0730	243	a3.01
Feb. 24	1030	277	3.11				

a About.

Minimum discharge, 0.50 ft<sup>3</sup>/s Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	3.0	14	22	27	33	65	35	49	12	6.7	4.4
2	1.3	3.1	12	20	23	29	56	35	37	8.0	6.7	4.1
3	1.3	3.4	11	19	22	28	50	38	31	6.4	6.4	4.1
4	1.2	3.4	53	19	25	27	105	36	24	5.8	6.4	4.7
5	1.1	3.6	79	21	32	32	125	39	22	5.6	7.0	4.7
6	.93	6.8	47	21	39	61	72	40	19	5.8	9.9	4.4
7	.80	6.9	53	18	31	53	50	43	18	5.6	6.7	4.1
8	.72	7.5	36	16	25	39	40	35	16	5.8	5.8	3.8
9	.71	8.2	24	15	24	36	38	33	15	5.3	5.8	3.6
10	.71	32	19	31	23	31	36	28	13	5.3	22	3.6
11	.68	45	17	198	25	29	35	24	12	5.6	22	3.5
12	1.1	23	24	126	27	28	33	22	11	5.3	18	3.6
13	1.7	10	81	49	25	65	39	21	9.9	5.3	23	3.6
14	3.8	5.9	81	39	730	146	120	19	9.0	5.0	33	3.6
15	5.5	16	40	36	334	77	165	18	8.0	4.1	23	3.5
16	3.6	48	28	29	121	53	98	17	9.0	4.4	15	3.5
17	2.3	38	22	25	73	42	66	16	11	4.4	9.9	3.4
18	1.7	18	18	24	51	36	48	16	14	12	8.0	3.2
19	1.3	12	17	27	43	33	42	16	13	16	12	3.2
20	2.7	13	15	27	39	32	39	16	13	9.0	22	3.2
21	9.3	43	14	22	33	40	39	15	8.0	11	11	3.2
22	9.6	39	53	16	28	43	94	13	6.7	12	8.0	3.1
23	17	21	77	19	57	33	138	16	6.4	13	6.7	3.1
24	40	19	39	23	204	31	90	27	7.0	11	6.4	3.1
25	29	129	24	32	89	77	64	21	9.0	8.0	5.8	3.1
26	13	162	15	67	53	273	50	17	7.0	9.9	5.3	2.9
27	8.0	51	16	43	40	123	43	96	6.4	22	5.3	2.9
28	4.6	29	47	35	49	228	40	42	5.8	18	5.0	3.4
29	3.2	22	111	29	43	620	39	51	15	11	4.7	4.0
30	3.2	17	57	27	---	160	38	154	21	9.0	5.0	5.0
31	3.3	---	42	31	---	84	---	106	---	8.0	5.0	---
TOTAL	174.85	838.8	1186	1126	2335	2622	1957	1105	446.2	269.6	337.5	109.6
MEAN	5.64	28.0	38.3	36.3	80.5	84.6	65.2	35.6	14.9	8.70	10.9	3.65
MAX	40	162	111	198	730	620	165	154	49	22	33	5.0
MIN	.68	3.0	11	15	22	27	33	13	5.8	4.1	4.7	2.9
CFSM	.26	1.27	1.73	1.64	3.64	3.93	2.95	1.61	.67	.39	.49	.17
IN.	.29	1.41	2.00	1.90	3.93	4.41	3.29	1.86	.75	.45	.57	.18

CAL YR 1983	TOTAL	8923.20	MEAN	24.4	MAX	570	MIN	.44	CFSM	1.10	IN	15.02
WTR YR 1984	TOTAL	12507.55	MEAN	34.2	MAX	730	MIN	.68	CFSM	1.55	IN	21.05

## JAMES RIVER BASIN

183

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 city limits of Richmond.

PERIOD OF RECORD.--September 1936 to current year.

GAGE.--Water-stage recorder. Datum of gage is 106.07 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1938, at datum 3.06 ft higher.

REMARKS.--Records good. Canal diverts from James River 1,200 ft above Boshier Dam and discharges into river at several points below 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 observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--48 years, 769 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 discharge, 1,340 ft<sup>3</sup>/s Feb. 15, gage height, 10.68 ft; minimum daily, 6.0 ft<sup>3</sup>/s Dec. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	498	735	6.0	950	918	874	935	1010	910	785	781	823
2	589	715	302	950	892	872	1030	1020	894	810	762	952
3	544	704	862	950	880	870	1020	1000	886	814	771	934
4	15	695	908	940	874	868	1010	1010	763	814	794	882
5	10	673	1050	890	904	854	1030	1020	489	805	851	854
6	93	664	978	870	968	862	1020	1000	471	781	870	842
7	600	641	998	856	944	842	1030	1040	465	832	808	814
8	673	630	998	840	914	836	1020	1040	688	872	812	796
9	670	618	986	830	890	834	1020	1010	816	785	776	787
10	652	643	946	850	878	828	1010	1040	798	756	772	771
11	600	556	914	958	864	810	1010	1030	792	486	890	762
12	502	394	902	954	866	785	1010	1010	780	765	986	776
13	478	388	958	920	850	812	1020	1010	794	769	1040	767
14	476	377	996	910	952	856	986	996	780	758	1010	763
15	478	468	1000	908	1020	848	1000	960	765	769	990	758
16	481	720	960	880	831	842	982	990	776	753	990	763
17	643	803	978	840	928	834	1000	978	763	452	996	754
18	733	751	984	850	894	836	1000	950	776	598	994	740
19	724	706	950	852	920	821	1010	940	772	783	976	744
20	726	702	918	852	902	814	1010	926	787	801	978	753
21	722	720	894	830	884	812	1000	900	776	783	930	753
22	747	774	910	823	874	828	1010	900	762	904	904	726
23	836	756	978	821	880	842	1030	906	747	958	878	740
24	940	726	980	817	912	821	1040	906	754	902	856	733
25	1070	844	970	886	926	838	1030	946	762	878	836	726
26	1070	1170	986	912	918	774	1010	894	765	830	825	733
27	992	980	986	938	902	799	1010	942	780	807	801	736
28	902	900	978	942	890	796	994	924	767	814	808	738
29	823	43	978	946	886	814	988	910	760	817	807	731
30	783	8.2	952	940	---	832	1000	914	767	781	801	744
31	749	---	950	922	---	846	---	912	---	781	812	---
TOTAL	19819	19504.2	28156.0	27627	26161	25800	30265	30034	22605	24243	27105	23395
MEAN	639	650	908	891	902	832	1009	969	754	782	874	780
MAX	1070	1170	1050	958	1020	874	1040	1040	910	958	1040	952
MIN	10	8.2	6.0	817	831	774	935	894	465	452	762	726

CAL YR 1983 TOTAL 68663.70 MEAN 188 MAX 1170 MIN .60  
WTR YR 1984 TOTAL 304714.20 MEAN 833 MAX 1170 MIN 6.0

## 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 city limits of Richmond, 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. City of Richmond takes from 40 ft<sup>3</sup>/s to 90 ft<sup>3</sup>/s for water supply from river below gage except during periods of low flow when supply is obtained from James River and Kanawha Canal. Flow regulated by powerplants above 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 telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--50 years, 7,581 ft<sup>3</sup>/s, 15.23 in/yr, includes flow in James River and Kanawha Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 513,000 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 above base 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)
Feb. 16	1900	*91700	17.27	Mar. 30	1800	85500	16.75

Minimum discharge, 332 ft<sup>3</sup>/s Oct. 10-11, gage height, 3.22 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	776	2670	7010	10500	6360	15400	39000	11900	7330	2740	3040	3500
2	868	2430	6880	9300	5720	13400	24700	12500	5750	3520	3000	7040
3	1190	2360	6100	8200	5350	11800	18900	11000	5320	3470	2700	8110
4	1520	2190	6850	7400	5290	10200	17100	12300	5040	3620	2940	5580
5	1540	2020	14400	6800	5810	9630	29100	21400	4620	3500	3440	4650
6	1370	1850	17900	6200	8020	9940	42900	17600	4650	3000	5730	4440
7	1050	1800	18200	5780	7330	10900	30700	24800	4440	3940	4240	4040
8	638	1710	13700	5180	6390	9860	24700	33200	4020	5120	3840	3600
9	458	1560	10200	4910	5690	9170	19100	30900	3700	3740	3620	3300
10	353	1800	8360	5260	5400	8720	15700	25100	3540	2550	3140	3000
11	416	2500	7170	8800	5040	8180	13600	20300	3270	2840	5010	2670
12	569	4700	6940	9940	5070	7360	12400	16400	3070	3270	13400	2600
13	569	5020	18000	7660	4780	8320	12100	13400	3070	2770	29800	2720
14	1810	4370	35700	7010	14000	13500	14500	11600	3200	2330	37700	2480
15	2620	4300	27000	7170	62100	15900	27000	10300	2720	2430	40100	2330
16	2700	4600	19200	6210	87400	15000	29600	9550	2800	2520	28600	2280
17	2140	6970	14300	5780	62700	13700	25900	8680	2550	1970	19100	2160
18	1660	5580	10900	5720	27800	12400	22300	7460	2800	2480	14200	2020
19	1420	4320	8610	5630	21200	10800	19000	7200	2620	3020	10200	1920
20	1330	4100	7100	5660	17900	10000	15700	6570	2970	3070	8610	1880
21	1280	4270	6300	5070	13500	9860	13500	6160	2920	3270	6940	1900
22	1490	5950	7070	4340	11500	11600	12600	5920	2480	8560	6360	1780
23	2940	5690	18000	3500	10900	31100	23400	5980	2190	9250	5550	1610
24	5270	4720	21800	3840	23800	27000	29000	5890	2190	6660	4910	1610
25	15200	8210	23000	5690	34500	23700	28500	7070	2430	5950	4600	1540
26	11400	24900	16000	5720	34500	35000	23400	5810	2330	4650	4170	1490
27	8470	15200	10000	6820	25900	28100	19400	6130	2770	4100	3920	1490
28	5950	11900	10200	7010	20700	22300	15700	5690	2620	3820	3640	1520
29	4200	10300	17200	7230	17800	54600	13600	6300	2330	3900	3520	1540
30	3500	8430	16000	7170	---	81600	12800	10600	2400	3700	3420	1560
31	2970	---	12000	6510	---	70800	---	9720	---	3170	3370	---
TOTAL	87667	166420	422090	202010	562450	619840	645900	387430	102140	118930	292810	86360
MEAN	2828	5547	13620	6516	19390	19990	21530	12500	3405	3836	9445	2879
MAX	15200	24900	35700	10500	87400	81600	42900	33200	7330	9250	40100	8110
MIN	353	1560	6100	3500	4780	7360	12100	5690	2190	1970	2700	1490
(*)	639	650	908	891	902	832	1009	969	754	782	874	780
MEAN+	3467	6197	14530	7407	20290	20820	22540	13470	4159	4618	10320	3659
CFSM+	.51	.92	2.15	1.10	3.00	3.08	3.34	1.99	.62	.68	1.53	.54
IN+	.59	1.02	2.48	1.26	3.24	3.55	3.72	2.30	.69	.79	1.76	.60

CAL YR 1983	TOTAL	3105511	MEAN	8508	MAX	67600	MIN	353	MEAN+	8696	CFSM+	1.29	IN+	17.47
WTR YR 1984	TOTAL	3694047	MEAN	10090	MAX	87400	MIN	353	MEAN+	10920	CFSM+	1.62	IN+	22.00

\* Diversion, in cubic feet per second, by James River and 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, July 25 to Sept. 25, which are poor. Several observations 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, 34.7 ft<sup>3</sup>/s, 14.37 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 above base 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)
Nov. 25	1515	225	6.25	Mar. 26	0600	1140	9.89
Jan. 11	0800	354	7.22	Mar. 29	0730	*1830	11.07
Feb. 15	0300	573	8.44	Apr. 14	1745	694	8.84
Feb. 24	0130	249	6.40	Apr. 23	1015	878	9.32
Mar. 13	2245	399	7.50	May 30	1445	506	8.10

Minimum discharge, 0.59 ft<sup>3</sup>/s Oct. 9-10; minimum gage height, 2.78 ft Sept. 26-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.5	12	26	50	61	84	38	61	11	9.0	3.9
2	.84	1.3	10	24	44	55	62	34	43	8.3	8.0	3.7
3	.75	1.2	9.8	23	44	51	57	34	32	13	30	3.5
4	.72	1.9	78	23	61	48	80	37	25	15	18	4.7
5	.71	1.9	65	23	69	62	185	33	21	8.8	15	4.6
6	.73	1.7	48	22	79	192	111	51	19	9.2	10	4.2
7	.65	2.6	62	21	61	121	69	63	17	6.0	8.0	3.4
8	.62	2.2	37	19	52	81	54	42	14	4.4	5.0	3.3
9	.64	1.9	27	18	48	79	48	39	13	3.5	5.6	3.2
10	.61	19	24	42	54	65	45	33	11	3.1	15	3.0
11	.68	29	20	301	48	61	42	27	10	3.1	25	3.3
12	1.2	15	28	133	59	55	39	24	9.1	3.8	21	3.6
13	4.6	8.3	118	66	54	163	48	22	8.3	4.0	28	4.2
14	7.0	5.5	67	63	257	283	439	21	7.2	4.0	40	4.5
15	1.3	14	43	61	379	99	418	20	6.4	3.3	20	4.3
16	.86	42	32	53	113	83	170	19	6.5	8.2	13	3.3
17	.72	27	25	48	81	69	95	18	6.7	6.8	10	3.0
18	.76	16	22	63	69	63	66	18	6.7	10	18	2.7
19	.70	9.5	20	94	61	56	55	18	7.3	18	16	2.7
20	2.1	9.8	18	67	56	52	51	17	5.0	22	12	2.6
21	7.2	46	16	52	51	76	54	16	4.8	45	9.0	2.5
22	1.9	28	63	44	47	70	137	15	4.2	36	7.0	2.5
23	2.8	16	59	41	92	56	652	15	3.8	26	6.8	2.4
24	49	13	39	50	208	59	214	22	3.7	15	6.0	2.3
25	28	150	26	125	97	352	103	20	4.4	9.8	5.6	2.1
26	17	98	21	87	69	839	68	16	3.7	9.6	5.2	1.9
27	12	37	19	67	63	247	55	57	3.3	24	4.7	1.7
28	8.2	25	48	58	92	314	48	61	2.9	20	4.8	2.1
29	4.7	19	84	51	78	1320	44	49	4.5	16	4.8	2.8
30	2.8	15	47	48	---	356	41	346	11	13	4.5	2.4
31	1.9	---	32	59	---	120	---	206	---	11	4.0	---
TOTAL	163.29	658.3	1219.8	1872	2536	5608	3634	1431	375.5	390.9	389.0	94.4
MEAN	5.27	21.9	39.3	60.4	87.4	181	121	46.2	12.5	12.6	12.5	3.15
MAX	49	150	118	301	379	1320	652	346	61	45	40	4.7
MIN	.61	1.2	9.8	18	44	48	39	15	2.9	3.1	4.0	1.7
CFSM	.16	.67	1.20	1.84	2.67	5.52	3.69	1.41	.38	.38	.38	.10
IN.	.19	.75	1.38	2.12	2.88	6.36	4.12	1.62	.43	.44	.44	.11

CAL YR 1983	TOTAL	12571.77	MEAN 34.4	MAX 771	MIN .61	CFSM 1.05	IN 14.26
WTR YR 1984	TOTAL	18372.19	MEAN 50.2	MAX 1320	MIN .61	CFSM 1.53	IN 20.84



## JAMES RIVER BASIN

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: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 472.97 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Recording rain gage at station.

AVERAGE DISCHARGE.--18 years, 9.15 ft<sup>3</sup>/s, 14.57 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 above base 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)
Nov. 25	0615	254	3.33	Apr. 4	2345	330	3.77
Feb. 14	1330	177	2.87	Apr. 14	2130	189	2.94
Mar. 29	0345	*460	4.45	Aug. 12	1445	151	2.71

Minimum discharge, 1.1 ft<sup>3</sup>/s Oct. 4, 8, 10; minimum gage height, 0.87 ft Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	2.4	4.6	7.8	6.0	12	13	11	6.5	4.4	3.9	2.8
2	1.4	2.4	4.3	7.6	5.7	11	12	10	6.2	3.8	3.7	2.7
3	1.3	2.5	4.4	6.8	5.9	9.8	11	14	5.7	4.6	3.8	2.6
4	1.2	2.5	35	6.5	6.5	9.2	51	16	5.3	3.7	4.1	3.2
5	1.2	2.5	12	5.9	8.3	13	84	12	5.1	3.6	4.7	2.9
6	1.3	2.5	12	5.8	6.8	23	19	26	5.0	4.1	3.6	3.0
7	1.2	2.5	10	5.5	6.1	17	15	18	4.9	3.8	3.2	2.7
8	1.1	2.5	7.1	5.3	5.9	13	13	14	4.7	3.2	3.1	2.6
9	1.2	2.7	6.1	5.1	5.7	12	12	12	4.4	3.0	3.1	2.6
10	1.2	6.7	5.7	9.2	5.7	11	12	11	4.3	3.2	3.4	2.7
11	1.5	4.6	5.3	20	5.9	11	11	10	4.1	3.5	18	2.7
12	2.5	3.4	33	10	5.7	9.6	10	9.6	4.0	3.5	31	3.0
13	2.2	3.1	38	7.9	6.0	26	10	9.0	4.0	3.7	19	2.6
14	2.6	3.0	13	7.9	83	32	46	8.6	3.8	3.2	13	2.7
15	1.7	14	8.9	7.6	30	20	42	8.1	3.7	3.0	6.1	2.6
16	1.6	16	6.9	6.9	18	14	18	7.9	3.7	3.4	4.5	2.3
17	1.5	6.3	6.1	6.6	14	11	16	7.8	4.1	3.3	3.9	2.2
18	1.6	4.1	5.7	7.1	11	9.8	14	7.7	4.0	14	3.7	2.3
19	1.8	3.7	5.4	7.3	10	9.2	13	7.6	3.5	4.9	5.5	2.3
20	3.2	6.5	5.1	6.4	10	8.9	12	7.1	3.3	4.3	12	2.2
21	7.7	11	5.0	5.3	9.3	14	12	6.8	3.2	15	5.0	2.2
22	3.5	5.7	19	4.7	8.9	10	22	6.5	3.2	8.0	4.2	2.1
23	18	4.7	15	5.7	42	8.7	30	7.7	3.3	6.2	3.9	2.1
24	11	12	9.2	6.8	44	8.3	18	8.2	4.1	5.6	3.7	2.1
25	4.5	98	7.5	8.9	18	38	14	6.6	4.1	4.3	3.3	2.1
26	3.4	14	6.4	7.4	13	56	13	6.3	3.4	4.3	3.1	2.0
27	2.8	8.1	6.7	6.9	12	19	12	6.5	3.0	7.6	3.1	2.0
28	2.6	6.6	13	6.4	19	48	12	7.3	7.4	4.9	3.1	2.5
29	2.5	5.8	14	6.1	15	156	12	7.7	7.3	4.6	3.3	2.7
30	2.4	5.0	10	6.0	---	22	11	8.2	4.7	4.6	3.3	3.2
31	2.4	---	7.5	5.9	---	15	---	6.9	---	4.2	3.3	---
TOTAL	93.7	264.8	341.9	223.3	437.4	677.5	590	306.1	134.0	153.5	192.6	75.7
MEAN	3.02	8.83	11.0	7.20	15.1	21.9	19.7	9.87	4.47	4.95	6.21	2.52
MAX	18	98	38	20	83	156	84	26	7.4	15	31	3.2
MIN	1.1	2.4	4.3	4.7	5.7	8.3	10	6.3	3.0	3.0	3.1	2.0
CFSM	.35	1.04	1.29	.84	1.77	2.57	2.31	1.16	.52	.58	.73	.30
IN.	.41	1.15	1.49	.97	1.91	2.95	2.57	1.33	.58	.67	.84	.33

CAL YR 1983	TOTAL	2655.91	MEAN 7.28	MAX 100	MIN .80	CFSM .85	IN 11.58
WTR YR 1984	TOTAL	3490.50	MEAN 9.54	MAX 156	MIN 1.1	CFSM 1.12	IN 15.22

## JAMES RIVER BASIN

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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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	STREP- TOCOCCI FECAL, KF AGAR (COLS/ PER 100 ML)	HARD- NESS (MG/L AS CAC03)
NOV 16...	0930	15	35	6.4	6.0	740	5.1	12.0	99	490	450	10
MAR 14...	1030	27	28	6.4	4.5	754	6.6	12.9	101	K8	70	8
JUN 12...	1000	4.2	35	7.0	21.0	753	2.5	8.7	99	K19	160	11
AUG 14...	1015	13	32	6.3	21.0	749	1.0	9.0	103	--	630	10

K Result based on colony count outside optimal range.

DATE	HARD- NESS, NONCAR- BONATE (MG/L 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)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTIT- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+N03 DIS- SOLVED (MG/L AS N)
NOV 16...	1	2.3	1.1	2.6	1.0	9.0	6.2	2.7	8.0	42	30	<.10
MAR 14...	0	1.7	.88	2.0	.50	7.0	5.4	2.6	7.8	36	25	<.10
JUN 12...	0	2.4	1.2	2.7	.50	14	2.8	1.9	13	42	33	<.10
AUG 14...	0	2.3	1.1	2.1	.60	10	3.8	1.6	10	40	28	<.10

&lt; Actual value is known to be less than the value shown.

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)	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)
NOV 16...	.160	.30	.020	.010	--	--	--	--	--	--	--
MAR 14...	.020	.50	<.010	<.010	2	36	<.5	<1	<1	<3	<1
JUN 12...	<.010	1.0	.020	<.010	--	--	--	--	--	--	--
AUG 14...	<.010	.40	.020	<.010	<1	41	<.0	<1	<1	<3	2

&lt; Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	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)
NOV 16...	--	--	--	--	--	--	--	--	--	--	--
MAR 14...	120	<1	<4	9	.1	<10	<1	<1	<1	15	<6
JUN 12...	--	--	--	--	--	--	--	--	--	--	--
AUG 14...	94	<1	<4	17	.2	<10	1	<1	<1	20	<6

&lt; Actual value is known to be less than the value shown.

DATE	ZINC, DIS- SOLVED (UG/L AS ZN)	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 SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 16...	--	<.8	<.9	2.5	<1.1	2.2	<1.0	.05	.08	8	93
MAR 14...	6	--	--	--	--	--	--	--	--	7	74
JUN 12...	--	--	--	--	--	--	--	--	--	4	93
AUG 14...	10	--	--	--	--	--	--	--	--	14	62

&lt; Actual value is known to be less than the value shown.

## 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 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.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 67.5 ft<sup>3</sup>/s, 13.15 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 above base 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. 25	1800	784	6.24	Mar. 14	0400	505	5.70
Dec. 13	1030	802	6.27	Mar. 25	2200	1280	7.04
Jan. 11	0930	1070	6.71	Mar. 29	1000	*1410	7.64

Minimum discharge, 16 ft<sup>3</sup>/s Oct. 5, gage height, 1.52 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	28	64	75	70	92	190	71	62	51	55	36
2	19	28	59	65	67	83	135	67	57	42	51	34
3	19	28	57	63	67	77	102	71	52	40	47	32
4	17	30	252	61	74	72	134	80	49	35	48	37
5	17	29	253	61	78	84	377	72	47	33	101	35
6	19	30	191	60	75	203	291	102	45	34	71	35
7	18	30	194	59	69	169	209	114	44	34	57	33
8	17	30	119	55	64	121	152	94	42	32	50	31
9	17	32	90	53	63	100	120	81	41	30	46	30
10	17	44	77	96	62	86	110	72	40	29	49	28
11	19	46	69	715	65	79	104	68	38	30	73	29
12	28	40	145	334	65	73	94	64	37	32	68	28
13	31	36	603	185	64	179	88	61	36	55	58	27
14	47	34	314	129	197	394	127	59	35	42	56	28
15	35	68	182	109	250	228	368	57	34	37	54	29
16	28	156	116	93	149	152	263	54	33	34	48	25
17	25	85	89	84	107	116	185	53	35	33	44	24
18	24	59	77	86	89	99	132	52	36	99	49	23
19	23	45	71	106	78	90	107	52	35	74	89	25
20	32	40	66	99	73	84	96	51	33	59	67	25
21	58	72	62	78	69	109	87	50	32	80	55	24
22	52	61	129	67	65	108	95	48	32	82	48	24
23	92	50	163	70	132	93	192	52	31	82	45	24
24	166	60	111	75	312	84	162	60	32	63	43	23
25	86	468	98	220	184	496	119	54	34	53	40	23
26	58	368	80	158	118	883	99	51	32	49	38	23
27	44	186	95	113	101	293	88	65	30	88	35	22
28	37	112	118	92	129	272	81	59	29	125	35	24
29	34	85	185	81	113	898	76	64	34	114	43	27
30	30	71	92	75	---	335	73	93	37	76	41	30
31	28	---	107	76	---	254	---	73	---	62	39	---
TOTAL	1158	2451	4328	3693	3049	6406	4456	2064	1154	1729	1643	838
MEAN	37.4	81.7	140	119	105	207	149	66.6	38.5	55.8	53.0	27.9
MAX	166	468	603	715	312	898	377	114	62	125	101	37
MIN	17	28	57	53	62	72	73	48	29	29	35	22
CFSM	.54	1.17	2.01	1.71	1.51	2.97	2.14	.96	.55	.80	.76	.40
IN.	.62	1.31	2.31	1.97	1.63	3.42	2.38	1.10	.62	.92	.88	.45
CAL YR 1983	TOTAL	32382	MEAN 88.7	MAX 1070	MIN 12	CFSM 1.27	IN 17.28					
WTR YR 1984	TOTAL	32969	MEAN 90.1	MAX 898	MIN 17	CFSM 1.29	IN 17.60					



## JAMES RIVER BASIN

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 National Geodetic Vertical Datum of 1929. Prior to Nov. 29, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by Prince Edward Mill 0.2 mi upstream. Several observations 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, 289 ft<sup>3</sup>/s, 12.95 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 above base 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)
Nov. 26	0900	3600	14.73	Mar. 14	1300	1900	11.87
Dec. 13	2300	2920	13.88	Mar. 26	2000	4120	15.30
Jan. 11	2300	2440	13.07	Mar. 30	0130	*6440	17.28
Feb. 15	1600	3140	14.17	Apr. 6	0230	4750	15.93
Feb. 24	2030	2510	13.21	Apr. 15	2300	2410	13.01

Minimum discharge, 49 ft<sup>3</sup>/s Oct. 8, gage height, 3.43 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	105	261	305	255	423	804	324	228	182	179	121
2	81	104	239	280	237	354	629	295	206	159	162	109
3	68	104	227	260	234	320	503	299	190	138	144	104
4	63	104	910	243	270	295	667	416	178	144	157	113
5	57	103	1310	246	309	314	2530	369	172	124	394	117
6	55	102	717	235	328	735	3290	473	164	126	347	110
7	55	101	754	227	272	749	934	1010	157	126	204	109
8	52	135	479	212	238	515	643	563	152	118	162	101
9	52	168	337	202	230	410	505	442	145	104	158	96
10	51	187	275	322	226	345	443	362	139	99	146	95
11	53	227	243	2010	231	318	421	316	133	107	525	99
12	68	203	455	1540	237	295	384	290	127	109	463	99
13	92	180	2310	661	232	715	357	270	124	190	832	96
14	121	172	1750	455	926	1780	443	253	119	160	641	99
15	116	220	671	400	2560	1210	1850	239	115	140	366	114
16	87	734	425	348	1020	699	1560	229	113	130	243	96
17	73	510	319	310	519	501	825	220	132	122	196	84
18	68	306	268	310	418	412	579	217	148	350	177	81
19	71	227	241	382	354	372	461	214	129	320	228	82
20	76	183	221	364	317	344	413	204	117	220	505	83
21	142	347	204	293	285	418	378	195	108	320	363	81
22	212	339	479	240	263	501	450	189	104	340	216	78
23	234	232	970	299	497	384	1140	197	102	300	182	76
24	735	240	538	315	2100	329	917	253	109	262	168	76
25	407	1480	306	789	1320	1130	587	225	125	201	154	75
26	237	2870	250	619	573	3520	460	197	121	182	138	74
27	175	787	230	432	436	2430	402	201	107	336	129	71
28	143	450	411	358	557	1330	367	211	113	336	124	75
29	127	356	939	311	581	4580	349	226	131	296	132	89
30	117	298	618	284	---	4670	341	313	163	242	136	101
31	109	---	349	283	---	1280	---	279	---	204	128	---
TOTAL	4071	11574	17706	13535	16025	31678	23632	9491	4171	6187	8099	2804
MEAN	131	386	571	437	553	1022	788	306	139	200	261	93.5
MAX	735	2870	2310	2010	2560	4670	3290	1010	228	350	832	121
MIN	51	101	204	202	226	295	341	189	102	99	124	71
CFSM	.43	1.27	1.88	1.44	1.83	3.37	2.60	1.01	.46	.66	.86	.31
IN.	.50	1.42	2.17	1.66	1.97	3.89	2.90	1.17	.51	.76	.99	.34

CAL YR 1983	TOTAL	133940	MEAN 367	MAX 4570	MIN 45	CFSM 1.21	IN 16.44
WTR YR 1984	TOTAL	148973	MEAN 407	MAX 4670	MIN 51	CFSM 1.34	IN 18.29

## 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 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.--Records good. Appomattox Water Authority gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--63 years, 728 ft<sup>3</sup>/s, 13.62 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 above base 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. 15	0030	6230	22.10	Mar. 29	1600	*9640	24.80
Mar. 26	1300	4320	19.22	Apr. 1	1600	7300	23.00

Minimum discharge, 74 ft<sup>3</sup>/s Oct. 10-11, gage height, 5.88 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	194	640	904	805	1410	7160	865	2230	358	455	222
2	86	186	551	775	729	1050	6140	772	952	320	366	209
3	104	182	503	745	670	895	3070	729	644	312	318	196
4	114	182	1090	705	675	802	1770	748	546	265	282	188
5	102	181	2440	652	790	772	2970	856	474	252	296	187
6	94	178	2820	632	1090	1560	3380	931	431	241	434	196
7	86	172	2610	600	985	2460	3610	1350	402	228	578	195
8	79	170	2010	566	787	2470	3830	1740	384	228	348	188
9	78	171	1200	530	683	1470	2920	1160	364	221	274	181
10	76	265	829	623	644	1100	1350	901	340	205	316	205
11	76	326	686	3050	637	931	1180	737	320	198	566	203
12	81	328	652	3410	657	814	1100	660	302	207	948	182
13	91	312	1950	3570	652	1260	1100	607	286	207	1470	180
14	141	270	2900	3800	3780	2900	1720	568	276	470	2360	177
15	198	270	3180	1960	5700	3170	3170	525	264	374	1320	180
16	192	672	3180	1120	4780	3390	3290	494	260	258	718	183
17	158	1460	1170	955	4370	2550	3510	458	268	222	482	187
18	131	984	784	877	2960	1270	3640	438	296	242	372	168
19	116	578	672	1000	1180	1050	1820	431	358	525	346	158
20	116	448	594	1240	970	949	1300	424	306	697	434	156
21	144	582	546	1060	844	958	1150	400	266	542	548	156
22	195	781	942	832	754	1140	1570	374	245	596	573	157
23	330	710	2060	657	1060	1160	3690	368	234	950	356	147
24	644	508	2400	740	2980	910	3590	417	225	654	294	144
25	1340	1720	1440	1860	3170	2240	3370	501	229	510	270	141
26	848	2980	702	2600	3340	4260	1930	458	235	366	270	138
27	491	3110	575	1950	2390	4240	1290	386	238	407	264	136
28	336	3250	882	1240	1400	5080	1110	410	222	726	225	137
29	262	1610	2110	1010	1650	9030	1000	592	214	958	214	145
30	227	760	2440	877	---	8280	928	1530	310	1190	224	157
31	208	---	1590	838	---	6820	---	2230	---	678	244	---
TOTAL	7229	23540	46148	41378	51132	76391	77658	23060	12121	13607	16165	5199
MEAN	233	785	1489	1335	1763	2464	2589	744	404	439	521	173
MAX	1340	3250	3180	3800	5700	9030	7160	2230	2230	1190	2360	222
MIN	76	170	503	530	637	772	928	368	214	198	214	136
CFSM	.32	1.08	2.05	1.84	2.43	3.39	3.57	1.03	.56	.61	.72	.24
IN.	.37	1.21	2.36	2.12	2.62	3.91	3.98	1.18	.62	.70	.83	.27

CAL YR 1983	TOTAL	338830	MEAN	928	MAX	7820	MIN	62	CFSM	1.28	IN	17.36
WTR YR 1984	TOTAL	393628	MEAN	1075	MAX	9030	MIN	76	CFSM	1.48	IN	20.17

## 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 National Geodetic Vertical Datum of 1929. Prior to Sept. 2, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, Jan. 13 to Feb. 13, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 152 ft<sup>3</sup>/s, 13.06 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 above base 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. 12	0500	2220	8.73	Mar. 29	2030	4840	11.12
Feb. 15	0200	*11300	15.79	Apr. 6	0630	1240	7.36
Mar. 14	2200	1340	7.53	Apr. 24	0600	1370	7.58
Mar. 26	1430	3150	9.64	May 31	0700	1440	7.70

Minimum discharge, 4.4 ft<sup>3</sup>/s Oct. 11, gage height, 1.49 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	18	81	209	170	293	520	171	760	58	126	34
2	6.5	17	71	144	150	219	382	153	251	61	95	31
3	6.5	17	66	122	140	191	292	146	163	74	77	28
4	5.0	18	142	126	145	173	328	154	127	64	76	29
5	5.2	19	290	121	190	185	712	149	103	50	66	31
6	5.1	18	331	119	235	529	1090	152	90	39	58	34
7	5.5	20	264	112	220	1070	589	216	80	34	51	31
8	5.5	21	261	99	195	700	355	213	72	32	45	28
9	5.2	21	180	95	170	394	274	161	65	31	40	26
10	4.7	33	126	147	155	293	239	133	58	28	36	25
11	4.8	61	103	836	145	237	221	116	52	28	40	25
12	5.4	62	113	1900	140	206	204	105	48	33	133	25
13	7.7	56	293	1500	145	307	189	100	45	94	165	24
14	9.1	43	505	580	3260	920	217	95	40	216	200	25
15	11	43	370	300	7230	975	676	86	37	233	118	26
16	9.8	107	180	240	1390	485	1020	78	46	100	84	28
17	8.7	160	129	200	700	322	529	72	54	70	66	28
18	8.6	130	104	180	440	252	329	70	62	78	99	25
19	7.6	79	93	220	304	219	252	71	63	103	133	24
20	8.4	58	83	310	233	205	224	70	60	111	128	23
21	23	86	76	250	201	234	205	66	49	86	68	22
22	33	131	150	200	174	300	270	62	40	70	57	22
23	46	122	336	170	265	248	818	60	35	74	48	21
24	96	83	382	145	818	194	1210	84	34	72	42	20
25	122	182	146	280	955	404	659	85	34	66	37	20
26	108	438	135	500	450	2440	358	75	33	63	34	20
27	69	571	97	350	279	1620	267	67	32	232	32	19
28	46	199	121	280	326	915	225	70	29	430	30	19
29	33	125	316	245	380	3030	198	151	29	394	30	20
30	26	97	598	200	---	2400	180	708	42	372	34	23
31	21	---	396	180	---	845	---	1320	---	200	37	---
TOTAL	758.8	3035	6538	10360	19605	20805	13032	5259	2633	3596	2285	756
MEAN	24.5	101	211	334	676	671	434	170	87.8	116	73.7	25.2
MAX	122	571	598	1900	7230	3030	1210	1320	760	430	200	34
MIN	4.7	17	66	95	140	173	180	60	29	28	30	19
CFSM	.16	.64	1.34	2.11	4.28	4.25	2.75	1.08	.56	.73	.47	.16
IN.	.18	.71	1.54	2.44	4.62	4.90	3.07	1.24	.62	.85	.54	.18
CAL YR 1983	TOTAL	65032.6	MEAN 178	MAX 2470	MIN 4.4	CFSM 1.13	IN 15.31					
WTR YR 1984	TOTAL	88662.8	MEAN 242	MAX 7230	MIN 4.7	CFSM 1.53	IN 20.87					

## JAMES RIVER BASIN

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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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Appomattox Water Authority at Lake Chesdin, capacity, 36,500 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 computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--15 years, 1,547 ft<sup>3</sup>/s, 15.63 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, 16,200 ft<sup>3</sup>/s Feb. 16, gage height, 12.63 ft; minimum, 80 ft<sup>3</sup>/s Oct. 10-11, gage height, 1.48 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	260	990	1850	1210	2690	11800	1370	5370	469	1150	359
2	121	245	733	1210	1130	2100	9990	1210	3870	510	804	353
3	112	239	654	1050	1040	1610	9010	1130	1730	635	635	344
4	110	241	888	978	1120	1350	7440	1190	1060	522	607	374
5	119	228	2150	982	1280	1360	5520	1110	840	446	555	344
6	132	233	3420	978	1880	3540	6030	1250	720	428	494	329
7	117	212	4000	907	2060	5350	6220	1630	651	398	570	320
8	104	218	3430	811	1590	5450	5790	2150	591	377	613	320
9	97	219	2510	745	1270	4420	5390	2120	550	338	498	317
10	90	352	1530	836	1110	2620	3840	1510	502	329	476	317
11	85	462	1070	4130	1040	1970	2080	1180	476	326	510	317
12	92	427	1010	6630	1060	1510	1690	1050	446	335	702	323
13	160	383	2000	6760	1050	1990	1490	942	425	398	1240	317
14	235	388	3620	6050	3540	5280	1770	894	428	419	2600	335
15	204	412	4220	5220	11400	6340	3790	798	413	714	3630	323
16	230	565	4140	2750	15500	6070	5790	756	380	690	1870	314
17	238	882	3260	1670	12000	5370	6070	690	389	502	1000	343
18	230	1280	1520	1580	9260	3560	5570	646	413	469	750	320
19	217	963	1050	2270	6270	2080	4780	651	440	486	1570	285
20	215	659	822	2490	2510	1640	2600	635	452	738	1680	275
21	242	700	732	2440	1620	1720	1850	613	419	882	1110	270
22	239	777	998	1940	1300	1970	2050	570	380	882	876	265
23	360	905	2160	1140	1600	1990	6270	580	359	954	756	255
24	602	798	3260	1050	5070	1650	7780	646	344	1040	560	250
25	838	1660	2840	2320	6540	2420	7430	662	353	864	472	240
26	1140	3610	1510	4020	5830	7630	6050	702	341	696	428	235
27	785	4350	994	4180	5100	9470	3240	651	323	1020	401	235
28	520	4220	933	2880	3730	10200	2060	646	317	1350	386	240
29	408	3610	2190	1940	3030	13100	1690	876	338	1880	374	250
30	323	1670	3410	1480	---	14300	1440	3760	389	2100	365	265
31	281	---	3160	1350	---	14300	---	5560	---	1880	371	---
TOTAL	8770	31168	65204	74637	111140	145050	146520	38178	23709	23077	28053	9034
MEAN	283	1039	2103	2408	3832	4679	4884	1232	790	744	905	301
MAX	1140	4350	4220	6760	15500	14300	11800	5560	5370	2100	3630	374
MIN	85	212	654	745	1040	1350	1440	570	317	326	365	235
CAL YR 1983	TOTAL	569731	MEAN	1561	MAX	9370	MIN	62				
WTR YR 1984	TOTAL	704540	MEAN	1925	MAX	15500	MIN	85				



## JAMES RIVER BASIN

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 15...	0845	199	9	6.7	10.5	754	4.4	10.0	91	K11	370
JAN 12...	0900	6600	68	6.7	1.5	770	21	14.8	104	20	86
FEB 23...	1200	1190	52	6.8	10.5	745	75	10.6	97	K24	K9
MAY 17...	1130	750	68	8.1	19.0	760	5.0	10.2	110	K5	15
JUL 25...	1100	888	83	7.5	27.0	754	5.0	7.3	93	27	56
AUG 08...	0900	514	72	7.4	27.0	749	3.2	7.2	92	K8	19

K Result based on colony count outside optimal range.

DATE	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)	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)
NOV 15...	31	0	7.0	3.3	6.0	2.3	32	8.6	5.2	.20	15
JAN 12...	20	0	4.7	2.0	4.6	1.6	19	10	4.6	<.10	15
FEB 23...	16	4	3.7	1.6	3.5	1.9	12	8.0	3.4	<.10	10
MAY 17...	23	0	5.3	2.3	4.0	1.6	23	5.3	3.2	.10	13
JUL 25...	28	0	6.3	3.0	5.0	1.8	32	9.0	3.9	.10	17
AUG 08...	23	0	5.1	2.5	4.3	2.0	24	9.8	3.6	.10	16

&lt; Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

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02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)
NOV 15...	68	67	<.10	.120	3.4	.020	.010	.040	10	<1
JAN 12...	66	54	.21	.040	.60	.060	.020	.020	--	--
FEB 23...	62	40	.17	.080	.50	.060	<.010	<.010	80	<1
MAY 17...	53	49	<.10	.360	3.5	.020	<.010	<.010	20	<1
JUL 25...	70	65	<.10	.030	.80	.020	<.010	.020	--	--
AUG 08...	40	58	.14	.060	.40	.040	.040	.030	20	<1

&lt; Actual value is known to be less than the value shown.

DATE	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)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 15...	31	<.5	1	<1	3	2	90	5	<4	31
JAN 12...	--	--	--	--	--	--	--	--	--	--
FEB 23...	83	<.5	<1	<1	<3	2	240	4	5	76
MAY 17...	26	<.0	<1	<1	<3	2	300	1	<4	12
JUL 25...	--	--	--	--	--	--	--	--	--	--
AUG 08...	24	<.0	<1	1	<3	1	320	5	<4	29

&lt; Actual value is known to be less than the value shown.

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)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 15...	<.1	<10	1	<1	<1	53	<6	9	5	97
JAN 12...	--	--	--	--	--	--	--	--	16	96
FEB 23...	.1	<10	1	<1	<1	29	<6	8	42	81
MAY 17...	.3	<10	4	<1	<1	43	<6	<3	5	93
JUL 25...	--	--	--	--	--	--	--	--	9	77
AUG 08...	.1	<10	<1	<1	<1	49	<6	8	12	51

&lt; Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

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 Schiminoe 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good prior to July 5 and fair thereafter.

AVERAGE DISCHARGE.--42 years, 266 ft<sup>3</sup>/s, 14.57 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, 3,700 ft<sup>3</sup>/s Mar. 30, gage height, 10.26 ft; minimum, 8.8 ft<sup>3</sup>/s Oct. 11, gage height, 1.96 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	142	528	400	570	610	3250	543	1240	51	112	44
2	15	132	468	415	506	528	2200	464	1330	58	104	35
3	17	113	405	425	441	445	1440	410	1540	66	100	36
4	17	89	368	406	451	414	1080	377	1330	71	133	34
5	16	69	347	382	506	411	1010	352	1000	71	223	30
6	16	53	337	349	496	628	928	356	727	72	256	29
7	15	41	370	326	469	816	859	366	550	76	278	27
8	14	34	371	302	432	857	842	352	427	88	276	26
9	13	31	414	330	406	746	962	354	337	89	232	24
10	11	66	464	338	397	719	902	347	271	75	184	22
11	9.1	131	463	561	399	705	730	321	221	72	155	17
12	13	122	449	627	404	622	590	303	181	65	148	15
13	14	145	538	793	394	577	501	297	150	62	155	14
14	22	164	608	853	406	713	493	294	123	61	163	13
15	31	158	631	1010	545	859	630	277	166	52	178	14
16	38	201	563	1170	932	869	1320	253	145	46	218	16
17	42	235	493	1100	996	1020	2090	229	123	48	236	20
18	46	269	513	920	1230	1050	1880	206	105	50	223	22
19	47	266	501	840	1260	884	1430	191	92	68	209	23
20	48	234	451	780	987	677	1130	175	80	72	194	22
21	53	249	383	700	716	588	882	156	72	75	178	19
22	53	284	342	660	553	544	738	138	62	75	164	18
23	57	303	337	620	456	483	958	121	53	72	152	17
24	96	303	328	600	421	432	1230	124	47	76	140	16
25	126	392	298	593	399	436	1220	121	43	87	133	15
26	157	554	279	649	388	777	1310	103	38	101	122	18
27	176	716	256	659	382	1370	1360	129	33	110	117	20
28	156	648	250	603	503	2060	1110	159	28	126	104	23
29	135	531	270	611	619	3320	838	204	31	137	87	27
30	130	543	300	618	---	3570	646	510	38	133	72	25
31	138	---	355	597	---	3410	---	1040	---	122	58	---
TOTAL	1735.1	7218	12680	19237	16664	31140	34559	9272	10583	2427	5104	681
MEAN	56.0	241	409	621	575	1005	1152	299	353	78.3	165	22.7
MAX	176	716	631	1170	1260	3570	3250	1040	1540	137	278	44
MIN	9.1	31	250	302	382	411	493	103	28	46	58	13
CFSM	.23	.97	1.65	2.50	2.32	4.05	4.65	1.21	1.42	.32	.67	.09
IN.	.26	1.08	1.90	2.89	2.50	4.67	5.18	1.39	1.59	.36	.77	.10
CAL YR 1983	TOTAL	108743.4	MEAN 298	MAX 1990	MIN 3.2	CFSM 1.20	IN 16.31					
WTR YR 1984	TOTAL	151300.1	MEAN 413	MAX 3570	MIN 9.1	CFSM 1.67	IN 22.69					

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CAC03)
OCT 04...	1000	17	119	6.9	16.0	752	10	8.1	83	32
NOV 18...	0745	266	175	5.7	6.0	749	6	8.2	67	39
JAN 20...	0900	562	117	6.0	.5	--	20	--	--	19
APR 24...	0800	1190	60	6.6	11.0	759	60	9.4	86	14
MAY 25...	1000	117	100	8.4	19.5	--	60	--	--	27
JUL 06...	0900	72	98	6.7	24.5	751	30	--	--	27
AUG 17...	0830	240	76	--	23.0	763	30	5.4	63	26
SEP 11...	1415	15	101	--	22.0	--	--	--	--	--

DATE	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)	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 SI02)
OCT 04...	13	9.5	2.1	7.0	1.3	19	21	8.2	<.10	7.6
NOV 18...	33	11	2.7	12	4.7	6.0	39	19	.20	11
JAN 20...	15	5.4	1.4	10	1.9	4.0	13	18	.10	5.3
APR 24...	4	4.1	.99	4.4	1.8	10	6.9	7.5	<.10	2.7
MAY 25...	2	7.5	1.9	7.0	1.3	25	3.3	11	.10	6.4
JUL 06...	4	8.0	1.7	7.0	.60	23	9.1	8.2	.10	6.8
AUG 17...	3	7.6	1.6	6.6	.40	23	2.9	9.1	.20	9.9
SEP 11...	--	--	--	--	--	--	--	--	--	--

&lt; Actual value is known to be less than the value shown.

DATE	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)	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)	IRON, DIS- SOLVED (UG/L AS FE)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 04...	82	69	<.010	<.10	--	--	.020	390	--
NOV 18...	116	100	<.010	<.10	--	--	.010	200	--
JAN 20...	83	58	--	--	--	--	--	170	--
APR 24...	51	35	.010	<.10	--	--	<.010	670	--
MAY 25...	102	54	<.010	<.10	--	--	.020	920	--
JUL 06...	72	56	<.010	<.10	--	--	.030	670	--
AUG 17...	72	53	--	--	--	--	--	590	--
SEP 11...	--	--	--	<.10	.020	.040	.020	--	6.6

&lt; Actual value is known to be less than the value shown.



## JAMES RIVER BASIN

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 year 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TEMPERATURE AIR (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	COLOR (PLATINUM-COBALT UNITS)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED SATURATION (%)	COLIFORM, FECA, 0.7 UM-MF (COLS./100 ML)
OCT 11...	0800	500	7.0	19.0	18.0	765	--	7.3	79	K5
NOV 03...	0830	140	6.9	14.0	15.0	759	--	9.2	90	K0
30...	0830	112	5.8	10.0	6.0	775	--	8.1	71	170
JAN 18...	1030	83	--	3.0	3.0	763	31	11.9	88	K7
MAR 14...	0830	80	6.3	6.0	6.5	764	40	8.3	66	K0
APR 18...	0830	58	6.6	16.5	23.0	749	75	6.8	71	96
MAY 08...	0815	72	6.5	20.0	23.0	735	90	5.7	65	--
29...	0915	85	6.8	23.0	22.0	735	75	4.5	54	K26
JUN 19...	0830	72	6.3	27.0	32.0	758	70	1.6	20	--
JUL 10...	1230	77	7.0	25.5	24.0	756	40	4.8	59	K2
AUG 01...	0830	80	6.5	24.5	26.5	762	7	3.5	42	K8
14...	0830	80	6.9	28.0	32.0	757	18	5.5	71	--
SEP 04...	0930	90	6.8	27.0	26.0	754	12	3.6	46	K10
11...	1450	87	--	26.5	--	--	--	--	--	--
26...	0830	93	6.7	23.0	25.5	756	15	4.2	49	K2

K Result based on colony count outside optimal range.

DATE	STREPTOCOCCI, FECA, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CaCO3)	HARDNESS, NONCARBONATE (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 11...	1800	60	39	12	7.4	75	3.7	22	24
NOV 03...	370	32	18	9.0	2.4	14	1.8	14	22
30...	350	26	18	7.4	1.8	7.8	3.3	8.0	25
JAN 18...	360	16	8	4.6	1.1	7.2	1.8	8.0	15
MAR 14...	K0	16	10	4.4	1.1	8.9	1.4	6.0	10
APR 18...	K67	14	4	4.0	.97	4.6	1.4	10	6.7
MAY 08...	--	19	4	5.4	1.3	5.4	1.5	15	11
29...	71	22	2	6.3	1.5	6.2	1.1	20	3.9
JUN 19...	--	21	4	6.1	1.4	5.8	1.2	17	3.9
JUL 10...	K11	24	0	6.9	1.6	5.9	1.0	24	3.5
AUG 01...	350	24	3	7.0	1.5	5.5	.80	21	4.8
14...	--	23	3	7.1	1.4	5.9	.60	21	5.5
SEP 04...	58	26	0	7.7	1.6	6.8	.50	26	2.7
11...	--	--	--	--	--	--	--	--	--
26...	K35	27	2	8.0	1.7	8.0	.70	25	3.7

K Result based on colony count outside optimal range.

## JAMES RIVER BASIN

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02042720 CHICKAHOMINY RIVER ABOVE WALKERS DAM, AT WALKERS, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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, 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)
OCT									
11...	130	.20	3.5	270	<.10	<.010	.50	.050	--
NOV									
03...	21	.10	7.1	86	<.10	.150	1.2	.010	--
30...	14	.20	7.7	73	<.10	<.010	.50	.050	--
JAN									
18...	13	<.10	4.7	53	<.10	.010	.40	.030	.020
MAR									
14...	13	<.10	2.3	45	<.10	.020	.60	.020	<.010
APR									
18...	7.0	<.10	1.9	33	<.10	.020	1.1	.050	.010
MAY									
08...	7.8	.10	2.0	45	<.10	.050	.80	.060	.030
29...	10	.10	3.7	46	<.10	.050	1.7	.100	.060
JUN									
19...	8.1	.10	5.7	44	<.10	.100	1.4	.070	.030
JUL									
10...	7.7	<.10	4.8	46	<.10	<.010	1.1	.040	.030
AUG									
01...	7.3	<.10	5.9	46	<.10	.090	.40	.030	<.010
14...	4.6	<.10	8.0	46	<.10	.030	.90	.050	<.010
SEP									
04...	.00	.10	9.8	45	--	--	--	--	--
11...	--	--	--	--	<.10	<.010	.60	.020	--
26...	8.3	<.10	7.1	53	<.10	.070	.60	.030	.010

&lt; Actual value is known to be less than the value shown.

DATE	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	CADMIUM DIS- SOLVED (UG/L AS CD)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, DIS- SOLVED TOTAL (MG/L AS C)
OCT									
11...	<.010	<1	<1	61	1	82	.1	<3	8.6
NOV									
03...	<.010	<1	2	200	2	61	<.1	9	6.8
30...	<.010	<1	2	230	4	240	<.1	34	8.5
JAN									
18...	.020	1	6	210	2	64	.3	19	6.4
MAR									
14...	<.010	<1	<1	240	<1	35	<.1	18	8.1
APR									
18...	.010	1	1	520	1	43	<.1	14	8.9
MAY									
08...	<.010	<1	2	950	3	38	.2	9	10
29...	<.010	2	1	970	2	87	<.1	8	10
JUN									
19...	.020	2	<1	770	4	190	.1	13	12
JUL									
10...	<.010	<1	<1	280	1	22	.1	5	9.9
AUG									
01...	<.010	<1	<1	240	<1	27	.2	<3	7.6
14...	.020	<1	1	320	5	19	.3	4	8.4
SEP									
04...	--	<1	<1	300	6	140	<.1	4	--
11...	<.010	--	--	--	--	--	--	--	7.7
26...	<.010	1	1	110	2	32	<.1	<3	7.5

&lt; Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

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 year 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TEMPER- ATURE, AIR (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)
OCT							
11...	0900	3.00	85	7.1	19.0	18.0	765
11...	0910	10.0	85	7.1	19.0	18.0	765
NOV							
03...	1000	3.00	80	7.0	14.0	15.0	758
03...	1030	10.0	83	6.8	13.5	15.0	758
30...	1000	3.00	59	6.3	10.5	7.0	760
30...	1015	10.0	75	6.3	10.0	7.0	760
MAR							
14...	1000	3.00	57	6.8	7.5	5.5	763
14...	1015	10.0	56	6.8	7.5	5.5	763
APR							
18...	1000	3.00	89	7.0	16.5	17.5	749
18...	1010	18.0	58	6.6	12.5	17.5	749
MAY							
08...	0935	3.00	68	6.7	20.0	21.0	735
08...	0945	18.0	60	6.7	15.0	21.0	735
31...	0945	3.00	60	6.9	20.5	16.5	755
31...	0950	17.0	75	6.8	17.0	16.5	755
JUN							
20...	0815	3.00	71	7.1	26.0	24.5	762
20...	0830	10.0	68	7.1	23.0	24.5	762
JUL							
10...	1030	3.00	64	7.0	26.0	24.0	756
10...	1045	10.0	65	6.8	26.0	24.0	756
AUG							
01...	0930	3.00	68	6.8	25.0	26.5	762
01...	0955	18.0	118	6.5	19.5	26.5	762
14...	0945	3.00	70	7.1	29.5	32.0	757
14...	0950	10.0	78	6.6	27.0	32.0	757
SEP							
04...	1115	3.00	70	6.9	26.5	25.5	754
04...	1130	18.0	120	6.6	20.0	25.5	754
26...	0945	3.00	73	7.0	24.0	26.0	756
26...	1000	18.0	83	6.8	21.0	26.0	756

## JAMES RIVER BASIN

201

02042734 DIASCUND CREEK RESERVOIR OFF TIMBER SWAMP, NEAR WALKERS, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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						
11...	6.7	72	<.10	.100	.090	<.010
11...	6.7	72	<.10	.160	.090	.010
NOV						
03...	10.5	102	<.10	.300	.020	.020
03...	9.0	87	<.10	.330	.060	<.010
30...	9.0	81	.10	.180	.090	.010
30...	8.9	79	.12	.140	.110	.010
MAR						
14...	10.7	89	<.10	.020	.120	<.010
14...	9.7	81	.11	.030	.020	<.010
APR						
18...	10.0	104	<.10	.020	.020	<.010
18...	3.8	36	<.10	.100	.040	.030
MAY						
08...	6.7	76	<.10	.230	.020	<.010
08...	1.0	10	<.10	.050	.030	<.010
31...	6.6	74	<.10	.090	.030	<.010
31...	.2	2	<.10	.100	.040	<.010
JUN						
20...	7.2	89	<.10	<.010	.030	<.010
20...	.8	9	<.10	.030	.040	<.010
JUL						
10...	5.7	71	<.10	.040	.030	<.010
10...	5.7	71	<.10	.010	.040	<.010
AUG						
01...	6.2	75	<.10	.060	.030	<.010
01...	.0	0	<.10	<.010	.030	<.010
14...	6.9	91	<.10	.020	.030	.010
14...	.1	1	<.10	<.010	.030	.010
SEP						
04...	6.3	79	<.10	<.010	.010	<.010
04...	.0	0	<.10	<.010	.020	<.010
26...	8.4	101	<.10	.060	.040	.020
26...	.0	0	<.10	.080	.030	<.010

&lt; Actual value is known to be less than the value shown.



## JAMES RIVER BASIN

## 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 year 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TEMPER- ATURE, AIR (DEG C)	BARO- METRIC PRES- SURE (MM HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
11...	0930	3.00	72	7.2	19.0	18.0	765	--	6.6	71	K3
11...	0945	10.0	72	7.1	19.0	18.0	765	--	6.8	73	--
NOV											
03...	1100	3.00	80	6.9	14.0	15.0	758	--	9.8	96	K0
03...	1115	10.0	85	6.8	14.0	15.0	758	--	7.7	75	--
30...	1015	3.00	90	6.5	10.5	7.0	760	--	8.8	79	100
30...	1030	10.0	78	6.4	10.5	7.0	760	--	8.1	73	--
MAR											
14...	1045	3.00	77	7.1	8.0	5.5	763	55	9.5	80	K8
14...	1100	10.0	75	7.1	8.0	5.5	763	70	9.3	78	--
APR											
18...	1015	3.00	50	6.9	16.0	17.5	749	50	10.8	111	K3
18...	1025	18.0	62	6.5	13.0	17.5	749	50	4.5	43	--
MAY											
08...	1030	3.00	52	6.9	20.5	21.0	735	45	7.2	83	K4
08...	1045	18.0	54	6.9	15.0	21.0	735	50	1.6	16	--
31...	1030	3.00	68	6.7	20.5	16.5	755	70	6.6	74	K12
31...	1046	18.0	72	6.7	18.0	16.5	755	55	.7	7	--
JUN											
20...	0900	3.00	68	6.7	27.5	24.5	762	70	7.3	93	K0
20...	0930	18.0	88	6.6	17.5	24.5	762	70	.0	0	--
JUL											
10...	1100	3.00	68	7.1	26.0	24.0	756	50	6.0	75	K0
10...	1115	18.0	110	6.8	19.0	24.0	756	150	.0	0	--
AUG											
01...	1000	3.00	73	7.0	25.5	26.5	762	80	6.8	83	K0
01...	1020	18.0	140	6.7	20.0	26.5	762	200	.0	0	--
14...	1030	3.00	73	7.0	30.0	32.0	757	17	7.0	93	--
14...	1100	10.0	86	6.5	26.0	32.0	757	14	.1	1	--
SEP											
04...	1145	3.00	75	7.0	26.0	25.5	754	8	6.3	79	K6
04...	1200	18.0	162	6.7	21.0	25.5	754	440	.0	0	--
23...	1030	3.00	78	7.1	24.0	26.0	756	--	8.9	107	--
26...	--	10.0	--	--	--	--	--	40	--	--	--
26...	1030	3.00	78	7.1	24.0	26.0	756	25	8.9	107	K5
26...	1045	18.0	91	6.6	21.0	26.0	756	40	.0	0	--

K Result based on colony count outside optimal range.

## JAMES RIVER BASIN

203

02042746 DIASCUND CREEK RESERVOIR OFF PUMP STATION, NEAR WALKERS, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	STREP- TOCOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L 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)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT											
11...	K38	29	12	10	.91	3.7	1.4	17	12	5.7	<.10
11...	--	29	12	10	.93	3.6	1.3	17	14	5.5	.10
NOV											
03...	K8	31	16	11	.96	4.7	1.4	15	17	6.8	<.10
03...	--	34	16	12	.97	5.3	1.4	18	17	7.8	<.10
30...	600	31	14	11	.92	4.0	1.8	17	17	7.4	<.10
30...	--	31	13	11	.91	4.2	1.9	18	16	8.8	<.10
MAR											
14...	K0	26	8	9.3	.76	3.9	1.0	18	7.9	6.6	<.10
14...	--	26	8	9.3	.78	4.0	1.0	18	7.9	6.7	<.10
APR											
18...	K0	18	5	6.0	.66	2.5	1.0	13	6.0	4.3	<.10
18...	--	20	5	6.7	.78	2.7	1.1	15	6.7	4.4	<.10
MAY											
08...	130	21	5	7.1	.78	2.6	.90	16	6.0	4.7	.10
08...	--	21	5	7.1	.76	2.6	.90	16	5.8	4.5	<.10
31...	72	22	4	7.5	.76	2.5	.90	18	4.9	4.4	<.10
31...	--	25	4	8.7	.83	2.6	1.0	21	5.5	4.6	<.10
JUN											
20...	K0	25	5	8.4	.88	2.7	1.0	20	3.8	4.6	<.10
20...	--	28	4	9.9	.89	2.7	1.1	24	12	4.7	<.10
JUL											
10...	K3	26	3	8.9	.86	2.7	1.0	23	3.8	4.5	<.10
10...	--	31	1	11	.94	2.7	1.1	30	3.3	5.2	<.10
AUG											
01...	42	27	2	9.5	.89	2.6	1.0	25	3.2	4.5	<.10
01...	--	34	0	12	1.0	2.6	1.2	34	9.9	5.3	<.10
14...	--	27	0	9.2	.94	2.6	1.0	26	2.6	4.5	.10
14...	--	28	2	9.8	.95	2.7	1.1	26	2.6	4.5	<.10
SEP											
04...	K28	28	1	9.8	.89	2.7	1.0	27	2.2	4.6	<.10
04...	--	39	0	14	1.1	2.7	1.4	43	3.1	6.6	<.10
23...	--	--	--	--	--	--	--	--	--	--	--
26...	--	32	0	11	1.0	3.0	1.1	31	2.5	.00	<.10
26...	K0	31	3	11	.97	2.9	1.1	29	1.9	4.8	<.10
26...	--	32	0	11	1.0	3.0	1.1	31	2.5	5.3	<.10

K Result based on colony count outside optimal range.

&lt; Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

02042746 DIASCUND CREEK RESERVOIR OFF PUMP STATION, NEAR WALKERS, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
11...	6.3	50	<.10	.120	.90	.090	--	<.010	78	20	11
11...	6.6	53	<.10	.120	1.0	.100	--	<.010	100	23	9.6
NOV											
03...	4.2	56	<.10	.270	1.4	.070	--	<.010	120	35	9.1
03...	4.9	61	.10	.390	1.3	.070	--	<.010	170	100	6.9
30...	6.2	59	.17	.100	.80	.080	--	<.010	400	94	9.2
30...	6.6	61	.23	.260	.70	.080	--	.020	510	110	9.5
MAR											
14...	4.2	45	.14	.150	.50	.260	<.010	<.010	480	30	8.7
14...	4.2	45	.12	.040	.50	.040	<.010	<.010	390	31	6.1
APR											
18...	2.7	31	<.10	.030	2.4	.030	<.010	.010	250	4	6.3
18...	3.2	35	<.10	.050	3.0	.030	.010	.010	400	36	6.9
MAY											
08...	2.2	35	<.10	.040	.50	.020	<.010	<.010	590	23	6.9
08...	2.3	34	<.10	.050	.30	.020	<.010	<.010	610	23	6.6
31...	1.7	35	<.10	.140	2.3	.040	.020	<.010	1000	34	7.9
31...	2.9	41	<.10	.270	2.2	.050	.030	<.010	1600	490	7.6
JUN											
20...	2.4	37	<.10	.040	1.6	.030	<.010	<.010	1300	12	8.4
20...	3.7	54	<.10	.260	1.2	.030	.020	.020	3700	880	8.5
JUL											
10...	2.5	39	<.10	<.010	.80	.040	.040	<.010	1000	7	8.0
10...	4.9	59	<.10	.370	1.0	.030	.030	<.010	10000	1300	10
AUG											
01...	3.0	40	<.10	.010	.50	.030	<.010	<.010	650	44	7.8
01...	5.8	74	<.10	.170	.50	<.010	<.010	<.010	14000	1800	11
14...	2.7	40	<.10	<.010	.80	.020	<.010	<.010	480	8	7.4
14...	3.4	42	<.10	.030	.30	.040	.010	.010	300	740	7.4
SEP											
04...	3.2	41	<.10	<.010	.60	.030	<.010	<.010	500	30	8.5
04...	7.5	87	<.10	<.010	.60	.040	<.010	<.010	22000	2400	8.5
23...	--	--	<.10	<.010	.60	.020	<.010	<.010	--	--	11
26...	4.1	45	--	--	--	--	--	--	2500	800	--
26...	3.3	45	<.10	<.010	.60	.020	<.010	<.010	1200	52	11
26...	4.1	50	<.10	.110	.50	.030	<.010	<.010	2500	800	--

&lt; Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

205

0204275410 LITTLE CREEK RESERVOIR (NORTH NORTHEAST) NEAR NORGE, VA

LOCATION.--Lat 37°22'24", long 76°49'14", James City County, Hydrologic Unit 02080206, near head of north-northeastern arm of Little Creek Reservoir, 0.8 mi north of city of Newport News pumping station, 1.0 mi south of Toano, and 2.8 mi west of Norge.

PERIOD OF RECORD.--July to November 1983 (discontinued).

## WATER QUALITY DATA, OCTOBER TO NOVEMBER 1983

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	BAROMETRIC PRESSURE (MM OF HG)
OCT							
14...	0947	3.00	105	7.3	21.0	16.0	774
14...	0955	10.0	110	7.1	20.5	16.0	774
14...	1000	17.0	105	6.8	18.0	16.0	774
NOV							
04...	1000	3.00	115	6.9	14.5	7.5	755
04...	1005	10.0	118	6.9	14.0	7.5	755
04...	1015	18.0	105	6.5	14.0	7.5	755
29...	1005	3.00	110	6.8	12.0	13.5	750
29...	1015	10.0	115	6.7	12.0	13.5	750
29...	1020	20.0	100	6.7	11.5	13.5	750

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATURATION)	NITROGEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS- SOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
OCT						
14...	8.9	98	<.10	<.010	.030	<.010
14...	8.2	90	<.10	.030	.020	<.010
14...	1.3	14	<.10	.190	.040	<.010
NOV						
04...	7.4	73	<.10	.120	.030	<.010
04...	7.2	71	<.10	.110	.030	<.010
04...	6.1	60	.12	.250	.070	<.010
29...	8.2	77	<.10	.190	.030	<.010
29...	8.2	77	<.10	.210	.030	<.010
29...	5.9	55	<.10	.270	.020	<.010

< Actual value is known to be less than the value shown.



## 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.--Water year 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	BAROMETRIC PRESSURE (MM HG)
OCT							
14...	0935	1.00	74	7.9	20.0	16.0	774
NOV							
04...	0940	1.00	125	6.9	14.0	7.5	755
29...	0950	1.00	97	6.8	11.0	13.0	750
JAN							
17...	1430	1.00	75	--	3.0	6.5	763
MAR							
15...	1010	1.00	107	6.9	8.0	8.0	760
APR							
17...	1030	1.00	113	7.1	17.0	20.0	745
MAY							
09...	1105	1.00	105	6.9	20.0	18.0	754
JUN							
01...	1100	1.00	85	7.0	21.5	21.0	754
21...	0945	1.00	62	6.7	25.0	26.0	762
JUL							
11...	1000	1.00	98	7.2	27.0	26.0	753
AUG							
02...	1045	1.00	100	7.0	28.0	25.0	760
15...	1025	1.00	100	6.8	30.0	30.5	755
SEP							
05...	1000	1.00	90	6.8	25.0	22.0	758
25...	1020	1.00	92	6.7	24.0	21.5	758

DATE	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT						
14...	8.1	88	.17	.150	.080	<.010
NOV						
04...	8.2	80	<.10	.050	.050	.020
29...	10.0	92	.19	.060	.070	<.010
JAN						
17...	12.6	93	.14	.120	.050	<.010
MAR						
15...	10.6	90	.21	.080	.080	<.010
APR						
17...	9.6	102	.11	.030	<.010	<.010
MAY						
09...	7.9	88	<.10	.020	<.010	<.010
JUN						
01...	8.1	93	<.10	.070	.020	<.010
21...	5.6	68	<.10	.020	.060	<.010
JUL						
11...	7.1	90	<.10	.040	.010	<.010
AUG						
02...	7.6	97	<.10	<.010	<.010	<.010
15...	7.8	104	<.10	.010	<.010	<.010
SEP						
05...	7.0	85	<.10	<.010	.020	<.010
25...	6.9	82	<.10	.020	.040	<.010

< Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

207

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.--Water year 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TEMPER- ATURE, AIR (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)
OCT							
14...	0910	3.00	75	7.0	21.0	15.0	774
14...	0920	10.0	105	6.9	20.5	15.0	774
14...	0925	20.0	142	6.7	14.0	15.0	774
NOV							
04...	0915	3.00	110	7.1	14.0	8.5	755
04...	0920	10.0	110	7.1	14.0	8.5	755
04...	0925	20.0	95	7.0	13.0	8.5	755
29...	0930	3.00	123	7.0	12.0	13.0	750
29...	0935	10.0	120	7.0	11.5	13.0	750
29...	0940	20.0	100	7.0	11.5	13.0	750
JAN							
17...	1115	3.00	115	6.8	3.0	2.5	763
17...	1130	10.0	110	7.0	3.0	2.5	763
17...	1145	20.0	91	6.9	3.5	2.5	763
MAR							
15...	0940	3.00	105	6.8	8.0	8.0	760
15...	0950	10.0	105	6.8	8.0	8.0	760
15...	1000	20.0	92	6.8	8.0	8.0	760
APR							
17...	1000	3.00	103	7.1	15.5	16.5	745
17...	1005	10.0	107	7.0	15.0	16.5	745
17...	1010	20.0	110	6.9	11.5	16.5	745
MAY							
09...	1020	3.00	105	6.8	20.0	18.0	754
09...	1030	10.0	105	6.9	19.0	18.0	754
09...	1035	20.0	105	7.0	12.5	18.0	754
JUN							
01...	1030	3.00	100	6.8	21.5	21.0	754
01...	1035	10.0	105	6.9	21.0	21.0	754
01...	1040	20.0	115	6.7	15.0	21.0	754
21...	0915	3.00	103	7.2	--	26.0	762
21...	0925	10.0	100	7.2	--	26.0	762
21...	0930	20.0	105	6.9	--	26.0	762
JUL							
11...	0930	3.00	95	7.3	26.5	25.5	753
11...	0935	10.0	96	7.3	26.5	25.5	753
11...	0945	20.0	112	6.6	18.0	25.5	753
AUG							
02...	1000	3.00	100	7.0	27.0	24.5	760
02...	1010	10.0	100	7.0	26.0	24.5	760
02...	1015	20.0	135	6.5	21.0	24.5	760
15...	0945	3.00	100	6.8	30.0	31.5	755
15...	0955	10.0	100	6.9	28.5	31.5	755
15...	1000	20.0	130	6.5	18.0	31.5	755
SEP							
05...	0930	3.00	105	6.7	26.0	22.0	758
05...	0935	10.0	100	6.9	26.0	22.0	758
05...	0940	20.0	137	6.5	18.0	22.0	758
25...	0940	3.00	100	6.8	23.5	21.5	758
25...	0950	10.0	100	6.7	23.0	21.5	758
25...	1000	20.0	108	6.7	21.0	21.5	758

## JAMES RIVER BASIN

0204275420 LITTLE CREEK RESERVOIR (NORTH) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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						
14...	8.1	89	<.10	.010	.050	.030
14...	8.0	88	<.10	.010	.020	<.010
14...	.0	0	<.10	.990	.030	.010
NOV						
04...	7.2	71	<.10	.120	.020	<.010
04...	6.7	66	<.10	.220	.020	<.010
04...	3.1	30	<.10	.650	.030	<.010
29...	8.8	83	<.10	.190	.020	<.010
29...	8.7	81	<.10	.180	.020	<.010
29...	7.4	69	<.10	.200	.020	<.010
JAN						
17...	11.3	84	<.10	.130	.020	<.010
17...	10.8	80	<.10	.120	.020	<.010
17...	10.6	80	<.10	.120	.020	<.010
MAR						
15...	10.6	90	.21	.130	<.010	<.010
15...	10.6	90	.22	.110	<.010	<.010
15...	10.3	87	.18	.110	<.010	<.010
APR						
17...	10.2	105	.15	.240	<.010	<.010
17...	10.0	101	.16	.080	<.010	<.010
17...	8.7	82	.12	.040	<.010	<.010
MAY						
09...	9.3	103	.11	.040	<.010	<.010
09...	9.5	104	.14	.020	<.010	<.010
09...	5.2	49	.18	.130	<.010	<.010
JUN						
01...	8.6	99	.10	.040	<.010	<.010
01...	8.6	98	.11	.080	<.010	<.010
01...	2.7	27	.10	.240	<.010	<.010
21...	--	--	<.10	<.010	<.010	<.010
21...	--	--	<.10	<.010	<.010	<.010
21...	--	--	<.10	.270	<.010	<.010
JUL						
11...	7.1	90	<.10	<.010	<.010	<.010
11...	6.9	87	<.10	.020	<.010	<.010
11...	.0	0	<.10	.290	<.010	<.010
AUG						
02...	8.0	101	<.10	.040	<.010	<.010
02...	7.7	95	<.10	.020	<.010	<.010
02...	.0	0	<.10	.300	<.010	<.010
15...	8.3	111	<.10	<.010	<.010	<.010
15...	7.8	102	<.10	.040	<.010	<.010
15...	.0	0	<.10	.390	<.010	<.010
SEP						
05...	7.2	89	<.10	<.010	<.010	<.010
05...	7.1	88	<.10	<.010	<.010	<.010
05...	.0	0	<.10	.340	<.010	<.010
25...	8.5	101	<.10	.020	<.010	<.010
25...	8.5	100	<.10	<.010	<.010	<.010
25...	2.8	32	<.10	.060	<.010	<.010

&lt; Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

209

## 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 year 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TEMPER- ATURE, AIR (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED CENT SATUR- ATION)	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML)
OCT											
14...	0830	3.00	100	7.0	20.0	15.0	775	--	7.7	83	K5
14...	0835	10.0	103	6.9	20.0	15.0	775	--	7.9	85	--
14...	0845	20.0	160	6.7	14.0	15.0	775	--	.0	0	--
14...	0850	30.0	177	6.7	12.0	15.0	775	--	.0	0	--
14...	0855	40.0	145	6.7	12.0	15.0	775	--	.0	0	--
NOV											
04...	0830	3.00	88	6.8	15.0	8.5	755	--	6.7	67	K3
04...	0840	10.0	95	6.8	15.0	8.5	755	--	6.6	66	--
04...	0845	20.0	119	6.7	14.0	8.5	755	--	5.4	53	--
04...	0850	30.0	155	6.7	12.5	8.5	755	--	.0	0	--
04...	0900	40.0	175	6.7	12.0	8.5	755	--	.0	0	--
29...	0830	3.00	105	7.2	11.5	13.0	750	--	8.6	80	--
29...	0845	10.0	120	7.5	11.5	13.0	750	--	8.5	79	--
29...	0855	20.0	103	7.5	11.5	13.0	750	--	8.3	77	--
29...	0900	30.0	110	7.5	11.5	13.0	750	--	8.2	76	--
29...	0905	40.0	100	7.5	11.5	13.0	750	--	8.0	75	--
JAN											
17...	1015	3.00	103	7.3	3.0	2.5	763	--	11.2	83	K2
17...	1020	10.0	96	7.5	3.0	2.5	763	20	11.0	82	--
17...	1030	20.0	115	7.5	3.0	2.5	763	--	10.5	78	--
17...	1040	30.0	117	7.5	3.5	2.5	763	--	10.4	78	--
17...	1045	40.0	101	7.5	3.5	2.5	763	15	10.3	77	--
MAR											
15...	0845	3.00	80	6.6	8.0	8.0	760	--	10.9	92	--
15...	0850	10.0	80	6.6	8.0	8.0	760	30	10.5	89	--
15...	0900	20.0	89	6.8	8.0	8.0	760	--	10.5	89	--
15...	0915	30.0	105	6.8	8.0	8.0	760	--	10.4	88	--
15...	0925	40.0	87	6.7	8.0	8.0	760	25	10.3	87	--
APR											
17...	0855	3.00	103	7.2	15.0	15.0	745	--	10.0	101	K5
17...	0900	10.0	98	7.4	15.0	15.0	745	20	10.0	101	--
17...	0915	20.0	110	7.2	11.5	15.0	745	--	8.9	84	--
17...	0940	30.0	120	6.9	10.5	15.0	745	--	8.0	73	--
17...	0945	40.0	99	6.9	10.0	15.0	745	25	8.1	73	--
MAY											
09...	0900	3.00	88	6.8	19.0	14.0	754	--	9.2	100	K1
09...	0915	10.0	95	6.8	19.0	14.0	754	15	9.3	101	--
09...	0930	20.0	100	6.8	13.0	14.0	754	--	6.6	63	--
09...	0935	30.0	100	6.6	10.5	14.0	754	--	5.4	49	--
09...	0945	40.0	105	6.5	10.0	14.0	754	9	5.2	47	--
JUN											
01...	0925	3.00	105	7.0	21.0	21.5	754	--	8.6	98	K1
01...	0930	10.0	105	7.0	21.0	21.5	754	10	8.7	99	--
01...	0945	20.0	110	6.7	15.0	21.5	754	--	4.5	45	--
01...	0950	30.0	110	6.7	11.0	21.5	754	--	2.2	20	--
01...	1000	40.0	118	6.6	11.0	21.5	754	15	2.1	19	--
21...	0830	3.00	102	7.2	--	26.0	762	--	--	--	K0
21...	0835	10.0	98	7.2	--	26.0	762	30	--	--	--
21...	0845	20.0	101	7.2	--	26.0	762	--	--	--	--
21...	0855	30.0	118	6.5	--	26.0	762	--	--	--	--
21...	0900	40.0	118	6.6	--	26.0	762	20	--	--	--
JUL											
11...	0845	3.00	96	7.3	26.5	25.0	753	--	7.1	90	K2
11...	0850	10.0	97	7.4	26.5	25.0	753	20	7.1	90	--
11...	0900	20.0	105	6.6	18.0	25.0	753	--	1.1	12	--
11...	0905	30.0	112	6.5	12.0	25.0	753	--	.0	0	--
11...	0915	40.0	117	6.5	11.0	25.0	753	20	.0	0	--

K Result based on colony count outside optimal range.



## JAMES RIVER BASIN

0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TEMPER- ATURE, AIR (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
AUG											
02...	0900	3.00	100	7.0	26.0	24.5	760	--	7.6	94	K1
02...	0915	10.0	105	7.0	26.0	24.5	760	1	7.5	93	--
02...	0925	20.0	109	6.5	21.0	24.5	760	--	.0	0	--
02...	0930	30.0	127	6.5	12.0	24.5	760	--	.0	0	--
02...	0945	40.0	140	6.6	11.0	24.5	760	55	.0	0	--
15...	0845	3.00	100	7.0	30.0	27.0	755	--	8.0	107	K3
15...	0900	10.0	100	7.0	29.0	27.0	755	2	7.7	101	--
15...	0915	20.0	117	6.4	18.0	27.0	755	--	.0	0	--
15...	0925	30.0	138	6.6	12.0	27.0	755	--	.0	0	--
15...	0930	40.0	143	6.6	11.0	27.0	755	75	.0	0	--
SEP											
05...	0830	3.00	98	7.1	25.5	18.5	758	--	7.2	89	K5
05...	0845	10.0	100	7.0	25.5	18.5	758	3	7.2	89	--
05...	0850	20.0	125	6.4	18.5	18.5	758	--	.0	0	--
05...	0900	30.0	140	6.6	12.5	18.5	758	--	.0	0	--
05...	0905	40.0	160	6.6	11.5	18.5	758	150	.0	0	--
25...	0845	3.00	98	6.8	25.0	21.0	758	--	7.9	96	K0
25...	0900	10.0	101	7.0	25.5	21.0	758	5	7.9	97	--
25...	0910	20.0	105	6.7	23.0	21.0	758	--	3.4	40	--
25...	0915	30.0	144	6.6	15.0	21.0	758	--	.0	0	--
25...	0920	40.0	165	6.7	14.0	21.0	758	140	.0	0	--

K Result based on colony count outside optimal range.

## JAMES RIVER BASIN

211

0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L 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)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT											
14...	96	--	--	--	--	--	--	--	--	--	--
14...	--	32	4	10	1.7	8.0	1.7	28	4.8	13	.10
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	37	4	12	1.8	7.7	2.2	33	32	14	<.10
NOV											
04...	K5	--	--	--	--	--	--	--	--	--	--
04...	--	34	8	11	1.7	7.9	1.9	27	9.7	14	.20
04...	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--
04...	--	37	7	12	1.8	7.2	2.4	30	31	14	.10
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	32	9	10	1.7	7.3	2.0	23	14	13	.10
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	32	11	10	1.6	7.0	1.9	21	15	12	.10
JAN											
17...	K17	--	--	--	--	--	--	--	--	--	--
17...	--	29	11	9.2	1.4	6.3	1.8	18	13	12	<.10
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	31	11	9.7	1.6	7.1	1.9	20	13	13	<.10
MAR											
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	30	12	9.4	1.5	7.0	1.7	18	16	12	<.10
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	29	11	9.4	1.4	7.0	1.7	18	10	12	<.10
APR											
17...	K8	--	--	--	--	--	--	--	--	--	--
17...	--	28	10	8.9	1.3	6.2	1.8	18	12	11	<.10
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	28	11	9.1	1.4	6.4	1.9	18	12	11	<.10
MAY											
09...	K3	--	--	--	--	--	--	--	--	--	--
09...	--	29	11	9.6	1.3	6.4	1.8	18	11	11	.10
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	30	13	9.6	1.4	6.4	1.8	17	12	11	.10
JUN											
01...	K16	--	--	--	--	--	--	--	--	--	--
01...	--	27	9	8.7	1.4	6.0	1.7	19	9.4	11	<.10
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	28	11	9.1	1.4	6.2	1.8	18	11	11	<.10
21...	K0	--	--	--	--	--	--	--	--	--	--
21...	--	27	8	8.6	1.4	6.0	1.6	19	7.8	9.2	.10
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	30	11	9.5	1.5	6.2	1.9	19	11	11	.10
JUL											
11...	K2	--	--	--	--	--	--	--	--	--	--
11...	--	28	7	9.0	1.4	6.0	1.6	21	9.3	10	<.10
11...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
11...	--	31	10	9.9	1.5	6.2	1.8	21	10	14	<.10

K Result based on colony count outside optimal range.  
 < Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L 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)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
AUG											
02...	K3	--	--	--	--	--	--	--	--	--	--
02...	--	28	6	9.0	1.4	5.7	1.6	22	9.3	9.8	<.10
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	32	9	10	1.6	6.4	1.9	23	10	12	<.10
15...	K5	--	--	--	--	--	--	--	--	--	--
15...	--	28	8	9.1	1.4	5.9	1.6	21	9.4	9.1	.10
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	32	3	10	1.6	6.6	1.8	29	9.6	11	<.10
SEP											
05...	K0	--	--	--	--	--	--	--	--	--	--
05...	--	29	6	9.0	1.5	5.8	1.4	23	7.3	9.6	<.10
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	32	0	10	1.7	6.5	1.9	32	7.4	12	.10
25...	K1	--	--	--	--	--	--	--	--	--	--
25...	--	28	4	8.8	1.5	6.3	1.3	24	6.3	9.8	.10
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	29	0	9.3	1.5	6.0	1.5	34	6.3	13	.20

K Result based on colony count outside optimal range.

&lt; Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

213

0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
14...	--	--	<.10	.020	--	.030	--	<.010	--	--	--
14...	2.2	58	<.10	<.010	.60	.020	--	<.010	32	<1	11
14...	--	--	<.10	.690	--	.010	--	<.010	--	--	--
14...	--	--	<.10	.940	--	.020	--	<.010	--	--	--
14...	2.6	110	<.10	1.00	1.1	.020	--	<.010	13000	900	12
NOV											
04...	--	--	<.10	.210	--	.020	--	<.010	--	--	--
04...	2.2	65	<.10	.130	1.2	.020	--	<.010	150	280	--
04...	--	--	<.10	.400	--	.020	--	<.010	--	--	--
04...	--	--	<.10	1.10	--	.040	--	.020	--	--	--
04...	2.5	110	<.10	1.10	2.2	.030	--	<.010	14000	960	--
29...	--	--	<.10	.250	--	.020	--	<.010	--	--	--
29...	3.2	66	<.10	.200	.90	.030	--	<.010	150	120	6.6
29...	--	--	<.10	.190	--	.020	--	<.010	--	--	--
29...	--	--	<.10	.160	--	.010	--	<.010	--	--	--
29...	3.6	64	<.10	.150	1.1	.040	--	<.010	190	96	6.5
JAN											
17...	--	--	<.10	.150	.50	.030	.010	<.010	260	30	--
17...	4.5	59	<.10	.120	.60	.030	.010	<.010	280	32	6.5
17...	--	--	<.10	.130	.60	.020	.020	<.010	260	20	--
17...	--	--	<.10	.140	.50	.020	.010	<.010	200	20	--
17...	3.3	62	<.10	.170	.50	.020	.010	<.010	150	12	7.8
MAR											
15...	--	--	.19	.150	.80	.070	<.010	<.010	60	<10	--
15...	3.0	62	.19	.130	.60	.050	<.010	<.010	110	5	7.3
15...	--	--	.18	.110	1.5	.060	<.010	<.010	60	<10	--
15...	--	--	.18	.090	.90	.030	<.010	<.010	110	<10	--
15...	3.0	56	.19	.180	.70	<.010	<.010	<.010	120	6	7.5
APR											
17...	--	--	.17	.190	.40	<.010	<.010	<.010	130	10	--
17...	2.0	54	<.10	.030	.90	<.010	<.010	<.010	75	8	3.8
17...	--	--	.13	.570	.70	<.010	<.010	<.010	110	10	--
17...	--	--	.15	.120	.80	<.010	<.010	<.010	150	50	--
17...	2.7	56	.11	.250	1.3	<.010	.010	<.010	150	73	5.1
MAY											
09...	--	--	.14	.020	.60	<.010	<.010	<.010	80	20	--
09...	1.1	53	.13	.040	.60	.010	.010	.010	60	6	6.1
09...	--	--	.19	.100	.50	.010	.010	.010	60	60	--
09...	--	--	.20	.160	.70	<.010	<.010	<.010	130	100	--
09...	2.7	56	.20	.180	.60	<.010	<.010	<.010	88	130	5.0
JUN											
01...	--	--	<.10	.040	4.4	<.010	<.010	<.010	120	10	--
01...	1.0	51	<.10	.030	2.3	<.010	<.010	<.010	110	6	5.5
01...	--	--	.11	.150	2.6	<.010	<.010	<.010	60	130	--
01...	--	--	--	--	--	--	--	--	60	150	--
01...	2.7	55	.12	.250	1.2	<.010	<.010	<.010	95	370	5.1
21...	--	--	<.10	.070	.90	.020	<.010	<.010	160	30	--
21...	1.7	48	<.10	.080	2.4	.020	<.010	<.010	160	17	8.1
21...	--	--	.12	.130	.70	<.010	<.010	<.010	60	250	--
21...	--	--	<.10	.300	.80	<.010	.020	.010	250	620	--
21...	2.9	57	.11	.330	.70	.030	<.010	<.010	290	630	5.3
JUL											
11...	--	--	<.10	.070	.80	.010	<.010	<.010	200	70	--
11...	1.6	52	<.10	.040	.50	<.010	<.010	<.010	150	4	6.9
11...	--	--	<.10	.200	.70	<.010	<.010	<.010	70	210	--
11...	--	--	<.10	.360	.70	<.010	.020	<.010	370	970	--
11...	3.1	61	<.10	.410	.60	.020	<.010	<.010	890	930	6.1

&lt; Actual value is known to be less than the value shown.



## JAMES RIVER BASIN

0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SILICA, DIS- SOLVED (MG/L AS SI02)	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, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
AUG											
02...	--	--	<.10	.040	.40	<.010	<.010	<.010	100	10	--
02...	1.5	52	<.10	.020	.60	<.010	<.010	<.010	97	2	6.3
02...	--	--	<.10	.170	.60	<.010	<.010	<.010	160	470	--
02...	--	--	<.10	.400	.70	<.010	<.010	<.010	3200	1100	--
02...	3.5	67	<.10	.530	1.1	<.010	<.010	<.010	5700	1100	6.7
15...	--	--	<.10	<.010	.30	<.010	<.010	<.010	100	30	--
15...	1.5	51	<.10	<.010	.30	<.010	<.010	<.010	79	6	5.1
15...	--	--	<.10	.180	.40	.010	<.010	<.010	80	760	--
15...	--	--	<.10	.540	.80	.010	<.010	<.010	4300	1100	--
15...	3.6	70	<.10	.660	.80	.010	<.010	<.010	6900	1100	6.0
SEP											
05...	--	--	<.10	<.010	.40	<.010	<.010	<.010	--	--	--
05...	3.1	52	<.10	<.010	.40	<.010	<.010	<.010	170	5	6.4
05...	--	--	<.10	<.010	.40	<.010	<.010	<.010	--	--	--
05...	--	--	<.10	.660	1.1	<.010	<.010	<.010	--	--	--
05...	4.1	75	<.10	.810	1.0	<.010	<.010	<.010	10000	1200	7.0
25...	--	--	<.10	.090	.40	.020	.020	.010	110	20	--
25...	4.0	53	<.10	.030	.90	.010	<.010	<.010	110	3	7.2
25...	--	--	<.10	.050	.30	<.010	.130	<.010	130	300	--
25...	--	--	<.10	.640	1.1	.020	.010	<.010	7600	1300	--
25...	3.0	62	<.10	.880	1.2	.010	.010	<.010	110	6	6.6

&lt; Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

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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.--Water year 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TEMPER- ATURE, AIR (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT								
14...	1130	3.00	90	7.3	21.0	22.5	775	9.7
14...	1135	10.0	83	7.3	20.5	22.5	775	9.6
14...	1140	18.0	160	6.9	16.0	22.5	775	.0
NOV								
04...	1120	3.00	90	7.1	15.0	7.5	755	6.9
04...	1130	10.0	100	7.0	15.0	7.5	755	6.6
04...	1135	18.0	105	6.9	14.0	7.5	755	4.8
MAR								
15...	1145	3.00	112	7.0	8.5	10.0	760	10.4
15...	1150	10.0	91	7.0	8.0	10.0	760	9.7
15...	1155	18.0	104	7.0	8.0	10.0	760	9.0
APR								
17...	1150	3.00	92	7.5	15.0	16.0	744	10.3
17...	1200	10.0	92	7.5	15.0	16.0	744	10.2
17...	1205	18.0	102	7.5	12.5	16.0	744	9.1
MAY								
09...	1355	3.00	100	6.8	20.0	18.0	754	9.2
09...	1400	10.0	100	7.0	19.5	18.0	754	9.1
09...	1405	18.0	100	7.0	19.5	18.0	754	8.8
JUN								
01...	1245	3.00	108	6.8	21.5	21.5	754	9.0
01...	1250	10.0	108	6.9	21.5	21.5	754	8.8
01...	1300	18.0	110	6.9	20.0	21.5	754	5.6
21...	1115	3.00	107	7.8	--	27.0	762	--
21...	1120	10.0	105	7.8	--	27.0	762	--
21...	1130	18.0	108	6.9	--	27.0	762	--
JUL								
11...	1120	3.00	98	7.5	27.0	27.5	753	6.9
11...	1125	10.0	98	7.3	26.5	27.5	753	6.4
11...	1130	20.0	114	6.7	18.5	27.5	753	.0
AUG								
02...	1245	3.00	102	7.0	28.0	25.5	760	7.9
02...	1250	10.0	103	6.9	27.0	25.5	760	7.5
02...	1255	18.0	120	6.5	22.0	25.5	760	.0
15...	1200	3.00	100	6.9	31.0	37.0	755	8.2
15...	1205	10.0	100	7.1	30.0	37.0	755	8.5
15...	1215	18.0	105	6.4	22.5	37.0	755	.0
SEP								
05...	1110	3.00	100	6.8	25.0	25.0	758	7.1
05...	1115	10.0	100	6.8	25.0	25.0	758	7.1
05...	1120	20.0	120	6.5	20.0	25.0	758	.0
25...	1215	3.00	98	6.8	24.5	24.5	758	8.0
25...	1220	10.0	102	6.9	24.0	24.5	758	7.6
25...	1225	18.0	102	6.6	23.0	24.5	758	5.4

## JAMES RIVER BASIN

0204275440 LITTLE CREEK RESERVOIR (NORTHEAST) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
OCT							
14...	107	K5	100	<.10	<.010	.010	<.010
14...	105	--	--	<.10	<.010	.010	<.010
14...	0	--	--	<.10	.750	.020	<.010
NOV							
04...	69	K0	K8	<.10	.090	.020	<.010
04...	66	--	--	<.10	.100	.020	<.010
04...	47	--	--	<.10	.100	.020	<.010
MAR							
15...	89	--	--	.19	.070	.010	<.010
15...	82	--	--	.18	.070	.030	<.010
15...	76	--	--	.17	.070	.020	<.010
APR							
17...	105	K5	K28	.14	.080	<.010	<.010
17...	104	--	--	.11	.070	<.010	<.010
17...	87	--	--	.11	.090	<.010	<.010
MAY							
09...	102	K9	40	.14	.030	.010	<.010
09...	100	--	--	<.10	.010	.030	<.010
09...	97	--	--	.13	.080	<.010	<.010
JUN							
01...	103	K9	44	<.10	.120	<.010	<.010
01...	101	--	--	.15	.390	<.010	<.010
01...	62	--	--	<.10	.100	<.010	<.010
21...	--	--	--	<.10	<.010	<.010	<.010
21...	--	--	--	<.10	.010	<.010	<.010
21...	--	--	--	<.10	.210	<.010	<.010
JUL							
11...	88	K1	K5	<.10	.050	.020	<.010
11...	81	--	--	<.10	.020	<.010	<.010
11...	0	--	--	<.10	.310	.010	<.010
AUG							
02...	101	--	--	<.10	.110	<.010	<.010
02...	94	--	--	<.10	.040	<.010	<.020
02...	0	--	--	<.10	.230	<.010	<.010
15...	112	K1	49	<.10	<.010	<.010	<.010
15...	114	--	--	<.10	<.010	<.010	<.010
15...	0	--	--	<.10	.030	<.010	<.010
SEP							
05...	86	K0	K0	<.10	<.010	<.010	<.010
05...	86	--	--	<.10	<.010	<.010	<.010
05...	0	--	--	<.10	.060	<.010	<.010
25...	97	K0	K0	<.10	.020	.010	<.010
25...	91	--	--	<.10	<.010	.010	<.010
25...	63	--	--	<.10	.020	<.010	<.010

K Result based on colony count outside optimal range.  
 < Actual value is known to be less than the value shown.

## 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 year 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TEMPER- ATURE, AIR (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)
OCT							
14...	1020	3.00	82	7.2	20.0	16.0	774
14...	1030	10.0	115	7.2	20.0	16.0	774
14...	1035	20.0	155	6.8	15.0	16.0	774
14...	1040	35.0	170	6.8	12.0	16.0	774
14...	1050	50.0	145	6.9	11.5	16.0	774
NOV							
04...	1025	3.00	105	6.9	14.5	7.5	755
04...	1030	10.0	108	6.8	14.5	7.5	755
04...	1035	20.0	105	6.8	14.5	7.5	755
04...	1040	35.0	140	6.6	12.0	7.5	755
04...	1045	50.0	175	6.8	12.0	7.5	755
JAN							
17...	1200	3.00	120	7.3	3.0	6.0	763
17...	1210	10.0	115	7.1	3.0	6.0	763
17...	1215	20.0	97	7.2	3.0	6.0	763
17...	1225	35.0	105	7.1	3.0	6.0	763
17...	1230	50.0	100	7.1	3.5	6.0	763
MAR							
15...	1030	3.00	97	6.8	8.5	8.5	760
15...	1040	10.0	97	6.9	8.0	8.5	760
15...	1045	20.0	103	6.9	8.0	8.5	760
15...	1050	35.0	110	6.9	8.0	8.5	760
15...	1055	50.0	92	6.9	8.0	8.5	760
APR							
17...	1045	3.00	94	7.4	15.0	15.0	744
17...	1055	10.0	95	7.5	13.0	15.0	744
17...	1100	20.0	108	7.3	11.0	15.0	744
17...	1105	35.0	99	7.3	10.0	15.0	744
17...	1110	50.0	92	7.0	10.0	15.0	744
MAY							
09...	1140	3.00	110	6.8	18.0	18.0	754
09...	1145	10.0	127	6.9	18.0	18.0	754
09...	1155	20.0	114	7.0	11.0	18.0	754
09...	1200	35.0	107	6.6	10.0	18.0	754
09...	1215	50.0	106	6.5	10.0	18.0	754
JUN							
01...	1130	3.00	110	7.0	21.0	22.0	754
01...	1135	10.0	105	7.2	21.0	22.0	754
01...	1140	20.0	105	7.2	15.0	22.0	754
01...	1145	35.0	105	6.9	11.0	22.0	754
01...	1150	50.0	115	6.8	10.0	22.0	754
21...	1005	3.00	105	7.3	--	27.0	762
21...	1015	10.0	118	7.4	--	27.0	762
21...	1020	20.0	112	7.5	--	27.0	762
21...	1025	35.0	115	6.7	--	27.0	762
21...	1030	50.0	117	6.6	--	27.0	762
JUL							
11...	1010	3.00	97	7.5	26.5	26.5	753
11...	1015	10.0	96	7.5	26.0	26.5	753
11...	1025	20.0	107	6.7	18.0	26.5	753
11...	1030	35.0	111	6.5	11.0	26.5	753
11...	1035	50.0	112	6.5	11.0	26.5	753
AUG							
02...	1110	3.00	100	7.0	26.0	25.0	760
02...	1115	10.0	100	6.5	26.0	25.0	760
02...	1120	20.0	125	6.5	20.0	25.0	760
02...	1125	35.0	152	6.4	11.5	25.0	760
02...	1130	50.0	159	7.0	11.0	25.0	760
15...	1045	3.00	100	7.3	30.0	33.0	755
15...	1050	10.0	100	7.4	30.0	33.0	755
15...	1100	20.0	100	7.3	19.0	33.0	755
15...	1105	35.0	118	6.8	11.5	33.0	755
15...	1110	50.0	132	6.7	11.0	33.0	755
SEP							
05...	1030	3.00	100	6.6	25.0	31.0	758
05...	1035	10.0	100	6.8	25.0	31.0	758
05...	1040	20.0	115	6.4	18.5	31.0	758
05...	1045	35.0	130	6.4	11.5	31.0	758
05...	1050	50.0	142	6.4	11.0	31.0	758
25...	1045	3.00	100	6.8	23.5	23.0	758
25...	1050	10.0	100	7.0	23.5	23.0	758
25...	1055	20.0	108	6.7	21.5	23.0	758
25...	1100	35.0	135	6.5	13.0	23.0	758
25...	1110	50.0	158	6.5	13.0	23.0	758



## JAMES RIVER BASIN

0204275470 LITTLE CREEK RESERVOIR (SOUTH CENTRAL) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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						
14...	9.9	107	<.10	.080	.010	<.010
14...	9.6	104	<.10	.060	.010	.010
14...	.0	0	<.10	.430	.020	<.010
14...	.0	0	<.10	.840	.020	<.010
14...	.0	0	<.10	1.00	.020	<.010
NOV						
04...	5.7	56	<.10	.240	.020	<.010
04...	5.7	56	<.10	.150	.020	<.010
04...	5.7	56	<.10	.190	.020	<.010
04...	.0	0	<.10	.900	.020	<.010
04...	.0	0	<.10	1.10	.030	<.010
JAN						
17...	11.6	86	<.10	.160	.020	<.010
17...	11.2	83	<.10	.160	.010	<.010
17...	11.0	82	<.10	.180	.010	<.010
17...	10.8	80	<.10	.170	.010	<.010
17...	10.8	81	<.10	.170	.010	<.010
MAR						
15...	10.3	88	.20	.110	<.010	<.010
15...	7.9	67	.18	.170	.010	<.010
15...	7.3	62	.13	.160	<.010	<.010
15...	7.0	59	.18	.160	<.010	<.010
15...	6.5	55	.17	.110	<.010	<.010
APR						
17...	10.2	104	.16	.040	<.010	<.010
17...	10.1	98	.14	.060	<.010	<.010
17...	9.5	88	.11	.060	<.010	<.010
17...	8.4	76	.15	.130	<.010	<.010
17...	8.0	73	.11	.200	<.010	<.010
MAY						
09...	9.3	99	.15	.020	<.010	<.010
09...	9.2	98	.14	.060	<.010	<.010
09...	6.8	62	.21	.090	<.010	<.010
09...	6.1	55	.19	.130	<.010	<.010
09...	5.3	47	.19	.200	<.010	<.010
JUN						
01...	9.3	106	.10	.030	<.010	<.010
01...	9.3	106	<.10	.070	<.010	<.010
01...	6.3	63	.17	.120	<.010	<.010
01...	4.1	38	.16	.210	<.010	<.010
01...	3.5	31	.17	.220	<.010	<.010
21...	--	--	<.10	<.010	.010	<.010
21...	--	--	<.10	.030	<.010	<.010
21...	--	--	.11	.030	<.010	<.010
21...	--	--	.15	.200	<.010	<.010
21...	--	--	.19	.250	<.010	.010
JUL						
11...	7.5	95	<.10	.010	<.010	<.010
11...	7.5	94	<.10	.020	<.010	<.010
11...	2.6	28	<.10	.150	<.010	<.010
11...	.0	0	.17	.350	<.010	<.010
11...	.0	0	<.10	.370	<.010	<.010
AUG						
02...	7.3	90	<.10	.010	<.010	<.010
02...	7.2	89	<.10	.030	<.010	<.010
02...	.0	0	<.10	.170	<.010	<.010
02...	.0	0	<.10	.330	<.010	<.010
02...	.0	0	<.10	.440	<.010	<.010
15...	7.7	103	<.10	<.010	<.010	<.010
15...	7.6	102	<.10	<.010	<.010	<.010
15...	.0	0	<.10	.270	<.010	<.010
15...	.0	0	<.10	.320	<.010	<.010
15...	.0	0	<.10	.500	<.010	<.010
SEP						
05...	6.9	84	<.10	<.010	<.010	<.010
05...	6.9	84	<.10	<.010	<.010	<.010
05...	.0	0	<.10	<.010	<.010	<.010
05...	.0	0	<.10	.450	<.010	<.010
05...	.0	0	<.10	.740	<.010	<.010
25...	8.2	97	<.10	<.010	<.010	<.010
25...	8.0	95	<.10	.040	<.010	<.010
25...	3.3	38	<.10	.060	<.010	<.010
25...	.0	0	<.10	.580	<.010	<.010
25...	.0	0	<.10	.780	.010	<.010

&lt; Actual value is known to be less than the value shown.

## JAMES RIVER BASIN

219

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.--Water year 1983 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TEMPER- ATURE, AIR (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)
OCT							
14...	1100	3.00	97	7.1	19.5	16.0	774
14...	1105	10.0	102	6.9	19.5	16.0	774
14...	1110	19.0	122	6.9	16.0	16.0	774
NOV							
04...	1100	3.00	92	6.7	14.0	7.5	755
04...	1105	10.0	110	6.8	14.0	7.5	755
04...	1110	19.0	120	6.7	14.0	7.5	755
JAN							
17...	1245	3.00	120	7.3	3.0	6.0	763
17...	1255	10.0	105	7.3	3.0	6.0	763
17...	1300	20.0	107	7.3	3.0	6.0	763
MAR							
15...	1110	3.00	100	7.0	8.0	9.0	760
15...	1115	10.0	102	7.0	8.0	9.0	760
15...	1120	20.0	95	7.0	7.5	9.0	760
APR							
17...	1120	3.00	95	7.3	15.0	15.0	744
17...	1125	10.0	95	7.3	13.0	15.0	744
17...	1130	20.0	121	7.3	11.0	15.0	744
MAY							
09...	1250	3.00	102	6.9	19.0	18.5	754
09...	1300	10.0	110	7.0	16.0	18.5	754
09...	1305	20.0	114	6.9	11.5	18.5	754
JUN							
01...	1210	3.00	100	6.8	21.0	21.0	754
01...	1215	10.0	105	7.0	21.0	21.0	754
01...	1220	20.0	105	7.0	14.0	21.0	754
21...	1045	3.00	130	7.5	--	27.0	762
21...	1050	10.0	110	7.7	--	27.0	762
21...	1055	20.0	118	6.8	--	27.0	762
JUL							
11...	1050	3.00	95	7.5	26.5	27.0	753
11...	1055	10.0	99	7.4	26.5	27.0	753
11...	1100	20.0	109	7.4	17.5	27.0	753
AUG							
02...	1200	3.00	100	6.9	26.0	25.5	760
02...	1205	10.0	102	7.0	25.0	25.5	760
02...	1215	20.0	128	7.0	20.0	25.5	760
15...	1130	3.00	100	6.9	30.0	35.0	755
15...	1135	10.0	100	7.1	29.0	35.0	755
15...	1140	20.0	100	7.2	19.0	35.0	755
SEP							
05...	1145	3.00	100	6.9	26.0	32.0	758
05...	1150	10.0	105	6.7	26.0	32.0	758
05...	1200	20.0	120	6.3	18.0	32.0	758
25...	1130	3.00	98	6.7	24.0	23.5	758
25...	1140	10.0	100	6.8	23.5	23.5	758
25...	1150	20.0	105	6.6	22.0	23.5	758

## JAMES RIVER BASIN

0204275490 LITTLE CREEK RESERVOIR (WEST) NEAR NORGE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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						
14...	9.0	96	<.10	<.010	.010	<.010
14...	8.4	90	<.10	<.010	.010	<.010
14...	.0	0	<.10	.030	.010	<.010
NOV						
04...	5.1	50	<.10	.230	.060	<.010
04...	5.0	49	<.10	.340	.030	.020
04...	4.9	48	<.10	.170	<.020	<.010
JAN						
17...	11.6	86	<.10	.170	.010	<.010
17...	11.4	85	<.10	.170	.020	<.010
17...	11.1	82	<.10	.160	.010	<.010
MAR						
15...	9.9	84	.17	.100	.030	<.010
15...	9.6	81	.17	.110	<.010	<.010
15...	9.4	79	.17	.110	<.010	<.010
APR						
17...	10.2	104	.16	.070	<.010	<.010
17...	10.3	100	.13	.470	<.010	<.010
17...	9.0	84	.15	.080	<.010	<.010
MAY						
09...	9.2	100	.13	.020	<.010	<.010
09...	9.1	93	.13	.010	<.010	<.010
09...	6.3	58	.20	.080	<.010	<.010
JUN						
01...	9.3	106	<.10	.030	<.010	<.010
01...	5.8	66	.10	.080	<.010	<.010
01...	5.8	57	.12	.060	<.010	<.010
21...	--	--	<.10	.010	<.010	<.010
21...	--	--	<.10	.080	<.010	<.010
21...	--	--	<.10	.020	<.010	<.010
JUL						
11...	7.2	91	<.10	.030	<.010	<.010
11...	7.0	88	<.10	.040	<.010	<.010
11...	1.3	14	.10	.180	<.010	<.010
AUG						
02...	7.4	92	<.10	.100	<.010	<.010
02...	6.7	81	<.10	.240	.010	<.010
02...	.0	0	<.10	.140	<.010	<.010
15...	7.7	103	<.10	.020	<.010	<.010
15...	8.1	106	<.10	.030	<.010	<.010
15...	.0	0	<.10	.160	<.010	<.010
SEP						
05...	7.0	87	<.10	.020	<.010	<.010
05...	6.6	82	<.10	<.010	<.010	<.010
05...	.0	0	<.10	<.010	<.010	<.010
25...	8.3	99	<.10	.030	.020	.010
25...	8.0	95	<.10	.010	.020	.020
25...	3.3	38	<.10	.110	.020	.010

&lt; Actual value is known to be less than the value shown.

## GREAT DISMAL SWAMP BASIN

221

02043500 CYPRESS SWAMP AT CYPRESS CHAPEL, VA

LOCATION.--Lat 36°37'24", long 76°36'07", Nansemond County, Hydrologic Unit 03010205, near center of span on downstream side of highway 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 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 National Geodetic Vertical Datum of 1929. October 1953 to September 1971, recording gage on right bank 30 ft upstream at same datum.

REMARKS.--Records good. Several observations 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, 27.8 ft<sup>3</sup>/s, 15.86 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 above base 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)
Jan. 11	2330	222	4.51	Apr. 16	Unknown	a195	Unknown
Mar. 29	Unknown	a230	Unknown	Apr. 23	2030	*584	5.44
Apr. 5	2100	247	4.64	May 31	1430	270	4.52

a Daily mean discharge; actual peak is known to be less than value shown.

No flow many days during year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.80	17	39	16	38	35	22	166	.00	26	.00
2	.00	.74	14	26	14	27	29	17	59	.00	15	.00
3	.00	.71	14	25	13	22	25	13	28	.00	7.9	.00
4	.00	.71	27	23	14	19	29	12	23	.00	9.9	.00
5	.00	.71	39	22	21	17	187	8.5	18	.00	17	.00
6	.00	.70	49	20	23	45	187	6.6	7.8	.00	4.7	.00
7	.00	.67	90	20	22	126	74	11	3.2	.00	1.7	.00
8	.00	.65	71	18	20	105	37	15	1.4	.00	1.0	.00
9	.00	.62	39	16	18	90	26	20	.95	.00	1.4	.00
10	.00	2.5	28	17	18	81	22	16	.62	.00	62	.00
11	.00	6.7	23	146	17	45	19	8.7	.27	.00	64	.00
12	.02	13	23	188	16	32	16	4.4	.03	.00	19	.00
13	.14	14	47	86	15	32	13	2.3	.00	15	9.3	.00
14	.27	12	74	51	23	68	43	1.2	.00	38	4.5	.07
15	.21	9.7	59	43	140	55	105	.96	.00	14	2.0	11
16	.09	14	69	37	119	34	195	.79	.00	5.1	1.1	4.6
17	.01	16	53	32	55	27	150	.63	.00	1.5	.77	1.0
18	.00	18	37	31	37	22	43	.44	.00	4.2	.52	.76
19	.00	17	42	103	29	19	26	.28	.00	16	7.2	.58
20	.00	14	56	154	24	18	21	.11	.00	8.4	24	.40
21	.07	17	43	94	21	28	19	.00	.00	4.3	7.9	.21
22	.07	18	41	58	17	39	22	.00	.00	63	2.0	.07
23	.13	18	64	35	23	26	394	.00	.00	82	.98	.00
24	.56	20	55	33	96	18	391	.00	.00	37	.81	.00
25	.69	52	42	32	75	15	171	.00	.00	9.5	.66	.00
26	.97	83	38	31	37	30	88	.00	.00	3.5	.40	.00
27	1.3	61	36	27	28	34	56	.00	.00	2.6	.14	.00
28	1.6	37	33	25	61	29	42	.00	.00	8.0	.00	.00
29	1.3	26	49	22	67	230	31	.00	.00	36	.00	.00
30	1.0	21	52	20	---	160	24	.00	.00	73	.00	.00
31	.91	---	50	18	---	59	---	241	.00	60	.00	---
TOTAL	9.34	496.21	1374	1492	1079	1590	2520	437.91	308.27	481.10	291.88	18.69
MEAN	.30	16.5	44.3	48.1	37.2	51.3	84.0	14.1	10.3	15.5	9.42	.62
MAX	1.6	83	90	188	140	230	394	241	166	82	64	11
MIN	.00	.62	14	16	13	15	13	.00	.00	.00	.00	.00
CFSM	.01	.69	1.86	2.02	1.56	2.16	3.53	.59	.43	.65	.40	.03
IN.	.01	.78	2.15	2.33	1.69	2.49	3.94	.68	.48	.75	.46	.03

CAL YR 1983	TOTAL	9588.60	MEAN 26.3	MAX 409	MIN .00	CFSM 1.11	IN 14.99
WTR YR 1984	TOTAL	10098.40	MEAN 27.6	MAX 394	MIN .00	CFSM 1.16	IN 15.78



## 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 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, 5.26 ft June 10; minimum, 4.31 ft Nov. 9.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.60	4.46	4.98	4.80	4.75	4.80	4.75	4.72	5.09	4.93	5.08	5.05
2	4.58	4.42	5.00	4.82	4.83	4.75	4.70	4.69	5.15	4.84	5.09	5.00
3	4.53	4.42	5.09	4.80	4.80	4.74	4.63	4.76	5.19	4.86	5.18	5.00
4	4.45	4.34	5.09	4.80	4.82	4.76	4.64	4.75	5.25	4.80	5.18	5.00
5	4.43	4.34	5.11	4.80	4.82	4.73	4.85	4.78	5.09	4.77	5.18	5.00
6	4.47	4.33	5.15	4.78	4.82	4.80	4.64	4.74	5.19	4.69	5.17	4.95
7	4.44	4.37	5.15	4.75	4.88	4.80	4.70	4.79	5.18	4.66	5.17	4.94
8	4.44	4.36	5.00	4.74	4.87	4.80	4.66	4.96	5.15	4.68	5.19	4.90
9	4.40	4.31	5.04	4.73	4.82	4.84	4.65	5.08	5.19	4.60	5.20	4.86
10	4.40	4.41	5.10	4.76	4.80	4.70	4.70	4.92	5.26	4.58	5.18	4.80
11	4.39	4.50	5.15	4.80	4.78	4.70	4.70	4.97	5.22	4.54	5.18	4.80
12	4.45	4.50	5.06	4.67	4.78	4.70	4.81	5.00	5.21	4.52	5.16	4.80
13	4.45	4.44	5.01	4.69	4.74	4.70	4.84	4.91	5.22	4.72	5.22	4.83
14	4.51	4.40	4.80	4.70	4.73	4.70	4.83	4.88	5.24	4.70	5.20	4.80
15	4.50	4.39	4.75	4.69	4.96	4.70	4.82	4.85	5.22	4.74	5.20	4.90
16	4.48	4.47	4.73	4.67	4.78	4.69	4.86	4.98	5.20	4.73	5.13	4.93
17	4.48	4.45	4.70	4.72	4.71	4.70	4.82	5.00	5.21	4.80	5.10	4.92
18	4.47	4.44	4.74	4.70	4.90	4.70	4.82	5.00	5.24	4.82	5.10	4.92
19	4.44	4.44	4.74	4.75	4.86	4.70	4.80	5.08	5.18	4.98	5.24	4.90
20	4.44	4.43	4.70	4.67	4.88	4.70	4.80	5.08	5.17	4.94	5.18	4.88
21	4.46	4.54	4.68	4.74	4.88	4.66	4.80	5.11	5.18	4.95	5.11	4.90
22	4.44	4.54	4.70	4.71	4.88	4.69	4.77	5.12	5.15	5.10	5.10	4.90
23	4.40	4.57	4.80	4.70	4.83	4.70	4.82	5.16	5.10	5.16	5.10	4.89
24	4.42	4.54	4.87	4.70	4.76	4.64	4.72	5.11	5.06	5.14	5.10	4.90
25	4.50	4.68	4.85	4.72	4.70	4.70	4.74	5.12	5.06	5.14	5.10	4.84
26	4.51	4.74	4.84	4.72	4.78	4.79	4.85	5.20	5.00	5.14	5.10	4.80
27	4.51	4.80	4.80	4.72	4.70	4.77	4.82	5.17	4.94	5.16	5.10	4.80
28	4.50	4.85	4.80	4.72	4.80	4.73	4.78	5.22	4.92	5.18	5.10	4.80
29	4.50	4.92	4.82	4.68	4.80	4.90	4.76	5.18	4.91	5.18	5.10	4.79
30	4.50	4.96	4.82	4.69	---	4.62	4.79	5.23	4.92	5.23	5.10	4.80
31	4.46	---	4.80	4.72	---	4.70	---	5.00	---	5.14	5.10	---
MEAN	4.47	4.51	4.90	4.73	4.81	4.73	4.76	4.99	5.14	4.88	5.14	4.89
MAX	4.60	4.96	5.15	4.82	4.96	4.90	4.86	5.23	5.26	5.23	5.24	5.05
MIN	4.39	4.31	4.68	4.67	4.70	4.62	4.63	4.69	4.91	4.52	5.08	4.79
CAL YR 1983		MEAN 4.67	MAX 5.30	MIN 3.56								
WTR YR 1984		MEAN 4.83	MAX 5.26	MIN 4.31								

## 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 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.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 39.0 ft<sup>3</sup>/s, 13.69 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 Corps of Engineers floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,650 ft<sup>3</sup>/s at 1030 hours Mar. 29, gage height, 13.78 ft, from floodmark, no other peak above base of 1,200 ft<sup>3</sup>/s; minimum daily, 0.50 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.56	2.4	15	32	33	63	68	39	40	9.0	14	5.1
2	1.0	2.5	13	28	28	50	61	34	28	6.7	11	4.0
3	.85	2.5	13	27	27	45	56	34	21	5.2	9.3	3.7
4	.73	2.6	172	25	40	38	137	38	16	4.5	7.8	3.7
5	.69	2.8	82	24	75	90	520	33	14	4.0	39	4.8
6	.73	2.8	79	23	55	240	119	54	12	3.8	17	4.5
7	.66	2.9	123	22	40	105	81	65	11	3.9	10	4.0
8	.60	3.0	50	18	31	83	65	43	10	4.0	7.8	3.7
9	.55	3.0	33	17	28	66	55	34	9.0	3.8	6.7	3.5
10	.50	4.0	27	48	26	53	65	29	8.0	3.5	7.1	3.2
11	.73	6.5	24	500	28	48	47	25	7.3	3.3	7.3	3.2
12	.79	5.0	47	109	28	42	42	24	7.1	5.4	20	3.3
13	1.2	4.5	239	64	26	107	45	22	6.5	33	41	3.1
14	3.0	4.0	79	54	880	420	255	20	5.9	15	17	3.1
15	2.2	7.0	48	53	141	101	513	18	5.5	7.5	12	4.0
16	1.5	90	34	43	86	73	123	16	6.1	6.1	9.0	4.8
17	1.3	22	27	37	63	59	84	16	7.8	5.2	6.9	3.2
18	1.1	14	23	60	52	51	66	16	6.9	34	5.9	2.8
19	1.2	9.4	21	124	43	47	56	15	6.5	23	5.7	2.7
20	1.5	10	19	68	38	45	53	15	5.7	9.5	5.5	2.6
21	4.4	95	17	52	34	74	47	13	4.8	6.9	4.9	2.5
22	5.2	27	195	40	30	63	59	13	4.5	12	4.5	2.4
23	4.6	13	103	30	103	47	280	13	4.2	32	4.3	2.3
24	17	9.5	55	52	440	40	114	25	3.9	18	4.3	2.3
25	12	285	35	150	97	138	77	16	4.0	9.8	4.2	2.4
26	10	95	24	80	66	700	62	13	4.2	7.5	3.9	2.8
27	5.0	42	20	50	62	120	56	12	3.9	71	3.6	3.2
28	3.4	29	116	40	123	360	48	13	3.8	139	4.8	3.4
29	2.8	23	171	36	83	1000	43	98	12	67	30	3.9
30	2.7	18	63	32	---	200	40	330	8.8	29	10	5.4
31	2.5	---	45	36	---	85	---	81	---	19	6.3	---
TOTAL	90.99	837.4	2012	1974	2806	4653	3337	1217	288.4	601.6	340.8	103.6
MEAN	2.94	27.9	64.9	63.7	96.8	150	111	39.3	9.61	19.4	11.0	3.45
MAX	17	285	239	500	880	1000	520	330	40	139	41	5.4
MIN	.50	2.4	13	17	26	38	40	12	3.8	3.3	3.6	2.3
CFSM	.08	.72	1.68	1.65	2.50	3.88	2.87	1.02	.25	.50	.28	.09
IN.	.09	.80	1.93	1.90	2.70	4.47	3.21	1.17	.28	.58	.33	.10

CAL YR 1983	TOTAL	16141.46	MEAN 44.2	MAX 700	MIN .10	CFSM 1.14	IN 15.52
WTR YR 1984	TOTAL	18261.79	MEAN 49.9	MAX 1000	MIN .50	CFSM 1.29	IN 17.55

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 north-west 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--34 years, 316 ft<sup>3</sup>/s, 13.89 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 above base 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. 12	1930	2610	7.49	Mar. 27	1000	3120	8.26
Feb. 15	0130	*9960	15.06	Mar. 30	0400	5970	12.04
Mar. 7	1300	2610	7.49	Apr. 6	1130	2520	7.36

Minimum discharge, 34 ft<sup>3</sup>/s Oct. 8, gage height, 2.43 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	57	145	262	278	525	740	351	837	258	228	105
2	42	55	124	225	256	410	610	319	450	221	187	87
3	43	56	118	210	242	355	525	307	337	184	161	79
4	42	57	186	204	292	319	535	319	276	164	142	96
5	41	56	567	200	365	365	1270	303	240	132	134	119
6	41	54	479	200	424	1610	2300	295	221	132	147	102
7	37	54	476	193	395	2470	1020	455	209	134	147	89
8	35	56	501	178	324	1340	625	460	200	153	122	81
9	36	57	315	164	285	720	515	420	187	127	105	76
10	40	75	234	181	271	570	475	328	175	110	112	75
11	49	104	196	1110	261	480	460	288	164	107	164	75
12	54	103	197	2300	262	415	425	265	158	167	172	76
13	72	88	506	1300	249	505	390	254	150	231	251	75
14	124	79	874	503	3910	1310	805	247	142	410	276	76
15	105	83	501	406	8150	1380	1110	231	137	284	200	78
16	92	192	327	355	3480	695	1560	221	158	184	158	75
17	79	357	251	305	881	545	870	215	184	142	132	81
18	69	276	208	322	610	465	595	212	167	156	114	78
19	63	150	186	839	485	420	490	215	153	212	132	75
20	64	118	166	869	415	400	440	212	140	206	114	71
21	106	192	151	538	360	480	410	206	127	158	102	70
22	143	333	244	390	315	580	420	197	117	142	92	67
23	157	241	659	279	430	465	920	193	110	150	87	63
24	246	168	560	313	1370	380	1450	244	110	164	83	62
25	297	410	315	704	1440	390	815	254	110	156	83	60
26	221	1160	203	946	640	1440	575	224	105	134	78	59
27	163	732	185	575	490	2800	485	203	98	203	75	57
28	129	335	220	428	620	1200	425	221	94	560	73	53
29	95	237	567	357	700	3090	385	276	187	765	105	59
30	74	179	691	311	---	5220	360	1530	234	535	197	67
31	62	---	455	298	---	1890	---	2070	---	307	147	---
TOTAL	2863	6114	10807	15465	28200	33234	22005	11535	5977	6988	4320	2286
MEAN	92.4	204	349	499	972	1072	734	372	199	225	139	76.2
MAX	297	1160	874	2300	8150	5220	2300	2070	837	765	276	119
MIN	35	54	118	164	242	319	360	193	94	107	73	53
CFSM	.30	.66	1.13	1.62	3.15	3.47	2.38	1.20	.64	.73	.45	.25
IN.	.34	.74	1.30	1.86	3.39	4.00	2.65	1.39	.72	.84	.52	.28
CAL YR 1983	TOTAL	138990	MEAN 381	MAX 5030	MIN 28	CFSM 1.23	IN 16.73					
WTR YR 1984	TOTAL	149794	MEAN 409	MAX 8150	MIN 35	CFSM 1.32	IN 18.03					

## CHOWAN RIVER BASIN

225

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 National Geodetic Vertical Datum of 1929. Prior to Oct. 11, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by Baskerville Mill, 33 mi upstream. Several observations 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, 568 ft<sup>3</sup>/s, 13.32 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 above base 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. 16	1930	*11400	19.19	Mar. 31	2330	6350	16.31
Mar. 7	1230	7150	16.89	May 31	0700	4910	15.04

Minimum discharge, 18 ft<sup>3</sup>/s Oct. 11, gage height, 2.30 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	89	290	660	545	1310	4760	631	3390	339	474	190
2	23	77	241	450	501	964	1420	586	1240	333	358	139
3	26	72	218	370	470	807	1040	550	696	282	290	113
4	29	72	314	385	589	717	977	545	520	233	285	120
5	30	71	662	397	947	723	2110	538	417	199	251	156
6	31	72	968	389	996	4190	2770	510	357	163	213	172
7	27	70	1060	380	888	6970	2820	606	317	172	208	143
8	24	69	862	355	730	6000	1350	751	291	177	202	120
9	22	70	694	325	620	3160	1010	737	270	186	168	105
10	20	82	479	337	595	1550	884	644	246	159	306	98
11	19	119	377	2300	578	1170	841	521	225	134	323	95
12	19	167	356	3310	570	991	795	445	206	139	304	107
13	20	158	1200	3240	543	1020	731	397	191	371	263	114
14	26	135	1500	1610	1750	2550	1190	367	179	645	336	136
15	115	129	1250	883	6340	2710	2220	339	166	575	359	124
16	107	202	751	733	10500	1930	3140	307	165	376	273	114
17	80	416	536	635	9680	1210	3100	286	197	252	215	99
18	66	509	427	606	4010	990	1570	274	232	295	207	92
19	54	373	399	1500	1250	881	1100	268	217	569	201	91
20	48	240	378	2020	956	857	919	263	185	393	218	84
21	51	252	332	1320	816	978	828	251	163	314	181	80
22	68	435	421	808	712	1290	822	233	144	254	150	75
23	127	489	959	680	785	1070	2160	218	130	239	131	71
24	215	365	1160	612	2640	838	2960	250	122	230	120	67
25	412	576	748	1230	2880	739	2320	322	119	227	113	64
26	399	1430	447	1860	1970	1370	1300	309	117	212	107	63
27	296	1610	380	1430	1090	2640	969	262	113	201	101	61
28	220	845	507	947	1340	3230	822	243	106	610	95	57
29	177	492	1010	750	1640	3580	727	422	105	1620	106	55
30	136	369	1330	641	---	4930	666	3040	238	1240	133	54
31	106	---	908	584	---	5890	---	4650	---	730	243	---
TOTAL	3017	10055	21164	31747	56931	67255	48321	19765	11064	11869	6934	3059
MEAN	97.3	335	683	1024	1963	2170	1611	638	369	383	224	102
MAX	412	1610	1500	3310	10500	6970	4760	4650	3390	1620	474	190
MIN	19	69	218	325	470	717	666	218	105	134	95	54
CFSM	.17	.58	1.18	1.77	3.39	3.75	2.78	1.10	.64	.66	.39	.18
IN.	.19	.65	1.36	2.04	3.66	4.32	3.10	1.27	.71	.76	.45	.20
CAL YR 1983	TOTAL	255136	MEAN 699	MAX 6670	MIN 13	CFSM 1.21	IN 16.39					
WTR YR 1984	TOTAL	291181	MEAN 796	MAX 10500	MIN 19	CFSM 1.38	IN 18.71					



## CHOWAN RIVER BASIN

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 National Geodetic Vertical Datum of 1929. Prior to June 12, 1957, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 114 ft<sup>3</sup>/s, 13.82 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 above base 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. 15	0800	*3900	13.09	Mar. 29	2130	2400	10.64
Mar. 6	1000	1970	9.87	May 30	1630	1660	9.29

Minimum discharge, 0.32 ft<sup>3</sup>/s Oct. 4-5, gage height, 0.86 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.56	9.2	60	98	131	285	336	130	399	67	90	19
2	.72	8.1	51	80	122	207	264	110	205	54	62	17
3	.59	7.0	47	77	116	174	225	106	143	45	45	17
4	.32	7.5	105	77	182	153	260	109	96	35	34	22
5	.32	7.2	175	79	292	223	550	102	80	25	28	26
6	.91	8.3	161	81	300	1760	487	109	70	32	24	24
7	1.3	7.5	228	78	228	1310	303	150	62	28	20	21
8	1.6	6.8	159	70	172	648	221	151	52	23	17	18
9	1.7	6.7	110	64	152	400	195	170	44	18	15	16
10	1.7	17	85	91	151	300	179	137	37	14	16	14
11	2.0	37	72	977	141	263	173	107	31	13	87	13
12	3.5	41	77	813	137	215	148	91	27	13	160	13
13	5.7	32	399	393	127	392	133	81	24	51	183	13
14	15	25	331	227	1030	872	252	64	22	129	563	14
15	16	27	200	180	3290	578	395	57	20	99	285	16
16	16	90	127	150	1130	337	456	54	22	59	141	17
17	12	103	94	126	444	254	301	51	52	36	87	14
18	7.9	71	76	185	296	209	218	48	48	38	164	11
19	4.8	50	68	564	229	192	173	46	36	50	320	9.4
20	4.6	41	63	472	190	189	156	45	28	39	176	8.0
21	7.8	90	57	296	163	269	143	43	22	42	107	7.1
22	14	103	171	215	142	324	226	40	18	68	70	6.4
23	21	74	288	120	291	237	992	40	15	37	54	6.0
24	84	58	187	136	1020	173	856	55	13	30	43	5.2
25	80	322	107	539	705	247	430	52	12	26	35	4.5
26	59	461	80	497	333	662	261	44	11	29	28	3.9
27	40	278	63	307	237	712	206	42	9.3	195	23	3.3
28	26	137	101	211	373	534	177	63	11	258	20	3.3
29	19	92	329	170	428	1870	161	135	14	319	20	3.6
30	15	70	232	146	---	1580	157	1320	37	205	20	3.6
31	11	---	129	139	---	561	---	938	---	141	20	---
TOTAL	474.02	2287.3	4432	7658	12552	16130	9034	4690	1660.3	2218	2957	369.3
MEAN	15.3	76.2	143	247	433	520	301	151	55.3	71.5	95.4	12.3
MAX	84	461	399	977	3290	1870	992	1320	399	319	563	26
MIN	.32	6.7	47	64	116	153	133	40	9.3	13	15	3.3
CFSM	.14	.68	1.28	2.21	3.87	4.64	2.69	1.35	.49	.64	.85	.11
IN.	.16	.76	1.47	2.54	4.17	5.36	3.00	1.56	.55	.74	.98	.12

CAL YR 1983	TOTAL	48164.63	MEAN 132	MAX 2320	MIN .30	CFSM 1.18	IN 16.00
WTR YR 1984	TOTAL	64461.92	MEAN 176	MAX 3290	MIN .32	CFSM 1.57	IN 21.41

## CHOWAN RIVER BASIN

227

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 National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--43 years, 1,380 ft<sup>3</sup>/s, 13.19 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 OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 29.7 ft, from floodmarks, discharge, 48,000 ft<sup>3</sup>/s, from rating curve extended above 25,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,600 ft<sup>3</sup>/s Feb. 19, gage height, 19.42 ft; minimum, 38 ft<sup>3</sup>/s Oct. 16, gage height, 2.88 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	245	1200	2760	2270	4610	7010	2770	4590	275	2900	382
2	40	212	922	2230	1880	4170	8010	2210	5830	478	2220	378
3	40	187	744	1840	1650	3870	8210	1900	6900	575	1560	286
4	39	170	698	1590	1590	3410	7220	1720	6820	575	2010	231
5	39	160	877	1400	1870	2840	5690	1580	5360	461	2490	227
6	42	157	1340	1300	2400	2730	4510	1510	3260	385	2280	258
7	43	153	1870	1240	2800	3710	4250	1480	1780	319	1680	293
8	43	150	2220	1180	2940	5860	4640	1510	1150	305	1190	269
9	43	148	2250	1100	2870	9160	5200	1690	902	317	869	227
10	40	147	2020	1040	2530	11300	5120	1790	757	293	658	196
11	39	160	1640	1570	2190	10700	4170	1760	651	275	561	179
12	40	180	1370	2700	1990	8720	3210	1520	558	247	752	172
13	39	260	1660	3470	1870	6730	2600	1280	489	369	795	175
14	41	247	2600	4170	2040	5270	2340	1100	434	646	894	196
15	39	210	3300	5180	2970	4480	2650	965	400	956	1230	245
16	38	233	3690	5750	3970	4460	3400	842	374	1020	1580	241
17	93	298	3750	5150	5280	4960	4150	742	341	888	1470	214
18	112	500	3190	3770	8060	5430	4970	667	336	749	1070	188
19	98	688	2430	3000	11100	5100	5730	615	380	869	877	170
20	86	651	1910	3140	11000	4150	5970	575	400	1120	861	158
21	80	526	1570	3600	8800	3400	5220	545	349	1070	1070	151
22	76	492	1380	3770	6240	3070	4030	510	307	1690	980	141
23	82	635	1440	3800	4170	3120	3550	475	271	1600	790	133
24	93	767	2000	3600	3170	3210	4020	478	249	1170	618	123
25	130	829	2360	3040	3230	3100	4810	478	237	819	472	116
26	200	1160	2200	2890	3740	2890	5760	531	220	618	391	111
27	400	1900	1520	3160	4460	2930	6520	556	204	518	324	105
28	485	2330	1250	3500	5270	3320	6230	515	198	660	269	102
29	500	2390	1490	3720	5220	4140	5050	575	194	1520	254	100
30	390	1750	2120	3540	---	5310	3680	1610	212	2470	264	98
31	300	---	2630	2920	---	6190	---	3150	---	2950	329	---
TOTAL	3772	17935	59641	91120	117570	152340	147920	37649	44153	26207	33708	5865
MEAN	122	598	1924	2939	4054	4914	4931	1214	1472	845	1087	196
MAX	500	2390	3750	5750	11100	11300	8210	3150	6900	2950	2900	382
MIN	38	147	698	1040	1590	2730	2340	475	194	247	254	98
CFSM	.09	.42	1.35	2.07	2.85	3.46	3.47	.85	1.04	.60	.77	.14
IN.	.10	.47	1.56	2.39	3.08	3.99	3.87	.99	1.16	.69	.88	.15
CAL YR 1983	TOTAL	634978	MEAN	1740	MAX	10400	MIN	38	CFSM	1.22	IN	16.62
WTR YR 1984	TOTAL	737880	MEAN	2016	MAX	11300	MIN	38	CFSM	1.42	IN	19.32

## 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 TEMPERATURES: October 1946 to September 1947.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 15...	1345	231	95	6.6	9.0	750	1.7	9.9	87	94	150
FER 22...	1315	6110	51	6.3	11.0	758	21	8.2	75	36	41
MAY 16...	1300	840	66	6.9	18.0	760	5.8	7.9	84	23	26
AUG 09...	0830	905	60	6.6	26.0	752	5.3	5.7	71	<1	540

&lt; Actual value is known to be less than the value shown.

DATE	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)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
NOV 15...	27	0	6.9	2.4	7.8	2.5	27	11	7.3	.10	15
FER 22...	14	6	3.5	1.3	3.4	1.7	8.0	9.0	4.6	<.10	8.8
MAY 16...	21	0	5.3	1.8	4.1	1.4	20	4.8	4.7	.10	12
AUG 09...	21	6	5.7	1.6	3.3	1.5	15	9.6	4.8	<.10	12

&lt; Actual value is known to be less than the value shown.

## CHOWAN RIVER BASIN

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02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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, DIS- SOLVED (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)	ARSENIC DIS <sup>4</sup> SOLVED (UG/L AS AS)
NOV 15...	76	70	<.10	.100	1.4	.020	.020	.010	20	<1
FEB 22...	38	38	<.10	.160	.30	.030	<.010	.020	110	1
MAY 16...	60	47	.16	.060	2.2	.060	.030	.010	40	<1
AUG 09...	66	49	.11	.050	.70	.080	.040	.030	100	1

&lt; Actual value is known to be less than the value shown.

DATE	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)	MANGA- NESE <sup>5</sup> DIS <sup>4</sup> SOLVED (UG/L AS MN)
NOV 15...	36	<.5	<1	<1	<3	1	280	3	<4	37
FEB 22...	42	<.5	<1	<1	<3	1	410	3	<4	28
MAY 16...	40	<1	<1	<1	<3	2	910	1	<4	71
AUG 09...	52	<.0	<1	3	<3	3	1100	4	<4	120

&lt; Actual value is known to be less than the value shown.

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)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 15...	<.1	<10	2	<1	<1	59	<6	4	3	88
FEB 22...	<.1	<10	<1	<1	<1	27	<6	15	12	99
MAY 16...	.4	<10	3	<1	<1	46	<6	7	13	96
AUG 09...	.8	<10	6	<1	<1	48	<6	7	16	60

&lt; Actual value is known to be less than the value shown.



## CHOWAN RIVER BASIN

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. Altitude of gage is 20 ft, from topographic map.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,290 ft<sup>3</sup>/s Mar. 8, 1984, gage height, 6.75 ft; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,290 ft<sup>3</sup>/s Mar. 8, gage height, 6.75 ft; no flow many days during year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	168	130	127	211	384	148	502	.11	205	3.0
2	.00	.00	125	105	112	193	280	124	538	.12	181	1.8
3	.00	.00	98	92	102	177	207	112	370	.17	146	1.0
4	.00	.00	100	85	119	150	168	108	248	.11	258	1.1
5	.00	.00	102	84	148	131	173	98	155	.03	325	.86
6	.00	.00	114	83	168	168	177	88	102	.00	245	.44
7	.00	.00	130	85	182	377	188	88	64	.00	207	.29
8	.00	.00	138	89	193	1160	219	86	42	.16	191	.16
9	.00	.00	168	91	190	960	207	87	27	.05	124	.11
10	.00	.00	186	96	168	586	168	85	15	.00	82	.08
11	.00	.00	173	196	148	400	135	81	7.9	.00	63	.14
12	.00	.00	152	245	135	290	110	71	4.7	.17	61	.26
13	.00	.00	190	308	122	247	94	62	2.5	1.8	47	.41
14	.00	.00	215	366	167	260	113	54	1.4	.80	46	2.0
15	.00	.00	280	325	292	255	177	47	.80	.50	49	6.5
16	.00	.00	363	255	479	262	268	40	.47	4.2	50	5.7
17	.00	.00	333	195	622	258	285	32	.35	36	48	3.0
18	.00	.00	258	179	513	219	330	24	.18	61	42	1.8
19	.00	.00	219	219	354	179	345	20	.12	80	51	1.1
20	.00	.00	184	262	255	150	265	14	.06	63	52	.74
21	.00	.00	163	330	201	146	195	9.6	.00	85	48	.92
22	.00	.02	157	400	159	148	168	6.5	.00	238	39	1.1
23	.00	.08	164	320	146	143	292	5.5	.00	348	29	.92
24	.00	.23	159	250	182	136	696	11	.00	282	18	.62
25	.00	18	150	211	215	133	950	9.0	.00	207	10	.38
26	.00	71	132	190	245	146	674	7.2	.00	138	6.0	.29
27	.00	95	120	186	251	163	435	4.9	.00	76	3.9	.17
28	.00	125	110	177	251	164	298	4.4	.00	68	2.9	.26
29	.00	195	120	166	233	253	225	28	.12	107	5.2	.32
30	.00	209	135	155	---	333	179	133	.20	163	7.2	.32
31	.00	---	160	143	---	414	---	184	---	197	5.5	---
TOTAL	.00	713.33	5266	6018	6479	8812	8405	1872.1	2081.80	2157.22	2647.7	35.79
MEAN	.000	23.8	170	194	223	284	280	60.4	69.4	69.6	85.4	1.19
MAX	.00	209	363	400	622	1160	950	184	538	348	325	6.5
MIN	.00	.00	98	83	102	131	94	4.4	.00	.00	2.9	.08
CFSM	.000	.28	1.97	2.25	2.58	3.29	3.24	.70	.80	.81	.99	.01
IN.	.00	.31	2.27	2.59	2.79	3.79	3.62	.81	.90	.93	1.14	.02
CAL YR 1983 TOTAL	35719.04	MEAN	97.9	MAX	1090	MIN	.00	CFSM	1.13	IN	15.38	
WTR YR 1984 TOTAL	44487.94	MEAN	122	MAX	1160	MIN	.00	CFSM	1.41	IN	19.15	

## CHOWAN RIVER BASIN

231

## 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 National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Aug. 13, 1980, at site 25 ft upstream at same datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--43 years, 314 ft<sup>3</sup>/s, 14.50 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,070 ft<sup>3</sup>/s June 5, 1963, gage height, 9.1 ft, from high-water mark in well; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.1 ft, from Corps of Engineers floodmarks, discharge, 10,000 ft<sup>3</sup>/s, from rating curve extended above 4,800 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,990 ft<sup>3</sup>/s Mar. 8, gage height, 6.99 ft; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	360	454	670	640	1420	609	1410	1.9	385	12
2	.00	.00	309	431	605	620	1380	477	1110	1.0	318	6.9
3	.00	.00	295	427	526	566	1230	382	851	.10	296	3.0
4	.00	.00	313	418	503	526	1020	323	869	.00	506	2.9
5	.00	.00	376	413	517	499	903	279	815	.00	448	4.1
6	.00	.00	380	400	562	730	874	253	652	.00	383	4.0
7	.00	.00	440	380	595	2030	872	239	481	.00	299	5.3
8	.00	.00	481	352	585	2940	801	237	334	.00	235	5.8
9	.00	.00	472	328	585	2740	751	251	228	.02	178	5.5
10	.00	.00	422	332	600	2580	739	275	151	.03	154	5.7
11	.00	.00	396	485	600	2280	703	233	98	.03	123	14
12	.00	.00	392	645	580	1770	622	207	63	.00	102	25
13	.00	.00	494	829	553	1430	529	193	39	9.2	79	18
14	.00	.00	655	846	548	1300	492	176	24	41	63	35
15	.00	.00	823	894	730	1210	495	160	15	34	68	40
16	.00	4.4	882	954	1040	1060	620	152	10	43	60	28
17	.00	49	768	936	1260	939	769	137	6.3	43	77	19
18	.00	79	710	840	1310	918	805	118	3.5	55	138	14
19	.00	130	705	780	1330	904	805	102	1.7	95	212	9.5
20	.00	147	675	920	1160	844	804	81	.89	125	234	5.5
21	.00	187	605	980	960	776	853	61	.21	190	256	3.7
22	.00	202	566	930	796	697	867	44	.02	572	240	1.6
23	.00	202	513	900	675	653	1200	33	.00	1390	207	.68
24	.00	208	481	880	605	591	1820	35	.02	860	190	.38
25	.00	274	445	858	595	542	2050	30	5.7	436	182	.25
26	.00	352	368	812	580	527	2020	32	6.2	262	161	.08
27	.00	485	332	752	544	541	1990	29	1.6	185	132	.02
28	.00	557	344	700	562	611	1610	25	.35	208	97	.01
29	.00	535	396	700	625	883	1090	49	.38	349	63	.02
30	.00	440	422	715	---	1350	787	210	1.1	445	40	.04
31	.00	---	472	715	---	1530	---	889	---	450	23	---
TOTAL	.00	3851.40	15292	21006	20801	35227	30921	6321	7177.97	5795.28	5949	269.98
MEAN	.000	128	493	678	717	1136	1031	204	239	187	192	9.00
MAX	.00	557	882	980	1330	2940	2050	889	1410	1390	506	40
MIN	.00	.00	295	328	503	499	492	25	.00	.00	23	.01
CFSM	.000	.44	1.68	2.31	2.44	3.86	3.51	.69	.81	.64	.65	.03
IN.	.00	.49	1.93	2.66	2.63	4.46	3.91	.80	.91	.73	.75	.03

CAL YR 1983 TOTAL 120803.20 MEAN 331 MAX 2820 MIN .00 CFSM 1.13 IN 15.29  
WTR YR 1984 TOTAL 152611.63 MEAN 417 MAX 2940 MIN .00 CFSM 1.42 IN 19.31

## 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 National Geodetic Vertical Datum of 1929. Prior to July 18, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good except those below 20 ft<sup>3</sup>/s, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--42 years, 501 ft<sup>3</sup>/s, 14.92 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, 3,740 ft<sup>3</sup>/s Mar. 10, gage height, 12.10 ft; minimum daily, 0.01 ft<sup>3</sup>/s Oct. 1-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.44	777	691	1100	1060	2250	1770	821	52	731	55
2	.01	.57	689	672	1080	1070	2210	1390	1350	48	728	40
3	.01	.54	577	656	1030	1060	2060	1140	1690	38	624	29
4	.01	.59	511	636	990	1010	1950	969	1500	28	548	24
5	.01	.64	493	624	992	935	2020	809	1250	20	496	18
6	.03	.64	515	617	1020	964	2030	682	1140	15	760	15
7	.02	.71	638	613	1050	1240	1910	597	1070	12	939	14
8	.02	.73	736	594	1070	1990	1750	539	911	14	751	11
9	.02	.81	764	558	1060	3240	1540	498	705	26	551	8.0
10	.02	3.5	782	547	1020	3710	1360	454	505	22	443	6.7
11	.04	8.6	767	867	989	3560	1230	427	341	18	338	7.5
12	.12	12	722	1150	985	3250	1150	419	221	16	269	8.3
13	.14	8.7	785	1330	980	2880	1080	400	133	74	214	40
14	.25	5.5	887	1440	993	2600	1050	351	85	160	159	76
15	.21	5.3	981	1470	1170	2340	1210	300	62	180	121	76
16	.20	9.1	1150	1420	1370	2150	1460	261	48	146	97	54
17	.19	21	1310	1390	1590	1920	1580	234	36	181	84	40
18	.18	15	1330	1390	1850	1630	1590	213	26	159	74	32
19	.18	8.5	1270	1580	1950	1400	1560	194	18	270	113	26
20	.20	6.2	1220	1800	1950	1280	1450	171	12	264	177	21
21	.24	7.9	1160	1810	1870	1280	1340	145	8.8	223	223	17
22	.21	22	1120	1630	1690	1300	1340	119	5.7	239	240	14
23	.30	72	1090	1560	1490	1220	2060	96	3.6	518	243	11
24	.51	102	1010	1420	1390	1110	2760	91	5.7	1010	238	11
25	.63	194	914	1360	1290	1010	3150	86	9.6	1520	215	12
26	5.7	312	786	1350	1190	999	3270	74	14	1290	186	9.9
27	9.9	349	691	1360	1120	970	3110	63	17	880	160	7.5
28	2.0	423	628	1320	1120	919	2880	57	21	576	142	5.6
29	.63	569	632	1240	1100	1120	2600	77	36	504	123	6.0
30	.36	743	660	1160	---	1420	2200	386	33	569	101	7.2
31	.43	---	668	1120	---	1890	---	695	---	658	77	---
TOTAL	22.78	2902.97	26263	35375	36499	52527	57150	13707	12078.4	9730	10165	702.7
MEAN	.73	96.8	847	1141	1259	1694	1905	442	403	314	328	23.4
MAX	9.9	743	1330	1810	1950	3710	3270	1770	1690	1520	939	76
MIN	.01	.44	493	547	980	919	1050	57	3.6	12	74	5.6
CFSM	.002	.21	1.86	2.50	2.76	3.72	4.18	.97	.88	.69	.72	.05
IN.	.00	.24	2.14	2.89	2.98	4.29	4.66	1.12	.99	.79	.83	.06

CAL YR 1983 TOTAL 216592.19 MEAN 593 MAX 3970 MIN .00 CFSM 1.30 IN 17.67  
WTR YR 1984 TOTAL 257122.85 MEAN 703 MAX 3710 MIN .01 CFSM 1.54 IN 20.98

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those during periods of tidal effect in October, November, June, July, and September, which are poor. Low flow reversed by tide some years. Diversion above station by city of Norfolk for municipal supply most years.

AVERAGE DISCHARGE.--40 years, 648 ft<sup>3</sup>/s, 14.26 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, 3,440 ft<sup>3</sup>/s Apr. 25, gage height, 11.26 ft; minimum daily, 0.47 ft<sup>3</sup>/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.47	1.5	533	712	1160	1370	2320	2200	1260	27	1140	80
2	3.5	2.0	592	699	1120	1290	2350	1880	1240	36	1050	68
3	5.4	2.6	588	685	1060	1220	2250	1550	1420	26	926	54
4	7.4	4.1	563	668	1030	1160	2130	1250	1600	20	875	41
5	10	4.2	545	652	1030	1070	2170	992	1500	20	847	30
6	6.0	9.7	558	639	1080	1080	2340	824	1270	21	764	20
7	1.9	4.4	653	636	1150	1370	2290	711	1090	21	861	16
8	1.2	4.4	728	628	1200	1770	2130	643	944	33	915	12
9	1.2	4.4	744	609	1180	2430	1940	604	786	18	811	11
10	.90	7.1	748	596	1140	3080	1740	562	637	5.3	800	12
11	1.0	15	734	941	1080	3340	1530	516	505	4.5	811	14
12	4.4	17	720	1470	1030	3280	1350	477	369	8.5	774	18
13	20	18	832	1640	1010	3100	1220	450	258	28	603	30
14	30	18	1000	1730	1040	2970	1220	423	173	87	431	68
15	14	16	1080	1740	1330	2810	1420	379	108	162	345	133
16	5.3	25	1160	1680	1690	2650	1980	329	83	255	286	134
17	3.9	21	1260	1580	1960	2470	2320	289	67	1570	218	99
18	2.7	24	1320	1520	2070	2240	2310	257	53	1430	190	64
19	2.6	17	1350	1660	2090	1990	2130	232	41	1320	230	40
20	1.2	10	1350	1960	2070	1770	1940	211	30	950	298	24
21	3.2	11	1310	2100	2010	1690	1760	187	22	652	320	19
22	1.1	8.5	1260	2080	1910	1750	1620	160	17	598	333	19
23	4.8	11	1260	1990	1790	1710	2120	132	13	1260	313	17
24	16	28	1240	1810	1750	1600	3020	122	15	1740	286	17
25	11	109	1160	1660	1680	1460	3390	112	16	1740	261	15
26	2.6	302	978	1580	1590	1360	3410	102	8.5	1740	219	15
27	3.2	381	836	1530	1490	1360	3220	91	7.1	1500	200	12
28	4.8	362	744	1490	1470	1340	2960	82	12	1230	170	8.8
29	6.4	372	744	1440	1450	1590	2720	107	13	1090	150	7.8
30	4.2	429	755	1350	---	1960	2490	567	19	1110	130	7.5
31	2.5	---	705	1250	---	2170	---	1190	---	1190	100	---
TOTAL	182.87	2238.9	28050	40725	41660	60450	65790	17631	13576.6	19892.3	15657	1106.1
MEAN	5.90	74.6	905	1314	1437	1950	2193	569	453	642	505	36.9
MAX	30	429	1350	2100	2090	3340	3410	2200	1600	1740	1140	134
MIN	.47	1.5	533	596	1010	1070	1220	82	7.1	4.5	100	7.5
(*)	161.6	425.2	951.6	814.7	0	0	0	0	0	244.6	0	111.8
MEAN#	11.1	88.8	936	1340	1437	1950	2193	569	453	650	505	40.6
CFSM#	.02	.14	1.52	2.17	2.33	3.16	3.55	.92	.73	1.05	.82	.07
IN#	.02	.16	1.75	2.50	2.51	3.64	3.96	1.06	.81	1.21	.94	.08

CAL YR 1983 TOTAL 241009.67 MEAN 660 MAX 3610 MIN .25 MEAN# 660 CFSM# 1.07 IN# 14.53  
WTR YR 1984 TOTAL 306959.77 MEAN 839 MAX 3410 MIN .47 MEAN# 846 CFSM# 1.37 IN# 18.62

\* 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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 16...	0800	19	210	6.6	10.0	747	3.1	6.7	61	100	130
FEB 22...	1000	1920	75	6.3	10.5	760	8.4	8.2	74	54	53
MAY 16...	1000	333	86	6.7	17.0	760	6.7	6.5	67	27	28
AUG 08...	1315	919	72	6.5	25.5	750	2.7	4.8	60	K18	500

K Result based on colony count outside optimal range.

DATE	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)	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)
NOV 16...	81	55	25	4.4	7.3	3.5	26	48	14	.10	7.1
FEB 22...	25	16	7.8	1.2	3.4	1.6	9.0	14	8.0	<.10	4.3
MAY 16...	34	12	11	1.6	3.2	1.7	22	9.7	9.7	<.10	4.5
AUG 08...	28	12	8.9	1.4	2.5	1.7	16	9.9	7.0	<.10	7.2

&lt; Actual value is known to be less than the value shown.

DATE	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)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)
NOV 16...	143	130	<.10	.050	.90	.050	.020	.010	20	<1
FEB 22...	62	46	.13	.020	.50	.020	<.010	<.010	110	1
MAY 16...	60	57	.23	.090	1.5	.050	.030	.020	140	1
AUG 08...	80	50	.11	.040	.90	.070	.030	.020	150	1

&lt; Actual value is known to be less than the value shown.

## CHOWAN RIVER BASIN

235

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 16...	86	<.5	2	<1	<3	2	220	4	<4	220
FEB 22...	55	<.5	<1	<1	<3	1	370	4	<4	25
MAY 16...	59	<.0	<1	<1	<3	<1	1600	8	<4	130
AUG 08...	60	<.0	<1	3	<3	1	1000	2	<4	77

&lt; Actual value is known to be less than the value shown.

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)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 16...	<.1	<10	2	<1	<1	130	<6	11	4	93
FEB 22...	.1	<10	<1	<1	<1	44	<6	18	7	98
MAY 16...	.6	<10	<1	<1	<1	63	<6	6	8	100
AUG 08...	.7	<10	<1	<1	<1	54	<6	13	11	41

&lt; Actual value is known to be less than the value shown.

## 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 National Geodetic Vertical Datum of 1929 (levels by 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.--Records good except those for winter periods, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--37 years, 53.9 ft<sup>3</sup>/s, 13.16 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 above base 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)
Mar. 29	Unknown	*2750	a15.63	Apr. 5	Unknown	2370	a14.00

a From floodmarks.

Minimum discharge, 1.9 ft<sup>3</sup>/s Oct. 10, 11, gage height, 0.70 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	5.3	15	35	39	60	82	42	61	18	21	12
2	2.9	5.3	14	32	36	51	70	37	43	12	18	10
3	2.7	5.4	14	32	36	46	61	38	33	11	15	8.9
4	2.6	5.4	245	31	62	42	193	44	28	10	13	12
5	2.4	5.8	79	32	73	114	640	38	24	9.2	59	12
6	2.2	6.3	121	31	66	358	134	96	23	9.2	22	9.7
7	2.2	6.3	170	30	50	174	89	82	21	11	16	8.7
8	2.1	6.8	46	27	38	104	70	52	19	10	13	8.0
9	2.1	7.4	30	26	38	75	62	40	18	8.4	13	7.7
10	2.0	11	25	92	37	60	74	36	17	7.7	51	7.7
11	2.1	13	21	690	36	54	70	32	15	8.2	52	8.0
12	3.0	9.9	183	122	37	47	57	30	14	15	96	7.7
13	3.6	8.2	346	68	36	213	54	28	13	76	59	7.7
14	8.5	8.2	94	58	1200	560	416	26	12	21	34	8.2
15	4.3	45	52	58	174	117	800	24	11	13	26	10
16	3.0	125	34	48	90	83	160	23	14	11	18	8.2
17	2.8	26	26	42	66	66	102	22	14	10	14	6.6
18	2.7	15	24	107	56	56	77	22	13	106	12	6.4
19	2.9	12	22	169	48	52	64	22	12	41	13	6.4
20	3.5	12	20	90	43	50	60	21	10	18	12	6.2
21	9.9	90	18	56	39	88	54	20	9.4	32	10	6.0
22	9.3	25	281	48	36	66	58	18	9.2	38	9.4	5.7
23	23	16	112	35	192	50	287	27	8.9	30	8.9	5.7
24	63	15	56	49	600	43	126	42	8.7	21	8.9	5.7
25	14	349	34	229	104	239	82	23	9.4	16	8.4	5.5
26	9.6	95	23	94	66	700	64	20	8.4	14	7.5	5.7
27	6.8	37	22	66	67	146	56	19	7.7	50	7.3	5.5
28	5.3	25	180	54	170	272	50	23	14	252	9.1	5.8
29	5.3	20	235	46	87	1600	46	404	41	79	126	8.0
30	5.1	17	66	41	---	174	44	512	19	36	24	11
31	5.1	---	48	46	---	107	---	125	---	25	16	---
TOTAL	217.8	1028.3	2656	2584	3622	5867	4202	1988	550.7	1018.7	812.5	236.7
MEAN	7.03	34.3	85.7	83.4	125	189	140	64.1	18.4	32.9	26.2	7.89
MAX	63	349	346	690	1200	1600	800	512	61	252	126	12
MIN	2.0	5.3	14	26	36	42	44	18	7.7	7.7	7.3	5.5
CFSM	.13	.62	1.54	1.50	2.25	3.40	2.52	1.15	.33	.59	.47	.14
IN.	.15	.69	1.78	1.73	2.42	3.93	2.81	1.33	.37	.68	.54	.16
CAL YR 1983	TOTAL	22487.02	MEAN	61.6	MAX	800	MIN	.82	CFSM	1.11	IN	15.05
WTR YR 1984	TOTAL	24783.70	MEAN	67.7	MAX	1600	MIN	2.0	CFSM	1.22	IN	16.58

## 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 National Geodetic Vertical Datum of 1929. Prior to Nov. 17, 1931, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations 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, 502 ft<sup>3</sup>/s, 12.35 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 above base 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. 12	1500	5180	16.86	Mar. 30	2230	7840	21.39
Feb. 15	1430	*10400	24.74	May 31	1230	4880	16.24
Mar. 7	1430	7460	20.86				

Minimum discharge, 34 ft<sup>3</sup>/s Oct. 9, 10, gage height, 1.55 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	80	233	420	457	911	1150	546	1250	407	436	247
2	71	79	204	385	423	706	903	510	676	399	422	187
3	63	81	197	428	398	620	782	488	520	419	330	161
4	52	81	324	371	464	563	761	490	434	365	270	327
5	44	79	1160	363	642	624	2580	477	375	233	238	328
6	50	78	874	339	722	4990	3590	477	339	218	228	223
7	49	79	1310	323	646	7180	1270	593	316	265	265	179
8	38	80	882	296	520	4410	926	659	289	228	204	154
9	35	81	501	283	469	1360	785	577	268	239	181	141
10	35	92	377	315	472	1010	1330	514	248	206	180	137
11	37	109	316	2870	459	826	2490	442	231	180	321	140
12	43	109	328	4880	450	719	1190	408	219	184	312	144
13	51	108	1580	1480	432	850	883	385	207	420	837	210
14	163	101	2000	749	4380	2870	1270	366	194	521	643	176
15	112	103	794	639	9940	1800	2870	344	192	396	455	176
16	71	277	532	583	7530	1040	2660	328	187	249	328	159
17	63	682	411	501	1480	843	1400	312	197	197	244	143
18	57	338	344	489	853	727	1020	306	207	334	202	128
19	51	204	330	2070	706	663	838	305	198	960	324	121
20	49	161	302	1910	612	629	748	299	181	788	272	117
21	67	349	273	917	543	708	694	286	169	380	207	114
22	100	634	481	552	491	917	653	269	157	305	180	111
23	107	358	1840	498	677	743	1270	258	149	418	150	108
24	455	239	911	564	3210	610	2010	320	146	353	140	105
25	468	895	531	1770	2080	586	1130	399	148	284	130	103
26	276	2910	305	2120	972	2790	842	321	143	224	120	101
27	162	808	350	986	760	2720	721	272	134	267	117	96
28	118	450	460	734	1190	1240	651	296	131	821	115	93
29	100	337	1720	607	1410	4050	598	541	454	2500	661	98
30	88	276	1240	525	---	6690	567	2540	581	973	967	104
31	81	---	626	477	---	5560	---	4490	---	586	409	---
TOTAL	3205	10258	21736	29444	43388	59955	38582	18818	8940	14319	9888	4631
MEAN	103	342	701	950	1496	1934	1286	607	298	462	319	154
MAX	468	2910	2000	4880	9940	7180	3590	4490	1250	2500	967	328
MIN	35	78	197	283	398	563	567	258	131	180	115	93
CFSM	.19	.62	1.27	1.72	2.71	3.50	2.33	1.10	.54	.84	.58	.28
IN.	.22	.69	1.46	1.98	2.92	4.04	2.60	1.27	.60	.96	.67	.31

CAL YR 1983	TOTAL	226422	MEAN 620	MAX 8230	MIN 18	CFSM 1.12	IN 15.26
WTR YR 1984	TOTAL	263164	MEAN 719	MAX 9940	MIN 35	CFSM 1.30	IN 17.73



## CHOWAN RIVER BASIN

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 (revised), 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--26 years, 30.8 ft<sup>3</sup>/s, 13.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,100 ft<sup>3</sup>/s (revised) 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 above base 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. 14	1630	*4640	14.72	Mar. 29	1230	527	7.68
Mar. 6	0630	864	8.96	May 30	1730	315	6.35

Minimum discharge, 0.88 ft<sup>3</sup>/s Oct. 8-9, 10, gage height, 1.72 ft.

REVISIONS.--Peak discharges and annual maximum discharges for some water years have been revised as shown in the following table. These figures supersede those published in the reports for 1973, 1975, 1978-80, and 1983.

Water year	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
1973	Oct. 6, 1972	0100	*7100	16.65
1973	Feb. 2, 1973	2000	1350	10.40
1975	Mar. 30, 1975	1800	1940	11.44
1975	July 14, 1975	1300	*2140	11.75
1975	Sept. 26, 1975	1500	1200	10.08
1978	Mar. 11, 1978	0030	1510	10.70
1978	Apr. 27, 1978	0500	*3500	13.58
1979	Feb. 25, 1979	0300	1980	11.50
1979	Sept. 6, 1979	0430	1030	9.52
1979	Sept. 22, 1979	1830	1350	10.41
1979	Sept. 30, 1979	1930	*3170	13.18
1980	Oct. 1, 1979	0000	*1720	11.08
1983	Mar. 21, 1983	1600	*1200	10.08

\* Annual maximum discharge.

a Stage falling; peak occurred Sept. 30, 1979.

## CHOWAN RIVER BASIN

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02051600 GREAT CREEK NEAR COCHRAN, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	5.9	15	28	27	61	63	32	45	15	28	7.8
2	2.6	5.9	13	24	25	53	54	28	32	12	22	6.9
3	2.3	5.9	14	23	25	48	49	29	25	23	18	6.3
4	1.9	6.2	36	21	44	44	61	31	21	14	16	22
5	1.9	5.7	35	21	54	103	127	26	18	10	14	15
6	1.6	5.9	41	21	49	668	76	33	17	18	16	9.9
7	1.3	6.2	53	19	37	245	55	40	15	15	17	8.1
8	1.2	6.2	29	18	33	113	48	33	14	20	14	7.5
9	1.0	6.2	23	17	31	88	44	47	13	12	9.0	6.9
10	1.2	12	20	31	33	70	54	29	12	9.9	10	7.2
11	1.3	14	18	249	31	61	50	25	11	9.9	18	7.8
12	2.8	9.5	30	95	30	52	42	23	11	36	19	9.0
13	8.4	7.8	98	52	29	92	40	21	10	32	35	11
14	22	7.3	51	43	1980	134	67	20	9.6	23	24	11
15	8.9	13	34	37	555	76	134	18	9.0	14	19	10
16	4.7	39	27	32	145	62	85	17	15	13	13	8.4
17	3.7	22	23	29	100	53	64	17	14	11	10	6.6
18	3.2	13	20	40	82	48	51	17	12	39	10	6.3
19	3.2	11	21	118	68	47	44	17	10	43	15	6.6
20	4.1	12	19	67	60	45	42	15	9.0	18	12	6.3
21	13	42	17	43	52	68	39	14	8.1	16	9.6	6.0
22	11	25	64	35	47	56	41	14	7.5	19	8.7	5.9
23	13	17	58	30	108	44	129	14	7.2	18	8.1	5.7
24	45	15	35	39	188	40	80	25	7.5	14	7.8	5.6
25	27	105	28	147	86	45	55	16	8.1	11	7.2	5.6
26	20	76	24	77	61	86	45	14	6.9	11	6.3	5.6
27	11	33	20	51	60	57	40	14	6.0	29	6.0	5.3
28	8.4	24	46	41	109	78	37	19	14	158	6.3	5.3
29	7.1	21	71	35	88	360	34	46	42	150	26	6.0
30	6.2	17	37	31	---	130	33	229	20	57	15	7.2
31	5.9	---	30	30	---	77	---	101	---	39	9.6	---
TOTAL	247.2	589.7	1050	1544	4237	3204	1783	1024	449.9	909.8	449.6	238.8
MEAN	7.97	19.7	33.9	49.8	146	103	59.4	33.0	15.0	29.3	14.5	7.96
MAX	45	105	98	249	1980	668	134	229	45	158	35	22
MIN	1.0	5.7	13	17	25	40	33	14	6.0	9.9	6.0	5.3
CFSM	.26	.64	1.10	1.62	4.76	3.36	1.94	1.08	.49	.95	.47	.26
IN.	.30	.71	1.27	1.87	5.13	3.88	2.16	1.24	.55	1.10	.54	.29
CAL YR 1983	TOTAL	12046.12	MEAN	33.0	MAX	628	MIN	.51	CFSM	1.08	IN	14.60
WTR YR 1984	TOTAL	15727.00	MEAN	43.0	MAX	1980	MIN	1.0	CFSM	1.40	IN	19.06

## CHOWAN RIVER BASIN

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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Prior to November 1965, low and medium flow regulated by powerplant 0.8 mi above station.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--33 years, 701 ft<sup>3</sup>/s, 12.74 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 above base 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. 13	0200	6060	18.29	Mar. 8	0030	8740	20.99
Feb. 16	0400	*13800	23.96	Mar. 31	1600	8080	20.38

Minimum discharge, 34 ft<sup>3</sup>/s Oct. 10, gage height, 1.95 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	101	285	548	640	1600	4110	725	3980	527	574	287
2	57	100	245	490	596	1140	1560	671	1300	458	451	200
3	84	102	234	485	555	958	1180	635	816	348	407	177
4	75	104	380	475	676	857	1090	632	621	486	360	215
5	61	102	973	445	942	877	2270	604	508	278	279	393
6	54	99	1420	436	1080	5110	4650	582	450	219	231	253
7	60	99	1740	402	1020	8440	2970	703	431	266	248	197
8	55	101	1460	370	829	8240	1490	875	383	242	222	175
9	42	104	815	336	706	3880	1140	789	346	238	197	165
10	36	136	524	387	689	1890	1260	713	317	226	190	161
11	39	146	408	2360	696	1390	2850	574	295	201	220	163
12	49	151	416	5300	682	1150	2160	500	279	212	336	177
13	61	146	1390	4580	644	1190	1330	456	266	357	438	206
14	108	140	2850	1550	3280	2720	1280	425	250	489	950	231
15	195	157	1570	1010	11200	3510	2770	390	240	564	461	203
16	128	304	831	872	12600	1840	4290	364	235	318	375	188
17	94	674	576	770	6350	1320	2740	341	242	238	248	171
18	79	599	450	751	1910	1100	1690	330	253	328	215	161
19	69	300	435	1740	1210	977	1260	329	247	802	229	152
20	68	217	408	3200	1000	922	1070	322	231	1210	299	147
21	82	306	348	1760	873	1070	971	306	217	539	212	143
22	116	689	467	995	777	1300	915	287	208	338	183	140
23	174	600	1600	673	922	1200	1480	277	201	353	172	136
24	453	358	1660	799	2870	919	2700	314	198	395	167	132
25	661	690	849	1400	4070	838	1990	393	198	297	161	128
26	434	2860	419	3040	1890	2130	1290	381	197	240	154	126
27	238	2110	327	1850	1230	4190	1040	300	188	244	150	122
28	164	746	558	1150	1570	2370	899	302	187	653	146	118
29	136	468	1430	919	2090	3680	815	778	261	2730	267	118
30	120	350	2180	782	---	6530	762	3340	866	2120	1230	126
31	108	---	1080	700	---	7790	---	5640	---	917	599	---
TOTAL	4136	13059	28328	40575	63597	81128	56022	23278	14411	16833	10371	5311
MEAN	133	435	914	1309	2193	2617	1867	751	480	543	335	177
MAX	661	2860	2850	5300	12600	8440	4650	5640	3980	2730	1230	393
MIN	36	99	234	336	555	838	762	277	187	201	146	118
CFSM	.18	.58	1.22	1.75	2.94	3.50	2.50	1.01	.64	.73	.45	.24
IN.	.21	.65	1.41	2.02	3.17	4.04	2.79	1.16	.72	.84	.52	.26

CAL YR 1983	TOTAL	319140	MEAN 874	MAX 9240	MIN 17	CFSM 1.17	IN 15.89
WTR YR 1984	TOTAL	357049	MEAN 976	MAX 12600	MIN 36	CFSM 1.31	IN 17.78

## CHOWAN RIVER BASIN

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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 TEMPERATURES: April 1968 to September 1971, October 1972 to September 1978.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 16...	1230	124	90	7.0	10.5	744	7.0	10.7	98	1100	K5300
FEB 23...	0815	735	58	6.8	9.0	750	20	11.0	97	53	48
MAY 17...	0815	344	71	7.2	17.0	761	7.9	9.0	93	40	34
AUG 09...	1230	194	74	7.2	28.0	750	15	7.1	92	<1	86

K Result based on colony count outside optimal range.

&lt; Actual value is known to be less than the value shown.

DATE	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- LINEITY LAB (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 16...	27	0	6.4	2.7	7.3	2.4	30	8.6	6.8	.20	17
FEB 23...	16	0	3.6	1.6	4.6	1.4	16	6.4	4.2	<.10	14
MAY 17...	21	0	5.0	2.1	4.4	1.3	25	9.0	3.5	.10	11
AUG 09...	22	0	5.1	2.3	5.4	1.8	25	3.7	4.8	.10	18

&lt; Actual value is known to be less than the value shown.

DATE	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)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)
NOV 16...	72	70	<.10	.220	1.6	.070	.040	.030	10	<1
FEB 23...	58	46	.10	.090	.30	.020	<.010	<.010	40	<1
MAY 17...	67	52	<.10	.120	3.7	.020	.010	<.010	20	<1
AUG 09...	61	57	<.10	.030	1.0	.060	.040	.020	10	1

&lt; Actual value is known to be less than the value shown.



## CHOWAN RIVER BASIN

02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 16...	28	<.5	<1	<1	<3	1	440	3	7	76
FEB 23...	31	<.5	<1	<1	<3	<1	210	3	<4	52
MAY 17...	29	<1	<1	<1	<3	4	370	1	<4	130
AUG 09...	30	<.0	<1	3	<3	1	320	3	<4	110

&lt; Actual value is known to be less than the value shown.

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)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 16...	<.1	<10	<1	<1	<1	47	<6	<3	14	95
FEB 23...	<.1	<10	1	<1	<1	28	<6	8	22	97
MAY 17...	.2	<10	2	<1	<1	33	<6	3	18	100
AUG 09...	.5	<10	<1	<1	<1	45	<6	<3	26	78

&lt; Actual value is known to be less than the value shown.

## CHOWAN RIVER BASIN

243

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of doubtful or no gage-height record, Oct. 26 to Jan. 4, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 69.7 ft<sup>3</sup>/s, 14.52 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 above base 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. 11	1845	1130	11.71	Mar. 7	0215	1840	14.37
Feb. 14	2300	*4630	18.71	May 30	1900	2560	15.82

Minimum discharge, 0.32 ft<sup>3</sup>/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	5.4	45	89	69	172	127	62	352	33	48	2.4
2	.43	5.0	42	72	63	119	103	53	129	27	33	1.9
3	.48	5.0	46	70	62	99	89	53	77	20	25	1.5
4	.47	5.2	189	67	126	86	104	55	54	14	44	1.5
5	.47	5.0	206	65	194	125	373	47	41	10	29	1.4
6	.47	4.9	329	64	172	1290	349	50	34	8.0	20	1.2
7	.38	4.7	620	61	124	1570	185	74	33	7.0	14	1.0
8	.36	4.6	345	54	93	629	112	70	28	8.3	11	.95
9	.34	4.7	143	49	83	369	91	82	23	7.3	8.5	.85
10	.34	5.2	87	120	82	247	314	61	20	4.8	7.8	1.0
11	.38	6.0	69	987	83	171	629	46	17	4.1	7.5	1.5
12	.44	5.8	105	742	90	133	338	37	14	11	7.8	1.7
13	.61	5.7	541	314	84	176	162	32	13	18	8.8	3.1
14	5.1	10	411	172	1940	346	185	29	11	17	7.8	8.3
15	5.8	41	225	138	3040	276	354	25	9.8	13	7.2	12
16	3.6	193	123	110	735	164	611	23	8.5	9.8	5.5	8.0
17	2.6	122	86	92	259	124	435	20	8.3	10	4.1	5.3
18	2.3	62	72	131	165	103	231	19	8.3	26	3.7	4.1
19	2.2	38	96	494	126	95	143	19	8.0	76	18	3.4
20	2.6	32	91	468	106	95	118	17	7.5	55	15	3.1
21	8.0	106	72	263	91	175	101	16	6.0	27	11	2.7
22	16	88	164	110	78	174	93	14	5.0	27	5.8	2.4
23	57	58	228	90	177	115	289	14	3.9	40	3.6	2.0
24	440	53	146	102	451	85	319	23	3.7	22	3.6	1.7
25	207	392	81	196	299	83	188	22	3.6	16	2.5	1.4
26	85	451	58	220	153	154	115	19	3.6	12	2.0	1.0
27	23	215	50	164	130	169	91	16	3.4	41	1.6	.85
28	11	98	131	112	315	173	76	25	3.6	133	1.3	.70
29	7.5	70	345	91	276	428	68	297	12	219	1.6	.70
30	6.6	56	252	81	---	451	62	1890	23	130	2.5	.60
31	5.8	---	125	77	---	225	---	1420	---	67	3.1	---
TOTAL	896.68	2152.2	5523	5865	9666	8621	6455	4630	964.2	1113.3	364.3	78.25
MEAN	28.9	71.7	178	189	333	278	215	149	32.1	35.9	11.8	2.61
MAX	440	451	620	987	3040	1570	629	1890	352	219	48	12
MIN	.34	4.6	42	49	62	83	62	14	3.4	4.1	1.3	.60
CFSM	.44	1.10	2.73	2.90	5.11	4.26	3.30	2.29	.49	.55	.18	.04
IN.	.51	1.23	3.15	3.35	5.51	4.92	3.68	2.64	.55	.64	.21	.04

CAL YR 1983	TOTAL	35719.75	MEAN	97.9	MAX	1590	MIN	.00	CFSM	1.50	IN	20.38
WTR YR 1984	TOTAL	46328.93	MEAN	127	MAX	3040	MIN	.34	CFSM	1.95	IN	26.43

## ROANOKE RIVER BASIN

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 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.--Records good except those for period of no gage-height record, Nov. 30 to Jan. 3, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--24 years, 109 ft<sup>3</sup>/s, 13.46 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 above base 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)
Feb. 14	0830	*1980	4.70	May 8	2000	802	2.97
Mar. 21	0600	970	3.23				

Minimum daily discharge, 25 ft<sup>3</sup>/s Sept. 23-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	35	86	108	77	182	233	127	98	69	37	63
2	34	34	72	94	82	165	196	120	94	60	36	46
3	31	33	70	81	85	148	175	139	88	61	35	41
4	28	33	283	80	91	137	174	177	84	51	33	65
5	27	33	214	78	84	143	205	146	82	81	32	45
6	27	33	214	78	75	155	177	251	76	75	36	38
7	27	32	166	75	58	153	160	592	74	57	34	35
8	27	32	127	67	63	145	145	630	70	49	31	33
9	27	31	103	67	66	135	143	629	68	44	32	32
10	27	111	94	72	68	125	586	423	66	48	49	32
11	46	89	90	103	70	124	480	310	76	52	125	31
12	135	62	440	71	71	114	344	254	68	43	168	31
13	61	51	422	73	94	207	275	216	90	42	153	30
14	69	46	261	77	1380	292	311	194	84	43	125	29
15	45	58	181	70	618	248	582	172	68	39	82	29
16	38	75	136	68	355	216	461	158	63	41	62	29
17	35	62	112	68	257	183	342	147	65	42	51	27
18	34	54	92	73	204	164	271	139	64	71	46	27
19	33	49	84	71	172	153	229	131	57	50	45	27
20	37	46	76	58	153	140	201	124	54	44	42	27
21	123	47	72	53	135	739	188	119	54	51	38	26
22	105	43	283	50	123	454	195	112	53	52	37	26
23	200	41	387	64	344	293	193	114	63	46	41	25
24	169	69	230	97	662	220	184	114	75	42	40	25
25	86	147	180	166	608	205	168	105	67	41	36	25
26	62	114	150	113	379	186	154	98	54	63	34	25
27	51	90	140	100	283	164	145	110	50	47	33	25
28	43	127	150	97	257	200	139	149	49	42	45	27
29	40	144	220	93	225	520	142	152	55	40	51	29
30	37	100	165	87	---	409	134	117	61	39	39	36
31	35	---	130	80	---	293	---	105	---	37	159	---
TOTAL	1774	1921	5430	2532	7139	7012	7332	6374	2070	1562	1807	986
MEAN	57.2	64.0	175	81.7	246	226	244	206	69.0	50.4	58.3	32.9
MAX	200	147	440	166	1380	739	586	630	98	81	168	65
MIN	27	31	70	50	58	114	134	98	49	37	31	25
CFSM	.52	.58	1.59	.74	2.24	2.06	2.22	1.87	.63	.46	.53	.30
IN.	.60	.65	1.84	.86	2.41	2.37	2.48	2.16	.70	.53	.61	.33
CAL YR 1983	TOTAL	51428	MEAN 141	MAX 2750	MIN 19	CFSM 1.28	IN 17.39					
WTR YR 1984	TOTAL	45939	MEAN 126	MAX 1380	MIN 25	CFSM 1.15	IN 15.54					

## ROANOKE RIVER BASIN

245

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 National Geodetic Vertical Datum of 1929. Prior to July 30, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good. Occasional diurnal fluctuation caused by meat-processing plant above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--41 years, 242 ft<sup>3</sup>/s, 12.79 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.--Maximum discharge, 4,160 ft<sup>3</sup>/s at 1000 hours, Feb. 14, gage height, 6.99 ft, no other peak above base of 3,500 ft<sup>3</sup>/s; minimum, 41 ft<sup>3</sup>/s Oct. 6, 7-10, 11, gage height, 0.92 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	66	187	235	151	404	617	287	208	122	72	121
2	58	64	154	205	157	357	508	278	195	112	70	89
3	50	62	147	185	161	318	439	301	186	121	68	77
4	45	61	838	171	177	287	430	392	179	117	64	99
5	44	59	489	164	162	295	634	346	162	125	61	83
6	42	58	429	157	149	322	518	818	158	137	66	71
7	42	57	415	150	120	314	442	1720	156	141	64	66
8	42	56	307	132	114	300	387	1450	149	132	60	62
9	42	56	248	129	120	284	362	1220	143	117	61	60
10	42	119	208	131	125	275	1530	877	137	105	77	60
11	50	151	178	198	127	264	1190	679	133	101	165	58
12	169	106	976	152	128	235	842	553	130	96	244	56
13	91	90	849	132	147	411	671	458	128	91	221	55
14	102	82	511	140	2830	603	713	400	143	90	242	55
15	73	98	353	135	1400	498	1280	350	127	86	149	53
16	60	149	276	127	813	434	1050	314	131	84	110	52
17	55	125	229	128	588	378	819	289	137	84	92	51
18	53	108	195	150	455	336	668	281	128	108	85	50
19	52	97	174	140	377	314	561	278	119	125	86	52
20	55	91	156	115	339	290	484	278	109	107	76	51
21	170	91	141	110	295	1310	437	276	102	98	70	50
22	197	83	660	105	275	1040	484	259	102	105	67	50
23	373	78	1000	135	1180	702	535	245	100	98	69	49
24	414	118	500	165	1840	545	502	228	118	94	75	50
25	193	279	360	230	1320	553	445	214	127	87	64	49
26	132	235	300	255	854	639	397	206	111	120	60	48
27	104	182	295	238	647	522	363	203	98	102	58	49
28	89	260	320	224	588	661	340	225	92	97	58	53
29	79	325	460	208	502	1610	336	297	90	91	87	58
30	72	239	365	195	---	1100	310	231	91	83	81	62
31	68	---	285	182	---	780	---	214	---	75	223	---
TOTAL	3116	3645	12005	5123	16141	16381	18294	14167	3989	3251	3045	1839
MEAN	101	122	387	165	557	528	610	457	133	105	98.2	61.3
MAX	414	325	1000	255	2830	1610	1530	1720	208	141	244	121
MIN	42	56	141	105	114	235	310	203	90	75	58	48
CFSM	.39	.48	1.51	.64	2.17	2.05	2.37	1.78	.52	.41	.38	.24
IN.	.45	.53	1.74	.74	2.34	2.37	2.65	2.05	.58	.47	.44	.27
CAL YR 1983	TOTAL	107103	MEAN 293	MAX 5690	MIN 34	CFSM 1.14	IN 15.50					
WTR YR 1984	TOTAL	100996	MEAN 276	MAX 2830	MIN 42	CFSM 1.07	IN 14.62					



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, and 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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to June 7, 1937, nonrecording gage on downstream side of highway bridge 50 ft upstream at same datum.

REMARKS.--Records fair. Prior to 1949, diurnal fluctuation at low flow caused by powerplants above station. Appalachian Power Co. gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--85 years, 373 ft<sup>3</sup>/s, 12.82 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 flood-marks; 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 above base 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)
Dec. 12	1615	2830	4.81	Apr. 10	1500	2690	4.67
Feb. 14	1300	*6820	8.16	May 7	1930	3130	5.11
Feb. 23	2300	4370	6.24	Aug. 30	2400	3870	5.80
Mar. 29	1230	3080	5.06				

Minimum discharge, 42 ft<sup>3</sup>/s Oct. 7, 8, 10, 11, gage height, 0.39 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	112	349	370	254	644	924	422	255	184	96	263
2	72	106	289	350	246	573	763	390	238	139	92	161
3	65	102	270	325	244	509	660	485	223	137	89	201
4	57	99	1270	295	260	458	682	618	208	140	86	175
5	53	96	968	283	248	461	884	567	196	163	83	138
6	50	93	789	268	233	497	788	1160	187	200	83	112
7	48	90	834	260	210	487	682	2500	177	173	84	100
8	49	89	613	236	160	466	598	2200	167	134	75	95
9	49	87	473	220	170	443	548	1700	160	116	78	91
10	48	415	389	232	180	400	1930	1220	180	109	113	89
11	230	317	330	285	189	387	1840	925	163	123	526	85
12	283	228	1790	265	191	356	1260	762	154	124	612	82
13	247	181	1680	237	312	584	988	653	152	114	332	79
14	129	157	1000	242	5010	881	980	565	172	111	319	79
15	114	217	701	235	2510	767	1810	495	153	110	236	80
16	90	249	527	228	1330	680	1610	443	142	112	165	75
17	79	247	424	223	926	593	1230	403	176	109	134	72
18	73	211	357	242	733	528	985	373	149	168	123	70
19	71	180	317	245	618	484	820	352	134	151	118	70
20	97	167	286	196	558	448	716	329	124	119	111	70
21	344	153	263	160	482	1750	649	310	120	131	98	69
22	361	143	976	150	430	1560	709	316	120	132	93	66
23	861	130	1500	170	1460	1050	787	316	131	130	94	65
24	980	210	952	209	3060	811	772	301	181	111	96	64
25	438	450	500	313	1910	762	691	272	159	102	92	61
26	277	443	400	409	1230	867	612	257	133	360	85	59
27	207	350	350	366	924	766	549	261	118	162	80	58
28	166	429	450	351	865	976	511	301	115	116	161	65
29	142	596	737	328	781	2610	496	385	115	107	105	67
30	129	451	534	306	---	1790	456	338	178	101	459	110
31	118	---	409	295	---	1200	---	277	---	98	802	---
TOTAL	5994	6798	20727	8294	25724	24788	26930	19896	4880	4286	5720	2871
MEAN	193	227	669	268	887	800	898	642	163	138	185	95.7
MAX	980	596	1790	409	5010	2610	1930	2500	255	360	802	263
MIN	48	87	263	150	160	356	456	257	115	98	75	58
CFSM	.49	.58	1.69	.68	2.25	2.03	2.27	1.63	.41	.35	.47	.24
IN.	.56	.64	1.95	.78	2.42	2.33	2.54	1.87	.46	.40	.54	.27

CAL YR 1983	TOTAL	173702	MEAN 476	MAX 9780	MIN 38	CFSM 1.21	IN 16.36
WTR YR 1984	TOTAL	156908	MEAN 429	MAX 5010	MIN 48	CFSM 1.09	IN 14.78

## 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 National Geodetic Vertical Datum of 1929 (Norfolk and Western Railway bench mark).

REMARKS.--Records good. Several observations 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, 11.8 ft<sup>3</sup>/s, 13.70 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 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 above base 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. 14	0500	260	3.84	Aug. 11	2400	1260	6.97
May 6	1000	314	4.12	Aug. 14	0130	888	6.12
June 30	2215	*1350	7.13	Aug. 30	2240	637	5.41

Minimum discharge, 1.8 ft<sup>3</sup>/s Oct. 4, 5, 10; minimum gage height, 1.19 ft Aug. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	3.1	6.6	12	8.3	25	30	22	11	32	5.1	20
2	2.4	3.0	5.9	12	8.0	23	27	20	11	16	5.2	17
3	2.2	3.3	5.9	11	8.6	21	25	26	10	14	4.8	16
4	2.0	3.1	4.6	11	8.6	20	38	28	10	11	4.6	14
5	1.9	3.0	21	10	7.7	21	41	23	9.6	9.0	4.6	11
6	2.0	3.0	28	9.5	8.0	20	31	78	9.5	8.3	4.7	10
7	2.0	3.0	24	9.0	7.2	18	28	50	8.9	7.8	4.6	9.6
8	2.1	3.1	17	8.5	6.0	17	25	40	8.6	7.0	4.4	8.8
9	2.0	3.0	14	8.0	6.6	16	24	35	8.2	6.7	4.5	8.5
10	2.0	9.2	12	11	6.9	16	36	29	8.0	6.7	4.2	8.4
11	4.7	5.7	11	12	6.9	16	30	26	8.2	6.6	188	8.1
12	3.9	4.7	35	9.4	6.9	15	27	24	8.0	6.3	166	7.8
13	4.1	4.1	28	8.9	11	25	25	22	7.7	6.3	37	7.6
14	3.4	4.1	21	8.7	118	23	42	21	7.4	6.0	126	7.2
15	2.6	8.0	18	8.4	41	21	57	19	7.0	5.9	31	7.2
16	2.2	7.4	14	8.5	31	20	45	18	7.1	6.0	25	6.9
17	2.1	5.5	12	8.3	27	18	36	17	7.1	6.5	22	6.6
18	2.1	4.5	11	8.9	24	18	32	17	6.7	6.8	21	6.5
19	2.3	4.1	11	8.2	23	17	29	16	6.3	6.0	20	6.1
20	3.3	3.9	9.9	7.0	22	16	27	15	6.1	6.0	18	6.1
21	7.7	3.9	9.2	5.5	19	36	27	14	6.1	17	15	7.1
22	4.1	3.4	40	5.2	17	27	33	16	6.1	7.9	13	6.6
23	20	3.3	32	6.0	60	23	33	16	6.3	6.8	12	6.1
24	9.2	6.2	24	11	46	21	29	14	7.7	6.0	11	5.9
25	5.5	16	17	23	34	23	27	13	6.7	5.7	10	5.6
26	4.5	9.2	14	13	29	22	25	12	6.0	5.6	9.9	5.8
27	3.9	6.9	12	11	27	20	24	13	5.7	5.9	10	5.8
28	3.6	11	40	9.6	31	42	26	14	9.5	5.4	10	6.3
29	3.4	11	22	9.2	28	75	25	15	7.1	5.2	9.5	6.1
30	3.3	8.0	15	9.2	---	41	24	13	113	5.2	48	6.6
31	3.3	---	14	8.6	---	34	---	12	---	5.1	37	---
TOTAL	120.5	167.7	590.5	301.6	677.7	750	928	698	340.6	256.7	923.9	255.3
MEAN	3.89	5.59	19.0	9.73	23.4	24.2	30.9	22.5	11.4	8.28	29.8	8.51
MAX	20	16	46	23	118	75	57	78	113	32	188	20
MIN	1.9	3.0	5.9	5.2	6.0	15	24	12	5.7	5.1	4.4	5.6
CFSM	.33	.48	1.62	.83	2.00	2.07	2.64	1.92	.97	.71	2.55	.73
IN.	.38	.53	1.88	.96	2.15	2.38	2.95	2.22	1.08	.82	2.94	.81

CAL YR 1983	TOTAL	5627.3	MEAN 15.4	MAX 258	MIN 1.7	CFSM 1.32	IN 17.89
WTR YR 1984	TOTAL	6010.5	MEAN 16.4	MAX 188	MIN 1.9	CFSM 1.40	IN 19.11

## 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 Co. 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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Flow regulated by dam and powerplant 200 ft above station. Several observations 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, 514 ft<sup>3</sup>/s, 13.63 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 above base 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. 14	1040	*9410	11.75	May 7	2000	3870	8.02
Feb. 23	2315	5770	9.55	Aug. 12	0230	7850	10.89
Mar. 29	1315	4080	8.21	Aug. 31	0045	5410	9.29

Minimum discharge, 5.6 ft<sup>3</sup>/s July 12, gage height, 0.33 ft; minimum daily, 89 ft<sup>3</sup>/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	207	484	550	387	900	1290	617	346	542	202	470
2	163	200	409	520	365	803	1060	584	365	300	195	336
3	128	193	384	459	362	728	920	726	346	243	194	401
4	126	156	1710	452	379	661	982	926	332	246	175	459
5	142	178	1250	432	370	676	1340	822	318	246	159	317
6	134	174	1070	415	354	709	1150	1760	308	356	165	266
7	89	227	1080	401	300	685	983	3230	300	327	202	238
8	137	175	804	369	250	657	857	2880	294	249	153	212
9	131	176	642	348	255	627	785	2220	287	230	165	215
10	106	715	543	365	260	572	2390	1630	290	232	225	194
11	439	452	472	441	260	552	2340	1260	321	223	1290	237
12	520	348	2190	409	269	557	1660	1040	287	238	2760	177
13	379	290	2090	367	438	865	1320	888	219	212	874	185
14	292	304	1290	365	6720	1210	1320	779	308	231	878	203
15	247	345	915	360	3380	1060	2320	695	297	199	537	201
16	181	372	708	349	1850	932	2150	632	244	241	397	163
17	163	362	584	347	1320	816	1680	592	291	201	311	163
18	153	324	508	371	1030	732	1350	560	244	295	287	172
19	145	297	463	389	862	685	1130	513	247	268	281	165
20	233	290	427	300	775	619	984	509	232	207	245	199
21	537	254	397	250	680	2220	883	423	239	265	237	153
22	513	208	1470	220	611	2080	1000	514	227	236	230	193
23	1250	240	1970	260	1990	1420	1090	508	224	229	226	141
24	1280	320	1360	329	4030	1100	1060	457	303	237	188	165
25	651	685	700	427	2490	1020	951	414	301	211	213	178
26	384	599	600	555	1680	1120	845	390	247	465	206	126
27	346	486	500	508	1280	1000	763	419	238	391	203	159
28	299	595	700	489	1230	1360	720	476	204	201	229	183
29	255	744	1040	462	1100	3500	712	582	254	231	300	140
30	214	596	782	442	---	2460	658	510	290	148	666	207
31	208	---	650	428	---	1660	---	422	---	235	1480	---
TOTAL	9986	10512	28192	12379	35277	33986	36693	27978	8403	8135	13873	6618
MEAN	322	350	909	399	1216	1096	1223	903	280	262	448	221
MAX	1280	744	2190	555	6720	3500	2390	3230	365	542	2760	470
MIN	89	156	384	220	250	552	658	390	204	148	153	126
CFSM	.63	.68	1.78	.78	2.38	2.14	2.39	1.76	.55	.51	.88	.43
IN.	.73	.76	2.05	.90	2.56	2.47	2.67	2.03	.61	.59	1.01	.48

CAL YR 1983	TOTAL	249325	MEAN 683	MAX 13900	MIN 84	CFSM 1.33	IN 18.11
WTR YR 1984	TOTAL	232032	MEAN 634	MAX 6720	MIN 89	CFSM 1.24	IN 16.86

## ROANOKE RIVER BASIN

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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 National Geodetic Vertical Datum of 1929. Prior to Apr. 4, 1975, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--10 years, 61.9 ft<sup>3</sup>/s, 14.80 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 above base 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. 10	1300	602	4.44	Mar. 29	0700	623	4.51
Feb. 14	0545	*1600	7.11	Aug. 11	2345	1030	5.72
Feb. 23	1830	969	5.56	Aug. 31	0030	657	4.62

Minimum discharge, 5.8 ft<sup>3</sup>/s Oct. 8, 9, gage height, 0.66 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	20	52	58	39	99	141	72	49	26	15	50
2	11	19	44	52	37	91	118	67	46	23	15	30
3	9.3	18	41	50	39	84	106	81	44	22	14	29
4	7.7	18	231	49	42	76	117	118	41	20	13	120
5	6.7	17	126	43	40	81	171	89	39	39	11	40
6	6.3	17	110	41	38	83	128	182	38	34	11	30
7	6.0	16	95	39	33	75	112	207	36	26	10	28
8	6.0	16	76	37	28	69	100	176	35	21	9.7	28
9	5.9	16	63	35	29	65	95	163	33	19	9.4	26
10	6.1	201	54	38	31	62	260	133	33	18	12	20
11	25	106	47	56	32	61	201	115	34	17	132	22
12	92	57	316	42	33	58	155	104	31	17	250	20
13	34	42	242	41	47	143	134	93	30	17	133	17
14	57	35	143	41	984	151	141	86	31	17	85	18
15	22	49	104	38	321	116	211	77	28	16	44	19
16	16	67	80	37	184	105	170	71	29	20	31	15
17	13	47	65	37	139	94	144	68	32	20	25	13
18	12	39	55	41	118	86	126	65	29	31	20	13
19	12	34	50	43	98	82	113	63	25	23	21	13
20	13	31	45	34	86	76	105	59	23	17	19	13
21	95	31	42	27	76	242	99	56	22	18	16	13
22	78	27	208	24	68	166	104	55	22	22	15	11
23	203	25	202	28	360	128	107	58	24	20	16	11
24	153	34	123	35	379	111	99	56	33	19	17	12
25	97	114	70	100	201	107	93	50	34	16	15	12
26	53	78	60	62	146	100	87	49	25	20	14	11
27	38	58	50	52	123	90	82	54	22	19	13	11
28	30	76	70	51	128	155	80	68	20	17	14	11
29	26	84	130	48	119	445	80	75	20	16	26	13
30	23	63	100	45	---	237	76	57	21	16	49	16
31	21	---	70	44	---	172	---	52	---	16	300	---
TOTAL	1186.2	1455	3164	1368	3998	3710	3755	2719	929	642	1375.1	685
MEAN	38.3	48.5	102	44.1	138	120	125	87.7	31.0	20.7	44.4	22.8
MAX	203	201	316	100	984	445	260	207	49	39	300	120
MIN	5.9	16	41	24	28	58	76	49	20	16	9.4	11
CFSM	.67	.85	1.80	.78	2.43	2.11	2.20	1.54	.55	.36	.78	.40
IN.	.78	.95	2.07	.90	2.62	2.43	2.46	1.78	.61	.42	.90	.45

CAL YR 1983	TOTAL	30322.7	MEAN	83.1	MAX	1630	MIN	3.5	CFSM	1.46	IN	19.86
WTR YR 1984	TOTAL	24986.3	MEAN	68.3	MAX	984	MIN	5.9	CFSM	1.20	IN	16.36



## ROANOKE RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Appalachian Power Company gage-height telemeter at station. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--8 years, 137 ft<sup>3</sup>/s, 16.18 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.--Maximum discharge, 1,690 ft<sup>3</sup>/s at 1100 hours Feb. 14, gage height, 6.25 ft, no other peak above base of 1,500 ft<sup>3</sup>/s; minimum, 20 ft<sup>3</sup>/s Oct. 8, 9, 11, gage height, 1.44 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	56	110	147	90	201	246	155	115	92	64	89
2	32	55	100	145	88	189	219	139	108	87	62	67
3	31	54	100	141	91	180	203	157	103	128	63	58
4	26	53	401	132	96	173	217	262	96	71	56	54
5	24	51	232	113	92	176	308	178	92	70	52	53
6	23	50	185	107	88	187	229	259	91	87	51	49
7	23	50	171	102	80	171	205	330	87	72	52	47
8	23	49	140	97	74	161	191	289	83	64	48	47
9	23	49	126	93	79	155	183	263	81	57	48	48
10	23	186	116	97	80	149	354	218	80	58	77	46
11	31	179	109	139	79	149	283	196	77	78	156	46
12	125	103	432	111	80	142	241	181	76	59	195	45
13	78	85	370	102	88	282	221	168	75	55	169	43
14	128	75	235	102	1110	299	297	156	80	58	157	47
15	61	94	186	101	502	217	379	145	72	64	94	46
16	47	168	155	96	290	199	285	138	70	83	74	41
17	42	113	136	95	225	185	253	133	78	70	65	40
18	39	94	125	102	194	176	230	130	73	280	62	40
19	39	85	117	118	174	174	212	126	66	108	66	40
20	44	82	110	97	158	166	200	121	61	72	59	41
21	143	82	105	90	144	368	192	115	61	76	53	39
22	175	74	348	80	135	288	197	113	61	83	53	37
23	230	70	376	100	510	235	205	121	64	73	53	38
24	295	94	226	115	579	211	189	118	75	69	56	37
25	184	207	130	127	340	213	175	107	80	63	51	36
26	108	152	115	121	261	228	166	104	64	130	49	34
27	84	118	140	107	230	200	160	110	58	80	46	34
28	72	128	170	105	239	404	156	158	56	69	47	37
29	64	164	229	103	236	817	160	236	75	67	57	46
30	60	125	153	98	---	394	154	148	69	65	91	49
31	57	---	150	99	---	290	---	124	---	63	274	---
TOTAL	2359	2945	5798	3382	6432	7379	6710	5198	2327	2551	2500	1374
MEAN	76.1	98.2	187	109	222	238	224	168	77.6	82.3	80.6	45.8
MAX	295	207	432	147	1110	817	379	330	115	280	274	89
MIN	23	49	100	80	74	142	154	104	56	55	46	34
CFSM	.66	.85	1.63	.95	1.93	2.07	1.95	1.46	.68	.72	.70	.40
IN.	.76	.95	1.88	1.09	2.08	2.39	2.17	1.68	.75	.83	.81	.44
CAL YR 1983	TOTAL	58343	MEAN 160	MAX 3630	MIN 17	CFSM 1.39	IN 18.87					
WTR YR 1984	TOTAL	48955	MEAN 134	MAX 1110	MIN 23	CFSM 1.17	IN 15.84					

## ROANOKE RIVER BASIN

251

## 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 above 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 furnished by 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, 1,144,200 acre-ft Dec. 2, Feb. 14, 16, elevation, 795.1 ft; minimum, 1,036,300 acre-ft Oct. 7, 8, 20, elevation, 789.8 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	791.5	1070600	
Oct. 31.....	792.2	1084900	+14300
Nov. 30.....	792.7	1095100	+10200
Dec. 31.....	794.3	1127700	+32600
CAL YR 1983.....			-8200
Jan. 31.....	793.9	1119600	-8100
Feb. 29.....	794.0	1121600	+2000
Mar. 31.....	794.8	1137900	+16300
Apr. 30.....	794.8	1137900	0
May 31.....	794.8	1137900	0
June 30.....	794.0	1121600	-16300
July 31.....	794.8	1137900	+16300
Aug. 31.....	794.7	1135900	-2000
Sept. 30.....	794.2	1125700	-10200
WTR YR 1984.....			+55100

## ROANOKE RIVER BASIN

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 National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Nov. 18, 1963, nonrecording gage at same site and datum.

REMARKS.--Records good. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--21 years, 367 ft<sup>3</sup>/s, 14.24 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 above base 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. 14	1930	*6770	12.25	Mar. 29	0600	6720	12.17

Minimum discharge, 69 ft<sup>3</sup>/s Oct. 8, gage height, 2.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	162	291	410	253	461	660	404	389	272	249	481
2	83	158	265	380	245	417	573	384	355	284	237	290
3	94	158	273	370	257	385	523	442	333	370	221	250
4	87	156	1700	396	290	364	607	1130	312	287	212	243
5	79	152	1050	345	279	401	1090	626	298	243	201	227
6	74	149	584	289	263	53	709	595	293	480	232	213
7	74	149	536	282	249	46	566	834	285	336	376	205
8	71	149	401	261	227	4	504	803	278	244	268	201
9	72	148	343	252	235	1	484	620	265	218	268	202
10	75	868	312	275	239	348	1590	522	256	210	266	205
11	89	897	291	661	243	341	1100	464	250	228	412	203
12	220	352	1210	473	241	329	712	430	247	220	1110	203
13	225	256	1790	355	241	840	636	405	244	199	1070	194
14	227	223	715	340	4170	1090	710	386	237	197	1150	197
15	178	340	488	338	2100	612	804	363	236	194	542	206
16	126	993	390	314	798	489	650	347	478	199	350	184
17	115	479	338	299	566	433	562	340	353	201	290	175
18	113	318	308	309	464	394	521	338	389	591	269	176
19	111	267	291	389	406	395	483	335	284	619	289	179
20	124	250	278	338	372	394	465	325	248	280	262	180
21	247	285	262	280	342	1150	454	315	237	422	233	177
22	426	254	869	225	322	923	466	306	234	578	220	170
23	633	228	1280	260	1200	570	545	341	236	330	221	168
24	1320	297	641	333	2570	468	511	385	251	277	228	168
25	493	1590	360	385	881	1070	459	327	281	242	223	169
26	343	777	310	339	577	1580	432	310	244	394	210	163
27	239	431	290	309	496	818	417	432	220	583	207	155
28	200	359	450	294	567	1980	405	516	209	364	206	164
29	184	399	760	283	560	4950	408	877	213	290	231	181
30	171	348	480	273	---	1410	407	686	236	271	230	195
31	163	---	340	269	---	829	---	462	---	257	1500	---
TOTAL	6732	11592	17896	10326	19653	25233	18453	15050	8391	9880	11983	6124
MEAN	217	386	577	333	678	814	615	485	280	319	387	204
MAX	1320	1590	1790	661	4170	4950	1590	1130	478	619	1500	481
MIN	71	148	262	225	227	329	405	306	209	194	201	155
CFSM	.62	1.10	1.65	.95	1.94	2.33	1.76	1.39	.80	.91	1.11	.58
IN.	.72	1.23	1.90	1.10	2.09	2.68	1.96	1.60	.89	1.05	1.27	.65

CAL YR 1983 TOTAL 149869 MEAN 411 MAX 8110 MIN 53 CFSM 1.17 IN 15.93  
WTR YR 1984 TOTAL 161313 MEAN 441 MAX 4950 MIN 71 CFSM 1.26 IN 17.15

## ROANOKE RIVER BASIN

253

## 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 296.0.

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 above the spillway crest; 38,200 acre-ft is normally used for power between elevations 600.0 ft, minimum power pool, and the spillway crest. 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 furnished by 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, 95,900 acre-ft Mar. 6, elevation, 613.3 ft; minimum, 57,200 acre-ft Oct. 17, 31, Nov. 7, 28, elevation, 600.0 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	601.9	62290	
Oct. 31.....	602.9	64970	+2680
Nov. 30.....	610.9	88200	+23230
Dec. 31.....	608.7	81480	-6720
CAL YR 1983.....			+21600
Jan. 31.....	610.8	87880	+6400
Feb. 29.....	607.4	77660	-10220
Mar. 31.....	604.2	68460	-9200
Apr. 30.....	604.8	70060	+1600
May 31.....	603.1	65510	-4550
June 30.....	609.0	82360	+16850
July 31.....	602.9	64970	-17390
Aug. 31.....	606.8	75890	+10920
Sept. 30.....	604.9	70330	-5560
WTR YR 1984.....			+8040



## ROANOKE RIVER BASIN

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 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.--Records good except those for period of no gage-height record, Nov. 14 to Jan. 3, which are fair. Prior to October 1954, diurnal fluctuation at low flow caused by mill above station. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--54 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 above base 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)
Feb. 14	1100	3960	10.65	Aug. 13	1015	2700	8.13
Feb. 23	2045	3520	9.79	Aug. 14	0430	*7990	16.39
Mar. 29	0430	3880	10.49				

Minimum discharge, 29 ft<sup>3</sup>/s Oct. 7-8, gage height, 1.07 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	61	131	174	121	290	490	238	175	157	97	256
2	36	58	114	159	122	268	424	217	172	126	92	181
3	34	56	109	160	127	250	382	298	143	126	92	149
4	32	54	680	150	131	231	532	816	140	104	110	322
5	31	52	483	136	127	236	1120	472	135	124	85	178
6	31	51	294	128	121	259	634	977	135	152	92	140
7	30	51	378	128	112	242	499	1030	138	124	107	126
8	30	50	279	118	106	218	427	746	132	99	92	118
9	30	50	214	115	105	201	385	718	129	90	92	112
10	30	373	174	119	110	182	535	505	126	90	97	110
11	38	322	150	194	114	173	514	436	121	92	166	107
12	125	159	300	146	114	162	433	409	118	85	680	99
13	87	116	1300	140	116	684	385	328	112	82	991	94
14	125	98	590	133	2190	658	645	304	110	82	2930	97
15	61	89	308	130	873	404	953	286	104	76	550	92
16	43	400	238	127	466	331	683	271	102	97	352	85
17	39	220	193	124	355	284	559	226	107	90	277	80
18	38	127	164	132	297	252	472	220	107	202	268	78
19	37	107	145	147	259	233	409	220	99	126	259	82
20	46	98	133	131	233	214	367	211	90	94	211	82
21	122	103	118	118	209	723	334	202	90	729	187	80
22	148	89	750	99	190	592	343	193	90	208	169	76
23	381	81	640	120	1280	391	391	214	94	149	166	76
24	558	200	350	132	1570	316	355	208	118	138	166	76
25	226	640	234	149	641	374	319	172	129	110	146	76
26	151	368	160	175	438	406	286	166	99	107	138	72
27	113	219	195	148	366	303	265	169	90	138	132	70
28	92	174	495	143	373	736	250	196	85	110	138	80
29	80	193	450	137	341	2310	280	268	196	102	157	87
30	67	154	265	132	---	869	253	205	129	102	187	92
31	63	---	210	130	---	601	---	181	---	99	603	---
TOTAL	2961	4813	10244	4274	11607	13393	13924	11102	3615	4210	9829	3373
MEAN	95.5	160	330	138	400	432	464	358	121	136	317	112
MAX	558	640	1300	194	2190	2310	1120	1030	196	729	2930	322
MIN	30	50	109	99	105	162	250	166	85	76	85	70
CFSM	.51	.85	1.76	.73	2.13	2.30	2.47	1.90	.64	.72	1.69	.60
IN.	.59	.95	2.03	.85	2.30	2.65	2.76	2.20	.72	.83	1.94	.67

CAL YR 1983 TOTAL 84769 MEAN 232 MAX 6350 MIN 25 CFSM 1.23 IN 16.77  
WTR YR 1984 TOTAL 93345 MEAN 255 MAX 2930 MIN 30 CFSM 1.36 IN 18.47

## ROANOKE RIVER BASIN

255

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 National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1951, on left bank 50 ft downstream at same datum.

REMARKS.--Records good prior to Jan. 31 and fair thereafter. 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 Corps of Engineers satellite telemeters at station. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke.

AVERAGE DISCHARGE.--54 years, 1,796 ft<sup>3</sup>/s, 13.63 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 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, 19,300 ft<sup>3</sup>/s Feb. 14, gage height, 18.81 ft; minimum, 180 ft<sup>3</sup>/s Sept. 23, gage height, 2.02 ft; minimum daily, 197 ft<sup>3</sup>/s Sept. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	326	996	1040	277	1870	2420	4260	4880	1030	410	973	1220
2	253	1050	1290	488	2230	3320	3850	2290	1070	1260	936	293
3	961	1030	362	2970	1750	703	5640	2640	1040	1350	566	2380
4	962	792	1290	2360	453	365	3340	4220	1270	427	368	3310
5	926	351	3370	3210	292	2950	4900	3750	1380	1370	295	2520
6	737	245	3560	3120	1680	2460	4290	4330	1180	2110	1160	1040
7	786	1030	3380	642	1590	3380	3950	8460	1130	641	1050	1170
8	268	991	3350	307	1430	3250	1150	8990	823	342	1030	306
9	214	979	1420	2000	1520	2980	2890	4800	1850	1120	1000	217
10	1050	1240	369	1290	1100	511	4940	4280	486	884	826	929
11	960	1350	258	1970	303	334	6640	2720	1570	901	524	2980
12	1030	386	5150	2120	248	2160	6140	1200	1260	338	3130	759
13	870	356	7620	2200	1970	3890	5150	1110	1360	956	8220	394
14	936	1170	5870	634	13900	4000	1370	2480	395	380	7780	396
15	349	1150	4090	399	13300	4090	5750	2310	996	383	3860	271
16	234	1400	3690	1770	13400	6190	6490	2240	259	1110	2790	197
17	1060	1060	2140	2100	7750	963	4590	1910	243	1040	2370	969
18	989	1280	708	1950	3260	426	2480	1340	1620	1800	499	1020
19	940	342	1920	1980	880	2050	2200	1260	1510	1920	360	954
20	991	251	1670	2280	3050	5400	2230	1210	963	2470	1060	983
21	858	1510	1200	593	2610	5630	1390	1450	972	4100	1040	1150
22	484	1340	3720	284	1980	5300	5550	1360	334	1050	1040	273
23	599	1020	3450	1650	5860	4200	4190	1480	322	2610	956	224
24	1820	465	4430	1880	11100	1070	2790	2200	349	1500	976	1050
25	995	1870	4300	1690	9650	1480	2850	1720	1040	1200	308	986
26	964	935	1610	1750	5000	7240	2770	1230	984	1220	274	998
27	1160	466	2870	1900	4340	6030	1810	1600	1160	2660	1350	976
28	1150	1180	2290	561	3270	7010	1390	1950	960	1270	1020	977
29	391	1130	3500	325	3540	14700	1410	3010	1040	257	1020	432
30	245	1080	3170	1850	---	7800	2020	3950	428	1570	1040	352
31	1030	---	585	1790	---	8810	---	2750	---	1010	3350	---
TOTAL	24538	28445	83672	48340	119326	121112	108420	89120	29024	39659	51171	29726
MEAN	792	948	2699	1559	4115	3907	3614	2875	967	1279	1651	991
MAX	1820	1870	7620	3210	13900	14700	6640	8990	1850	4100	8220	3310
MIN	214	245	258	277	248	334	1150	1110	243	257	274	197
(*)	+277	+561	+421	-28	-143	+115	+27	-74	+9	-18	+145	-264
MEAN#	1069	1509	3120	1531	3972	4022	3641	2801	976	1261	1796	727
CFSM#	.60	.84	1.74	.86	2.22	2.25	2.04	1.57	.55	.70	1.00	.41
IN#	.69	.94	2.01	.99	2.40	2.59	2.27	1.81	.61	.81	1.16	.45

CAL YR 1983 TOTAL 775822 MEAN 2126 MAX 23400 MIN 73 MEAN# 2145 CFSM# 1.20 IN# 16.28  
WTR YR 1984 TOTAL 772553 MEAN 2111 MAX 14700 MIN 197 MEAN# 2198 CFSM# 1.23 IN# 16.73

\* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; furnished by Appalachian Power Co.

# Adjusted for change in contents.

## ROANOKE RIVER BASIN

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 TEMPERATURES: 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 micromhos Jan. 17, 1969; minimum daily, 54 micromhos Aug. 18, 1955.

WATER TEMPERATURES: 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, 202 micromhos Nov. 9; minimum daily, 60 micromhos Apr. 5.

WATER TEMPERATURES: Minimum daily, 0.5°C Jan. 23.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT 26...	1130	2130	148	7.5	14.0	745	12	9.5	94
DEC 07...	1005	1600	95	7.3	6.5	750	35	11.8	98
JAN 31...	0915	448	133	7.4	2.5	748	22	12.8	96
FEB 29...	1145	4450	128	7.2	5.0	739	50	11.8	95
APR 25...	1030	3560	128	7.5	11.0	--	4	--	--
MAY 31...	1030	704	144	7.3	15.5	746	18	9.4	96
JUL 17...	0900	478	--	7.6	22.0	745	4	8.0	94
AUG 29...	1115	434	143	7.2	22.0	748	7	8.1	94

DATE	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)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 26...	56	9	14	5.2	5.6	2.2	47	16	6.3
DEC 07...	36	5	8.7	3.5	3.3	1.8	31	15	3.5
JAN 31...	51	4	12	5.0	7.1	1.7	47	12	7.7
FEB 29...	50	8	12	4.8	4.6	1.8	42	11	6.4
APR 25...	49	6	12	4.7	4.4	2.2	43	11	6.0
MAY 31...	49	3	12	4.6	6.7	1.7	46	11	7.4
JUL 17...	58	6	14	5.5	8.1	2.1	52	11	8.1
AUG 29...	46	0	11	4.4	8.0	1.8	46	11	7.9

## ROANOKE RIVER BASIN

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02060500 ROANOKE RIVER AT ALTAVISTA, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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 26...	.20	9.1	83	88	.010	.31	.020	67
DEC 07...	<.10	12	73	67	<.010	.31	.010	160
JAN 31...	<.10	8.4	95	82	<.010	.30	.040	57
FEB 29...	<.10	7.4	84	73	<.010	.34	<.010	43
APR 25...	.10	8.6	77	75	<.010	.22	<.010	51
MAY 31...	.10	8.4	118	80	<.010	.27	.190	64
JUL 17...	.10	8.0	112	91	.580	.93	.320	30
AUG 29...	<.10	8.8	102	81	<.010	.18	.220	63

&lt; Actual value is known to be less than the value shown.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	180	198	160	---	130	135	123	150	140	---	160	120
2	180	190	150	120	135	137	130	125	138	---	160	115
3	180	170	150	120	135	135	110	125	140	---	160	160
4	184	165	90	135	137	---	115	80	140	---	---	142
5	199	179	90	120	117	117	60	140	150	---	170	160
6	182	180	145	90	115	119	80	---	145	---	162	160
7	180	190	120	125	130	137	89	140	148	---	160	158
8	180	200	122	140	132	125	80	145	140	140	160	160
9	190	202	138	125	134	127	80	138	130	170	160	158
10	188	180	---	140	138	124	75	130	140	160	155	160
11	180	100	---	98	134	111	130	138	138	159	150	155
12	179	100	140	117	107	107	120	115	155	162	150	162
13	179	150	125	127	105	109	140	125	158	160	150	160
14	168	178	140	125	85	73	140	118	150	162	85	162
15	164	180	130	116	120	137	100	150	142	160	100	160
16	168	130	138	113	125	143	98	145	142	160	155	150
17	182	145	140	127	110	146	120	130	155	165	150	145
18	179	178	130	125	113	81	110	130	150	142	130	170
19	180	150	135	121	89	143	120	130	160	170	130	158
20	180	162	135	123	92	137	115	130	160	160	135	158
21	180	160	140	123	117	113	118	130	140	100	160	160
22	179	150	125	119	119	137	140	140	160	130	160	161
23	---	160	80	120	120	120	140	139	160	130	150	160
24	140	---	100	130	118	120	140	130	142	150	160	160
25	160	100	---	120	118	---	140	139	142	155	160	168
26	175	119	130	120	140	65	125	138	162	165	155	166
27	165	150	125	127	139	118	150	150	162	150	155	162
28	185	140	120	118	100	140	125	140	165	150	160	170
29	190	160	90	128	130	110	125	150	160	155	160	172
30	165	140	120	116	---	77	125	140	160	155	---	172
31	178	---	120	130	---	77	---	142	---	160	150	---
MEAN	177	159	126	122	120	118	115	134	149	153	150	157
WTR YR 1984	MEAN	140		MAX	202	MIN	60					



## ROANOKE RIVER BASIN

02060500 ROANOKE RIVER AT ALTAVISTA, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	15.0	11.5	---	3.0	7.0	8.0	14.0	16.0		---	22.0
2	19.0	17.0	7.5	2.0	3.5	7.0	10.0	14.0	17.0		---	21.0
3	19.0	17.0	7.0	2.0	4.0	6.5	9.5	14.0	18.5		---	22.0
4	21.0	15.5	7.5	3.0	3.5	---	9.5	14.5	19.0		---	22.0
5	20.5	13.0	8.0	4.0	3.5	7.0	10.0	14.0	18.0		---	22.0
6	21.0	12.0	11.0	3.0	4.5	7.0	10.5	---	20.5		---	20.0
7	20.5	11.0	9.0	2.5	3.0	7.5	10.5	15.0	21.0		---	21.0
8	20.0	12.0	9.5	3.0	3.0	5.5	10.5	16.0	23.0		---	20.0
9	19.5	12.5	8.0	3.0	6.0	4.0	11.0	15.0	23.5		---	20.0
10	18.0	15.0	---	4.5	3.5	4.0	9.5	14.0	---		---	22.0
11	19.0	12.5	---	4.5	5.0	6.0	11.0	14.0	---		---	20.0
12	19.0	9.5	10.0	3.0	7.0	5.0	10.5	15.0	---		---	21.0
13	20.0	9.0	10.5	3.0	8.5	5.0	12.5	15.0	---		---	22.0
14	18.0	13.5	10.0	2.5	8.0	6.0	12.5	17.0	---		22.0	22.0
15	17.5	12.5	10.0	3.0	7.0	8.5	12.0	16.0	---		22.0	20.0
16	17.5	9.0	9.0	3.0	8.5	8.5	12.5	15.5	---		22.0	18.0
17	17.0	8.0	8.0	4.0	7.0	10.0	12.5	13.0	---		21.0	17.0
18	18.0	9.5	8.0	4.0	8.0	11.0	12.0	14.5	---		22.0	17.0
19	19.0	10.5	7.0	4.0	8.5	11.0	10.5	15.0	---		23.0	19.0
20	18.0	11.0	8.5	2.0	10.0	10.5	11.5	17.0	---		23.0	18.0
21	15.5	11.5	8.5	1.0	7.0	11.0	12.0	18.0	---		20.0	19.0
22	15.0	11.0	5.0	1.0	9.0	9.5	10.0	18.5	---		21.0	21.0
23	---	11.0	4.5	.5	8.0	9.0	10.5	19.5	---		22.0	21.0
24	15.0	---	5.0	3.5	9.0	8.0	11.0	17.0	---		21.0	23.0
25	16.5	10.0	---	4.0	8.0	---	11.0	17.0	---		22.0	22.0
26	17.0	9.0	4.0	2.5	8.0	9.5	14.0	18.0	---		22.0	19.0
27	13.5	10.0	4.5	3.5	7.0	9.5	15.5	18.5	---		24.0	18.0
28	14.0	10.5	4.5	3.5	6.5	9.0	15.5	17.0	---		22.0	17.0
29	13.5	11.5	2.0	3.0	7.0	9.5	15.0	18.0	---		23.0	15.0
30	13.0	10.5	2.0	3.5	---	8.5	15.0	16.0	---		---	17.0
31	11.5	---	1.5	3.0	---	7.5	---	16.0	---		22.0	---
MEAN	17.5	11.5	7.0	3.0	6.5	8.0	11.5	16.0	19.5		22.0	20.0
WTR YR 1984	MEAN	12.0		MAX	24.0	MIN	.5					

## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--48 years, 332 ft<sup>3</sup>/s, 14.09 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 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 above base 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)
Dec. 13	0030	5460	13.95	July 21	1100	4660	11.77
Feb. 14	1530	8500	17.15	Aug. 13	1330	4090	10.46
Mar. 29	0930	6480	15.12	Aug. 14	0730	*8740	17.30
Apr. 5	0530	4630	11.72				

Minimum discharge, 39 ft<sup>3</sup>/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	117	261	350	232	528	852	467	351	334	215	387
2	61	115	242	335	233	482	718	452	337	250	204	298
3	53	113	238	320	235	452	629	573	321	573	204	258
4	49	110	1400	310	272	418	999	1960	308	245	291	543
5	45	105	761	286	256	444	3220	907	295	212	190	321
6	42	102	588	276	242	539	1370	2180	285	414	192	275
7	40	102	602	270	225	543	970	1860	281	271	222	242
8	40	103	414	253	218	497	793	1240	275	198	171	228
9	40	104	350	245	225	448	692	1330	265	171	171	215
10	40	536	316	250	218	407	839	900	255	164	195	212
11	49	642	284	433	217	393	802	780	248	164	301	206
12	119	270	2540	323	218	370	659	700	230	154	1340	198
13	125	208	3000	282	219	1430	600	600	220	145	2900	187
14	188	184	999	281	5040	1550	1640	560	210	141	6110	190
15	97	342	628	277	2440	797	2080	520	195	134	1330	181
16	66	696	479	267	1100	613	1150	500	185	176	705	166
17	59	336	407	262	755	528	860	460	220	150	490	161
18	57	253	361	268	592	475	722	440	215	393	528	164
19	55	221	332	306	501	456	634	433	190	298	613	164
20	65	209	306	271	459	429	585	414	170	187	380	164
21	186	264	283	250	414	881	543	393	155	3830	324	164
22	220	216	1410	189	384	898	592	377	160	944	295	159
23	797	193	1180	245	1420	629	760	410	165	482	281	157
24	1160	326	621	269	2340	535	638	535	174	410	278	159
25	330	1390	396	294	1010	923	554	393	198	250	248	157
26	236	620	320	345	701	1440	505	357	190	314	228	154
27	181	377	380	289	585	776	486	347	169	387	215	150
28	152	335	600	275	734	1690	467	364	164	288	212	164
29	138	348	883	263	680	4790	528	520	360	255	291	179
30	126	291	439	254	---	1660	482	444	201	245	248	181
31	118	---	367	248	---	1080	---	387	---	232	978	---
TOTAL	4998	9228	21387	8786	22165	27101	26369	21803	6992	12411	20350	6384
MEAN	161	308	690	283	764	874	879	703	233	400	656	213
MAX	1160	1390	3000	433	5040	4790	3220	2180	360	3830	6110	543
MIN	40	102	238	189	217	370	467	347	155	134	171	150
CFSM	.50	.96	2.16	.88	2.39	2.73	2.75	2.20	.73	1.25	2.05	.67
IN.	.58	1.07	2.49	1.02	2.58	3.15	3.07	2.53	.81	1.44	2.37	.74

CAL YR 1983	TOTAL	131416	MEAN 360	MAX 8540	MIN 33	CFSM 1.13	IN 15.28
WTR YR 1984	TOTAL	187974	MEAN 514	MAX 6110	MIN 40	CFSM 1.61	IN 21.85

## ROANOKE RIVER BASIN

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 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.--Records fair. 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 Corps of Engineers satellite telemeters at station. Several observations 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, 2,394 ft<sup>3</sup>/s, 13.46 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 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, 38,600 ft<sup>3</sup>/s Feb. 14, gage height, 29.06 ft; minimum, 265 ft<sup>3</sup>/s Oct. 10, gage height, 5.75 ft; minimum daily, 334 ft<sup>3</sup>/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	891	1130	1370	999	1990	4290	7450	4340	2430	753	1330	4000
2	428	1090	1290	1010	2400	2870	5110	4500	1620	1070	1260	818
3	374	1100	1460	1470	2120	3580	5880	3130	1580	1610	1200	664
4	1010	1040	2310	3840	1780	1280	5580	5670	1540	1920	884	3290
5	995	858	4230	2600	875	1760	11000	5450	1790	755	712	3470
6	960	436	5640	3450	1100	4330	7280	5660	1770	1720	638	2200
7	778	419	3220	3120	1970	3830	5680	11100	1530	2770	1380	1270
8	822	1060	3350	892	1620	4370	4540	11800	1430	815	1280	1380
9	334	1020	3660	1120	1710	3930	3020	8220	1190	688	1190	573
10	364	1240	1400	2140	1710	3300	4450	5830	2230	1370	1220	567
11	1010	2360	694	3150	1180	1290	8170	4770	769	1150	1230	1140
12	1100	1440	3990	2760	740	1670	7570	2760	1900	1160	2030	3390
13	1200	570	14100	2240	1010	4280	7790	2130	1540	1160	8470	679
14	1060	806	8500	2230	20500	8080	4860	2640	1650	1210	14400	654
15	1150	1410	5410	1010	28000	5660	6530	3100	708	675	8490	646
16	472	2940	4760	1210	18200	5970	8530	3020	1310	752	4130	512
17	462	1760	3710	2150	11000	5700	7940	2920	606	1290	2900	478
18	1040	1570	2380	2400	4750	1500	4730	2430	751	1710	2850	1110
19	1040	1320	1290	2390	3600	1650	3490	1910	1830	2510	1060	1140
20	1040	572	2380	2280	1630	4120	3280	1920	1760	2140	1030	1080
21	1190	1260	1950	2290	3670	7050	2880	1990	1160	7590	1460	1100
22	1190	1800	3020	751	2660	7170	3490	2070	1220	6640	1350	1250
23	942	1590	6590	1010	4450	6740	7090	1920	606	2050	1330	478
24	3480	1210	4450	2150	17400	4240	4810	2730	628	2820	1250	534
25	1820	5210	6580	2310	12400	2950	3800	2590	763	1980	1240	1100
26	1340	3450	2110	2090	8880	9670	3830	2000	1340	1600	606	1080
27	1160	1530	2430	2110	4460	9500	3250	1870	1210	1870	927	1080
28	1430	1220	3740	1900	4190	8110	2290	2510	1380	3460	1200	1070
29	1230	1610	4770	900	4690	28500	2280	2890	1320	1100	1260	1090
30	450	1510	4120	1190	---	14600	2580	4190	1430	723	1300	662
31	419	---	3380	2140	---	11000	---	4260	---	1850	2120	---
TOTAL	31181	44531	118284	61302	170685	182990	159180	122320	40991	58911	71727	38505
MEAN	1006	1484	3816	1977	5886	5903	5306	3946	1366	1900	2314	1284
MAX	3480	5210	14100	3840	28000	28500	11000	11800	2430	7590	14400	4000
MIN	334	419	694	751	740	1280	2280	1870	606	675	606	478
(*)	+277	+561	+421	-28	-143	+115	+27	-74	+9	-18	+145	-264
MEAN#	1283	2045	4237	1949	5743	6018	5333	3872	1375	1882	2459	1020
CFSM#	.53	.85	1.75	.81	2.38	2.49	2.21	1.60	.57	.78	1.02	.42
IN#	.61	.95	2.02	.93	2.57	2.87	2.46	1.85	.64	.90	1.17	.47

CAL YR 1983 TOTAL 1040955 MEAN 2852 MAX 35200 MIN 169 MEAN# 2871 CFSM# 1.19 IN# 16.14  
WTR YR 1984 TOTAL 1100607 MEAN 3007 MAX 28500 MIN 334 MEAN# 3094 CFSM# 1.28 IN# 17.44

\* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; furnished by Appalachian Power Co.

# Adjusted for change in contents.

## 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 National Geodetic Vertical Datum of 1929. Prior to Jan. 15, 1935, nonrecording gage at same site and datum.

REMARKS.--Records good. Small diurnal fluctuation at times during low flow, cause unknown. Prior to 1958, diurnal fluctuation caused by gristmill at Spring Mills. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--48 years (water years 1930-34, 1942-84), 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 above base 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)
Nov. 25	1000	3010	10.71	Mar. 29	1000	4850	14.16
Dec. 13	0045	2670	9.93	Apr. 5	0430	3650	12.05
Feb. 14	1530	*7500	17.54	July 21	0115	2650	9.90
Mar. 26	0400	2560	9.68				

Minimum discharge, 31 ft<sup>3</sup>/s Oct. 6, 7, 8, 10, gage height, 2.64 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	51	111	175	120	197	302	175	121	102	100	72
2	46	51	101	169	116	178	251	163	117	96	94	68
3	39	51	99	148	120	163	227	194	112	102	88	65
4	36	51	874	146	146	154	557	340	104	81	90	65
5	34	50	358	135	148	199	2330	214	104	83	151	65
6	32	50	352	133	139	416	625	629	100	125	98	69
7	32	50	323	128	120	334	357	557	96	90	83	66
8	31	50	199	120	111	246	280	334	92	77	77	62
9	32	51	160	116	111	204	246	262	88	71	90	61
10	32	107	142	190	111	178	334	214	85	71	98	62
11	37	133	126	740	116	168	296	190	81	74	123	64
12	63	80	947	285	118	149	240	178	79	76	134	62
13	63	64	1420	201	122	661	222	166	76	168	194	59
14	64	61	402	187	4770	744	367	156	74	86	197	61
15	50	157	253	185	1740	381	903	146	71	74	142	58
16	41	464	192	167	449	265	395	139	71	74	102	52
17	39	144	162	155	292	222	289	137	85	79	88	51
18	39	87	144	167	227	197	243	137	86	434	94	50
19	40	68	133	201	194	185	220	134	72	163	130	52
20	48	73	122	180	173	170	209	128	68	321	121	52
21	120	256	113	151	156	318	199	121	66	1200	90	50
22	103	126	546	125	142	248	217	119	66	406	81	48
23	253	87	521	135	632	192	353	132	66	253	81	47
24	358	272	266	148	1250	170	268	175	85	168	81	47
25	126	1890	171	243	406	962	220	132	106	128	74	45
26	83	439	145	190	253	1490	199	123	76	125	71	45
27	66	222	165	169	225	499	190	125	68	398	69	43
28	58	174	375	155	296	918	182	139	149	158	77	48
29	55	155	422	144	251	3390	199	149	271	125	79	55
30	54	126	230	135	---	748	187	154	125	114	76	58
31	51	---	180	133	---	406	---	130	---	106	85	---
TOTAL	2186	5640	9754	5656	13054	14752	11107	6092	2860	5628	3158	1702
MEAN	70.5	188	315	182	450	476	370	197	95.3	182	102	56.7
MAX	358	1890	1420	740	4770	3390	2330	629	271	1200	197	72
MIN	31	50	99	116	111	149	182	119	66	71	69	43
CFSM	.41	1.09	1.82	1.05	2.60	2.75	2.14	1.14	.55	1.05	.59	.33
IN.	.47	1.21	2.10	1.22	2.81	3.17	2.39	1.31	.61	1.21	.68	.37

CAL YR 1983	TOTAL	64850	MEAN 178	MAX 3110	MIN 17	CFSM 1.03	IN 13.94
WTR YR 1984	TOTAL	81589	MEAN 223	MAX 4770	MIN 31	CFSM 1.29	IN 17.54



## ROANOKE RIVER BASIN

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 National Geodetic Vertical Datum of 1929. Prior to July 14, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 97.7 ft<sup>3</sup>/s, 13.54 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 above base 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. 26	0600	1370	8.14	Mar. 29	2130	*2700	10.75
Feb. 15	1200	1060	7.26	Apr. 5	2000	2470	10.42
Mar. 26	2030	1240	7.80				

Minimum discharge, 20 ft<sup>3</sup>/s Oct. 8-9, gage height, 1.38 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	38	76	120	84	132	215	115	76	93	62	43
2	29	38	71	110	81	113	173	104	73	63	57	38
3	25	38	68	100	82	104	153	111	68	76	52	37
4	23	38	237	95	96	97	194	162	64	62	49	48
5	22	37	455	90	97	109	1220	123	62	54	118	43
6	21	37	230	84	90	244	1020	144	61	57	85	41
7	21	37	268	82	82	235	338	346	60	56	54	43
8	20	37	152	76	74	148	204	229	59	50	47	38
9	20	37	108	74	78	124	172	158	56	46	45	36
10	21	50	95	105	76	107	194	129	54	45	44	36
11	23	70	86	448	80	101	193	113	53	48	48	39
12	36	50	176	556	80	96	155	103	52	48	62	38
13	41	42	647	169	78	187	141	96	50	96	134	35
14	66	40	651	134	229	441	165	90	49	74	94	37
15	42	72	215	129	775	346	550	84	48	53	70	36
16	30	254	129	112	367	173	433	81	48	49	52	33
17	28	180	105	101	158	137	209	78	55	49	45	31
18	27	63	94	105	125	118	166	78	57	172	59	30
19	26	45	86	129	108	112	145	78	52	167	94	31
20	30	45	81	119	100	106	139	75	48	61	76	32
21	82	152	75	100	92	151	130	71	47	158	60	31
22	87	108	153	90	85	159	138	68	46	284	48	30
23	110	61	350	100	132	114	240	76	47	167	46	30
24	268	68	230	108	347	101	230	108	50	109	47	30
25	138	406	140	204	347	223	159	81	67	71	42	30
26	68	997	95	184	146	882	135	71	51	63	38	30
27	51	278	105	127	125	681	125	82	46	209	38	28
28	43	123	200	111	194	341	119	81	46	229	40	30
29	41	101	250	99	194	1500	135	86	99	108	67	38
30	39	86	185	93	---	1220	124	107	71	83	49	40
31	38	---	130	92	---	372	---	88	---	70	48	---
TOTAL	1555	3628	5943	4246	4602	8974	7714	3416	1715	2970	1870	1062
MEAN	50.2	121	192	137	159	289	257	110	57.2	95.8	60.3	35.4
MAX	268	997	651	556	775	1500	1220	346	99	284	134	48
MIN	20	37	68	74	74	96	119	68	46	45	38	28
CFSM	.51	1.24	1.96	1.40	1.62	2.95	2.62	1.12	.58	.98	.62	.36
IN.	.59	1.38	2.26	1.61	1.75	3.41	2.93	1.30	.65	1.13	.71	.40

CAL YR 1983	TOTAL	43447	MEAN 119	MAX 1110	MIN 16	CFSM 1.21	IN 16.49
WTR YR 1984	TOTAL	47695	MEAN 130	MAX 1500	MIN 20	CFSM 1.33	IN 18.10

## 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 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.--Records 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 Corps of Engineers satellite telemeters at station.

AVERAGE DISCHARGE.--43 years, 3,065 ft<sup>3</sup>/s, 13.98 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 Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,200 ft<sup>3</sup>/s Feb. 15, gage height, 25.96 ft; minimum daily, 440 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	530	1800	1950	2500	5150	11400	3080	3420	1000	1800	4390
2	910	1400	1700	1350	2520	3670	6300	5820	1990	1180	1600	2050
3	510	1400	1600	1430	2820	4380	5660	3290	1960	1770	1450	900
4	470	1390	1800	3640	2550	2140	7290	4410	1930	2310	1200	2470
5	1100	1200	6000	2910	1750	1690	12900	6870	2180	1000	900	3920
6	1080	730	6220	3830	1290	5270	13700	5430	2180	1780	800	2900
7	1020	600	5870	3680	2110	4930	8300	8810	2000	2670	1470	1760
8	950	530	4050	1770	2280	5330	6300	12100	1820	1100	1670	1720
9	980	1330	4470	1140	2030	4690	3160	10200	1520	900	1550	740
10	440	1390	2660	2230	2170	4180	5590	6670	2500	1350	1600	700
11	600	1980	1520	7030	2030	2050	8050	5610	1000	1460	1440	1130
12	1430	2570	900	5150	1270	1580	8770	3760	2200	1490	1960	3140
13	1500	1290	15700	3530	1060	3670	7800	2600	1900	1540	5170	870
14	1470	730	14900	3030	7410	9980	7370	3200	2000	1780	11800	830
15	1480	1610	8420	2070	27600	7760	7520	3800	890	1200	12600	820
16	1110	3290	5670	1500	28100	6160	10400	3700	1600	984	5460	670
17	600	3400	4610	2290	18500	7690	9640	3500	800	1340	3660	610
18	900	2140	3160	2870	8960	2630	6140	2900	1100	1870	3160	995
19	1270	2030	1940	3160	4910	1950	4160	2300	2150	3610	1400	1470
20	1240	1250	1600	3040	2490	3070	3650	2400	2000	2800	1300	1390
21	1430	730	2560	2990	4120	6900	3580	2450	1620	4590	1800	1440
22	1530	1550	2520	1680	3600	8070	2960	2500	1460	10200	1700	1470
23	1390	2190	7890	1060	3380	7220	7580	2400	750	3400	1600	610
24	2810	1960	6130	2190	15000	5480	6190	3300	780	3720	1550	720
25	3910	6120	6420	3420	17000	4400	4410	3160	992	2640	1500	1090
26	1990	7850	4510	3080	11800	11900	4180	2520	1390	2100	800	1390
27	1660	3530	2410	2830	5860	13400	3970	2100	1520	2350	865	1370
28	1450	2060	3940	2790	6320	9990	3030	2400	1600	4250	1450	1350
29	1670	1600	5370	1830	5530	20100	2630	3490	1800	2300	1550	1430
30	1180	1900	5800	1310	---	29600	2690	4750	1900	950	1650	1120
31	580	---	4230	2330	---	18000	---	4960	---	2030	1710	---
TOTAL	39890	60280	146370	83110	196960	223030	195320	134480	50952	71664	78165	45465
MEAN	1287	2009	4722	2681	6792	7195	6511	4338	1698	2312	2521	1516
MAX	3910	7850	15700	7030	28100	29600	13700	12100	3420	10200	12600	4390
MIN	440	530	900	1060	1060	1580	2630	2100	750	900	800	610
(*)	+277	+561	+421	-28	-143	+115	+27	-74	+9	-18	+145	-264
MEAN#	1564	2570	5143	2653	6649	7310	6538	4264	1707	2294	2666	1252
CFSM#	.53	.86	1.73	.89	2.23	2.46	2.20	1.43	.57	.77	.90	.42
IN#	.61	.96	1.99	1.03	2.41	2.83	2.45	1.65	.64	.89	1.03	.47

CAL YR 1983 TOTAL 1253368 MEAN 3434 MAX 33800 MIN 280 MEAN# 3453 CFSM# 1.16 IN# 15.75  
WTR YR 1984 TOTAL 1325686 MEAN 3622 MAX 29600 MIN 440 MEAN# 3709 CFSM# 1.25 IN# 16.96

\* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes, furnished by Appalachian Power Co.

# Adjusted for change in contents.

## 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 TEMPERATURES: October 1950 to September 1956, April 1968 to September 1982.

SUSPENDED-SEDIMENT DISCHARGE: January 1954 to September 1981.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT 24...	1435	2990	100	7.2	17.0	--	18	--	--
DEC 05...	1230	6540	73	7.0	7.5	--	90	--	--
JAN 30...	1500	1290	94	7.5	4.0	--	25	--	--
FEB 27...	1415	5460	120	7.2	6.5	--	35	--	--
APR 23...	1300	10300	128	7.5	10.0	--	5	--	--
MAY 29...	1545	3650	114	7.3	20.0	--	15	--	--
JUL 17...	0900	1090	122	7.3	25.0	750	4	7.2	89
AUG 22...	1115	1330	95	7.2	23.0	756	6	7.5	88

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 24...	35	0	8.6	3.3	5.5	1.9	35	10	5.1
DEC 05...	25	4	6.2	2.3	3.9	1.7	21	9.2	3.7
JAN 30...	35	0	8.4	3.4	4.8	1.6	35	9.2	5.0
FEB 27...	45	7	11	4.2	4.7	1.9	38	9.8	6.0
APR 23...	49	6	12	4.6	4.4	1.5	43	10	6.4
MAY 29...	40	3	9.7	3.8	4.2	1.6	37	7.6	5.2
JUL 17...	45	2	11	4.2	5.1	1.8	43	7.3	5.7
AUG 22...	34	2	8.7	3.1	4.0	2.0	33	8.1	3.8

DATE	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 24...	.20	11	65	68	.010	.16	.010	210
DEC 05...	.10	9.5	64	50	<.010	.27	.010	300
JAN 30...	<.10	11	70	65	<.010	.25	<.010	150
FEB 27...	<.10	8.4	77	69	<.010	.63	<.010	79
APR 23...	<.10	7.6	77	72	.010	.32	<.010	72
MAY 29...	.10	9.2	91	64	<.010	.31	.020	86
JUL 17...	.10	11	71	72	<.010	.33	.030	100
AUG 22...	.10	13	72	63	<.010	.32	.020	97

&lt; Actual value is known to be less than the value shown.

## ROANOKE RIVER BASIN

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## 02067800; 02067820 TALBOTT AND TOWNES RESERVOIRS NEAR KIBLER, VA

LOCATION.--Talbott 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.--Talbott 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 Talbott Reservoir, 8,035 acre-ft, and Townes Reservoir, 1,377 acre-ft. Storage began in Talbott Reservoir on Feb. 13, 1939, and in Townes Reservoir several months earlier.

COOPERATION.--Records furnished by city of Danville.

## COMBINED MONTHEND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	5500	
Oct. 31.....	5680	+180
Nov. 30.....	7610	+1930
Dec. 31.....	7720	+110
CAL YR 1983.....		+100
Jan. 31.....	7350	-370
Feb. 29.....	7720	+370
Mar. 31.....	7720	0
Apr. 30.....	7580	-140
May 31.....	7830	+250
June 30.....	7600	-230
July 31.....	7640	+40
Aug. 31.....	7520	-120
Sept. 30.....	6820	-700
WTR YR 1984.....		+1320



## 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 National Geodetic Vertical Datum of 1929. Prior to Nov. 15, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good. 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 above station. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--60 years, 191 ft<sup>3</sup>/s, 20.11 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,900 ft<sup>3</sup>/s Sept. 22, 1979, gage height, 18.11 ft, from rating curve extended above 8,400 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; 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 above base 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. 14	0930	2080	4.65	Mar. 28	1330	2000	4.56
Feb. 23	1530	*2130	4.70	Mar. 29	0400	2060	4.63

Minimum discharge, 43 ft<sup>3</sup>/s Oct. 5, gage height, 1.10 ft; minimum daily, 51 ft<sup>3</sup>/s Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	87	156	198	143	252	380	234	270	194	145	134
2	81	100	172	162	132	242	334	235	262	161	170	128
3	74	97	175	180	115	204	299	317	249	183	163	140
4	79	97	516	162	115	169	329	453	241	167	184	152
5	54	92	279	135	110	229	360	337	232	165	140	124
6	51	99	304	140	107	296	321	298	255	211	136	121
7	69	92	295	149	157	292	321	434	230	161	131	120
8	69	104	249	126	161	269	293	403	224	146	141	121
9	70	85	191	151	123	247	273	373	188	141	128	120
10	70	141	151	228	104	230	559	339	193	156	213	120
11	87	139	142	301	103	220	409	298	204	155	199	118
12	111	100	690	209	109	214	380	269	216	162	240	117
13	129	98	377	203	140	272	343	234	183	136	258	108
14	121	89	313	148	1160	249	447	218	192	143	337	95
15	84	165	266	117	460	190	403	193	178	161	191	126
16	79	184	232	130	305	190	343	216	151	139	142	89
17	78	116	225	142	252	199	303	212	160	140	129	89
18	77	108	190	176	233	168	289	209	183	417	163	89
19	77	88	145	212	207	191	250	205	159	191	174	90
20	85	86	192	204	202	217	201	192	174	151	140	89
21	138	104	179	186	182	513	211	184	170	183	136	87
22	113	95	416	181	177	328	266	225	172	162	135	85
23	401	92	218	167	878	313	293	243	130	149	136	86
24	216	314	310	152	535	296	291	176	165	159	133	87
25	119	439	110	171	350	388	259	158	167	181	130	88
26	102	223	120	151	305	580	222	156	171	239	129	84
27	95	156	147	145	317	384	217	196	169	196	129	82
28	91	200	342	141	337	1030	217	502	291	223	129	86
29	89	274	257	129	285	1240	211	780	177	187	144	91
30	87	227	237	116	---	555	198	490	170	152	135	92
31	86	---	219	116	---	447	---	371	---	147	167	---
TOTAL	3167	4291	7815	5128	7804	10614	9222	9150	5926	5458	5027	3158
MEAN	102	143	252	165	269	342	307	295	198	176	162	105
MAX	401	439	690	301	1160	1240	559	780	291	415	337	152
MIN	51	85	110	116	103	168	198	156	130	136	128	82
(*)	+3	+32	+2	-6	+6	0	-2	+4	-4	+1	-2	-12

CAL YR 1983 TOTAL 85134 MEAN 233 MAX 4170 MIN 51 MEAN# 233 CFSM# 1.81 IN# 24.57  
WTR YR 1984 TOTAL 76760 MEAN 210 MAX 1240 MIN 51 MEAN# 212 CFSM# 1.64 IN# 22.32

\* Change in contents, equivalent in cubic feet per second, in Talbott and Townes Reservoirs; furnished by city of Danville, Va.

\* Adjusted for change in contents.

## ROANOKE RIVER BASIN

267

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 National Geodetic Vertical Datum of 1929. Prior to Oct. 9, 1964, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--22 years, 126 ft<sup>3</sup>/s, 20.23 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.--Maximum discharge, 1,380 ft<sup>3</sup>/s at 0430 hours Mar. 29, gage height, 7.27 ft, no other peak above base of 1,300 ft<sup>3</sup>/s; minimum, 36 ft<sup>3</sup>/s Oct. 7, gage height, 3.13 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	58	92	110	87	154	290	156	163	144	100	78
2	50	58	85	105	86	145	246	147	147	102	93	72
3	43	57	92	100	92	139	227	231	137	110	91	69
4	42	56	437	96	95	132	239	346	127	93	99	70
5	41	54	208	95	88	182	236	207	122	123	84	66
6	41	54	185	93	86	197	211	187	127	103	81	64
7	38	54	174	91	82	166	197	263	116	96	93	63
8	38	54	144	87	81	151	185	227	112	87	91	63
9	39	53	126	86	81	140	187	203	107	84	128	63
10	39	114	114	103	81	134	407	184	105	86	105	63
11	61	87	105	161	81	130	302	171	106	88	119	63
12	106	66	411	109	80	123	246	163	106	80	166	61
13	71	61	231	100	92	241	221	156	100	86	161	59
14	89	59	171	100	881	193	221	149	106	114	189	60
15	55	145	144	98	330	161	241	140	98	100	117	58
16	49	166	122	95	205	151	205	137	159	85	99	56
17	47	96	113	92	169	140	195	132	125	84	90	56
18	47	78	105	123	149	134	185	128	110	272	87	57
19	46	71	100	144	135	151	178	127	98	116	88	57
20	52	69	96	112	128	139	175	122	95	95	81	57
21	134	77	92	103	119	523	173	119	96	100	78	55
22	98	67	254	98	113	260	180	116	96	99	76	54
23	463	64	209	90	499	201	193	156	98	93	80	55
24	233	217	161	112	396	178	178	135	107	86	76	55
25	114	418	120	130	231	229	168	117	103	244	73	54
26	84	170	105	109	187	418	161	113	91	392	70	53
27	72	123	120	103	178	244	157	134	106	140	72	51
28	66	122	191	99	193	661	156	330	154	115	73	56
29	64	127	164	96	176	1020	169	515	102	110	87	58
30	61	103	123	93	---	491	157	302	99	113	81	70
31	59	---	114	91	---	349	---	191	---	103	130	---
TOTAL	2493	2998	4908	3224	5201	7677	6286	5804	3418	3743	3058	1816
MEAN	80.4	99.9	158	104	179	248	210	187	114	121	98.6	60.5
MAX	463	418	437	161	881	1020	407	515	163	392	189	78
MIN	38	53	85	86	80	123	156	113	91	80	70	51
CFSM	.95	1.18	1.87	1.23	2.12	2.93	2.48	2.21	1.35	1.43	1.17	.72
IN.	1.10	1.32	2.16	1.42	2.29	3.38	2.76	2.55	1.50	1.65	1.34	.80

CAL YR 1983 TOTAL 50754 MEAN 139 MAX 1730 MIN 33 CFSM 1.64 IN 22.32  
WTR YR 1984 TOTAL 50626 MEAN 138 MAX 1020 MIN 38 CFSM 1.63 IN 22.26

## ROANOKE RIVER BASIN

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 southeast 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 National Geodetic Vertical Datum of 1929 (levels by 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.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--56 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 above base 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. 14	1230	*1920	5.48	Mar. 29	0600	1690	5.12
Feb. 23	2000	1440	4.72				

Minimum discharge, 35 ft<sup>3</sup>/s Oct. 8, gage height, 1.31 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	66	107	140	102	162	240	145	148	113	111	100
2	46	66	100	130	102	148	214	140	134	92	102	87
3	44	66	105	120	109	140	198	222	126	124	105	83
4	40	64	571	110	117	132	208	429	119	94	156	92
5	38	61	266	109	113	196	224	221	115	100	105	81
6	38	61	211	109	107	267	195	186	113	92	96	78
7	37	61	202	107	100	186	180	224	109	92	156	74
8	36	61	151	100	96	159	171	224	105	83	172	74
9	36	61	130	98	98	145	174	192	102	79	151	74
10	37	207	119	117	102	134	476	171	98	88	134	76
11	45	166	111	286	102	132	307	156	98	100	134	74
12	119	98	333	156	100	126	234	151	100	81	162	72
13	72	85	263	132	107	318	208	145	96	83	286	71
14	96	79	180	128	1270	280	258	140	94	83	374	72
15	60	225	145	128	415	189	302	132	92	83	168	69
16	53	357	126	121	230	165	211	128	107	79	126	66
17	50	151	117	117	186	151	189	126	117	79	111	66
18	49	115	109	162	159	142	177	126	121	201	102	66
19	49	100	105	237	142	162	171	124	96	117	107	66
20	54	94	100	156	132	156	165	121	90	88	96	66
21	130	100	98	128	126	406	162	117	90	96	90	64
22	132	88	301	120	119	263	174	115	92	98	88	63
23	464	83	290	115	648	192	198	126	90	100	88	64
24	416	162	183	130	542	168	177	134	100	87	88	64
25	151	567	134	162	250	242	162	119	102	138	83	64
26	109	227	125	134	192	472	154	115	87	402	81	61
27	88	148	170	126	180	256	148	128	85	346	79	58
28	79	130	240	121	211	825	145	162	98	177	87	64
29	74	140	243	117	198	1170	154	430	81	142	92	68
30	69	117	151	113	---	404	148	280	92	126	92	78
31	68	---	145	111	---	283	---	177	---	115	177	---
TOTAL	2823	4006	5631	4140	6355	8171	6124	5406	3097	3778	3999	2155
MEAN	91.1	134	182	134	219	264	204	174	103	122	129	71.8
MAX	464	567	571	286	1270	1170	476	430	148	402	374	100
MIN	36	61	98	98	96	126	145	115	81	79	79	58
CFSM	.84	1.24	1.69	1.24	2.03	2.44	1.89	1.61	.95	1.13	1.19	.67
IN.	.97	1.38	1.94	1.43	2.19	2.81	2.11	1.86	1.07	1.30	1.38	.74

CAL YR 1983	TOTAL	50381	MEAN 138	MAX 2270	MIN 29	CFSM 1.28	IN 17.35
WTR YR 1984	TOTAL	55685	MEAN 152	MAX 1270	MIN 36	CFSM 1.41	IN 19.18

## ROANOKE RIVER BASIN

269

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 in 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 above 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, hydroelectric power, low-water regulation for pollution abatement and industrial water supply, and recreation.

COOPERATION.--Records furnished by 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, 171,450 acre-ft Mar. 30, elevation, 975.79 ft; minimum, 131,500 acre-ft Oct. 20, elevation, 961.05 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	964.04	138980	
Oct. 31.....	962.95	136220	-2760
Nov. 30.....	965.83	143620	+7400
Dec. 31.....	972.92	163070	+19450
CAL YR 1983.....			+4740
Jan. 31.....	971.48	158980	-4090
Feb. 29.....	974.05	166340	+7360
Mar. 31.....	975.10	169410	+3070
Apr. 30.....	974.03	166280	-3130
May 31.....	974.28	167010	+730
June 30.....	973.72	165380	-1630
July 31.....	974.00	166190	+810
Aug. 31.....	972.85	162870	-3320
Sept. 30.....	971.50	159040	-3830
WTR YR 1984.....			+20060



## ROANOKE RIVER BASIN

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 National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 8, 1952, at site 1.9 mi downstream at different datum.

REMARKS.--Records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 0.2 mi upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--38 years, 278 ft<sup>3</sup>/s, 17.48 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, 1,620 ft<sup>3</sup>/s Apr. 2, gage height, 5.35 ft; minimum, 6.4 ft<sup>3</sup>/s Oct. 25, 26, gage height, 1.79 ft; minimum daily, 20 ft<sup>3</sup>/s Mar. 24, caused by turbines being shut down for repair at Philpott Dam.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	194	102	45	191	751	1270	526	641	46	283	46
2	46	198	90	242	191	650	1280	536	44	294	288	46
3	461	192	46	432	191	45	783	535	44	292	284	248
4	469	199	46	431	46	44	726	528	532	294	46	249
5	468	47	97	430	46	499	732	44	537	288	47	242
6	474	47	97	473	192	470	736	45	534	287	302	247
7	475	216	87	44	192	464	44	381	550	47	300	237
8	46	218	87	44	191	492	44	724	535	46	294	46
9	46	209	93	524	193	478	478	714	46	292	288	46
10	483	201	46	545	193	46	497	722	46	305	282	240
11	508	211	46	596	46	45	714	725	238	283	47	244
12	459	47	94	476	46	436	749	44	247	279	46	246
13	462	47	93	543	183	437	735	44	235	284	288	248
14	460	209	92	44	189	448	46	623	242	46	42	242
15	46	194	92	44	189	421	45	623	238	46	652	46
16	46	194	94	345	629	458	736	627	46	293	640	46
17	366	195	46	343	634	46	735	629	46	303	621	243
18	370	195	46	352	45	46	735	630	238	291	46	246
19	339	43	195	332	45	595	727	44	239	286	45	241
20	341	43	194	340	528	591	737	44	47	273	729	244
21	377	83	189	46	534	576	44	189	253	47	752	243
22	39	79	195	46	531	593	44	191	238	47	743	45
23	40	86	194	389	535	560	487	192	46	432	727	44
24	194	80	46	389	528	20	485	190	46	433	754	243
25	180	84	46	387	628	35	483	191	244	435	46	245
26	186	25	46	380	44	578	479	45	235	430	46	244
27	196	24	192	387	647	609	482	46	237	430	304	246
28	199	84	243	44	407	733	44	435	332	47	46	247
29	46	121	242	44	721	743	45	432	343	47	282	45
30	46	99	450	195	---	924	522	428	46	296	285	45
31	196	---	46	192	---	1270	---	835	---	296	292	---
TOTAL	8110	3864	3672	9124	8735	14103	15664	11962	7345	7515	9847	5340
MEAN	262	129	118	294	301	455	522	386	245	242	318	178
MAX	508	218	450	596	721	1270	1280	835	641	435	754	249
MIN	39	24	46	44	44	20	44	44	44	46	42	44
(*)	-45	+124	+316	-67	+128	+50	-53	+12	-27	+13	-54	-64
MEAN#	217	253	434	227	429	505	469	398	218	255	264	114
CFSM#	1.00	1.17	2.01	1.05	1.99	2.34	2.17	1.84	1.01	1.18	1.22	.53
IN#	1.16	1.31	2.32	1.21	2.14	2.70	2.42	2.12	1.13	1.36	1.41	.59

CAL YR 1983 TOTAL 125567 MEAN 344 MAX 3640 MIN 24 MEAN# 351 CFSM# 1.62 IN# 22.06  
WTR YR 1984 TOTAL 105281 MEAN 288 MAX 1280 MIN 20 MEAN# 316 CFSM# 1.46 IN# 19.91

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by 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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good except those for period of no gage-height record, Dec. 24 to Jan. 25, which are fair. Since August 1950, flow regulated by Philpott Lake (station 02071900) 6.2 mi upstream. Gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--45 years, 330 ft<sup>3</sup>/s, 17.30 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, 2,440 ft<sup>3</sup>/s Aug. 12, gage height, 4.99 ft; minimum, 52 ft<sup>3</sup>/s Nov. 23, Sept. 19; minimum daily, 61 ft<sup>3</sup>/s Oct. 9; minimum gage height, 1.43 ft Nov. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	227	145	80	231	844	1420	649	769	93	342	93
2	63	231	131	340	229	745	1510	659	95	366	345	83
3	495	224	88	500	235	88	906	709	90	366	342	303
4	508	229	380	500	76	83	847	760	625	353	74	303
5	507	68	191	500	74	580	860	154	638	344	73	297
6	513	68	166	550	230	556	848	133	632	406	402	296
7	514	250	149	78	229	544	107	577	649	86	397	285
8	65	251	140	77	225	567	96	912	635	78	356	75
9	61	241	140	640	227	545	562	899	94	334	354	74
10	514	353	85	610	229	91	794	885	83	362	344	289
11	565	278	83	700	72	81	881	882	271	289	205	294
12	534	80	326	590	72	484	882	119	331	337	435	294
13	515	76	197	630	224	599	861	108	296	343	522	294
14	517	246	161	80	747	578	141	751	299	85	291	289
15	70	281	148	77	322	512	136	756	293	74	773	73
16	65	297	142	400	730	542	853	758	113	340	753	71
17	407	252	86	400	727	101	852	759	88	358	727	284
18	416	242	84	420	87	89	848	758	293	469	78	290
19	380	74	239	390	85	681	835	103	292	358	76	283
20	389	74	236	400	584	673	843	94	84	348	860	287
21	471	128	234	84	600	748	109	259	302	118	880	290
22	80	117	381	81	595	709	104	259	290	95	880	72
23	245	118	327	450	881	654	575	267	83	514	870	69
24	292	202	86	460	727	74	580	259	87	513	880	284
25	246	298	84	490	746	132	575	255	295	523	80	289
26	228	96	83	445	100	777	569	89	284	561	77	289
27	233	74	330	449	738	734	571	123	288	553	360	292
28	235	138	330	80	496	1060	160	554	390	94	350	296
29	69	187	340	76	828	1190	115	635	406	84	351	75
30	68	148	600	238	---	1010	637	563	90	356	352	77
31	229	---	84	234	---	1440	---	984	---	355	525	---
TOTAL	9562	5548	6196	11049	11346	17511	19077	15672	9185	9555	13354	6590
MEAN	308	185	200	356	391	565	636	506	306	308	431	220
MAX	565	353	600	700	881	1440	1510	984	769	561	880	303
MIN	61	68	83	76	72	74	96	89	83	74	73	69
(*)	-45	+124	+316	-67	+128	+50	-53	+12	-27	+13	-54	-64
MEAN#	263	309	516	289	519	615	583	518	279	321	377	156
CFSM#	1.02	1.19	1.99	1.12	2.00	2.37	2.25	2.00	1.08	1.24	1.46	.60
IN#	1.17	1.33	2.30	1.29	2.16	2.74	2.51	2.31	1.20	1.43	1.68	.67

CAL YR 1983 TOTAL 149263 MEAN 409 MAX 3720 MIN 61 MEAN# 416 CFSM# 1.61 IN# 21.81  
WTR YR 1984 TOTAL 134645 MEAN 368 MAX 1510 MIN 61 MEAN# 396 CFSM# 1.53 IN# 20.82

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 19.6 mi upstream. Some additional regulation by powerplant 1,000 ft above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--55 years, 456 ft<sup>3</sup>/s, 16.30 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, 4,800 ft<sup>3</sup>/s Feb. 14, gage height, 5.81 ft; minimum, 16 ft<sup>3</sup>/s Apr. 25, gage height, 1.04 ft; minimum daily, 54 ft<sup>3</sup>/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	253	316	207	160	255	1070	1820	782	1020	189	497	280
2	81	294	246	206	332	1090	1890	768	299	417	419	180
3	457	303	181	553	387	355	1260	1050	212	542	473	372
4	570	307	1230	559	130	223	1160	1240	602	440	281	431
5	569	141	453	611	182	666	1180	553	740	453	150	386
6	584	95	368	607	375	862	1120	306	737	569	546	340
7	589	341	291	359	325	776	504	757	750	184	698	367
8	262	322	253	166	313	748	265	1150	732	165	501	271
9	54	314	236	659	331	722	619	1130	327	313	538	128
10	439	1030	156	886	356	412	1630	1090	177	517	516	260
11	759	552	163	1070	117	217	1320	1080	271	530	499	362
12	737	140	727	810	159	506	1220	408	403	435	828	384
13	708	167	472	798	405	1120	1160	241	396	446	920	355
14	655	363	297	294	2730	977	599	735	381	285	1020	352
15	283	730	235	218	899	772	419	886	383	163	910	226
16	86	745	183	439	910	728	956	882	330	318	965	103
17	365	403	151	526	1000	405	1130	886	223	455	949	215
18	485	369	146	609	368	238	1110	888	332	856	407	318
19	452	138	338	626	235	885	1090	383	385	517	199	324
20	468	161	272	540	559	897	1090	206	351	458	909	336
21	680	257	238	301	750	1230	481	399	212	321	1060	301
22	303	210	759	173	747	1030	287	361	395	218	1060	290
23	1070	199	595	430	1800	901	634	395	265	576	1040	105
24	660	387	229	682	1410	305	789	386	189	634	1070	241
25	558	1050	153	609	1220	427	774	391	322	809	338	342
26	358	296	163	584	381	1330	743	131	383	810	156	361
27	280	215	322	564	938	1190	738	296	374	769	355	355
28	314	318	543	285	636	2030	427	669	449	323	522	368
29	233	320	565	188	1120	2770	246	1150	536	202	497	312
30	115	247	398	392	---	1450	592	814	303	381	496	170
31	333	---	319	344	---	1910	---	1220	---	470	825	---
TOTAL	13760	10730	10889	15248	19370	28242	27253	21633	12479	13765	19644	8835
MEAN	444	358	351	492	668	911	908	698	416	444	634	295
MAX	1070	1050	1230	1070	2730	2770	1890	1240	1020	856	1070	431
MIN	54	95	146	160	117	217	246	131	177	163	150	103
(*)	-45	+124	+316	-67	+128	+50	-53	+12	-27	+13	-54	-64
MEAN#	399	482	667	425	796	961	855	710	389	457	580	231
CFSM#	1.05	1.27	1.76	1.12	2.09	2.53	2.25	1.87	1.02	1.20	1.53	.61
IN#	1.21	1.42	2.02	1.29	2.26	2.92	2.51	2.15	1.14	1.39	1.76	.68

CAL YR 1983 TOTAL 209713 MEAN 575 MAX 4650 MIN 54 MEAN# 582 CFSM# 1.53 IN# 20.80  
WTR YR 1984 TOTAL 201848 MEAN 551 MAX 2770 MIN 54 MEAN# 579 CFSM# 1.52 IN# 20.75

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.  
\* Adjusted for change in contents.

## ROANOKE RIVER BASIN

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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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 40 mi upstream, usable capacity, 6,325,000,000 ft<sup>3</sup>. Some 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.--45 years, 623 ft<sup>3</sup>/s, 15.73 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, 7,280 ft<sup>3</sup>/s Mar. 29, gage height, 8.44 ft; minimum, 82 ft<sup>3</sup>/s Oct. 9, 10, gage height, 1.44 ft; minimum daily, 110 ft<sup>3</sup>/s Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	570	360	349	244	419	1250	2170	1020	1290	242	574	685
2	110	356	349	373	422	1270	2130	998	1030	357	591	247
3	234	360	358	586	454	981	1600	1160	359	599	522	266
4	571	351	1740	739	452	339	1520	1860	581	547	585	623
5	558	336	1060	737	257	699	1650	1100	938	649	199	484
6	562	136	735	705	415	1350	1460	496	939	572	285	465
7	568	261	682	735	448	1090	1250	897	940	493	843	444
8	552	370	509	220	422	984	460	1300	924	278	593	472
9	111	367	437	366	429	948	699	1430	780	267	590	174
10	159	1600	401	926	430	838	2520	1330	263	526	701	274
11	711	984	255	1690	431	316	1710	1270	364	738	1200	433
12	861	530	1000	1170	210	483	1590	1020	525	542	1290	435
13	704	247	1210	952	365	1440	1480	378	529	555	1330	420
14	800	366	694	873	4740	1530	1380	649	513	529	1800	443
15	604	1060	519	345	2030	1080	1160	1090	527	268	651	455
16	128	1710	452	478	1160	981	929	1080	575	264	1090	155
17	209	746	381	663	1340	849	1410	1080	293	504	1020	238
18	486	551	257	796	1150	362	1360	1080	453	1160	1000	400
19	485	452	423	1070	397	690	1330	919	532	764	248	425
20	483	232	451	770	521	1080	1310	301	515	595	467	397
21	710	414	442	553	937	1900	1170	489	305	568	1050	403
22	751	330	1190	244	902	1460	450	512	512	349	1070	440
23	857	307	1250	413	2300	1190	749	564	525	440	1050	149
24	1450	449	512	785	2680	979	1080	616	257	723	1050	228
25	1510	2260	264	846	1470	820	1030	536	402	735	976	397
26	597	907	524	773	1040	2510	997	475	516	1120	191	399
27	444	394	1380	729	779	1730	982	493	487	931	306	387
28	390	453	1360	581	1250	3240	892	953	494	764	499	402
29	363	436	988	283	1120	5220	388	1810	602	387	586	439
30	152	416	708	437	---	2190	629	1410	656	348	531	175
31	290	---	594	488	---	2360	---	1200	---	589	1050	---
TOTAL	16980	17741	21474	20570	28970	42159	37485	29516	17626	17403	23938	11354
MEAN	548	591	693	664	999	1360	1250	952	588	561	772	378
MAX	1510	2260	1740	1690	4740	5220	2520	1860	1290	1160	1800	685
MIN	110	136	255	220	210	316	388	301	257	242	191	149
(*)	-45	+124	+316	-67	+128	+50	-53	+12	-27	+13	-54	-64
CAL YR 1983	TOTAL	281429	MEAN 771	MAX 6750	MIN 91	MEAN# 778	CFSM# 1.45	IN# 19.74				
WTR YR 1984	TOTAL	285216	MEAN 779	MAX 5220	MIN 110	MEAN# 807	CFSM# 1.50	IN# 20.42				

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.

# Adjusted for change in contents.



## ROANOKE RIVER BASIN

02074218 DAN RIVER NEAR MAYFIELD, NC

LOCATION.--Lat 36°32'29", long 79°36'21", Rockingham County, Hydrologic Unit 03010103, near right bank on downstream end of bridge pier on Secondary Road 1761, at North Carolina-Virginia State line, 2.2 mi upstream from Whiteoak Creek, 3.0 mi northwest of Mayfield, and at mile 81.0.

DRAINAGE AREA.--1,778 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to September 1984 (discontinued).

REVISED RECORDS.--WDR NC-81-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 458.4 ft National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Diurnal fluctuation and regulation at low flow caused by mills and Talbott Reservoir (station 02067800) and Townes Reservoir (station 02067820) on the Dan River and Philpott Lake (station 02074000) on the Smith River. Duke Power Company gage-height and temperature telemeters at station.

AVERAGE DISCHARGE.--8 years, 2,125 ft<sup>3</sup>/s, 16.23 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,300 ft<sup>3</sup>/s Sept. 23, 1979, gage height, 27.31 ft; minimum, 197 ft<sup>3</sup>/s Aug. 25, 1981, gage height, 1.39 ft; minimum daily, 271 ft<sup>3</sup>/s Aug. 24, 31, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1972, reached a stage of 28.1 ft, from floodmarks, discharge, 40,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 13,000 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. 14	1600	20600	20.40	Mar. 29	1200	*22900	21.53
Feb. 24	0830	18000	19.08	May 30	0100	14900	17.23

Minimum discharge, 364 ft<sup>3</sup>/s Oct. 10, gage height, 1.98 ft; minimum daily, 390 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	889	876	1420	2350	1440	3580	5090	2280	3600	1110	1870	2030
2	537	853	1260	2150	1400	3050	4510	2240	3010	1190	1790	1040
3	483	826	1290	1660	1580	2780	3900	2480	1980	1350	1610	922
4	812	846	5260	1750	1710	1880	3640	5480	1860	1360	1560	1180
5	853	833	6120	1750	1410	2150	4310	4260	2190	2030	1310	1170
6	855	707	3770	1700	1470	5190	3770	2620	2130	2280	1080	1080
7	844	620	4160	1800	1490	4370	3290	3190	1980	1900	1510	1020
8	815	849	2700	1340	1420	3290	2280	4250	1940	1170	1580	1010
9	498	846	2050	1270	1400	2900	2290	3720	1850	969	1580	855
10	390	2370	1720	1830	1390	2570	6350	3280	1230	1180	1880	768
11	808	2720	1450	6070	1370	1910	6470	3000	1210	2240	2040	944
12	1310	1640	2960	4450	1140	1850	4360	2750	1350	2160	4910	991
13	1410	987	6240	2840	1840	3290	3720	1810	1430	2280	2700	979
14	1400	891	3240	2600	17900	5500	3590	1770	1360	1910	4660	955
15	1380	1780	2390	1710	10200	3630	3780	2280	1400	1450	2840	949
16	735	6230	1960	1570	4580	2800	3160	2150	1360	1450	2370	774
17	556	2930	1670	1760	3630	2590	3280	2130	1240	1390	1930	669
18	798	1760	1450	2170	2980	1900	3040	2110	1400	6830	1810	792
19	853	1410	1400	5120	2030	2080	2890	2110	1410	7210	1120	871
20	839	1080	1450	3620	2010	3070	2810	1390	1290	2460	1150	874
21	1100	1300	1360	2580	2230	7000	2760	1390	1130	1970	1740	874
22	1580	1240	2550	1710	2110	6280	2060	1490	1130	1660	1730	867
23	1390	1080	4630	1450	6300	4020	2470	1540	1270	1560	1700	741
24	4880	1300	2950	2050	16200	3320	2930	1840	1070	1700	1710	629
25	3860	9240	1600	2890	6140	4350	2590	1630	1230	1550	1750	789
26	1750	5310	1220	2810	4380	10800	2440	1500	1310	2550	880	852
27	1210	2450	1500	2360	3130	6130	2310	1750	1190	4330	875	829
28	1010	1800	1800	2140	5320	8080	2280	4290	1140	3900	1110	811
29	943	1670	3760	1580	4080	21800	1740	10200	1560	4780	1390	847
30	793	1680	2810	1500	---	13000	1940	10400	1470	2760	1300	812
31	703	---	2340	1550	---	6200	---	4370	---	2050	2200	---
TOTAL	36284	58124	80480	72130	112280	151360	100050	95700	47720	72729	57685	27924
MEAN	1170	1937	2596	2327	3872	4883	3335	3087	1591	2346	1861	931
MAX	4880	9240	6240	6070	17900	21800	6470	10400	3600	7210	4910	2030
MIN	390	620	1220	1270	1140	1850	1740	1390	1070	969	875	629
(*)	-45	+124	+316	-67	+128	+50	-53	+12	-27	+13	-54	-64

CAL YR 1983 TOTAL 804902 MEAN 2205 MAX 17800 MIN 298 MEAN# 2212 CFSM# 1.24 IN# 16.83  
WTR YR 1984 TOTAL 912466 MEAN 2493 MAX 21800 MIN 390 MEAN# 2521 CFSM# 1.42 IN# 19.30

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake, furnished by Corps of Engineers.  
# Adjusted for change in contents.

## ROANOKE RIVER BASIN

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02074218 DAN RIVER NEAR MAYFIELD, NC--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968-70, 1972-73, 1977 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1976 to September 1982.

WATER TEMPERATURES: October 1976 to current year.

INSTRUMENTATION.--Temperature recorder since October 1977.

REMARKS.--Water temperatures near left bank sometimes affected by heated releases from power plant located 8.4 mi upstream.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 282 micromhos Oct. 11, 1981; minimum daily, 37 micromhos Oct. 10, 1976.

WATER TEMPERATURES: Maximum, 33.5°C June 16, 1981; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 27.5°C June 13, 14, 20, 21, Aug. 6, 7; minimum, 0.0°C Jan. 23.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	16.0	15.5	16.0	12.5	10.5	11.5				---	---	---
2	18.5	15.5	17.0	12.5	11.0	12.0				---	---	---
3	19.5	16.0	17.5	13.5	11.5	12.5				---	---	---
4	19.0	17.0	18.0	14.0	12.5	13.0				---	---	---
5	20.5	18.0	19.5	12.0	10.0	11.0				---	---	---
6	20.5	19.0	20.0	11.0	9.5	10.0				---	---	---
7	19.5	18.0	19.0	10.5	9.0	9.5				---	---	---
8	18.0	16.0	17.0	11.0	9.0	10.0				---	---	---
9	17.0	16.0	16.5	11.5	10.0	10.5				---	---	---
10	16.5	15.0	16.0	13.0	11.0	12.0				5.5	4.0	5.0
11	16.5	15.5	16.0	13.0	11.5	12.5				5.5	4.5	5.0
12	16.5	16.0	16.0	11.5	10.0	10.5				4.5	3.5	4.0
13	16.0	16.5	17.0	10.0	9.0	9.5				3.5	2.5	3.0
14	17.5	16.5	17.0	9.5	7.5	8.5				3.5	2.5	3.0
15	16.5	15.5	16.0	9.0	8.0	9.0				3.0	2.5	3.0
16	16.5	14.0	15.5	9.0	8.5	8.5				3.5	2.5	3.0
17	16.5	14.0	15.0	8.5	8.0	8.5				4.5	3.0	4.0
18	16.0	14.5	15.0	8.5	7.5	8.0				4.5	4.0	4.0
19	16.5	15.0	15.5	9.0	7.5	8.5				5.0	4.0	4.5
20	15.5	14.5	15.5	9.0	8.0	8.5				4.0	3.0	3.5
21	14.5	13.5	14.0	10.0	8.5	9.0				3.0	1.5	2.0
22	13.5	13.0	13.0	9.5	8.5	9.0				1.5	.5	1.0
23	13.0	12.5	12.5	9.5	8.5	9.0				1.5	.0	1.0
24	13.5	12.5	13.0	11.0	9.0	10.0				2.0	1.0	1.5
25	14.5	13.5	14.0	11.0	10.5	11.0				4.0	2.0	3.0
26	14.5	13.5	14.0	10.0	2.0	9.0				4.5	3.5	4.0
27	13.5	12.5	13.0	8.5	7.5	8.0				5.5	4.0	4.5
28	13.0	11.5	12.0	9.5	8.0	8.5				5.5	4.5	5.0
29	13.5	11.5	12.5	9.5	9.0	9.5				5.5	5.0	5.0
30	12.5	11.5	12.0	9.0	7.5	8.0				5.0	4.0	4.5
31	12.0	10.5	11.0	---	---	---				5.0	3.5	4.5
MONTH	20.5	10.5	15.5	14.0	2.0	10.0				5.5	.0	3.5

## 02074218 DAN RIVER NEAR MAYFIELD, NC--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	4.5	3.0	4.0	5.5	4.5	5.0	10.5	9.0	9.5	18.5	17.5	18.0
2	4.5	2.5	3.5	5.5	5.0	5.0	10.0	9.0	9.5	18.0	16.5	17.0
3	4.0	3.5	4.0	5.5	5.0	5.0	10.5	10.0	10.0	16.5	15.0	15.5
4	5.5	4.0	4.5	6.5	5.0	5.5	10.5	10.0	10.5	15.0	14.5	15.0
5	6.0	5.5	6.0	7.5	6.5	7.0	11.5	9.5	10.5	16.0	14.5	15.0
6	6.0	5.0	5.5	8.0	7.5	7.5	12.0	11.0	11.5	16.0	16.0	16.0
7	5.0	3.5	4.0	8.5	7.5	8.0	12.0	10.5	11.0	17.5	16.0	16.5
8	4.5	2.5	3.5	8.0	7.0	7.5	12.0	11.0	11.5	18.0	17.5	18.0
9	4.5	2.5	3.0	9.0	6.5	7.0	12.0	11.0	11.5	17.5	16.5	17.0
10	4.5	3.0	3.5	6.5	5.5	6.0	11.0	9.0	10.0	16.5	14.5	15.0
11	6.5	4.0	5.5	6.0	4.5	5.5	10.0	8.5	9.5	16.0	14.5	15.0
12	8.0	6.0	7.0	7.0	5.0	6.0	12.0	10.0	10.5	16.5	15.5	16.0
13	10.0	8.0	8.5	7.0	6.0	6.5	13.5	11.5	12.0	18.0	16.5	17.5
14	10.5	10.0	10.0	7.0	6.0	6.5	14.5	13.5	14.0	19.0	18.0	18.5
15	10.0	9.5	9.5	9.0	7.0	8.0	15.0	14.5	14.5	19.0	17.5	18.0
16	9.5	9.0	9.0	10.5	9.0	9.5	14.5	14.0	14.0	18.0	16.0	16.5
17	9.0	8.5	9.0	11.5	10.5	11.0	14.0	13.0	13.5	16.0	15.0	15.5
18	9.5	8.5	9.0	12.5	11.0	11.5	13.0	12.0	12.0	16.0	14.5	15.0
19	10.0	8.5	9.5	12.5	12.0	12.0	12.0	11.0	11.5	17.0	15.5	16.0
20	---	---	---	12.5	12.0	12.5	13.0	11.0	12.0	20.5	17.0	18.5
21	---	---	---	12.5	11.0	11.5	13.0	12.5	13.0	22.0	20.0	21.0
22	---	---	---	11.0	10.5	10.5	13.0	11.5	12.5	23.0	21.0	22.0
23	---	---	---	11.0	9.5	10.5	11.5	11.0	11.0	23.0	22.0	22.5
24	8.0	7.0	7.5	10.5	9.5	10.0	11.0	10.5	10.5	22.0	20.5	21.5
25	9.0	8.0	8.5	11.5	10.5	11.0	13.0	10.0	11.0	22.0	20.0	21.0
26	8.5	7.5	8.0	11.5	11.0	11.0	16.0	13.0	14.0	22.5	20.5	21.5
27	8.0	6.0	6.5	11.0	10.5	10.5	17.0	15.5	16.0	22.5	21.5	22.0
28	6.0	5.5	5.5	10.5	10.5	10.5	17.0	17.0	17.0	21.0	20.5	21.0
29	6.0	5.0	5.5	10.5	9.5	9.5	18.0	17.0	17.5	21.0	19.0	20.0
30	---	---	---	10.0	9.0	9.5	18.5	18.0	18.5	19.0	17.5	19.0
31	---	---	---	9.5	9.0	9.5	---	---	---	17.5	16.5	16.5
MONTH	10.5	2.5	6.5	12.5	4.5	8.5	18.5	8.5	12.5	23.0	14.5	18.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	16.5	14.5	15.0	23.0	21.0	22.0	22.5	21.0	21.5	---	---	---
2	17.0	15.0	16.0	23.5	22.5	23.0	23.5	22.0	22.5	---	---	---
3	20.0	17.0	18.0	24.0	22.0	23.0	25.0	23.5	24.0	---	---	---
4	22.0	20.0	21.0	24.0	23.5	23.5	26.0	24.5	25.0	---	---	---
5	23.0	21.5	22.5	24.0	23.5	23.5	26.0	24.5	25.0	---	---	---
6	23.0	22.0	22.5	24.5	23.5	24.0	27.5	25.0	26.0	---	---	---
7	23.5	22.0	23.0	24.5	24.0	24.0	27.5	26.0	26.5	---	---	---
8	24.0	23.0	23.5	24.5	23.0	24.0	26.5	25.5	26.0	---	---	---
9	24.0	22.5	23.5	25.5	23.5	24.5	26.0	25.0	25.5	---	---	---
10	26.0	23.0	24.5	25.5	24.0	24.5	26.0	24.0	24.5	---	---	---
11	27.0	24.5	25.5	25.0	23.5	24.5	24.5	23.0	23.5	22.5	20.5	21.5
12	27.0	25.5	26.5	25.0	24.5	25.0	23.0	22.0	22.5	23.0	21.5	22.5
13	27.5	25.5	26.5	25.0	24.5	25.0	24.0	22.5	23.0	23.0	22.5	22.5
14	27.5	26.0	26.5	24.5	23.5	24.0	24.0	23.0	23.5	23.5	22.0	23.0
15	26.5	25.0	25.5	25.0	23.5	24.0	25.0	22.5	24.0	23.5	22.5	23.0
16	26.5	23.5	25.0	25.0	24.5	25.0	25.0	24.0	24.5	22.5	20.0	21.0
17	24.5	23.0	23.5	25.0	24.5	25.0	24.5	22.5	23.0	20.0	18.5	19.0
18	26.0	23.5	24.5	24.5	22.5	22.5	23.5	21.5	22.0	18.5	17.0	17.5
19	27.0	25.0	26.0	24.0	22.5	23.0	23.5	21.5	22.5	18.0	15.5	17.0
20	27.5	26.0	27.0	24.0	22.5	23.0	24.0	23.0	23.5	18.5	16.0	17.5
21	27.5	25.5	26.0	22.5	22.5	22.5	24.0	22.5	23.0	19.5	17.0	18.0
22	25.5	24.0	24.5	22.5	22.0	22.0	22.0	20.0	20.5	20.5	18.5	19.5
23	24.5	23.5	24.0	23.0	22.0	22.0	21.5	20.0	20.5	21.5	19.0	20.0
24	23.5	22.5	23.0	24.0	22.5	23.0	20.0	18.5	19.5	21.5	20.0	20.5
25	24.0	22.0	23.0	24.0	23.5	23.5	20.5	19.5	20.0	22.0	20.5	21.0
26	24.0	22.5	23.5	23.5	22.0	22.5	23.0	20.0	21.0	21.5	20.5	21.0
27	24.5	22.5	23.5	23.0	22.0	22.5	23.0	21.5	22.5	21.5	17.5	19.5
28	24.5	23.5	24.0	23.0	21.0	21.5	23.5	22.5	23.0	17.5	15.0	16.0
29	24.0	23.0	23.5	22.0	21.0	21.5	23.5	22.5	23.0	15.0	14.5	14.5
30	23.0	22.0	22.5	22.0	21.0	21.5	24.0	23.0	23.5	14.5	14.0	14.0
31	---	---	---	21.0	20.5	20.5	23.5	22.0	23.0	---	---	---
MONTH	27.5	14.5	23.5	25.5	20.5	23.0	27.5	18.5	23.0	23.5	14.0	19.5
YEAR	27.5	.0	15.0									

## 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 National Geodetic Vertical Datum of 1929. Prior to June 26, 1942, at site 1,200 ft downstream at datum 5.57 ft lower.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by small mill above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--55 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 above base 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. 25	0900	1620	4.56	Mar. 29	0400	3560	6.15
Feb. 14	0900	3790	6.30	Apr. 14	2330	1750	4.70
Mar. 21	1000	1510	4.43	Aug. 13	0230	*4410	6.69
Mar. 26	0400	2260	5.19	Aug. 13	2300	2770	5.60

Minimum discharge, 25 ft<sup>3</sup>/s Oct. 8, gage height, 1.03 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	44	86	120	86	146	200	136	120	69	73	75
2	32	44	82	110	84	132	176	130	106	63	68	67
3	30	44	89	100	89	123	162	164	98	72	65	63
4	28	44	604	94	102	115	229	211	91	63	62	78
5	27	42	266	88	100	173	395	151	87	63	58	68
6	29	42	233	87	92	284	227	153	85	84	60	61
7	27	42	201	85	86	197	180	182	82	82	71	60
8	26	44	138	80	82	158	160	168	80	68	59	59
9	27	44	114	79	83	137	158	148	77	60	60	59
10	26	293	102	128	82	124	859	137	74	58	58	61
11	36	162	93	447	86	119	355	130	72	59	88	61
12	55	69	454	193	84	112	224	125	71	55	240	59
13	42	50	571	138	84	286	188	121	70	62	1450	57
14	67	44	215	126	2350	290	374	118	68	61	869	58
15	41	241	154	119	510	177	763	111	68	59	176	56
16	37	565	124	108	231	150	277	107	73	56	116	52
17	36	132	108	102	171	133	215	106	83	56	95	51
18	35	77	98	145	144	124	189	106	90	395	86	52
19	35	62	93	215	129	151	174	105	70	116	85	53
20	40	65	88	148	118	139	167	102	65	76	78	53
21	76	99	85	115	109	708	165	99	64	84	72	51
22	71	67	281	90	103	286	167	97	65	79	71	50
23	169	57	259	100	546	185	201	105	64	78	70	50
24	237	112	154	117	605	154	176	118	78	69	71	50
25	89	1000	108	149	227	418	160	100	83	65	67	50
26	66	252	95	121	163	1290	151	97	66	77	66	47
27	55	148	90	110	169	324	147	270	62	74	64	44
28	50	121	155	104	216	1470	143	357	66	109	69	48
29	48	108	270	98	183	2150	143	302	67	96	75	53
30	45	92	200	93	---	402	143	283	69	82	68	60
31	44	---	130	91	---	246	---	147	---	76	119	---
TOTAL	1655	4206	5740	3900	7114	10903	7268	4686	2314	2566	4729	1706
MEAN	53.4	140	185	126	245	352	242	151	77.1	82.8	153	56.9
MAX	237	1000	604	447	2350	2150	859	357	120	395	1450	78
MIN	26	42	82	79	82	112	143	97	62	55	58	44
CFSM	.48	1.25	1.65	1.13	2.19	3.14	2.16	1.35	.69	.74	1.37	.51
IN.	.55	1.40	1.91	1.30	2.36	3.62	2.41	1.56	.77	.85	1.57	.57

CAL YR 1983	TOTAL	44075	MEAN 121	MAX 1310	MIN 17	CFSM 1.08	IN 14.64
WTR YR 1984	TOTAL	56787	MEAN 155	MAX 2350	MIN 26	CFSM 1.38	IN 18.86



## ROANOKE RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation caused by cotton mills above station. Since August 1950, flow regulated by Philpott Lake (station 02071900) 74.7 mi upstream. Gage-height and Corps of Engineers satellite telemeters at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--50 years, 2,322 ft<sup>3</sup>/s, 15.38 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, 27,600 ft<sup>3</sup>/s Mar. 29, gage height, 13.19 ft; minimum, 324 ft<sup>3</sup>/s Aug. 4, gage height, 1.84 ft; minimum daily, 495 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	918	918	1550	1830	1610	4250	5830	2520	4190	1410	2190	2700
2	858	910	1390	1820	1530	3590	5140	2540	3340	1320	2090	1560
3	538	900	1360	1830	1610	3280	4660	2760	2360	1470	1930	1200
4	739	902	4640	1900	1860	2380	4280	5360	2030	1530	1760	1360
5	921	895	6860	1850	1640	2360	5750	5440	2160	1930	1680	1470
6	910	808	4180	1830	1570	5630	4690	3240	2280	2540	1310	1340
7	914	667	4500	1820	1670	5480	3950	3500	2210	2290	1600	1250
8	899	893	3120	1580	1560	4100	2830	4720	2100	1430	1770	1220
9	752	878	2290	1360	1520	3560	2560	4400	1990	1110	1730	1200
10	495	1900	1910	2080	1530	3180	7170	3760	1650	1150	2150	960
11	660	3280	1630	6550	1530	2690	8340	3390	1270	2180	2270	1080
12	1330	1910	3100	5190	1330	2290	5490	3110	1360	2120	6050	1190
13	1480	1180	6790	3230	1370	3680	4480	2120	1530	2880	7430	1130
14	1460	1000	3830	2760	15500	6480	4100	1920	1430	2100	6450	1110
15	1460	1620	2680	2070	17900	4620	5070	2400	1500	1690	4220	1100
16	1020	6250	2160	1810	5870	3530	4080	2310	1480	1650	3050	1030
17	638	3600	1840	1820	4360	3160	3910	2280	1440	1430	2390	774
18	736	2010	1640	2340	3620	2600	3570	2260	1510	8060	2180	847
19	922	1540	1510	4990	2600	2380	3380	2240	1520	9500	1770	978
20	940	1290	1600	4050	2280	3520	3250	1660	1400	7450	1400	1010
21	1140	1500	1470	2820	2470	7010	3160	1460	1310	2570	1960	1000
22	1570	1440	2390	2100	2400	7760	2590	1640	1170	2160	2070	990
23	1680	1230	4630	1590	4840	4980	2880	1660	1360	1910	2040	989
24	4290	1260	3410	2150	15700	3940	3240	1990	1290	1970	2040	723
25	4080	8290	2180	3060	8020	5720	3170	1810	1350	1800	2070	837
26	2080	6630	1580	3070	5180	12800	2860	1630	1410	2360	1370	955
27	1340	3020	1510	2570	3630	7820	2700	2020	1310	4870	1080	950
28	1100	2040	2050	2350	5440	8370	2620	4700	1340	4360	1280	916
29	1010	1840	3610	1910	4930	25700	2140	8660	1760	6130	1720	958
30	929	1740	3280	1680	---	18700	2210	11700	1660	3700	1610	1060
31	736	---	2320	1710	---	7070	---	5420	---	2490	2360	---
TOTAL	38545	62341	87010	77720	125070	182630	120100	104620	52710	89560	75020	33887
MEAN	1243	2078	2807	2507	4313	5891	4003	3375	1757	2889	2420	1130
MAX	4290	8290	6860	6550	17900	25700	8340	11700	4190	9500	7430	2700
MIN	495	667	1360	1360	1330	2290	2140	1460	1170	1110	1080	723
(*)	-45	+124	+316	-67	+128	+50	-53	+12	-27	+13	-54	-64
MEAN#	1198	2202	3123	2440	4441	5941	3950	3387	1730	2902	2366	1066
CFSM#	.58	1.07	1.52	1.19	2.17	2.90	1.93	1.65	.84	1.42	1.15	.52
IN#	.67	1.19	1.75	1.37	2.34	3.34	2.15	1.90	.94	1.64	1.33	.58

CAL YR 1983 TOTAL 852320 MFAN 2335 MAX 20800 MIN 363 MEAN# 2342 CFSM# 1.14 IN# 15.51  
WTR YR 1984 TOTAL 1049213 MEAN 2867 MAX 25700 MIN 495 MEAN# 2894 CFSM# 1.41 IN# 19.17

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.  
# Adjusted for change in contents.

## ROANOKE RIVER BASIN

279

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation caused by cotton mills at Danville. Since August 1950, flow regulated by Philpott Lake (station 02071900) 101.4 mi upstream. Gage-height and Corps of Engineers satellite telemeters at station.

AVERAGE DISCHARGE.--33 years (water years 1952-84), 2,730 ft<sup>3</sup>/s, 14.54 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, 26,100 ft<sup>3</sup>/s Mar. 30, gage height, 23.16 ft; minimum, 388 ft<sup>3</sup>/s Oct. 10, gage height, 2.40 ft; minimum daily, 412 ft<sup>3</sup>/s Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	857	810	2060	2530	2130	5410	7410	2650	4910	2980	2660	2740
2	958	1010	1810	2130	1980	4410	6200	2840	4040	2130	2790	2170
3	625	994	1710	2270	1930	3910	5610	2910	3320	2050	2460	1320
4	486	997	4310	2230	2200	3300	5160	4010	2560	1970	2300	1280
5	830	990	9770	2240	2390	2920	9030	6450	2520	1930	1860	1540
6	921	953	6530	2230	2100	6960	7370	4270	2710	2910	1640	1450
7	906	807	6860	2140	2070	8370	5350	3570	2600	2970	1630	1330
8	904	687	5020	2180	2010	6100	4260	4520	2480	2510	1940	1250
9	874	1010	3340	1690	1920	4610	3420	4920	2380	1760	1890	1240
10	565	1160	2630	2230	1880	3890	7210	4190	2220	1490	2030	1050
11	412	3910	2230	11500	1880	3380	10800	3730	1660	1850	2300	989
12	895	2770	3840	10500	1850	2710	7110	3440	1680	2690	4630	1190
13	1560	1820	9650	6580	1620	3440	5490	2900	1820	3340	7380	1210
14	1620	1200	6850	4100	12600	7410	4930	2270	1880	2910	6260	1190
15	1590	1400	4100	3460	23200	6310	6030	2380	1870	2680	5120	1200
16	1460	6280	3090	2610	19900	4520	5120	2630	1900	2170	3080	1150
17	848	6330	2550	2410	6770	3730	4290	2530	1890	1910	2660	910
18	571	3110	2210	2970	4830	3280	4110	2510	1810	5510	2310	783
19	831	2100	1940	6470	3870	2960	3830	2490	1930	11700	2180	937
20	956	1770	1950	6790	2930	3780	3660	2340	1830	6090	1530	1040
21	1140	2140	1850	4380	2800	7100	3540	1750	1700	3040	1620	1030
22	1450	2110	2570	3170	2910	10500	3360	1830	1530	2870	2060	1030
23	1940	1710	5590	2280	4770	6590	3300	1940	1590	2340	2050	1020
24	3430	1510	5250	2490	15200	4860	3890	2360	1710	2130	2030	860
25	5310	7000	3170	5030	17900	5730	3770	2290	1640	2090	2020	719
26	3470	11500	2210	5120	7600	12600	3320	1970	1780	1980	1950	906
27	1880	5120	1790	3910	5120	12100	3110	2220	1730	3730	1150	976
28	1390	2960	2390	3270	6900	8410	2960	3880	1660	5700	1160	939
29	1190	2400	4540	2880	7010	19800	2820	8070	2170	7840	1580	938
30	1110	2190	5100	2290	---	25500	2440	15500	3560	6800	1710	1020
31	900	---	3090	2180	---	17900	---	8430	---	4140	1800	---
TOTAL	41879	78748	120000	116260	170270	222490	148900	117790	67080	106210	77780	35407
MEAN	1351	2625	3871	3750	5871	7177	4963	3800	2236	3426	2509	1180
MAX	5310	11500	9770	11500	23200	25500	10800	15500	4910	11700	7380	2740
MIN	412	687	1710	1690	1620	2710	2440	1750	1530	1490	1150	719
(*)	-45	+124	+316	-67	+128	+50	-53	+12	-27	+13	-54	-64
MEAN#	1306	2749	4187	3683	5999	7227	4910	3812	2209	3439	2455	1116
CFSM#	.51	1.08	1.64	1.44	2.35	2.83	1.92	1.49	.87	1.35	.96	.44
IN#	.59	1.20	1.89	1.66	2.53	3.26	2.14	1.72	.97	1.56	1.11	.49

CAL YR 1983 TOTAL 1112887 MEAN 3049 MAX 18600 MIN 269 MEAN# 3055 CFSM# 1.20 IN# 16.27  
WTR YR 1984 TOTAL 1302814 MEAN 3560 MAX 25500 MIN 412 MEAN# 3587 CFSM# 1.41 IN# 19.10

\* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.  
# Adjusted for change in contents.

## ROANOKE RIVER BASIN

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 TEMPERATURES: January 1954 to September 1956.

SUSPENDED-SEDIMENT DISCHARGE: January 1954 to September 1981.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
DEC 14...	1245	6560	68	6.8	9.0	765	100	10.9	94	1200	K3100
JAN 19...	1100	6350	91	6.6	3.5	752	65	13.2	101	K1300	K4000
FEB 29...	1130	7080	77	6.8	5.0	740	80	11.8	95	--	130
APR 25...	1030	3750	92	7.1	12.5	742	20	10.4	100	400	38
JUN 12...	1000	1650	109	7.2	26.5	751	13	6.6	83	120	74
AUG 29...	0845	1510	131	7.2	23.5	747	3.0	7.1	85	350	800

K Result based on colony count outside optimal range.

DATE	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- LINEITY LAB (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)	SILICA, DIS- SOLVED (MG/L AS SI02)
DEC 14...	19	3	4.5	1.8	5.9	1.7	16	12	5.7	.10	12
JAN 19...	22	2	5.2	2.1	9.5	1.6	20	13	9.1	<.10	14
FEB 29...	19	4	4.6	1.8	6.4	1.5	15	12	6.2	<.10	12
APR 25...	21	0	5.2	2.0	9.5	1.5	22	11	8.6	.10	14
JUN 12...	21	0	5.2	2.0	12	1.7	24	7.1	13	.20	16
AUG 29...	23	0	5.7	2.1	16	1.7	29	7.8	19	.10	16

&lt; Actual value is known to be less than the value shown.

## ROANOKE RIVER BASIN

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02075500 DAN RIVER AT PACES, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)
DEC 14...	60	54	.33	.230	1.3	.100	.060	.040	170	<1
JAN 19...	73	67	.39	.100	.50	.060	.020	<.010	--	--
FEB 29...	62	54	.28	.040	.30	.070	.010	.040	70	1
APR 25...	68	66	.33	.100	.30	.100	.050	.050	10	1
JUN 12...	76	72	<.10	.020	.30	.120	.090	.060	--	--
AUG 29...	86	87	.25	<.010	.80	.130	.090	.080	20	1

&lt; Actual value is known to be less than the value shown.

DATE	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)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
DEC 14...	72	<.5	<1	10	<3	3	250	2	<4	11
JAN 19...	--	--	--	--	--	--	--	--	--	--
FEB 29...	25	<.5	<1	<1	<3	4	150	3	<4	10
APR 25...	23	<1	<1	<1	<3	3	140	2	<4	7
JUN 12...	--	--	--	--	--	--	--	--	--	--
AUG 29...	23	<.0	<1	<1	<3	2	530	1	9	8

&lt; Actual value is known to be less than the value shown.

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)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC 14...	<.1	<10	2	<1	<1	36	<6	21	267	61
JAN 19...	--	--	--	--	--	--	--	--	199	89
FEB 29...	.1	<10	3	<1	<1	39	<6	7	168	65
APR 25...	.1	<10	2	<1	<1	43	<6	6	41	74
JUN 12...	--	--	--	--	--	--	--	--	33	88
AUG 29...	<.1	<10	3	<1	<1	44	<6	5	39	61

&lt; Actual value is known to be less than the value shown.



## ROANOKE RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Occasional regulation at low flow from unknown source. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 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 above base 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)
Dec. 12	2200	252	3.65	Mar. 29	0300	420	4.60
Feb. 14	1200	*620	5.60	Apr. 14	2100	153	2.94
Feb. 23	1530	170	3.08				

Minimum discharge, 2.7 ft<sup>3</sup>/s Oct. 7, 8, gage height, 0.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	4.5	7.8	9.2	7.6	16	18	14	11	8.1	7.2	6.4
2	3.7	4.5	7.8	9.0	7.5	15	17	14	10	7.5	6.9	6.1
3	3.4	4.5	8.2	9.0	8.6	14	16	19	9.9	7.5	6.4	5.5
4	3.2	4.5	47	8.7	9.2	14	35	22	9.6	6.6	5.8	5.8
5	3.1	4.4	17	9.0	8.7	18	56	17	9.6	9.0	5.5	5.2
6	3.1	4.3	18	8.3	8.1	17	24	21	9.6	13	5.8	5.2
7	2.9	4.2	14	8.0	7.7	17	18	19	9.0	8.4	5.8	5.2
8	3.0	4.2	11	7.8	7.4	17	18	17	8.7	7.5	5.5	5.0
9	3.1	4.4	9.3	7.6	7.4	16	18	16	8.1	6.9	5.2	5.2
10	3.4	22	8.7	14	7.4	15	45	15	8.4	7.2	5.2	5.2
11	6.2	11	8.3	27	7.8	15	25	14	7.8	6.9	7.5	5.2
12	7.6	7.4	84	13	7.4	14	20	14	7.8	6.4	16	5.2
13	6.3	6.8	59	11	7.8	27	21	13	7.8	6.6	28	5.0
14	6.2	6.5	21	11	227	20	48	13	7.5	6.4	30	5.0
15	4.7	27	15	9.9	36	16	42	12	7.5	6.4	10	4.7
16	4.2	20	12	9.4	19	16	25	12	16	5.8	8.1	4.4
17	3.9	10	10	8.8	16	15	21	12	11	6.1	7.2	4.4
18	3.7	8.4	9.8	11	15	14	19	12	9.6	30	7.8	4.7
19	3.6	7.5	9.4	11	14	14	18	12	8.4	9.3	7.8	4.7
20	7.3	11	9.1	9.2	13	14	17	11	7.5	7.5	6.6	4.4
21	13	13	8.7	8.3	12	20	16	11	7.5	9.9	6.4	4.4
22	7.8	8.7	35	7.8	12	17	17	11	7.2	9.9	6.4	4.3
23	27	7.8	21	8.1	67	16	21	12	7.5	12	6.4	4.4
24	11	16	14	10	41	15	17	12	11	8.1	6.6	4.3
25	7.1	55	11	12	19	36	16	11	8.7	7.5	5.8	4.3
26	5.8	17	10	9.4	17	38	15	11	7.8	7.5	5.8	4.3
27	5.3	11	9.0	8.9	17	20	14	13	6.9	7.2	5.8	4.3
28	5.2	10	20	8.5	20	65	14	14	6.9	8.1	5.8	5.0
29	5.0	9.6	16	8.4	17	152	15	15	7.8	7.8	5.8	5.5
30	4.8	8.3	11	8.2	---	30	15	13	8.7	7.8	6.4	6.9
31	4.6	---	10	8.1	---	22	---	12	---	7.2	9.9	---
TOTAL	183.0	333.5	552.1	309.6	664.6	755	681	434	264.8	266.1	259.4	150.2
MEAN	5.90	11.1	17.8	9.99	22.9	24.4	22.7	14.0	8.83	8.58	8.37	5.01
MAX	27	55	84	27	227	152	56	22	16	30	30	6.9
MIN	2.9	4.2	7.8	7.6	7.4	14	14	11	6.9	5.8	5.2	4.3
CFSM	.64	1.20	1.93	1.08	2.48	2.64	2.46	1.52	.96	.93	.91	.54
IN.	.74	1.34	2.22	1.25	2.68	3.04	2.74	1.75	1.07	1.07	1.04	.60

CAL YR 1983	TOTAL	4187.7	MEAN	11.5	MAX	158	MIN	2.1	CFSM	1.25	IN	16.86
WTR YR 1984	TOTAL	4853.3	MEAN	13.3	MAX	227	MIN	2.9	CFSM	1.44	IN	19.54

## ROANOKE RIVER BASIN

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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 National Geodetic Vertical Datum of 1929 (levels by 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.--Records good. Low and medium flow regulated at times during year by a lake 0.5 mi above station. Several observations 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, 510 ft<sup>3</sup>/s, 12.66 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, 8,800 ft<sup>3</sup>/s Feb. 15, gage height, 21.74 ft; minimum daily, 76 ft<sup>3</sup>/s Oct. 9-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	162	391	453	476	922	1380	581	540	271	300	272
2	84	157	334	480	445	743	986	551	451	257	298	231
3	83	159	332	504	430	674	883	540	391	242	289	205
4	83	158	956	476	457	624	940	659	366	235	295	218
5	82	156	2250	476	495	649	2660	763	313	228	288	238
6	81	153	1480	457	496	1360	3050	670	305	233	236	220
7	79	151	1310	436	469	1530	1490	852	306	297	232	193
8	77	153	956	412	428	1250	1010	890	299	281	224	182
9	76	155	659	385	402	927	867	739	289	240	208	178
10	76	212	539	478	390	757	1520	640	277	214	223	179
11	79	378	480	3010	391	679	2710	574	188	204	248	181
12	88	412	847	3270	400	627	1860	536	179	204	555	182
13	112	280	3000	1440	401	822	1140	501	233	226	756	177
14	175	224	3180	835	2930	2190	1160	465	231	207	1360	174
15	172	317	1440	747	8410	1660	2020	422	227	196	2690	172
16	151	1110	821	683	6070	1030	1730	401	293	189	2610	158
17	136	1160	631	609	1840	822	1170	260	730	183	733	156
18	128	662	542	624	982	717	922	316	683	631	477	150
19	127	434	482	960	815	672	814	377	425	1210	408	148
20	131	367	438	1010	712	677	751	367	324	748	362	150
21	193	562	402	731	634	1040	710	351	280	446	315	148
22	250	665	553	546	569	1790	693	340	260	515	162	145
23	342	472	1450	445	954	1260	864	365	250	438	216	143
24	750	407	1210	515	3810	850	1050	433	252	405	246	140
25	604	1490	707	859	3330	1530	842	399	279	164	239	140
26	344	2720	419	957	1400	3540	718	354	278	241	220	139
27	243	1430	393	738	927	4040	663	587	242	261	207	133
28	199	730	581	639	1140	2400	626	1210	246	390	208	133
29	181	565	1000	583	1220	5170	607	1250	272	509	329	143
30	172	477	1160	542	---	6700	595	970	260	404	261	162
31	167	---	612	515	---	3510	---	708	---	322	265	---
TOTAL	5549	16478	29555	24815	41423	51162	36431	18071	9669	10591	15460	5190
MEAN	179	549	953	800	1428	1650	1214	583	322	342	499	173
MAX	750	2720	3180	3270	8410	6700	3050	1250	730	1210	2690	272
MIN	76	151	332	385	390	624	595	260	179	164	162	133
CFSM	.33	1.00	1.74	1.46	2.61	3.02	2.22	1.07	.59	.63	.91	.32
IN.	.38	1.12	2.01	1.69	2.82	3.48	2.48	1.23	.66	.72	1.05	.35

CAL YR 1983 TOTAL 234438 MEAN 642 MAX 7260 MIN 60 CFSM 1.17 IN 15.94  
WTR YR 1984 TOTAL 264394 MEAN 722 MAX 8410 MIN 76 CFSM 1.32 IN 17.98

## 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 National Geodetic Vertical Datum of 1929. July 10, 1929, to Mar. 14, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good. Small diurnal fluctuation at low flow in some years caused by mill above 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 observations 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, 257 ft<sup>3</sup>/s, 12.08 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, 4,320 ft<sup>3</sup>/s Feb. 15, gage height, 18.05 ft; minimum, 15 ft<sup>3</sup>/s Oct. 18, gage height, 4.57 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	17	38	717	110	1590	2220	206	314	69	769	54
2	23	22	35	271	106	430	1130	195	220	49	310	47
3	22	23	37	237	103	336	354	198	175	108	269	44
4	22	22	314	231	121	334	367	188	145	174	245	51
5	23	20	290	229	126	589	1650	146	80	162	226	55
6	23	21	322	227	97	1670	2320	172	74	107	213	47
7	25	19	416	221	94	2780	1640	185	73	144	209	46
8	23	17	153	212	103	2860	499	142	69	196	143	44
9	22	20	239	208	168	2080	646	136	63	133	121	43
10	21	24	223	336	273	1160	1340	113	61	130	130	42
11	22	42	219	1600	259	677	1570	108	58	128	138	44
12	27	28	867	2150	251	624	1160	118	54	173	385	44
13	28	24	1700	2500	241	597	728	119	46	237	224	45
14	23	20	1820	1890	1120	687	564	110	44	160	280	44
15	19	26	1970	607	3520	853	538	100	49	386	236	46
16	18	170	770	718	3790	807	597	86	44	502	222	44
17	17	86	268	288	2380	761	737	79	44	431	201	40
18	15	42	239	383	1500	459	596	77	43	620	189	41
19	19	32	228	1100	900	349	281	75	42	894	184	42
20	23	29	221	1020	400	402	270	74	40	718	159	42
21	26	139	210	1000	300	899	263	71	40	847	85	41
22	36	83	386	900	290	1610	261	71	39	1010	82	41
23	31	44	448	730	800	1450	458	75	38	632	80	39
24	75	37	514	309	3000	782	406	106	38	517	72	38
25	42	571	500	988	3300	693	472	73	41	219	69	39
26	27	338	400	1330	1800	863	609	66	40	175	66	38
27	24	95	220	1460	840	924	527	63	38	175	65	29
28	22	58	210	563	1200	996	264	76	45	1450	58	34
29	21	49	647	291	1680	2090	253	135	75	3570	56	40
30	19	43	754	268	---	2850	239	387	55	4020	53	41
31	17	---	873	253	---	2620	---	282	---	2500	56	---
TOTAL	779	2161	15531	23237	28872	35822	22959	4032	2187	20636	5595	1285
MEAN	25.1	72.0	501	750	996	1156	765	130	72.9	666	180	42.8
MAX	75	571	1970	2500	3790	2860	2320	387	314	4020	769	55
MIN	15	17	35	208	94	334	239	63	38	49	53	29
CFSM	.09	.25	1.73	2.60	3.45	4.00	2.65	.45	.25	2.30	.62	.15
IN.	.10	.28	2.00	2.99	3.72	4.61	2.96	.52	.28	2.66	.72	.17
CAL YR 1983	TOTAL	123955	MEAN 340	MAX 3880	MIN 15	CFSM 1.18	IN 15.96					
WTR YR 1984	TOTAL	163096	MEAN 446	MAX 4020	MIN 15	CFSM 1.54	IN 20.99					

## ROANOKE RIVER BASIN

285

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 furnished by 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, 2,088,100 acre-ft Apr. 17, elevation, 310.70 ft; minimum, 1,192,400 acre-ft Oct. 12, elevation, 293.50 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	294.12	1218320	
Oct. 31.....	295.12	1261180	+42860
Nov. 30.....	298.67	1423730	+162550
Dec. 31.....	299.02	1440480	+16750
CAL YR 1983.....			-7860
Jan. 31.....	296.87	1339220	-101260
Feb. 29.....	304.54	1727100	+387880
Mar. 31.....	308.10	1930360	+203260
Apr. 30.....	306.62	1844130	-86230
May 31.....	302.59	1621850	-222280
June 30.....	300.33	1505260	-116590
July 31.....	302.48	1616040	+110780
Aug. 31.....	299.29	1453740	-162300
Sept. 30.....	296.89	1340130	-113610
WTR YR 1984.....			+121810



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 National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation).

REMARKS.--Records good except those for period of no gage-height record, Jan. 10 to Feb. 14, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--23 years, 45.1 ft<sup>3</sup>/s, 11.47 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 above base 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. 25	1200	1220	13.73	Mar. 6	0630	1960	16.18
Dec. 28	2230	1010	12.60	Mar. 29	0900	*2630	17.76
Jan. 10	2400	1770	15.59	Apr. 5	0530	1040	12.81
Feb. 14	Unknown	1200	a13.66	Apr. 10	1800	1730	15.46

a From high-water mark in well.

Minimum discharge, 1.0 ft<sup>3</sup>/s Oct. 10, gage height, 1.24 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	3.4	15	48	46	76	76	36	41	27	19	13
2	2.7	3.5	14	38	40	62	63	32	30	14	16	9.8
3	2.7	3.6	14	30	37	53	56	32	25	61	14	8.6
4	2.5	3.6	97	28	54	47	67	33	21	16	12	13
5	2.4	3.7	75	26	90	221	519	28	18	11	11	12
6	2.3	3.7	181	24	64	1360	135	40	17	37	9.3	9.1
7	2.0	3.8	168	23	58	336	81	51	16	17	8.6	8.2
8	1.6	3.9	48	22	45	146	64	38	15	18	8.0	7.4
9	1.2	4.0	32	20	40	101	56	59	13	13	7.4	6.8
10	1.1	5.2	25	100	34	71	850	34	12	9.3	31	7.0
11	1.3	7.7	22	550	38	61	280	28	11	8.8	44	7.4
12	1.7	6.7	49	160	37	52	116	25	11	20	24	7.8
13	3.0	5.0	487	90	35	187	81	23	9.8	18	23	8.0
14	6.0	4.5	123	65	700	197	136	21	9.3	19	17	8.4
15	3.6	8.4	55	53	209	90	239	20	9.3	12	22	7.8
16	2.6	81	38	46	101	69	100	19	9.8	9.6	15	6.4
17	2.3	24	29	40	75	57	76	18	11	9.1	11	5.5
18	2.1	12	25	85	63	50	62	18	12	83	13	5.5
19	2.1	8.1	23	250	54	47	53	18	10	52	25	4.9
20	2.3	13	21	105	49	45	50	17	8.6	20	15	5.0
21	4.0	100	19	80	42	90	45	15	7.6	14	9.8	4.8
22	6.3	26	360	58	38	67	44	14	7.2	14	8.0	4.5
23	14	14	244	40	270	48	263	15	6.8	34	7.6	4.2
24	49	11	91	80	278	40	120	29	6.8	18	8.0	4.2
25	15	604	50	300	107	45	72	18	7.2	12	7.4	3.9
26	6.8	107	34	120	71	183	57	15	6.6	11	6.4	3.7
27	4.6	38	28	84	80	79	49	14	5.9	12	6.1	3.3
28	3.7	27	246	68	215	173	43	16	12	219	5.9	3.3
29	3.6	22	468	58	119	1600	40	24	110	86	133	3.8
30	3.4	18	185	50	---	189	38	292	22	36	35	4.4
31	3.4	---	65	60	---	102	---	80	---	24	18	---
TOTAL	160.6	1175.8	3331	2801	3089	5944	3931	1122	501.9	954.8	590.5	201.7
MEAN	5.18	39.2	107	90.4	107	192	131	36.2	16.7	30.8	19.0	6.72
MAX	49	604	487	550	700	1600	850	292	110	219	133	13
MIN	1.1	3.4	14	20	34	40	38	14	5.9	8.8	5.9	3.3
CFSM	.10	.73	2.00	1.69	2.00	3.60	2.45	.68	.31	.58	.36	.13
IN.	.11	.82	2.32	1.95	2.15	4.14	2.74	.78	.35	.67	.41	.14

CAL YR 1983 TOTAL 26093.68 MEAN 71.5 MAX 1750 MIN .32 CFSM 1.34 IN 18.18  
WTR YR 1984 TOTAL 23803.30 MEAN 65.0 MAX 1600 MIN 1.1 CFSM 1.22 IN 16.58

## OHIO RIVER BASIN

287

## KANAWHA RIVER BASIN

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 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. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--60 years, 432 ft<sup>3</sup>/s, 28.62 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 above base 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)
Dec. 12	1100	4120	6.53	May 7	2230	3210	5.85
Feb. 14	0830	*4640	6.87				

Minimum discharge, 152 ft<sup>3</sup>/s Oct. 8, 9, 10, gage height, 1.81 ft; minimum daily, 156 ft<sup>3</sup>/s Oct. 8-10.

DISCHARGE, IN CUBIC FEET PER SECOND. WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	234	456	400	280	477	558	463	526	415	382	263
2	192	229	401	492	303	478	514	440	483	344	404	242
3	174	226	479	446	290	462	515	541	446	344	423	238
4	167	222	956	456	279	473	977	656	421	331	357	282
5	163	217	787	355	274	519	1650	539	410	326	333	266
6	163	212	633	372	270	718	1020	515	402	475	319	236
7	161	206	586	351	240	649	807	1990	405	508	305	229
8	156	204	485	327	270	573	688	1860	378	375	285	223
9	156	204	429	318	324	514	655	1140	357	327	279	222
10	156	300	397	350	312	471	879	892	346	303	353	220
11	229	354	455	475	277	453	844	779	356	285	669	218
12	708	254	3060	357	279	434	705	714	387	275	525	212
13	956	230	1330	325	567	464	642	674	456	278	666	206
14	825	221	865	323	3610	491	686	653	507	358	570	203
15	383	277	693	311	1440	446	737	611	366	369	443	199
16	290	375	583	305	870	436	650	574	445	304	367	198
17	254	313	516	301	679	425	613	550	463	296	344	198
18	236	275	462	350	586	416	591	534	361	821	324	195
19	226	256	433	438	520	428	575	522	328	608	316	198
20	232	267	414	353	509	435	563	505	331	372	300	199
21	283	337	398	280	466	742	544	498	343	380	284	192
22	386	310	746	250	433	629	545	485	371	540	277	187
23	656	270	636	285	669	522	586	486	358	411	277	187
24	851	412	505	613	883	479	536	472	375	351	269	186
25	477	827	220	621	659	487	501	454	346	317	256	184
26	365	590	200	395	582	511	470	427	312	297	253	178
27	312	447	205	343	542	460	453	468	296	302	264	175
28	284	655	620	326	578	606	450	791	387	334	273	180
29	264	847	959	314	545	974	554	1180	381	442	277	186
30	249	557	534	300	---	752	478	754	364	467	368	207
31	241	---	340	291	---	621	---	597	---	407	286	---
TOTAL	10392	10328	19783	11423	17536	16545	19986	21789	11707	11962	11048	6309
MEAN	335	344	638	368	605	534	666	703	390	386	356	210
MAX	956	847	3060	621	3610	974	1650	1990	526	821	669	282
MIN	156	204	200	250	240	416	450	440	296	275	253	175
CFSM	1.63	1.68	3.11	1.80	2.95	2.61	3.25	3.43	1.90	1.88	1.74	1.02
IN.	1.89	1.87	3.59	2.07	3.18	3.00	3.63	3.95	2.12	2.17	2.00	1.14

CAL YR 1983	TOTAL	222999	MEAN 61.1	MAX 4760	MIN 156	CFSM 2.98	IN 40.47
WTR YR 1984	TOTAL	168808	MEAN 46.1	MAX 3610	MIN 156	CFSM 2.25	IN 30.63

## KANAWHA RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--55 years, 1,913 ft<sup>3</sup>/s, 22.97 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 above base 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)
Dec. 12	1500	18100	6.01	May 7	2400	*22000	6.83
Feb. 14	1330	21800	6.79				

Minimum discharge, 497 ft<sup>3</sup>/s Oct. 9, gage height, 0.83 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	708	979	2460	1500	1190	2930	3310	2360	2450	2450	1460	1060
2	740	949	2020	2200	1210	2690	2920	2160	2220	1900	1400	940
3	705	934	2040	2100	1250	2530	2680	2480	2050	1950	1420	954
4	652	928	4620	2000	1220	2420	3540	3050	1930	1700	1590	1440
5	618	904	5490	1900	1170	2500	7230	2940	2020	1650	1300	1030
6	605	867	3880	1800	1140	3330	5500	2850	2370	1740	1220	981
7	585	842	3380	1700	1070	3810	4220	11100	1860	2320	1160	900
8	596	824	2730	1700	973	3420	3520	15700	1740	1810	1110	846
9	562	814	2330	1600	1190	2970	3210	8030	1700	1500	1070	831
10	568	1020	2060	1540	1240	2630	4320	5650	1630	1340	1110	828
11	720	1370	1910	2070	1180	2450	4770	4460	1590	1280	2270	823
12	1990	1160	12400	1750	1200	2260	4090	3800	1570	1200	2470	808
13	4370	969	9460	1490	1710	2420	3530	3420	1720	1200	2340	788
14	4470	904	5160	1430	17700	2850	3360	3190	1980	1420	2770	771
15	2390	1000	3820	1350	11800	2760	3560	2940	1860	1880	2140	745
16	1450	1600	3050	1290	6200	2800	3490	2650	1810	1460	1630	720
17	1130	1550	2570	1270	4480	2870	3200	2500	1810	1360	1420	693
18	995	1330	2240	1620	3620	2710	3020	2390	1740	2900	1300	654
19	927	1180	2020	2660	3100	2750	2880	2280	1500	3380	1300	667
20	922	1160	1860	1300	2830	3020	2760	2180	1440	2000	1220	654
21	1210	1280	1750	1100	2600	3770	2730	2090	2450	1770	1120	615
22	2040	1330	3120	900	2340	4180	2870	2030	2220	2870	1070	620
23	2890	1260	3500	1300	3890	3450	3110	2100	1790	2190	1060	600
24	4330	1470	2750	2000	6300	2980	3010	2030	1980	1720	1060	630
25	2900	3610	1500	3030	5040	2840	2740	1880	1880	1480	1040	654
26	2020	3440	900	2120	4140	2980	2510	1790	1610	1360	967	615
27	1600	2510	700	1620	3470	2840	2320	1930	1440	1380	954	602
28	1360	3230	2000	1500	3610	3240	2280	2780	1790	1420	1060	590
29	1200	4240	5110	1410	3490	5390	3110	4570	2070	1440	1040	590
30	1090	3280	2910	1350	---	4940	2640	3950	1950	1460	1110	720
31	1020	---	1200	1290	---	3920	---	2850	---	1610	1120	---
TOTAL	47363	46934	100940	51890	100353	96650	102430	114130	56170	55140	43301	23369
MEAN	1528	1564	3256	1674	3460	3118	3414	3682	1872	1779	1397	779
MAX	4470	4240	12400	3030	17700	5390	7230	15700	2450	3380	2770	1440
MIN	562	814	700	900	973	2260	2280	1790	1440	1200	954	590
CFSM	1.35	1.38	2.88	1.48	3.06	2.76	3.02	3.26	1.66	1.57	1.24	.69
IN.	1.56	1.54	3.32	1.71	3.30	3.18	3.37	3.75	1.85	1.81	1.42	.77

CAL YR 1983 TOTAL 948144 MEAN 2598 MAX 20100 MIN 562 CFSM 2.30 IN 31.19  
WTR YR 1984 TOTAL 838670 MEAN 2291 MAX 17700 MIN 562 CFSM 2.03 IN 27.58

## KANAWHA RIVER BASIN

289

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 TEMPERATURES: October to December 1949, April 1968 to September 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT									
12...	1450	1740	45	6.9	16.0	704	10	8.2	90
NOV									
22...	1300	1340	50	7.3	8.5	707	3	11.9	110
JAN									
03...	1220	2100	44	7.0	.0	712	3	11.8	86
FEB									
24...	1030	6540	85	7.2	4.0	700	33	11.6	96
APR									
05...	1230	7630	41	7.0	8.0	694	35	10.5	97
MAY									
17...	1315	2520	42	7.3	15.0	710	10	9.6	102
JUL									
05...	1210	1610	43	7.1	23.5	7	5	8.2	0
AUG									
27...	1100	954	135	8.4	22.0	706	4	8.6	106

DATE	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)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT									
12...	14	0	3.3	1.5	3.0	2.1	16	5.4	3.8
NOV									
22...	14	0	3.6	1.3	3.2	1.0	17	4.4	3.5
JAN									
03...	14	0	3.3	1.3	3.0	1.2	15	3.9	3.5
FEB									
24...	13	3	3.2	1.3	2.7	1.3	10	4.4	4.5
APR									
05...	12	--	2.9	1.1	2.2	1.1	--	5.8	3.5
MAY									
17...	13	0	3.1	1.2	2.5	.90	12	2.9	2.5
JUL									
05...	13	0	3.2	1.3	2.5	1.3	13	3.1	2.8
AUG									
27...	14	0	3.5	1.3	3.0	1.0	16	3.2	2.7

DATE	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								
12...	<.10	7.6	39	38	.030	.43	.010	56
NOV								
22...	<.10	9.0	36	36	<.010	.50	<.010	110
JAN								
03...	<.10	10	36	35	<.010	.71	.020	49
FEB								
24...	<.10	8.0	50	32	<.010	.68	.040	41
APR								
05...	<.10	7.8	--	--	.030	.59	<.010	26
MAY								
17...	<.10	9.5	41	30	.010	.53	.010	59
JUL								
05...	<.10	9.0	47	31	.010	.62	.010	32
AUG								
27...	.10	8.8	28	33	<.010	.22	<.010	100

&lt; Actual value is known to be less than the value shown.



## 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 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.--Records fair. Several observations 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, 67.8 ft<sup>3</sup>/s, 23.37 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 above base 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)
Dec. 12	0445	1210	3.95	Apr. 4	2030	859	3.24
Feb. 13	2315	*1490	4.62	May 28	1315	900	3.32

Minimum daily discharge, 25 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	43	61	50	52	88	90	76	94	74	51	38
2	32	43	57	60	50	84	84	78	84	67	50	36
3	29	42	65	70	50	81	83	101	78	62	46	43
4	28	42	214	66	50	77	351	101	74	58	44	38
5	27	41	93	59	49	91	271	82	72	65	42	37
6	27	40	91	59	48	90	140	95	75	59	43	36
7	27	40	75	56	49	82	113	332	74	57	41	36
8	27	40	65	55	66	76	102	181	67	53	40	35
9	27	40	60	55	62	70	106	146	64	51	74	35
10	27	86	58	88	47	68	202	112	64	50	69	35
11	98	54	62	86	48	68	126	98	64	49	79	34
12	176	45	549	63	48	65	107	91	63	51	78	34
13	158	43	137	58	255	97	99	86	75	63	115	33
14	87	42	99	58	838	79	102	84	62	63	89	33
15	53	66	85	57	172	71	100	77	62	53	62	32
16	46	61	74	56	113	69	94	74	62	50	52	32
17	43	50	68	54	93	66	88	72	62	52	48	32
18	41	47	63	91	83	64	85	71	58	157	47	32
19	40	45	61	75	77	75	84	69	56	64	49	33
20	44	47	59	50	77	72	82	67	55	54	44	32
21	87	49	63	35	70	144	86	66	73	81	42	31
22	85	44	351	30	65	91	99	66	64	78	41	31
23	216	43	120	50	186	79	97	72	76	61	42	32
24	118	82	84	83	199	73	86	65	90	54	40	30
25	70	133	55	65	149	88	80	62	86	50	39	30
26	58	73	30	56	106	82	76	61	61	51	38	29
27	52	68	25	54	99	74	74	77	75	54	37	30
28	48	139	60	53	139	200	87	327	73	54	64	32
29	46	98	109	52	103	255	97	328	64	53	50	32
30	44	70	75	51	---	125	84	175	68	53	51	73
31	44	---	45	49	---	101	---	112	---	50	43	---
TOTAL	1939	1756	3113	1844	3443	2845	3375	3504	2095	1891	1650	1046
MEAN	62.5	58.5	100	59.5	119	91.8	113	113	69.8	61.0	53.2	34.9
MAX	216	139	549	91	838	255	351	332	94	157	115	73
MIN	27	40	25	30	47	64	74	61	55	49	37	29
CFSM	1.59	1.49	2.54	1.51	3.02	2.33	2.87	2.87	1.77	1.55	1.35	.89
IN.	1.83	1.66	2.94	1.74	3.25	2.69	3.19	3.31	1.98	1.79	1.56	.99
CAL YR 1983	TOTAL	32652	MEAN 89.5	MAX 1070	MIN 24	CFSM 2.27	IN 30.83					
WTR YR 1984	TOTAL	28501	MEAN 77.9	MAX 838	MIN 25	CFSM 1.98	IN 26.91					

## KANAWHA RIVER BASIN

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03166800 GLADE CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°55'51", long 80°54'02", Wythe County, Hydrologic Unit 05050001, on right downstream abutment of bridge on State Highway 629, 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. Altitude of gage is 1,972 ft, from topographic map.

REMARKS.--Records fair except those for period of doubtful or no gage-height record, July 5-23, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--8 years, 1.23 ft<sup>3</sup>/s, 2.34 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; minimum gage height, 1.36 ft Sept. 7, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Feb. 14	0615	149	3.29	June 21	0345	590	4.41
Feb. 23	1530	198	3.48	July 5	1730	*1350	5.37
May 7	0930	190	3.45				

Minimum daily discharge, 0.09 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.12	.17	.20	.21	1.9	2.1	1.2	.98	.88	.68	.52
2	.16	.12	.16	.26	.21	1.6	1.7	1.2	.90	.82	.62	.45
3	.12	.12	.41	.24	.21	1.4	1.5	1.4	.86	.75	.60	.40
4	.12	.11	2.3	.25	.21	1.2	15	1.4	.85	.77	.56	1.5
5	.12	.11	.66	.24	.21	1.3	5.0	1.3	.83	500	.54	.60
6	.15	.11	.64	.23	.24	1.3	3.5	2.2	.75	6.0	.52	.48
7	.15	.11	.49	.21	.37	1.3	2.4	37	.75	1.0	.50	.45
8	.10	.11	.36	.20	.20	1.2	1.9	6.9	.71	.80	.55	.44
9	.10	.12	.28	.20	.25	1.0	3.2	4.0	.71	.70	.55	.43
10	.10	.16	.23	.35	.22	.97	17	2.9	.71	.60	1.1	.42
11	.18	.13	.24	.32	.31	.95	5.0	2.4	.71	.70	20	.41
12	.22	.12	20	.23	.43	.83	3.3	2.1	1.4	10	3.5	.40
13	.37	.12	2.1	.21	.93	1.9	2.5	1.9	.98	1.5	10	.39
14	.18	.12	1.2	.22	37	1.5	4.4	1.6	.75	.80	5.5	.37
15	.13	.17	.72	.21	4.2	1.2	4.8	1.5	.68	1.3	1.0	.37
16	.12	.13	.55	.21	2.0	1.1	4.6	1.3	.64	.90	.70	.38
17	.11	.12	.40	.21	1.4	.98	3.0	1.2	.64	2.0	.56	.60
18	.11	.11	.34	.36	1.1	.90	2.4	1.2	.62	4.5	.50	.45
19	.12	.10	.30	.34	.88	1.1	2.1	1.1	.58	1.0	.70	.41
20	.18	.11	.26	.24	.74	1.1	1.8	1.0	.57	.70	1.0	.39
21	.66	.12	.26	.15	.62	2.1	1.8	.99	94	2.5	.60	.38
22	.40	.12	3.7	.13	.54	1.6	2.8	1.1	3.3	1.2	.50	.37
23	.70	.12	1.9	.21	52	1.4	2.8	1.1	2.2	1.1	2.0	.36
24	.29	.36	.83	6.9	13	1.3	2.3	.94	1.8	.95	.74	.36
25	.22	.36	.25	.94	4.8	1.7	1.8	.86	1.4	1.1	.68	.35
26	.18	.19	.12	.42	3.0	1.7	1.6	.83	1.2	.98	.64	.35
27	.15	.25	.09	.43	2.6	1.8	1.4	1.2	1.1	1.0	.62	.40
28	.14	.41	10	.38	3.6	4.3	2.0	2.0	.98	.89	.58	.50
29	.12	.27	1.1	.35	2.6	9.6	1.6	1.8	.91	.81	.60	.45
30	.12	.20	.35	.28	---	3.7	1.5	1.2	.91	.76	.63	1.0
31	.12	---	.17	.25	---	2.6	---	1.1	---	.71	.57	---
TOTAL	6.12	4.82	50.58	15.37	134.08	56.53	106.8	87.92	123.42	547.72	57.84	14.38
MEAN	.20	.16	1.63	.50	4.62	1.82	3.56	2.84	4.11	17.7	1.87	.48
MAX	.70	.41	20	6.9	52	9.6	17	37	94	500	20	1.5
MIN	.10	.10	.09	.13	.20	.83	1.4	.83	.57	.60	.50	.35
CFSM	.03	.02	.23	.07	.65	.26	.50	.40	.58	2.48	.26	.07
IN.	.03	.03	.26	.08	.70	.29	.56	.46	.64	2.85	.30	.07

CAL YR 1983 TOTAL 328.23 MEAN .90 MAX 24 MIN .09 CFSM .13 IN 1.71  
WTR YR 1984 TOTAL 1205.58 MEAN 3.29 MAX 500 MIN .09 CFSM .46 IN 6.27

## 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 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.--Records good. Occasional diurnal fluctuation at low flow caused by mills above station. Several observations 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, 269 ft<sup>3</sup>/s, 14.79 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 above base 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)
Dec. 12	1900	3460	4.85	Apr. 10	1400	2700	4.34
Feb. 14	1430	*5710	6.17	May 8	0130	5130	5.85
Feb. 24	0530	4720	5.61				

Minimum discharge, 54 ft<sup>3</sup>/s Oct. 7, gage height, 1.36 ft; minimum daily, 69 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	99	236	150	199	619	619	382	288	200	123	100
2	82	96	195	200	205	546	519	354	260	174	122	97
3	76	95	193	238	198	494	457	382	241	159	122	96
4	74	93	1200	219	204	453	643	424	226	160	118	113
5	72	92	984	209	208	437	1470	499	215	345	112	107
6	72	89	551	204	204	526	1050	545	205	290	111	96
7	71	86	439	209	187	610	776	2520	195	236	110	93
8	70	86	342	193	157	530	614	2920	189	179	110	91
9	71	84	285	182	179	466	563	1370	211	160	105	90
10	69	93	248	186	171	407	2020	967	186	149	130	90
11	74	99	221	305	166	379	1550	762	179	142	200	91
12	115	95	2130	293	173	347	1040	638	174	165	280	89
13	163	93	1390	267	215	392	820	560	198	184	270	88
14	171	91	745	244	3880	473	794	500	180	161	500	86
15	120	98	530	222	1990	462	1420	441	170	175	350	85
16	98	107	406	209	1000	449	1210	397	163	149	140	84
17	89	141	333	200	736	410	932	366	168	156	130	82
18	85	131	287	204	577	369	777	341	165	217	120	84
19	83	119	260	247	484	365	678	321	157	199	130	84
20	85	114	240	170	445	370	603	303	149	156	120	84
21	146	109	222	130	394	427	555	291	714	188	110	82
22	314	108	312	120	355	516	625	285	383	177	105	81
23	396	102	471	195	1270	483	877	333	233	156	110	81
24	501	120	398	308	3690	419	888	286	228	144	118	80
25	256	288	200	465	2410	418	714	261	221	139	108	81
26	182	347	100	319	1480	637	591	247	192	136	104	79
27	146	234	80	300	1060	571	513	253	173	141	103	80
28	127	262	374	282	951	618	477	284	162	145	100	82
29	114	478	629	257	780	1570	466	494	158	137	119	86
30	107	323	300	239	---	1230	417	442	162	131	181	99
31	101	---	130	232	---	800	---	333	---	127	108	---
TOTAL	4213	4372	14431	7198	23968	16793	24678	18501	6545	5377	4669	2661
MEAN	136	146	466	232	826	542	823	597	218	173	151	88.7
MAX	501	478	2130	465	3880	1570	2020	2920	714	345	500	113
MIN	69	84	80	120	157	347	417	247	149	127	100	79
CFSM	.55	.59	1.89	.94	3.34	2.19	3.33	2.42	.88	.70	.61	.36
IN.	.63	.66	2.17	1.08	3.61	2.53	3.72	2.79	.99	.81	.70	.40

CAL YR 1983 TOTAL 114903 MEAN 315 MAX 2310 MIN 69 CFSM 1.28 IN 17.31  
WTR YR 1984 TOTAL 133406 MEAN 364 MAX 3880 MIN 69 CFSM 1.47 IN 20.09

## KANAWHA RIVER BASIN

293

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 National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1916, nonrecording gage at site 4 mi downstream at different datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 403 ft<sup>3</sup>/s, 19.69 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.--Maximum discharge, 5,760 ft<sup>3</sup>/s at 0900 hours Feb. 14, gage height, 7.51 ft, no other peak above base of 3,500 ft<sup>3</sup>/s; minimum, 87 ft<sup>3</sup>/s Dec. 25, gage height, 1.78 ft, result of freezeup; minimum daily, 120 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	206	206	388	300	232	573	669	550	626	645	283	275
2	222	206	334	380	326	540	600	499	562	454	320	217
3	185	206	386	350	326	492	559	557	516	470	275	209
4	172	203	1260	320	341	461	712	970	481	372	258	220
5	166	195	787	350	292	484	1200	670	461	369	242	210
6	160	192	568	340	269	662	791	611	663	547	323	198
7	157	188	552	353	214	587	659	1400	527	413	258	190
8	154	188	434	350	218	512	585	1230	457	346	234	188
9	154	185	391	331	337	454	587	1250	425	308	245	188
10	151	218	373	329	324	422	1360	854	407	300	322	188
11	175	298	353	613	279	427	975	713	420	286	392	187
12	430	214	1470	363	272	404	767	639	399	278	439	182
13	485	195	876	334	327	567	746	590	472	278	473	178
14	495	192	593	379	3370	695	1050	563	457	288	631	183
15	275	217	498	332	1160	536	1050	524	398	296	374	179
16	218	386	429	305	713	487	828	500	387	278	282	173
17	199	276	390	296	569	451	720	487	392	291	248	170
18	192	230	359	383	497	427	652	475	366	780	233	169
19	185	214	340	525	453	455	608	469	342	507	251	173
20	195	211	326	250	432	473	577	450	327	335	244	172
21	462	298	311	200	405	1560	577	439	485	446	221	169
22	507	251	1700	180	381	949	629	431	424	505	218	166
23	759	221	1030	353	713	693	663	760	390	367	223	164
24	980	308	631	560	1250	579	613	530	495	322	232	167
25	451	1010	200	710	1230	609	564	457	505	291	214	162
26	327	572	150	425	809	731	527	449	372	379	208	159
27	275	404	120	353	676	612	508	580	333	376	204	159
28	248	639	400	332	754	915	515	1260	333	339	205	166
29	231	919	817	316	720	1790	700	1740	387	319	267	178
30	218	502	377	300	---	1020	572	1060	410	308	231	199
31	210	---	200	277	---	776	---	732	---	300	509	---
TOTAL	9244	9544	17043	11189	17889	20343	21563	22439	13219	11793	9059	5538
MEAN	298	318	550	361	617	656	719	724	441	380	292	185
MAX	980	1010	1700	710	3370	1790	1360	1740	663	780	631	275
MIN	151	185	120	180	214	404	508	431	327	278	204	159
CFSM	1.07	1.14	1.98	1.30	2.22	2.36	2.59	2.60	1.59	1.37	1.05	.67
IN.	1.24	1.28	2.28	1.50	2.39	2.72	2.89	3.00	1.77	1.58	1.21	.74

CAL YR 1983 TOTAL 174676 MEAN 479 MAX 7050 MIN 120 CFSM 1.72 IN 23.37  
WTR YR 1984 TOTAL 168863 MEAN 461 MAX 3370 MIN 120 CFSM 1.66 IN 22.60



## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Apr. 29 to May 21, which are fair. Large diurnal fluctuation and some regulation by powerplant 25 mi above station. Corps of Engineers satellite and gage-height telemeters at station. Several observations 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, 3,229 ft<sup>3</sup>/s, 19.91 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 above base 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)
Dec. 12	2015	28000	7.18	May 8	Unknown	*45800	9.74
Feb. 14	1545	42800	9.35				

Minimum discharge, 623 ft<sup>3</sup>/s Oct. 7, 11, gage height, 0.94 ft; minimum daily, 728 ft<sup>3</sup>/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	862	1650	4090	2700	2000	5520	6060	4500	4320	3730	2380	1530
2	1140	1500	2890	4000	2110	4970	5130	4000	3800	3290	2140	1640
3	1400	1590	2770	3500	2280	4500	4600	4500	3510	2850	2090	1530
4	1000	1600	7510	3400	2290	4240	5340	5500	3620	2380	1950	2190
5	1060	1240	9520	3200	2190	4240	12800	5400	3060	3090	2160	1700
6	985	1470	6770	3230	2250	5150	10500	5200	4210	2910	2270	1510
7	955	1750	5170	3140	1960	6130	7790	15000	3530	3020	1940	1510
8	728	1310	4420	2860	1710	5750	6350	30000	2950	2980	1660	1170
9	847	1410	3450	2800	1720	5000	5610	17000	2620	2650	1800	1390
10	1210	1600	3090	2760	2210	4360	9640	11000	2730	2080	2000	1650
11	911	1900	2910	3660	2000	3980	10100	9000	3010	2130	2530	1270
12	2430	1680	16000	3370	2110	3900	8260	7500	2730	1910	3480	1280
13	4500	1720	17400	2940	2530	4000	6840	6500	2660	2220	4220	1410
14	6620	1830	8880	2830	28700	5010	7170	5800	3090	1650	4130	1190
15	3860	1510	6300	2770	22800	4580	7960	5400	2860	2400	3570	1050
16	2380	2050	5020	2690	10900	4180	7520	5000	2440	2560	2670	1120
17	2150	2310	4020	2560	7310	4340	6540	4600	2580	2210	2100	1550
18	1620	2140	3480	2690	5730	4330	5850	4400	3030	3610	1780	1240
19	1490	1720	3490	4230	4820	4400	5490	4200	2310	4430	2080	1070
20	1610	1760	2930	3300	4320	4560	5080	4000	2230	3600	2340	1290
21	2230	2140	2920	2000	4070	6710	4520	3700	3400	2340	1790	1160
22	3100	1960	5970	1700	3750	7200	5140	3340	4180	3680	1780	882
23	4290	2020	6540	2280	5550	6140	5680	3630	2510	3760	1660	1230
24	6550	1800	5150	3140	14800	5050	5650	3640	3070	2510	1850	1330
25	5090	4830	2000	4930	12800	4760	5140	3200	3490	2510	1380	1250
26	3120	5270	1700	4270	9310	5320	4690	2860	2300	2370	1680	1030
27	2570	3950	1400	3140	7210	5030	4460	3280	2730	2580	1810	1050
28	2130	4490	4440	2770	7050	5700	3840	5020	2540	1940	1430	1160
29	1770	6420	9530	2570	6830	10600	5500	8330	2560	2310	2010	979
30	1840	5370	6510	2590	---	10100	5000	7750	2750	2440	1800	1270
31	1950	---	2200	2400	---	7580	---	5450	---	2340	2060	---
TOTAL	72398	71990	168470	94420	183310	167330	194250	208700	90820	84480	68540	39631
MEAN	2335	2400	5435	3046	6321	5398	6475	6732	3027	2725	2211	1321
MAX	6620	6420	17400	4930	28700	10600	12800	30000	4320	4430	4220	2190
MIN	728	1240	1400	1700	1710	3900	3840	2860	2230	1650	1380	882
CFSM	1.06	1.09	2.47	1.38	2.87	2.45	2.94	3.06	1.38	1.24	1.00	.60
IN.	1.22	1.22	2.85	1.60	3.10	2.83	3.28	3.53	1.53	1.43	1.16	.67

CAL YR 1983	TOTAL	1537317	MEAN	4212	MAX	33100	MIN	728	CFSM	1.91	IN	25.97
WTR YR 1984	TOTAL	1444339	MEAN	3946	MAX	30000	MIN	728	CFSM	1.79	IN	24.40

## KANAWHA RIVER BASIN

295

## 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 Co.). 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.

COOPERATION.--Records furnished by Appalachian Power Co.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1845.64	224000	
Oct. 31.....	1844.61	219600	-4400
Nov. 30.....	1844.95	221000	+1400
Dec. 31.....	1843.70	215700	-5300
CAL YR 1983.....			-1800
Jan. 31.....	1844.46	218900	+3200
Feb. 29.....	1844.79	220300	+1400
Mar. 31.....	1843.72	215700	-4600
Apr. 30.....	1845.62	223900	+8200
May 31.....	1844.18	217700	-6200
June 30.....	1844.50	219100	+1400
July 31.....	1845.37	222800	+3700
Aug. 31.....	1844.87	220700	-2100
Sept. 30.....	1844.82	224700	+4000
WTR YR 1984.....			+700

## KANAWHA RIVER BASIN

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 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.--Records fair. Corps of Engineers satellite telemeter at station. Several observations 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, 364 ft<sup>3</sup>/s, 16.48 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.--Maximum discharge, 4,540 ft<sup>3</sup>/s at 1100 hours Feb. 14, gage height, 5.08 ft, no other peak above base of 3,000 ft<sup>3</sup>/s; minimum daily, 90 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	181	292	294	194	491	578	503	412	379	242	311
2	193	179	260	320	226	464	512	448	383	299	236	209
3	171	178	269	309	294	424	475	467	359	389	225	232
4	148	176	799	292	292	403	494	768	341	308	216	343
5	139	172	667	311	273	408	808	565	329	299	208	226
6	134	168	449	297	246	508	621	613	322	365	260	197
7	131	168	461	285	195	488	512	1530	315	319	231	184
8	128	167	361	254	181	435	460	1360	309	271	215	180
9	128	165	311	273	245	395	452	1270	301	248	220	177
10	129	186	285	276	255	363	1510	840	296	240	263	175
11	138	444	271	400	265	363	1110	672	299	233	432	175
12	446	250	1100	302	248	347	759	586	298	253	522	171
13	387	207	928	232	259	460	628	530	307	239	416	167
14	398	194	538	311	2900	764	961	495	323	258	526	168
15	263	204	420	276	1390	547	1450	460	314	236	358	168
16	194	297	357	269	722	474	994	435	285	228	270	158
17	174	263	318	261	543	429	773	418	291	255	238	154
18	167	217	294	275	459	398	654	407	294	405	225	152
19	161	202	277	331	408	391	581	400	275	461	229	153
20	166	198	267	200	379	401	539	387	259	268	225	156
21	307	210	250	160	351	1280	524	372	324	311	210	154
22	526	210	927	140	330	997	562	365	309	365	204	148
23	517	191	1210	225	582	657	606	418	286	302	210	145
24	768	225	596	436	1580	531	564	416	333	290	215	148
25	382	536	170	809	1530	525	509	363	371	258	205	145
26	276	457	120	437	855	579	468	343	294	278	194	141
27	233	314	90	333	641	505	445	411	260	324	189	139
28	211	370	448	310	606	552	475	507	262	286	200	147
29	198	551	713	288	653	1500	700	909	256	260	224	162
30	189	364	281	272	---	982	537	590	288	256	245	186
31	183	---	160	246	---	690	---	460	---	251	262	---
TOTAL	7743	7644	13889	9424	17102	17751	20261	18308	9295	9134	8115	5371
MEAN	250	255	448	304	590	573	675	591	310	295	262	179
MAX	768	551	1210	809	2900	1500	1510	1530	412	461	526	343
MIN	128	165	90	140	181	347	445	343	256	228	189	139
CFSM	.83	.85	1.49	1.01	1.97	1.91	2.25	1.97	1.03	.98	.87	.60
IN.	.96	.95	1.72	1.17	2.12	2.20	2.51	2.27	1.15	1.13	1.01	.67

CAL YR 1983 TOTAL 155797 MEAN 427 MAX 8090 MIN 90 CFSM 1.42 IN 19.32  
WTR YR 1984 TOTAL 144037 MEAN 394 MAX 2900 MIN 90 CFSM 1.31 IN 17.86

## 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 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.--Records good. Flow regulated since 1939 by Claytor Reservoir (station 03169000). Some additional regulation at low flow by dam and powerplant on Little River. Corps of Engineers satellite and gage-height telemeters at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 3,887 ft<sup>3</sup>/s, 19.21 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, 39,000 ft<sup>3</sup>/s Feb. 15, gage height, 11.87 ft; minimum, 682 ft<sup>3</sup>/s Nov. 16, 21, gage height, 1.71 ft; minimum daily, 836 ft<sup>3</sup>/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	994	1870	5800	1140	3650	5710	4780	9010	4860	1600	3570	1300
2	994	1690	5840	2420	3290	6770	5510	5070	4280	4060	3860	1020
3	2300	1880	4310	5590	2060	5530	8220	6330	1520	6070	2360	1260
4	1410	1950	7310	4950	1130	5340	7480	4120	4890	1930	1080	3610
5	1360	946	9310	4280	1060	5450	12300	6060	4020	5890	990	2050
6	1670	993	10500	4160	3240	5620	11800	8130	4630	4300	3300	2260
7	1630	1980	5970	1250	3770	6880	10700	13600	4700	2530	3480	1850
8	969	1690	5790	1120	2810	6070	8460	28000	4840	1360	2750	1000
9	836	1690	4630	3250	2340	6130	6170	17400	2900	4320	2490	1000
10	1540	2620	1180	3960	3230	5830	11900	13000	1190	4210	2520	1910
11	3060	4450	2650	4110	1100	3460	12000	12000	4040	4510	1720	2680
12	4530	1170	13700	3960	1020	6500	11400	10200	4050	1290	3850	1740
13	5450	1050	17300	3950	7450	8150	9330	6410	3830	3100	6510	1820
14	6110	2540	12500	2610	24400	5770	9390	5300	3740	1240	7030	1910
15	3210	3180	9280	1110	27100	5220	8910	6080	4610	1130	4540	981
16	1530	2880	7320	3410	13500	5600	9960	5720	2240	3830	2700	987
17	3110	2270	6070	5100	11600	2550	8850	6010	1650	3170	2640	1510
18	2310	2470	1310	4390	6530	3240	7250	5950	4450	5520	1040	1440
19	2060	1050	3930	4030	6730	7830	6880	4000	4190	5620	1050	1540
20	1940	962	3930	3930	6250	9380	7320	2540	3730	4350	3410	1410
21	4400	2320	4290	2820	6550	8880	7050	5170	4170	3620	3770	1480
22	3110	3700	11200	1050	5230	6970	6410	5000	4000	1440	3500	1000
23	7070	3630	6220	2600	8010	6330	6770	5040	1420	4500	1980	936
24	7640	2480	6000	2230	13300	5720	6310	4810	3300	5290	1090	1480
25	4310	5580	4860	6130	13700	5840	5940	5090	4960	4130	1070	1530
26	4870	3650	2340	5290	12900	6000	5960	2590	4380	2050	1000	1300
27	3870	4260	4250	5570	12300	8180	6110	1630	4710	3600	2030	1450
28	3300	8750	4890	3810	11300	11300	5910	7730	5130	1140	2560	1490
29	1000	5880	7750	1140	6200	12400	4330	11700	3360	1070	2330	1020
30	1030	5740	6050	4470	---	11000	5640	7870	1240	3390	1870	1080
31	2620	---	3870	3790	---	9810	---	6970	---	3290	3180	---
TOTAL	90233	85321	200350	107620	221750	209460	239040	238530	111030	103550	85270	46044
MEAN	2911	2844	6463	3472	7647	6757	7968	7695	3701	3340	2751	1535
MAX	7640	8750	17300	6130	27100	12400	12300	28000	5130	6070	7030	3610
MIN	836	946	1180	1050	1020	2550	4330	1630	1190	1070	990	936
(*)	-72	+24	-86	+52	+24	-75	+138	-101	+24	+60	-34	+67
MEAN#	2839	2868	6377	3524	7671	6682	8106	7594	3725	3400	2717	1602
CFSM#	1.03	1.04	2.32	1.28	2.79	2.43	2.95	2.76	1.36	1.24	.99	.58
IN#	1.19	1.16	2.68	1.48	3.01	2.80	3.29	3.19	1.51	1.43	1.14	.65

CAL YR 1983 TOTAL 1850261 MEAN 5069 MAX 35400 MIN 772 MEAN# 5067 CFSM# 1.84 IN# 25.04  
WTR YR 1984 TOTAL 1738198 MEAN 4749 MAX 28000 MIN 836 MEAN# 4750 CFSM# 1.73 IN# 23.54

\* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; furnished by Appalachian Power Co.  
\* 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 National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records fair. Corps of Engineers satellite telemeter at station. Several observations 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, 14.65 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 above base 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)
Dec. 12	1700	4340	9.38	Feb. 24	0600	5780	10.43
Feb. 14	1630	6890	11.13	May 7	2030	*7260	11.38

Minimum discharge, 40 ft<sup>3</sup>/s Oct. 10, gage height, 2.82 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	80	302	150	203	648	861	485	252	105	74	58
2	50	76	241	200	220	559	689	430	225	116	72	56
3	50	74	217	289	217	493	579	435	204	140	69	54
4	48	72	1120	253	205	446	635	585	187	119	65	54
5	45	70	1070	243	203	430	1940	762	173	115	64	51
6	43	67	664	225	192	551	1320	884	162	104	63	51
7	41	65	567	215	165	710	963	3720	151	103	62	51
8	41	63	451	192	131	649	761	3520	142	96	62	49
9	41	62	368	183	161	575	650	1780	137	89	61	48
10	40	67	303	178	159	486	1660	1200	135	84	70	48
11	43	72	259	290	154	449	1460	908	128	80	110	47
12	55	74	2160	324	157	406	1070	733	122	78	148	47
13	75	73	1740	287	176	396	857	622	119	81	193	47
14	138	68	914	285	4780	527	877	536	120	85	267	46
15	110	73	624	248	2830	586	1610	469	120	85	205	46
16	78	82	463	225	1310	623	2020	418	113	82	138	44
17	63	96	370	214	901	618	1340	378	111	84	109	42
18	56	95	306	209	687	541	1040	344	114	90	96	44
19	53	91	267	207	562	480	848	319	109	98	94	44
20	52	88	241	150	575	437	726	297	102	92	97	44
21	131	89	217	120	553	642	652	278	116	82	85	44
22	359	87	258	90	498	763	744	270	140	85	76	43
23	501	85	503	162	1370	664	1260	279	130	84	78	43
24	678	97	482	193	4310	561	1150	267	126	82	82	42
25	323	383	200	445	2780	589	910	240	135	79	78	42
26	206	453	120	391	1660	1580	734	220	124	77	70	42
27	153	306	70	390	1150	1190	619	209	105	82	65	41
28	124	317	200	356	988	1180	696	211	107	89	66	42
29	106	507	820	313	825	2510	724	352	154	87	63	44
30	93	409	300	283	---	1740	560	383	107	81	60	50
31	86	---	140	263	---	1130	---	291	---	75	62	---
TOTAL	3931	4241	15957	7573	28122	23159	29955	21825	4170	2829	2904	1404
MEAN	127	141	515	244	970	747	999	704	139	91.3	93.7	46.8
MAX	678	507	2160	445	4780	2510	2020	3720	252	140	267	58
MIN	40	62	70	90	131	396	560	209	102	75	60	41
CFSM	.42	.46	1.69	.80	3.18	2.45	3.28	2.31	.46	.30	.31	.15
IN.	.48	.52	1.95	.92	3.43	2.82	3.65	2.66	.51	.35	.35	.17

CAL YR 1983	TOTAL	127308	MEAN	349	MAX	3330	MIN	40	CFSM	1.14	IN	15.53
WTR YR 1984	TOTAL	146070	MEAN	399	MAX	4780	MIN	40	CFSM	1.31	IN	17.82

## 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 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.--Records fair. Several observations 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, 301 ft<sup>3</sup>/s, 18.33 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 above base 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)
Dec. 12	1430	2390	6.86	Mar. 29	1400	2810	7.26
Feb. 14	1230	4800	8.90	May 7	1800	*7130	10.21
Feb. 24	0230	3750	8.08				

Minimum discharge, 25 ft<sup>3</sup>/s Sept. 27, gage height, 2.45 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	58	346	130	208	622	860	343	242	134	62	40
2	42	52	275	192	217	543	692	309	212	127	58	38
3	38	51	277	180	212	474	583	358	188	201	59	36
4	34	55	925	154	220	432	577	688	170	125	65	37
5	31	54	942	148	226	439	1230	967	153	105	57	41
6	30	50	712	175	208	943	1060	1160	139	116	52	38
7	29	47	632	235	170	981	855	4310	128	118	48	36
8	27	45	510	187	137	799	701	3540	119	99	47	34
9	27	44	408	166	163	662	614	1770	111	80	48	33
10	30	45	332	174	157	555	1060	1180	105	71	48	32
11	34	55	274	529	158	494	908	881	100	65	177	32
12	55	72	1470	382	201	429	756	707	94	64	177	31
13	140	74	1310	319	247	445	643	591	106	69	126	30
14	156	71	854	284	3840	592	618	507	115	89	184	29
15	107	71	633	241	2150	786	1030	432	101	73	127	30
16	74	99	472	219	1170	935	947	377	89	75	95	30
17	62	135	360	202	842	921	820	332	129	107	75	30
18	56	134	290	189	657	731	741	300	110	154	68	30
19	53	118	245	181	545	609	678	271	94	132	166	30
20	53	117	212	112	546	534	615	251	79	100	116	29
21	106	131	185	90	500	584	577	228	75	101	89	28
22	481	137	222	70	445	654	749	214	107	105	78	27
23	421	127	373	135	1240	590	1020	251	107	83	70	27
24	500	135	344	238	2620	525	896	260	111	73	67	26
25	261	506	110	774	2070	560	736	212	129	75	60	26
26	168	500	60	611	1400	1310	608	192	99	74	54	26
27	129	376	50	516	1080	1010	526	199	80	80	49	26
28	100	402	150	441	938	1060	459	218	75	106	47	27
29	79	574	884	376	766	2340	424	283	100	84	46	29
30	67	451	559	320	---	1740	383	300	112	73	45	34
31	60	---	120	285	---	1130	---	272	---	66	43	---
TOTAL	3487	4786	14536	8255	23333	24429	22366	21903	3579	3024	2503	942
MEAN	112	160	469	266	805	788	746	707	119	97.5	80.7	31.4
MAX	500	574	1470	774	3840	2340	1230	4310	242	201	184	41
MIN	27	44	50	70	137	429	383	192	75	64	43	26
CFSM	.50	.72	2.10	1.19	3.61	3.53	3.35	3.17	.53	.44	.36	.14
IN.	.58	.80	2.42	1.38	3.89	4.08	3.73	3.65	.60	.50	.42	.16
CAL YR 1983	TOTAL	108821	MEAN	298	MAX	2050	MIN	23	CFSM	1.34	IN	18.15
WTR YR 1984	TOTAL	133143	MEAN	364	MAX	4310	MIN	26	CFSM	1.63	IN	22.21

## 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 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.--Records good except those for period of doubtful or no gage-height record, July 6 to Sept. 30, which are fair. Flow regulated since 1939 by Claytor Reservoir (station 03169000) 55 mi above station. Corps of Engineers satellite and gage-height telemeters at station.

AVERAGE DISCHARGE.--57 years, 5,031 ft<sup>3</sup>/s, 18.13 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, 48,700 ft<sup>3</sup>/s Feb. 15, gage height, 11.96 ft; minimum, 1,040 ft<sup>3</sup>/s Oct. 10, gage height, 2.99 ft; minimum daily, 1,140 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2250	2740	6620	6740	4390	8100	11800	12000	7900	1920	4700	4500
2	1450	2250	6230	2470	4320	7990	6340	8740	5400	1980	5000	1700
3	1250	2090	6410	3470	3960	7830	9300	6970	5160	5030	5500	1400
4	2300	2180	8530	6330	2850	6660	9930	8670	2410	8200	3500	1800
5	1720	2230	10100	5860	2010	7320	17800	7030	6000	1910	1500	5000
6	1610	1360	12600	5000	1860	7250	17700	11500	5600	8000	1400	2800
7	1880	1290	7930	4910	3700	9530	14500	27100	6000	6000	4500	3000
8	1960	2140	7370	2100	4170	8350	11500	40700	6400	4500	4800	2600
9	1340	1900	6930	1930	3320	7570	9930	30700	6600	2000	3800	1400
10	1140	1920	5420	3820	2940	7760	14600	20700	3250	5800	3400	1400
11	1720	2770	2140	5010	3840	7360	18200	17300	1850	5500	3600	3000
12	3650	4510	10100	4990	1950	4500	15200	15100	5400	6200	3000	3700
13	4290	1630	21500	4790	2160	9940	13600	10500	5500	2000	4500	2400
14	7110	1380	15000	4790	25500	8070	11100	7320	5200	4500	9000	2500
15	5350	2640	12100	3420	41200	8080	15400	7910	5000	1800	10000	2600
16	3360	3420	8980	2030	19800	8250	16000	8000	6200	1700	6000	1300
17	1800	2960	7420	4010	14400	8290	13900	8200	2690	5500	3800	1400
18	3270	2520	6490	5870	10400	4880	12300	7700	2200	4500	3500	2100
19	2440	2760	2110	5080	8250	6210	9890	6690	6000	7600	1700	2000
20	2230	1660	4600	4230	8170	10900	10000	4980	5800	8000	1500	2100
21	2320	1390	4500	4480	8010	12600	9600	3640	5200	6500	4700	1900
22	5460	2470	8260	3330	7830	11900	9370	7000	5700	5500	5200	2000
23	5460	3870	9840	1820	8630	10400	11200	6800	5400	2000	4500	1400
24	9470	4040	7500	3190	23000	9480	10700	6700	1920	5000	2500	1200
25	6900	4160	7220	4340	20700	8830	9250	6600	5000	6500	1500	2000
26	5200	7010	6000	7180	17800	12200	8410	7000	7000	7500	1400	2100
27	4920	4140	3730	6880	15100	11800	7900	3590	6000	2500	1400	1800
28	4150	7340	5780	6420	14400	15400	8220	3050	6500	5000	3000	2000
29	3580	8570	8240	4890	10200	23200	9060	13000	7000	1600	3500	2100
30	1630	6150	9010	2230	---	19600	6890	16000	3780	1500	3000	1500
31	1380	---	8730	5410	---	15000	---	8310	---	5000	2300	---
TOTAL	102590	95490	247390	137020	294860	305250	349590	349500	154060	141240	117700	66700
MEAN	3309	3183	7980	4420	10170	9847	11650	11270	5135	4556	3797	2223
MAX	9470	8570	21500	7180	41200	23200	18200	40700	7900	8200	10000	5000
MIN	1140	1290	2110	1820	1860	4500	6340	3050	1850	1500	1400	1200
(*)	-72	+24	-86	+52	+24	-75	+138	-101	+24	+60	-34	+67
MEAN#	3237	3207	7894	4472	10190	9772	11790	11170	5159	4616	3763	2290
CFSM#	.86	.85	2.10	1.19	2.70	2.59	3.13	2.96	1.37	1.23	1.00	.61
IN#	.99	.95	2.42	1.37	2.92	2.99	3.49	3.42	1.53	1.41	1.15	.68
CAL YR 1983 TOTAL	2226380			MEAN 6100	MAX 37000	MIN 1110	MEAN# 6098	CFSM# 1.62	IN# 21.97			
WTR YR 1984 TOTAL	2361390			MEAN 6452	MAX 41200	MIN 1140	MEAN# 6453	CFSM# 1.71	IN# 23.32			

\* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; furnished by Appalachian Power Co.  
\* Adjusted for change in contents.

## KANAWHA RIVER BASIN

301

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 TEMPERATURES: October 1964 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE; Maximum, 350 micromhos Nov. 6, 1968; minimum, 70 micromhos Mar. 26, 27, 1979.

WATER TEMPERATURES: 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, 220 micromhos Sept. 20; minimum daily, 95 micromhos Feb. 15.

WATER TEMPERATURES: Maximum daily, 29.0°C June 19; minimum, 1.5°C Dec. 25.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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 SATUR- ATION (PER- CENT)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 29...	0830	9980	120	7.6	8.5	718	5.7	11.8	107	180	1400
JAN 24...	0945	3210	160	7.9	2.0	722	2.6	14.2	108	13	97
MAR 20...	0800	12200	140	7.8	8.5	717	9.0	11.6	105	K15	1600
MAY 30...	0930	16000	115	7.5	16.0	724	6.7	8.3	89	170	65
JUL 18...	0930	4500	165	8.0	23.0	718	4.3	7.2	89	200	110
SEP 04...	0930	1800	215	8.3	23.5	720	.50	6.3	79	K12	160

K Result based on colony count outside optimal range.

DATE	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)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
NOV 29...	46	3	11	4.5	4.4	1.6	43	12	4.2	.10	6.1
JAN 24...	67	11	16	6.5	3.8	1.6	56	16	4.3	<.10	6.9
MAR 20...	56	11	14	5.0	3.4	5.3	45	12	8.5	<.10	7.1
MAY 30...	49	5	12	4.7	2.8	1.3	44	7.7	3.4	<.10	7.4
JUL 18...	67	11	15	7.1	4.0	1.5	56	16	4.3	<.10	7.6
SEP 04...	79	17	17	8.9	3.7	1.5	62	22	4.2	.10	6.3

&lt; Actual value is known to be less than the value shown.



## KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS <sup>4</sup> SOLVED (UG/L AS AS)
NOV 29...	73	70	.55	.030	.70	.060	.020	.010	20	1
JAN 24...	103	89	1.3	<.010	.40	.050	.040	.020	--	1
MAR 20...	95	83	1.2	<.010	.30	.050	.070	.010	30	2
MAY 30...	92	66	.72	.120	.40	.100	.010	.090	50	3
JUL 18...	122	89	1.0	<.010	.20	.060	.010	.030	--	--
SEP 04...	120	100	.93	<.010	.50	.030	.020	.010	30	2

&lt; Actual value is known to be less than the value shown.

DATE	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)	MANGA- NESE, DIS <sup>4</sup> SOLVED (UG/L AS MN)
NOV 29...	35	<.5	<1	<1	<3	2	47	1	<4	1
JAN 24...	49	<.5	<1	--	<3	--	31	--	<4	8
MAR 20...	44	<.5	<1	<1	<3	19	29	1	<4	7
MAY 30...	52	<.0	<1	<1	<3	3	28	2	<4	3
JUL 18...	--	--	--	--	--	--	--	--	--	--
SEP 04...	38	<.0	<1	1	<3	8	17	4	7	7

&lt; Actual value is known to be less than the value shown.

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)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 29...	<.1	<10	2	<1	<1	54	<6	5	13	90
JAN 24...	.2	<10	--	<1	<1	66	<6	9	3	19
MAR 20...	2.9	<10	3	<1	9	55	<6	10	18	23
MAY 30...	.3	<10	3	<1	1	48	<6	8	14	44
JUL 18...	--	--	--	--	--	--	--	--	9	20
SEP 04...	.1	<10	5	<1	<1	78	<6	9	1	50

&lt; Actual value is known to be less than the value shown.

## 03176500 NEW RIVER AT GLEN LYN, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200	179	130	107	120	142	120	150	130	162	160	165
2	199	206	125	123	130	140	138	130	135	175	160	170
3	210	140	130	125	132	142	150	142	145	180	162	180
4	202	178	140	121	142	142	130	155	160	135	162	185
5	201	180	120	120	143	140	135	140	---	130	160	200
6	200	180	120	118	146	140	120	140	160	135	200	160
7	199	210	119	123	162	140	119	135	---	138	180	160
8	198	180	139	137	130	---	120	119	---	142	178	170
9	---	210	139	143	131	135	135	120	150	160	178	170
10	212	180	121	157	141	138	120	125	---	160	160	190
11	210	178	130	125	143	130	120	135	160	140	160	200
12	199	155	140	123	140	140	120	130	160	140	178	195
13	160	156	105	120	---	160	115	138	170	155	170	195
14	159	162	100	120	150	138	125	140	150	170	145	180
15	160	160	102	121	95	140	125	142	165	178	140	180
16	158	155	110	142	100	140	135	140	158	182	140	180
17	168	158	115	139	106	120	122	140	150	165	145	200
18	160	160	113	124	118	120	130	138	158	145	180	200
19	170	162	125	117	120	140	138	138	170	142	180	200
20	180	160	140	122	120	130	140	150	140	130	185	220
21	178	180	123	123	118	122	140	160	125	---	175	200
22	180	178	117	132	115	125	---	155	130	130	160	195
23	168	139	105	143	118	120	140	139	145	165	150	200
24	150	139	110	144	98	130	138	145	145	150	165	210
25	140	140	110	144	104	130	140	130	165	125	150	205
26	142	139	---	135	100	140	141	130	130	135	185	200
27	150	140	119	120	105	125	141	---	130	160	180	210
28	158	142	116	117	105	145	140	150	130	160	210	210
29	160	120	118	117	119	120	140	180	125	178	210	210
30	179	130	106	135	---	118	150	120	160	180	170	210
31	---	---	103	142	---	120	---	120	---	180	170	---
MEAN	178	165	120	128	123	134	132	139	148	154	169	192
WTR YR 1984	MEAN	149	MAX	220	MIN	95						

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	13.5	9.0	3.0	4.0	5.0	9.0	14.5	15.0	22.0	23.0	23.0
2	17.0	13.5	8.5	4.0	4.0	5.0	9.0	14.0	16.5	22.0	24.0	23.0
3	17.5	15.0	9.5	6.0	4.5	6.0	11.5	14.5	18.5	22.5	25.0	23.5
4	18.0	14.5	9.0	4.5	5.0	6.5	11.0	13.5	20.5	23.0	25.5	24.0
5	20.0	13.0	10.0	5.5	5.5	7.5	10.5	13.0	---	22.5	26.0	21.5
6	20.0	11.5	10.5	5.5	5.0	7.0	9.5	14.5	21.0	23.0	25.5	21.0
7	18.0	10.5	9.0	5.5	3.0	7.0	9.5	11.0	---	23.5	26.0	20.5
8	17.5	10.5	7.0	5.0	---	---	10.5	15.0	---	23.0	26.0	20.0
9	---	11.5	7.5	5.5	3.0	5.5	11.0	14.0	19.0	22.5	26.5	21.0
10	18.0	15.0	8.5	7.5	4.0	4.5	10.0	14.0	---	23.5	27.0	21.5
11	18.5	13.0	8.0	5.5	5.5	5.5	9.5	15.0	23.5	25.5	26.0	22.0
12	19.0	10.0	9.0	4.0	5.5	5.0	9.5	16.0	23.5	25.0	25.0	24.0
13	20.0	8.5	9.5	5.0	---	7.0	12.0	15.0	23.5	25.5	25.0	25.0
14	19.0	8.0	9.0	4.5	9.0	7.0	13.5	16.0	22.5	26.0	25.0	25.0
15	18.5	9.0	8.5	4.0	5.5	8.0	12.0	15.5	22.5	26.5	25.0	23.0
16	17.0	10.0	8.0	5.0	5.0	9.0	11.5	15.5	23.5	26.5	25.0	20.0
17	17.0	9.5	7.5	5.5	5.5	9.5	11.5	19.5	22.0	26.5	25.0	19.5
18	18.0	9.0	7.0	5.0	6.0	10.0	12.0	16.5	22.0	25.0	24.5	19.0
19	18.5	9.5	6.5	4.0	7.0	10.5	12.0	16.0	29.0	24.5	24.0	17.5
20	18.5	11.0	5.5	2.5	7.5	10.5	11.5	17.0	23.5	23.5	23.5	18.5
21	17.0	11.0	6.0	2.0	7.0	10.0	12.0	19.0	24.5	---	24.0	19.5
22	19.5	11.0	5.0	2.0	7.5	8.5	---	20.0	24.0	24.5	23.5	20.5
23	14.0	11.5	5.5	2.5	8.0	8.0	10.5	19.0	23.0	24.0	23.5	21.0
24	16.0	12.0	4.0	4.0	6.5	8.5	11.0	18.0	21.5	25.0	23.5	23.0
25	17.0	10.0	1.5	5.0	7.5	11.0	11.5	18.0	21.0	26.0	22.5	23.5
26	15.0	9.0	---	6.0	6.0	11.0	13.5	19.5	22.0	24.0	23.5	23.5
27	14.0	8.0	4.0	5.5	7.0	10.5	14.5	---	22.0	24.5	23.5	19.0
28	14.0	9.5	4.0	6.0	7.5	14.0	14.5	20.0	23.5	23.0	24.0	17.0
29	14.5	9.5	4.0	6.5	6.0	9.5	14.0	20.0	23.0	22.5	24.5	15.0
30	13.0	8.5	3.0	6.0	---	8.0	15.5	16.0	23.0	21.5	24.0	15.5
31	---	---	2.5	5.0	---	8.5	---	14.5	---	22.0	23.5	---
MEAN	17.5	11.0	7.0	5.0	6.0	8.0	11.5	16.0	22.0	24.0	24.5	21.0
WTR YR 1984	MEAN	14.5	MAX	29.0	MIN	1.5						

## KANAWHA RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. 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 observations of water temperature were made during the year.

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 above base 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. 14	0500	709	6.06	May 7	1330	*1050	8.37
Mar. 29	1115	469	4.42				

Minimum discharge, 5.5 ft<sup>3</sup>/s Jan. 24, gage height, 0.99 ft, result of freezeup; minimum daily, 8.0 ft<sup>3</sup>/s Jan. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	16	40	30	42	139	155	69	52	60	24	16
2	14	15	38	35	40	123	121	65	49	31	28	16
3	12	23	51	41	41	109	100	95	45	33	25	16
4	12	17	165	38	44	105	142	301	43	27	20	19
5	12	16	98	36	42	269	218	256	39	30	18	16
6	12	15	98	45	39	383	204	388	35	27	18	16
7	11	14	82	44	35	252	167	840	33	25	16	16
8	11	12	65	34	32	194	129	554	31	23	15	16
9	10	12	55	32	30	154	154	347	34	22	15	15
10	10	20	49	85	30	127	236	251	31	21	38	15
11	23	25	44	106	39	108	178	198	27	20	66	14
12	31	23	252	72	41	91	138	162	25	25	29	16
13	54	20	154	57	147	111	117	131	25	33	57	16
14	30	18	112	48	606	151	128	109	26	23	36	16
15	19	29	84	42	310	166	124	93	24	20	28	16
16	17	32	67	41	199	174	111	79	47	41	25	17
17	15	33	55	38	148	169	114	68	25	57	23	16
18	14	32	46	38	115	138	131	63	21	45	57	16
19	13	29	42	35	101	119	124	59	19	28	39	16
20	13	30	39	31	93	98	110	54	18	25	31	16
21	103	33	35	27	78	130	111	51	20	41	28	15
22	91	28	60	20	66	116	202	49	19	23	26	15
23	97	26	48	8.0	152	103	196	67	20	22	28	15
24	68	57	43	35	262	89	155	55	38	19	24	15
25	41	126	35	140	386	122	121	50	22	19	23	16
26	32	69	18	102	259	180	100	50	18	24	20	15
27	28	56	15	82	222	136	84	53	17	43	20	16
28	23	59	45	65	204	181	82	53	21	29	18	16
29	22	52	129	57	167	398	98	109	50	23	16	16
30	18	46	50	54	---	275	82	60	69	22	16	28
31	17	---	25	47	---	204	---	54	---	19	17	---
TOTAL	892	983	2139	1565.0	3970	5114	4132	4833	943	900	844	487
MEAN	28.8	32.8	69.0	50.5	137	165	138	156	31.4	29.0	27.2	16.2
MAX	103	126	252	140	606	398	236	840	69	60	66	28
MIN	10	12	15	8.0	30	89	82	49	17	19	15	14
(*)	5.71	5.99	5.82	5.89	6.00	6.20	6.29	6.13	6.10	6.45	6.11	5.23

CAL YR 1983 TOTAL 20831.6 MEAN 57.1 MAX 336 MIN 8.6 \* 5.99  
WTR YR 1984 TOTAL 26802.0 MEAN 73.2 MAX 840 MIN 8.0 \* 5.99

\* Discharge from Sewage Treatment plant, equivalent in cubic feet per second; furnished by the Sanitary Board of Bluefield.

## BIG SANDY RIVER BASIN

305

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Corps of Engineers satellite and gage-height telemeters at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--17 years, 386 ft<sup>3</sup>/s, 17.65 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.--Maximum discharge, 33,200 ft<sup>3</sup>/s at 1200 hours May 7, gage height, 20.74 ft, from rating curve extended as explained above, no other peak above base of 4,500 ft<sup>3</sup>/s; minimum daily, 11 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	39	76	60	223	946	762	322	300	1590	59	37
2	28	37	71	70	219	749	611	303	246	450	64	34
3	27	55	90	90	213	629	530	394	207	369	56	43
4	24	56	250	110	212	552	786	2020	180	248	54	116
5	35	47	257	110	207	572	2330	1800	160	272	57	73
6	32	43	224	120	150	692	1820	2710	141	308	55	48
7	27	41	197	130	100	649	1260	16300	128	296	54	39
8	24	39	155	120	110	575	879	4090	118	233	49	35
9	23	37	131	110	130	491	796	2530	111	170	52	33
10	23	61	117	288	168	423	946	1570	106	138	174	31
11	30	106	107	724	240	393	838	1060	96	119	407	30
12	73	109	441	472	432	350	707	805	91	118	149	31
13	57	87	468	300	567	331	614	636	90	109	98	27
14	87	71	340	200	2420	317	575	544	90	101	76	26
15	52	88	255	170	1440	282	558	440	92	88	64	26
16	39	109	193	150	823	278	522	375	103	84	55	25
17	35	145	154	130	597	263	535	329	141	91	50	24
18	31	132	133	110	460	260	511	296	115	132	90	23
19	29	106	121	100	391	281	484	270	87	101	159	22
20	30	90	111	95	344	294	450	248	78	79	95	21
21	61	93	103	90	303	534	471	226	170	73	70	20
22	77	76	111	85	273	595	766	210	212	73	58	20
23	206	65	120	100	1140	524	1040	230	182	66	54	20
24	202	92	82	150	2580	463	825	230	207	61	61	20
25	116	195	20	875	1710	455	647	181	172	57	49	19
26	90	191	14	702	1040	474	529	168	116	74	43	18
27	70	142	11	519	791	460	454	261	94	163	42	20
28	58	129	25	406	1230	583	406	817	83	118	40	22
29	49	109	279	341	1420	2410	383	703	166	83	45	22
30	45	88	80	300	---	1690	354	567	506	71	41	33
31	42	---	50	275	---	1040	---	391	---	63	37	---
TOTAL	1747	2678	4786	7502	19933	18555	22389	41026	4588	5998	2457	958
MEAN	56.4	89.3	154	242	687	599	746	1323	153	193	79.3	31.9
MAX	206	195	468	875	2580	2410	2330	16300	506	1590	407	116
MIN	23	37	11	60	100	260	354	168	78	57	37	18
CFSM	.19	.30	.52	.82	2.31	2.02	2.51	4.46	.52	.65	.27	.11
IN.	.22	.34	.60	.94	2.50	2.32	2.80	5.14	.57	.75	.31	.12
CAL YR 1983 TOTAL	94472			MEAN 259	MAX 2160	MIN 11	CFSM .87	IN 11.83				
WTR YR 1984 TOTAL	132617			MEAN 362	MAX 16300	MIN 11	CFSM 1.22	IN 16.61				



## 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 National Geodetic Vertical Datum of 1929 (levels by 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.--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.--46 years, 478 ft<sup>3</sup>/s, 16.56 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, 6,180 ft<sup>3</sup>/s May 11, gage height, 82.21 ft; maximum gage height, 98.86 ft May 7, backwater from Russell Fork; minimum daily, 44 ft<sup>3</sup>/s Nov. 24-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149	173	116	133	249	1410	1070	427	405	1610	70	67
2	149	173	116	221	191	1050	390	332	234	1150	70	65
3	163	173	116	241	186	871	71	442	309	635	73	71
4	176	188	207	185	204	785	85	1450	479	505	72	64
5	178	194	490	183	231	708	1110	1570	377	296	71	64
6	185	196	391	181	230	806	1620	2000	172	378	71	63
7	198	196	312	181	176	955	88	75	101	553	71	57
8	198	196	262	232	103	1120	87	75	101	428	72	59
9	190	181	160	213	76	1090	88	783	101	250	79	60
10	177	166	157	187	150	1010	92	3690	101	164	98	125
11	194	166	153	574	270	501	367	6020	101	90	649	166
12	370	244	299	805	592	475	922	5880	101	90	398	170
13	407	285	646	669	636	434	941	5670	101	90	116	173
14	330	289	653	429	2160	352	794	5750	102	90	71	169
15	254	282	424	322	2400	178	851	5940	140	90	70	166
16	200	362	285	322	1790	107	748	4530	196	87	73	166
17	183	407	230	255	997	58	747	2470	396	85	76	164
18	183	367	191	253	629	58	743	2170	190	85	73	161
19	192	302	153	244	565	59	743	1200	87	85	73	166
20	201	269	129	118	305	62	606	376	88	101	73	166
21	344	158	129	62	304	609	551	371	90	116	72	166
22	270	54	128	84	371	1170	726	519	137	116	71	166
23	367	46	127	115	371	1030	1180	464	414	116	71	166
24	436	44	127	253	2000	717	1930	296	428	116	71	166
25	435	44	103	623	2760	595	1280	372	206	100	70	166
26	353	44	68	1040	1910	638	754	146	192	87	70	167
27	229	593	52	957	1380	579	699	318	117	269	70	168
28	202	720	79	710	1900	673	553	1340	90	187	69	168
29	171	601	220	470	2250	1910	602	1300	90	82	68	166
30	138	287	265	380	---	2750	624	989	308	70	68	166
31	153	---	164	315	---	1630	---	538	---	70	68	---
TOTAL	7375	7400	6952	10957	25386	24390	21062	57503	5954	8191	3187	4027
MEAN	238	247	224	353	875	787	702	1855	198	264	103	134
MAX	436	720	653	1040	2760	2750	1930	6020	479	1610	649	173
MIN	138	44	52	62	76	58	71	75	87	70	68	57
CAL YR 1983	TOTAL	120883		MEAN	331	MAX	2910	MIN	39			
WTR YR 1984	TOTAL	182384		MEAN	498	MAX	6020	MIN	44			

## BIG SANDY RIVER BASIN

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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 National Geodetic Vertical Datum of 1929. Prior to Dec. 21, 1939, nonrecording gage at highway bridge 180 ft upstream at same datum.

REMARKS.--Records good. Corps of Engineers satellite and gage-height telemeters at station. Several observations 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, 332 ft<sup>3</sup>/s, 15.76 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 above base 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. 14	0800	5250	7.24	May 7	1210	*37000	22.08

Minimum daily discharge, 5.5 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	25	54	40	122	946	713	246	337	1570	68	22
2	16	23	49	45	117	704	542	221	256	488	60	21
3	15	29	63	60	116	566	457	317	204	544	56	25
4	14	31	242	70	114	479	811	1380	170	304	58	77
5	20	30	246	50	110	467	2570	1280	142	357	102	60
6	19	28	169	60	103	512	1580	1760	122	439	197	37
7	16	27	154	70	79	490	1020	17500	109	312	154	31
8	14	24	119	60	54	457	739	4110	99	205	89	30
9	13	24	94	50	64	387	632	2430	90	141	78	28
10	14	27	79	175	81	318	625	1430	83	111	74	25
11	15	40	70	545	126	291	554	945	79	95	142	25
12	52	49	379	353	262	252	484	712	71	252	95	28
13	61	37	322	200	720	233	429	548	65	191	69	26
14	72	32	210	130	3840	217	393	482	73	158	51	24
15	50	39	151	100	1450	185	357	370	84	108	39	23
16	34	54	110	90	744	183	320	303	94	131	41	22
17	27	62	85	70	500	169	319	260	88	243	40	19
18	23	54	71	60	359	164	289	233	77	157	58	18
19	21	47	63	55	285	204	264	211	64	119	74	18
20	20	43	57	52	242	264	245	194	61	87	53	18
21	28	47	53	48	200	2880	273	176	189	77	38	18
22	36	46	57	44	174	1690	373	158	199	72	33	17
23	90	41	61	47	997	964	535	178	104	60	35	14
24	152	45	51	100	1990	676	519	193	132	52	40	13
25	76	86	15	823	1300	583	431	142	101	47	33	14
26	54	99	8.0	577	831	596	350	133	72	73	29	13
27	45	76	5.5	388	704	586	299	444	56	377	26	12
28	38	75	10	285	1610	846	274	801	51	309	26	13
29	32	74	100	231	1680	2590	329	1120	690	151	26	13
30	29	64	50	191	---	1610	289	769	1160	108	25	20
31	27	---	32	165	---	990	---	486	---	83	24	---
TOTAL	1138	1378	3229.5	5234	18974	21499	17015	39532	5122	7421	1933	724
MEAN	36.7	45.9	104	169	654	694	567	1275	171	239	62.4	24.1
MAX	152	99	379	823	3840	2880	2570	17500	1160	1570	197	77
MIN	13	23	5.5	40	54	164	245	133	51	47	24	12
CFSM	.13	.16	.36	.59	2.29	2.43	1.98	4.46	.60	.84	.22	.08
IN.	.15	.18	.42	.68	2.47	2.80	2.21	5.14	.67	.97	.25	.09

CAL YR 1983	TOTAL	88039.5	MEAN 241	MAX 3360	MIN 5.5	CFSM .84	IN 11.45
WTR YR 1984	TOTAL	123199.5	MEAN 337	MAX 17500	MIN 5.5	CFSM 1.18	IN 16.02

## 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 (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. Corps of Engineers satellite telemeter at station.

COOPERATION.--Records furnished by 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, 5,980 acre-ft May 9, elevation, 1,625.56 ft; minimum, 1,970 acre-ft Dec. 8, 9, elevation, 1,601.67 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1607.73	2709	
Oct. 31.....	1607.04	2615	-94
Nov. 30.....	1602.05	2008	-607
Dec. 31.....	1602.11	2014	+6
CAL YR 1983.....			-37
Jan. 31.....	1601.80	1981	-33
Feb. 29.....	1603.04	2120	+139
Mar. 31.....	1602.72	2083	-37
Apr. 30.....	1611.40	3247	+1164
May 31.....	1611.41	3248	+1
June 30.....	1611.67	3289	+41
July 31.....	1611.13	3204	-85
Aug. 31.....	1610.75	3146	-58
Sept. 30.....	1609.38	2942	-204
WTR YR 1984.....			+233

## 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 National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1965, on left bank at datum 44.88 ft higher.

REMARKS.--Records fair. Flow regulated since August 1966 by North Fork Pound River Lake (station 03208680). Corps of Engineers satellite telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--23 years, 29.0 ft<sup>3</sup>/s, 21.29 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 Corps of Engineers floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 446 ft<sup>3</sup>/s May 7, gage height, 52.20 ft; minimum, 2.5 ft<sup>3</sup>/s part or all of each day June 18-20, 26-28, July 20, 22-26, Aug. 2-5; minimum gage height, 48.27 ft Oct. 1-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	7.2	14	8.0	16	103	59	23	30	6.1	2.7	2.7
2	3.0	7.1	6.6	8.0	8.3	52	21	14	11	24	2.6	2.7
3	3.2	7.2	6.0	11	8.3	19	4.9	15	10	23	2.6	3.1
4	3.2	7.3	8.0	13	8.3	19	12	197	14	7.3	2.6	3.1
5	3.4	7.3	11	9.7	8.3	60	19	222	16	7.5	2.7	2.9
6	3.3	7.3	18	7.6	8.3	58	11	138	11	21	2.7	2.8
7	3.3	8.9	20	6.4	8.0	34	7.7	143	5.0	13	2.7	2.8
8	3.3	9.9	13	6.4	8.0	34	6.1	21	3.0	13	2.7	2.8
9	3.3	19	4.3	9.4	6.5	26	12	161	3.0	6.2	11	2.8
10	3.3	22	3.2	20	4.6	15	31	340	3.0	2.8	6.3	2.8
11	3.4	22	3.6	51	6.2	15	51	342	3.0	2.9	4.7	2.9
12	3.5	22	17	45	7.7	14	47	337	3.0	3.0	3.8	2.8
13	3.7	22	28	24	87	19	29	328	3.0	2.9	3.3	2.8
14	3.5	16	22	16	219	21	19	265	3.0	2.8	3.1	2.8
15	3.5	14	13	16	168	20	19	75	3.0	2.8	3.0	2.8
16	3.5	17	6.7	16	78	18	38	15	3.0	2.7	2.8	2.8
17	3.5	17	3.5	15	34	14	37	9.9	3.0	2.7	2.8	2.8
18	3.5	11	3.5	13	22	14	30	9.7	2.8	2.8	3.0	2.8
19	3.5	7.0	3.5	9.7	21	15	26	9.6	2.5	2.7	2.9	4.1
20	3.5	7.0	3.3	6.6	21	21	23	9.5	3.0	2.6	2.8	4.8
21	3.7	7.9	3.3	4.4	21	140	24	9.5	3.2	2.7	2.8	4.9
22	3.7	8.9	6.6	4.3	20	202	18	9.5	3.1	2.6	2.8	5.0
23	4.2	8.7	6.7	4.3	22	96	38	10	2.7	2.6	2.9	5.0
24	3.9	8.7	5.2	5.7	22	28	56	13	2.8	2.5	2.8	5.0
25	3.9	11	5.0	46	22	28	55	14	2.7	2.5	2.8	5.2
26	3.9	13	5.0	70	22	50	35	15	2.6	2.9	2.7	5.3
27	3.9	13	5.0	45	45	46	19	22	2.6	3.2	2.7	5.3
28	6.1	15	10	16	134	55	19	122	2.7	2.9	2.7	5.3
29	7.6	18	17	15	147	175	19	228	3.2	2.7	2.7	5.3
30	7.5	19	13	32	---	174	25	171	7.7	2.7	2.7	5.3
31	7.3	---	8.0	31	---	70	---	102	---	2.7	2.8	---
TOTAL	123.1	381.4	293.0	585.5	1203.5	1655	810.7	3390.7	168.6	181.8	101.2	111.5
MEAN	3.97	12.7	9.45	18.9	41.5	53.4	27.0	109	5.62	5.86	3.26	3.72
MAX	7.6	22	28	70	219	202	59	342	30	24	11	5.3
MIN	3.0	7.0	3.2	4.3	4.6	14	4.9	9.5	2.5	2.5	2.6	2.7
(*)	-2	-10	.00	-1	+2	-1	+20	.00	+1	-1	-1	-3
MEAN#	1.97	2.71	9.45	17.9	43.5	52.4	47.0	109	6.62	4.86	2.26	.72
CFSM#	.11	.15	.51	.97	2.35	2.83	2.54	5.89	.36	.26	.12	.04
IN#	.12	.16	.59	1.11	2.54	3.27	2.84	6.82	.40	.30	.14	.04

CAL YR 1983 TOTAL 7312.1 MEAN 20.0 MAX 278 MIN 2.8 MEAN# 20.0 CFSM# 1.08 IN# 14.70  
WTR YR 1984 TOTAL 9006.0 MEAN 24.6 MAX 342 MIN 2.5 MEAN# 24.6 CFSM# 1.33 IN# 18.11

\* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake; furnished by Corps of Engineers.

\* Adjusted for change in contents.



## BIG SANDY RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Corps of Engineers satellite and gage-height telemeters at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--21 years, 82.1 ft<sup>3</sup>/s, 16.77 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 above base 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. 14	0530	1290	7.66	May 7	1130	*5990	16.85

Minimum daily discharge, 1.6 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	6.6	10	9.0	35	186	144	50	81	262	24	11
2	5.3	7.4	11	11	32	142	112	48	65	110	24	8.2
3	4.7	10	18	13	33	113	93	98	56	98	21	8.7
4	4.8	11	112	15	32	94	261	388	51	56	21	36
5	14	7.7	56	11	29	92	471	269	45	85	19	14
6	12	8.3	43	13	25	98	291	417	39	91	33	13
7	6.3	6.9	40	16	20	90	199	3160	35	67	21	12
8	4.8	6.3	29	14	14	83	150	803	36	50	17	8.2
9	4.3	6.6	24	12	16	70	132	431	33	40	62	7.2
10	4.5	8.6	22	25	24	63	125	271	31	35	53	7.0
11	5.1	13	20	204	41	58	105	192	29	31	31	7.1
12	22	10	114	112	69	51	90	150	27	30	23	22
13	21	10	66	50	343	50	82	119	26	27	19	10
14	28	11	47	35	841	49	79	108	29	28	17	8.1
15	12	14	34	25	267	45	73	87	31	25	17	11
16	10	17	26	22	152	47	68	75	46	26	14	8.2
17	7.4	17	23	18	105	44	69	66	69	26	16	6.4
18	6.3	13	18	16	77	43	66	60	38	23	20	6.0
19	6.1	13	16	14	65	58	60	55	27	19	18	8.9
20	6.6	11	15	13	55	76	56	51	31	20	14	6.8
21	9.9	15	15	12	49	656	69	48	41	19	13	9.2
22	14	12	17	11	45	332	78	43	45	16	12	9.1
23	32	11	19	13	183	195	106	57	31	14	20	6.3
24	26	13	17	116	244	140	104	51	27	13	16	5.3
25	18	23	6.0	340	182	118	88	40	25	15	14	4.6
26	17	18	2.0	146	132	100	75	46	20	53	10	7.4
27	14	13	1.6	82	147	87	66	138	18	148	9.1	6.1
28	12	14	3.5	63	455	244	60	270	25	70	8.9	9.1
29	9.2	14	74	51	319	540	59	253	57	40	8.8	11
30	8.3	12	57	44	---	297	57	161	317	31	12	10
31	7.4	---	8.0	40	---	193	---	112	---	26	13	---
TOTAL	358.9	353.4	964.1	1566.0	4031	4454	3488	8117	1431	1594	620.8	297.9
MEAN	11.6	11.8	31.1	50.5	139	144	116	262	47.7	51.4	20.0	9.93
MAX	32	23	114	340	841	656	471	3160	317	262	62	36
MIN	4.3	6.3	1.6	9.0	14	43	56	40	18	13	8.8	4.6
CFSM	.17	.18	.47	.76	2.09	2.17	1.74	3.94	.72	.77	.30	.15
IN.	.20	.20	.54	.88	2.25	2.49	1.95	4.54	.80	.89	.35	.17
CAL YR 1983	TOTAL	22223.8	MEAN	60.9	MAX	536	MIN	1.6	CFSM	.92	IN	12.43
WTR YR 1984	TOTAL	27276.1	MEAN	74.5	MAX	3160	MIN	1.6	CFSM	1.12	IN	15.26

## BIG SANDY RIVER BASIN

311

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 (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. Corps of Engineers satellite and gage-height telemeters at station.

COOPERATION.--Records furnished by 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, 101,700 acre-ft May 9, elevation, 1,421.81 ft; minimum, 32,000 acre-ft Jan. 23, elevation, 1,356.57 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1391.24	61800	
Oct. 31.....	1388.27	58700	-3100
Nov. 30.....	1382.93	53300	-5400
Dec. 31.....	1368.47	40700	-12600
CAL YR 1983.....			-10400
Jan. 31.....	1361.92	35700	-5000
Feb. 29.....	1382.16	52600	+16900
Mar. 31.....	1387.81	58200	+5600
Apr. 30.....	1396.65	67800	+9600
May 31.....	1396.43	67600	-200
June 30.....	1397.76	69100	+1500
July 31.....	1396.52	67700	-1400
Aug. 31.....	1395.50	66500	-1200
Sept. 30.....	1393.34	64100	-2400
WTR YR 1984.....			+2300

## 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 National Geodetic Vertical Datum of 1929 (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.--Records good. 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. Corps of Engineers satellite telemeter at station. Several observations 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, 276 ft<sup>3</sup>/s, 16.96 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, 4,040 ft<sup>3</sup>/s May 12, gage height, 7.79 ft; minimum, 10 ft<sup>3</sup>/s Dec. 6, gage height, 1.80 ft; minimum daily, 23 ft<sup>3</sup>/s Feb. 9-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	59	236	376	68	987	741	306	278	1460	71	85
2	54	430	180	376	68	622	247	200	212	477	71	85
3	56	180	181	286	68	420	133	148	134	307	61	85
4	56	103	183	254	68	420	355	1170	67	153	51	74
5	56	51	278	293	68	416	138	1660	68	181	53	54
6	56	51	294	308	68	416	67	840	69	360	53	54
7	56	52	331	308	51	416	67	69	69	423	54	63
8	56	229	331	308	24	416	68	61	70	261	54	75
9	56	515	301	308	23	312	261	1400	71	169	54	75
10	56	253	268	323	23	191	472	3840	71	102	131	63
11	57	63	264	542	23	191	472	3980	67	102	157	56
12	57	65	632	611	23	191	439	3990	51	102	88	56
13	57	65	547	518	24	282	347	3980	51	102	56	56
14	57	452	481	359	24	264	293	3050	51	85	56	57
15	57	432	428	359	24	153	293	907	51	51	56	57
16	57	63	392	359	24	153	293	485	51	51	56	57
17	57	115	355	359	24	153	358	384	58	51	54	57
18	57	145	355	359	24	153	392	318	85	50	52	57
19	57	146	355	359	24	156	326	208	85	51	52	57
20	57	148	355	252	24	194	261	172	85	51	52	57
21	64	150	339	148	111	1120	203	153	140	51	60	57
22	129	102	319	145	153	1650	146	129	286	51	68	57
23	210	52	304	91	200	591	404	176	318	51	67	57
24	255	54	289	65	437	343	636	192	110	51	70	57
25	254	54	289	65	343	343	566	133	106	50	72	57
26	214	54	289	65	343	343	446	133	69	52	71	57
27	174	56	286	67	632	343	363	171	58	239	71	57
28	143	56	316	67	1200	343	213	406	51	279	71	57
29	102	87	380	67	1580	586	215	719	182	113	71	57
30	102	90	396	67	---	735	280	879	503	71	71	57
31	96	---	380	67	---	741	---	501	---	71	77	---
TOTAL	2869	4372	10334	8131	5766	13644	9495	30760	3567	5668	2101	1850
MEAN	92.5	146	333	262	199	440	317	992	119	183	67.8	61.7
MAX	255	515	632	611	1580	1650	741	3990	503	1460	157	85
MIN	54	51	180	65	23	153	67	61	51	50	51	54
(*)	-52	-101	-205	-82	+296	+90	+181	-3	+26	-24	-21	-43
MEAN#	40.5	44.7	128	180	495	530	498	989	145	159	46.8	18.7
CFSM#	.18	.20	.58	.81	2.24	2.40	2.25	4.48	.66	.72	.21	.08
IN#	.21	.23	.67	.94	2.42	2.77	2.51	5.16	.73	.83	.24	.09

CAL YR 1983 TOTAL 81932 MEAN 224 MAX 1860 MIN 47 MEAN# 210 CFSM# .95 IN# 12.93  
WTR YR 1984 TOTAL 98557 MEAN 269 MAX 3990 MIN 23 MEAN# 272 CFSM# 1.23 IN# 16.77

\* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake and John W. Flannagan Reservoirs; furnished by 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 National Geodetic Vertical Datum of 1929. Nov. 1, 1920, to Nov. 14, 1931, nonrecording gage at site 400 ft downstream at same datum.

REMARKS.--Records good. Prior to August 1951, diurnal fluctuation at low flow caused by mill 500 ft above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 113 ft<sup>3</sup>/s, 20.16 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 above base 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)
Dec. 12	0800	1630	5.04	May 7	1430	*2900	6.49
Feb. 14	0230	2390	5.95				

Minimum daily discharge, 9.0 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	34	108	40	73	235	253	108	88	55	48	31
2	26	33	90	50	71	204	204	104	82	49	112	31
3	25	33	96	60	70	178	175	115	76	51	120	32
4	25	33	339	70	71	161	189	129	72	46	88	37
5	25	31	313	79	70	209	325	134	68	48	70	33
6	24	31	221	80	68	483	297	228	65	46	60	31
7	24	30	169	75	62	429	234	1770	63	49	55	30
8	23	30	141	66	62	327	192	1220	65	44	51	29
9	23	29	119	62	59	252	175	723	79	42	51	28
10	23	32	102	74	59	204	340	496	64	41	53	28
11	24	34	93	100	68	178	334	370	59	39	55	28
12	39	33	1090	91	73	153	262	296	61	38	49	27
13	51	31	529	85	311	169	210	238	70	37	64	27
14	60	30	309	80	1850	215	213	213	61	36	94	27
15	39	34	203	74	798	321	261	178	60	36	68	27
16	34	42	149	71	453	348	245	157	72	36	58	27
17	32	45	119	67	315	329	219	142	105	37	51	26
18	30	42	101	64	234	252	202	129	73	53	50	26
19	30	42	90	62	189	228	190	120	64	41	51	26
20	29	44	81	60	162	202	178	113	62	54	45	26
21	36	46	73	56	141	281	182	107	58	123	42	25
22	46	44	91	54	125	306	204	103	57	89	40	25
23	57	43	103	68	163	253	251	100	55	62	40	24
24	79	57	75	107	227	209	244	96	57	52	38	24
25	62	184	60	117	468	196	202	87	57	48	36	24
26	52	140	15	115	389	236	170	83	51	52	35	24
27	47	108	9.0	112	348	253	150	99	49	62	34	24
28	43	143	20	105	346	267	136	114	46	65	34	25
29	40	197	220	97	291	464	123	115	46	54	34	27
30	38	143	110	90	---	460	117	107	63	49	33	29
31	36	---	35	81	---	334	---	97	---	46	33	---
TOTAL	1151	1798	5273.0	2412	7616	8336	6477	8091	1948	1580	1692	828
MEAN	37.1	59.9	170	77.8	263	269	216	261	64.9	51.0	54.6	27.6
MAX	79	197	1090	117	1850	483	340	1770	105	123	120	37
MIN	23	29	9.0	40	59	153	117	83	46	36	33	24
CFSM	.49	.79	2.23	1.02	3.46	3.54	2.84	3.43	.85	.67	.72	.36
IN.	.56	.88	2.58	1.18	3.72	4.07	3.17	3.96	.95	.77	.83	.40
CAL YR 1983	TOTAL	45403.0	MEAN 124	MAX 1090	MIN 9.0	CFSM 1.63	IN 22.19					
WTR YR 1984	TOTAL	47202.0	MEAN 129	MAX 1850	MIN 9.0	CFSM 1.70	IN 23.07					



## TENNESSEE RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some diurnal fluctuation caused by powerplant above station. Tennessee Valley Authority gage-height radio transmitter at station, receiver and recorder at Kingsport, TN.

AVERAGE DISCHARGE.--53 years, 481 ft<sup>3</sup>/s, 21.70 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 above base 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. 14	0900	6680	10.28	May 7	1230	*17700	15.67

Minimum daily discharge, 40 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	163	551	200	335	844	883	419	510	251	222	134
2	113	155	446	250	333	709	990	412	451	206	394	124
3	103	164	587	300	331	661	1400	497	403	226	510	127
4	98	162	1780	330	336	1220	1300	599	368	195	364	181
5	100	149	1490	360	326	1750	1100	650	336	237	290	150
6	106	142	1080	360	315	1400	1000	1070	312	209	249	130
7	99	138	833	354	285	1110	878	9400	291	220	223	121
8	95	134	685	309	267	892	773	4590	302	192	208	116
9	94	131	571	293	287	772	713	2840	328	173	193	112
10	.92	136	482	330	291	685	955	1840	280	165	290	109
11	94	154	419	462	363	637	945	1330	260	159	523	109
12	144	157	2090	404	409	837	817	1060	251	158	300	107
13	273	143	1560	387	897	991	716	889	289	156	329	105
14	316	138	1050	367	5360	1150	897	825	280	159	414	102
15	191	190	780	343	2720	1180	1070	687	260	193	321	102
16	157	268	612	333	1590	1030	990	616	243	166	267	103
17	140	257	504	316	1150	924	966	561	305	173	236	100
18	130	234	429	300	894	1130	1040	518	259	551	219	97
19	125	229	390	290	748	1090	981	486	251	316	225	96
20	121	238	357	280	663	1190	868	457	278	236	197	96
21	155	291	326	260	577	1110	837	431	238	589	177	94
22	185	269	367	250	515	974	814	431	228	566	168	91
23	228	252	387	372	691	899	842	491	233	365	189	90
24	340	403	348	480	997	938	804	445	279	286	178	90
25	411	1060	245	547	1850	976	711	389	278	243	154	89
26	315	776	70	529	1490	955	618	370	222	227	146	88
27	259	621	40	513	1280	1240	556	614	203	324	142	90
28	223	985	200	483	1290	1950	512	1070	200	489	139	93
29	201	1030	934	444	1140	1480	472	790	218	324	175	98
30	184	738	400	413	---	1130	450	671	240	273	145	115
31	171	---	160	384	---	913	---	588	---	244	151	---
TOTAL	5385	9907	20173	11243	27730	32767	25898	36036	8596	8271	7738	3259
MEAN	174	330	651	363	956	1057	863	1162	287	267	250	109
MAX	411	1060	2090	547	5360	1950	1400	9400	510	589	523	181
MIN	92	131	40	200	267	637	450	370	200	156	139	88
CFSM	.58	1.10	2.16	1.21	3.18	3.51	2.87	3.86	.95	.89	.83	.36
IN.	.67	1.22	2.49	1.39	3.43	4.05	3.20	4.45	1.06	1.02	.96	.40
CAL YR 1983	TOTAL	177525	MEAN 486	MAX 2850	MIN 40	CFSM 1.62	IN 21.94					
WTR YR 1984	TOTAL	197003	MEAN 538	MAX 9400	MIN 40	CFSM 1.79	IN 24.35					

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 TEMPERATURES: October 1949 to September 1950, October 1967 to September 1973.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT 06...	1130	107	180	8.2	15.0	727	5	6.6	69
NOV 18...	1120	236	140	7.6	4.5	720	4	12.6	103
JAN 05...	1130	361	130	7.9	3.0	714	3	12.6	100
FEB 21...	1000	583	130	7.8	6.0	715	9	11.8	101
APR 06...	1115	990	90	7.8	7.5	704	20	10.8	98
MAY 18...	0945	522	155	7.8	11.5	724	3	10.0	97
JUL 03...	1115	232	165	8.3	19.0	718	10	7.9	91
AUG 24...	1015	177	158	8.0	17.5	720	3	9.6	106

DATE	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)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 06...	90	49	23	8.0	7.1	1.8	41	16	5.8
NOV 18...	58	5	15	5.1	5.2	1.3	54	14	3.6
JAN 05...	57	4	15	4.8	3.4	1.6	53	7.3	4.2
FEB 21...	55	3	14	4.8	3.1	1.7	52	6.8	4.0
APR 06...	36	2	9.3	3.2	3.0	1.2	34	5.7	5.0
MAY 18...	66	3	17	5.6	2.9	1.3	63	6.9	2.6
JUL 03...	73	3	19	6.3	3.3	1.8	70	7.6	3.2
AUG 24...	70	2	18	6.2	2.7	1.4	69	8.6	1.6

DATE	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 06...	.10	6.4	120	95	.020	.52	.040	19
NOV 18...	.20	6.1	81	83	<.010	.42	.010	26
JAN 05...	<.10	5.6	87	77	.010	.67	.020	15
FEB 21...	<.10	5.6	70	71	<.010	.75	<.010	14
APR 06...	.10	5.3	--	53	.030	.48	<.010	16
MAY 18...	<.10	5.9	111	80	<.010	.74	<.010	16
JUL 03...	<.10	5.7	116	89	.010	.71	.020	12
AUG 24...	<.10	5.5	92	85	.010	.39	<.010	17

&lt; Actual value is known to be less than the value shown.

## TENNESSEE RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Prior to 1954, flow regulated by powerplant 0.9 mi above station. Several observations 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, 243 ft<sup>3</sup>/s, 15.64 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 above base 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. 14	1300	3370	7.34	May 7	2030	*7260	10.30
Feb. 25	0600	2490	6.28				

Minimum daily discharge, 25 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	79	182	120	189	511	426	254	238	140	107	77
2	77	77	152	150	187	460	363	239	222	129	113	74
3	71	79	193	170	187	451	326	255	208	135	122	74
4	65	79	846	180	196	437	321	307	198	128	110	85
5	65	75	672	190	198	443	508	365	188	124	101	80
6	67	75	421	192	194	614	529	542	179	126	98	73
7	65	71	353	208	177	625	437	4100	173	120	97	71
8	63	71	282	183	172	527	371	2970	167	114	94	68
9	61	69	239	175	167	467	334	1600	163	108	90	67
10	61	75	210	189	162	414	528	1060	157	104	95	67
11	65	82	187	341	178	388	558	770	152	102	255	67
12	79	84	1060	274	218	356	443	623	148	106	134	66
13	117	79	841	234	261	333	374	531	154	119	125	65
14	163	73	476	214	2730	333	438	478	152	105	132	65
15	107	88	345	197	1490	336	876	413	155	101	116	64
16	86	117	270	188	771	349	612	371	143	103	102	60
17	75	114	229	179	551	331	500	337	165	112	95	61
18	73	105	203	170	439	305	445	314	152	150	95	60
19	71	98	189	160	376	314	405	298	145	138	111	60
20	69	93	176	150	349	311	378	282	137	115	98	61
21	84	100	164	150	307	338	380	269	136	170	90	60
22	163	95	176	140	279	407	386	270	149	166	87	59
23	186	90	202	194	673	383	465	323	145	125	88	58
24	263	112	210	242	1850	343	496	286	151	111	86	59
25	192	315	136	372	2200	326	432	252	146	104	83	57
26	138	270	40	306	1230	341	370	239	132	136	81	57
27	112	196	25	272	880	333	330	254	124	140	79	61
28	100	257	100	247	771	354	304	287	120	207	80	58
29	93	321	524	228	625	656	283	355	126	144	94	61
30	88	234	343	216	---	723	268	309	129	123	85	69
31	82	---	100	213	---	524	---	262	---	114	79	---
TOTAL	3085	3673	9546	6444	18007	13033	12886	19215	4754	3919	3222	1964
MEAN	99.5	122	308	208	621	420	430	620	158	126	104	65.5
MAX	263	321	1060	372	2730	723	876	4100	238	207	255	85
MIN	61	69	25	120	162	305	268	239	120	101	79	57
CFSM	.47	.58	1.46	.99	2.94	1.99	2.04	2.94	.75	.60	.49	.31
IN.	.54	.65	1.68	1.14	3.17	2.30	2.27	3.39	.84	.69	.57	.35
CAL YR 1983	TOTAL	87621	MEAN	240	MAX	1430	MIN	25	CFSM	1.14	IN	15.45
WTR YR 1984	TOTAL	99748	MEAN	273	MAX	4100	MIN	25	CFSM	1.29	IN	17.59

## TENNESSEE RIVER BASIN

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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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Small diurnal fluctuation at low flow caused by withdrawal of water, which is returned to stream 600 ft above station, for car-washing operation. Since September 1965, some regulation at high flow by flood-control reservoirs, capacity, 7,600 acre-ft. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--27 years, 35.9 ft<sup>3</sup>/s, 17.60 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, 524 ft<sup>3</sup>/s May 7, gage height, 6.97 ft; minimum daily, 8.0 ft<sup>3</sup>/s Dec. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	11	15	18	25	64	57	40	50	34	28	19
2	15	12	16	21	25	62	55	40	47	29	28	19
3	15	12	24	23	25	60	54	42	45	32	27	19
4	14	12	50	24	24	58	75	49	43	28	26	20
5	16	11	29	24	24	59	82	43	41	50	26	19
6	14	11	29	24	24	61	72	74	40	33	25	19
7	14	11	24	23	23	58	66	353	39	29	26	18
8	13	11	21	22	22	56	62	305	38	27	25	18
9	13	11	20	22	22	52	60	201	37	26	24	18
10	13	13	19	24	24	50	58	145	35	26	24	19
11	14	13	19	25	30	49	57	117	35	25	23	19
12	16	12	30	23	34	47	55	99	34	27	23	19
13	19	11	24	22	61	48	54	87	33	25	23	19
14	14	11	22	22	132	46	57	82	33	24	23	18
15	12	16	20	21	82	45	53	73	41	24	22	19
16	12	14	19	22	66	44	53	68	60	30	22	18
17	11	13	19	21	58	43	54	64	59	27	22	18
18	11	12	18	20	53	43	53	61	43	37	23	18
19	12	12	17	19	49	61	50	58	24	27	22	18
20	12	12	17	18	48	53	49	55	24	26	21	18
21	14	13	17	17	45	58	52	53	24	68	21	18
22	13	12	19	16	42	58	50	54	23	37	20	18
23	16	12	18	24	109	55	50	57	24	33	21	17
24	15	19	16	33	115	54	48	51	28	31	20	18
25	14	20	10	32	91	54	47	47	23	33	20	18
26	13	16	8.0	30	77	53	46	47	22	32	19	18
27	13	18	15	28	72	52	44	56	22	41	19	18
28	12	21	89	27	75	62	43	48	21	36	20	18
29	12	18	44	26	69	73	42	180	27	31	24	18
30	11	16	33	27	---	64	42	65	35	30	21	20
31	11	---	15	26	---	60	---	55	---	29	20	---
TOTAL	419	406	736.0	724	1546	1702	1640	2769	1050	987	708	553
MEAN	13.5	13.5	23.7	23.4	53.3	54.9	54.7	89.3	35.0	31.8	22.8	18.4
MAX	19	21	89	33	132	73	82	353	60	68	28	20
MIN	11	11	8.0	16	22	43	42	40	21	24	19	17
CFSM	.49	.49	.86	.85	1.92	1.98	1.98	3.22	1.26	1.15	.82	.66
IN.	.56	.55	.99	.97	2.08	2.29	2.20	3.72	1.41	1.33	.95	.74
CAL YR 1983	TOTAL	11621.0	MEAN	31.8	MAX	127	MIN	8.0	CFSM	1.15	IN	15.61
WTR YR 1984	TOTAL	13240.0	MEAN	36.2	MAX	353	MIN	8.0	CFSM	1.31	IN	17.78



## TENNESSEE RIVER BASIN

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 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.--Records good. Several observations 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, 302 ft<sup>3</sup>/s, 18.47 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 above base 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. 14	1000	5110	7.22	May 7	1800	*10100	10.51
Feb. 24	0130	3460	5.81				

Minimum daily discharge, 20 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	72	279	100	216	532	598	261	328	90	57	39
2	46	67	223	110	217	463	482	239	277	86	56	36
3	43	66	267	140	221	411	413	258	239	131	60	34
4	39	65	1200	170	247	378	422	402	209	117	53	35
5	38	64	942	190	255	401	906	526	186	111	49	35
6	36	61	603	202	200	837	822	657	166	124	61	34
7	35	57	479	210	155	798	635	5660	151	101	70	35
8	34	55	378	173	160	621	507	3710	138	85	56	35
9	33	53	313	161	170	507	440	1770	129	74	52	34
10	33	66	264	183	183	418	554	1080	123	68	72	33
11	35	101	225	415	216	376	588	755	116	65	96	33
12	46	123	1190	348	315	331	507	588	108	74	112	33
13	66	113	1070	303	428	327	437	483	110	80	81	33
14	126	100	644	267	3990	362	517	419	131	78	105	32
15	101	108	461	234	1900	452	1100	355	118	70	110	32
16	67	153	347	217	965	538	750	312	113	87	77	31
17	54	177	281	202	670	518	597	280	149	115	62	32
18	48	162	236	180	514	428	547	257	124	180	62	31
19	45	144	209	170	427	408	509	239	106	151	75	31
20	44	141	190	160	476	408	475	224	95	106	68	30
21	69	160	170	150	435	534	450	211	100	170	57	29
22	289	160	182	140	389	675	509	225	103	133	50	28
23	311	144	220	170	1310	578	700	333	96	106	50	27
24	415	157	203	322	2670	488	646	372	103	84	55	26
25	264	411	146	536	2620	444	528	304	103	73	50	26
26	187	398	30	494	1420	482	434	262	89	66	45	25
27	145	301	20	425	994	463	373	328	79	76	42	25
28	116	379	60	368	846	557	333	409	73	87	40	26
29	99	506	1000	321	672	1490	301	600	80	76	42	26
30	87	373	250	286	---	1250	282	515	81	67	40	33
31	78	---	80	269	---	793	---	402	---	61	40	---
TOTAL	3071	4937	12162	7616	23281	17268	16362	22436	4023	2992	1945	939
MEAN	99.1	165	392	246	803	557	545	724	134	96.5	62.7	31.3
MAX	415	506	1200	536	3990	1490	1100	5660	328	180	112	39
MIN	33	53	20	100	155	327	282	211	73	61	40	25
CFSM	.45	.74	1.77	1.11	3.62	2.51	2.46	3.26	.60	.44	.28	.14
IN.	.51	.83	2.04	1.28	3.90	2.89	2.74	3.76	.67	.50	.33	.16
CAL YR 1983	TOTAL	94487	MEAN 259	MAX 1760	MIN 20	CFSM 1.17	IN 15.83					
WTR YR 1984	TOTAL	117032	MEAN 320	MAX 5660	MIN 20	CFSM 1.44	IN 19.61					

## 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 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.--Records good except those for period of no gage-height record, Oct. 9 to Nov. 14, which are fair. Prior to October 1970, diurnal fluctuation at low flow caused by mill 1.7 mi above station. Several observations 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, 193 ft<sup>3</sup>/s, 19.13 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 above base 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. 14	1230	2160	7.03	Mar. 29	1530	1820	6.35
Feb. 25	1200	1740	6.19	May 7	1430	*6450	14.70

Minimum daily discharge, 9.0 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DÉC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	26	75	45	108	569	422	145	168	275	55	30
2	22	23	65	50	102	438	322	136	141	140	78	29
3	26	24	70	65	110	348	270	159	123	189	62	28
4	24	25	200	75	118	308	338	351	110	109	62	35
5	22	25	300	90	115	517	938	511	99	144	49	40
6	22	26	230	100	90	1210	749	651	90	151	47	34
7	21	24	200	121	70	790	542	4360	82	112	43	30
8	21	23	150	93	75	532	394	2620	77	88	67	28
9	21	23	120	90	80	394	345	1570	73	72	91	25
10	20	24	100	122	90	306	426	921	69	63	67	24
11	20	27	90	298	100	263	374	603	65	73	177	26
12	21	35	542	219	130	226	310	443	62	148	112	24
13	25	50	349	173	180	215	268	342	101	104	97	22
14	40	42	240	152	1770	238	240	284	87	95	221	22
15	45	47	177	120	1160	260	223	239	65	72	130	22
16	38	62	137	100	589	268	202	207	62	130	80	23
17	28	83	115	90	385	263	203	183	75	103	60	23
18	25	80	98	80	282	235	207	163	74	95	55	22
19	23	67	89	75	237	237	199	150	64	87	90	22
20	22	62	80	70	234	234	194	139	56	65	110	22
21	24	73	74	66	199	319	210	131	71	108	80	22
22	30	68	94	60	176	356	287	133	61	115	67	21
23	50	59	100	70	384	306	385	161	62	78	64	21
24	100	75	40	223	1100	263	337	169	79	62	60	21
25	80	240	15	538	1600	247	276	128	74	55	49	21
26	65	179	12	370	959	292	231	125	59	52	42	22
27	50	126	9.0	267	784	279	203	390	51	89	40	21
28	40	119	530	215	1040	338	184	363	46	85	35	22
29	35	107	150	179	870	1360	171	362	50	63	33	23
30	30	100	60	154	---	1010	159	277	180	54	32	30
31	28	---	35	145	---	590	---	210	---	49	31	---
TOTAL	1038	1944	4546.0	4515	13137	13211	9609	16626	2476	3125	2286	755
MEAN	33.5	64.8	147	146	453	426	320	536	82.5	101	73.7	25.2
MAX	100	240	542	538	1770	1360	938	4360	180	275	221	40
MIN	20	23	9.0	45	70	215	159	125	46	49	31	21
CFSM	.25	.47	1.07	1.07	3.31	3.11	2.34	3.91	.60	.74	.54	.18
IN.	.28	.53	1.23	1.23	3.57	3.59	2.61	4.51	.67	.85	.62	.21

CAL YR 1983	TOTAL	51552.0	MEAN 141	MAX 1180	MIN 9.0	CFSM 1.03	IN 14.00
WTR YR 1984	TOTAL	73268.0	MEAN 200	MAX 4360	MIN 9.0	CFSM 1.46	IN 19.89

## TENNESSEE RIVER BASIN

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 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.--Records good. Tennessee Valley Authority gage-height Automatic Data Acquisition System at station, called at 6-hour intervals by computer at Knoxville, TN. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--64 years, 714 ft<sup>3</sup>/s, 18.36 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 above base 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. 14	1900	6000	9.77	May 7	1730	*18700	19.46
Feb. 25	1000	5370	9.08				

Minimum daily discharge, 40 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	103	318	180	498	2190	1650	515	813	1450	232	117
2	84	97	266	200	442	1740	1330	466	665	740	213	114
3	87	98	272	280	416	1460	1120	496	558	789	253	109
4	87	99	766	300	434	1270	1400	725	480	561	230	123
5	81	100	1260	330	461	1270	3880	1260	427	826	209	162
6	78	100	949	356	350	2270	3130	1570	378	933	215	136
7	74	95	906	395	270	2370	2220	11900	339	619	201	118
8	72	91	692	383	280	1760	1680	12700	310	447	184	106
9	71	90	534	320	298	1420	1390	5970	287	343	187	99
10	69	96	430	381	326	1170	1390	3560	269	283	240	94
11	71	110	368	1070	355	1020	1340	2380	252	246	309	101
12	82	148	1070	962	762	888	1190	1780	239	670	392	94
13	106	190	1640	720	1020	795	1050	1450	250	762	286	90
14	164	158	1150	591	5030	778	951	1240	258	632	343	86
15	176	148	857	450	4580	798	867	1040	303	429	506	85
16	147	160	640	400	2440	862	796	886	241	1560	306	81
17	112	188	495	340	1650	896	768	770	311	1400	232	79
18	97	223	402	300	1250	837	761	686	401	941	213	78
19	91	216	345	290	1020	795	731	623	287	679	328	78
20	86	193	309	270	975	880	696	572	238	496	370	77
21	93	194	281	250	883	1210	699	528	222	432	257	76
22	116	208	268	240	764	1460	781	504	373	439	208	75
23	214	200	292	350	1610	1300	1060	533	263	393	191	74
24	388	197	320	1030	4020	1120	1120	642	246	308	183	72
25	321	389	100	2040	5130	1020	997	535	262	259	172	71
26	243	725	50	1590	3750	1010	844	468	232	251	154	70
27	194	506	40	1190	2550	1050	729	1120	199	396	141	70
28	158	409	200	934	2830	1150	656	1430	177	632	134	72
29	136	427	2070	759	3100	2910	600	1650	174	424	129	74
30	120	393	250	647	---	3580	558	1450	331	314	124	84
31	110	---	150	598	---	2230	---	1040	---	263	121	---
TOTAL	4007	6351	17690	18146	47494	43509	36384	60489	9785	18917	7263	2765
MEAN	129	212	571	585	1638	1404	1213	1951	326	610	234	92.2
MAX	388	725	2070	2040	5130	3580	3880	12700	813	1560	506	162
MIN	69	90	40	180	270	778	558	466	174	246	121	70
CFSM	.24	.40	1.08	1.11	3.10	2.66	2.30	3.70	.62	1.16	.44	.18
IN.	.28	.45	1.25	1.28	3.35	3.07	2.56	4.26	.69	1.33	.51	.19

CAL YR 1983	TOTAL	204947	MEAN 561	MAX 4220	MIN 40	CFSM 1.06	IN 14.44
WTR YR 1984	TOTAL	272800	MEAN 745	MAX 12700	MIN 40	CFSM 1.41	IN 19.22



## 03528000 CLINCH RIVER ABOVE TAZEWell, 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. Prior to April 1919 monthly discharge only, published in WSP 1306. 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. 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 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.--Records good.

AVERAGE DISCHARGE.--66 years, 2,100 ft<sup>3</sup>/s, 19.35 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 flood-marks; 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 above base 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. 15	0330	18700	11.58	May 8	1600	*42000	18.32

Minimum discharge, 199 ft<sup>3</sup>/s Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	229	327	965	2030	1640	7820	4890	1420	2200	922	732	278
2	227	301	894	1640	1450	5460	3740	1370	1780	2040	645	262
3	221	288	1480	1390	1290	4290	3090	1950	1510	1860	598	260
4	218	288	2800	1260	1200	3650	3740	2760	1300	1340	596	276
5	218	272	4770	1070	1170	3090	8940	3180	1160	1390	553	263
6	218	261	3390	997	1160	3020	11000	3710	1030	1880	541	331
7	218	259	2930	931	1100	3840	8110	20300	934	2350	488	302
8	218	254	2400	899	990	4310	5700	39500	870	1720	487	300
9	218	248	1900	880	909	3580	4350	34900	838	1250	507	275
10	216	248	1480	888	866	3090	3620	17700	755	973	565	252
11	214	257	1210	1380	1600	2730	3200	9260	704	806	769	235
12	214	267	2270	2130	4610	2340	2970	6060	665	799	648	226
13	221	275	3800	2280	4220	2080	2670	4630	638	743	597	229
14	377	288	3470	1840	12700	1920	2430	3800	641	1030	634	238
15	411	343	2650	1550	17000	1810	2310	3160	633	1170	565	237
16	423	473	1950	1370	10600	1700	2120	2590	680	1360	493	212
17	381	645	1510	1250	6000	1710	1990	2220	734	1730	670	208
18	348	631	1210	1250	4040	1750	1920	1960	796	3510	556	206
19	314	557	1010	1530	3100	1730	1820	1770	715	2400	478	206
20	281	547	880	1350	2620	2200	1750	1620	760	1700	443	204
21	258	602	790	1030	2320	7450	1680	1500	750	1250	466	203
22	243	579	762	776	2080	10500	1740	1390	774	1020	538	203
23	270	541	808	897	2100	6480	1900	1300	715	973	540	203
24	347	603	791	1190	6610	4670	2190	1270	1180	846	446	203
25	687	766	599	3200	8510	3710	2390	1290	1480	765	378	203
26	750	1100	700	5700	8320	3300	2200	1310	881	656	352	203
27	639	1160	608	4560	6950	2950	1960	1760	696	636	340	203
28	532	1270	1110	3360	7480	3370	1780	2930	626	879	325	202
29	464	1180	3200	2640	9610	4990	1610	2870	654	1630	318	199
30	408	1080	4470	2170	---	6500	1490	3160	752	1250	308	199
31	362	---	2950	1860	---	6920	---	2940	---	908	292	---
TOTAL	10345	15910	59757	55298	132245	122960	99300	185580	27851	41786	15868	7021
MEAN	334	530	1928	1784	4560	3966	3310	5986	928	1348	512	234
MAX	750	1270	4770	5700	17000	10500	11000	39500	2200	3510	769	331
MIN	214	248	599	776	866	1700	1490	1270	626	636	292	199
CFSM	.23	.36	1.31	1.21	3.09	2.69	2.25	4.06	.63	.91	.35	.16
IN.	.26	.40	1.51	1.40	3.34	3.10	2.51	4.68	.70	1.05	.40	.18

CAL YR 1983	TOTAL	615452	MEAN	1686	MAX	11100	MIN	214	CFSM	1.14	IN	15.53
WTR YR 1984	TOTAL	773921	MEAN	2115	MAX	39500	MIN	199	CFSM	1.43	IN	19.53



## TENNESSEE RIVER BASIN

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Aug. 26 to Sept. 30, 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 observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 541 ft<sup>3</sup>/s, 23.03 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 above base 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. 14	1400	6730	12.82	May 7	2245	*18400	25.59
Mar. 21	1230	6780	12.90				

Minimum daily discharge, 25 ft<sup>3</sup>/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	58	146	110	334	1470	1090	361	352	394	132	54
2	48	58	135	120	300	1070	884	322	300	317	118	52
3	47	61	294	160	281	865	752	567	263	238	120	50
4	50	71	1560	190	293	718	1220	1820	239	191	116	70
5	55	68	1110	210	273	706	3370	1740	219	338	119	600
6	84	61	698	239	210	825	2150	1470	201	609	181	200
7	90	58	672	234	180	878	1530	10700	189	534	128	80
8	62	57	482	210	150	782	1150	9440	181	438	110	60
9	51	55	371	190	180	674	962	3800	166	284	95	54
10	48	56	297	218	203	562	898	2280	157	216	101	48
11	48	69	264	658	533	502	771	1590	150	183	254	55
12	52	84	1380	524	1510	452	673	1220	145	221	212	50
13	73	77	1080	431	1320	425	602	990	240	216	136	46
14	218	66	666	367	5450	422	603	854	194	173	109	45
15	147	91	479	270	2670	373	568	702	288	159	95	43
16	84	209	362	240	1420	365	512	582	220	164	87	42
17	66	192	290	200	1010	382	508	500	356	185	79	41
18	59	156	246	190	776	368	469	442	253	186	78	40
19	60	126	220	180	629	640	433	401	185	186	83	40
20	60	113	202	170	545	1000	407	370	173	140	99	39
21	58	164	187	160	463	5100	416	338	539	122	81	39
22	59	174	192	150	405	2880	473	314	431	115	72	38
23	103	134	234	189	462	1620	828	300	291	107	83	38
24	250	176	202	559	908	1180	819	314	280	99	84	37
25	165	253	50	1600	821	1000	684	272	268	93	70	37
26	113	221	35	1260	744	893	565	262	195	90	68	37
27	94	174	25	919	816	757	487	373	161	504	64	36
28	81	179	40	696	2490	1250	443	372	141	579	62	38
29	72	208	1300	545	2660	2920	399	807	160	305	60	39
30	67	176	150	450	---	2150	380	588	209	195	58	45
31	62	---	90	395	---	1420	---	430	---	155	56	---
TOTAL	2576	3645	13459	12034	28036	34649	25046	44521	7146	7736	3210	2093
MEAN	83.1	122	434	388	967	1118	835	1436	238	250	104	69.8
MAX	250	253	1560	1600	5450	5100	3370	10700	539	609	254	600
MIN	47	55	25	110	150	365	380	262	141	90	56	36
CFSM	.26	.38	1.36	1.22	3.03	3.51	2.62	4.50	.75	.78	.33	.22
IN.	.30	.43	1.57	1.40	3.27	4.04	2.92	5.19	.83	.90	.37	.24
CAL YR 1983	TOTAL	162822	MEAN	446	MAX	4750	MIN	25	CFSM	1.40	IN	18.99
WTR YR 1984	TOTAL	184151	MEAN	503	MAX	10700	MIN	25	CFSM	1.58	IN	21.47

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 those 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 1984							
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)
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 National Geodetic Vertical Datum of 1929.	0.49	1967-84	3-29-84	2.94	22
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 National Geodetic Vertical Datum of 1929.	3.16	1959-69a, 1970-84	2-14-84	3.94	393
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 National Geodetic Vertical Datum of 1929.	6.49	1972-84	2-14-84	4.59	632
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 National Geodetic Vertical Datum of 1929.	3.66	1972-84	7- 1-84	5.39	156
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 National Geodetic Vertical Datum of 1929.	13.8	1951-69#, 1970-73, 1974-75#, 1976-77b, 1979-82#, 1983-84	3-29-84	7.90	(*)
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 National Geodetic Vertical Datum of 1929.	33.7	1955-80#, 1981-84	3-29-84	6.95	4,460

\* Discharge not determined.

# Operated as a continuous-record gaging station.

a Records furnished 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.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Annual Maximum discharge at crest stage partial record stations during water year 1984					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							
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, 1983-84	2-14-84	4.58	74
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	1969-84	3-26-84 5-30-84	5.22 5.22	755 755
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 National Geodetic Vertical Datum of 1929.	19.5	1976-82#, 1983-84	2-14-84	5.95	808
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, 1970-84	8-10-84	2.69	116
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 National Geodetic Vertical Datum of 1929.	2.18	1966-84	3-29-84	6.51	140
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 National Geodetic Vertical Datum of 1929.	4.81	1969-84	7-21-84	5.67	199
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 National Geodetic Vertical Datum of 1929.	.61	1960-68a, 1969-84	2-14-84	6.43	316
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 National Geodetic Vertical Datum of 1929.	2.85	1969-84	2-14-84	6.41	301
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	1969-84	2-14-84	6.23	584
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, 1972-84	3-29-84	5.87	287

\* Operated as a continuous-record gaging station.

a Records furnished by U.S. Department of Agriculture, Soil Conservation Service.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Annual maximum discharge at crest-stage partial-record stations during water year 1984--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							
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 National Geodetic Vertical Datum of 1929.	6.17	1969-84	3-29-84	4.40	(*)
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 National Geodetic Vertical Datum of 1929.	.66	1966-75, 1978-84	8-12-84	4.34	44
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 National Geodetic Vertical Datum of 1929.	11.3	1949-84	8-12-84	4.76	596
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 National Geodetic Vertical Datum of 1929.	112	1967-84	5- 6-84	10.69	3,830
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	1968-84	5- 6-84	3.63	62
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 National Geodetic Vertical Datum of 1929.	4.17	1968-84	5- 6-84	5.55	368
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 National Geodetic Vertical Datum of 1929.	2.06	1967-84	8-11-84	4.78	311
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 National Geodetic Vertical Datum of 1929.	12.3	1967-84	8-12-84	9.62	712
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	1951-84	2-14-84	4.60	1,210
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 southeast of Amherst. Datum of gage is 583.66 ft National Geodetic Vertical Datum of 1929.	.46	1966-84	2-14-84	3.81	44

\* Discharge not determined.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 1984--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)
JAMES RIVER BASIN--Continued							
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 National Geodetic Vertical Datum of 1929.	2.80	1967-84	2-14-84	6.11	234
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 National Geodetic Vertical Datum of 1929.	6.70	1967-84		<9.90	(*)
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 National Geodetic Vertical Datum of 1929.	3.36	1967-84	2-14-84	8.03	(*)
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 National Geodetic Vertical Datum of 1929.	4.45	1967-84	2-14-84	12.55	(*)
02032550	Lynch River at Nortonville, 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 National Geodetic Vertical Datum of 1929.	13.6	1967-84	2-14-84	14.22	(*)
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 National Geodetic Vertical Datum of 1929.	1.34	1950-77, 1979-84	2-14-84	6.47	(*)
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, 1979-84	2-14-84	14.19	170
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 National Geodetic Vertical Datum of 1929.	18.1	1951-84	3-29-84	6.33	666
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, 1972-84	3-29-84	8.71	1,710
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 National Geodetic Vertical Datum of 1929.	.71	1967-84	5-30-84	3.55	48
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	1965-84	3-29-84	4.20	840

\* Discharge not determined.  
< Less than.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Annual maximum discharge at crest-stage partial-record stations during water year 1984					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Gage	Dis-
						height (ft)	charge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued							
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	1965-84	-	<8.46	(*)
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, 1978-84	5-30-84	3.64	91
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	1962-84	10-14-83	5.73	136
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 National Geodetic Vertical Datum of 1929.	2.76	1967-84	4-23-84	7.37	372
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	1967-84	8-12-84	14.53	117
02065100	Snake Creek near Brookneal, Va.	Lat 37°00'42", long 78°57'52", on U.S. Highway 501, 2.1 mi south of Brookneal.	1.68	1967-84	2-14-84	6.83	353
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	1967-84	3-29-84	5.79	158
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 southwest of Turbeville. Datum of gage is 383.95 ft National Geodetic Vertical Datum of 1929.	.28	1958-69a, 1970-84	3-29-84	5.62	267
02076000	Dan River at South Boston, Va.	Lat 36°41'37", long 78°54'09", city of South Boston, on left bank 100 ft upstream from Norfolk and Western Railroad bridge at South Boston.	2,730	1900-07*, 1923-52*, 1953-62c, 1980-84c	3-31-84	25.62	(*)
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	1967-84	8-13-84	5.28	359
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	1966-84	2-14-84	6.53	390
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	1967-84	5- 7-84	14.17	414

\* Discharge not determined.

# Operated as a continuous-record gaging station.

&lt; Less than.

a Records furnished by U.S. Department of Agriculture, Soil Conservation Service.

c 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 1984--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)
KANAWHA RIVER BASIN--Continued							
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 National Geodetic Vertical Datum of 1929.	0.62	1967-84	-	<2.8	<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 corporation limits. Datum of gage is 2,373.04 ft National Geodetic Vertical Datum of 1929.	4.75	1968-84	2-14-84	4.07	260
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, 1970-84	5- 7-84	1.25	24
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	5- 7-84	5.98	1,540
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	5- 7-84	21.30	22,600
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 Fork, 0.5 mi upstream from U.S. Highway 23, and 0.7 mi above Indian Creek. Datum of gage is 1,535.64 ft National Geodetic Vertical Datum of 1929.	36.7	1966-78*, 1979-84	5- 7-84	15.13	2,370
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 below Bold Camp Creek, and 0.5 mi below Indian Creek. Datum of gage is 1,527.36 ft National Geodetic Vertical Datum of 1929.	61.2	1966-78*, 1979-84	5- 7-84	20.05	3,980
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 National Geodetic Vertical Datum of 1929.	82.5	1964-82*, 1983-84	5- 7-84	11.82	6,110

\* Operated as a continuous-record gaging station.

&lt; Less than.

a Records furnished by U.S. Department of Agriculture, Soil Conservation Service.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Annual maximum discharge at crest-stage partial-record stations during water year 1983					Annual Maximum		
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Gage	Dis-
						height (ft)	charge (ft <sup>3</sup> /s)
BIG SANDY RIVER BASIN--Continued							
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 National Geodetic Vertical Datum of 1929.	526	1963-82*, 1983-84	5- 7-84	21.76	27,700
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*, 1982-84	5- 7-84	20.2	13,000
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 National Geodetic Vertical Datum of 1929.	31.1	1967-84	5- 7-84	12.64	1,110
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 National Geodetic Vertical Datum of 1929.	56.0	1948-59*, 1960-84	5- 7-84	6.55	4,050
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 National Geodetic Vertical Datum of 1929.	7.39	1948-57*, 1958-84	5- 7-84	3.79	144
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 National Geodetic Vertical Datum of 1929.	132	1942-81*, 1982-84	5- 7-84	7.07	8,030
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	1967-84	5- 7-84	11.89	562
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	1967-84	5- 7-84	11.19	1,050
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 National Geodetic Vertical Datum of 1929.	3.38	1967-84	5- 7-84	7.06	72
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. Datum of gage is 1,977.54 ft National Geodetic Vertical Datum of 1929.	2.99	1967-84	5- 7-84	4.27	157

\* Operated as a continuous-record gaging station.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Annual maximum discharge at crest-stage partial-record stations during water year 1984					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							
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 National Geodetic Vertical Datum of 1929.	25.5	1966-68*, 1969-84	5- 7-84	6.58	1,760
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 above mouth, and 0.8 mi southeast of Brumley Gap. Datum of gage is 1,489.16 ft National Geodetic Vertical Datum of 1929.	21.1	1979-81*, 1982-84	5- 7-84	6.60	1,500
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 National Geodetic Vertical Datum of 1929.	17.3	1951-84	5- 7-84	6.81	1,360
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 National Geodetic Vertical Datum of 1929.	41.9	1967-68*, 1969-84	5- 7-84	6.19	3,070
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 National Geodetic Vertical Datum of 1929.	672	1931-81*, 1982-84	5- 8-84	15.27	26,100
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 above mouth. Datum of gage is 1,925.80 ft National Geodetic Vertical Datum of 1929.	87.3	1949-59*, 1959-78, 1979-81*, 1982-84	5- 7-84	12.25	4,900
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 above mouth.	30.9	1980-81*, 1982-84	5- 7-84	7.31	8,010
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 National Geodetic Vertical Datum of 1929.	106	1948-72*, 1973-84	5- 7-84	12.00	5,400
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 National Geodetic Vertical Datum of 1929.	1,126	1920-76*, 1977-78, 1979-81*, 1982-84	5- 7-84	26.54	37,900

\* Operated as a continuous-record gaging station.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Annual maximum discharge at crest-stage partial-record stations during water year 1984--Continued

Annual Maximum discharge at crest stage partial record stations during water year					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							
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 National Geodetic Vertical Datum of 1929.	112	1945-59#, 1960-77, 1979-81#, 1982-84	5- 7-84	10.93	11,300
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 above mouth. Datum of gage is 1,363.02 ft National Geodetic Vertical Datum of 1929.	71.4	1945-51#, 1952-77, 1979-81#, 1982-84	5- 7-84	10.64	7,020

\* Operated as a continuous-record gaging station.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

## 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 1984

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 above Winchester and Western Railroad, and 0.7 mi northwest of Gainesboro.	-	1951-54, 1982-83	10-18-83 8-13-84 8-28-84	5.58 17.1 6.97
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 below Harrisonburg Reservoir.	72.6	1946-48*, 1952-55, 1963, 1982-83	10-19-83 8-29-84	1.42 11.0
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.	-	1982-83	10-19-83 8-30-84	3.55 9.82
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 above Little Dry River, and 0.8 mi northwest of old site of Fulks Run.	-	1952-54, 1982-83	10-19-83 8-29-84	7.51 10.8
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 above Dry Fork, and 0.9 mi east of Lacey Spring.	-	1982-83	10-18-83 8-28-84	3.76 7.71
01633485	Stony Creek near Liberty Furnace, Va.	Lat 38°53'41", long 78°39'57", Shenandoah County, along State Highway 717, 0.15 mi above Little Stony Creek, and 2.4 mi northeast of Liberty Furnace.	57.0	1968-69, 1982-83	10-18-83 8-13-84 8-28-84	7.48 5.47 4.72
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 above Buck Run, and 4.0 mi southwest of Detrick.	-	1963, 1982-83	10-18-83 8-13-84 8-28-84	2.51 8.19 2.38
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 above mouth, and 6.6 mi southwest of Boyce.	-	1982-83	10-18-83 8-13-84 8-28-84	3.27 5.95 5.11
01643643	Goose Creek at Delaplane, Va.	Lat 38°54'51", long 77°55'19", Fauquier County, at bridge on U.S. Highway 17, just below Crooked Run, and at Delaplane.	45.6	1952-54, 1969, 1981-83	11- 1-83 8-28-84	11.6 3.86
01643800	N. F. Goose Creek near Lincoln, Va.	Lat 39°04'38", long 77°41'52", Loudoun County, at bridge on State Highway 722, 0.6 mi above Crooked Run, and 2.5 mi south of Lincoln.	-	1952-54, 1981-83	11- 1-83 8-27-84	5.78 10.0
01656200	Broad Run near Warrenton, Va.	Lat 38°48'25", long 77°48'47", Fauquier County, at culvert on U.S. Highway 17, 2.1 mi above Piney Branch, and 7.0 mi north of Warrenton.	2.94	1953-54, 1956, 1959-61, 1976, 1981-83	11- 1-83 8-27-84	.584 .381

\* Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1984--Continued

Discharge measurements made at low-flow partial-record stations during water year 1984—continued					Measurements	
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Discharge (ft <sup>3</sup> /s)
RAPPAHANNOCK RIVER BASIN						
01661840	Rappahannock River near Flint Hill, Va.	Lat 38°45'32", long 78°01'42", Rappahannock and Fauquier Counties, at bridge on State Highway 647, 0.1 mi below Jordan River, and 4.0 mi east of Flint Hill.	-	1943, 1950-54, 1963, 1976-77, 1981-83	11- 1-83	22.2
					9- 6-84	11.8
01662110	Hazel River near Woodville, Va.	Lat 38°36'27", long 78°14'15", Rappahannock County, at bridge on State Highway 231, 3.5 mi west of Woodville, and 8.0 mi above mouth.	5.54	1950-54, 1961, 1963, 1981-83	11- 2-83 9- 6-84	10.8 1.11
01662500	Rush River at Washington, Va.	Lat 38°42'50", long 78°09'05", Rappahannock County, at bridge on old U.S. Highway 211, 0.2 mi east of Washington, and 4.6 mi above mouth.	14.7	1952, 1953-77*, 1978, 1981-83	11- 1-83 9- 6-84	7.29 1.31
01663000	Thornton River near Laurel Mills, Va.	Lat 38°37'41", long 78°03'47", Rappahannock County, at bridge on State Highway 729, 2.0 mi southeast of Laurel Mills, and 2.9 mi below Battle Run.	142	1942, 1944-56b, 1978, 1981-83	11- 2-83 9- 6-84	61.2 34.0
01665220	Deep Run near Goldvein, Va.	Lat 38°27'07", long 77°37'46", Fauquier and Stafford Counties, at bridge on State Highway 615, 1.5 mi east of Goldvein, and 3.3 mi above mouth.	-	1963, 1981-83	10-20-83 9- 6-84	.14 2.46
01665400	Conway River near Stanardsville, Va.	Lat 38°19'58", long 78°23'53", Madison and Greene Counties, at bridge on State Highway 230, 2.2 mi above mouth, and 2.8 mi northeast of Stanardsville.	25.8	1943, 1950-54, 1963, 1978, 1981-83	11- 2-83 9- 6-84	20.6 5.59
01665850	Robinson River near Criglersville, Va.	Lat 38°26'54", long 78°16'44", Madison County, at bridge on State Highway 231, 0.7 mi above Leathers Run, and 1.4 mi southeast of Criglersville.	-	1950-54, 1964, 1981-83	11- 2-83 9- 6-84	60.2 16.0
01667848	Black Walnut Run at Burr Hill, Va.	Lat 38°20'26", long 77°51'34", Orange County, 10 ft above mouth, at Burr Hill.	11.9	1981-83	11- 1-83 8- 6-84	2.71 4.29
01667850	Mine Run at Burr Hill, Va.	Lat 38°20'36", long 77°51'33", Orange County, at bridge on State Highway 692, just downstream from Black Walnut Run, and at Burr Hill.	-	1943, 1951, 1953, 1963, 1981-83	11- 1-83 8- 6-84	4.90 9.65
YORK RIVER BASIN						
01670120	Mountain Run near Gordonsville, Va.	Lat 38°09'39", long 78°05'36", Orange County, at bridge on State Highway 643, 0.8 mi above confluence with Negro Run, and 4.6 mi east of Gordonsville.	-	1981-83	11- 2-83 9- 9-84	2.60 3.10
01670200	Pamunkey Creek near Lahore, Va.	Lat 38°09'16", long 77°57'02", Orange County, at bridge on State Highway 651, 1.0 mi above Lake Anna, and 3.3 mi southeast of Lahore.	-	1981-83	11- 2-83 9- 7-84	13.7 15.7
01671040	Long Creek near Buckner, Va.	Lat 37°55'38", long 77°47'44", Louisa County, at bridge on State Highway 655, 0.9 mi above mouth, and 2.7 mi southwest of Buckner.	-	1981-83	11- 8-83 9- 7-84	.85 1.24

\* Operated as a continuous-record gaging station.

b Operated as a nonrecording continuous-record gaging station.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record stations during water year 1984--Continued						
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
YORK RIVER BASIN--Continued						
01671680	South Anna River near Louisa, Va.	Lat 37°58'50", long 78°02'54", Louisa County, at bridge on State Highway 208, 3.6 mi above Roundabout Creek, and 4.3 mi southwest of Louisa.	-	1942, 1944, 1952-54, 1981-83	11-14-83 9- 7-84	35.7 20.1
01671950	Deep Creek near Apple Grove, Va.	Lat 37°51'57", long 77°54'53", Louisa County, at culvert on State Highway 640, 0.4 mi above mouth, and 2.0 mi southwest of Apple Grove.	-	1981-83	11- 8-83 9- 7-84	1.19 1.21
01672200	Taylor's Creek near Montpelier, Va.	Lat 37°47'49", long 77°43'27", Hanover County, at culvert on State Highway 715, 2.7 mi southwest of Montpelier, and 6.8 mi above mouth.	-	1981-83	11-14-83 9- 7-84	4.04 (a)
01672800	Newfound River near Ashland, Va.	Lat 37°50'35", long 77°32'30", Hanover County, at bridge on State Highway 685, 0.1 mi below Beaver Creek, 1.3 mi west of Hanover Academy, and 5.8 mi northwest of Ashland.	-	1952-54, 1981-83	11- 8-83 9- 6-84	5.23 5.48
01673500	Totopotomy Creek near Atlee, Va.	Lat 37°40'09", long 77°22'58", Hanover County, at culvert on U.S. Highway 301, 0.7 mi above Opossum Creek, and 1.6 mi northeast of Atlee.	5.89	1949-77*, 1981-83	11- 7-83 9- 5-84	.71 1.19
01673700	Catharpin Run near Brokenburg, Va.	Lat 38°13'22", long 77°43'30", Spotsylvania County, at bridge on State Highway 608, 0.1 mi above mouth, and 5.4 mi north of Brokenburg.	-	1981-83	10-20-83 9- 6-84	0 2.08
01673960	Mat River near Marye, Va.	Lat 38°06'23", long 77°36'07", Spotsylvania County, at bridge on State Highway 647, 1.8 mi above confluence with Ta River, and 2.0 mi northwest of Marye.	-	1943, 1952-54, 1963, 1978, 1981-83	10-20-83 9- 6-84	.054 2.18
01674172	Polecat Creek near Ladysmith, Va.	Lat 37°58'13", long 77°29'13", Caroline County, at bridge on State Highway 652, 0.5 mi above Stevens Mill Run, and 3.3 mi southeast of Ladysmith.	-	1981-83	10-20-83 9- 6-84	.262 1.84
01677100	France Swamp near Toano, Va.	Lat 37°25'15", long 76°47'06", James City County, at culvert on State Highway 606, 1.1 mi above mouth, and 3.0 mi north-east of Toano.	6.70	1980-83	5- 2-84 6-13-84 9-20-84	11.3 4.84 4.41
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 above North (East) Fork Jackson River.	-	1982-83	10-19-83 8-29-84	1.18 3.71
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 above mouth, and 1.3 mi east of Bath Alum.	-	1963, 1982-83	10-20-83 8-30-84	3.65 12.2
02015930	Pads Creek near Longdale Furnace, Va.	Lat 37°51'54", long 79°43'56", Allegheny County, 200 ft below footbridge, 0.2 mi above mouth, and 4.7 mi northwest of Longdale Furnace.	-	1982-83	10-20-83 8-29-84	.076 1.55

\* Operated as a continuous-record gaging station.

a Pounded, no apparent flow.

## Discharge measurements made at low-flow partial-record stations during water year 1984--Continued

Discharge measurements made at low-flow partial-record stations during water year 1984 continued					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 above Muddy Branch, and 3.9 mi north of McDonalds Mill.	-	1982-83	11- 1-83 8-20-84	2.04 3.49
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 above mouth.	-	1982-83	11- 1-83 8-24-84	1.49 3.62
02020170	East Fork Elk Creek at Belfast Trail near Natural Bridge, Va.	Lat 37°34'17", long 79°29'31", Rockbridge County, at foot-bridge along State Highway 781, 2.0 mi above mouth, and 6.0 mi southeast of Natural Bridge.	-	1983	11- 1-83 8-24-84	3.08 2.12
02020200	Calfpasture River at West Augusta, Va.	Lat 38°16'24", long 79°18'02", Augusta County, at bridge on U.S. Highway 220, 0.15 mi above Barn Lick Branch, and 0.4 mi northeast of West Augusta.	12.8	1942, 1953-54, 1956, 1963, 1982-83	10-19-83 8-29-84	.096 1.33
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 below confluence of St. Marys River and Spy Run, and 2.1 mi east of Steeles Tavern.	15.7	1941, 1952-53, 1963, 1982-83	10-20-83 8-24-84	0 3.32
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 above junction with North Buffalo Creek, and 8.5 mi southwest of Lexington.	-	1982-83	10-20-83 8-30-84	4.57 8.13
02024760	Reed Creek near Big Island, Va.	Lat 37°30'10", long 79°24'07", Bedford County, at bridge on State Highway 637, 0.3 mi above Meadow Creek, and 3.0 mi southwest of Big Island.	-	1981-83	9- 7-84	11.8
02024900	Pedlar River near Buena Vista, Va.	Lat 37°44'48", long 79°16'09", Amherst County, at bridge on U.S. Highway 60, 0.3 mi below Davis Mill Creek, and 4.2 mi east of Buena Vista.	-	1942, 1950-54, 1981-83	9- 7-84	11.0
02025000	Pedlar River near Pedlar Mills, Va.	Lat 37°32'35", long 79°15'10", Amherst County, at bridge on State Highway 635, 1.1 mi south of Pedlar Mills, and 3.6 mi above mouth.	91.0	1942-56*, 1978, 1981-83	9- 7-84	31.4
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 above Graham Creek.	-	1981-83	9- 7-84	23.3
02025900	Beaver Creek near Babcock, Va.	Lat 37°21'16", long 79°04'27", Campbell County, at bridge on State Highway 660, 2.3 mi east of Babcock, and 3.0 mi above Little Beaver Creek.	-	1981-83	8-23-84	16.0
02026400	South Fork Tye River at Nash, Va.	Lat 37°57'24", long 79°02'47", Nelson County, at private road bridge, 100 ft above confluence with North Fork, and at Nash.	-	1981-83	9- 7-84	7.72

\* 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 1984--Continued

Discharge measurements made at low-flow partial-record stations during water year 1984--Continued					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						
02027600	Buffalo River at Forks of Buffalo, Va.	Lat 37°40'47", long 79°13'20", Amherst County, at bridge on U.S. Highway 60, just below confluence of North and South Forks, and at Forks of Buffalo.	15.9	1942, 1952-54, 1963, 1981-83	9- 7-84	9.86
02027670	Buffalo River near Amherst, Va.	Lat 37°36'18", long 79°01'35", Amherst County, at bridge on U.S. Highway 29, 0.7 mi north-east of Amherst, and 1.2 mi below Tribulation Creek.	-	1942, 1952-54, 1963, 1981-83	9- 7-84	29.9
02028450	Sycamore Creek near Howardsville, Va.	Lat 37°40'43", long 78°39'55", Buckingham County, at bridge on State Highway 601, 0.2 mi above mouth, and 3.9 mi south of Howardsville.	-	1981-83	9- 4-84	3.56
02028700	Cove Creek near Covesville, Va.	Lat 37°52'06", long 78°43'32", Albemarle County, at culvert on U.S. Highway 29, 1.7 mi southwest of Covesville, and 3.0 mi above Hickory Creek.	4.0	1942, 1944, 1950-54, 1981-83	11- 3-83 9- 4-84	2.23 3.41
02029200	North Fork Hardware River at Red Hill, Va.	Lat 37°58'03", long 78°37'04", Albemarle County, at bridge on U.S. Highway 29, 0.1 mi below Middle Branch, and 0.5 mi northwest of Red Hill.	11.0	1942, 1950-54, 1956, 1963, 1981-83	11- 3-83 9- 4-84	8.16 13.5
02030150	Slate River at Buckingham, Va.	Lat 37°33'08", long 78°33'53", Buckingham County, at bridge on U.S. Highway 60, just below Horsepen Creek, and 0.3 mi west of Buckingham.	-	1942, 1952-54, 1963, 1981-83	9- 4-84	34.8
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 below Flat Creek, and 5.2 mi north of Dillwyn.	-	1942, 1952-54, 1963, 1981-83	9- 4-84	46.0
02030850	Stockton Creek near Crozet, Va.	Lat 38°02'37", long 78°41'54", Albemarle County, at bridge on State Highway 635, 1.5 mi south of Crozet, and 2.4 mi above mouth.	-	1953-54, 1963, 1981-83	11- 3-83 9- 6-84	8.61 5.54
02031500	North Fork Moormans River near White Hall, Va.	Lat 38°08'25", long 78°45'05", Albemarle County, off State Highway 614, 0.2 mi above Charlottesville Reservoir, and 5.0 mi northwest of White Hall.	11.4	1944-46, 1951-63*, 1969, 1981, 1982-83*	9- 6-84	1.22
02033750	Buck Island Creek below Houchins Creek near Simeon, Va.	Lat 37°57'13", long 78°24'15", Albemarle County, 100 ft below bridge on State Highway 729, just below Houchins Creek, and 3.5 mi southeast of Simeon.	-	1981-83	11- 3-83 9- 4-84	3.89 13.1
02034150	Little Byrd Creek near Fife, Va.	Lat 37°45'50", long 78°05'24", Goochland County, at culvert on State Highway 667, 1.8 mi above mouth, and 1.9 mi north-west of Fife.	-	1981-83	11- 8-83 8- 7-84	3.61 4.23
02034300	Little Willis River at Curdsville, Va.	Lat 37°24'38", long 78°27'35", Buckingham County, at bridge on U.S. Highway 15, 0.4 mi southwest of Curdsville, and 1.3 mi above Gills Creek.	7.07	1952-54, 1957, 1963, 1981-83	10-31-83 9- 5-84	1.65 1.69

\* Operated as a continuous-record gaging station.

## Discharge measurements made at low-flow partial-record stations during water year 1984--Continued

Discharge measurements made at low-flow partial-record stations during water year 1984					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						
02035075	Maxey Mill Creek near Ballsville, Va.	Lat 37°31'07", long 78°07'31", Cumberland County, at bridge on State Highway 654, 1.0 mi above mouth, and 3.6 mi north-west of Ballsville.	-	1981-83	10-31-83 9- 5-84	1.87 2.10
02035460	Big Lickinghole Creek at Rt. 613, near Goochland, Va.	Lat 37°43'52", long 77°57'21", Goochland County, at culvert on State Highway 613, 3.3 mi above Little Lickinghole Creek, and 5.3 mi northwest of Goochland.	-	1981-83	11- 8-83 9- 7-84	4.03 6.35
02036700	Bernards Creek near Manakin, Va.	Lat 37°33'25", long 77°40'33", Powhatan County, at bridge on State Highway 711, 1.6 mi above mouth, and 3.7 mi south-east of Manakin.	-	1981-83	11- 8-83 9- 5-84	.304 0
02039600	Briery Creek near Rice, Va.	Lat 37°16'49", long 78°21'48", Prince Edward County, at bridge on U.S. Highway 460 (Business), 0.9 mi above mouth, and 4.1 mi west of Rice.	-	1944, 1952-54, 1963, 1981-83	10-31-83 9- 5-84	7.70 4.49
02039700	Sandy River near Rice, Va.	Lat 37°16'31", long 78°19'17", Prince Edward County, at bridge on U.S. Highway 460, 1.6 mi west of Rice, and 2.0 mi above confluence with Bush River.	-	1944, 1952-54, 1963, 1981-83	10-31-83 9- 5-84	14.0 8.76
02039800	Angola Creek near Angola, Va.	Lat 37°22'16", long 78°17'15", Cumberland County, at bridge on State Highway 664, 3.2 mi above mouth, and 3.9 mi south-west of Angola.	-	1981-83	10-31-83 8-29-84	1.50 1.83
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	1946-48*, 1952-54, 1963, 1981-83	10-19-83 9- 5-84	2.24 17.1
02040900	Little Creek near Denaro, Va.	Lat 37°13'32", long 78°01'10", Nottoway County, at bridge on State Highway 611, 2.3 mi southwest of Denaro, and 3.5 mi above mouth.	-	1981-83	10-19-83 8-24-84	.658 1.23
02041150	Winterpock Creek near Winterpock, Va.	Lat 37°21'38", long 77°42'56", Chesterfield County, at culvert on State Highway 664, 1.2 mi north of Winterpock, and 4.1 mi above Surline Branch.	-	1981-83	10-19-83 8- 5-84	0 .031
02041400	Whipponock Creek near Church Road, Va.	Lat 37°11'45", long 77°39'23", Dinwiddie County, at culvert on State Highway 627, 1.3 mi northwest of Church Road.	-	1981-83	11- 9-83 8-24-84	.307 2.95
02042050	Franks Branch at Rt. 626, near Colonial Heights, Va.	Lat 37°16'42", long 77°28'35", Chesterfield County, at bridge on State Highway 626, 1.0 mi above mouth, and 2.5 mi west of Colonial Heights.	-	1981-83	11- 9-83 8-24-84	2.71 2.48
02042782	Powhattan Creek at Five Forks, Va.	Lat 37°14'57", long 76°46'23", James City County, at bridge on State Highway 5, 2.7 mi north of Jamestown, and 4.3 mi above mouth on Sandy Bay.	19.7	1980-83	5- 1-84 6-13-84 9-20-84	25.3 7.22 1.03
02042787	Skiffes Creek near Lee Hall, Va.	Lat 37°12'48", long 76°36'50", James City County, at culvert on Plantation Road, 0.9 mi above Skiffes Creek Reservoir, and 3.2 mi northwest of Lee Hall.	1.32	1980-83	5- 1-84 6-14-84 9-20-84	1.25 .37 .089

\* 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 1984--Continued

Discharge measurements made at low-flow partial-record stations during water year 1984 continued					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						
02042890	Drum Point Creek at Boone, Va.	Lat 36°50'44", long 76°26'03", Chesapeake City, at culvert on Pughsville Road, 0.3 mi north of Boone, and 2.7 mi above mouth.	0.61	1980-83	9-25-84	0
CURRITUCK SOUND						
02043000	Beggars Bridge Creek near Pleasant Ridge, Va.	Lat 36°40'57", long 76°00'37", Virginia Beach City, at culvert on Dawley Road, 1.0 mi southeast of Pleasant Ridge, and 2.2 mi above mouth.	.76	1980-83	9-25-84	(a)
CHOWAN RIVER BASIN						
02044300	Little Nottoway River near Blackstone, Va.	Lat 37°02'25", long 78°02'07", Nottoway County, at bridge on State Highway 40, 2.2 mi above mouth, and 2.4 mi southwest of Blackstone.	-	1942, 1952-54, 1981-83	10-19-83 8-24-84	6.20 20.4
02045800	White Oak Creek near Hebron, Va.	Lat 37°07'40", long 77°48'54", Dinwiddie County, at bridge on State Highway 620, 1.2 mi southwest of Hebron.	-	1981-83	11- 9-83 8-24-84	.587 1.94
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 above mouth, and 2.5 mi west of Stony Creek.	-	1981-83	11- 9-83 8-23-84	(a) 5.56
02046300	Hatcher Run near Reams, Va.	Lat 37°07'23", long 77°28'45", Dinwiddie County, at bridge on State Highway 613, 2.1 mi above Arthur Swamp, and 4.3 mi northwest of Reams.	-	1981-83	10-18-83 8-23-84	.147 22.8
02046370	Rowanty Creek near Stony Creek, Va.	Lat 36°58'57", long 77°22'53", Sussex County, at bridge on State Highway 602, 1.7 mi below Bolling Swamp, and 2.2 mi northeast of Stony Creek.	-	1981-83	10-18-83 8-23-84	(a) 103
02046480	Hunting Quarter Swamp near Sussex, Va.	Lat 36°53'25", long 77°29'54", Sussex County, at culvert on State Highway 735, 1.9 mi south of Sussex.	9.25	1980-83	5-16-84 9-26-84	(a) (a)
02046500	Anderson Branch at Sussex, Va.	Lat 36°55'10", long 77°15'45", Sussex County, at bridge on State Highway 40, 1.0 mi east of Sussex, and 1.7 mi above mouth.	5.35	1949-56*, 1969, 1980-83	5-16-84 9-26-84	.077 0
02046700	Raccoon Creek near Sebrell, Va.	Lat 36°48'11", long 77°12'28", Southampton County, at bridge on State Highway 608, 3.2 mi above mouth, and 4.6 mi northwest of Sebrell.	65.0	1942, 1952-54, 1978, 1980-83	5-17-84	16.8
02046720	Tryall Creek near Smoky Ordinary, Va.	Lat 36°47'03", long 77°39'55", Brunswick County, at bridge on State Highway 607, 1.6 mi above confluence with Cooks Branch, and 5.0 mi southeast of Smoky Ordinary.	-	1981-83	10-18-83 8-23-84	0 .098
02046750	Three Creek at Rt. 616, near Emporia, Va.	Lat 36°43'25", long 77°31'13", Greensville County, at bridge on State Highway 616, 1.5 mi below Maelins Creek, and 1.6 mi northeast of Emporia.	67.2	1981-83	10-18-83 8-23-84	.545 4.69

\* Operated as a continuous-record gaging station.

a Pounded, no apparent flow.

## Discharge measurements made at low-flow partial-record stations during water year 1984--Continued

Discharge measurements made at low flow partial record stations during water year 1984					Measurements	
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Discharge (ft <sup>3</sup> /s)
CHOWAN RIVER BASIN--Continued						
02046830	Applewhite Swamp near Drewryville, Va.	Lat 36°43'36", long 77°21'03", Southampton County, at culvert on State Highway 612, 2.6 mi northwest of Drewryville.	5.96	1980-83	5-17-84	1.52
02047050	Assamoosick Swamp near Homeville, Va.	Lat 36°58'30", long 77°09'11", Sussex County, at bridge on State Highway 40, 2.4 mi northeast of Homeville.	22.0	1980-83	9-26-84	(a)
02047100	Assamoosick Swamp near Sebrell, Va.	Lat 36°46'22", long 77°05'57", Southampton County, at bridge on State Highway 35, 0.7 mi above Indian Branch, and 1.5 mi southeast of Sebrell.	86.4	1942-43, 1952-54, 1980-81, 1982-83#	5-17-84 9-26-84	25.4 (a)
02047360	Mill Creek near Sunbeam, Va.	Lat 36°34'12", long 77°02'19", Southampton County, at bridge on State Highway 684, 1.2 mi southwest of Sunbeam, and 1.5 mi above Windbourne Mill-pond.	23.7	1980-83	5-17-84 9-25-84	(a) (a)
02047400	Blackwater Swamp near Disputanta, Va.	Lat 37°08'02", long 77°12'30", Prince George County, at bridge on State Highway 625, 1.0 mi northeast of Disputanta.	75.6	1942, 1952-53, 1980-83	5-16-84 9-24-84	(a) .625
02047420	Warwick Swamp near Disputanta, Va.	Lat 37°05'34", long 77°09'08", Sussex County, at bridge on State Highway 613, 0.9 mi above mouth, and 4.5 mi southeast of Disputanta.	38.2	1980-83	5-16-84 9-24-84	10.6 (a)
02047440	Otterdam Swamp near Waverly, Va.	Lat 37°04'57", long 77°03'19", Surry County, at culvert on State Highway 40, 1.2 mi above mouth, and 3.2 mi northeast of Waverly.	22.4	1980-83	5-16-84 9-26-84	4.58 (a)
02047480	Cypress Swamp near Dendron, Va.	Lat 37°03'18", long 76°55'15", Surry County, at bridge on State Highway 31, 0.2 mi northeast of Dendron, and 2.8 mi above mouth.	54.4	1980-83	5-16-84 9-29-84	19.2 (a)
02047520	Rattlesnake Swamp at Raynor, Va.	Lat 36°57'30", long 76°46'25", Isle of Wight County, at bridge on State Highway 625, 0.9 mi above Mill Swamp, and 0.9 mi northeast of Raynor.	40.3	1980-83	5-18-84 9-27-84	16.3 (a)
02048460	Round Hill Swamp near Berlin, Va.	Lat 36°51'02", long 76°56'21", Southampton County, at bridge on State Highway 614, 1.5 mi above mouth, and 2.2 mi east of Berlin.	25.6	1980-83	5-18-84 9-27-84	12.9 .016
02048500	Seacock Swamp at Unity, Va.	Lat 36°49'15", long 76°51'56", Southampton County, at bridge on State Highway 635, 0.7 mi northeast of Unity, and 1.8 mi above mouth.	102	1942-49#, 1952, 1976, 1978, 1980-83	5-18-84 9-27-84	23.8 (a)
02050113	Quaker Swamp near Lummis, Va.	Lat 36°41'42", long 76°43'35", Suffolk City, at culvert on U.S. Highway 58, 1.4 mi west of Lummis.	4.02	1980-83	5-18-84 9-25-84	(a) 0
02050115	Chapel Swamp near Somerton, Va.	Lat 36°34'34", long 76°48'28", Suffolk City, at bridge on State Highway 759, 0.5 mi above mouth, and 3.2 mi west of Somerton.	17.9	1980-83	5-17-84 9-24-84	(a) (a)
02050130	Beaverdam Creek near Cleopus, Va.	Lat 36°33'10", long 76°50'30", Suffolk City, at bridge on State Highway 668, 0.5 mi above mouth, and 2.8 mi south of Cleopus.	8.77	1965-68, 1970, 1980-83	5-17-84 9-24-84	(a) (a)

\* Operated as a continuous-record gaging station.

a Pounded, no apparent flow.

Discharge measurements made at low-flow partial-record stations during water year 1984--Continued						
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
CHOWAN RIVER BASIN--Continued						
02051100	South Meherrin River near Chase City, Va.	Lat 36°51'34", long 78°25'22", Lunenburg and Mecklenburg Counties, at bridge on State Highway 49, 4.0 mi northeast of Chase City.	-	1944, 1952-54, 1981-83	11- 2-83 8-22-84	1.52 3.30
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 above Crooked Creek, and 4.5 mi northeast of Northview.	-	1982-83	11- 2-83 8-22-84	22.1 65.8
02051200	Flat Rock Creek near Kenbridge, Va.	Lat 36°53'58", long 78°07'22", Lunenburg County, at bridge on State Highway 647, 2.5 mi southwest of Bishops Corner, and 4.3 mi south of Kenbridge.	-	1952-54, 1981-83	11- 3-83 8-22-84	3.85 5.15
02051300	Evans Creek near Brodnax, Va.	Lat 36°44'07", long 77°57'34", Brunswick County, at bridge on State Highway 623, 0.9 mi above mouth, and 4.0 mi north-east of Brodnax.	-	1981-83	11- 3-83 8-22-84	3.82 4.73
02052100	Rattlesnake Creek near Ankum, Va.	Lat 36°36'48", long 77°52'25", Brunswick County, 100 ft downstream from State Highway 46, 0.4 mi above Houses Creek, and 0.8 mi northeast of Ankum.	-	1981-83	11- 3-83 8-23-84	.932 .646
02053030	Mill Swamp near Claesville, Va.	Lat 36°36'32", long 77°29'10", Greensville County, at bridge on State Highway 660, 2.2 mi southwest of Claesville, and 3.8 mi above Taylors Millpond.	-	1981-83	10-18-83 8-23-84	.135 .746
02053100	Tarrara Creek at Boykins, Va.	Lat 36°35'20", long 77°12'03", Southampton County, at bridge on State Highway 35, 3.7 mi above mouth, and at Boykins.	57.5	1980-83	5-17-84 9-26-84	10.5 (a)
ROANOKE RIVER BASIN						
02054120	North Fork Roanoke River below 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 below Indian Run.	-	1969, 1982-83	11- 1-83 8-20-84	7.60 9.64
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 above Jumping Run Creek.	-	1983	11- 1-83 8-20-84	3.52 .80
02056700	Beaverdam Creek near Hardy, Va.	Lat 37°13'28", long 79°45'23", Bedford County, at culvert on State Highway 757, 1.1 mi below West Fork, and 3.0 mi east of Hardy.	-	1981-83	8-22-84	8.79
02056850	Maggodee Creek near Boones Mill, Va.	Lat 37°07'57", long 79°58'20", Franklin County, at bridge on private road, 0.5 mi south of Murray Gap, and 1.6 mi north-west of Boones Mill.	-	1981-83	8-22-84	3.14
02057050	Gills Creek at Rt. 122, near Burnt Chimney, Va.	Lat 37°07'31", long 79°46'58", Franklin County, at bridge on State Highway 122, 2.4 mi north-east of Burnt Chimney.	-	1952-54, 1981-83	8-22-84	11.0
02057600	Pigg River at Rt. 40, near Rocky Mount, Va.	Lat 36°58'34", long 79°55'32", Franklin County, at bridge on State Highway 40, 1.0 mi west of Rocky Mount, and 1.8 mi above Story Creek.	-	1976, 1981-83	11- 9-83 8-22-84	23.9 30.6

a Ponded, no apparent flow.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Discharge measurements made at low-flow partial-record stations during water year 1984--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--Continued						
02057750	Little Chestnut Creek near Sydnorsville, Va.	Lat 36°54'07", long 79°50'55", Franklin County, at bridge on State Highway 724, 1.3 mi northeast of Sydnorsville, just below confluence of North and South Forks, and 1.6 mi above mouth.	-	1981-83	9-26-83† 11- 9-83 8-21-84	2.45 5.66 9.84
02058100	Turkeycock Creek at Sago, Va.	Lat 36°52'53", long 79°37'52", Pittsylvania County, at bridge on State Highway 969, 0.8 mi southeast of Sago, and 3.3 mi above mouth.	-	1953-54, 1981-83	9-27-83† 11- 8-83 8-21-84	7.57 13.2 20.5
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 above junction with South Fork Goose Creek, and 1.7 mi southeast of Montvale.	-	1952-54, 1981-83	8-24-84	15.1
02059460	Shockoe Creek near Irving, Va.	Lat 37°18'46", long 79°40'34", Bedford County, at culvert on State Highway 755, 1.0 mi above mouth, and 3.1 mi south of Irving.	-	1981-83	8-22-84	1.31
02060400	Sycamore Creek at Sycamore, Va.	Lat 37°01'25", long 79°21'24", Pittsylvania County, at culvert on State Highway 643, at Sycamore, and 4.0 mi above Little Sycamore Creek.	-	1981-83	9-28-83† 11- 8-83 8-21-84	1.71 2.14 1.93
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 above Little Otter River.	116	1942, 1944-60+, 1981-83	8-23-84	104
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.	-	1942, 1952-54, 1978, 1981-83	8-23-84	15.7
02062300	Seneca Creek near Long Island, Va.	Lat 37°06'23", long 79°07'22", Campbell County, at bridge on State Highway 633, at Marysville, 1.5 mi above mouth, and 2.6 mi northwest of Long Island.	-	1981-83	9-29-83† 11- 8-83 8-21-84	7.01 16.5 20.6
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 above mouth, and 2.3 mi north of Spring Mills.	-	1951-54, 1977, 1981-83	8-21-84	8.58
02065220	Catawba Creek at Clarkton, Va.	Lat 36°58'30", long 78°53'45", Halifax County, at bridge on State Highway 626, 0.2 mi above mouth, and 0.8 mi southeast of Clarkton.	-	1981-83	11- 1-83 8-20-84	10.8 13.2
02065400	Big Cub Creek near Madisonville, Va.	Lat 37°12'13", long 78°44'05", Charlotte County, at bridge on State Highway 701, 0.1 mi below Little Cub Creek, and 2.7 mi northwest of Madisonville.	-	1981-83	11- 1-83 8-20-84	14.9 30.2
02066450	Roanoke Creek near Charlotte Court House, Va.	Lat 37°03'27", long 78°35'03", Charlotte County, at bridge on State Highway 40, 0.1 mi below Dunnivant Creek, and 2.0 mi east of Charlotte Court House.	-	1953-54, 1981-83	11- 1-83 8-13-84	8.77 25.4

† Not previously published.

\* Operated as a continuous-record gaging station.



## Discharge measurements made at low-flow partial-record stations during water year 1984--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	Date	Discharge (ft <sup>3</sup> /s)
ROANOKE RIVER BASIN--Continued						
02066500	Roanoke Creek at Saxe, Va.	Lat 36°55'49", long 78°39'56", Charlotte County, at bridge on State Highway 612, at Saxe, and 5.0 mi above mouth.	135	1942-43, 1946-72*, 1981-83	11- 1-83 8-21-84	30.9 90.2
02067100	Difficult Creek near Scottsburg, Va.	Lat 36°47'46", long 78°47'10", Halifax County, at bridge on U.S. Highway 360, 2.5 mi above Piney Creek, and 2.6 mi north of Scottsburg.	-	1981-83	11- 2-83 8-14-84	11.6 20.2
02069550	North Fork South Mayo River at Stuart, Va.	Lat 36°39'03", long 80°17'08", Patrick County, at bridge on U.S. Highway 58, 0.5 mi northwest of Stuart, and 1.5 mi above mouth.	-	1953-54, 1981-83	11- 9-83 8-22-84	6.82 7.62
02069800	Grassy Branch near Sanville, Va.	Lat 36°42'03", long 80°05'48", Patrick County, at culvert on State Highway 721, 0.3 mi above mouth, and 2.5 mi southwest of Sanville.	-	1981-83	11- 9-83 8-22-84	2.20 2.53
02071600	Smith River near Charity, Va.	Lat 36°48'18", long 80°12'04", Patrick County, at bridge on State Highway 704, 0.9 mi above Joint Crack Creek, and 1.4 mi southeast of Charity.	-	1981-83	11- 9-83 8-22-84	64.0 55.1
02071800	Nicholas Creek near Ferrum, Va.	Lat 36°52'11", long 80°03'10", Franklin County, at bridge on State Highway 605, 3.1 mi above Philpott Reservoir, and 4.1 mi southwest of Ferrum.	12.2	1949, 1951, 1953, 1955-64, 1969, 1971, 1981-83	11- 9-83 8-22-84	6.40 12.2
02072600	Reed Creek near Collinsville, Va.	Lat 36°45'17", long 79°54'48", Henry County, at bridge on State Highway 669, 1.0 mi north of Collinsville, and 2.9 mi above mouth.	-	1981-83	11- 9-83 8-21-84	4.41 6.82
02073500	Leatherwood Creek near Martinsville, Va.	Lat 36°38'10", long 79°47'30", Henry County, at bridge on State Highway 650, 1.7 mi above mouth, and 2.5 mi southeast of Martinsville.	68	1926-34*, 1953-54, 1981-83	9-26-83† 11- 8-83 8-21-84	14.6 26.0 35.8
02074450	Sandy River near Swansonville, Va.	Lat 36°44'23", long 79°36'54", Pittsylvania County, at bridge on State Highway 612, 0.1 mi below West Fork, and 2.0 mi west of Swansonville.	-	1981-83	9-28-83† 11- 8-83 8-21-84	5.42 9.24 14.3
02075020	Fall Creek near Danville, Va.	Lat 36°40'42", long 79°24'13", Pittsylvania County, at bridge on State Highway 744, 2.4 mi north of Danville, and 2.8 mi above Edward Creek.	-	1981-83	9-28-83† 11- 8-83 8-21-84	.36 .68 2.53
02075275	Sandy Creek near Ringgold, Va.	Lat 36°34'50", long 79°13'31", Pittsylvania County, at bridge on U.S. Highway 58, 1.2 mi above mouth, and 4.6 mi southeast of Ringgold.	-	1942, 1981-83	9-28-83† 11- 1-83 8-20-84	2.37 8.04 6.64
02075600	Birch Creek near Birch, Va.	Lat 36°42'12", long 79°13'03", Pittsylvania County, at bridge on State Highway 729, 1.2 mi below Gunther Branch, and 3.0 mi southwest of Birch.	-	1981-83	9-27-83† 11- 1-83 8-20-84	3.28 5.40 11.3
02075900	Lawsons Creek near Turbeville, Va.	Lat 36°36'39", long 79°01'28", Halifax County, at culvert on State Highway 658, 0.7 mi below Long Branch, and 1.2 mi southeast of Turbeville.	8.7	1950-64, 1968, 1970-71, 1981-83	9-28-83† 11- 2-83 8-13-84	.893 .992 5.96

† Not previously published.

\* Operated as a continuous-record gaging station.

## Discharge measurements made at low-flow partial-record stations during water year 1984--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	Date	Discharge (ft <sup>3</sup> /s)
ROANOKE RIVER BASIN--Continued						
02076300	Banister River at U.S. Highway 29, near Chatham, Va.	Lat 36°46'41", long 79°23'33", Pittsylvania County, at bridge on U.S. Highway 29, 1.6 mi below White Oak Creek, and 1.8 mi south of Chatham.	-	1942, 1953-54, 1981-83	9-27-83†	19.8
					11- 8-83	29.4
02076650	Banister River near Mount Airy, Va.	Lat 36°54'39", long 79°11'00", Pittsylvania County, at bridge on State Highway 640, 2.2 mi south of Mount Airy.	-	1942, 1953-54, 1981-83	9-28-83†	45.8
					11- 1-83	94.3
					8-20-84	195
02076770	Sandy Creek at Meadville, Va.	Lat 36°49'32", long 79°01'39", Halifax County, at bridge on State Highway 832, 0.2 mi above mouth, and 0.7 mi south of Meadville.	-	1953-54, 1981-83	9-28-83†	17.3
					11- 2-83	27.2
					8-20-84	52.0
02078300	Aarons Creek near Nelson, Va.	Lat 36°35'12", long 78°43'00", Halifax and Mecklenburg Counties, at bridge on State Highway 604, 1.7 mi northwest of Nelson.	-	1981-83	11- 2-83	.16
					8-21-84	6.43
02078400	Bluestone Creek at Rt. 699, near Laconia, Va.	Lat 36°43'48", long 78°36'58", Mecklenburg County, at bridge on State Highway 699, 1.2 mi east of Laconia, and 3.4 mi south of Red Oak.	-	1981-83	11- 2-83	1.89
					8-21-84	6.50
02079660	Jolly Hollow Branch at Boydton, Va.	Lat 36°40'38", long 78°23'13", Mecklenburg County, at bridge on State Highway 92, 0.3 mi north of Boydton, and 0.4 mi above Whetstone Branch.	3.60	1944-54, 1960, 1981-83	11- 3-83	.43
					8-22-84	.60
02079665	Cox Creek at Baskerville, Va.	Lat 36°40'58", long 78°16'15", Mecklenburg County, at bridge on State Highway 669, 0.5 mi southeast of Baskerville.	-	1981-83	11- 3-83	2.25
					8-22-84	3.62
02079740	Great Creek near Marengo, Va.	Lat 36°36'22", long 78°05'05", Mecklenburg County, at bridge on State Highway 620, 0.7 mi above Hagood Creek, and 2.8 mi southeast of Marengo.	-	1981-83	11- 3-83	2.21
					8-22-84	3.18
YADKIN RIVER BASIN						
02113550	Ararat River near Ararat, Va.	Lat 36°34'07", long 80°33'03", Patrick County, at bridge on State Highway 749, 1.6 mi upstream from VA-NC stateline, and 3.0 mi southwest of Ararat.	-	1981-83	11- 9-83	12.2
					8-22-84	17.0
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 above Middle Fork, and 3.2 mi north-east of Whitetop.	-	1983	11- 8-83	6.86
					8-23-84	7.66
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.	-	1983	11- 8-83	12.3
					8-23-84	6.65
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 above mouth, and 10 mi northwest of Galax.	-	1982-83	11- 8-83	34.8
					8-22-84	34.3
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 above mouth, and 5.0 mi southwest of Ivanhoe.	-	1982-83	11- 8-83	4.11
					8-22-84	2.83

† Not previously published.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record stations during water year 1984--Continued

Discharge measurements made at low-flow partial-record stations during water year 1984--Continued					Measurements	
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Date	Discharge (ft <sup>3</sup> /s)
KANAWHA RIVER BASIN--Continued						
03165750	Blue Springs Creek near Cedar Springs, Va.	Lat 36°48'14", long 81°18'22", Smith County, at bridge on State Highway 675, 0.3 mi below Dry Creek, and 1.8 mi southwest of Cedar Springs.	-	1983	11- 7-83 8-22-84	3.19 3.37
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 above East Fork, and 3.1 mi north of Favonia.	-	1983	11- 2-83 8-22-84	.68 .13
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 above mouth.	-	1982-83	11- 7-83 8-21-84	20.1 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 above mouth.	4.13	1952-55, 1982-83	11- 7-83 8-21-84	3.30 3.05
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 above mouth.	4.77	1957-70+, 1978, 1982-83	11- 2-83 8-21-84	.17 1.38
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 above mouth, and 2.8 mi north-east of Floyd.	-	1982-83	11- 7-83 8-21-84	6.76 8.92
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 above mouth, and 3.3 mi south-east of Riner.	-	1982-83	11- 2-83 8-20-84	3.60 4.42
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 above mouth.	-	1982-83	11- 2-83 8-21-84	2.63 3.90
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 above mouth.	-	1942, 1952-55, 1982-83	11- 2-83 8-21-84	22.1 28.0
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 above East Wilderness Creek, and 1.8 mi southwest of Holly Brook.	-	1983	11- 2-83 8-22-84	2.30 .88
03177600	Bluestone River above Bluestone, Va.	Lat 37°13'57", long 81°18'00", Tazewell County, at private road bridge off State Highway 720, 0.2 mi west of Bluestone.	-	1983	11- 2-83 8-22-84	7.42 12.5
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 below Pawpaw Creek, and 0.8 mi northeast of Kelsa.	84.3	1980-81+, 1983	11-15-83 8-20-84	40.2 9.53

\* Operated as a continuous-record gaging station.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Discharge measurements made at low-flow partial-record stations during water year 1984--Continued

Discharge measurements made at low-flow partial-record stations during water year 1984					Continued	
Station No.	Station Name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
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 and 0.3 mi above Meade Creek.	132	1942-81#, 1983	11- 3-83	64.2
					8-22-84	40.2
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	11- 8-83 8-23-84	.93 1.83
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 above mouth, and 0.8 mi southeast of Brumley Gap.	21.1	1979-81#, 1983	11- 3-83 8-22-84	13.5 7.20
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 below Meade Branch, and at Collinwood.	41.9	1944, 1954, 1966-68#, 1973, 1983	11- 7-83 8-28-84	6.67 13.6
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 below Franklin Branch, and 1.6 mi east of Gate City.	79.6	1953-59#, 1983	11- 7-83 8-28-84	15.1 22.2
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	11- 3-83 8-23-84	7.21 8.01
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 below Indian Creek, and 0.5 mi northwest of Wardell.	103	1949-52#, 1983	11- 3-83 8-22-84	27.4 40.1
03523000	Big Cedar Creek near Lebanon, Va.	Lat 36°54'29", long 82°02'20", Russell County, on right bank 200 ft above U.S. Highway 19, 0.8 mi west of Lebanon, and 7.2 mi above mouth.	51.5	1952, 1953-59#, 1980, 1983	11- 3-83 8-22-84	9.22 9.29
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 above mouth.	87.3	1949-59#, 1979-81#, 1983	11- 3-83 8-28-84	16.8 13.8
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	11- 7-83 8-28-84	7.22 3.41
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	11- 7-83 8-28-84	26.2 37.5

\* Operated as a continuous-record gaging station.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

## 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 furnished by the Virginia State Water Control Board are noted by an "a/".

## Discharge measurements made at special study and miscellaneous sites during water year 1984

Discharge measurements made at special study and miscellaneous sites during water year 1984					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 <u>a</u> /	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	1968-83	1- 5-84 3-28-84 6-20-84 9-19-84	*5.16 19.5 *1.18 *.44
POTOMAC RIVER BASIN						
01626000 South River	South Fork Shenandoah River	Lat 38°03'27", long 78°54'30", Waynesboro City, at bridge on State Highway 664, at Waynesboro.	127	1953-83*	2-13-84 6- 4-84	132 97.3
01626850 South River	South Fork Shenandoah River	Lat 38°05'19", long 78°52'38", Augusta County, at bridge on Hopeman Parkway, 1.1 mi below Steele Run, and 1.6 mi south-west of Doms.	149	1975-83*	6- 5-84	129
South River	South Fork Shenandoah River	Lat 38°09'22", long 78°51'37", Augusta County, at bridge on State Highway 612, 0.6 mi west of Crimora.	-	1979, 1982-83	6- 5-84	146
01627500 South River	South Fork Shenandoah River	Lat 38°13'07", long 78°50'13", Augusta County, at bridge on State Highway 778, 0.3 mi northwest of Harrison.	212	1925-51*, 1969-83*	6- 6-84	158
South Fork Shenandoah River	Shenandoah River	Lat 38°21'12", long 78°41'59", Rockingham County, at bridge on State Highway 649, 0.5 mi west of Island Ford, and 2.2 mi southeast of McGaheysville.	-	1979, 1983	6- 6-84	744
South Fork Shenandoah River <u>a</u> /	Shenandoah River	Lat 38°23'15", long 78°38'40", Rockingham County, 1.7 mi southwest of Elkton, 2.6 mi upstream from bridge on U.S. Highway 33 bypass.	-	1964-65, 1967, 1977, 1983	11- 1-83	618
01629275 South Fork Shenandoah River	Shenandoah River	Lat 38°28'54", long 78°37'40", Page-Rockingham County line, at bridge on State Highway 602, at Shenandoah.	-	1979, 1983	2-13-84	1,180
South Fork Shenandoah River	Shenandoah River	Lat 38°32'02", long 78°36'42", Page County, at bridge on U.S. Highway 340, 0.3 mi north of Grove Hill, and 2.5 mi north of Shenandoah.	-	1983	6- 5-84	892
01629500 South Fork Shenandoah River	Shenandoah River	Lat 38°38'46", long 78°32'06", Page County, at bridge on U.S. Highway 211, 4.1 mi west of Luray.	1,377	1925-30*, 1939-51*, 1963, 1979-83*	6- 6-84	1,120
South Fork Shenandoah River	Shenandoah River	Lat 38°42'04", long 78°29'33", Page County, 500 ft above Bixler bridge on State Highway 675, 2.3 mi northwest of Luray.	-	1979, 1983	6- 6-84	1,100
South Fork Shenandoah River	Shenandoah River	Lat 38°50'23", long 78°19'50", Warren County, at bridge on State Highway 613, 1.0 mi west of Bentonville.	-	1979	6- 5-84	1,100

\* Base flow.

\* Operated as a continuous-record gaging station.

a Furnished by the Virginia State Water Control Board.

b Approximately.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Discharge measurements made at special study and miscellaneous sites during water year 1984--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						
Unnamed tributary	Stony Creek	Lat 38°53'44", long 78°40'03", Shenandoah County, at mouth, 2.5 mi northeast of Liberty Furnace.	0.79	1982-83	10-18-83 8-13-84 8-28-84	0.24 .24 .15
01636210 Happy Creek	Shenandoah River	Lat 38°54'20", long 78°11'10", Warren County, at bridge on Kerfoot Avenue, at Front Royal, 2.3 mi above Leach Run, and 2.9 mi above mouth.	14.0	1948-77*, 1981-83	1-31-84	17.7
Shenandoah River	Potomac River	Lat 38°57'29", long 78°07'20", Warren County, 200 ft below low-water bridge (Morgan Ford) on State Highway 624, 2.4 mi southeast of Rockland, and 4.3 mi northwest of Linden.	-	1979, 1983	6- 7-84	1,520
01636290 Shenandoah River	Potomac River	Lat 39°02'28", long 77°57'52", Clarke County, 100 ft below bridge on U.S. Highways 17 and 50, at Berrys, and 3.5 mi southeast of Millwood.	2,800	1983	2-13-84 6- 4-84	2,140 1,520
Shenandoah River	Potomac River	Lat 39°07'27", long 77°53'30", Clarke County, 1,000 ft above bridge on State Highway 7, 4.8 mi southeast of Berryville.	2,930	1963, 1979, 1983	6- 5-84	1,670
01644005 Black Branch	Goose Creek	Lat 39°00'27", long 77°34'39", Loudoun County, just above unnamed tributary, 0.7 mi above mouth, and 1.3 mi north-east of Watson.	.71	1983	10-18-83 11-23-83 12-18-83	0 .19 .18
01644010 Unnamed tributary	Black Branch	Lat 39°00'30", long 77°34'40", Loudoun County, at mouth, 1.3 mi northeast of Watson.	.15	1983	10-18-83 11-23-83 12-18-83	.0066 .049 .05
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 above mouth.	-	-	7-24-84	20.2
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 above mouth, and 3.1 mi south-east of Independent Hill.	.65	1983	4-25-84 9-18-84	1.06 .11
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	4-25-84 9-18-84	6.86 .42
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	10- 4-83 10-26-83 11-15-83 12-23-83 12-31-83 1-25-84 3-22-84 4-23-84 5-22-84 6-27-84 7-17-84 8-28-84 9-17-84	.19 3.04 1.91 11.1 5.03 4.08 7.06 25.7 3.44 1.06 1.22 1.33 .56
01658455 Quantico Creek tributary No. 2	Quantico Creek	Lat 38°35'40", long 77°21'34", Prince William County, 50 ft above mouth, 2.2 mi northwest of Dumfries.	.0068	1983	10- 4-83 10-26-83 12-13-83 2-14-84 2-25-84	0 0 0 .075 0

\* Operated as a continuous-record gaging station.

Discharge measurements made at special study and miscellaneous sites during water year 1984--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						
01658460 Quantico Creek	Potomac River	Lat 38°35'23", long 77°21'26", Prince William County, 50 ft below Camp 4 Lake, 1.8 mi northwest of Dumfries.	5.92	1983	10- 4-83	0.25
					10-26-83	4.45
					11-17-83	4.37
					12-23-83	11.8
					12-31-83	6.93
					1-24-84	4.17
					2-23-84	13.8
					3-21-84	11.9
					4-24-84	17.2
					5-22-84	4.60
					6-25-84	1.86
					7-17-84	1.29
					8-28-84	1.29
					9-17-84	.76
01658475 Quantico Creek	Potomac River	Lat 38°34'35", long 77°21'05", Prince William County, 100 ft above pyrite mine, 1.1 mi north-west of Dumfries.	6.80	1983	10- 4-83	.22
					10-26-83	4.57
					11-18-83	2.81
					12-23-83	18.4
					12-30-83	10.5
					1-25-84	6.54
					2-24-84	20.9
					3-20-84	8.00
					4-25-84	15.3
					5-24-84	8.11
					6-25-84	2.19
					7-17-84	1.38
					8-28-84	1.12
					9-17-84	.79
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 below Pyrite Mine, and 0.8 mi west of Dumfries.	6.90	1983*	10- 4-83	.34
					10-26-83	5.04
					11-16-83	11.2
					12-23-83	20.8
					12-31-83	8.00
					1-27-84	11.1
					2-24-84	20.4
					3-20-84	8.38
					4-25-84	19.5
					5-23-84	6.69
					6-27-84	1.23
					7-18-84	3.13
					8-29-84	1.40
					9-19-84	.90
01658510 South Fork Quantico Creek tributary No. 7	South Fork Quantico Creek	Lat 38°35'53", long 77°25'08", Prince William County, at Oak Ridge campground, 250 ft below Loop Road, and 2.8 mi southeast of Independent Hill.		1983	10-18-83	0
					11-18-83	.022
					11-18-83	.15
					12-11-83	.049
					1-24-84	.13
					2-23-84	.10
					3-21-84	.52
					5-24-84	.058
					6-27-84	0
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 above Camp 5 Lake, and 2.2 mi northwest of Joplin.	9.01	1982-83	10-17-83	.67
					11-15-83	3.23
					12-14-83	25.0
					1-24-84	7.02
					2-23-84	7.99
					3-20-84	8.61
					4-26-84	15.0
					5-22-84	4.75
					6-26-84	1.53
					7-17-84	1.07
					8-27-84	1.55
					9-19-84	1.32
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 above Camp 5 Lake, and 2.0 mi northwest of Joplin.	.27	1983	10-18-83	.031
					12-11-83	.17
					1-25-84	.48
					2-23-84	.26
					3-20-84	.27
					4-24-84	.63
					5-24-84	.33
					6-27-84	.099
					7-17-84	.14
					8-28-84	.11
					9-17-84	.099

\* Operated as a continuous-record gaging station.

## Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1984						
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						
01658550	Quantico Creek	Lat 38°34'38", long 77°24'36", Prince William County, 400 ft below Camp 5 Lake, 1.7 mi northwest of Joplin.	9.62	1982, 1983*	10-18-83	0.72
South Fork Quantico Creek					11-15-83	3.62
					12-14-83	27.9
					1-24-84	7.45
					2-23-84	8.64
					3-20-84	9.64
					4-26-84	16.4
					5-22-84	6.79
					6-26-84	1.78
					7-17-84	1.58
					8-28-84	1.85
					9-18-84	1.48
01658601	South Fork Quantico Creek	Lat 38°35'00", long 77°23'13", Prince William County, at High Meadows Trail, 0.6 mi above mouth, and 1.5 mi north of Joplin.	1.07	1983	10-17-83	.098
tributary No. 1					11-15-83	.40
					12-14-83	2.51
					1-24-84	.94
					2-23-84	1.20
					3-20-84	1.15
01658602	South Fork Quantico Creek	Lat 38°34'35", long 77°22'53", Prince William County, 100 ft above mouth, 1.0 mi north of Joplin.	1.31	1975, 1982	11-16-83	1.59
tributary No. 1					4-26-84	2.48
					9-19-84	.25
01658603	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	10-17-83	1.31
South Fork Quantico Creek					11-15-83	4.60
					12-13-83	126
					1-24-84	10.6
					2-23-84	12.3
					3-20-84	12.2
					4-26-84	19.1
					5-22-84	9.39
					6-26-84	3.04
					7-17-84	2.42
					8-28-84	2.64
					9-19-84	2.15
01658605	South Fork Quantico Creek	Lat 38°34'31", long 77°22'31", Prince William County, 10 ft above mouth, 1.0 mi northeast of Joplin.	.46	1975, 1982	11-16-83	0
tributary No. 2					4-26-84	23.5
					9-19-84	.10
01658608	South Fork Quantico Creek	Lat 38°34'03", long 77°21'56", Prince William County, 15 ft above mouth, 1.2 mi northeast of Joplin.	.12	1982	11-15-83	.13
tributary No. 4					2-15-84	.55
					4-25-84	.43
					9-18-84	.049
01658610	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, 1982-83	10-17-83	1.43
South Fork Quantico Creek					11-15-83	4.65
					12-13-83	131
					1-24-84	9.17
					2-23-84	12.9
					3-20-84	14.4
					4-25-84	28.0
					5-22-84	11.5
					6-26-84	2.88
					7-17-84	2.59
					8-27-84	2.67
					9-18-84	2.30
01658612	South Fork Quantico Creek	Lat 38°34'02", long 77°21'52", Prince William County, 20 ft above mouth, 1.2 mi northeast of Joplin.	.18	1982	11-15-83	.24
tributary No. 3					2-15-84	.89
					2-24-84	.35
					4-25-84	1.16
					9-18-84	.067

# Operated as a continuous-record gaging station.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 1984--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						
01658615 Mary Bird Branch	South Fork Quantico Creek	Lat 38°35'36", long 77°22'36", Prince William County, at cul- vert on Taylor Farm Fire Road, 2.3 mi north of Joplin.	0.096	1983	10-17-83	0.015
					11-15-83	.071
					11-17-83	.068
					12-14-83	.23
					1-24-84	.068
					2-26-84	.16
					3-21-84	.25
					5-22-84	.052
	6-27-84	.019				
01658618 Mary Bird Branch	South Fork Quantico Creek	Lat 38°34'04", long 77°21'39", Prince William County, 40 ft above mouth, 1.3 mi west of Dumfries.	.80	-	4-25-84	2.04
					9-18-84	.056
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 above mouth, and 1.1 mi west of Dumfries.	.19	1982-83	10-17-83	.21
					11-15-83	.10
					12-13-83	1.26
					1-24-84	.26
					2-23-84	.55
					3-20-84	.34
					4-25-84	.61
					5-22-84	.27
					6-26-84	.10
					7-17-84	.093
					8-27-84	.18
	9-18-84	.099				
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 above mouth, 0.8 mi west of Dumfries.	.21	1982	4-25-84	.54
					9-18-84	0
01658650 South Fork Quantico Creek	Quantico Creek	Lat 38°34'18", long 77°20'57", Prince William County, 0.1 mi above mouth, 0.8 mi west of Dumfries.	16.6	1973, 1983*	10- 4-83	1.26
					10-18-83	2.05
					11-18-83	9.90
					12-11-83	12.2
					1-27-84	29.9
					2-24-84	44.9
					3-20-84	18.4
					4-25-84	42.2
					5-23-84	11.4
					6-27-84	2.96
					7-18-84	7.75
	8-29-84	4.07				
	9-19-84	2.63				
01658651 South Fork Quantico Creek tributary No. 7	South Fork Quantico Creek	Lat 38°34'21", long 77°20'55", Prince William County, at cul- vert on foot trail along north bank of South Fork Quantico Creek, 0.8 mi west of Dumfries.	-	1983	2-15-84	.28
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	-	4-25-84	3.50
					9-18-84	.17
RAPPAHANNOCK RIVER BASIN						
01662490 Rush River	Thornton River	Lat 38°43'37", long 78°10'13", Rappahannock County, at bridge on State Highway 624, 1.0 mi northwest of Washington, and 1.5 mi upstream from U.S. High- ways 211 and 522.	11.06	1982-83	11- 3-83	4.82
					1-31-84	15.3
					9-21-84	.46
01662500 Rush River	Thornton River	Lat 38°42'50", long 78°09'05", Rappahannock County, at bridge on old U.S. Highways 211 and 522, 0.5 mi east of Washington.	14.7	1952, 1953-77*, 1981-83	11- 3-83	5.10
					1- 3-84	18.5

\* Operated as a continuous-record gaging station.

## Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1984					Measurements	
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Date	Discharge (ft <sup>3</sup> /s)
YORK RIVER BASIN						
North Anna River <u>a</u> /	Pamunkey River	Lat 37°49'32", long 77°25'35", Caroline-Hanover County line, at confluence with Little River, 1.8 mi downstream from bridge on State Highway 30, and 3.0 mi southeast of Doswell.	-	1979-83	10- 5-83 6-25-84 9-19-84 9-24-84	64.8 94.3 76.5 73.0
01672885 Pamunkey River	York River	Lat 37°47'20", long 77°22'14", Hanover County, at bridge on U.S. Highway 301, 1.5 mi north of Hanover.	-	1942, 1979-80, 1983	9-12-84	188
01673000 Pamunkey River	York River	Lat 37°46'00", long 77°19'30", Hanover-King William County line, 0.4 mi above State Highway 614, 2.5 mi east of Hanover.	-	1942-83*	6-13-84 9-12-84 9-14-84	432 187 183
01673010 Meachumps Creek	Pamunkey River	Lat 37°45'30", long 77°21'53", Hanover County, at culvert on U.S. Highway 301, 0.3 mi south of Hanover.	-	1976, 1983	6-12-84	11.1
Meachumps Creek	Pamunkey River	Lat 37°46'11", long 77°20'33", Hanover County, along Rt. 614, 0.5 mi above mouth, and 1.5 mi east of Hanover.	-	-	9-12-84	1.71
01673020 Crump Creek	Pamunkey River	Lat 37°43'20", long 77°18'30", Hanover County, at culvert on State Highway 605, 3.1 mi east of Crosses Corner.	-	1983	6-12-84 9-12-84	22.3 9.26
01673025 Pamunkey River	York River	Lat 37°42'55", long 77°17'22", Hanover-King William County line, at bridge on State Highway 615, 2.2 mi north of Studley.	-	1979-80, 1983	6-12-84 9-12-84 9-14-84	465 184 184
01677200 Skimino Creek	York River	Lat 37°21'58", long 76°42'57", James City County, at bridge on State Highway 604, below Barlows Pond, 2.9 mi north-east of Lightfoot, and 4.4 mi above mouth.	-	1982-83	5- 2-84 6-14-84 9-21-84	15.8 7.51 4.99
JAMES RIVER BASIN						
Ivy Creek <u>a</u> /	South Fork Rivanna River	Lat 38°03'06", long 78°35'35", Albemarle County, at bridge on State Highway 637, 1.3 mi above Little Ivy Creek, and 3.1 mi east of Mechums River.	-	-	7-20-84	*4.30
Ivy Creek <u>a</u> /	South Fork Rivanna River	Lat 38°03'00", long 78°35'13", Albemarle County, 0.4 mi downstream from State Highway 637, 0.9 mi above Little Ivy Creek, and 3.5 mi east of Mechums River.	-	-	7-20-84	*4.44
Unnamed tributary	Angola Creek	Lat 37°22'16", long 78°17'48", Cumberland County, at mouth, 50 ft east of State Highway 664, and 3.9 mi southwest of Angola.	-	1981-83	10-31-83	.19
Upper Appomattox Canal	Appomattox River	Lat 37°13'24", long 77°28'33", Dinwiddie County, at bridge on State Highway 600, 0.2 mi south of Matoaca.	-	-	8-28-84	12.8
Swift Creek <u>a</u> /	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 above mouth.	-	-	8-28-84 8-29-84 9-12-84 9-25-84	9.30 8.79 8.17 5.58

\* Base flow.

\* Operated as a continuous-record gaging station.

a Furnished by the Virginia State Water Control Board.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued						
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued						
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.	-	-	9-10-84	1.01
02042280 Chicka- hominy 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.	-	1957-58, 1976	9-10-84	.77
02042282 Chicka- hominy 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.	-	-	9-10-84	.85
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.	-	-	9-10-84	.057
Chickahominy River tributary No. 5	Chickahominy River	Lat 37°40'23", long 77°27'17", Henrico County, at culvert on Telegraph Road, 0.9 mi northeast of Greenwood.	-	-	9-10-84	0
Chickahominy River tributary No. 4	Chickahominy River	Lat 37°40'06", long 77°27'03", Henrico County, at culvert on Telegraph Road, 1.0 mi east of Greenwood.	-	-	9-10-84	0
02042286 Chicka- hominy River	James River	Lat 37°39'09", long 77°25'52", Hanover-Henrico County line, at westbound line of Inter- state Highway 295, 1.4 mi west of Atlee.	-	-	9-10-84	2.66
02042288 Chicka- hominy 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.	-	-	9-10-84	8.93
02042300 Horsepen Branch	Upham Brook	Lat 37°35'45", long 77°30'40", Henrico County, at culvert on U.S. Highway 250 (Broad Street), 1.2 mi above mouth in Richmond.	1.35	1970	3-28-84	12.6
02042400 Jordans Branch	Upham Brook	Lat 37°35'10", long 77°29'55", Henrico County, at culvert on U.S. Highway 250 (Broad Street), 2.1 mi above mouth in Richmond.	2.41	-	3-28-84	60.3
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.	-	-	9-10-84	.66
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.	-	-	9-10-84	7.17
02042435 Chicka- hominy 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	9-10-84 9-11-84	4.52 4.87
02042440 Chicka- hominy 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	9-11-84	10.1
02042455 White Oak Swamp	Chickahominy River	Lat 37°28'05", long 77°12'32", Henrico County, at bridge on State Highway 156, at Elko.	-	-	9-11-84	3.17

Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1984				Continued		
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued						
02042465 Toe Ink Swamp	Chickahominy River	Lat 37°29'03", long 77°07'56", New Kent County, at outfall below Kent Lake dam, 1.5 mi north of Roxbury.	-	-	9-11-84	c1.5
02042470 Chickahominy River	James River	Lat 37°28'11", long 77°08'17", New Kent-Charles City County line, 600 ft above bridge on State Highway 609, 0.4 mi north of Roxbury.	-	1942	9-11-84	11.7
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.	-	-	9-11-84	1.12
02042480 Schiminoe Creek	Chickahominy River	Lat 37°27'14", long 77°04'52", New Kent County, at culvert on U.S. Highway 60.	-	1968	9-11-84	c.1
02042500 Chickahominy River	James River	Lat 37°26'10", long 77°03'40", New Kent County, 600 ft below State Highway 618.	248	1942-83#	9-11-84	15.4
02042752 Mill Creek	Diascund Creek	Lat 37°23'23", long 76°52'05", James City County, at culvert on State Highway 603, 0.4 mi south of Diascund, and 1.9 mi above mouth.	-	1982-83	5- 1-84 6-14-84 9-20-84	13.3 4.36 2.50
02042754 Yarmouth Creek	Chickahominy River	Lat 37°20'48", long 76°48'56", James City County, at culvert on State Highway 632, below Cranstons Pond, and 2.4 mi south of Toano.	-	1982-83	5- 1-84 6-13-84 9-20-84	15.9 7.87 5.19
02042756 Gordon Creek	Chickahominy River	Lat 37°17'48", long 76°49'10", James City County, at bridge on State Highway 633, below Jolly Pond, and 4.7 mi southwest of Lightfoot.	-	1982-83	5- 1-84 6-13-84 9-20-84	9.46 3.32 .42
02042765 Unnamed tributary	James River	Lat 37°15'18", long 76°48'46", James City County, at culvert on State Highway 5, 1.0 mi above mouth, and 2.6 mi west of Five Forks.	-	1982-83	5- 1-84 6-13-84 9-20-84	1.32 .35 .097
02042780 West Branch Long Hill Swamp	Powhattan Creek	Lat 37°18'50", long 76°46'02", James City County, at culvert on State Highway 612, 2.0 mi south of Lightfoot.	2.47	1970-76, 1978-83	5- 2-84 6-14-84 9-20-84	3.60 2.02 1.05
CHOWAN RIVER BASIN						
02044500 Nottoway River	Chowan River	Lat 36°59'00", long 77°48'00", Brunswick-Dinwiddie County line, 100 ft below bridge on State Highway 612, 2.6 mi northwest of Rawlings.	185	1951-83#	9-18-84	73.4
Nottoway River	Chowan River	Lat 37°58'30", long 77°46'11", Brunswick-Dinwiddie County line, 100 ft below Baskerville Mill Dam, 300 ft below State Highway 610, and 1.9 mi north of Rawlings.	-	-	9-18-84	68.4
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	9-18-84	67.0

\* Operated as a continuous-record gaging station.

c Estimated.



Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued						
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
CHOWAN RIVER BASIN--Continued						
Waqua Creek	Nottoway River	Lat 36°55'07", long 77°44'10", Brunswick County, 125 ft below bridge on State High- way 712, 4.3 mi south of McKenney.	-	-	9-18-84	8.41
Sturgeon Creek	Nottoway River	Lat 36°53'19", long 77°48'29", Brunswick County, 25 ft above bridge on State Highway 631, 5.0 mi north of Smoky Ordinary.	-	1976	9-18-84	10.4
Nottoway River	Chowan River	Lat 36°54'04", long 77°40'25", Brunswick-Dinwiddie County line, 100 ft below bridge on State Highway 609, 5.6 mi southeast of McKenney.	-	1963	9-18-84	92.4
Buckskin Creek	Nottoway River	Lat 36°53'43", long 77°37'53", Dinwiddie County, 300 ft above bridge on unnamed road, 0.5 mi above mouth, and 2.7 mi south of Cherry Hill.	-	-	9-19-84	1.00
Nottoway River	Chowan River	Lat 36°50'56", long 77°33'51", Greensville County, 600 ft below bridge on State High- way 619, 2.1 mi northeast of Purdy.	-	-	9-19-84	92.8
Nottoway River	Chowan River	Lat 36°50'52", long 77°29'36", Sussex-Greensville County line, 150 ft below bridge on State Highway 630 just above pumping station, and 2.1 mi northwest of Jarratt.	-	-	9-19-84	102
Nottoway River	Chowan River	Lat 36°52'57", long 77°26'21", Sussex County, 75 ft below bridge on State Highway 645, 4.1 mi north of Jarratt.	-	-	9-19-84	92.5
02045500 Nottoway River	Chowan River	Lat 36°54'00", long 77°24'00", Sussex County, 600 ft above bridge on U.S. Highway 301, 3.3 mi south of Stony Creek.	579	1930-83*	9-19-84	92.2
Nottoway River	Chowan River	Lat 36°57'00", long 77°22'52", Sussex County, 150 ft below bridge on State Highway 40, 0.6 mi east of Stony Creek, and 0.9 mi above Stony Creek.	-	-	9-20-84	98.1
Stony Creek	Nottoway River	Lat 36°56'58", long 77°23'34", Sussex County, at bridge on northbound lane of Inter- state Highway 95, at Stony Creek.	-	1952-54, 1963	9-20-84	18.2
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.	-	1981-83	9-20-84	4.15
Nottoway River	Chowan River	Lat 36°59'47", long 77°19'30", Sussex County, 200 ft below bridge on State Highway 637, 5.0 mi northeast of Stony Creek.	-	-	9-20-84	126
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.	-	-	9-20-84	142
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	9-20-84	(d)

\* Operated as a continuous-record gaging station.

d Ponded, no apparent flow.

Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1984					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°53'48", long 77°12'06", Sussex County, at bridge on State Highway 634, 2.8 mi west of Littleton.	-	-	9-21-84	163
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	9-21-84	(d)
Nottoway River	Chowan River	Lat 36°51'32", long 77°11'24", Sussex County, 40 ft below bridge on State Highway 631, 3.2 mi southwest of Littleton.	-	-	9-21-84	134
Raccoon Creek tributary	Raccoon Creek	Lat 36°48'48", long 77°12'15", Southampton County, at culvert on State Highway 608, 0.7 mi above mouth, and 4.8 mi northwest of Sebrell.	1.06	1980	9-21-84	0
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, 1980-83	9-21-84	(d)
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	9-21-84	(d)
02047000 Nottoway River	Chowan River	Lat 36°46'13", long 77°09'59", Southampton County, 1,900 ft below bridge on State Highway 653, 2.5 mi southwest of Sebrell.	1,421	1942-83	9-21-84	148
Buckhorn Swamp <u>a/</u>	Nottoway River	Lat 36°43'17", long 77°09'35", Southampton County, at bridge on State Highway 652, 5.0 mi west of Courtland.	-	1982-83	10- 4-83 11-15-83 1- 4-84 2-15-84 3-27-84 5- 8-84 6-20-84 9-19-84	0 .60 8.29 74.6 17.6 7.20 .19 .97
Buckhorn Swamp <u>a/</u>	Nottoway River	Lat 36°45'00", long 77°09'33", Southampton County, at bridge on State Highway 651, 5.4 mi northwest of Courtland.	-	1982-83	10- 4-83 11-15-83 1- 4-84 2-15-84 3-27-84 5- 8-84 6-20-84 9-19-84	0 0 11.6 205 23.9 14.4 .076 1.31
Nottoway Swamp <u>a/</u>	Nottoway River	Lat 36°43'22", long 76°59'43", Southampton County, at bridge on State Highway 611, 2.4 mi northwest of Hunterdale.	-	1982-83	10- 5-83 11-15-83 1- 4-84 2-15-84 3-28-84 5- 9-84 6-20-84 7-31-84 9-19-84	0 0 8.88 135 40.9 11.8 0 59.4 1.74
BIG SANDY RIVER BASIN						
03208865 Bad Creek	Pound River	Lat 37°08'37", long 82°37'16", Wise County, along U.S. Highway 23, 1.4 mi above mouth at Pound.	1.98	-	5- 3-83† 6- 7-83† 7-11-83† 8- 8-83† 10-11-83 10-31-83 11-29-83 1-10-84 2-15-84 4-25-84 6- 4-84 6-26-84 7-26-84 8-28-84 10- 2-84	2.25 1.71 .13 .030 .048 .15 .62 2.25 9.39 4.18 1.49 .53 .16 .45 .59

† Not previously published.

a Furnished by the Virginia State Water Control Board.

d Ponded, no apparent flow.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued					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						
03208870 Bad Creek tributary	Bad Creek	Lat 37°08'30", long 82°37'21", Wise County, at culvert on U.S. Highway 23, at Pound.	0.55	-	2- 1-83†	0.47
					2-22-83†	.63
					3-21-83†	.63
					5- 2-83†	.54
					5- 3-83†	2.31
					6- 7-83†	.16
					7-11-83†	.007
					8- 8-83†	.014
					10-11-83	.005
					10-31-83	.018
					11-28-83	.103
					1-10-84	.44
					2-15-84	2.52
					2-23-84	1.37
					4-25-84	1.31
					5- 3-84	.62
					5- 4-84	13.4
					5- 7-84	115
					5- 8-84	5.76
					03208874 Right Fork Bearpen Creek	Bearpen Creek
6-26-84	.053					
7-25-84	.017					
8-27-84	.055					
10- 1-84	.044					
2- 1-83†	1.19					
2-22-83†	.86					
3-21-83†	1.23					
5- 2-83†	.89					
5- 3-83†	2.54					
6- 6-83†	.99					
7-11-83†	.061					
8-22-83†	.18					
10-11-83	.018					
10-31-83	.064					
11-28-83	.36					
1- 9-84	.46					
2-15-84	3.52					
4-26-84	1.06					
03208876 Left Fork Bearpen Creek	Bearpen Creek	Lat 37°09'50", long 82°34'45", Wise County, at culvert on State Highway 630, just above confluence with Right Fork, and 2.3 mi northeast of Pound.	.65	-		
					5- 4-84	16.9
					6- 4-84	.43
					6-26-84	.056
					7-26-84	.048
					8-27-84	.064
					10- 2-84	.067
					5- 9-83†	2.42
					6- 6-83†	1.12
					7-11-83†	.035
					8-22-83†	.075
					9- 6-83†	.020
					10-11-83	.002
					11- 7-83	.043
					11-28-83	.33
					1- 9-84	.58
					2-15-84	4.05
					4-26-84	1.43
					6- 4-84	.48
					6-26-84	.068
7-26-84	.024					
8-28-84	.088					
10- 2-84	.042					

† Not previously published.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1984					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											
03208880 Johnson Hollow tributary	White Oak Creek	Lat 37°10'42", long 82°33'55", Wise County, 0.15 mi above State Highway 630, 3.8 mi northeast of Pound.	0.67	-	2- 1-83†	0.76					
					2-23-83†	1.30					
					3-22-83†	1.32					
					5- 2-83†	.71					
					5- 3-83†	3.22					
					6- 6-83†	.79					
					7-12-83†	.079					
					8- 9-83†	.044					
					10-11-83	.041					
					11- 1-83	.063					
					11- 7-83	.064					
					11-28-83	.25					
					1- 9-84	.22					
					2-15-84	3.65					
					2-23-84	1.16					
					4-26-84	1.09					
					5- 3-84	.96					
					5- 4-84	17.9					
					5- 7-84	154					
					5- 8-84	9.09					
5-14-84	17.4										
5-22-84	.32										
6-26-85	.099										
7-26-84	.075										
8-28-84	.079										
10- 2-84	.11										
03208903 Pine Creek	Pound River	Lat 37°11'27", long 82°32'06", Dickenson County, at culvert on State Highway 630, 2.5 mi above mouth, and 4.0 mi north-west of Georges Fork.	.67	-	5- 2-83†	.69					
					5- 3-83†	2.83					
					6- 6-83†	.69					
					7-12-83†	.025					
					8- 8-83†	.014					
					9- 6-83†	.011					
					10-11-83	.0003					
					11- 7-83	.028					
					11-28-83	.14					
					1- 9-84	.29					
					2-15-84	3.87					
					4-26-84	1.28					
					6- 4-84	.29					
					6-26-84	.094					
					7-26-84	.046					
					8-28-84	.026					
					10- 2-84	.048					
					TENNESSEE RIVER BASIN						
					03524560 Davey Land Branch	Little Stony Creek	Lat 36°52'07", long 82°30'53", Scott County, at Forest Road 700, 0.1 mi above mouth, and 3.4 mi northwest of Dungannon.	.96	-	1-25-83†	2.21
										2-24-83†	2.78
3-23-83†	1.81										
5- 4-83†	6.75										
6- 8-83†	1.06										
7-13-83†	.15										
8-15-83†	.15										
10-12-83	.32										
11- 8-83	.12										
11-29-83	1.63										
1-10-84	.98										
2-16-84	3.05										
4-24-84	1.74										
6- 5-84	.22										
6-25-84	.36										
7-25-84	.15										
8-27-84	.059										
10- 1-84	.15										

† Not previously published.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued						
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
TENNESSEE RIVER BASIN--Continued						
03524570 Joel Branch	Little Stony Creek	Lat 36°52'02", long 82°30'08", Scott County, at Forest Road 700, 200 ft above mouth, and 2.9 mi northwest of Dungannon.	0.63	-	1-25-83†	1.44
					2-24-83†	1.20
					3-23-83†	1.44
					5- 4-83†	4.52
					6- 8-83†	1.28
					7-13-83†	.061
					8-15-83†	.052
					10-12-83	.17
					11-29-83	1.20
					1-10-84	1.13
					2-16-84	2.94
					4-24-84	1.36
					6- 5-84	.36
					6-25-84	.15
					7-25-84	.043
					8-27-84	.010
					10- 1-84	.082
03524580 Corder Branch	Ramey Branch	Lat 36°53'10", long 82°28'32", Wise County, at culvert on Forest Road 700, 0.7 mi above mouth, and 3.4 mi south of Coeburn.	1.89	-	1-24-83†	4.56
					2-23-83†	4.62
					3-22-83†	3.97
					5- 4-83†	13.8
					6- 7-83†	4.00
					7-14-83†	.054
					8-15-83†	.30
					10-12-83	.44
					11- 8-83	.069
					11-30-83	2.02
					1-16-84	2.04
					2-14-84	77.0
					2-14-84	65.0
					2-16-84	7.04
					4-24-84	4.17
					6- 5-84	.70
					6-25-84	.22
					7-25-84	.086
					8-27-84	.002
					10- 1-84	0
03524590 Ramey Branch	Little Stony Creek	Lat 36°53'33", long 82°28'33", Wise County, at culvert on State Highway 664, 1.3 mi above Corder Branch, and 2.9 mi south of Coeburn.	1.05	-	5- 4-83†	8.62
					6- 7-83†	2.75
					7-13-83†	.031
					8-15-83†	.16
					10-12-83	.39
					11- 1-83	.043
					11-30-83	.73
					1-16-84	.72
					2-16-84	4.11
					4-25-84	1.94
					6- 4-84	.35
					6-25-84	.15
					7-25-84	.048
					8-27-84	.040
					10- 1-84	.11
03524600 Laurel Branch	Ramey Branch	Lat 36°52'42", long 82°28'00", Scott County, at culvert on Forest Road 701, 0.3 mi above mouth, and 3.2 mi northwest of Dungannon.	.96	-	1-24-83†	2.43
					2-23-83†	2.25
					3-22-83†	1.40
					5- 4-83†	5.85
					6- 7-83†	2.51
					7-14-83†	.040
					8-11-83†	.008
					10-12-83	.11
					11- 8-83	.057
					11-29-83	1.73
					1-10-84	.61
					2-13-84	18.5
					2-13-84	20.0
					2-14-84	23.0
					2-14-84	21.9
					2-16-84	5.41
					4-24-84	2.10
					5- 8-84	20.3
					6- 5-84	.54
					6-25-84	.16
					7-25-84	.015
					8-27-84	0
					10- 1-84	0

† Not previously published.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Discharge measurements made at special study and miscellaneous sites during water year 1984--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--Continued											
03524850 Chimney Rock Fork	Stony Creek	Lat 36°50'20", long 82°35'42", Scott County, along State Highway 657, 0.5 mi above mouth, and 2.2 mi northeast of Ka.	4.29	-	1-25-83†	12.2					
					2-22-83†	9.50					
					3-23-83†	10.7					
					5- 5-83†	27.1					
					6- 8-83†	7.42					
					7-18-83†	.071					
					8-17-83†	.11					
					10-12-83	.99					
					11- 3-83	1.43					
					12- 1-83	8.20					
					1-11-84	13.3					
					2-14-84	118					
					2-14-84	121					
					4-26-84	11.6					
					6- 5-84	2.29					
					6-27-84	.53					
					7-25-84	.16					
8- 1-84	1.11										
8-29-84	.065										
10- 3-84	.0005										
03524860 Coalpit Branch	Stony Creek	Lat 36°49'32", long 82°36'49", Scott County, along trail off State Highway 657, 0.1 mi above mouth, and 1.0 mi north of Ka.	1.35	-	1-28-83†	1.80					
					2-22-83†	2.53					
					3-24-83†	2.42					
					5- 5-83†	6.03					
					6- 8-83†	2.35					
					7-18-83†	.10					
					8-17-83†	.024					
					10-12-83	.76					
					11- 3-83	.40					
					12- 1-83	2.55					
					1-11-84	3.90					
					2-14-84	27.6					
					2-14-84	33.5					
					4-27-84	2.35					
					6- 5-84	.54					
					6-27-84	.34					
					7-25-84	.17					
8-29-84	.24										
10- 3-84	.055										
03524890 Devil Fork	Straight Fork	Lat 36°49'07", long 82°37'49", Scott County, along State Highway 619, 0.1 mi above mouth, and 1.0 mi northwest of Ka.	6.03	1979-80	5-11-83†	16.8					
					6- 9-83†	9.18					
					7-18-83†	.40					
					8-17-83†	.064					
					10-12-83	.70					
					11- 4-83	.87					
					12- 1-83	9.66					
					1-11-84	19.0					
					2-22-84	9.31					
					4-27-84	13.3					
					6- 5-84	4.22					
					6-27-84	3.77					
					7-25-84	1.16					
					8-29-84	.17					
					10- 3-84	.065					
					03525050 Cove Creek	Clinch River	Lat 36°47'42", long 82°41'49", Scott County, along State Highway 722, 0.1 mi above Stinking Creek, and 1.7 mi north of Stanleytown.	4.56	-	1-26-83†	8.28
										2-23-83†	13.8
3-24-83†	8.45										
5- 5-83†	22.9										
6-13-83†	2.46										
7-20-83†	.62										
8-17-83†	.031										
11- 3-83	.035										
12- 1-83	2.88										
1-12-84	8.58										
2-22-84	4.30										
2-23-84	16.6										
5- 2-84	4.14										
6- 6-84	1.68										
6-27-84	2.60										
7-26-84	.18										
8-29-84	.005										
10- 3-84	0										

† Not previously published.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued						
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
TENNESSEE RIVER BASIN--Continued						
03525060 Stinking Creek	Cove Creek	Lat 36°47'37", long 82°41'43", Scott County, at culvert on State Highway 722, 200 ft above mouth, and 1.6 mi north of Stanleytown.	1.05	-	1-26-83†	2.36
					2-23-83†	2.39
					3-24-83†	1.54
					5- 5-83†	4.89
					6-13-83†	.43
					7-20-83†	.088
					8-17-83†	.015
					10-13-83	.15
					11- 3-83	.013
					12- 1-83	.57
					1-12-84	2.94
					2-23-84	7.44
					2-23-84	10.6
					5- 2-84	1.09
					6- 6-84	.12
					6-27-84	.69
					7-26-84	.35
					8-28-84	.004
					10- 3-84	0
03525070 Dry Creek	Cove Creek	Lat 36°46'57", long 82°42'23", Scott County, along State Highway 602, 1.3 mi north- west of Stanleytown, and 1.4 mi above mouth.	.97	-	1-26-83†	2.24
					2-24-83†	1.61
					3-29-83†	1.18
					5- 6-83†	4.67
					6-14-83†	.56
					7-20-83†	.082
					8-18-83†	.026
					10-12-83	.013
					11- 3-83	.029
					12- 2-83	.15
					1-11-84	2.83
					2-14-84	28.1
					2-14-84	25.1
					4-27-84	1.96
					5- 7-84	278
					5-24-84	.49
					6-28-84	.57
					7-26-84	.30
					8- 1-84	.19
					8-30-84	.022
					10- 4-84	.015
03525150 Stock Creek	Clinch River	Lat 36°47'28", long 82°44'58", Scott County, along Forest Road 239, 0.7 mi above Shupe Branch, and 2.0 mi northwest of Mabe.	2.45	-	1-27-83†	4.56
					2-23-83†	6.60
					3-28-83	4.06
					5- 6-83†	8.00
					6-14-83†	1.11
					7-20-83†	.26
					8-18-83†	.11
					9- 8-83†	.020
					10-13-83	.29
					11- 4-83	.086
					11-30-83	2.16
					1-17-84	2.42
					2-23-84	15.8
					5- 1-84	2.29
					6- 6-84	1.36
					6-28-84	1.39
					7-26-84	.26
					8-22-84	.10
					10- 4-84	.081
03525170 Shupe Branch	Stock Creek	Lat 36°47'15", long 82°44'26", Scott County, at culvert on Forest Road 239, 0.25 mi above mouth, and 1.5 mi northwest of Mabe.	1.43	-	1-27-83†	2.51
					2-23-83†	2.69
					3-28-83†	1.65
					5- 6-83†	4.82
					6-14-83†	.58
					7-20-83†	.094
					8-18-83†	.037
					10-13-83	.48
					11- 3-83	.056
					12- 2-83	1.06
					1-17-84	1.75
					2-23-84	8.44
					5- 1-84	1.52
					6- 6-84	.84
					6-28-84	.82
					7-26-84	.40
					8-28-84	.039
					10- 4-84	.011

† Not previously published.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Discharge measurements made at special study and miscellaneous sites during water year 1984--Continued

Discharge measurements made at special study and miscellaneous sites during water year 1984--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--Continued						
03525190 Laurel Fork	Stock Creek	Lat 36°45'37", long 82°44'05", Scott County, at culvert on State Highway 653, 0.1 mi above mouth, and 0.7 mi southwest of Mabe.	3.61	-	5-10-83†	15.5
					6- 9-83†	4.22
					7-20-83†	.36
					8-15-83†	.22
					10-13-83	.31
					11- 4-83	.13
					12- 2-83	2.02
					1-16-84	2.06
					2-24-84	24.5
					5- 1-84	3.44
					6- 6-84	1.67
					6-28-84	1.57
					7-26-84	.79
					8-30-84	.16
					10- 3-84	.27
03525210 Dry Fork	Stock Creek	Lat 36°45'10", long 82°44'39", Scott County, at culvert on State Highway 653, 0.1 mi above mouth, and 1.5 mi south- west of Mabe.	1.89	-	5- 9-83†	5.84
					6-14-83†	.40
					7-21-83†	.004
					8-15-83†	.004
					9- 9-83†	0
					10-12-83	0
					11- 4-83	0
					12- 2-83	.096
					1-17-84	1.60
					2-24-84	12.0
					5- 2-84	1.39
					6- 6-84	.80
					6-28-84	.18
					7-27-84	.35
					8-30-84	0
					10- 4-84	0

† Not previously published.



## 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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)
POTOMAC RIVER BASIN											
01658450 - QUANTICO CR AT BURMA RD NR INDEPENDENT HILL VA (LAT 38 36 09 LONG 077 22 09)											
OCT , 1983						DEC , 1983					
17...	1530	.46	55	14.0	--	14...	1510	11	43	8.0	--
NOV						MAR , 1984					
15...	1605	1.9	73	6.0	--	29...	1630	114	38	5.0	--
17...	1010	3.6	45	9.0	--						
01658460 - QUANTICO CR BL CAMP 4 NR DUMFRIES VA (LAT 38 35 23 LONG 077 21 26)											
OCT , 1983						NOV , 1983					
18...	1125	.52	46	15.0	--	17...	1110	4.4	43	9.0	--
01658475 - QUANTICO CREEK ABOVE PYRITE MINE NR DUMFRIES (LAT 38 34 35 LONG 077 21 05)											
OCT , 1983											
18...	1335	.45	85	15.5	--						
01658530 - SF QUANTICO CR AT MAWAVI RD NR JOPLIN VA (LAT 38 35 07 LONG 077 24 46)											
OCT , 1983						APR , 1984					
17...	1415	.67	52	14.0	--	26...	1345	15	36	15.5	2
NOV						MAY					
15...	1425	3.2	46	6.0	--	22...	1245	4.8	42	19.0	3
DEC						JUN					
14...	1110	25	39	6.0	--	26...	1240	1.5	46	19.0	4
JAN , 1984						JUL					
24...	1245	7.0	44	.0	--	17...	1225	1.1	46	22.0	5
FEB						AUG					
23...	1010	8.0	45	4.5	--	27...	1205	1.6	46	19.0	9
MAR											
20...	1450	8.6	42	10.0	6						
01658540 - SF QUANTICO CR TRIB NO 8 AT MOUTH NR JOPLIN VA (LAT 38 34 47 LONG 077 24 47)											
OCT , 1983											
18...	1525	.03	38	15.5	--						
01658601 - SF QUANTICO CR TRIB 1 AT TRAIL 10 NR JOPLIN VA (LAT 38 35 00 LONG 077 23 13)											
OCT , 1983						JAN , 1984					
17...	1245	.10	82	13.0	--	24...	1425	.94	30	.0	--
NOV						FEB					
15...	1300	.40	38	6.0	--	23...	1100	1.2	31	4.5	13
DEC						MAR					
14...	1310	2.5	36	8.5	--	20...	1330	1.2	34	9.0	3

## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

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## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)
POTOMAC RIVER BASIN--Continued											
01658603 - SF QUANTICO CR BL TRIB 1 NR JOPLIN VA (LAT 38 34 34 LONG 077 22 47)											
OCT , 1983						APR , 1984					
17...	1100	1.3	46	12.0	--	26...	1105	19	38	13.0	5
NOV						MAY					
15...	1150	4.6	45	6.0	--	22...	1115	9.4	40	19.0	2
DEC						JUN					
13...	1355	126	40	8.0	--	26...	1110	3.0	41	19.0	3
JAN , 1984						JUL					
24...	1545	11	40	.0	--	17...	1335	2.4	44	23.0	7
FEB						AUG					
23...	1214	12	40	5.5	--	27...	1050	2.6	44	19.0	16
MAR						SEP					
26...	1416	224	35	8.0	106	18...	1145	2.2	44	13.0	1
01658610 - SF QUANTICO CR AT PARK RD NR JOPLIN VA (LAT 38 34 03 LONG 077 21 54)											
OCT , 1983						APR , 1984					
17...	1015	1.4	48	12.0	--	25...	1215	28	38	13.0	5
NOV						MAY					
15...	1045	4.7	47	6.0	--	22...	1000	12	42	18.0	2
DEC						JUN					
13...	1140	131	43	8.0	--	26...	1010	2.9	46	19.0	4
JAN , 1984						JUL					
24...	1030	9.2	42	.0	--	17...	1030	2.6	48	23.0	2
FEB						AUG					
23...	1355	13	41	5.5	--	27...	0950	2.7	50	18.0	4
MAR						SEP					
20...	1025	14	44	8.0	4	18...	1045	2.3	46	14.0	1
01658625 - S.F. QUANTICO CK TRIB NO 5 NR DUMFRIES, VA. (LAT 38 33 49 LONG 077 21 28)											
OCT , 1983						APR , 1984					
17...	0905	.21	70	11.0	--	25...	1025	.61	75	12.0	3
NOV						MAY					
15...	0950	.10	83	6.0	--	22...	0850	.27	71	15.0	1
DEC						JUN					
13...	0925	1.3	69	9.0	--	26...	0900	.10	70	16.0	2
JAN , 1984						JUL					
24...	0850	.26	68	.5	--	17...	0910	.09	72	20.0	5
FEB						AUG					
23...	1430	.55	70	7.0	--	27...	0850	.18	75	16.0	5
MAR						SEP					
26...	1310	1.6	67	11.0	49	18...	0900	.10	68	12.0	2

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES  
WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	ANTI- MONY, TOTAL (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	
JAMES RIVER BASIN												
02011405 - JACKSON RIVER NEAR BACOVA JUNCTION VA (LAT 38 01 50 LONG 079 53 37)												
AUG , 1984	20...	1245	--	178	7.8	18.0	720	9.4	<1	1	<10	<1
02011510 - BACK CREEK NEAR BACOVA JUNCTION VA (LAT 38 02 10 LONG 079 54 23)												
AUG , 1984	20...	1315	--	160	7.9	19.0	720	8.8	<1	<1	<10	<1
02011650 - LAKE MOOMAW (NORTH) NEAR HOT SPRINGS VA (LAT 37 58 28 LONG 079 58 04)												
AUG , 1984	20...	1400	5.00	140	8.1	24.0	720	9.0	<1	<1	<10	<1
20...	1415	20.0	139	7.4	20.0	720	8.0	<1	1	<10	<1	
20...	1430	73.0	140	7.0	10.5	720	.0	<1	1	<10	<1	
02011700 - LAKE MOOMAW (CENTRAL) NEAR HOT SPRINGS VA (LAT 37 56 59 LONG 079 58 33)												
AUG , 1984	21...	0830	5.00	147	8.3	24.0	720	8.4	<1	1	<10	<1
21...	0900	20.0	150	7.8	20.5	720	8.0	<1	2	<10	<1	
21...	0930	90.0	150	7.3	9.5	720	1.3	<1	2	<10	<1	
02011720 - LAKE MOOMAW (WEST) NEAR HOT SPRINGS VA (LAT 37 57 18 LONG 079 59 00)												
AUG , 1984	21...	0945	5.00	144	8.3	24.0	720	8.5	<1	1	<10	<1
21...	1000	76.0	129	7.2	10.5	720	.8	<1	1	<10	<1	
02011750 - LAKE MOOMAW (SOUTH) NEAR HOT SPRINGS VA (LAT 37 56 14 LONG 079 58 36)												
AUG , 1984	21...	1015	5.00	146	8.3	24.0	720	8.2	<1	1	<10	<1
21...	1030	50.0	139	7.3	16.0	720	3.0	<1	1	<10	<1	
02011788 - LAKE MOOMAW (EAST) NEAR HOT SPRINGS VA (LAT 37 56 54 LONG 079 57 43)												
AUG , 1984	20...	1510	5.00	146	8.3	25.0	720	8.9	<1	<1	<10	<1
20...	1530	20.0	145	7.8	20.0	720	8.6	<1	<1	<10	<1	
20...	1545	136	140	6.9	9.0	720	.0	<1	<1	<10	<1	
02011800 - JACKSON R. BELOW GATHRIGHT DAM, NR. HOT SPGS. (LAT 37 56 54 LONG 079 56 58)												
AUG , 1984	21...	1115	--	145	7.9	22.0	720	8.4	<1	2	<10	<1

< Actual value is known to be less than the value shown.

## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

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## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MERCURY, TOTAL RECOVERABLE (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	SELENIUM, TOTAL RECOVERABLE (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
JAMES RIVER BASIN--Continued											
02011405 - JACKSON RIVER NEAR BACOVA JUNCTION VA (LAT 38 01 50 LONG 079 53 37)											
AUG , 1984 20...	4	1	440	1	10	<.1	3	<1	<1	<10	<.01
02011510 - BACK CREEK NEAR BACOVA JUNCTION VA (LAT 38 02 10 LONG 079 54 23)											
AUG , 1984 20...	3	1	320	1	10	<.1	1	<1	<1	<10	<.01
02011650 - LAKE MOOMAW (NORTH) NEAR HOT SPRINGS VA (LAT 37 58 28 LONG 079 58 04)											
AUG , 1984 20...	3	1	250	2	10	<.1	1	<1	<1	<10	<.01
20...	2	1	460	1	10	.1	1	<1	1	<10	<.01
20...	3	1	750	1	3300	<.1	1	<1	1	10	<.01
02011700 - LAKE MOOMAW (CENTRAL) NEAR HOT SPRINGS VA (LAT 37 56 59 LONG 079 58 33)											
AUG , 1984 21...	2	1	230	1	10	<.1	2	<1	1	<10	<.01
21...	2	1	360	1	<10	.2	1	<1	<1	<10	<.01
21...	3	1	490	1	2600	.1	1	<1	1	<10	<.01
02011720 - LAKE MOOMAW (WEST) NEAR HOT SPRINGS VA (LAT 37 57 18 LONG 079 59 00)											
AUG , 1984 21...	2	1	270	2	10	<.1	1	<1	1	<10	<.01
21...	3	1	420	6	1000	<.1	1	<1	<1	<10	<.01
02011750 - LAKE MOOMAW (SOUTH) NEAR HOT SPRINGS VA (LAT 37 56 14 LONG 079 58 36)											
AUG , 1984 21...	6	1	310	1	<10	<.1	1	<1	1	10	<.01
21...	5	1	620	2	1000	<.1	1	<1	2	<10	<.01
02011788 - LAKE MOOMAW (EAST) NEAR HOT SPRINGS VA (LAT 37 56 54 LONG 079 57 43)											
AUG , 1984 20...	3	2	300	1	10	<.1	1	<1	2	10	<.01
20...	3	1	430	1	10	<.1	1	<1	<1	10	<.01
20...	1	1	450	2	1500	<.1	1	<1	<1	<10	<.01
02011800 - JACKSON R. BELOW GATHRIGHT DAM, NR. HOT SPGS. (LAT 37 56 54 LONG 079 56 58)											
AUG , 1984 21...	3	1	320	1	40	<.1	1	<1	1	<10	<.01

&lt; Actual value is known to be less than the value shown.



## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	ACE- NAPHTH- ENE TOTAL (UG/L)	ACE- NAPHTH- YLENE TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALPHA BHC TOTAL (UG/L)	ANTHRA- CENE TOTAL (UG/L)	AROCLOR 1016 PCB TOTAL (UG/L)	AROCLOR 1221 PCB TOTAL (UG/L)	AROCLOR 1232 PCB TOTAL (UG/L)	AROCLOR 1242 PCB TOTAL (UG/L)	AROCLOR 1248 PCB TOTAL (UG/L)	AROCLOR 1254 PCB TOTAL (UG/L)
JAMES RIVER BASIN--Continued												
02011405 - JACKSON RIVER NEAR BACOVA JUNCTION VA (LAT 38 01 50 LONG 079 53 37)												
AUG , 1984	20...	1245	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
02011510 - BACK CREEK NEAR BACOVA JUNCTION VA (LAT 38 02 10 LONG 079 54 23)												
AUG , 1984	20...	1315	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
02011650 - LAKE MOOMAW (NORTH) NEAR HOT SPRINGS VA (LAT 37 58 28 LONG 079 58 04)												
AUG , 1984	20...	1400	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
	20...	1415	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
	20...	1430	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
02011700 - LAKE MOOMAW (CENTRAL) NEAR HOT SPRINGS VA (LAT 37 56 59 LONG 079 58 33)												
AUG , 1984	21...	0830	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
	21...	0900	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
	21...	0930	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
02011720 - LAKE MOOMAW (WEST) NEAR HOT SPRINGS VA (LAT 37 57 18 LONG 079 59 00)												
AUG , 1984	21...	0945	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
	21...	1000	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
02011750 - LAKE MOOMAW (SOUTH) NEAR HOT SPRINGS VA (LAT 37 56 14 LONG 079 58 36)												
AUG , 1984	21...	1015	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
	21...	1030	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
02011788 - LAKE MOOMAW (EAST) NEAR HOT SPRINGS VA (LAT 37 56 54 LONG 079 57 43)												
AUG , 1984	20...	1510	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
	20...	1530	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
	20...	1545	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1
02011800 - JACKSON R. BELOW GATHRIGHT DAM, NR. HOT SPGS. (LAT 37 56 54 LONG 079 56 58)												
AUG , 1984	21...	1115	<5.0	<5.0	<.010	<.01	<5.0	<.1	<.10	<.10	<.1	<.1

&lt; Actual value is known to be less than the value shown.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	AROCLOR 1260 PCB TOTAL (UG/L)	BENZI- DINE TOTAL (UG/L)	BENZO A ANTHRAC- ENE1,2- BENZANT HRACENE TOTAL (UG/L)	BENZO- A- PYRENE TOTAL (UG/L)	BENZO B FLUOR- AN- THENE TOTAL (UG/L)	BENZO K FLUOR- AN- THENE TOTAL (UG/L)	BENZOGH I PERYL ENE1,12 -BENZOP ERYLENE TOTAL (UG/L)	BETA BENZENE HEXA- CHLOR- IDE TOTAL (UG/L)	BIS (2- CHLORO- ETHOXY) METHANE TOTAL (UG/L)	BIS 2- CHLORO- ETHYL ETHER TOTAL (UG/L)	BIS (2- CHLORO- ISO <sup>4</sup> PROPYL) ETHER TOTAL (UG/L)	BIS(2- ETHYL HEXYL) PHTHAL- ATE TOTAL (UG/L)
JAMES RIVER BASIN--Continued												
02011405 - JACKSON RIVER NEAR BACOVA JUNCTION VA (LAT 38 01 50 LONG 079 53 37)												
AUG , 1984 20...	<.1	<1.0	<5.0	<10.0	<10.0	<10.0	<10.0	<.01	<5.0	<5.0	<5.0	<5.0
02011510 - BACK CREEK NEAR BACOVA JUNCTION VA (LAT 38 02 10 LONG 079 54 23)												
AUG , 1984 20...	<.1	<1.0	<5.0	<10.0	<10.0	<10.0	<10.0	<.01	<5.0	<5.0	<5.0	<5.0
02011650 - LAKE MOOMAW (NORTH) NEAR HOT SPRINGS VA (LAT 37 58 28 LONG 079 58 04)												
AUG , 1984 20... 20... 20...	<.1 <.1 <.1	<1.0 <1.0 <1.0	<5.0 <5.0 <5.0	<10.0 <10.0 <10.0	<10.0 <10.0 <10.0	<10.0 <10.0 <10.0	<10.0 <10.0 <10.0	<.01 <.01 <.01	<5.0 <5.0 <5.0	<5.0 <5.0 <5.0	<5.0 <5.0 <5.0	<5.0 <5.0 <5.0
02011700 - LAKE MOOMAW (CENTRAL) NEAR HOT SPRINGS VA (LAT 37 56 59 LONG 079 58 33)												
AUG , 1984 21... 21... 21...	<.1 <.1 <.1	<1.0 <1.0 <1.0	<5.0 <5.0 <5.0	<10.0 <10.0 <10.0	<10.0 <10.0 <10.0	<10.0 <10.0 <10.0	<10.0 <10.0 <10.0	<.01 <.01 <.01	<5.0 <5.0 <5.0	<5.0 <5.0 <5.0	<5.0 <5.0 <5.0	<5.0 <5.0 <5.0
02011720 - LAKE MOOMAW (WEST) NEAR HOT SPRINGS VA (LAT 37 57 18 LONG 079 59 00)												
AUG , 1984 21... 21...	<.1 <.1	<1.0 <1.0	<5.0 <5.0	<10.0 <10.0	<10.0 <10.0	<10.0 <10.0	<10.0 <10.0	<.01 <.01	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0
02011750 - LAKE MOOMAW (SOUTH) NEAR HOT SPRINGS VA (LAT 37 56 14 LONG 079 58 36)												
AUG , 1984 21... 21...	<.1 <.1	<1.0 <1.0	<5.0 <5.0	<10.0 <10.0	<10.0 <10.0	<10.0 <10.0	<10.0 <10.0	<.01 <.01	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0
02011788 - LAKE MOOMAW (EAST) NEAR HOT SPRINGS VA (LAT 37 56 54 LONG 079 57 43)												
AUG , 1984 20... 20... 20...	<.1 <.1 <.1	<1.0 <1.0 <1.0	<5.0 <5.0 <5.0	<10.0 <10.0 <10.0	<10.0 <10.0 <10.0	<10.0 <10.0 <10.0	<10.0 <10.0 <10.0	<.01 <.01 <.01	<5.0 <5.0 <5.0	<5.0 <5.0 <5.0	<5.0 <5.0 <5.0	<5.0 <5.0 <5.0
02011800 - JACKSON R. BELOW GATHRIGHT DAM, NR. HOT SPGS. (LAT 37 56 54 LONG 079 56 58)												
AUG , 1984 21...	<.1	1.0	<5.0	<10.0	<10.0	<10.0	<10.0	<.01	<5.0	<5.0	<5.0	<5.0

&lt; Actual value is known to be less than the value shown.

## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	CHLOR- DANE, TOTAL (UG/L)	CHRY- SENE TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DELTA BENZENE HEXA- CHLOR- IDE TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- METHYL PHTHAL- ATE TOTAL (UG/L)	DI-N- BUTYL PHTHAL- ATE TOTAL (UG/L)	DI-N- OCTYL PHTHAL- ATE TOTAL (UG/L)	DIETHYL PHTHAL- ATE TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JAMES RIVER BASIN--Continued												
02011405 - JACKSON RIVER NEAR BACOVA JUNCTION VA (LAT 38 01 50 LONG 079 53 37)												
AUG , 1984 20...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
02011510 - BACK CREEK NEAR BACOVA JUNCTION VA (LAT 38 02 10 LONG 079 54 23)												
AUG , 1984 20...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
02011650 - LAKE MOOMAW (NORTH) NEAR HOT SPRINGS VA (LAT 37 58 28 LONG 079 58 04)												
AUG , 1984 20...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
20...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
20...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
02011700 - LAKE MOOMAW (CENTRAL) NEAR HOT SPRINGS VA (LAT 37 56 59 LONG 079 58 33)												
AUG , 1984 21...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
21...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
21...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
02011720 - LAKE MOOMAW (WEST) NEAR HOT SPRINGS VA (LAT 37 57 18 LONG 079 59 00)												
AUG , 1984 21...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
21...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
02011750 - LAKE MOOMAW (SOUTH) NEAR HOT SPRINGS VA (LAT 37 56 14 LONG 079 58 36)												
AUG , 1984 21...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
21...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
02011788 - LAKE MOOMAW (EAST) NEAR HOT SPRINGS VA (LAT 37 56 54 LONG 079 57 43)												
AUG , 1984 20...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
20...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
20...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010
02011800 - JACKSON R. BELOW GATHRIGHT DAM, NR. HOT SPGS. (LAT 37 56 54 LONG 079 56 58)												
AUG , 1984 21...	<.1	<10.0	<.010	<.010	<.010	<.01	<.010	<5.0	<5.0	<10.0	<5.0	<.010

&lt; Actual value is known to be less than the value shown.

## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

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## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	ENDRIN, TOTAL (UG/L)	FLUOR- ANTHENE TOTAL (UG/L)	FLUOR- ENE TOTAL (UG/L)	4- BROMO- PHENYL ETHER TOTAL (UG/L)	4- CHLORO- PHENYL ETHER TOTAL (UG/L)	4- NITRO- PHENOL TOTAL (UG/L)	4,6- DINITRO- -ORTHO- CRESOL TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEXA- CHLORO- BENZENE TOTAL (UG/L)	HEXA- CHLORO- BUT- ADIENE TOTAL (UG/L)	HEXA- CHLORO- CYCLO- PENT- ADIENE TOTAL (UG/L)
JAMES RIVER BASIN--Continued												
02011405 - JACKSON RIVER NEAR BACOVA JUNCTION VA (LAT 38 01 50 LONG 079 53 37)												
AUG , 1984												
20...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
02011510 - BACK CREEK NEAR BACOVA JUNCTION VA (LAT 38 02 10 LONG 079 54 23)												
AUG , 1984												
20...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
02011650 - LAKE MOOMAW (NORTH) NEAR HOT SPRINGS VA (LAT 37 58 28 LONG 079 58 04)												
AUG , 1984												
20...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
20...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
20...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
02011700 - LAKE MOOMAW (CENTRAL) NEAR HOT SPRINGS VA (LAT 37 56 59 LONG 079 58 33)												
AUG , 1984												
21...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
21...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
21...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
02011720 - LAKE MOOMAW (WEST) NEAR HOT SPRINGS VA (LAT 37 57 18 LONG 079 59 00)												
AUG , 1984												
21...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
21...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
02011750 - LAKE MOOMAW (SOUTH) NEAR HOT SPRINGS VA (LAT 37 56 14 LONG 079 58 36)												
AUG , 1984												
21...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
21...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
02011788 - LAKE MOOMAW (EAST) NEAR HOT SPRINGS VA (LAT 37 56 54 LONG 079 57 43)												
AUG , 1984												
20...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
20...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
20...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0
02011800 - JACKSON R. BELOW GATHRIGHT DAM, NR. HOT SPGS. (LAT 37 56 54 LONG 079 56 58)												
AUG , 1984												
21...	<.010	<5.0	<5.0	<5.0	<5.0	<30.0	<30.0	<.010	<.010	<5.0	<5.0	<5.0

&lt; Actual value is known to be less than the value shown.



## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	HEXA- CHLORO- ETHANE TOTAL (UG/L)	INDENO (1,2,3- CD) PYRENE TOTAL (UG/L)	ISO- PHORONE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	N-BUTYL BENZYL PHTHAL- ATE TOTAL (UG/L)	N- NITRO- SODI-N- PROPYL- AMINE TOTAL (UG/L)	N-NITRO -SODI- METHY- LAMINE TOTAL (UG/L)	N-NITRO -SODI- PHENY- LAMINE TOTAL (UG/L)	NAPHTH- ALENE TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)
JAMES RIVER BASIN--Continued												
02011405 - JACKSON RIVER NEAR BACOVA JUNCTION VA (LAT 38 01 50 LONG 079 53 37)												
AUG , 1984												
20...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
02011510 - BACK CREEK NEAR BACOVA JUNCTION VA (LAT 38 02 10 LONG 079 54 23)												
AUG , 1984												
20...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
02011650 - LAKE MOOMAW (NORTH) NEAR HOT SPRINGS VA (LAT 37 58 28 LONG 079 58 04)												
AUG , 1984												
20...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
20...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
20...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
02011700 - LAKE MOOMAW (CENTRAL) NEAR HOT SPRINGS VA (LAT 37 56 59 LONG 079 58 33)												
AUG , 1984												
21...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
21...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
21...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
02011720 - LAKE MOOMAW (WEST) NEAR HOT SPRINGS VA (LAT 37 57 18 LONG 079 59 00)												
AUG , 1984												
21...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
21...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
02011750 - LAKE MOOMAW (SOUTH) NEAR HOT SPRINGS VA (LAT 37 56 14 LONG 079 58 36)												
AUG , 1984												
21...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
21...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
02011788 - LAKE MOOMAW (EAST) NEAR HOT SPRINGS VA (LAT 37 56 54 LONG 079 57 43)												
AUG , 1984												
20...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
20...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
20...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10
02011800 - JACKSON R. BELOW GATHRIGHT DAM, NR. HOT SPGS. (LAT 37 56 54 LONG 079 56 58)												
AUG , 1984												
21...	<5.0	<10.0	<5.0	<.010	<.01	<.01	<5.0	<5.0	<5.0	<5.0	<5.0	<.10

&lt; Actual value is known to be less than the value shown.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	NITRO- BENZENE TOTAL (UG/L)	1,4-DI- CHLORO- BENZENE TOTAL (UG/L)	1,3-DI- CHLORO- BENZENE TOTAL (UG/L)	1,2-DI- CHLORO- BENZENE TOTAL (UG/L)	1,2,5,6 -DIRENZ -ANTHRA -CENE TOTAL (UG/L)	1,2,4- TRI- CHLORO- BENZENE TOTAL (UG/L)	PARA- CHLORO- META CRESOL TOTAL (UG/L)	PCB, TOTAL (UG/L)	PENTA- CHLORO- PHENOL TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PHENAN- THRENE TOTAL (UG/L)	PHENOL (C6H- 5OH) TOTAL (UG/L)
JAMES RIVER BASIN--Continued												
02011405 - JACKSON RIVER NEAR BACOVA JUNCTION VA (LAT 38 01 50 LONG 079 53 37)												
AUG , 1984												
20...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
02011510 - BACK CREEK NEAR BACOVA JUNCTION VA (LAT 38 02 10 LONG 079 54 23)												
AUG , 1984												
20...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
02011650 - LAKE MOOMAW (NORTH) NEAR HOT SPRINGS VA (LAT 37 58 28 LONG 079 58 04)												
AUG , 1984												
20...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
20...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
20...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
02011700 - LAKE MOOMAW (CENTRAL) NEAR HOT SPRINGS VA (LAT 37 56 59 LONG 079 58 33)												
AUG , 1984												
21...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
21...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
21...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
02011720 - LAKE MOOMAW (WEST) NEAR HOT SPRINGS VA (LAT 37 57 18 LONG 079 59 00)												
AUG , 1984												
21...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
21...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
02011750 - LAKE MOOMAW (SOUTH) NEAR HOT SPRINGS VA (LAT 37 56 14 LONG 079 58 36)												
AUG , 1984												
21...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
21...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
02011788 - LAKE MOOMAW (EAST) NEAR HOT SPRINGS VA (LAT 37 56 54 LONG 079 57 43)												
AUG , 1984												
20...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
20...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
20...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0
02011800 - JACKSON R. BELOW GATHRIGHT DAM, NR. HOT SPGS. (LAT 37 56 54 LONG 079 56 58)												
AUG , 1984												
21...	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<30.0	<.1	<30.0	<.1	<5.0	<5.0

&lt; Actual value is known to be less than the value shown.

## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PYRENE TOTAL (UG/L)	3,3'- DI- CHLORO- BENZI- DINE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	2- CHLORO- NAPH- THALENE TOTAL (UG/L)	2- CHLORO- PHENOL TOTAL (UG/L)	2,4-DI- CHLORO- PHENOL TOTAL (UG/L)	2,4-DI- METHYL- PHENOL TOTAL (UG/L)	2,4,- DI- NITRO- PHENOL TOTAL (UG/L)	2,4-DI- NITRO- TOLUENE TOTAL (UG/L)	2,4,6- TRI- CHLORO- PHENOL TOTAL (UG/L)	2- NITRO- PHENOL TOTAL (UG/L)	2,6-DI- NITRO- TOLUENE TOTAL (UG/L)
JAMES RIVER BASIN--Continued												
02011405 - JACKSON RIVER NEAR BACOVA JUNCTION VA (LAT 38 01 50 LONG 079 53 37)												
AUG , 1984												
20...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
02011510 - BACK CREEK NEAR BACOVA JUNCTION VA (LAT 38 02 10 LONG 079 54 23)												
AUG , 1984												
20...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
02011650 - LAKE MOOMAW (NORTH) NEAR HOT SPRINGS VA (LAT 37 58 28 LONG 079 58 04)												
AUG , 1984												
20...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
20...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
20...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
02011700 - LAKE MOOMAW (CENTRAL) NEAR HOT SPRINGS VA (LAT 37 56 59 LONG 079 58 33)												
AUG , 1984												
21...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
21...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
21...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
02011720 - LAKE MOOMAW (WEST) NEAR HOT SPRINGS VA (LAT 37 57 18 LONG 079 59 00)												
AUG , 1984												
21...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
21...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
02011750 - LAKE MOOMAW (SOUTH) NEAR HOT SPRINGS VA (LAT 37 56 14 LONG 079 58 36)												
AUG , 1984												
21...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
21...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
02011788 - LAKE MOOMAW (EAST) NEAR HOT SPRINGS VA (LAT 37 56 54 LONG 079 57 43)												
AUG , 1984												
20...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
20...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
20...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0
02011800 - JACKSON R. BELOW GATHRIGHT DAM, NR. HOT SPGS. (LAT 37 56 54 LONG 079 56 58)												
AUG , 1984												
21...	<5.0	<1.0	<1	<5.0	<5.0	<5.0	<5.0	<20.0	<5.0	<20.0	<5.0	<5.0

&lt; Actual value is known to be less than the value shown.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH LAB (STAND- ARD UNITS)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	
JAMES RIVER BASIN--Continued								
02037620	-	WAYSIDE SPRING AT RICHMOND, VA. (LAT 37 31 26 LONG 077 29 03)						
OCT , 1983 17...	0900	63	61	5.1	10	1.7	1.3	
02037640	-	FONTICELLO SPRING AT RICHMOND VA (LAT 37 31 00 LONG 077 27 40)						
OCT , 1983 17...	0930	150	152	5.7	26	6.4	2.5	
DATE		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)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	LITHIUM DIS- SOLVED (UG/L AS LI)
02037620	-	WAYSIDE SPRING AT RICHMOND, VA. (LAT 37 31 26 LONG 077 29 03)						
OCT , 1983 17...	5.9	1.1	8.0	.6	8.5	2.7	<4	
02037640	-	FONTICELLO SPRING AT RICHMOND VA (LAT 37 31 00 LONG 077 27 40)						
OCT , 1983 17...	15	2.3	10	4.4	22	5.5	<4	
DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	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, ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
02042260	-	CHICKAHOMINY RIVER AT RT624 NR FARRINGTON, VA. (LAT 37 41 43 LONG 077 35 34)						
SEP , 1984 10...	1315	64	21.0	<.10	.010	1.3	.040	.010 8.9
02042275	-	CHICKAHOMINY RIVER AT RT 625 NR GLEN ALLEN, VA. (LAT 37 42 02 LONG 077 30 49)						
SEP , 1984 10...	0905	327	19.0	2.0	.050	1.5	.080	.010 7.2

&lt; Actual value is known to be less than the value shown.



## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	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, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTH- DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAMES RIVER BASIN--Continued									
02042280	- CHICKAHOMINY RIVER AT RT 626 NR ELMONT, VA. (LAT 37 41 38 LONG 077 29 28)								
SEP , 1984 10...	1035	155	21.5	<.10	.080	.80	.050	.020	10
02042282	- CHICKAHOMINY R AT TELEGRAPH RD NR GREENWOOD, VA. (LAT 37 40 40 LONG 077 27 23)								
SEP , 1984 10...	1135	155	19.0	.29	.070	.70	.090	.080	8.2
02042284	- STONY RUN AT RT 656 NR GREENWOOD, VA. (LAT 37 41 05 LONG 077 26 58)								
SEP , 1984 10...	1205	180	19.5	.58	.060	.40	.030	.030	4.9
02042288	- CHICKAHOMINY RIVER AT RT 627 NR RICHMOND, VA. (LAT 37 36 41 LONG 077 22 18)								
SEP , 1984 10...	1015	183	20.0	<.10	.200	.70	.070	.010	7.5
02042427	- UPHAM BROOK AT RT 627 NR RICHMOND, VA. (LAT 37 36 37 LONG 077 24 34)								
SEP , 1984 10...	1100	225	20.0	<.10	.100	.40	.090	.020	6.0
02042433	- BEAVERDAM CREEK AT RT 156 AT MECHANICSVILLE, VA. (LAT 37 35 45 LONG 077 21 32)								
SEP , 1984 10...	1300	93	20.0	1.7	.030	.30	<.010	<.010	3.3
02042440	- CHICKAHOMINY RIVER AT RT 156 NR SEVEN PINES, VA. (LAT 37 33 07 LONG 077 16 17)								
SEP , 1984 11...	1000	115	20.5	.11	.130	1.5	.190	.030	14
02042455	- WHITE OAK SWAMP AT RT 156 AT ELKO, VA. (LAT 37 28 05 LONG 077 12 32)								
SEP , 1984 11...	0930	52	19.5	<.10	.090	.60	<.010	<.010	7.5
02042465	- TOE INK SWAMP BELOW KENT LAKE DAM NR ROXBURY, VA (LAT 37 29 03 LONG 077 07 56)								
SEP , 1984 11...	1545	86	23.5	<.10	.340	1.2	.030	<.010	7.7
02042470	- CHICKAHOMINY RIVER AT RT 609 AT ROXBURY, VA. (LAT 37 28 11 LONG 077 08 17)								
SEP , 1984 11...	1140	102	21.0	<.10	<.010	.40	.040	.020	6.6

&lt; Actual value is known to be less than the value shown.

## GROUND-WATER LEVELS

375

## 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.

DATUM.--Altitude of land-surface datum is 35 ft National Geodetic Vertical Datum of 1929. 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 furnished 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.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	23.02	FEB 6	25.12	JUL 2	24.42
NOV 8	21.82	MAR 6	24.92	AUG 8	21.62
DEC 3	24.42	JUN 7	21.02	SEP 5	21.42
JAN 6	24.72				

## 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.

DATUM.--Altitude of land-surface datum is 345 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.3 ft above land-surface datum.

REMARKS.--Records furnished by the Virginia State 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.41	16.06	15.14	13.20	13.20	-	10.15	9.62	13.44	15.15	15.31	15.35
10	16.55	16.38	14.64	13.39	13.10	-	10.28	10.35	13.76	15.13	15.20	15.35
15	16.51	15.93	12.99	13.36	11.57	-	10.87	11.42	14.35	15.30	14.67	15.21
20	16.58	16.00	13.78	13.33	-	-	11.17	12.09	14.66	15.49	14.29	15.21
25	15.66	15.92	12.71	13.30	-	-	10.00	12.79	14.87	15.28	14.59	15.30
EOM	15.88	15.29	13.02	13.21	-	9.05	9.10	13.08	15.07	15.30	14.98	15.39

WTR YR 1984 HIGHEST 8.65 MAY 3, 1984 LOWEST 16.60 OCT 11, 12, 1983

## 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.

DATUM.--Altitude of land-surface datum is 860 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1 ft above land-surface datum.

REMARKS.--Records furnished by the Virginia State 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	50.90	51.60	52.40	52.14	-	51.03	50.08	48.61	47.21	46.30	46.42	47.12
10	51.20	51.69	52.40	-	-	-	49.83	48.27	47.11	46.40	46.51	46.80
15	51.33	51.90	52.37	-	51.55	-	49.55	48.08	47.09	46.60	46.57	47.05
20	51.40	52.30	52.50	-	51.45	-	49.40	47.72	47.00	46.84	46.62	46.73
25	51.32	52.40	52.23	-	51.15	-	49.07	47.70	46.80	46.73	47.49	46.77
EOM	51.49	52.49	52.56	-	51.28	-	48.57	47.22	46.43	46.60	47.29	46.70

WTR YR 1984 HIGHEST 45.54 JUL 5, 1984 LOWEST 52.59 DEC 30, 1983

## GROUND-WATER LEVELS

## APPOMATTOX COUNTY--Continued

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.  
 DATUM.--Altitude of land-surface datum is 640 ft National Geodetic Vertical Datum of 1929. 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.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	43.92	JAN 6	44.45	JUN 20	39.14	SEP 12	40.10
NOV 18	44.63	MAR 14	43.45	JUL 25	39.24		

## ARLINGTON COUNTY

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.  
 DATUM.--Altitude of land-surface datum is 410 ft National Geodetic Vertical Datum of 1929. 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.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 29	24.88	MAR 28	20.35	AUG 1	20.78
FEB 1	22.40	MAY 30	18.40	SEP 27	23.14

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.  
 DATUM.--Altitude of land-surface datum is 205 ft National Geodetic Vertical Datum of 1929. 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.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 29	42.98	MAR 29	41.95	AUG 1	41.56
FEB 1	42.58	MAY 30	40.87		

## BUCKINGHAM COUNTY

372541078392101. Local number, 41H1.  
 LOCATION.--Lat 37°25'41", long 78°39'21", Hydrologic Unit 02080207, 0.45 mi southeast of State Highway 636. Owner: U.S. Geological Survey.  
 AQUIFER.--Candler Formation of Paleozoic age.  
 WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in to 83 ft, diameter 1.25 in 83 to 88 ft, depth 88 ft, screened 83 to 88 ft.  
 DATUM.--Altitude of land-surface datum is 660 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.20 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, 30.95 ft below land-surface datum, May 20, 1973; lowest measured, 50.41 ft below land-surface datum, Dec. 8, 1981.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	45.81	JAN 6	47.23	JUN 20	40.35	SEP 12	42.70
NOV 18	46.88	MAR 14	45.88	JUL 25	41.00		

## BUCKINGHAM COUNTY--Continued

372608078404601. Local number, 41H3.

LOCATION.--Lat 37°26'08", long 78°40'46", Hydrologic Unit 02080207, 0.85 mi west of Ranger Headquarters on south side of dirt road off of State Highway 636. Owner: U.S. Geological Survey.

AQUIFER.--Candler Formation of Paleozoic age.

WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in to 49 ft, diameter 1.25 in 49 to 54 ft, depth 54 ft, screened 49 to 54 ft.

DATUM.--Altitude of land-surface datum is 683.8 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.3 ft above land-surface datum.

REMARKS.--Prior to Oct. 1, 1981, well was reported as being located in Appomattox County.

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, 7.31 ft below land-surface datum, Apr. 12, 1973; lowest measured, 28.30 ft below land-surface datum, Oct. 17, 1977.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	22.52	JAN 6	18.59	JUN 20	14.61	SEP 12	17.11
NOV 18	22.46	MAR 14	16.34	JUL 25	16.18		

372519078374001. Local number, 41H4.

LOCATION.--Lat 37°25'19", long 78°37'40", Hydrologic Unit 02080207, 0.65 mi northeast of Holiday Creek and 0.85 mi southeast of State Highway 636 on State Highway 614. Owner: U.S. Geological Survey.

AQUIFER.--Candler Formation of Paleozoic age.

WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in to 72 ft, diameter 1.25 in 72 to 77 ft, depth 77 ft, screened 72 to 77 ft.

DATUM.--Altitude of land-surface datum is 647 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.4 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, 28.45 ft below land-surface datum, May 1, 1980; lowest measured, 44.29 ft below land-surface datum, Oct. 20, 21, 1971.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	40.83	JAN 6	39.84	JUN 20	33.99	SEP 12	36.76
NOV 18	41.40	MAR 14	37.42	JUL 25	35.97		

## 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: Kenneth Daul.

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.

DATUM.--Altitude of land-surface datum is 57.30 ft 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	17.16	DEC 28	16.54	APR 27	11.58	AUG 30	15.82
28	17.16	JAN 30	14.45	MAY 30	13.19	SEP 27	16.60
NOV 29	17.16	FEB 27	13.01	JUN 27	14.00		
DEC 27	16.54	MAR 29	11.55	JUL 30	15.05		

## 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.

DATUM.--Altitude of land-surface datum is 340 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	23.08	FEB 27	18.99	MAY 30	14.18	AUG 31	17.86
NOV 30	22.71	MAR 29	17.15	JUN 28	16.23	SEP 27	19.07
JAN 31	19.78	APR 30	14.70	JUL 31	17.46		



## GROUND-WATER LEVELS

## FAIRFAX COUNTY--Continued

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.

DATUM.--Altitude of land-surface datum is 390 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.92	16.06	14.02	11.40	-	8.85	-	8.34	11.78	13.57	14.44	14.63
10	17.13	16.12	-	11.87	-	9.30	-	8.28	12.32	13.94	14.66	14.78
15	16.95	15.68	11.92	11.77	-	9.36	8.48	9.30	12.79	14.27	13.88	14.93
20	16.96	15.64	12.26	11.85	-	-	8.46	10.01	12.96	14.39	13.97	15.15
25	16.23	15.21	-	11.85	-	-	8.56	10.77	-	14.46	14.20	15.42
EOM	16.05	14.37	-	11.03	-	6.59	8.89	11.19	13.54	14.66	14.34	15.46

WTR YR 1984 HIGHEST 6.47 MAR 30, 1984 LOWEST 17.15 OCT 11, 1983

## CITY OF FRANKLIN

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.

DATUM.--Altitude of land-surface datum is 21.24 ft 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, 190.01 ft below land-surface datum, June 12, 1981.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	177.35	JAN 5	176.81	MAY 4	179.74	AUG 1	183.32
NOV 4	176.00	FEB 6	178.02	JUN 4	182.10	SEP 4	178.93
DEC 5	177.29	MAR 1	177.07	JUL 2	183.64		

## 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.

DATUM.--Altitude of land-surface datum is 380 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.20 ft above land-surface datum.

REMARKS.--Records furnished by the Virginia State 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	38.34	38.70	39.09	39.06	-	-	38.22	37.60	37.09	36.68	36.51	35.56
10	38.50	38.72	39.18	39.20	-	-	38.21	37.50	36.97	36.62	36.50	36.50
15	38.58	38.88	39.17	39.21	38.82	-	37.99	37.41	36.92	36.63	36.51	36.60
20	38.61	38.88	39.29	39.30	-	-	37.95	37.24	36.86	36.63	36.55	37.61
25	38.60	39.02	39.20	39.13	-	-	37.78	37.20	36.71	36.60	36.58	-
EOM	38.77	39.07	-	-	-	38.50	37.66	37.09	36.68	36.58	36.51	-

WTR YR 1984 HIGHEST 36.42 AUG 30, SEP 3, 1984 LOWEST 39.34 JAN 12, 1984

## GROUND-WATER LEVELS

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## 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.

DATUM.--Altitude of land-surface datum is 50.26 ft 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	34.84	DEC 9	31.23	FEB 17	29.43	APR 20	32.61	JUN 22	34.41	AUG 24	34.44
14	34.87	16	28.55	24	33.84	27	31.36	29	34.40	31	34.43
21	34.91	23	34.11	MAR 2	34.71	MAY 4	33.75	JUL 6	34.46	SEP 7	34.36
28	34.71	30	34.81	9	32.88	11	34.05	13	34.55	14	34.49
NOV 4	34.36	JAN 6	34.90	16	32.30	18	34.42	20	34.61	21	34.56
11	34.85	13	34.79	23	32.46	25	34.56	27	34.36	28	32.64
18	34.66	20	26.54	30	23.56	JUN 1	31.20	AUG 3	34.49		
25	30.50	27	31.88	APR 6	31.14	8	34.06	10	34.50		
DEC 2	33.44	FEB 10	32.89	13	33.11	15	34.32	17	34.48		

## 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.

DATUM.--Altitude of land-surface datum is 25 ft National Geodetic Vertical Datum of 1929. 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, 195.67 ft below land-surface datum, June 14, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	184.71	183.69	184.66	184.58	185.26	184.77	184.98	186.62	188.50	189.23	189.45	186.73
10	184.97	184.59	185.13	184.44	185.59	185.13	184.23	187.50	188.32	190.02	189.07	187.45
15	184.84	184.80	184.99	184.71	184.99	185.68	183.65	187.46	188.16	189.78	188.37	186.81
20	185.09	184.94	184.98	184.95	184.49	185.42	183.91	183.46	187.60	189.07	188.69	186.89
25	183.63	184.92	185.42	185.26	184.24	185.62	184.55	188.72	188.65	187.98	187.50	186.96
EOM	183.22	184.79	183.90	185.21	184.12	187.23	185.50	188.66	187.81	188.95	187.33	186.58

WTR YR 1984 HIGHEST 181.28 DEC 28, 1983 LOWEST 190.19 JUL 14, 1984

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.

DATUM.--Altitude of land-surface datum is 32 ft National Geodetic Vertical Datum of 1929. 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 on 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, 214.15 ft below land-surface datum, June 12, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	203.75	202.66	203.81	203.56	-	204.02	202.62	205.27	206.27	208.15	208.21	205.95
10	204.12	-	204.15	203.61	203.71	204.02	200.89	206.23	205.60	208.21	208.21	206.21
15	204.02	-	204.05	203.62	203.75	204.30	200.98	204.77	205.76	208.22	207.96	-
20	203.60	-	203.90	-	203.75	-	201.77	204.77	205.76	208.21	208.10	-
25	201.79	-	204.22	-	203.67	-	201.77	206.82	206.24	207.34	206.85	-
EOM	201.28	-	200.91	-	203.56	-	201.78	207.53	206.25	208.16	207.04	-

WTR YR 1984 HIGHEST 198.50 DEC 28, 1983 LOWEST 208.54 SEP 2, 1984

## GROUND-WATER LEVELS

## 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.

DATUM.--Altitude of land-surface datum is 37 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	187.51	187.05	187.41	185.49	186.26	187.33	187.70	186.65	185.58	185.86	187.59	188.78
10	187.53	187.01	187.42	184.98	186.47	187.47	187.24	186.94	185.09	186.16	187.85	188.71
15	187.56	187.03	187.43	185.00	186.73	e187.58	186.49	187.06	184.78	186.45	188.12	188.59
20	187.59	187.14	187.43	185.23	186.90	e187.66	185.98	187.03	184.87	186.73	188.35	188.60
25	187.50	187.23	187.44	185.52	187.05	e187.74	186.12	186.65	185.21	187.00	188.54	188.71
EOM	187.22	187.32	186.62	185.88	187.19	e187.83	186.37	186.05	185.58	187.38	188.70	188.81

WTR YR 1984 HIGHEST 184.73 JUN 16-18, 1984 LOWEST 188.81 SEP 30, 1984

e Estimated.

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.

DATUM.--Altitude of land-surface datum is 37 ft National Geodetic Vertical Datum of 1929. 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 furnished by the Virginia State 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	160.37	APR 25	161.15	JUL 30	161.28
FEB 1	159.89	JUN 11	162.00		

## 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.

DATUM.--Altitude of land-surface datum is 10 ft National Geodetic Vertical Datum of 1929. Measuring point: Top edge of recorder shelf, 3.15 ft above land-surface datum.

REMARKS.--Records furnished by the Virginia State 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, 75.99 ft below land-surface datum, Aug. 2, 1984.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 23	73.67	APR 4	71.43	JUN 7	73.75	AUG 2	75.99

## 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 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.

DATUM.--Altitude of land-surface datum is 15 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.6 ft above land-surface datum.



## GROUND-WATER LEVELS

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## KING AND QUEEN COUNTY--Continued

373126076454101--Continued

REMARKS.--Records furnished by the Virginia State 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, 87.49 ft below land-surface datum, Jan. 30, 1984.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	84.65	JAN 30	87.49	MAR 14	85.07	JUN 8	86.63
11	84.95	MAR 5	86.01	MAY 4	85.78	JUL 10	87.32

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.

DATUM.--Altitude of land-surface datum is 51 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.20 ft above land-surface datum.

REMARKS.--Records furnished by the Virginia State 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, 122.87 ft below land-surface datum, July 10, 1984.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	121.96	JAN 30	121.88	MAY 4	122.40	JUL 10	122.87

## 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.

DATUM.--Altitude of land-surface datum is 25 ft National Geodetic Vertical Datum of 1929. 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, 154.36 ft below land-surface datum, May 4, 1984.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	153.52	JAN 30	153.27	AUG 6	153.68
11	153.96	MAY 4	154.36		

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 ft to 446 ft, depth 446 ft, screened 210 to 240 ft, 380 to 390 ft, 405 to 445 ft.

DATUM.--Altitude of land-surface datum is 5 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	155.62	JAN 30	155.62	MAY 4	157.16	AUG 6	156.04



## GROUND-WATER LEVELS

## 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.

DATUM.--Altitude of land-surface datum is 1,100 ft National Geodetic Vertical Datum of 1929. Prior to 1974, altitude reported as 940 ft above mean sea level. Measuring point: Top of casing, 1 ft above land-surface datum.

REMARKS.--Records furnished by the Virginia State 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 15	59.98	FEB 13	58.52	MAY 9	55.20	JUL 31	59.93
JAN 4	58.85	MAR 27	56.50	JUN 21	59.35	SEP 5	59.85

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.

DATUM.--Altitude of land-surface datum is 400 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	47.43	APR 30	34.69	JUN 28	35.94	AUG 31	40.73

## 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.

DATUM.--Altitude of land-surface datum is 500 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder shelf, 1.95 ft above land-surface datum. Measuring point changed from 3.10 ft above land-surface datum Mar. 14, 1973.

REMARKS.--Records furnished by the Virginia State 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	29.40	30.43	28.90	25.48	23.73	21.85	18.33	15.32	17.07	20.94	21.10	21.53
10	29.69	30.49	28.46	25.21	23.70	21.70	17.63	14.70	17.68	21.40	21.20	21.90
15	29.89	30.51	27.71	24.83	22.93	21.43	17.07	14.60	18.44	21.85	21.12	22.48
20	30.13	30.40	27.32	24.60	22.73	20.92	16.52	14.90	19.09	22.28	20.71	22.54
25	30.23	30.13	26.73	24.18	22.49	20.78	15.33	15.60	19.70	21.65	20.70	22.90
EOM	30.40	29.44	26.30	24.03	22.13	19.08	15.13	16.37	20.31	21.22	20.98	23.23

WTR YR 1984 HIGHEST 14.29 MAY 13, 1984 LOWEST 30.51 NOV 9, 14, 15, 1983

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.

DATUM.--Altitude of land-surface datum is 415 ft National Geodetic Vertical Datum of 1929. 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.

## LOUISA COUNTY--Continued

380043078111301--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	13.57	JAN 30	11.85	MAY 29	10.70	AUG 30	12.70
NOV 29	12.15	FEB 28	10.75	JUN 27	11.65	SEP 27	12.70
DEC 22	11.59	APR 27	10.08	JUL 30	10.65		

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.

DATUM.--Altitude of land-surface datum is 440 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.35 ft above land-surface datum.

PERIOD OF RECORD.--February 1977 to current year.

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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	2.65	JAN 30	1.14	APR 27	1.31	JUL 30	0.66
NOV 29	.46	FEB 28	.58	MAY 29	.68	AUG 30	2.31
DEC 22	.14	MAR 28	.04	JUN 27	3.41	SEP 27	5.03

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.

DATUM.--Altitude of land-surface datum is 440 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.20 ft above land-surface datum.

PERIOD OF RECORD.--February 1977 to current year.

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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	7.90	JAN 30	4.76	APR 27	3.34	JUL 30	5.32
NOV 29	4.80	FEB 29	3.45	MAY 29	5.17	AUG 30	5.77
DEC 22	4.59	MAR 28	2.75	JUN 27	6.88	SEP 27	6.94

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.

DATUM.--Altitude of land-surface datum is 455 ft National Geodetic Vertical Datum of 1929. Measuring point:

Top of casing, 0.6 ft above land-surface datum.

REMARKS.--Records furnished by the Virginia State 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	32.45	JAN 24	31.25	APR 9	28.56	AUG 16	27.45
DEC 8	32.45	FEB 6	31.17	JUN 4	27.83		

## 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.

DATUM.--Altitude of land-surface datum is 1,970 ft National Geodetic Vertical Datum of 1929. Measuring point:

Top of casing, 1.60 ft below land-surface datum.

REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 19.

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, 7.30 ft below land-surface datum, Dec. 5, 1969.

## GROUND-WATER LEVELS

## MONTGOMERY COUNTY--Continued

370812080261901--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.60	5.02	3.61	3.39	3.60	2.15	1.80	2.47	3.48	4.28	4.80	4.60
10	5.78	5.03	3.70	3.56	4.07	2.32	1.60	2.21	3.80	4.22	4.80	4.80
15	5.39	5.16	3.36	3.63	2.80	2.30	1.57	2.50	3.92	4.40	4.15	5.10
20	5.62	5.17	3.76	3.81	2.70	2.42	1.86	2.67	4.10	4.19	4.52	5.14
25	4.10	4.61	3.19	3.39	1.97	2.16	2.04	2.89	3.90	4.40	4.77	5.33
EOM	4.83	4.20	3.37	3.68	2.09	1.96	2.27	3.00	4.27	4.60	4.77	5.24

WTR YR 1984    HIGHEST \*1.50 APR 10-17, 1984    LOWEST 5.78 OCT 10, 1983

\* Water flowing over top of casing at elevation 1.50 ft.

## NELSON COUNTY

374224078555601. Local number, 39K1.

LOCATION.--Lat 37°42'24", long 78°55'56", Hydrologic Unit 02080203, near Colleen. Owner: P. D. Payne.

AQUIFER.--Lovington (or Marshall?) Formation of Precambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in, depth 275 ft, length of casing unknown.

DATUM.--Altitude of land-surface datum is 770 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1 ft above land-surface datum.

REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 6. Recorder removed June 26, 1974; manual measurements thereafter.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 27.08 ft below land-surface datum, June 29, 1973; lowest recorded, 35.66 ft below land-surface datum, Mar. 7, 1969.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	32.96	FEB 21	32.16	JUN 27	29.96
NOV 15	33.00	APR 4	31.36	JUL 30	30.28
JAN 6	32.26	MAY 10	30.56	SEP 20	30.16

## NEW KENT COUNTY

372428076561501. Local number, 55H1.

LOCATION.--Lat 37°24'28", long 76°56'15", Hydrologic Unit 02080206, Walkers Dam, near Walkers. Owner: City of Newport News.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in to 145 ft, diameter 4 in from 145 to 630 ft, depth 630 ft, screen (slotted casing) 252 to 257 ft, 339 to 344 ft, 439 to 444 ft, 615 to 625 ft.

DATUM.--Altitude of land-surface datum is 10 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.8 ft above land-surface datum.

REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 17. Recorder removed Apr. 5, 1979; manual measurements thereafter.

PERIOD OF RECORD.--March 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 30.24 ft below land-surface datum, Apr. 10, 1969; lowest measured, 57.43 ft below land-surface datum, Aug. 30, 1982.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 23	55.31	MAY 6	54.00	SEP 1	54.66
MAR 20	53.84	AUG 3	54.46		

## CITY OF NORFOLK

365223076122101. Local number, 61C1.

LOCATION.--Lat 36°52'23", long 76°12'21", Hydrologic Unit 02080108, Moore's Bridge Filter Plant, Norfolk. Owner: City of Norfolk.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in, depth 970 ft, screened 900 to 960 ft.

DATUM.--Altitude of land-surface datum is 10.80 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.15 ft above land-surface datum. Measuring point changed from 4.0 ft above land-surface datum Dec. 15, 1979.

REMARKS.--U.S. Geological Survey test well 1. Water level affected by pumping and recharge operations in nearby wells May 18, 1971, to Nov. 5, 1973. Recorder removed Dec. 15, 1979; manual measurements thereafter.

PERIOD OF RECORD.--January 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.70 ft below land-surface datum, Feb. 17, 1968; lowest measured, 51.15 ft below land-surface datum, Sept. 5, 1984.



## CITY OF NORFOLK--Continued

365223076122101--Continued

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	49.51	FEB 6	50.22	JUN 5	50.79	AUG 2	50.94
DEC 6	49.45	MAY 3	50.58	JUL 3	51.05	SEP 5	51.15

## 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 Evinston Group of Cambrian or Precambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in, depth 98 ft, length of casing unknown.

DATUM.--Altitude of land-surface datum is 480 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.3 ft above land-surface datum.

REMARKS.--Records furnished by the Virginia State 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	30.96	28.56	23.52	20.50	-	17.61	14.58	14.91	20.00	23.76	24.00	24.80
10	31.35	28.83	23.08	21.30	-	18.10	14.89	13.90	20.72	24.13	24.44	25.10
15	31.70	27.22	21.61	20.82	18.59	17.97	15.28	14.87	21.53	24.60	23.00	25.65
20	31.90	26.50	22.26	-	17.60	16.98	14.60	16.15	22.11	25.05	22.99	25.90
25	30.57	25.50	20.79	-	17.22	17.00	13.93	17.70	22.63	23.37	23.60	26.40
EOM	28.67	24.28	20.86	-	17.03	15.26	14.56	18.96	23.20	23.64	24.12	26.77

WTR YR 1984 HIGHEST 13.63 APR 24, 1984 LOWEST 31.90 OCT. 20-22, 1983

## 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.

DATUM.--Altitude of land-surface datum is 383 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	8.53	JAN 11	5.00	APR 25	3.80	JUL 18	7.20
NOV 16	5.49	FEB 23	3.82	JUN 5	5.42	AUG 29	6.84

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 165 ft.

DATUM.--Altitude of land-surface datum is 420 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.50	9.71	8.03	9.36	9.38	8.36	7.54	8.08	9.96	10.52	10.84	9.72
10	11.71	9.85	8.18	9.63	9.34	8.74	8.12	7.85	10.47	10.81	10.86	9.96
15	11.27	8.82	7.82	9.78	8.39	8.63	8.51	8.71	10.67	10.87	8.33	10.13
20	11.29	9.02	8.56	9.97	8.00	8.49	8.00	9.48	10.61	10.90	8.47	10.31
25	9.75	8.52	8.41	9.89	7.97	8.51	8.18	9.84	10.60	10.97	9.12	10.67
EOM	9.41	8.05	9.17	9.65	7.95	7.47	8.63	9.38	10.71	11.08	9.67	10.47

WTR YR 1984 HIGHEST 7.23 MAR 29, 1984 LOWEST 11.75 OCT 11, 1983



## 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.  
 DATUM.--Altitude of land-surface datum is 295 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 29	6.58	APR 30	0.55	AUG 30	4.65
JAN 31	3.43	JUN 27	4.57		

## 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.  
 DATUM.--Altitude of land-surface datum is 2,170 ft National Geodetic Vertical Datum of 1929. Measuring point: 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 furnished by the Virginia State 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	80.94	FEB 21	75.73	JUN 19	77.50
NOV 15	79.95	MAR 27	69.60	JUL 31	78.59
JAN 4	76.75	MAY 8	60.56	SEP 18	79.85

## 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.  
 DATUM.--Altitude of land-surface datum is 930 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.9 ft above land-surface datum.  
 REMARKS.--Records furnished by the Virginia State 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	18.46	FEB 13	17.71	JUN 18	18.26
NOV 14	17.66	MAR 26	17.24	JUL 30	17.82
JAN 3	17.56	MAY 7	17.11	SEP 17	17.71

## 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 700 ft.  
 DATUM.--Altitude of land-surface datum is 745 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft above land-surface datum.  
 REMARKS.--Records furnished by the Virginia State 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, 1981.

## GROUND-WATER LEVELS

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## ROCKBRIDGE COUNTY--Continued

373758079271601--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	27.74	25.80	23.72	21.49	23.33	20.81	18.85	20.17	22.29	23.54	24.47	24.44
10	27.91	25.92	23.43	22.09	23.66	21.36	18.78	19.78	22.69	23.60	24.70	24.63
15	27.41	24.95	22.14	22.32	22.70	21.46	19.06	20.37	23.10	23.84	23.55	24.93
20	27.51	24.90	22.43	22.75	21.80	21.41	19.23	20.81	23.34	24.14	23.67	25.09
25	26.11	24.72	21.32	22.95	20.94	20.26	19.17	21.40	23.59	24.08	24.01	25.37
EOM	25.77	24.04	21.44	23.21	20.55	19.33	19.67	21.81	23.80	24.30	24.19	25.51

WTR YR 1984    HIGHEST 18.54 APR 6, 1984    LOWEST 27.92 OCT 11, 1983

## 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.

DATUM.--Altitude of land-surface datum is 1,105 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	74.54	74.49	70.89	-	66.32	62.90	60.92	61.67	64.02	65.94	66.24	65.63
10	75.08	74.45	-	66.68	66.48	63.37	60.96	61.82	64.39	66.13	65.93	65.92
15	75.48	74.40	-	66.70	64.17	63.59	61.41	62.25	64.78	66.20	64.01	66.23
20	75.95	74.49	-	66.77	63.33	63.56	61.42	62.62	65.09	66.48	64.31	66.49
25	75.23	74.03	-	66.72	62.50	63.74	60.88	63.07	65.42	66.79	64.77	66.81
EOM	74.71	72.34	-	66.31	62.50	61.01	61.38	63.57	65.71	66.91	65.23	67.11

WTR YR 1984    HIGHEST 60.45 APR 6, 1984    LOWEST 75.95 OCT 20, 1983

## 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.--Drill observation water well, diameter 4 in, depth 253 ft, screened 165 to 175 ft, open hole from 175 to 253 ft.

DATUM.--Altitude of land-surface datum is 126 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	58.76	58.16	57.18	56.11	55.61	55.29	54.89	55.07	55.35	56.75	56.57	56.52
10	58.85	58.13	57.02	56.13	55.62	54.95	54.93	55.14	55.54	56.91	56.59	56.62
15	58.83	58.01	56.69	55.95	-	55.05	55.01	55.30	55.84	57.03	56.63	56.58
20	58.81	57.83	56.51	55.81	-	55.03	54.87	55.47	56.12	57.06	56.47	56.66
25	58.57	57.56	56.34	55.64	-	55.07	54.85	55.68	56.39	56.84	56.50	56.82
EOM	58.37	57.33	56.25	55.63	-	54.92	55.00	55.51	56.63	56.69	56.46	56.90

WTR YR 1984    HIGHEST 54.81 MAR 29, 1984    LOWEST 58.85 OCT 10-12, 1983

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.

DATUM.--Altitude of land-surface datum is 58.4 ft 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.

## SOUTHAMPTON COUNTY--Continued

364706077072301--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	95.47	JAN 5	95.25	MAY 4	94.67	AUG 1	95.31
NOV 4	95.47	FEB 5	95.25	JUN 4	94.99	SEP 4	95.62
DEC 5	95.37	MAR 1	94.87	JUL 2	95.68		

## 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.

DATUM.--Altitude of land-surface datum is 45 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	3.35	MAY 3	6.22	JUL 3	3.30
FEB 2	6.31	JUN 5	6.03	SEP 5	3.67

NOTE.--Flowing well, readings given are above land-surface datum.

363810076381001. Local number, 57B9.

LOCATION.--Lat 36°38'36", long 76°38'10", Hydrologic Unit 03010205, 0.2 mi southwest of State Highway 664, 0.7 mi southeast of U.S. Highway 13, and 6.7 mi southwest of Suffolk. Owner: Soren Andresen.

AQUIFER.--Sand of Chesapeake Group.

WELL CHARACTERISTICS.--Drilled flowing unused water well, diameter 1.25 in, depth 85 ft, screened 70 to 85 ft.

DATUM.--Altitude of land-surface datum is 45 ft National Geodetic Vertical Datum of 1929. 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.

WATER LEVEL, IN FEET ABOVE LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	2.37	MAY 3	5.10	JUL 3	2.35
FEB 2	5.82	JUN 5	4.80	SEP 5	2.72

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.

DATUM.--Altitude of land-surface datum is 40 ft National Geodetic Vertical Datum of 1929. 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.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.62	10.43	8.59	6.99	6.89	6.26	5.39	6.17	6.89	8.92	8.17	9.70
10	10.69	10.39	7.43	7.31	7.21	5.24	5.34	6.51	7.19	9.19	8.38	9.92
15	10.74	10.34	7.06	6.39	6.14	5.31	5.14	6.96	7.69	-	8.61	10.11
20	10.74	10.23	6.18	5.97	5.77	5.82	5.37	7.39	8.16	-	8.88	10.23
25	10.71	9.98	6.20	6.16	5.90	6.15	4.26	7.85	8.39	-	9.14	10.32
EOM	10.56	8.74	6.86	6.61	5.76	5.30	5.44	7.90	8.63	-	9.45	10.41

WTR YR 1984 HIGHEST 3.48 APR 24, 1984 LOWEST 10.74 OCT 15-23, 1983



## GROUND-WATER LEVELS

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## CITY OF SUFFOLK--Continued

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.

DATUM.--Altitude of land-surface datum is 53 ft National Geodetic Vertical Datum of 1929. 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.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	129.25	FEB 2	130.88	AUG 2	124.61
DEC 6	132.55	MAY 3	126.07	SEP 5	124.60

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 State 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.

DATUM.--Altitude of land-surface datum is 10 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.40 ft above land-surface datum.

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, 77.52 ft below land-surface datum, Nov. 19, 1983.

REVISIONS.--Figures of water level for Mar. 5 and 10, 1983, published in WRD VA-83-1 are in error owing to the float hanging in the well. These values should not be used.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	74.46	76.91	76.79	74.48	73.41	72.79	72.13	71.81	71.46	74.23	71.14	71.22
10	74.99	76.97	76.29	74.30	73.39	72.68	72.24	71.74	71.47	72.50	71.12	71.24
15	75.38	77.27	75.73	74.23	73.20	72.66	72.22	71.81	71.44	71.80	71.15	71.10
20	75.80	77.38	75.54	74.08	73.12	72.63	72.19	71.64	71.42	71.53	71.10	71.11
25	76.11	77.03	75.11	73.73	72.90	72.42	71.88	71.64	71.37	71.33	71.22	71.21
EOM	76.67	76.99	74.87	73.57	72.79	72.40	71.96	71.43	73.46	71.28	71.19	71.18

WTR YR 1984 HIGHEST 70.42 AUG 29, 1984 LOWEST 77.52 NOV 19, 1983

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 State 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.

DATUM.--Altitude of land-surface datum is 10 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.40 ft above land-surface datum.

PERIOD OF RECORD.--February 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 77.25 ft below land-surface datum, Aug. 29, 1984; lowest recorded, 87.07 ft below land-surface datum, Dec. 1, 1983.

REVISIONS.--Figures of water level for Aug. 25 and 31, 1983, published in WRD VA-83-1, are in error owing to the float hanging in the well. These values should not be used.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	83.52	85.82	86.77	84.80	82.88	81.74	81.09	79.35	78.69	78.48	77.92	77.96
10	83.80	85.93	86.53	84.41	82.76	81.52	81.09	79.14	78.66	78.49	77.99	78.01
15	84.29	86.21	86.05	84.13	82.29	81.45	81.29	79.06	78.44	78.44	77.95	77.93
20	84.73	86.83	85.57	84.00	82.15	81.72	80.66	78.97	78.38	78.28	77.86	77.91
25	84.93	87.00	85.19	83.59	81.77	81.49	79.75	79.01	78.35	78.08	77.97	78.01
EOM	85.43	87.07	85.27	83.24	81.65	81.32	79.46	78.68	78.40	78.01	77.94	77.94

WTR YR 1984 HIGHEST 77.25 AUG 29, 1984 LOWEST 87.07 NOV 30, DEC 1, 1983



## GROUND-WATER LEVELS

## 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.

DATUM.--Altitude of land-surface datum is 93 ft National Geodetic Vertical Datum of 1929. 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, 149.47 ft below land-surface datum, Sept. 27, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	148.46	148.49	148.47	148.52	148.32	148.32	147.77	147.83	147.95	148.57	148.65	149.18
10	148.58	148.53	148.54	148.52	148.50	148.23	147.92	147.88	148.05	148.71	148.73	149.23
15	148.53	148.53	148.43	148.49	148.38	148.18	147.79	147.95	148.21	148.73	148.81	149.23
20	148.55	148.50	148.57	148.47	148.31	148.08	147.84	147.94	148.30	148.77	148.85	149.26
25	148.43	148.37	148.47	148.45	148.24	148.04	147.76	148.01	148.33	148.75	149.00	149.38
EOM	148.54	148.50	148.60	148.46	148.19	147.98	147.84	147.88	148.40	148.72	149.06	149.42

WTR YR 1984 HIGHEST 147.64 APR 23, 24, 1984 LOWEST 149.47 SEP 27, 1984

## 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.

DATUM.--Altitude of land-surface datum is 24 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	37.26	37.34	36.63	36.30	36.13	35.94	35.02	35.42	35.38	35.29	35.05	35.24
10	37.34	37.18	36.82	36.35	36.49	35.92	35.28	35.48	35.42	35.30	34.88	35.09
15	37.36	37.01	36.28	36.27	36.11	35.78	35.09	35.57	35.50	35.32	34.85	35.15
20	37.16	37.14	36.64	36.30	35.87	35.42	35.28	35.41	35.43	35.29	34.90	35.18
25	36.95	36.99	36.85	36.27	35.92	35.57	35.34	35.55	35.30	35.32	35.10	35.28
EOM	37.41	36.90	36.62	36.35	35.91	35.31	35.29	35.46	35.25	35.16	35.14	35.09

WTR YR 1984 HIGHEST 34.04 MAR 29, 1984 LOWEST 37.58 OCT 30, 1983

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.

DATUM.--Altitude of land-surface datum is 17 ft National Geodetic Vertical Datum of 1929. 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 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	11.04	FEB 3	0.69	MAY 4	0.77	JUL 10	5.93

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.

DATUM.--Altitude of land-surface datum is 149 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.2 ft above land-surface datum. Top of casing previously reported as 1 ft.

REMARKS.--Records furnished by the Virginia State 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.

## GROUND-WATER LEVELS

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## WESTMORELAND COUNTY--Continued

380538076490801--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 31	152.35	JUN 6	152.28	AUG 31	151.20
APR 3	152.65	AUG 1	152.95		

## 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.

DATUM.--Altitude of land-surface datum is 15 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.20 ft above land-surface datum. Prior to May 1981, measuring point at land-surface datum.

REMARKS.--Records furnished by the Virginia State 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, 83.85 ft below land-surface datum, Sept. 24, 25, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984  
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	83.15	83.05	81.33	80.31	79.54	78.75	77.65	78.59	79.49	81.64	82.13	83.21
10	82.83	82.37	81.43	80.22	79.76	78.36	77.77	78.85	79.85	81.69	82.17	83.36
15	83.32	82.29	81.15	80.14	79.32	78.50	77.87	79.00	80.09	81.83	82.51	83.44
20	83.02	82.51	81.01	80.33	79.10	78.02	78.18	78.89	80.24	81.92	82.52	83.59
25	82.68	82.31	81.34	80.01	78.93	78.11	78.21	79.30	80.51	82.11	83.05	83.85
EOM	83.19	82.02	80.67	79.96	79.02	77.81	78.33	79.33	79.33	81.09	83.35	83.11

WTR YR 1984    HIGHEST 76.45 APR 15, 1984    LOWEST 83.85 SEP 24, 25, 1984

## QUALITY OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

LOCAL IDENT- I- FIER	STATION NUMBER	GEO- LOGIC UNIT	DATE OF SAMPLE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOT- TOM OF SAMPLE INTER- VAL (FT)	DEPTH TO TOP OF SAMPLE INTER- VAL (FT)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)
CHARLES CITY									
55G 5	372124076532301	124EOCN	84-07-05	1700	--	122	--	122	10.00
HANOVER									
52J 10	373507077171201	217PPSC	84-08-30	1030	190.30	276	270	255	172.00
52K 3	374720077300501	217PPSC	84-08-30	1450	166.60	426	422	355	163.00
52K 14	373741077180101	217PPSC	84-08-30	1215	--	452	447	336	190.00
NEW KENT									
55H 19	372604076585901	124EOCN	84-06-22	2000	90.00	178	204	178	110.00
55J 6	373024076542201	125PLCN	84-08-23	1500	118.30	275	275	265	110.00
HAMPTON									
59E 6	370511076245401	211CRCSU	84-08-09	1700	67.00	1000	932	917	12.00
		124EOCN	84-08-31	1400	6.00	1000	513	498	12.00
		124EOCN	84-09-06	0930	4.00	1000	433	418	12.00
NEWPORT NEWS									
58F 50	371208076341101	217PTXN	84-06-19	1700	115.40	1230	1220	1210	55.00
58F 51	371208076341102	217PPSC	84-06-20	1000	128.50	851	830	820	55.00
58F 52	371208076341103	211CRCSU	84-06-20	1330	130.60	537	537	527	55.00
58F 53	371208076341104	124EOCN	84-07-05	1530	55.60	343	343	333	55.00
58F 54	371208076341105	121CSPKU	84-06-22	1200	21.80	88.00	88	78	55.00
58F 55	371208076341106	110QRNR	84-06-22	1800	24.40	60.00	60	50	55.00

QUALITY OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

LOCAL IDENT- IFIER	DATE OF SAMPLE	DEPTH OF HOLE, TOTAL (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	SPE- CIFIC CON- DUCT- ANCE LAB (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE, AIR (DEG C)	TEMPER- ATURE (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	COLOR (PLAT- INUM- COBALT UNITS)	CALCIUM DIS- SOLVED (MG/L AS CA)
CHARLES CITY										
55G 5	84-07-05	122	350	299	7.8	32.0	18.0	752	10	26
HANOVER										
52J 10	84-08-30	280	230	220	7.4	32.0	20.0	751	<1	17
52K 3	84-08-30	452	258	255	7.6	31.5	18.5	749	<1	.95
52K 14	84-08-30	474	290	285	7.5	25.0	19.0	749	<1	18
NEW KENT										
55H 19	84-06-22	204	450	289	8.5	--	16.5	--	1	22
55J 6	84-08-23	275	260	260	8.0	27.0	19.0	750	1	15
HAMPTON										
59E 6	84-08-09	--	>8000	12800	7.0	28.0	24.0	755	<1	82
	84-08-31	--	>8000	14200	7.3	28.0	23.0	762	<1	99
	84-09-06	1000	>8000	14500	7.4	25.0	22.0	--	4	100
NEWPORT NEWS										
58F 50	84-06-19	1240	6000	6410	7.7	31.0	22.0	753	5	45
58F 51	84-06-20	851	5000	4810	7.4	28.0	20.5	756	5	20
58F 52	84-06-20	537	2400	2420	8.0	28.0	19.5	756	10	6.1
58F 53	84-07-05	343	1700	1700	8.2	31.5	19.5	751	40	4.7
58F 54	84-06-22	88	460	482	8.1	28.0	20.0	757	3	29
58F 55	84-06-22	60	470	489	7.3	25.0	23.5	756	1	84

< Less than.  
> Greater than.



QUALITY OF GROUND WATER  
WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

LOCAL IDENT- I- FIER	DATE OF SAMPLE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
CHARLES CITY										
55G 5	84-07-05	3.3	27	7.6	134	6.9	6.4	.40	45	222
HANOVER										
52J 10	84-08-30	5.1	12	15	102	7.3	1.8	.10	13	167
52K 3	84-08-30	.51	40	22	104	19	1.9	.30	29	206
52K 14	84-08-30	7.8	17	18	125	20	1.8	.20	18	196
NEW KENT										
55H 19	84-06-22	6.8	22	5.8	133	7.0	15	.30	27	179
55J 6	84-08-23	5.6	32	8.3	136	4.6	4.9	.40	28	180
HAMPTON										
59E 6	84-08-09	59	3000	62	407	350	4400	.20	24	7960
	84-08-31	100	3100	83	706	470	4700	.70	25	9120
	84-09-06	110	2900	79	525	350	4800	.60	41	8590
NEWPORT NEWS										
58F 50	84-06-19	20	1400	19	244	120	2000	.70	17	3860
58F 51	84-06-20	11	940	16	328	90	1300	1.2	32	2660
58F 52	84-06-20	2.4	520	13	422	64	540	2.0	15	1390
58F 53	84-07-05	2.5	380	13	653	18	160	2.2	36	1080
58F 54	84-06-22	3.4	71	6.2	254	13	17	.50	12	300
58F 55	84-06-22	1.9	13	1.5	244	5.0	26	.10	10	291

QUALITY OF GROUND WATER

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WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

LOCAL IDENT- I- FIER	DATE OF SAMPLE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	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)	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)
CHARLES CITY									
55G 5	84-07-05	<.10	<.10	.110	.020	<100	100	340	91
HANOVER									
52J 10	84-08-30	--	.17	.160	<.010	200	80	2100	1600
52K 3	84-08-30	--	<.10	.300	.030	200	120	300	190
52K 14	84-08-30	--	<.10	.170	.150	500	90	290	190
NEW KENT									
55H 19	84-06-22	<.10	--	--	<.010	200	50	180	11
55J 6	84-08-23	--	<.10	.140	.020	<100	90	260	38
HAMPTON									
59E 6	84-08-09	--	<.10	2.70	<.010	<100	1500	8700	8200
	84-08-31	--	<.10	4.10	<.010	--	5100	3600	--
	84-09-06	--	<.10	4.30	.220	600	5100	11000	3200
NEWPORT NEWS									
58F 50	84-06-19	<.10	<.10	.600	<.010	<100	1600	4000	1200
58F 51	84-06-20	<.10	<.10	.490	<.030	<100	1600	3900	2400
58F 52	84-06-20	<.10	<.10	.420	.100	<100	1700	690	480
58F 53	84-07-05	<.10	<.10	.490	.060	<100	2600	700	360
58F 54	84-06-22	<.10	.19	.100	.010	<100	400	1500	15
58F 55	84-06-22	<.10	<.10	<.010	<.020	100	<20	550	260

< Less than.

QUALITY OF GROUND WATER  
WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

LOCAL IDENT- I- FIER	DATE OF SAMPLE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
CHARLES CITY					
55G 5	84-07-05	10	4	17	.60
HANOVER					
52J 10	84-08-30	40	37	200	--
52K 3	84-08-30	<10	5	13	5.5
52K 14	84-08-30	40	39	50	4.0
NEW KENT					
55H 19	84-06-22	10	2	280	--
55J 6	84-08-23	<10	2	21	1.0
HAMPTON					
59E 6	84-08-09	220	200	1000	.90
	84-08-31	110	100	100	4.8
	84-09-06	100	70	180	4.4
NEWPORT NEWS					
58F 50	84-06-19	150	140	<10	.60
58F 51	84-06-20	100	70	150	.30
58F 52	84-06-20	30	20	30	.30
58F 53	84-07-05	20	15	26	8.5
58F 54	84-06-22	120	110	96	7.3
58F 55	84-06-22	630	610	280	2.5

< Less than.

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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> )
cfs-days	$2.447 \times 10^3$	cubic meters (m <sup>3</sup> )
	$2.447 \times 10^{-3}$	cubic hectometers (hm <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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