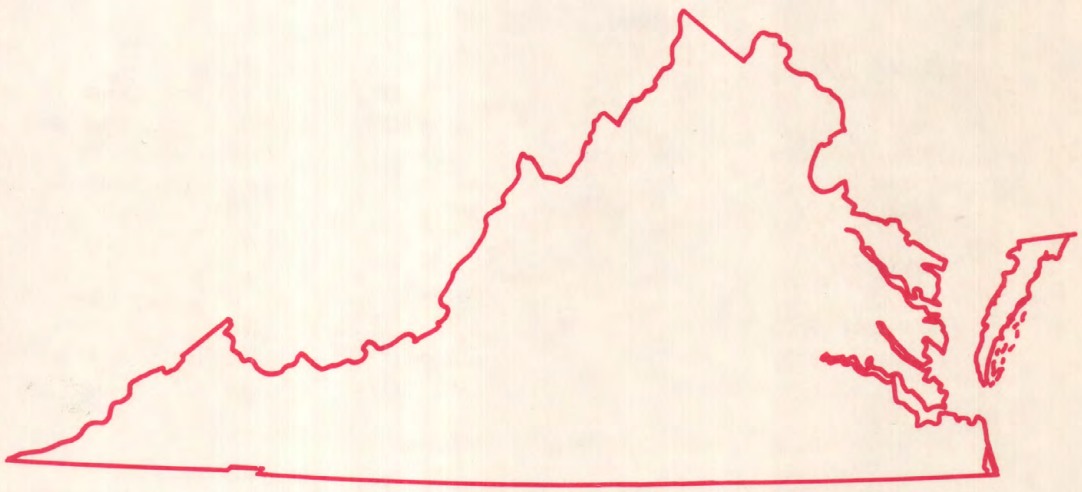
Water Resources Data Virginia Water Year 1987



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-87-1
Prepared in cooperation with the State of Virginia
and with other agencies

October 1, 1978

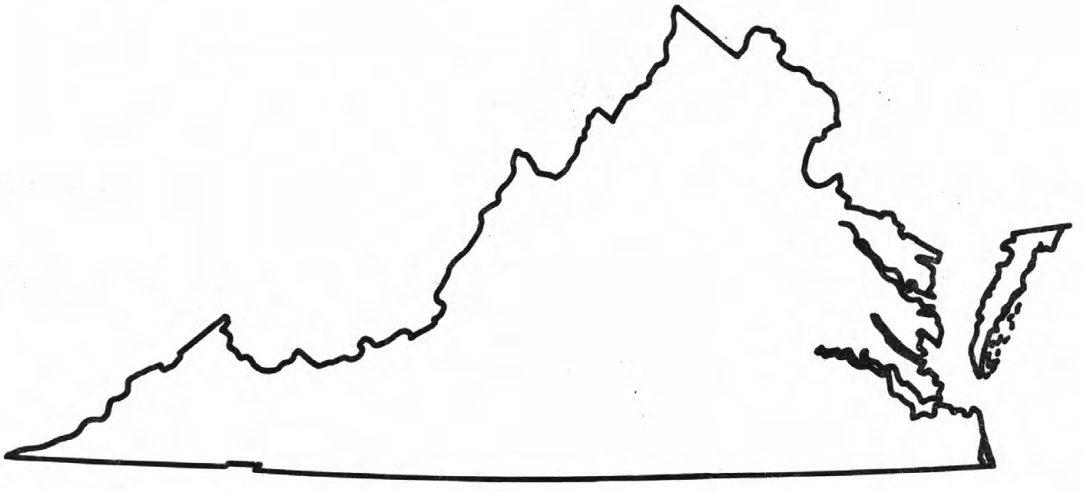
FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

Water Resources Data
Virginia
Water Year 1987

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-87-1
Prepared in cooperation with the State of Virginia
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in Virginia write to

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

or

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

1988

PREFACE

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

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

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

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

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16. Abstract (Limit: 200 words)

Water-resources data for the 1987 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 174 gaging stations, stage only at 1 gaging station, stage and contents at 10 lakes and reservoirs, water quality at 34 gaging stations and 45 wells, and water levels at 189 observation wells. Also included are data for 89 crest-stage partial-record stations. Locations of these sites are shown on figures 6, 7, 8, and 9. Miscellaneous hydrologic data were collected at 44 measuring sites and 17 water-quality sampling sites not involved in the systematic data-collection program. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

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(Formerly NTIS-35)
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TABLES

[Letters after station name designate type of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (e) elevation, gage heights, or contents]

GROUND-WATER WELLS, BY COUNTY OR INDEPENDENT CITY, FOR WHICH RECORDS ARE PUBLISHED

[SOW indicates State Observation Well operated by the Virginia Water Control Board]

GROUND-WATER WELLS, BY COUNTY OR INDEPENDENT CITY,
FOR WHICH RECORDS ARE PUBLISHED

WATER RESOURCES DATA - VIRGINIA, 1987

INTRODUCTION

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

This report series includes records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This volume contains records for water discharge at 174 gaging stations; stage only at 1 gaging station; stage and contents at 10 lakes and reservoirs; water quality at 34 gaging stations and 45 wells; and water levels at 189 observation wells. Also included are data for 89 crest-stage partial-record stations. Locations of these sites are shown on figures 6, 7, 8, and 9. Miscellaneous hydrologic data were collected at 44 measuring sites and 17 water-quality sampling sites not involved in the systematic data-collection program. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

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

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

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report VA-87-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

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

COOPERATION

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

Virginia Water Control Board, Richard N. Burton, executive director.
Virginia Department of Transportation, Oscar K. Mabry, deputy commissioner.
City of Alexandria, Vola Lawson, 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, G. Mark Gibb, executive director.

Assistance with funds or services was given by the U.S. Army Corps of Engineers in collecting records for 59 gaging stations and 4 water-quality stations throughout the State.

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

Organizations that provided data are acknowledged in station descriptions.

RECORDS COLLECTED BY THE STATE OF VIRGINIA

In addition to data collected by the U.S. Geological Survey, there are included herein records for 82 gaging stations and 121 index wells operated by the Virginia Water Control Board. These records are published as provided and are acknowledged in the "COOPERATION" paragraph of each individual station. The Virginia Water Control Board is under the direction of Richard N. Burton, executive director. Published material for the gaging-station records and the ground-water wells is supplied, respectively, through the Division of Water Resources Planning and Management, William L. Woodfin, Jr., deputy executive director of operations.

SUMMARY OF HYDROLOGIC CONDITIONS

The 1987 water year in Virginia was characterized by abrupt changes in flow conditions. Although most streams recorded above-average flows for the year (figure 1), there was a small region in the central James and Rappahannock River basins where flows averaged slightly below average.

Annual mean flow during 1987 water year for seven representative gaging stations

Gaging Station	Part of State	Annual mean flow for 1987 in cubic feet per second	Percent of median annual flow	Length of record in years
S.F. Shenandoah River at Front Royal, Va.	Northwestern	1,850	140	64
Rappahannock River near Fredericksburg, Va.	Northeastern	1,410	85	79
Slate River near Arvonia, Va.	Central	223	97	61
James River at Buchanan, Va.	Western	3,660	148	89
N.F. Holston River near Saltville, Va.	Southwestern	339	113	68
Dan River at Danville, Va.	Southern	3,280	143	53
Nottoway River near Stony Creek, Va.	Southeastern	731	130	58

The year began with a continuation of the below-average flow conditions (figure 2) that had predominated throughout much of the 1986 water year. Statewide streamflows averaged 56 percent of normal in October; the lowest flows occurred in streams east of the Blue Ridge and in the upper James and Shenandoah River basins. An exception was in the southwest where the monthly flow in the Russell Fork at Haysi was 385 percent of normal for October and the highest for October since 1980. Minimum flows for the year at many streams on the Coastal Plain and in the Roanoke and New River basins occurred during the month.

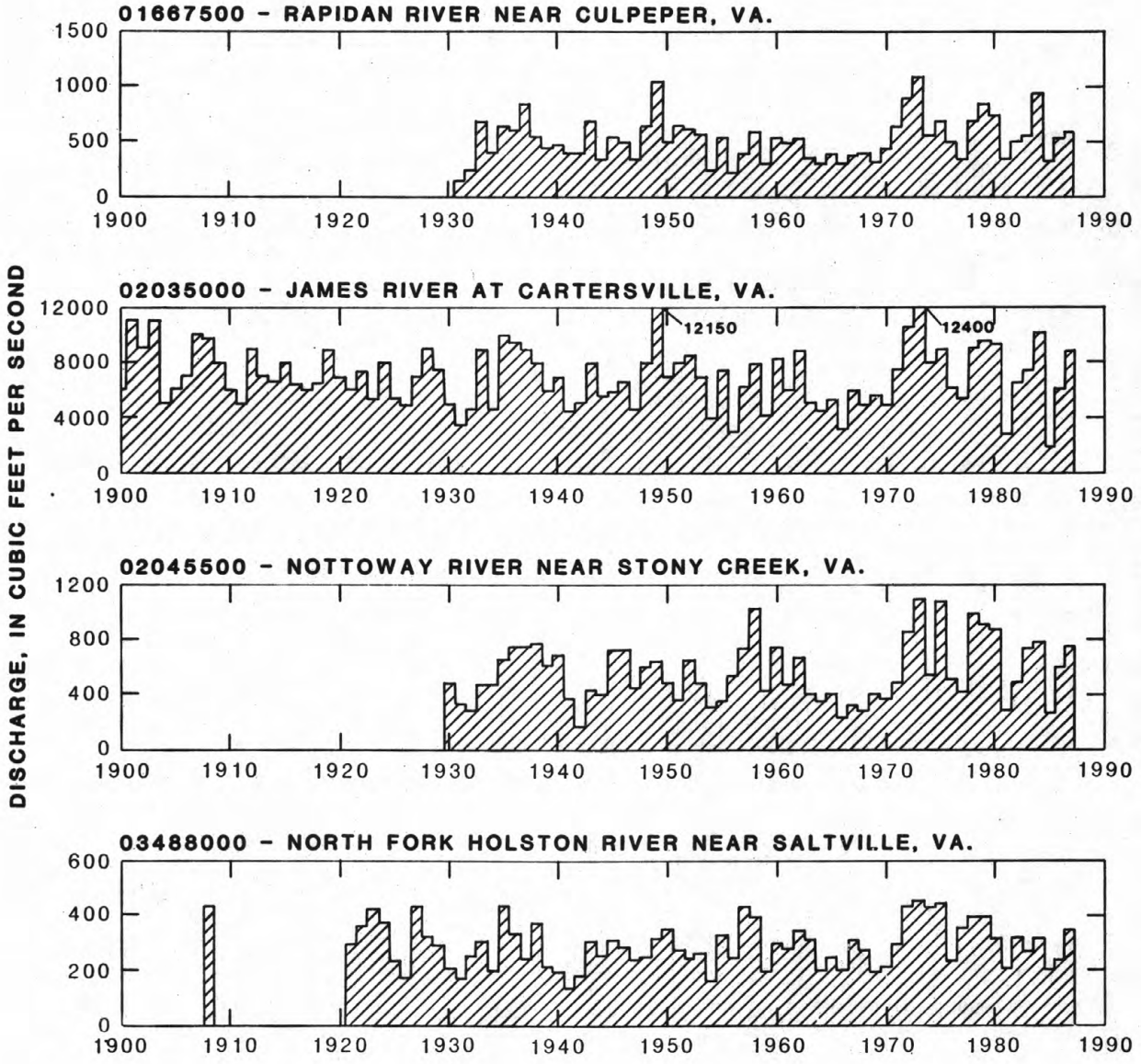


Figure 1.-- Annual mean discharge at selected gaging stations.

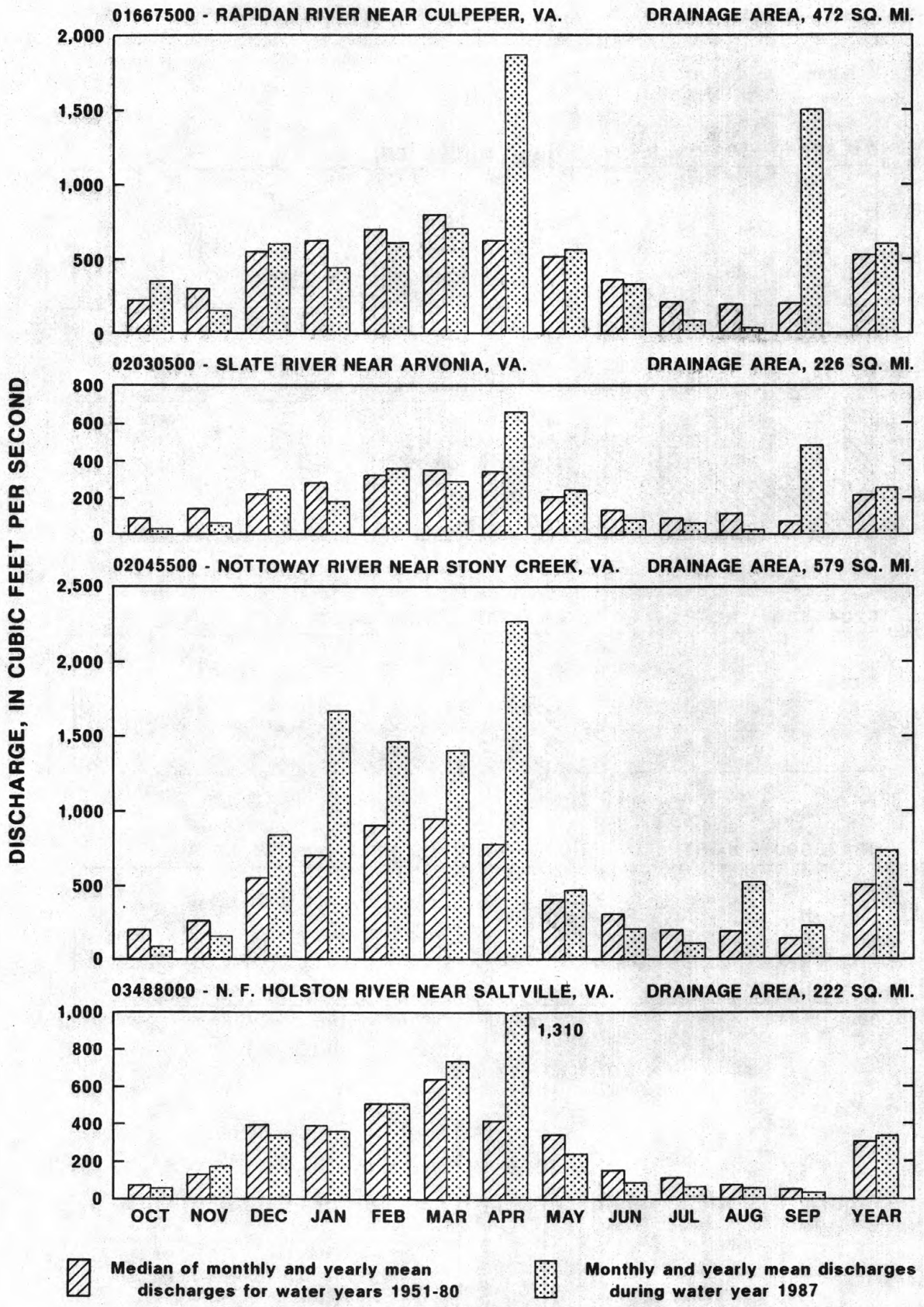


Figure 2.-- Discharge during 1987 water year compared with median discharge for period 1951-80 for four representative streamflow-gaging stations.

Flows increased in November but continued well below normal for this time of year. Many streams in the eastern half of the State had flows in the lower 25 percent of historical monthly flows for November. Flows in the Rappahannock River basin were the lowest for November since the drought in 1966.

Flows continued to increase in December and were slightly above average, except in the southern and southwestern portions of the State where low flows persisted through the month.

By January, flows had returned to near-normal conditions over much of the State except in the southeast and especially the Chowan River basin where runoff from a storm moving along the Atlantic coast increased flows more than 200 percent. A new record high monthly average flow was established on the Blackwater River near Franklin replacing the old record set in January 1978. Most streams in the Tidewater area of the State recorded their annual peaks during January.

Flow conditions were near normal by the end of February, but this was only the "lull before the storm". Major flooding (7 to 13 year recurrence interval) occurred in the Roanoke and Dan River basins in early March. Two additional floods followed in April. One flood at midmonth affected the entire State; recurrence intervals at various streamflow gages varied from 5 to 25 years. Another flood in late April, again in the Dan River basin, ended the most intense period of severe flooding along the Dan River since systematic records began at Danville in 1934.

April 1987 monthly mean flow and flow statistics for seven representative gaging stations

Gaging Station	River basin	Mean flow April 1987 in cubic feet per second	Rank	Water year record high occurred	Length of record in years
S.F. Shenandoah River at Front Royal, Va.	Shenandoah	7,960	1	1983	64
Rappahannock River at Remington, Va.	Rappahannock	2,080	3	1983	45
James River at Buchanan, Va.	James	16,200	1	1983	89
Nottoway River near Stony Creek, Va.	Chowan	2,260	1	1978	58
Dan River at Danville, Va.	Roanoke	10,600	1	1958	53
New River at Allisonia, Va.	New	11,900	1	1983	58
N.F. Holston River near Saltville, Va.	Tennessee	1,310	1	1977	68

Peak flows on Dan River at Danville, Virginia during 1987 water year

Date	Peak stage in feet	Peak discharge in cubic feet per second	Recurrence interval in years
03-02-87	19.03	46,900	12
04-16-87	20.81	55,400	24
04-26-87	17.87	38,400	6
09-09-87	15.88	36,400	5

Although no widespread flooding occurred between May and August, the period started out wet. Many streams west of the Blue Ridge and in the Roanoke River basin had May flows in the upper 25 percent of historical monthly flows as a result of high water during the previous month.

Streamflows generally continued to decrease during June and averaged near normal by monthend. The average was somewhat misleading because streams east of the Blue Ridge and along the North Carolina and Tennessee State lines had below-average flows while streams in the Shenandoah and upper James River basins had above-average flows.

The downward trend in flows continued through July with a flash flood in the Russell Fork basin at midmonth, the only significant event to interrupt a four-month period of falling stages. By August, streamflows across the State were averaging only 50 percent of normal. Flows in the Rappahannock and lower James River basins were the lowest for August since 1966 while in the Tennessee and New River basins flows were the lowest for this time of year since the early 1930's.

All of this changed abruptly in September when runoff from widespread rains caused extensive flooding in the central third of the State. A new record high average monthly flow was established for the Roanoke River at Randolph which exceeded the previous record set in 1928 by almost 20 percent. Streamflow gages on Goose Creek and Pigg River established new record peaks with projected recurrence intervals in excess of 100 years. Floodwaters were 8 feet over the top of the gage on Goose Creek near Huddleston and three bridges on the creek were swept away. By monthend, however, flows were again declining and were back in the normal range. Annual peaks for most streams along the eastern slope of the Blue Ridge were observed in September as were annual mimimum flows in the Tennessee, Big Sandy, and middle James River basins just prior to the flood.

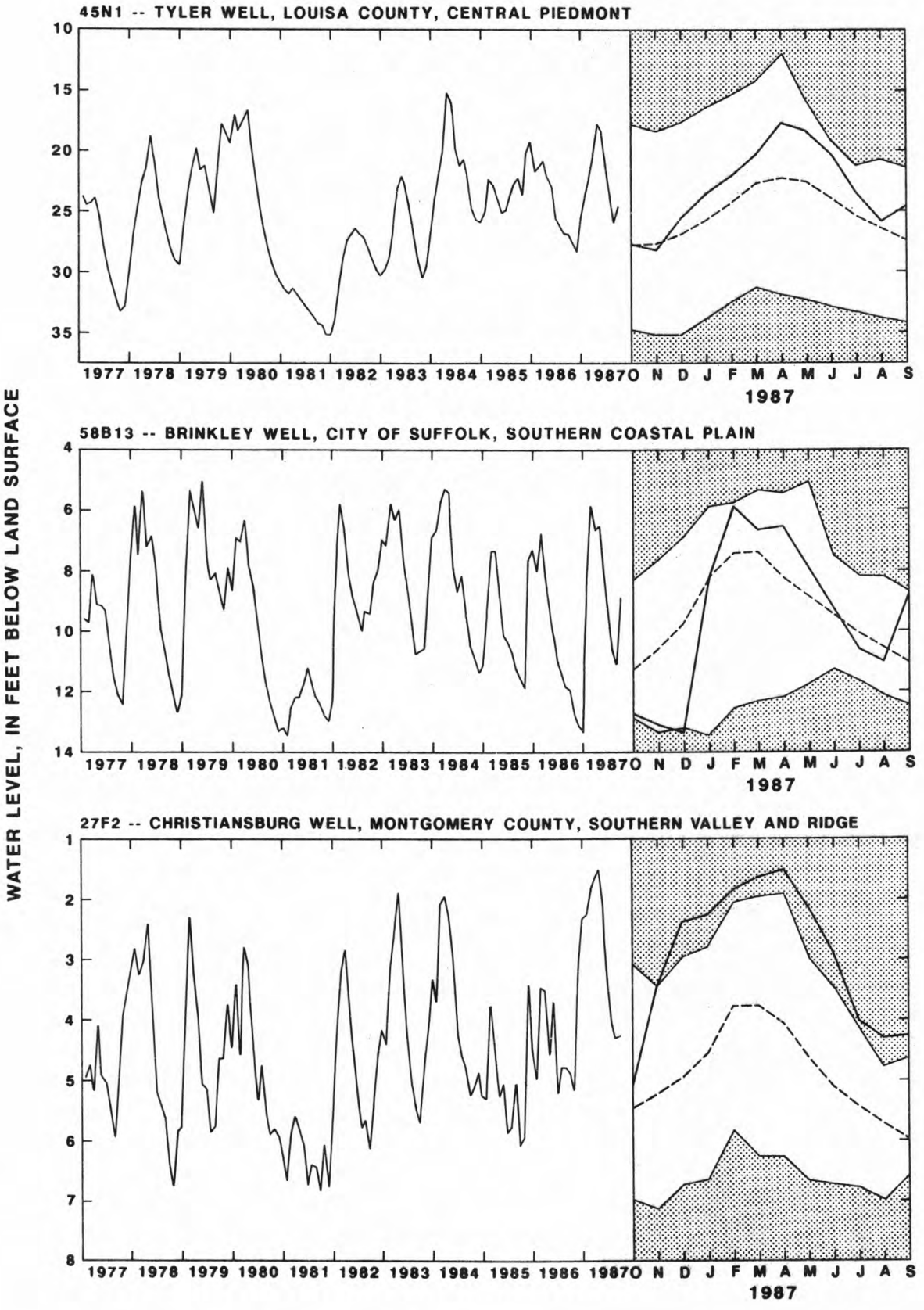
In summary, the 1987 water year in Virginia was one of strong contrasts in flow with new record high monthly flows observed in April, followed by near-record monthly lows in August, and terminated by a record-breaking flood in September.

Ground-water levels began the year near or below normal, continuing a trend which began in the 1986 water year. Recharge from heavy winter and spring precipitation caused levels to rise well above normal by March and April. A prolonged dry spell from May through August was reflected in falling levels during this period. At yearend, levels were rising again in response to recharge from widespread rains in conjunction with the normal seasonal decline in evapotranspiration (figure 3). New record-high water levels were measured in the Christiansburg observation well (record dates from 1969) while near-record lows were observed in the Brinkley well in Suffolk (record began in 1975).

Water temperatures in Virginia during the 1987 water year generally were above the average for the previous 10 years (1977-86). At five index stations measured monthly, temperatures averaged 2.0 degrees Celsius above average in 1987, and at the index station on the New River at Glen Lyn (see table on page 8), daily water temperatures averaged 1.4 degrees Celsius above the 10-year mean. Maximum observed water temperatures during the year occurred in July while minimum water temperatures were recorded in January.

Dissolved-solids concentrations in the New River at Glen Lyn were above the average for 1977-86. Specific conductance--an indicator of dissolved-solids concentrations--was about 10 percent greater in 1987 than the 1977-86 average (see table on page 8).

The suspended-sediment load at the long-term index station on the Rappahannock River at Remington was about 64,300 tons in the 1987 water year. This was a decrease from the 83,900 tons observed in the 1986 water year and considerably below the average for the previous 10 years of 119,300 tons per year. The suspended-sediment load reflects the sediment runoff associated with the below-average flows characteristic of the Rappahannock River for much of 1987. Almost 60 percent of the annual sediment load was transported during floods on three days in April (15,500 tons) and five days in September (22,400 tons).



UNSHADED AREA	Range between highest and lowest recorded monthly water levels, prior to the indicated year.
SOLID LINE	Near monthend water level for the indicated year.
DOTTED LINE	Average of the recorded monthly water levels, prior to the indicated year.

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

Trends in discharge, annual suspended-sediment load, specific conductance, and temperature at two representative gaging stations

Gaging Station	Mean discharge in cubic feet per second		Annual suspended-sediment load in tons		Mean specific conductance in microsiemens per centimeter		Mean water temperature in degrees Celsius	
	Water years 1977-86	1987	Water years 1977-86	1987	Water years 1977-86	1987	Water years 1977-86	1987
Rappahannock River at Remington, Va.	740	625	119,300	64,300	72	---	14.6	---
New River at Glen Lyn, Va.	5,150	6,490	---	---	147	164	14.6	16.0

--- No data available for 1987 water year.

The median concentration of total phosphorus as P at the 10 National Stream-Quality Accounting Network (NASQAN) stations in Virginia was 0.06 mg/L (milligrams per liter) in water year 1987. Dissolved orthophosphorus as P had a median concentration of 0.01 mg/L. The James River at Cartersville had the highest median concentration of total phosphorus and dissolved orthophosphorus at 0.23 and 0.12 mg/L, respectively. The high concentration of total phosphorus in the James River appears to be at least partly due to recent changes in point source discharges and/or agricultural activities in the basin. As seen in figure 4, and verified with a flow adjusted seasonal Kendall test, total phosphorus concentration has increased about fourfold since 1974. This upward trend may have important consequences on future quality of the tidal James River and parts of Chesapeake Bay.

The median concentration of total nitrogen as N at the 10 NASQAN stations was 0.8 mg/L in water year 1987. The New River at Glen Lyn had the highest median concentration at 1.3 mg/L. The Pamunkey River near Hanover and the Meherrin River at Emporia had the lowest median concentration at 0.6 mg/L. The median concentration of dissolved nitrate as N at the New River site was 0.9 mg/L, accounting for nearly 70 percent of the total nitrogen.

Dissolved oxygen averaged 85 per of saturation at the 10 NASQAN stations, with a mean concentration of 9.0 mg/L in water year 1987. Of the 53 dissolved-oxygen measurements made at the NASQAN stations during the year, only two values below 5.0 mg/L were recorded. On August 13, a dissolved-oxygen measurement of 3.1 mg/L was recorded in the Blackwater River near Franklin, and on August 19, a value of 1.8 mg/L was recorded in the Meherrin River at Emporia.

The concentrations of trace metals (including: arsenic, barium, cadmium, chromium, lead, mercury, silver, and selenium) in all samples collected from NASQAN stations were well below the U.S. Environmental Protection Agency limits for safe drinking water. In most cases, concentrations were less than one-tenth of the criteria. However, concentrations of dissolved iron and dissolved manganese reached relatively high levels at several of the stations. Dissolved-iron concentrations in excess of 1,000 ug/L (micorgrams per liter) were measured at the Mattaponi River near Beulahville on two occasions, and a concentration of 2,400 ug/L was measured on August 19 in the Appomattox River at Matoaca. Several observations of dissolved-manganese concentrations in excess of 200 ug/L were made at stations on the Meherrin, Appomattox, and Pamunkey rivers in addition to a concentration of 550 ug/L measured on the Blackwater River near Franklin on August 19. Although these concentrations of iron and manganese in water do not represent a human health risk, they can produce objectionable tastes and stain laundered clothes.

The median concentration of fecal coliform and fecal streptococcal bacteria at the 10 NASQAN stations was 42 and 106 col/100 mL (colonies per 100 milliliters), respectively. The highest median concentration for fecal coliform bacteria was 115 col/100 mL at the station on the Meherrin River at Emporia, whereas the Dan River at Paces had the highest median concentration of fecal streptococcal bacteria--475 col/100 mL. On April 18, during a high peak flow on the Rappahannock River near Fredericksburg, the concentration of fecal coliform bacteria was 17,000 col/100 mL and the concentration of fecal streptococcal bacteria was 37,000 col/100 mL. Despite this high value, the Rappahannock River had the lowest median concentration of fecal coliform bacteria--16 col/100 mL--whereas the James River at Cartersville had the lowest median concentration of fecal streptococcal bacteria--41 col/100 mL during water year 1987.

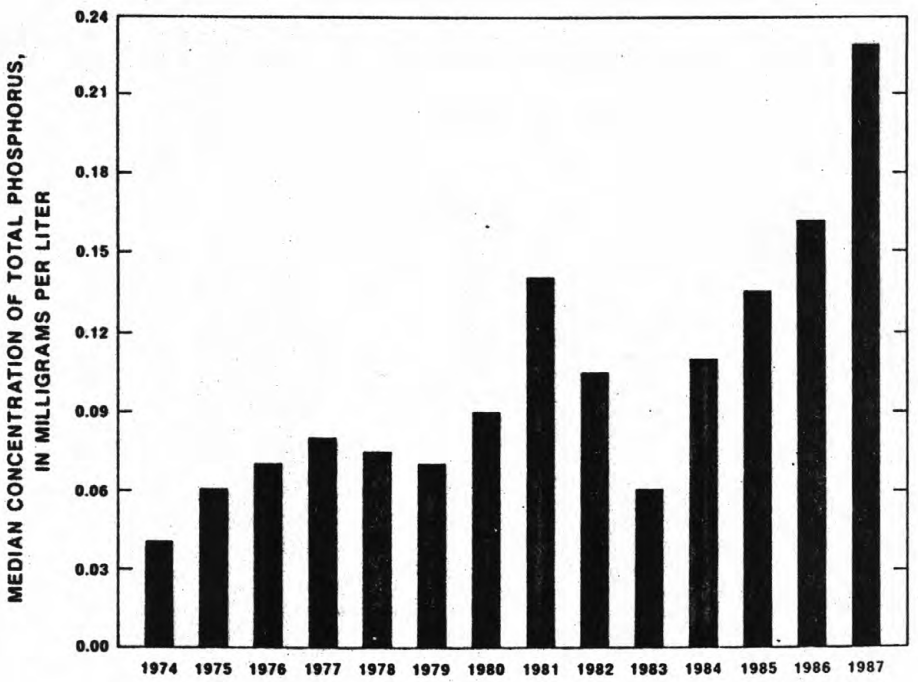


Figure 4.-- Annual median concentration of total phosphorus for period 1974-87 in James River at Cartersville, Va.

SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

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

EXPLANATION OF THE RECORDS

The surface-water, quality-of-water, and ground-water records published in this report are for the 1987 water year that began October 1, 1986, and ended September 30, 1987. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 6, 7, 8, and 9. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

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

Downstream Order System

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

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 02027500, which appears just to the left of the station name, includes the two-digit Part number "02" plus the six-digit downstream-order number "027500." The Part number designates the major river basin; for example, Part "02" is the James River basin.

Latitude-Longitude System

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

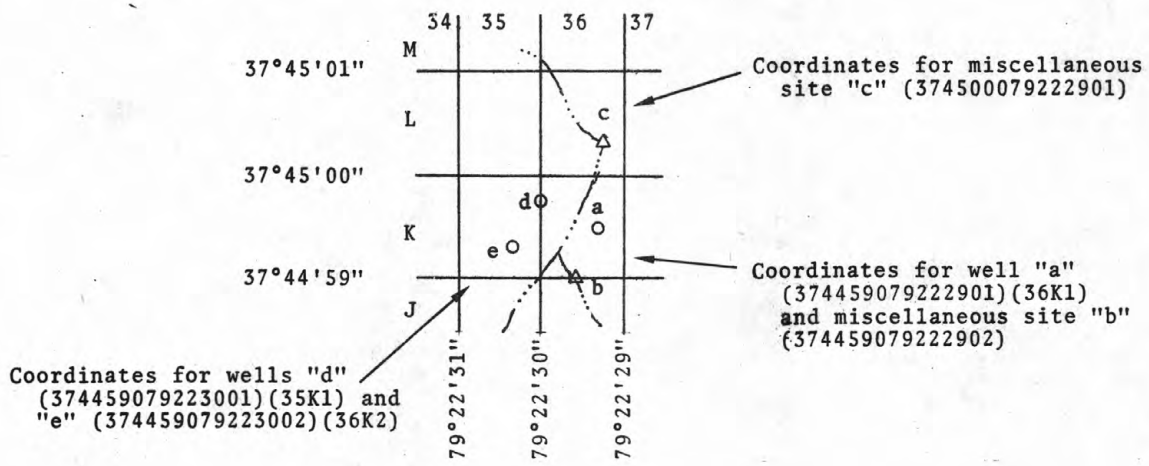


Figure 5. System for numbering wells and miscellaneous sites

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

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

Records of Stage and Water Discharge

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

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

Data Collection and Computation

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

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

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

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

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

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

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

Data Presentation

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Identifying Estimated Daily Discharge

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

Accuracy of the Records

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

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

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

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

Other Records Available

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

Records of Surface-Water Quality

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

Classification of Records

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

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

Arrangement of Records

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

On-site Measurements and Sample Collection

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

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

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

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

Water Temperature

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

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

Sediment

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

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

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

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

Laboratory Measurements

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

Data Presentation

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

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

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

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

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

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

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

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

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

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

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

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

Remark Codes

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

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

Records of Ground-Water Levels

Only water-level data from a national network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Virginia are shown in figures 8 and 9.

Data Collection and Computation

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

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

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

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

Data Presentation

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

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

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

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

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

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

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

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

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

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

Records of Ground-Water Quality

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

Data Collection and Computation

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

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

Data Presentation

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

ACCESS TO WATSTORE DATA

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

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

General inquiries about WATSTORE may be directed to:

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

DEFINITION OF TERMS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

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

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

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

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

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

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

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

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

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

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

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

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

Organism is any living entity.

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

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

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

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

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

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

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

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 living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

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

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

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

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

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

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

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

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

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

Milligrams of carbon per area or volume per unit time [mg C/(m^2.time)] for periphyton and macrophytes and [mg C/(m^3.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 [mg O_2/(m^2.time)] for periphyton and macrophytes and [mg O_2/(m^3.time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Solute is any substance that is dissolved in water.

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

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

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

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

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

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

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

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial 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

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

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

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

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

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

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

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

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

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1987, is called the "1987 water year."

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

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

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

The reports listed below are for sale by the U.S. Geological Survey, Books and Open- File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

1-D1. *Water temperature--influential factors, field measurement, and data presentation,* by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents,* by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. *Application of surface geophysics to ground-water investigations,* by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-E1. *Application of borehole geophysics to water-resources investigations,* by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

3-A1. *General field and office procedures for indirect discharge measurements,* by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method,* by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods,* by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods,* by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 Pages.

3-A5. *Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams,* by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A9. *Measurement of time of travel and dispersion in streams by dye tracing,* by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.

3-A10. *Discharge ratings at gaging stations,* by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. *Measurement of discharge by moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-A13. *Computation of continuous records of streamflow,* by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.

3-A14. *Use of flumes in measuring discharge,* by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

3-A15. *Computation of water-surface profiles in open channels,* by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.

3-B1. *Aquifer-test design, observation, and data analysis,* by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction,* by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. *Type curves for selected problems of flow to wells in confined aquifers,* by J. E. Reed: USGS-TWRI Book 3, Chapter B3. 1980. 106 pages.

3-C1. *Fluvial sediment concepts* by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. *Field methods for measurement of fluvial sediment.* by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

4-A1. *Some statistical tools in hydrology,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. *Frequency curves,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. *Low-flow investigations,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply,* by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. *Computation of rate and volume of stream depletion by wells* by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments* by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy.* by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. *Methods for analysis of organic substances in water,* by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples.* edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. *A model for simulation of flow in singular and interconnected channels* by R. W. Schaffrannek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages

8-A2. *Installation and service manual for U.S. Geological Survey manometers* by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

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

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

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

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

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

Flood of November 1985 in West Virginia, Pennsylvania, Maryland, and Virginia, by Joseph B. Lescinsky: U.S. Geological Survey Open-File Report 86-486. 1987. 33 pages.

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

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

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

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

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

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

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

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

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

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

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

DISCONTINUED GAGING STATIONS

The following continuous-record streamflow stations in Virginia have been discontinued or converted to partial-record stations. Daily streamflow records were collected and published for the period of record shown for each station.

Discontinued gaging stations

STATION NUMBER	STATION NAME	DRAINAGE AREA (mi^2)	PERIOD OF RECORD
	POTOMAC RIVER BASIN		
01613900*	Hogue Creek near Hayfield, VA	15.0	1960-86
01615500	Abrams Creek at Winchester, VA	5.6	1946-49
01621000	Dry River at Rawley Springs, VA	72.6	1946-48
01621500	Cooks Creek at Mt. Crawford, VA	42	1905-06
01622500	Castle Spring near Churchville, VA	-	1949-56
01623000	Bell Creek at St. Pauls Chapel, near Staunton, VA	.61	1948-55
01623500	Bell Creek near Staunton, VA	3.8	1948-55
01624000	Bell Creek at Franks Mill, near Staunton, VA	9.6	1948-56
01624300	Middle River near Verona, VA	178	1967-86
01624500	Lewis Creek near Staunton, VA	18	1905-06
01625500	North River at Port Republic, VA	804	1895-99
01625900	Back Creek near Lyndhurst, VA	40.9	1974-77
01626500	South River at Waynesboro, VA	144	1905-06, 1928-52
01628000	South River at Port Republic, VA	248	1895-99
01629000	Elk Run at Elkton, VA	17	1901-06
01630000	Hawksbill Creek near Luray, VA	52	1905-06
01630500	Yagers Spring near Luray, VA	-	1949-56
01632500	Plains Mill Spring near New Market, VA	-	1949-56
01633500	Stony Creek at Columbia Furnace, VA	79.4	1947-56
01635000	Marlboro Spring at Marlboro, VA	-	1949-56
01636000	North Fork Shenandoah River near Riverton, VA	1,040	1899-1906
01636210	Happy Creek at Front Royal, VA	14.0	1948-77
01643610	Big Spring near Leesburg, VA	.03	1968-69
01644290	Stave Run at Reston, VA	.05	1966-71, 1973
01644291	Stave Run near Reston, VA	.08	1971-82
01644295	Smilax Branch at Reston, VA	.32	1967-78
01645784*	Snakeden Branch at Reston, VA	.79	1973-78
01652500*	Fourmile Run at Alexandria, VA	14.4	1951-69, 1974-75, 1979-82
01654500	Long Branch near Annandale, VA	3.71	1947-57

* Currently operated as a crest-stage partial-record station.

Discontinued gaging stations

STATION NUMBER	STATION NAME	DRAINAGE AREA (mi^2)	PERIOD OF RECORD
	POTOMAC RIVER BASIN--Continued		
01655000	Accotink Creek near Accotink Station, VA	37.0	1949-57
01655500*	Cedar Run near Warrenton, VA	12.3	1950-86
01656000*	Cedar Run near Catlett, VA	93.4	1950-86
01656500	Broad Run at Buckland, VA	50.5	1950-86
01656650	Broad Run near Bristow, VA	89.6	1974-86
01656700	Occoquan River near Manassas, VA	343	1968-81
01656725	Bull Run near Catharpin, VA	25.8	1969-86
01656960	Cub Run near Bull Run, VA	49.9	1972-86
01657000	Bull Run near Manassas, VA	147	1950-81
01657020*	Bull Run near Manassas Park, VA	148	1984-87
01657415	Bull Run near Clifton, VA	185	1972-84
01657500	Occoquan River (Creek) near Occoquan, VA	570	1913-16, 1920-23, 1937-56
01657655	Hooes Run near Occoquan, VA	4.18	1974-82
01658480	Quantico Creek near Dumfries, VA	6.90	1983-85
01658550	South Fork Quantico Creek near Joplin, VA	9.62	1983-85
01658650	South Fork Quantico Creek near Dumfries, VA	16.6	1983-85
01659000	North Branch Chopawamsic Creek near Independent Hill, VA	5.79	1951-57
01659500	Middle Fork Chopawamsic Creek near Garrisonville, VA	4.51	1951-57, 1960-67
01660000	South Branch Chopawamsic Creek near Garrisonville, VA	2.56	1951-57
01660500	Beaverdam Run near Garrisonville, VA	12.7	1951-57
	GREAT WICOMICO RIVER BASIN		
01661800	Bush Mill Stream near Heathsville, VA	6.82	1964-86
	RAPPAHANNOCK RIVER BASIN		
01662000*	Rappahannock River near Warrenton, VA	195	1942-86
01662500	Rush River at Washington, VA	14.7	1953-77
01663000	Thornton River near Laurel Mills, VA	142	1943-56
01664500	Rappahannock River at Kellys Ford, VA	641	1924-52
01666000	Robinson River at Locust Dale, VA	148	1942
01667000	Rapidan River at Rapidan, VA	446	1924-31
01668800*	Hoskins Creek near Tappahannock, VA	15.4	1964-86

* Currently operated as a crest-stage partial-record station.

Discontinued gaging stations

STATION NUMBER	STATION NAME	DRAINAGE AREA (mi^2)	PERIOD OF RECORD
	PIANKATANK RIVER BASIN		
01669500	Dragon Swamp near Church View, VA	84.9	1943-81
	YORK RIVER BASIN		
01670300*	Contrary Creek near Mineral, VA	5.53	1975-86
01670500	North Anna River near Hewlett, VA	424	1926-28
01671000	North Anna River near Doswell, VA	441	1928-86
01671500	Bunch Creek near Boswells Tavern, VA	4.37	1948-79
01672000	South Anna River at Vontay, VA	332	1926-30
01673500	Totopotomoy Creek near Atlee, VA	5.89	1948-77
01674500	Mattaponi River near Beulahville, VA	601	1941-87
	JAMES RIVER BASIN		
02010000	Bolar Spring at Bolar, VA	-	1949-56
02010500	Muddy Run Spring near Warm Springs, VA	-	1946-56
02011000	Warm Spring at Warm Springs, VA	-	1928-44
02011480	Back Creek on Rt. 600, near Mountain Grove, VA	131	1951-84
02012000	Falling Spring Creek near Falling Spring, VA	11.5	1947-52
02012500*	Jackson River at Falling Spring, VA	411	1925-83
02012900	Jackson River at Covington, VA	440	1907-08
02014500	Smith Creek above Old Dam, near Clifton Forge, VA	12.4	1947-56
02015000	Smith Creek near Clifton Forge, VA	12.5	1944-47
02015500	Stuart Spring near McDowell, VA	-	1949-56
02017000	Meadow Creek at New Castle, VA	13.8	1929-52
02019000	Catawba Creek near Fincastle, VA	104	1928-37
02020000	Karnes Spring near Buchanan, VA	-	1949-56
02021000	Calfpasture River at Goshen, VA	190	1925-38
02022000	Big Spring at Kerrs Creek, VA	-	1949-56
02023000	Maury River near Lexington, VA	487	1925-60
02023500	South River near Riverside, VA	111	1949-62
02024300	Buffalo Creek near Glasgow, VA	123	1962-64
02024500	Maury River at Glasgow, VA	831	1895-1906
02025000	Pedlar River near Pedlar Mills, VA	91	1942-56
02026500	Tye River at Roseland, VA	68	1927-38
02028000	Tye River near Norwood, VA	360	1940-60
02029500	Hardware River near Scottsville, VA	104	1925-39

* Currently operated as a crest-stage partial-record station.

Discontinued gaging stations

STATION NUMBER	STATION NAME	DRAINAGE AREA (mi^2)	PERIOD OF RECORD
	JAMES RIVER BASIN--Continued		
02031000	Mechums River near Ivy, VA	97	1942-51
02031500	North Fork Moormans River near White Hall, VA	11.4	1951-63, 1982-84
02032000	Moormans River near White Hall, VA	18	1943-46
02032500	South Fork Rivanna River near Earlysville, VA	216	1951-66
02033000	Rivanna River near Charlottesville, VA	473	1925
02033500	Rivanna River below Moores Creek, near Charlottesville, VA	507	1925-34
02034500*	Willis River at Lakeside Village, VA	247	1926-86
02035500	Lickinghole Creek near Goochland, VA	70	1944-46
02036000	Beaverdam Creek at State Farm, VA	42	1944-47
02038500	Falling Creek near Drewrys Bluff, VA	54	1942-56, 1957-64
02040500*	Flat Creek near Amelia, VA	73	1946-48
02041500	Appomattox River near Petersburg, VA	1,335	1926-66
02042000	Swift Creek near Chester, VA	143	1943-49
	CHOWAN RIVER BASIN		
02044000*	Nottoway River near Burkeville, VA	38	1946-86
02045000	Nottoway River near McKenney, VA	362	1946-50
02045200	Waqua Creek near Alberta, VA	15.0	1966-67
02046500	Anderson Branch at Sussex, VA	5.4	1948-56
02047500*	Blackwater River near Dendron, VA	285	1941-86
02048500	Seacock Creek at Unity, VA	102	1942-49
02049000	Blackwater River near Burdette, VA	576	1941-44
02050500	North Meherrin River near Keysville, VA	9.2	1948-61
02051600*	Great Creek near Cochran, VA	30.9	1958-86
02053000	Fontaine Creek near Emporia, VA	96	1943-53
	ROANOKE RIVER BASIN		
02054000	Big Springs at Elliston, VA	-	1949-56
02055500	Tinker Creek at Roanoke, VA	70	1907-08
02056500	Back Creek near Roanoke, VA	43	1907-08
02057000	Blackwater River near Union Hall, VA	208	1924-63
02057500	Roanoke River near Toshes, VA	1,020	1925-63
02058000	Snow Creek at Sago, VA	60	1934-44

* Currently operated as a crest-stage partial-record station.

Discontinued gaging stations

STATION NUMBER	STATION NAME	DRAINAGE AREA (mi^2)	PERIOD OF RECORD
	ROANOKE RIVER BASIN--Continued		
02058500	Pigg River near Toshes, VA	394	1930-63
02059000	Roanoke River near Gretna, VA	1,430	1925-30
02060000	Goose Creek at Huddleston, VA	218	1929-31
02061000	Big Otter River near Bedford, VA	116	1943-60
02062000	Big Otter River near Altavista, VA	372	1929-37
02063000	Caldwells Creek near Appomattox, VA	5.1	1954-60
02063500	Falling River at Spring Mills, VA	52.2	1954-60
02064500	Little Falling River at Hat Creek, VA	43	1929-35
02065000	Falling River near Brookneal, VA	228	1935-41
02065200	Roanoke River at Clarkton, VA	2,691	1963-76
02066500	Roanoke Creek at Saxe, VA	135	1946-72
02067000	Roanoke River near Clover, VA	3,230	1929-52
02067500	Roanoke River above Dan River, at Clarksville, VA	-	1895-98
02073500	Leatherwood Creek near Old Liberty, VA	68	1925-34
02076000*	Dan River at South Boston, VA	2,730	1900-07, 1922-52
02078000	Hyco River near Omega, VA	413	1934-50
02078500	Dan River at Clarksville, VA	-	1895-98
02079000	Roanoke River at Clarksville, VA	7,320	1934-52
02079500*	Roanoke River at Buggs Island, VA	7,780	1947-62
	KANAWHA RIVER BASIN		
03163000	New River near Baywood, VA	1,000	1928-30
03164500	New River near Grayson, VA	1,160	1908-12
03165500	New River at Ivanhoe, VA	1,340	1927, 1929-78
03166000	Cripple Creek near Ivanhoe, VA	148	1930-34
03166500	Neff-Litz Spring near Rural Retreat, VA	-	1947-56
03168500	Peak Creek at Pulaski, VA	58.3 60.9	1927-33, 1951-57
03169500	Little River near Copper Valley, VA	239	1908-16
03171500	New River at Eggleston, VA	2,941	1914-76
03172000	Wabash Spring near Poplar Hill, VA	-	1949-51
03173500	Francis Spring near Bane, VA	-	1951-56
03174500	Wolf Creek near Burkes Garden, VA	36	1927-28

* Currently operated as a crest-stage partial-record station.

Discontinued gaging stations

STATION NUMBER	STATION NAME	DRAINAGE AREA (mi^2)	PERIOD OF RECORD
	KANAWHA RIVER BASIN--Continued		
03175000	West Fork Cove Creek near Bluefield, VA	5.5	1929-32
03177700	Bluestone River at Bluefield, VA	39.8	1965-80
	BIG SANDY RIVER BASIN		
03207500	Levisa Fork near Grundy, VA	235	1941-74, 1986
03208040*	Russell Fork at Council, VA	10.2	1981-83
03208100*	Russell Fork near Birchleaf, VA	87.4	1981-83
03208700*	North Fork Pound River at Pound, VA	18.5	1961-87
03208800*	Pound River above Indian Creek, at Pound, VA	36.7	1965-78
03208850*	Pound River below Bold Camp Creek, at Pound, VA	61.2	1965-78
03208900*	Pound River near Georges Fork, VA	82.5	1963-82
03209200*	Russell Fork at Bartlick, VA	526	1962-81
03213577	Kersaw Branch near Hurley, VA	.60	1980-82
03213590*	Knox Creek at Kelsa, VA	84.3	1980-81
03471000	Steve Keesling Spring at Sugar Grove, VA	-	1947-56
	TENNESSEE RIVER BASIN		
03472000	South Fork Holston River near Chilhowie, VA	89.5	1907-09
03472500*	Beaverdam Creek at Damascus, VA	56.0	1947-59
03473500*	Middle Fork Holston River at Groseclose, VA	7.39	1947-57
03474000*	Middle Fork Holston River at Seven Mile Ford, VA	132	1942-81
03474500	Middle Fork Holston River at Chilhowie, VA	155	1907-09, 1920-31
03475500	Cedarville Spring at Cedarville, VA	-	1949-52
03477500	Beaver Creek near Wallace, VA	13.7	1945-57
03478000	Percy Preston Spring near Wallace, VA	-	1949-56
03487800*	Lick Creek near Chatham Hill, VA	25.5	1966-68
03488100	North Fork Holston River near Plasterco, VA	259	1963-66
03488445	Brumley Creek near Hansonville, VA	4.29	1979-81
03488450*	Brumley Creek at Brumley Gap, VA	21.1	1979-81
03488500	North Fork Holston River at Holston, VA	402	1951-59
03489500	North Fork Holston River near Mendota, VA	493	1920-31
03489850	Cove Creek near Hilton, VA	17.6	1966-68

* Currently operated as a crest-stage partial-record station.

Discontinued gaging stations

STATION NUMBER	STATION NAME	DRAINAGE AREA (mi^2)	PERIOD OF RECORD
	TENNESSEE RIVER BASIN--Continued		
03489870*	Big Moccasin Creek at Collinwood, near Hansonville, VA	41.9	1966-68
03489900	Big Moccasin Creek near Gate City, VA	79.6	1952-59, 1966-68
03490000*	North Fork Holston River near Gate City, VA	672	1931-81
03520500	Taylor Springs at Cedar Bluff, VA	-	1952-53
03521000	Clinch River at Cedar Bluff, VA	125	1944-46
03522000	Little River at Wardell, VA	103	1949-52
03522500	Will Brooks Spring at Wardell, VA	-	1949-52
03523000	Cedar Creek near Lebanon, VA	51.5	1952-59
03523500	Thompson Creek near Coulwood, VA	14.0	1942-48
03524500*	Guest River at Coeburn, VA	87.3	1949-59, 1979-81
03524900*	Stony Creek at Ka, VA	30.9	1980-81
03525000	Stony Creek at Fort Blackmore, VA	41.4	1949-52
03525500	Clinch River at Clinchport, VA	986	1907-09
03526000*	Copper Creek near Gate City, VA	106	1947-72
03526500	Quillen Springs near Gate City, VA	-	1954-56
03527000*	Clinch River at Speers Ferry, VA	1,126	1920-76, 1979-81
03527500	North Fork Clinch River at Duffield, VA	23.1	1952-59
03529500*	Powell River at Big Stone Gap, VA	112	1944-59, 1979-81
03530000	South Fork Powell River at Big Stone Gap, VA	40	1944-47, 1951-77
03530500*	North Fork Powell River at Pennington Gap, VA	70	1944-51, 1979-81
03531000	Powell River near Pennington Gap, VA	290	1920-31

* Currently operated as a crest-stage partial-record station.

DISCONTINUED WATER-QUALITY STATIONS

The following water-quality stations have been discontinued in Virginia. Continuous-daily records of water temperature, specific conductance, sediment, and monthly or periodic sampling of chemical quality were collected for the period of record shown for each station.

Discontinued water-quality stations

STATION NUMBER	STATION NAME	DRAINAGE AREA (mi^2)	TYPE OF RECORD	PERIOD OF RECORD
	POTOMAC RIVER BASIN			
01627500	South River at Harriston, VA	212	SC	1949
01629500	South Fork Shenandoah River near Luray, VA	1,377	SC	1949
01631000	South Fork Shenandoah River at Front Royal, VA	1,642	T, SC	1953-56, 1968-77,1980
			SED	1953-56
			C	1949,1953-56, 1968-86
01634000	North Fork Shenandoah River near Strasburg, VA	768	T, SC	1949,1956, 1969-71
			SED	1956
			C	1930,1949, 1952,1956, 1970-86
01644000	Goose Creek near Leesburg, VA	332	T, SC	1969-71
01644291	Stave Run near Reston, VA	.08	SED	1971-74
01644295	Smilax Branch at Reston, VA	.32	SED	1971-75
01645784	Snakeden Branch at Reston, VA	.79	SED	1973-78
01656100	Cedar Run near Aden, VA	155	SED	1974
01656725	Bull Run near Catharpin, VA	25.8	SED	1974
01656960	Cub Run near Bull Run, VA	49.9	SED	1972-74
01657415	Bull Run near Clifton, VA	185	SED	1973-74
01658620	South Fork Quantico Creek near Triangle, VA	15.7	T, SC	1973
	RAPPAHANNOCK RIVER BASIN			
01661900	Carter Run near Marshall, VA	19.5	SED	1977-78
01663500	Hazel River at Rixeyville, VA	287	T	1951-55
			SC	1953-55
			SED	1952-55
01667500	Rapidan River near Culpeper, VA	472	T	1946,1951-56
			SC	1953-56
			SED	1951-56
01668000*	Rappahannock River near Fredericksburg, VA	1,596	T, SC	1956,1968-74
01668020	Rappahannock River at VEPCO Dam, at Fredericksburg, VA	-	T, SC	1971-72
	YORK RIVER BASIN			
01670600	North Anna River below Lake Anna, near Hewlett, VA	-	T, SC	1972-73
01671500	Bunch Creek near Boswells Tavern, VA	4.37	T	1954-56
01673000*	Pamunkey River near Hanover, VA	1,081	T	1946,1968-76
			SC	1968-76
01674000	Mattaponi River near Bowling Green, VA	257	T	1946

TYPE OF RECORD: C (chemical quality); SED (sediment); SC (specific conductance); T (temperature).
* Presently active periodic sampling station.

Discontinued water-quality stations

STATION NUMBER	STATION NAME	DRAINAGE AREA (mi^2)	TYPE OF RECORD	PERIOD OF RECORD
	YORK RIVER BASIN--Continued			
01674500*	Mattaponi River near Beulahville, VA	601	T	1946
	JAMES RIVER BASIN			
02012500	Jackson River at Falling Spring, VA	411	T, SC	1968-86
			C	1930,1948, 1968-86
02019500	James River at Buchanan, VA	2,075	T, SC	1951-56, 1968-86
			C	1930,1940, 1951-56, 1968-86
02026000	James River at Bent Creek, VA	3,683	T	1948
02029000	James River at Scottsville, VA	4,584	T, SC	1951-56,1987
			SED	1951-56
02035000*	James River at Cartersville, VA	6,257	T, SC	1968-76, 1971,1981
			SED	1981
02037000	James River and Kanawha Canal, near Richmond, VA	-	C, T, SC	1972-73
02037500	James River near Richmond, VA	6,758	T, SC	1948-51, 1953-56
02038830	Fishpond Creek near Hixsburg, VA	14.0	SC	1981
02038850	Vaughans Creek near Hixsburg, VA	23.2	SC	1981
02042720	Chickahominy River above Walkers Dam, near Walkers, VA	301	SC	1984-87
	CHOWAN RIVER BASIN			
02044000	Nottoway River near Burkeville, VA	38.7	T	1947
02047000*	Nottoway River near Sebrell, VA	1,421	T	1947
02048000	Blackwater River at Zuni, VA	456	T	1947
02051000	North Meherrin River near Lunenburg, VA	55.6	T	1947
02052000*	Meherrin River at Emporia, VA	747	T, SC	1968-80
	ROANOKE RIVER BASIN			
02054500	Roanoke River at Lafayette, VA	257	T, SC	1951
02060500	Roanoke River at Altavista, VA	1,789	T	1951,1953-56, 1968-86
			SC	1953-56, 1968-86
			SED	1953-56
			C	1951,1953-56, 1968-86
02066000	Roanoke River at Randolph, VA	2,977	T, SC	1951-56, 1968-62
			SED	1954-81
			C	1930,1951-86

TYPE OF RECORD: C (chemical quality); SED (sediment); SC (specific conductance); T (temperature).
* Presently active periodic sampling station.

Discontinued water-quality stations

STATION NUMBER	STATION NAME	DRAINAGE AREA (mi^2)	TYPE OF RECORD	PERIOD OF RECORD
	ROANOKE RIVER BASIN--Continued			
02075500*	Dan River at Paces, VA	2,550	T, SC	1954-56
02076000	Dan River at South Boston, VA	2,730	T SC	1952 1951-52
	KANAWHA RIVER BASIN			
03164000	New River near Galax, VA	1,131	T, SC C	1950,1968-83 1931,1950, 1952,1968-86
03170000	New River at Radford, VA	2,748	T, SC	1950,1956
03171500	New River at Eggleston, VA	2,941	T, SC	1953-55
	BIG SANDY RIVER BASIN			
03207500	Levisa Fork near Grundy, VA	235	T, SC SED	1950 1986
03207800	Levisa Fork at Big Rock, VA	297	T, SC SED	1970-81 1970-81
03208034	Grissom Creek near Council, VA	2.82	T,SC,C,SED	1982-83
03208036	Barton Fork near Council, VA	10.2	T,SC,C,SED	1981-83
03208040	Russell Fork at Council, VA	1.23	T,SC C	1981-83 1982-83
03208100	Russell Fork near Birchleaf, VA	87.4	T,SC,C	1982-83
	TENNESSEE RIVER BASIN			
03473000	South Fork Holston River near Damascus, VA	301	T SC C	1950,1968-73 1950 1950,1952, 1968-86
03474500	Middle Fork Holston River at Chilhowie, VA	155	T	1962
03488445	Brumley Creek near Hansonville, VA	4.29	T	1980-81
03488450	Brumley Creek at Brumley Gap, VA	21.1	T	1979-81
03488500	North Fork Holston River at Holston, VA	402	T, SC	1952-56
03490000	North Fork Holston River near Gate City, VA	672	T SC SED	1950-51, 1968-78 1950-51 1935-38, 1963-65
03527000	Clinch River at Speers Ferry, VA	1,126	T SC SED	1950,1965-67 1950 1935-38, 1963-65
03529500	Powell River at Big Stone Gap, VA	112	T, SC	1950
03531500	Powell River near Jonesville, VA	319	T	1964-67

TYPE OF RECORD: C (chemical quality); SED (sediment); SC (specific conductance): T (temperature).
* Presently active periodic sampling station.

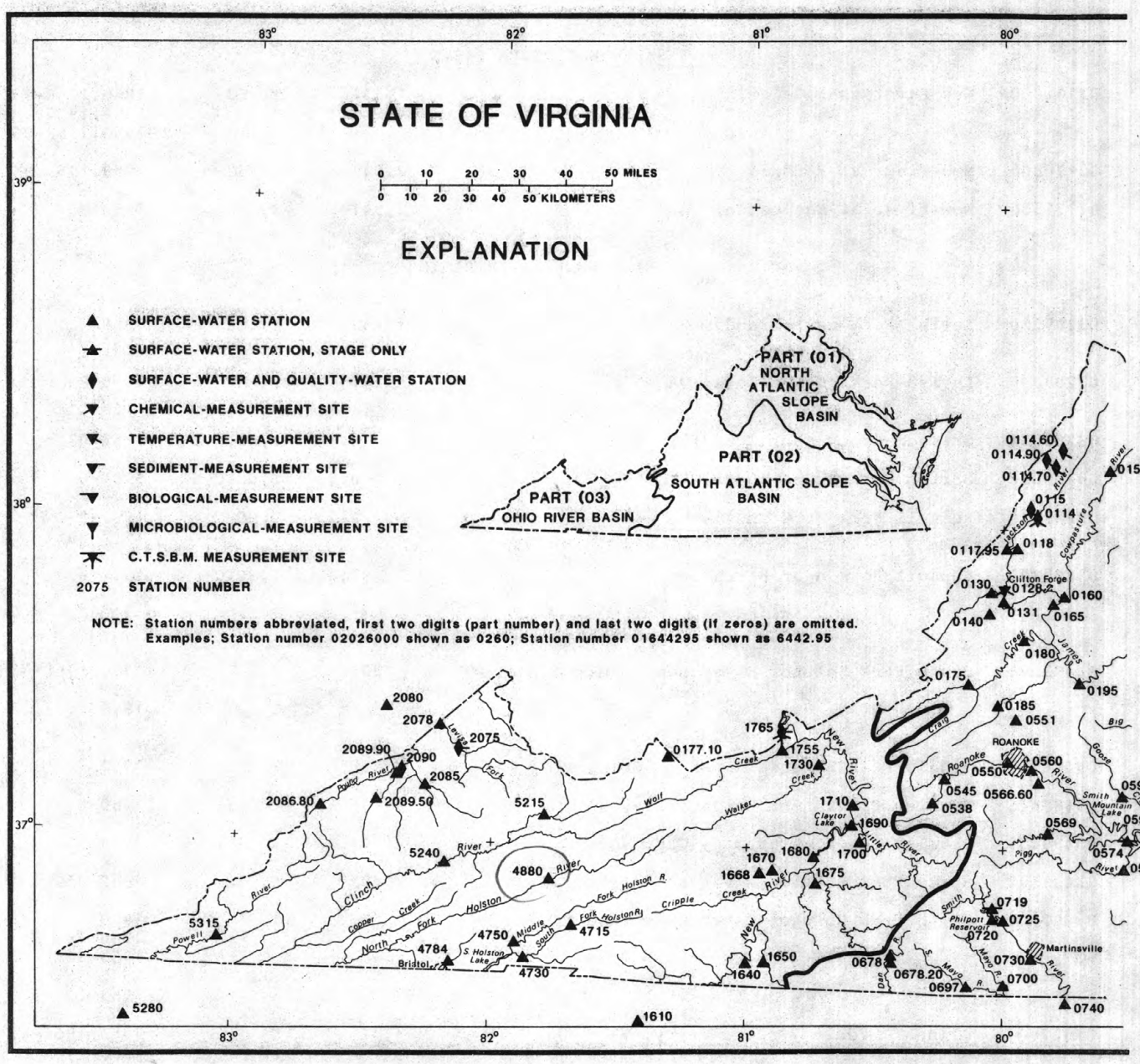
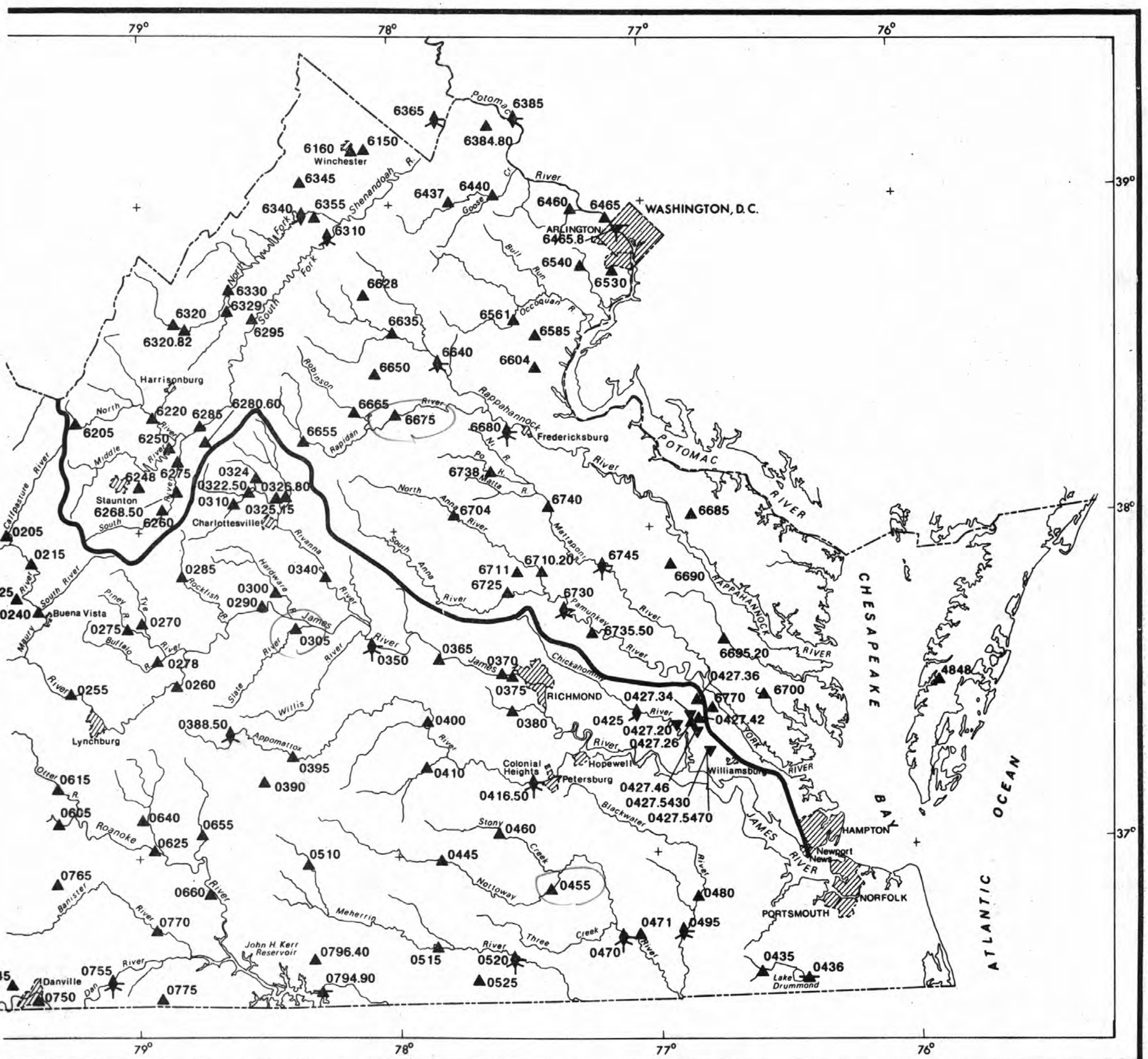


Figure 6.-- Map of Virginia showing location of surface-water and water-quality data-collection stations.


79°
78°
77°
76°
39°
38°
37°
6365
6385
6384.80
6160
6150
Winchester
6345
6437
6440
6460
6465
WASHINGTON, D.C.
ARLINGTON
6465.8
6340
6355
6310
6540
6530
6628
6330
6329
6320
6320.82
6295
6635
6561
6585
6640
6604
6650
Harrisonburg
6220
6285
6280.60
6665
6675
6680
Fredericksburg
6205
6250
6655
6248
6275
0324
0322.50
0326.80
6738
6740
Staunton
6268.50
6260
0310
0325.15
Charlottesville
6704
6685
0205
0215
0285
0340
6711
6710.20
6745
6725
6690
0225
0300
0290
6730
0240
Buena Vista
0270
0275
0305
6735.50
0350
0365
6695.20
0278
0370
0427.36
4848
0255
0260
0375
RICHMOND
0427.34
6770
6700
0388.50
0400
0380
0425
0427.42
0427.20
0427.26
Lynchburg
0395
0410
Colonial Heights
Hopewell
Williamsburg
0615
0390
Petersburg
0427.46
0427.5430
0427.5470
0416.50
0605
0640
0655
0460
0625
HAMPTON
Newport News
0510
0445
0765
0455
0480
0660
NORFOLK
PORTSMOUTH
0770
0471
0495
0796.40
0470
0515
0520
0435
0436
0745
0755
0794.90
0525
Danville
0750
0775
John H. Kerr Reservoir
Lake Drummond
Potomac
River
Shenandoah R.
North Fork
South Fork
Goose Cr.
Bull Run
Occoquan R.
Robinson
Rapidan
Rappahannock
River
POTOMAC RIVER
North Anna River
South Anna River
Mattaponi
Pamunkey
Chickahominy
RAPPAHANNOCK RIVER
YORK RIVER
JAMES RIVER
Cowpasture River
Maury
South River
Piney R.
Tye
Buffalo R.
Rockfish R.
Hardware
Rivanna
Slate River
Willis
Appomattox
Otter R.
Roanoke
Banister
Dan
Stony Creek
Nottoway
Meherrin
Three Creek
Blackwater
CHESAPEAKE BAY
ATLANTIC OCEAN

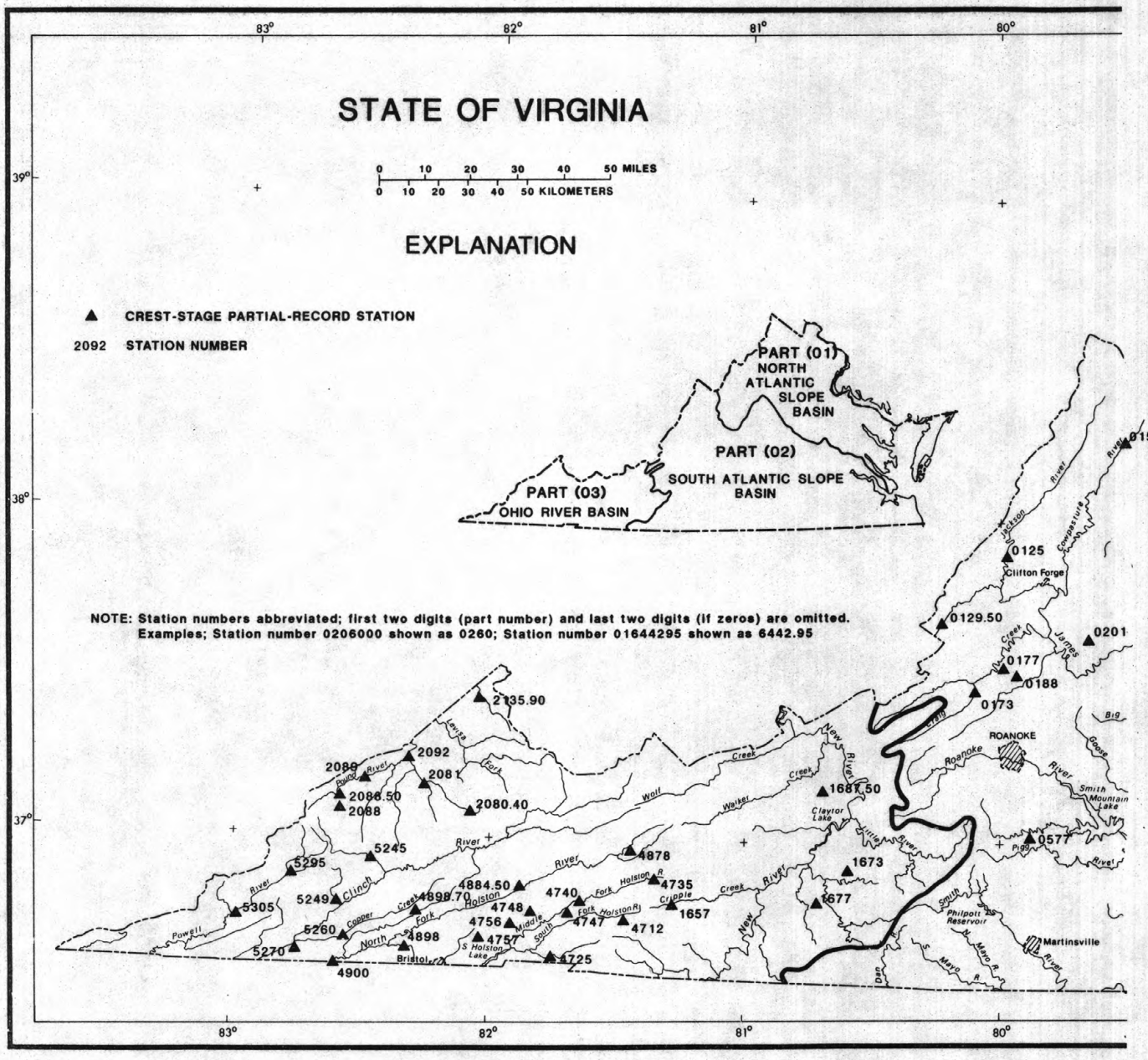
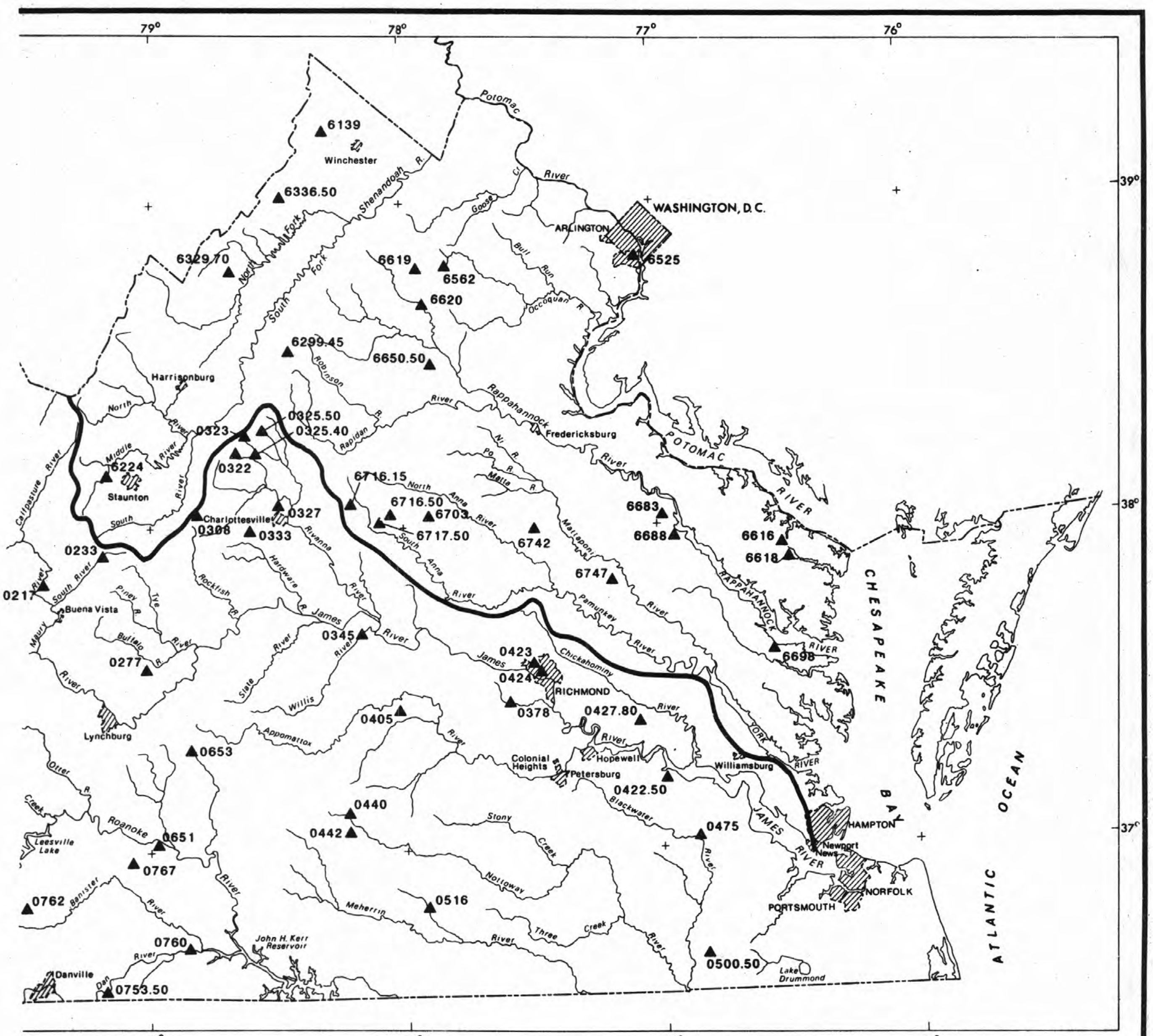


Figure 7.-- Map of Virginia showing location of surface-water partial-record stations.


79°
78°
77°
76°
39°
38°
37°
6139
Winchester
6336.50
6329.70
Shenandoah R.
North Fork
South Fork
Potomac
River
Goose C.
WASHINGTON, D.C.
ARLINGTON
Bull Run
Occoquan R.
6525
6619
6562
6620
6299.45
6650.50
Harrisonburg
Robinson
Rapidan
River
Rappahannock
Fredericksburg
POTOMAC
RIVER
0325.50
0325.40
0323
0322
6224
Staunton
Middle
North
South
Calfpasture River
6716.15
6716.50
6703
6717.50
North Anna River
South Anna
Po R.
Matta R.
Mattaponi
6742
6683
6688
6616
6618
6747
Charlottesville
0308
0327
0333
Rivanna
Hardware
Rockfish
0233
0217
South River
Maury
Buena Vista
Piney R.
Tye
Buffalo R.
0277
River
James
0345
Pamunkey
River
RAPPAHANNOCK RIVER
6698
CHESAPEAKE
BAY
0423
0424
Chickahominy
RICHMOND
0378
0427.80
Slate River
Willis
Appomattox
0405
Lynchburg
0653
Otter R.
Creek
Roanoke
0651
0767
Leesville Lake
0762
Banister
River
Colonial Heights
Hopewell
Petersburg
0422.50
Blackwater
Williamsburg
YORK RIVER
JAMES RIVER
HAMPTON
Newport News
NORFOLK
PORTSMOUTH
0440
0442
Stony Creek
Nottoway
0475
River
0516
Meherrin
River
Three
Creek
River
0500.50
Lake Drummond
0760
River
John H. Kerr Reservoir
Danville
Dan
0753.50
ATLANTIC
OCEAN

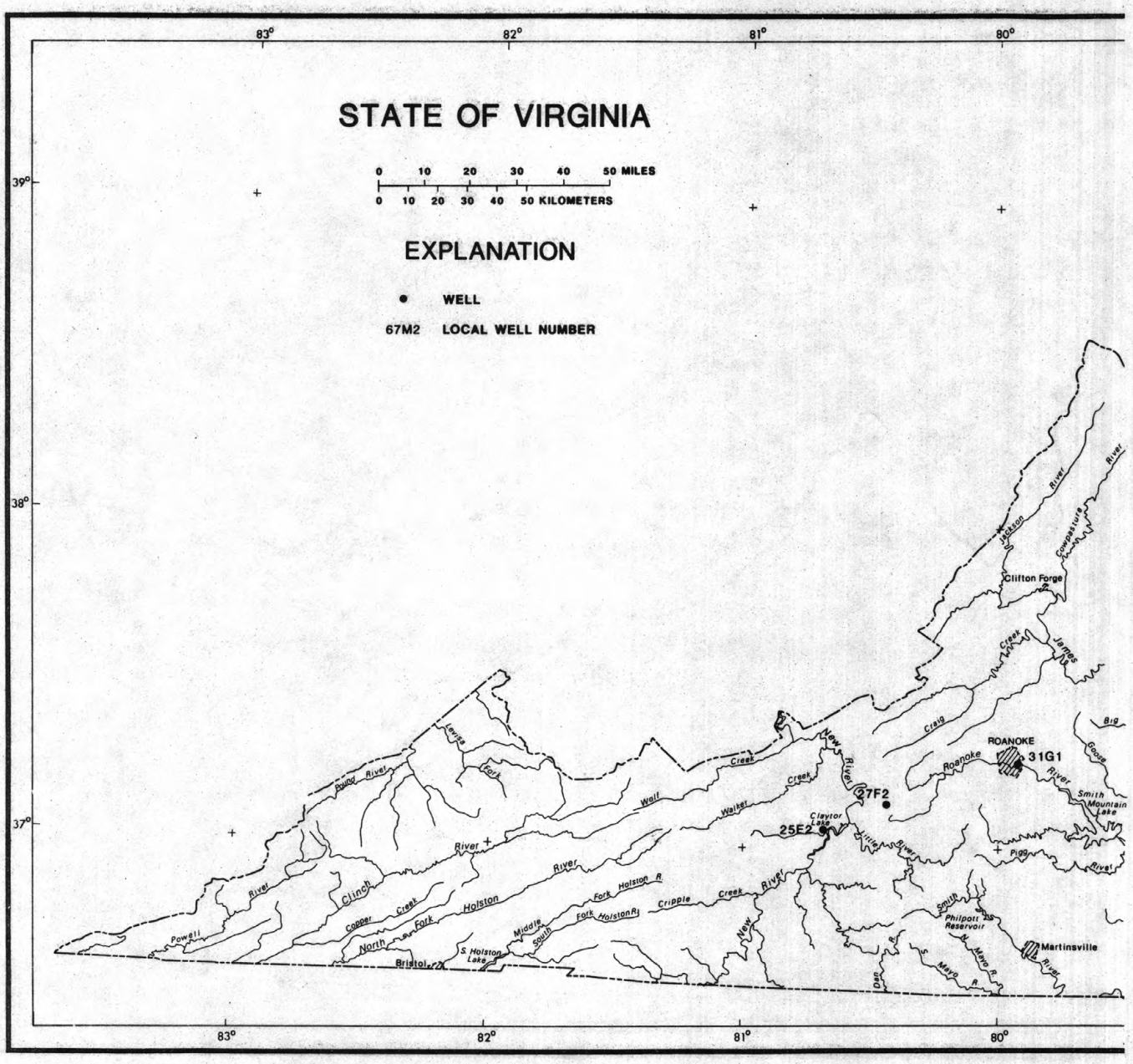
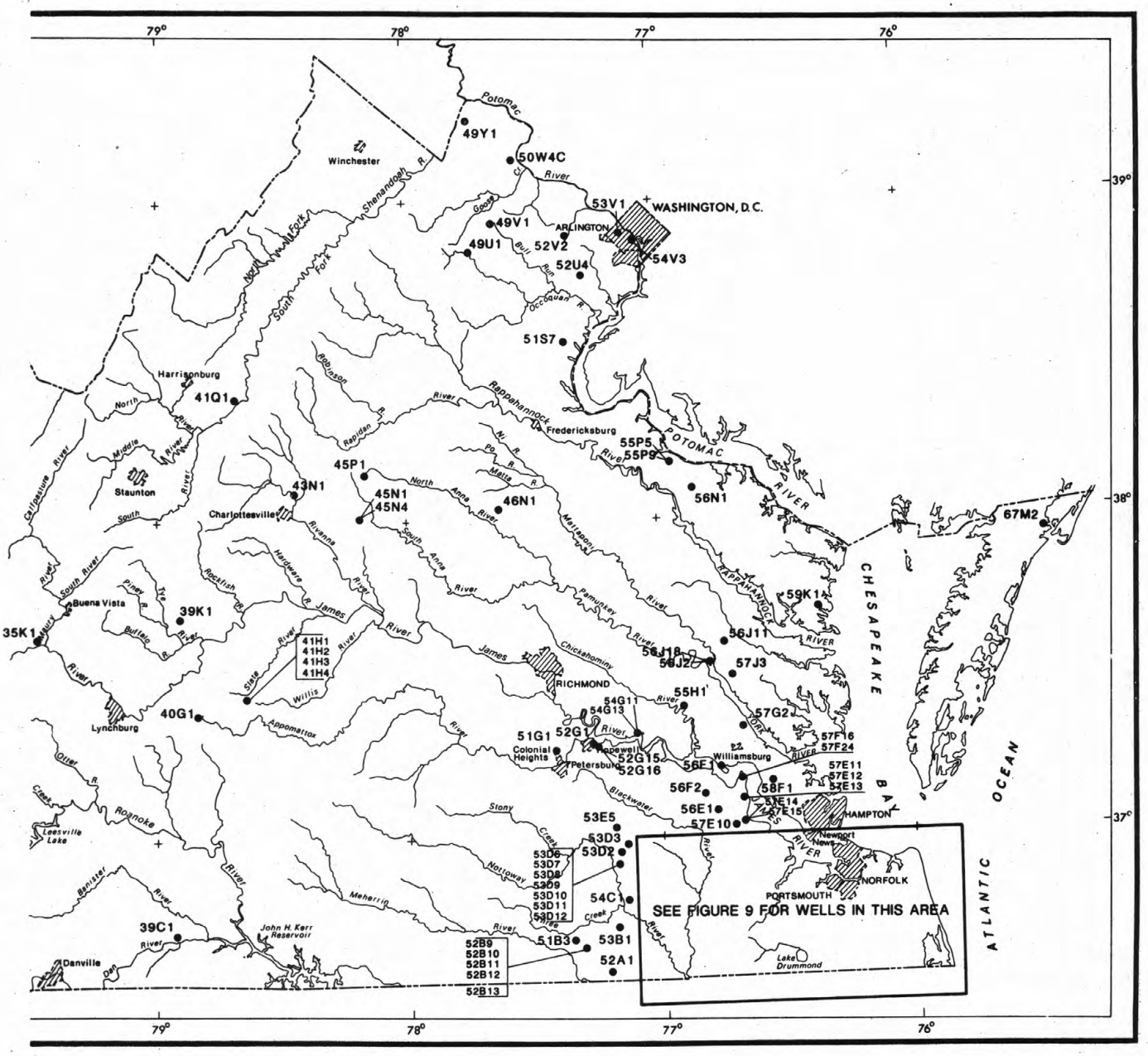


Figure 8.-- Map of Virginia showing location of ground-water observation wells.


79°
78°
77°
76°
39°
38°
37°
49Y1
50W4C
53V1
WASHINGTON, D.C.
ARLINGTON
49V1
49U1
52V2
52U4
54V3
51S7
Winchester
Harrisonburg
41Q1
Staunton
43N1
Charlottesville
45P1
45N1
45N4
46N1
Fredericksburg
55P5
55P9
56N1
67M2
59K1
Buena Vista
39K1
35K1
41H1
41H2
41H3
41H4
Lynchburg
40G1
RICHMOND
54G11
54G13
55H1
56J18
56J2
56J11
57J3
57G2
51G1
52G1
Colonial Heights
Petersburg
52G15
52G16
56E1
Williamsburg
57F16
57F24
57E11
57E12
57E13
58F1
56F2
56E1
57E10
57E14
57E15
HAMPTON
Newport News
NORFOLK
PORTSMOUTH
53E5
53D3
53D2
53D6
53D7
53D8
53D9
53D10
53D11
53D12
54C1
39C1
Danville
John H. Kerr Reservoir
51B3
53B1
52A1
52B9
52B10
52B11
52B12
52B13
SEE FIGURE 9 FOR WELLS IN THIS AREA
Lake Drummond
CHESAPEAKE BAY
ATLANTIC OCEAN
POTOMAC RIVER
RAPPAHANNOCK RIVER
YORK RIVER
James River
Potomac River
Shenandoah R.
North Fork
South Fork
Goose Cr.
Bull Run
Occoquan R.
Rappahannock River
Rapidan R.
Robinson R.
North River
Middle River
South River
Calfpasture River
Piney R.
Buffalo R.
Rockfish R.
Hardware R.
Rivanna River
North Anna River
South Anna River
Mattaponi River
Pamunkey River
Chickahominy River
Willis River
Appomattox River
Otter R.
Roanoke River
Leesville Lake
Banister River
Meherrin River
Nottoway River
Blackwater River
Stony Creek
Lake Gaston
Dam

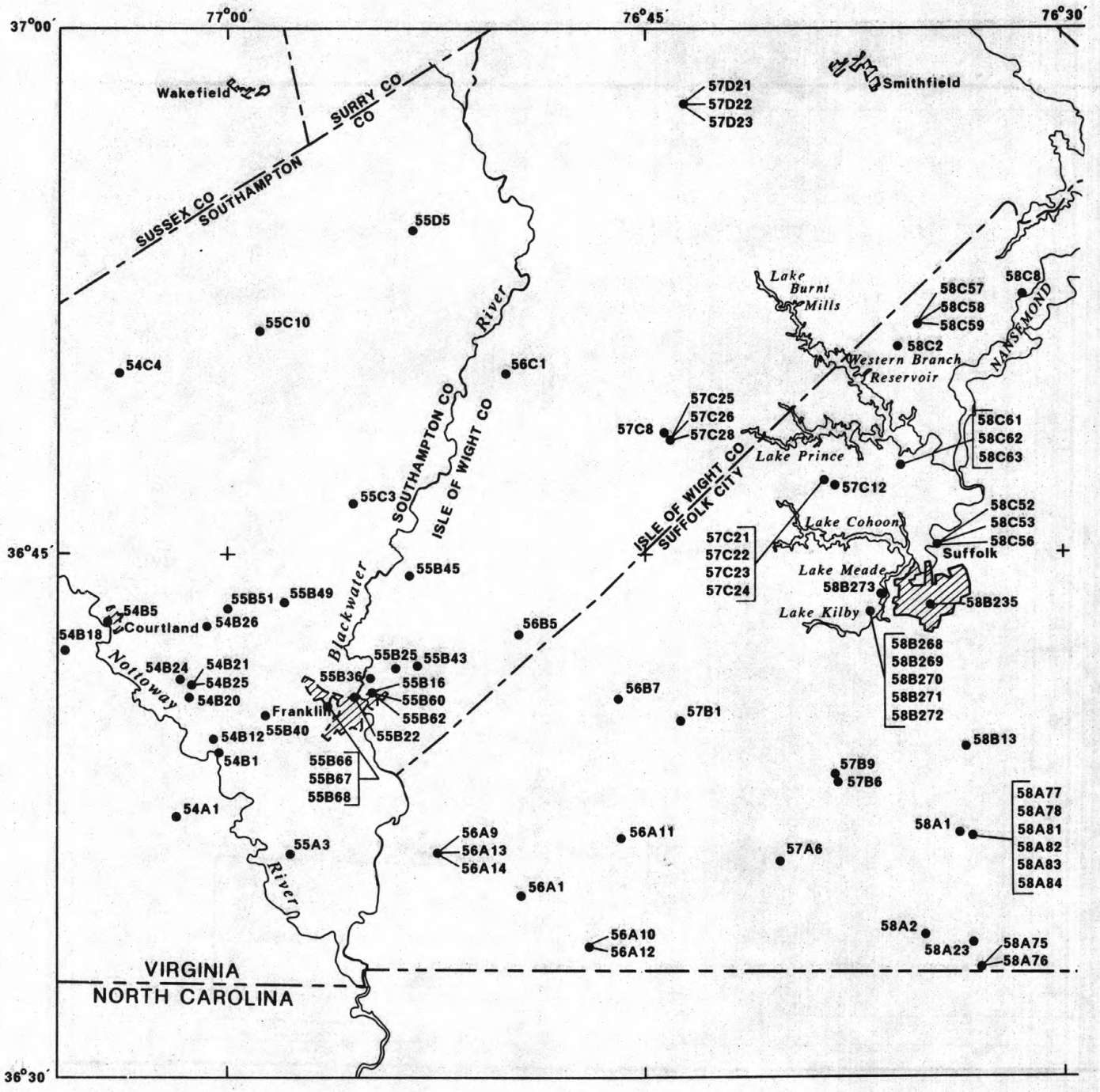
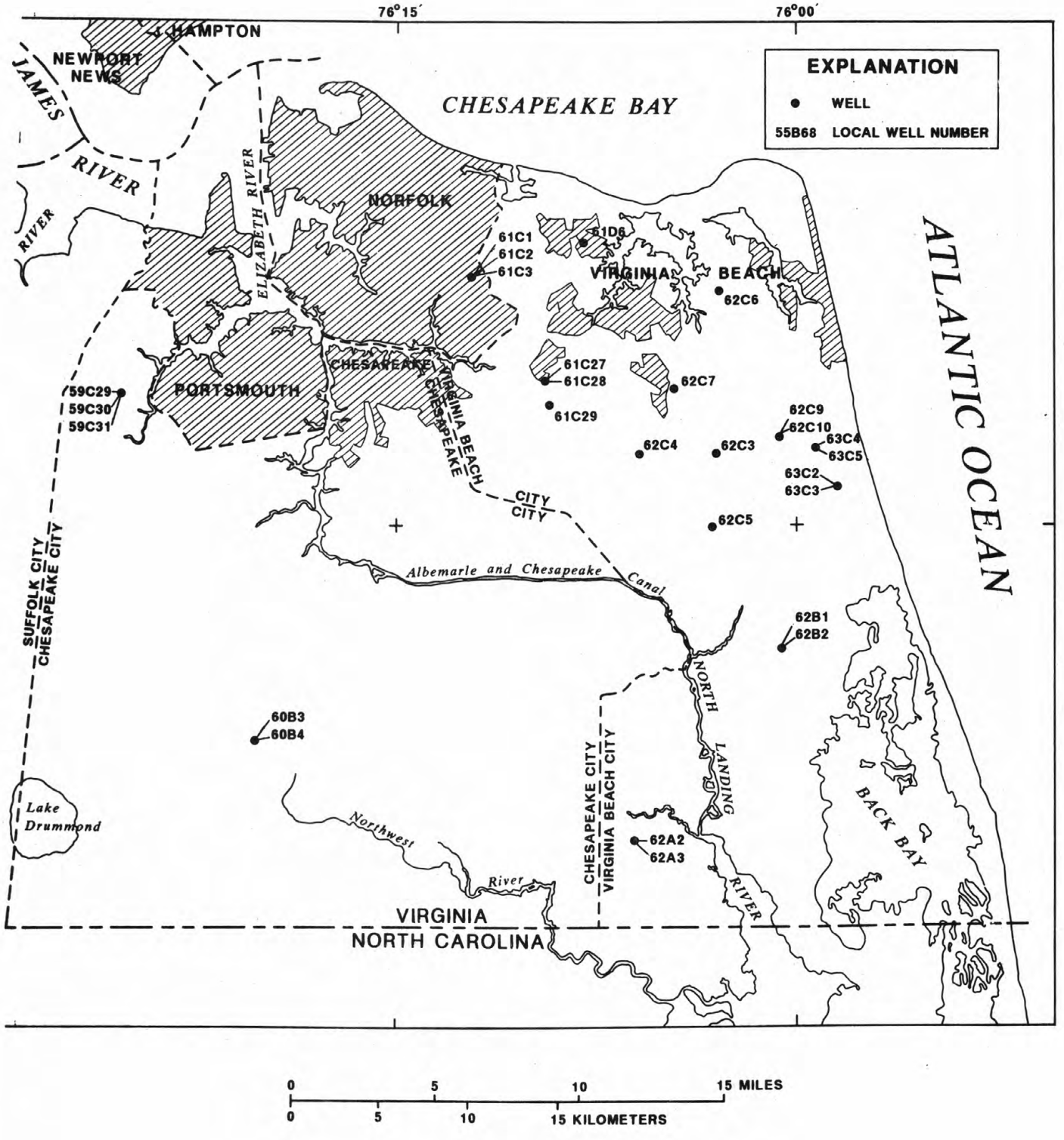


Figure 9.-- Map of southeastern Virginia showing location of ground-water observation wells.


76°15'
76°00'
HAMPTON
NEWPORT NEWS
JAMES RIVER
RIVER
CHESAPEAKE BAY
ELIZABETH RIVER
NORFOLK
ATLANTIC OCEAN
EXPLANATION
WELL
55B68 LOCAL WELL NUMBER
61C1
61C2
61C3
61D6
VIRGINIA BEACH
62C6
PORTSMOUTH
CHESAPEAKE
VIRGINIA BEACH CHESAPEAKE CITY
59C29
59C30
59C31
61C27
61C28
61C29
62C7
62C9
62C10
63C4
63C5
62C4
62C3
63C2
63C3
62C5
SUFFOLK CITY
CHESAPEAKE CITY
Albemarle and Chesapeake Canal
62B1
62B2
NORTH LANDING
60B3
60B4
Lake Drummond
Northwest River
CHESAPEAKE CITY
VIRGINIA BEACH CITY
62A2
62A3
BACK BAY
RIVER
VIRGINIA
NORTH CAROLINA
0 5 10 15 MILES
0 5 10 15 KILOMETERS

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

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

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 mi².

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

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

REMARKS.--Records fair except those for periods of no gage-height record, Oct. 1 to Nov. 4 and May 30 to Sept. 27, which are poor. Some diversion into pond for irrigation upstream from station, amount unknown. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--23 years (water years 1965-87), 1.35 ft³/s, 10.66 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78 ft³/s, July 31, 1979, gage height, 5.28 ft; no flow at times in 1964, 1966, 1981, 1983-85, and 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22 ft³/s, Jan. 19, gage height, 3.29 ft; no flow Oct. 4-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.01	e.14	.30	1.2	3.9	6.3	1.6	2.8	e.23	e.07	e.40	e.37
2	e.01	e.20	.53	2.4	3.7	5.2	1.4	2.5	e.43	e.06	e.13	e.17
3	e.01	e.21	.68	1.3	3.3	3.7	1.4	2.3	e.46	e.30	e.05	e.09
4	e.00	e.24	.48	1.0	3.0	2.9	2.2	3.6	e.60	e.80	e.03	e.05
5	e.00	.31	.39	.95	2.7	2.4	1.9	3.7	e.80	e.67	e.13	e.02
6	e.00	.31	.37	.92	2.6	2.2	1.6	3.1	e.65	e.30	e.45	e.01
7	e.00	.30	.35	.92	2.5	2.1	1.5	2.7	e.45	e.16	e.35	e.01
8	e.02	.34	.35	.88	2.4	2.1	1.4	2.4	e.22	e.13	e.26	e.55
9	e.04	.34	.38	.86	2.5	2.4	1.3	2.2	e.31	e.11	e.16	e.35
10	e.05	.33	.37	1.2	2.3	4.0	1.3	2.1	e.18	e.10	e.10	e.18
11	e.06	.38	.57	1.2	2.4	3.2	1.2	1.7	e.16	e.08	e.06	e.12
12	e.05	.44	.62	1.1	2.7	3.0	1.1	1.6	e.17	e.07	e.04	e.08
13	e.05	.44	.46	.95	2.9	2.8	1.1	1.2	e.16	e.25	e.04	e.43
14	e.11	.43	.40	.92	2.6	2.4	1.1	.96	e.45	e.23	e.03	e.23
15	e.25	.45	.39	.91	2.4	2.2	1.1	1.3	e.25	e.15	e.03	e.05
16	e.24	.46	.38	.87	2.2	2.1	1.2	.98	e.15	e.09	e.04	e.04
17	e.18	.43	.38	.87	2.5	1.9	1.4	.65	e.12	e.08	e.02	e.02
18	e.10	.43	.44	3.4	2.8	1.8	1.2	1.0	e.11	e.08	e.02	e.02
19	e.07	.40	.53	13	2.9	1.7	1.1	1.4	e.10	e.07	e.06	e.06
20	e.05	.40	.44	8.6	2.7	1.6	1.1	1.9	e.09	e.06	e.21	e.20
21	e.04	.48	.41	4.5	2.6	1.5	1.1	1.8	e.09	e.05	e.08	e.25
22	e.03	.39	.40	12	2.6	1.4	1.0	1.7	e.11	e.08	e.04	e.10
23	e.04	.37	.40	9.5	14	1.4	1.0	1.5	e.13	e.07	e.03	e.05
24	e.08	.37	1.7	5.0	6.3	1.4	1.5	1.5	e.38	e.06	e.02	e.04
25	e.07	.37	1.8	4.1	4.1	1.3	9.7	1.5	e.35	e.05	e.01	e.03
26	e.40	.35	.90	4.8	3.2	1.3	7.2	1.4	e.27	e.05	e.01	e.02
27	e.45	.46	.79	4.1	2.8	1.3	5.1	1.0	e.44	e.05	e.02	e.01
28	e.30	.34	.75	3.6	2.5	1.4	4.3	.88	e.46	e.04	e.10	.01
29	e.22	.32	.71	3.2	---	1.4	3.8	.64	e.20	e.04	e.22	.02
30	e.20	.30	.70	3.5	---	1.4	3.2	e.40	e.10	e.04	e.15	.09
31	e.16	---	.68	4.1	---	2.0	---	e.20	---	e.03	e.35	---
TOTAL	3.29	10.73	18.05	101.85	93.1	71.8	65.1	52.61	8.62	4.42	3.64	3.67
MEAN	.11	.36	.58	3.29	3.33	2.32	2.17	1.70	.29	.14	.12	.12
MAX	.45	.48	1.8	13	14	6.3	9.7	3.7	.80	.80	.45	.55
MIN	.00	.14	.30	.86	2.2	1.3	1.0	.20	.09	.03	.01	.01
CFSM	.06	.21	.34	1.91	1.94	1.35	1.26	.99	.17	.08	.07	.07
IN.	.07	.23	.39	2.20	2.01	1.55	1.41	1.14	.19	.10	.08	.08

CAL YR 1986 TOTAL 223.31 MEAN .61 MAX 3.0 MIN .00 CFSM .36 IN. 4.83
WTR YR 1987 TOTAL 436.88 MEAN 1.20 MAX 14 MIN .00 CFSM .70 IN. 9.44

e Estimated.

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 mi².

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

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

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

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

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

AVERAGE DISCHARGE.--44 years, 42.8 ft³/s, 10.13 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft³/s, Nov. 13, 1970, gage height, 12.82 ft, from rating curve extended above 4,800 ft³/s; minimum daily, 0.20 ft³/s, Sept. 12, 13, 1966.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0100	1,430	6.49	Apr. 17	0800	*2,120	*7.82
Jan. 19	1900	1,250	6.10	Sept. 8	1330	1,470	6.58
Mar. 1	1930	1,250	6.10	Sept. 18	0530	957	5.38
Apr. 4	1430	1,470	6.57				

Minimum daily discharge, 2.3 ft³/s, Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	e13	8.7	26	55	778	35	43	16	154	6.4	e6.0
2	2.9	e28	52	28	81	347	28	40	16	81	6.4	e5.6
3	3.0	e16	277	28	244	148	33	41	37	77	6.0	e5.2
4	3.0	e20	74	29	288	92	721	324	45	28	5.8	e5.2
5	3.3	e45	40	25	171	67	332	172	22	20	6.5	e5.6
6	4.1	e50	26	21	109	56	438	92	17	16	7.1	13
7	2.3	32	20	25	95	49	294	64	16	15	6.0	14
8	2.5	52	17	40	80	45	140	51	15	13	5.8	669
9	2.9	29	20	32	60	41	97	42	14	12	5.9	106
10	2.4	18	37	32	44	35	70	36	15	12	5.6	29
11	2.5	101	31	38	39	31	56	32	13	12	5.4	16
12	2.9	81	76	29	38	29	49	30	13	15	5.2	24
13	3.7	25	46	24	36	28	43	28	14	13	5.1	57
14	5.8	14	28	19	31	26	37	26	13	12	5.0	25
15	5.9	11	23	23	28	26	42	26	12	12	5.1	14
16	5.3	9.7	20	23	24	30	573	24	12	11	5.2	11
17	5.0	9.0	18	18	23	38	1310	23	12	10	5.3	44
18	6.3	8.3	42	19	23	32	286	24	12	10	5.1	391
19	8.0	12	56	482	20	28	164	42	12	10	5.3	69
20	e7.6	13	33	304	17	26	116	42	13	10	5.8	288
21	e7.4	45	25	124	21	25	90	34	83	9.9	5.2	174
22	e7.2	24	20	82	18	23	74	29	19	9.6	5.8	69
23	e7.0	15	18	75	26	22	60	26	15	9.1	6.8	37
24	e7.0	12	253	e54	37	22	71	25	13	8.7	6.0	26
25	e7.0	10	526	e48	48	21	226	23	12	8.1	6.0	20
26	e8.2	11	129	e44	55	21	125	23	67	7.7	6.4	16
27	e12	22	77	e44	55	21	84	22	159	7.6	6.6	14
28	e11	16	55	e39	77	21	68	20	27	7.3	6.6	13
29	e11	12	42	36	---	21	58	18	17	7.0	6.7	11
30	e14	10	35	39	---	20	51	17	15	7.0	e6.6	17
31	e12	---	31	53	---	28	---	16	---	6.7	e6.4	---
TOTAL	186.0	764.0	2155.7	1903	1843	2197	5771	1455	766	631.7	183.1	2194.6
MEAN	6.00	25.5	69.5	61.4	65.8	70.9	192	46.9	25.5	20.4	5.91	73.2
MAX	14	101	526	482	288	778	1310	324	159	154	7.1	669
MIN	2.3	8.3	8.7	18	17	20	28	16	12	6.7	5.0	5.2
CFSM	.11	.44	1.21	1.07	1.15	1.24	3.35	.82	.44	.36	.10	1.28
IN.	.12	.50	1.40	1.23	1.19	1.42	3.74	.94	.50	.41	.12	1.42

CAL YR 1986 TOTAL 11650.0 MEAN 31.9 MAX 907 MIN 1.7 CFSM .56 IN. 7.55
WTR YR 1987 TOTAL 20050.1 MEAN 54.9 MAX 1310 MIN 2.3 CFSM .96 IN. 12.99

e Estimated.

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 mi².

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

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

REMARKS.--Records good except for period of backwater from log jam, Nov. 2-24, which is fair. Slight diurnal fluctuation caused by sewage disposal plant upstream from station at Winchester. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--19 years, 21.9 ft³/s, 18.02 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,100 ft³/s, Sept. 8, 1987; maximum gage height, 6.16 ft, Dec. 4, 1950; minimum discharge, 3.5 ft³/s, Oct. 8, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2000	613	4.06	June 26	1800	218	2.55
Jan. 19	1500	365	3.15	July 1	0130	211	2.52
Apr. 4	0830	312	2.94	July 2	2030	515	3.71
Apr. 4	1300	448	3.47	Sept. 8	0800	*1,100	*5.72
Apr. 16	1630	476	3.57	Sept. 12	2230	443	3.45
Apr. 17	0530	590	3.98	Sept. 18	0030	355	3.11
June 20	1830	220	2.56				

Minimum discharge, 9.8 ft³/s, Oct. 1, Jan. 28, gage height, 1.49 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	29	16	18	22	126	19	32	26	58	17	15
2	17	e40	56	22	38	66	19	32	22	88	17	14
3	14	e35	58	19	54	41	21	40	33	48	17	14
4	15	e35	24	18	56	33	179	83	25	26	15	14
5	18	e45	19	18	42	29	75	53	22	21	19	14
6	23	e35	16	17	34	27	101	42	20	23	14	37
7	23	e30	14	18	30	24	67	36	19	21	14	19
8	24	e35	14	18	28	23	46	34	19	19	13	313
9	25	e30	22	18	25	23	38	32	24	19	21	44
10	24	e25	18	20	23	22	33	30	21	18	16	25
11	23	e60	25	18	21	21	30	30	18	20	14	23
12	22	e30	25	18	22	21	28	30	19	36	14	63
13	31	e20	19	18	20	21	26	27	19	21	14	58
14	36	e17	16	17	19	19	25	26	18	21	14	27
15	28	e15	16	21	18	19	37	25	18	18	14	21
16	29	e15	15	17	18	24	174	24	18	17	14	32
17	32	e15	14	15	18	21	228	23	18	17	14	43
18	29	e20	28	19	18	20	83	35	18	17	14	94
19	25	e22	22	131	17	19	59	40	18	17	15	33
20	28	e28	19	61	17	19	51	37	38	18	14	109
21	29	e35	17	37	16	18	45	29	24	17	13	52
22	29	e25	16	30	16	17	41	26	19	17	18	35
23	28	e19	16	25	25	18	38	24	18	17	14	29
24	30	e17	124	19	26	17	54	22	19	17	13	25
25	28	20	82	17	26	17	63	22	18	17	13	23
26	30	28	39	19	26	17	47	22	41	17	14	21
27	30	20	30	18	25	18	41	21	24	17	14	19
28	30	18	24	16	48	20	41	21	19	17	15	19
29	29	16	21	19	---	16	38	20	18	17	15	19
30	30	16	21	22	---	18	36	20	19	17	15	25
31	30	---	19	23	---	29	---	19	---	17	15	---
TOTAL	812	795	865	766	748	823	1783	957	652	730	463	1279
MEAN	26.2	26.5	27.9	24.7	26.7	26.5	59.4	30.9	21.7	23.5	14.9	42.6
MAX	36	60	124	131	56	126	228	83	41	88	21	313
MIN	14	15	14	15	16	16	19	19	18	17	13	14
CFSM	1.59	1.61	1.69	1.50	1.62	1.61	3.60	1.87	1.32	1.42	.90	2.58
IN.	1.83	1.79	1.95	1.73	1.69	1.86	4.02	2.16	1.47	1.65	1.04	2.88

CAL YR 1986 TOTAL 9102 MEAN 24.9 MAX 176 MIN 12 CFSM 1.51 IN. 20.52
WTR YR 1987 TOTAL 10673 MEAN 29.2 MAX 313 MIN 13 CFSM 1.77 IN. 24.06

e Estimated.

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 mi².
PERIOD OF RECORD.--October 1946 to current year.
REVISED RECORDS.--WSP 1903: 1960. WSP 2103: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 2,054.57 ft above National Geodetic Vertical Datum of 1929. Prior to June 10, 1958, at site 575 ft downstream at datum 6.0 ft lower.
REMARKS.--Records good except those for periods of doubtful gage-height record, Jan. 1-3, 7-13, Mar. 11-19, and Apr. 28 to Sept. 7, and period with ice effect, Jan. 27, 28, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--41 years, 26.1 ft³/s, 20.61 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft³/s, June 17, 1949, gage height, 10.9 ft, from floodmarks, site and datum then in use, from rating curve extended above 900 ft³/s on basis of computation of peak flow over dam; maximum gage height, 19.8 ft, Nov. 5, 1985, from floodmarks (backwater from Elkhorn Lake); minimum discharge, 0.10 ft³/s, Sept. 15, 16, 19-22, 1962, Sept. 7-13, 1966.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 8.4 ft, from information by local resident.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2315	298	5.27	Apr. 17	0215	*2,440	*6.66
Mar. 1	2400	219	4.94				

Minimum daily discharge, 0.14 ft³/s, Aug. 21, Sept. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	.90	17	e24	16	118	121	e35	e57	e1.7	e.45	e.15
2	.65	1.0	19	e20	17	186	87	e31	e77	e1.8	e.44	e.15
3	.62	1.0	42	e16	27	122	62	e55	e66	e1.6	e.44	e.14
4	.63	1.1	39	14	34	83	50	e94	e56	e1.4	e.40	e.16
5	.60	1.4	30	12	32	60	40	e115	e43	e1.6	e.50	e.40
6	.59	1.7	24	11	30	47	36	e100	e30	e1.8	e.42	e1.5
7	.56	1.9	20	e10	28	41	48	e75	e21	e1.7	e.35	e2.5
8	.56	1.9	18	e9.4	28	51	112	e68	e15	e1.5	e.31	97
9	.56	1.9	18	e9.0	27	89	141	e48	e13	e1.4	e.32	53
10	.54	2.0	19	e8.8	23	125	114	e41	e12	e1.6	e.34	29
11	.53	2.4	16	e9.0	20	e91	92	e33	e9.5	e1.7	e.30	20
12	.55	3.0	19	e8.7	20	e62	73	e30	e7.8	e1.5	e.26	17
13	.59	3.7	24	e8.4	20	e45	57	e30	e6.7	e1.7	e.24	14
14	.61	e3.2	24	7.9	20	e34	44	e25	e5.8	e2.3	e.22	13
15	.62	3.3	26	8.1	19	e28	112	e20	e4.9	e2.0	e.21	10
16	.62	4.0	25	8.4	18	e24	1200	e17	e4.4	e2.1	e.18	8.5
17	.62	4.5	24	8.5	16	e20	1750	e15	e4.1	e1.8	e.22	7.2
18	.62	4.6	18	9.3	15	e20	473	e20	e3.8	e1.7	e.18	6.4
19	.64	5.6	13	51	14	e18	176	e88	e3.6	e1.5	e.16	5.7
20	.67	4.3	12	125	12	16	102	e165	e3.4	e1.3	e.15	16
21	.68	5.8	13	87	12	15	81	e90	e3.7	e1.1	e.14	26
22	.68	6.1	12	64	12	15	75	e58	e3.3	e1.0	e.17	21
23	.68	8.1	12	48	14	15	72	e43	e2.8	e.90	e.30	16
24	.63	5.8	81	36	12	15	74	e58	e2.5	e.88	e.24	13
25	.70	6.0	235	30	13	16	167	e63	e2.4	e.73	e.19	10
26	.76	9.2	131	26	16	17	155	e58	e2.6	e.63	e.17	8.1
27	.75	15	80	e22	18	18	106	e50	e2.4	e.60	e.17	6.7
28	.80	15	53	e19	20	20	e54	e52	e2.2	e.56	e.16	5.7
29	.83	16	40	16	---	20	e47	e47	e2.0	e.52	e.16	4.9
30	.85	18	33	16	---	23	e41	e43	e1.8	e.48	e.15	4.9
31	.82	---	28	17	---	82	---	e38	---	e.46	e.15	---
TOTAL	20.24	158.40	1165	759.5	553	1536	5762	1705	469.7	41.56	8.09	418.10
MEAN	.65	5.28	37.6	24.5	19.8	49.5	192	55.0	15.7	1.34	.26	13.9
MAX	.85	18	235	125	34	186	1750	165	77	2.3	.50	97
MIN	.53	.90	12	7.9	12	15	36	15	1.8	.46	.14	.14
CFSM	.04	.31	2.19	1.42	1.15	2.88	11.2	3.20	.91	.08	.02	.81
IN.	.04	.34	2.52	1.64	1.20	3.32	12.46	3.69	1.02	.09	.02	.90

CAL YR 1986 TOTAL 5141.51 MEAN 14.1 MAX 440 MIN .53 CFSM .82 IN. 11.12
WTR YR 1987 TOTAL 12596.59 MEAN 34.5 MAX 1750 MIN .14 CFSM 2.01 IN. 27.24

e Estimated.

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 Burketown, and 8.5 mi upstream from Middle River.

DRAINAGE AREA.--379 mi².

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

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

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

REMARKS.--Records good. At a point 26.8 mi upstream from station, there is an aqueduct tunnel diversion of about 3.1 ft³/s from Staunton Dam Reservoir by city of Staunton for industrial and municipal use. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--59 years, 373 ft³/s, 13.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,000 ft³/s, Nov. 5, 1985, gage height, 35.85 ft, from high-water mark, from rating curve extended above 16,000 ft³/s on basis of slope-area measurements at gage heights 32.4 ft and 36.3 ft, and contracted-opening measurements at gage heights 35.85 ft and 36.3 ft; maximum gage height, 36.3 ft, June 18, 1949; minimum discharge, 16 ft³/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 equal to or greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 17	1600	*10,300	*14.36	Sept. 11	2330	6,210	10.70

Minimum discharge, 29 ft³/s, Oct. 7, gage height, 1.66 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	52	79	300	337	1300	1340	657	421	116	65	53
2	51	87	129	279	358	2310	1190	585	578	119	58	52
3	51	71	185	251	551	1750	977	606	489	117	67	51
4	50	62	185	232	737	1330	968	902	534	116	55	52
5	49	89	223	216	732	1040	960	934	516	143	69	56
6	53	105	222	193	668	828	864	869	410	157	66	104
7	45	83	210	189	614	701	940	791	355	155	51	95
8	47	105	185	176	574	657	1200	699	309	126	51	1330
9	50	85	168	165	528	775	1350	612	271	128	52	677
10	49	82	164	166	464	1040	1260	545	257	115	57	584
11	47	92	170	163	429	979	1080	490	236	108	46	791
12	48	101	186	156	401	818	915	442	221	106	44	1190
13	57	79	185	146	385	680	763	411	215	110	44	1140
14	57	70	194	145	371	575	639	379	203	103	45	797
15	54	65	194	143	353	502	962	367	192	96	41	477
16	52	66	183	137	331	457	5340	339	182	93	49	358
17	52	68	174	133	323	411	9080	319	177	89	55	301
18	50	66	174	139	309	376	5400	330	175	87	45	272
19	49	73	164	360	289	347	3900	428	165	85	45	264
20	55	72	150	1180	266	332	3030	1400	159	85	45	609
21	49	100	140	1120	259	311	2010	1360	160	74	42	647
22	51	72	131	941	255	299	1450	1080	181	69	46	594
23	51	71	127	748	291	285	1120	910	148	70	117	482
24	48	73	229	574	279	268	1100	990	140	75	60	398
25	55	67	1450	477	279	265	1600	856	133	63	52	340
26	62	86	1160	433	303	263	1480	746	134	64	58	295
27	64	113	856	e350	326	252	1260	746	175	72	58	262
28	55	84	650	e295	358	261	1080	742	136	59	55	242
29	55	83	492	e300	---	252	898	640	130	57	59	223
30	54	79	395	305	---	286	769	544	122	59	52	229
31	54	---	336	334	---	699	---	462	---	63	56	---
TOTAL	1616	2401	9490	10746	11370	20649	54925	21181	7524	2979	1705	12965
MEAN	52.1	80.0	306	347	406	666	1831	683	251	96.1	55.0	432
MAX	64	113	1450	1180	737	2310	9080	1400	578	157	117	1330
MIN	45	52	79	133	255	252	639	319	122	57	41	51
CFSM	.14	.21	.81	.92	1.07	1.76	4.83	1.80	.66	.25	.15	1.14
IN.	.16	.24	.93	1.05	1.12	2.03	5.39	2.08	.74	.29	.17	1.27

CAL YR 1986 TOTAL 78050 MEAN 214 MAX 3230 MIN 37 CFSM .57 IN. 7.66
WTR YR 1987 TOTAL 157551 MEAN 432 MAX 9080 MIN 41 CFSM 1.14 IN. 15.46

e Estimated.

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 mi².

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

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

REMARKS.--Records good. Some diurnal fluctuation caused by discharge of about 1.8 ft³/s from sewage treatment plant just upstream from station. Most of the water discharged from the treatment plant was diverted from another drainage basin for municipal supply. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--20 years, 72.8 ft³/s, 14.10 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,520 ft³/s, Nov. 4, 1985, gage height, 13.58 ft, from rating curve extended above 2,400 ft³/s; minimum, 3.8 ft³/s, Jan. 11, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1900	1,280	6.13	May 19	2400	1,170	5.80
Apr. 15	1830	1,620	7.20	Sept. 8	0930	1,340	6.31
Apr. 17	0030	*3,170	*11.10	Sept. 10	0300	1,390	6.48
Apr. 25	0500	2,040	8.39				

Minimum daily discharge, 17 ft³/s, Oct. 5-12, 16-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	18	24	53	90	515	84	161	60	35	26	20
2	19	23	160	53	107	284	76	147	61	36	24	19
3	19	21	143	49	209	188	77	181	58	39	24	19
4	18	19	62	47	246	149	154	447	63	39	22	19
5	17	29	48	45	168	127	193	209	57	44	24	23
6	17	33	41	43	135	114	243	159	53	38	24	38
7	17	27	37	44	134	104	219	139	52	36	23	70
8	17	36	35	43	137	99	160	124	50	34	23	593
9	17	28	38	41	117	103	130	114	50	33	22	109
10	17	24	47	42	95	112	113	106	52	35	22	500
11	17	24	56	42	88	93	104	100	49	43	21	104
12	17	25	68	39	88	89	97	95	48	49	21	80
13	18	24	52	38	88	84	89	92	48	46	21	74
14	19	22	45	37	78	80	82	89	46	36	21	63
15	18	22	42	39	72	78	485	85	45	34	21	56
16	17	23	39	38	65	78	2000	81	49	32	23	52
17	17	22	37	37	65	75	1930	78	52	31	22	49
18	17	21	42	38	64	71	864	76	45	31	20	50
19	17	21	38	345	59	69	459	171	43	30	20	49
20	17	21	35	192	58	67	321	281	44	29	20	165
21	17	24	34	121	59	64	254	97	45	29	19	111
22	17	22	32	104	60	63	205	85	42	28	21	81
23	17	22	31	90	75	61	176	78	41	29	29	69
24	17	22	346	78	85	59	725	77	40	26	22	62
25	18	21	237	e72	92	59	1440	76	40	25	21	57
26	24	33	119	e68	90	58	544	72	40	26	22	53
27	21	39	90	e66	80	55	363	69	39	26	21	51
28	19	30	76	e64	115	78	288	67	37	24	21	48
29	18	27	64	e70	---	64	224	64	36	24	20	47
30	18	25	60	e80	---	74	185	61	36	23	20	49
31	18	---	55	e95	---	104	---	60	---	25	20	---
TOTAL	555	748	2233	2213	2819	3318	12284	3741	1421	1015	680	2780
MEAN	17.9	24.9	72.0	71.4	101	107	409	121	47.4	32.7	21.9	92.7
MAX	24	39	346	345	246	515	2000	447	63	49	29	593
MIN	17	18	24	37	58	55	76	60	36	23	19	19
CFSM	.26	.36	1.03	1.02	1.44	1.53	5.84	1.73	.68	.47	.31	1.32
IN.	.29	.40	1.18	1.17	1.50	1.76	6.52	1.99	.75	.54	.36	1.48

CAL YR 1986 TOTAL 15157 MEAN 41.5 MAX 383 MIN 16 CFSM .59 IN. 8.04
WTR YR 1987 TOTAL 33807 MEAN 92.6 MAX 2000 MIN 17 CFSM 1.32 IN. 17.94

e Estimated.

01625000 MIDDLE RIVER NEAR GROTTOES, 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 mi².
PERIOD OF RECORD.--April 1927 to current year. Records for February 1925 to September 1926, published in WSP 601 and 621, are unreliable and should not be used.
REVISED RECORDS.--WSP 1051: 1928-29, 1930(M), 1932, 1935-37, 1938(M), 1940. WSP 1171: 1933. WSP 1302: 1928-29(M), 1931-34(M). WSP 2103: Drainage area. See also PERIOD OF RECORD.
GAGE.--Water-stage recorder. Datum of gage is 1,061.51 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.
REMARKS.--Records good. At a point 24.4 mi upstream from station, there is a discharge of about 4.5 ft³/s from sewage treatment plant. Most of water discharged from the treatment plant was diverted from another drainage basin for industrial and municipal supply. Small diurnal fluctuation at low flow caused by mills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--60 years, 314 ft³/s, 11.37 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,500 ft³/s, Nov. 5, 1985, gage height, 33.09 ft, from rating curve extended above 15,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 19 ft³/s, Jan. 12, 1981, result of freezeup.
EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1877, that of Nov. 5, 1985.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 17	1100	*12,200	*18.80	Sept. 8	1130	3,820	11.06
Apr. 25	1500	4,510	11.95				

Minimum discharge, 71 ft³/s, Sept. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	102	179	299	e507	1430	706	759	315	147	157	87
2	102	112	237	282	465	2250	587	694	357	148	132	86
3	96	130	593	269	718	1370	505	711	325	160	126	83
4	93	116	462	238	1060	956	659	1490	311	152	124	82
5	92	125	345	233	866	752	892	1210	311	169	168	88
6	90	190	278	228	684	636	976	931	276	186	150	146
7	89	157	238	211	622	556	1010	790	258	202	126	188
8	90	174	214	200	609	513	953	688	243	151	120	2420
9	91	170	202	201	573	531	848	612	231	277	117	1100
10	93	161	233	199	486	677	695	558	233	354	111	1780
11	91	147	241	206	447	673	583	521	224	276	107	934
12	91	162	336	195	428	560	525	494	216	318	100	543
13	95	151	339	185	433	504	474	484	218	401	101	461
14	101	143	294	179	410	455	427	455	214	202	98	389
15	101	137	262	192	386	421	621	436	200	178	95	330
16	96	139	241	172	359	403	4600	416	193	166	96	284
17	94	136	222	173	344	389	10800	395	258	159	96	262
18	93	131	221	176	336	359	5280	377	212	154	92	238
19	93	132	223	532	323	342	2260	423	186	150	88	238
20	93	130	205	1230	303	326	1590	891	182	148	88	485
21	94	145	190	833	294	313	1260	631	185	142	87	750
22	94	144	182	625	304	299	1040	500	188	161	87	498
23	95	143	171	541	343	289	891	443	178	142	121	398
24	95	141	344	e438	385	278	1200	464	170	142	112	336
25	100	140	1690	e402	389	274	3700	477	167	134	98	299
26	111	159	961	e312	429	274	2420	476	168	127	97	269
27	122	210	644	e309	431	263	1570	434	171	129	96	250
28	110	230	495	e306	442	292	1250	415	161	127	94	234
29	103	212	413	e357	---	303	1030	395	153	123	90	224
30	102	189	360	e396	---	283	876	363	151	122	88	225
31	100	---	327	495	---	448	---	334	---	126	86	---
TOTAL	3012	4558	11342	10614	13376	17419	50228	18267	6655	5573	3348	13707
MEAN	97.2	152	366	342	478	562	1674	589	222	180	108	457
MAX	122	230	1690	1230	1060	2250	10800	1490	357	401	168	2420
MIN	89	102	171	172	294	263	427	334	151	122	86	82
CFSM	.26	.41	.98	.91	1.28	1.50	4.46	1.57	.59	.48	.29	1.22
IN.	.30	.45	1.13	1.05	1.33	1.73	4.98	1.81	.66	.55	.33	1.36

CAL YR 1986 TOTAL 79698 MEAN 218 MAX 1990 MIN 86 CFSM .58 IN. 7.91
WTR YR 1987 TOTAL 158099 MEAN 433 MAX 10800 MIN 82 CFSM 1.16 IN. 15.68

e Estimated.

01626000 SOUTH RIVER NEAR WAYNESBORO, VA

LOCATION.--Lat 38°03'27", long 78°54'30", Waynesboro City, Hydrologic Unit 02070005, on right bank 80 ft downstream from bridge on State Highway 664, 1.3 mi southwest of Waynesboro post office, and 2.4 mi downstream from Back Creek.
DRAINAGE AREA.--127 mi², of which 41 mi² are above flood-detention structures.
PERIOD OF RECORD.--October 1952 to current year.
REVISED RECORDS.--WSP 2103: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 1,296.20 ft above National Geodetic Vertical Datum of 1929.
REMARKS.--Records good. At a point 13.8 mi upstream from station, there is a diversion of about 1.8 ft³/s from Coles Run Reservoir, capacity 80,000,000 gal., by Augusta County Service Authority for industrial and municipal use. Flow from 41 mi² upstream from station slightly regulated by flood-detention reservoirs (sixteen of which were built by Soil Conservation Service between 1954 and 1961). Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--35 years, 144 ft³/s, 15.40 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s, Nov. 4, 1985, gage height, 15.30 ft, from rating curve extended above 4,200 ft³/s on basis of contracted-opening measurement at gage height 13.95 ft; minimum, 7.0 ft³/s, July 18, 1966; minimum daily, 17 ft³/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 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2000	1,120	5.23	Apr. 25	1300	4,130	8.82
Mar. 1	1400	1,580	6.08	Sept. 8	0800	1,550	6.02
Apr. 17	0100	*5,110	*9.58				

Minimum discharge, 29 ft³/s, Oct. 20, 22, 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	33	39	132	127	1170	594	509	130	58	48	38
2	41	36	219	128	128	1110	416	462	e140	59	46	37
3	49	35	409	112	165	690	349	432	120	62	45	37
4	35	34	224	102	237	522	377	538	131	69	47	36
5	34	36	146	92	233	405	377	575	e125	79	47	41
6	34	39	108	86	209	333	374	475	e112	77	46	49
7	33	39	90	85	204	295	451	418	e108	75	45	173
8	33	40	81	87	222	285	568	366	e95	69	45	1170
9	33	42	77	82	220	311	490	328	e92	67	44	590
10	33	36	88	81	188	371	419	298	e90	67	43	360
11	33	35	88	83	172	332	363	273	e87	65	42	267
12	32	37	113	78	169	290	321	249	e86	69	41	159
13	32	37	107	73	180	261	283	236	e85	89	41	148
14	34	34	94	70	172	234	249	223	e78	73	41	121
15	33	34	87	72	159	216	441	211	e79	68	39	104
16	32	35	80	73	147	204	2500	198	e75	65	40	89
17	32	35	75	70	145	192	4400	186	e74	64	40	82
18	32	34	78	71	140	178	2630	177	e72	62	39	84
19	32	35	78	153	124	168	1810	188	e69	61	39	82
20	31	34	70	293	116	160	1410	321	70	59	39	274
21	31	36	66	234	114	152	1080	243	77	58	37	292
22	31	39	62	217	116	145	860	215	72	58	39	206
23	31	37	59	191	137	139	668	189	68	56	44	159
24	31	36	381	148	133	133	763	196	66	55	42	133
25	33	36	727	145	126	131	3380	183	66	54	40	115
26	35	42	446	131	132	130	2280	173	66	53	40	104
27	35	71	311	127	132	124	1460	162	66	53	40	91
28	33	57	238	119	171	161	1110	151	62	51	39	85
29	32	44	192	114	---	154	e776	141	61	49	39	81
30	32	41	165	115	---	297	e650	133	59	46	38	74
31	32	---	143	133	---	751	---	136	---	50	38	---
TOTAL	1040	1159	5141	3697	4518	10044	31849	8585	2581	1940	1293	5281
MEAN	33.5	38.6	166	119	161	324	1062	277	86.0	62.6	41.7	176
MAX	49	71	727	293	237	1170	4400	575	140	89	48	1170
MIN	31	33	39	70	114	124	249	133	59	46	37	36
CFSM	.26	.30	1.31	.94	1.27	2.55	8.36	2.18	.68	.49	.33	1.39
IN.	.30	.34	1.51	1.08	1.32	2.94	9.33	2.51	.76	.57	.38	1.55

CAL YR 1986 TOTAL 28781 MEAN 78.9 MAX 727 MIN 31 CFSM .62 IN. 8.43
WTR YR 1987 TOTAL 77128 MEAN 211 MAX 4400 MIN 31 CFSM 1.66 IN. 22.59

e Estimated.

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 mi².

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

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

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

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

AVERAGE DISCHARGE.--13 years, 210 ft³/s, 19.14 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,100 ft³/s, Nov. 4, 1985, gage height, 14.03 ft, from flood-marks, from rating curve extended above 8,100 ft³/s; minimum, 42 ft³/s, Aug. 29, 30, 1981, gage height, 2.17 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2000	1,720	6.85	Apr. 25	1330	5,070	11.08
Mar. 1	1500	2,190	7.71	Sept. 8	0630	2,960	9.02
Mar. 31	1230	1,150	5.67	Sept. 8	1800	1,820	7.03
Apr. 17	0130	*6,120	*11.64				

Minimum discharge, 47 ft³/s, Oct. 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	56	69	167	164	1530	724	532	162	76	65	54
2	52	65	354	167	171	1370	481	467	144	76	62	53
3	69	58	519	148	220	844	401	439	132	79	61	53
4	54	57	278	136	302	615	470	600	147	96	115	52
5	50	72	186	129	292	467	452	615	134	102	80	81
6	50	64	145	123	262	383	448	486	122	137	64	86
7	50	73	126	122	256	339	535	429	117	90	62	328
8	50	63	116	123	277	325	689	378	110	82	62	2090
9	50	63	114	118	275	360	567	335	107	80	61	717
10	50	59	119	117	237	420	475	301	112	96	61	430
11	50	60	128	118	217	379	408	279	105	80	58	323
12	50	60	143	113	213	331	359	256	102	86	57	203
13	53	59	138	108	229	293	315	235	105	104	57	188
14	54	57	126	105	220	263	276	223	100	85	57	158
15	51	59	120	106	206	241	534	211	96	78	56	143
16	51	58	112	107	189	228	3150	196	94	76	56	126
17	51	58	107	103	187	214	5390	183	95	74	58	115
18	50	59	115	106	182	197	3310	175	91	73	56	121
19	50	58	109	231	163	188	2160	224	91	71	56	126
20	51	63	102	366	154	179	1510	345	100	70	56	356
21	51	59	97	291	151	170	1070	240	101	81	55	375
22	50	61	92	270	155	162	825	210	96	70	64	268
23	50	60	89	237	187	155	669	190	91	68	66	207
24	50	59	615	209	177	149	824	189	87	66	59	171
25	55	57	925	e185	169	146	4160	184	86	65	57	151
26	60	80	542	e175	173	145	2910	176	84	64	56	135
27	56	102	377	e160	172	140	1660	167	83	64	56	123
28	53	89	290	e155	209	183	1130	159	81	62	56	115
29	53	76	238	e158	---	172	849	149	79	61	55	110
30	53	71	207	160	---	330	691	139	76	60	54	107
31	52	---	181	171	---	955	---	142	---	71	55	---
TOTAL	1623	1935	6879	4984	5809	11873	37442	8854	3130	2443	1893	7565
MEAN	52.4	64.5	222	161	207	383	1248	286	104	78.8	61.1	252
MAX	69	102	925	366	302	1530	5390	615	162	137	115	2090
MIN	50	56	69	103	151	140	276	139	76	60	54	52
CFSM	.35	.43	1.49	1.08	1.39	2.57	8.38	1.92	.70	.53	.41	1.69
IN.	.41	.48	1.72	1.24	1.45	2.96	9.35	2.21	.78	.61	.47	1.89

CAL YR 1986 TOTAL 39710 MEAN 109 MAX 925 MIN 47 CFSM .73 IN. 9.91
WTR YR 1987 TOTAL 94430 MEAN 259 MAX 5390 MIN 50 CFSM 1.74 IN. 23.58

e Estimated.

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 mi².
PERIOD OF RECORD.--February 1925 to September 1951, October 1968 to current year.
REVISED RECORDS.--WSP 1171: 1926(M), 1927-28, 1929-32(M), 1933, 1934(M), 1935, 1937. WSP 1302: 1937(M), 1938(M). WSP 2103: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 1,129.87 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.
REMARKS.--Records good. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--45 years, 258 ft³/s, 16.53 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,100 ft³/s, Nov. 4, 1985, gage height, 15.47 ft, from rating curve extended above 10,000 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 17.2 ft, Oct. 15, 1942; minimum discharge, 17 ft³/s, Nov. 14, 1941.
EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1870 and 1877 reached a stage of about 18.8 ft, from information by observer in 1925.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0100	2,060	6.76	Apr. 25	2030	4,710	9.08
Mar. 1	2000	2,260	7.01	Sept. 8	1100	3,720	8.32
Apr. 17	0700	*8,120	*11.08				

Minimum discharge, 57 ft³/s, Oct. 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	64	77	246	234	1330	885	622	188	97	96	67
2	68	77	231	245	236	1650	598	545	210	99	84	66
3	79	70	668	221	282	1030	489	526	178	100	81	66
4	78	68	378	205	386	759	633	698	193	108	80	65
5	66	79	252	194	388	588	645	751	185	128	161	78
6	64	80	192	184	346	477	613	611	164	147	87	126
7	64	77	159	180	335	420	658	538	153	154	83	107
8	64	90	141	181	353	397	897	477	145	107	81	2520
9	65	72	134	175	361	424	772	427	141	233	79	1020
10	63	70	138	173	318	502	627	388	144	137	77	617
11	63	68	146	173	293	470	526	358	139	131	76	462
12	62	71	170	167	284	412	457	334	135	188	74	297
13	64	68	169	161	296	369	402	313	136	152	73	268
14	66	65	153	155	289	331	352	295	131	126	73	225
15	62	65	145	154	276	307	480	283	125	114	72	195
16	61	67	135	156	261	291	3090	265	124	109	73	174
17	61	65	126	152	255	276	7100	248	125	105	72	156
18	62	65	132	155	250	257	4310	236	118	104	72	157
19	60	66	130	257	228	245	2450	245	115	101	72	152
20	61	65	120	472	215	235	1650	451	117	98	72	337
21	60	73	113	405	210	224	1220	324	126	96	70	419
22	61	68	107	373	212	214	944	281	120	107	71	325
23	58	68	104	338	246	204	776	254	114	95	92	260
24	59	67	417	279	248	195	824	246	109	92	75	221
25	62	66	1320	270	239	190	3200	241	108	90	74	195
26	78	77	730	e250	245	188	3190	233	108	89	73	176
27	67	104	508	e224	246	182	1720	223	105	87	71	161
28	67	98	401	e216	257	219	1210	212	103	85	71	150
29	64	90	334	e220	---	225	928	201	100	83	69	143
30	65	80	295	225	---	264	771	187	99	83	67	140
31	64	---	266	238	---	924	---	183	---	84	67	---
TOTAL	2008	2203	8391	7044	7789	13799	42417	11196	4058	3529	2438	9345
MEAN	64.8	73.4	271	227	278	445	1414	361	135	114	78.6	312
MAX	79	104	1320	472	388	1650	7100	751	210	233	161	2520
MIN	58	64	77	152	210	182	352	183	99	83	67	65
CFSM	.31	.35	1.28	1.07	1.31	2.10	6.67	1.70	.64	.54	.37	1.47
IN.	.35	.39	1.47	1.24	1.37	2.42	7.44	1.96	.71	.62	.43	1.64

CAL YR 1986 TOTAL 52210 MEAN 143 MAX 1320 MIN 58 CFSM .68 IN. 9.16
WTR YR 1987 TOTAL 114217 MEAN 313 MAX 7100 MIN 58 CFSM 1.48 IN. 20.04

e Estimated.

01628060 WHITE OAK RUN NEAR GROTTOES, 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 mi².

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

REVISED RECORDS.--WDR VA-85-1: 1983-84(P).

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

REMARKS.--Records fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--8 years, 2.47 ft³/s, 17.29 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 515 ft³/s, Nov. 4, 1985, gage height, 6.17 ft, from floodmarks; no flow many days in 1980-87.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 30 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1630	50	2.42	Sept. 7	2330	63	2.57
Apr. 16	1900	*136	*3.34	Sept. 10	0330	61	2.55

No flow part or all of October, November, June to September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.40	1.3	1.4	20	9.9	4.8	.37	.00	.00	.00
2	.00	.00	3.0	1.1	2.0	20	7.9	4.1	.45	.00	.00	.00
3	.00	.00	8.9	.87	3.6	13	5.6	3.8	.47	.00	.00	.00
4	.00	.00	4.7	.70	4.8	8.4	13	8.4	.61	.00	.00	.00
5	.00	.00	2.5	.60	4.1	5.7	14	13	.51	.00	.00	.00
6	.00	.01	1.6	.55	3.3	4.2	12	11	.35	.01	.00	.00
7	.00	.03	1.1	.53	2.9	3.3	11	8.7	.26	.04	.00	2.7
8	.00	.04	.89	.52	2.9	3.3	14	6.8	.20	.01	.00	34
9	.00	.06	.78	.46	2.5	6.6	13	5.4	.17	.00	.00	6.9
10	.00	.06	.72	.44	2.0	12	e9.3	4.5	.17	.00	.00	29
11	.00	.05	.68	.44	1.6	8.5	e7.9	3.6	.16	.00	.00	10
12	.00	.06	.99	.44	1.6	5.7	e6.9	3.0	.13	.01	.00	5.3
13	.00	.06	1.1	.42	1.5	4.1	5.5	2.4	.15	.00	.00	3.2
14	.00	.05	1.1	.38	1.5	3.1	4.2	1.9	.14	.00	.00	1.7
15	.00	.04	1.1	.37	1.4	2.5	5.4	1.6	.11	.00	.00	1.0
16	.00	.03	1.0	.37	1.1	2.1	79	1.4	.08	.00	.00	.68
17	.00	.04	.87	.33	1.1	1.6	97	1.2	.08	.00	.00	.48
18	.00	.04	.81	.33	1.0	1.4	37	1.1	.07	.00	.00	.40
19	.00	.05	.70	3.7	.82	1.3	17	1.1	.05	.00	.00	.31
20	.00	.06	.61	7.7	.70	1.1	10	1.3	.05	.00	.00	.57
21	.00	.08	.55	6.1	.65	1.0	6.9	.94	.05	.00	.00	.46
22	.00	.08	.50	5.0	.64	.88	5.1	.79	.05	.00	.00	.34
23	.00	.07	.45	3.6	.76	.81	3.9	.67	.05	.00	.00	.29
24	.00	.06	14	2.4	.69	.72	3.7	.62	.03	.00	.00	.26
25	.00	.06	20	1.9	.68	.64	6.4	.58	.02	.00	.00	.22
26	.00	.10	11	1.7	.82	.63	14	.57	.01	.00	.00	.19
27	.00	.41	6.2	1.4	.98	.60	14	.53	.01	.00	.00	.15
28	.00	.49	4.0	1.2	1.6	.66	10	.52	.01	.00	.00	.12
29	.00	.33	2.8	.90	---	.60	7.8	.43	.00	.00	.00	.10
30	.00	.40	2.2	1.1	---	.81	6.2	.39	.00	.00	.00	.10
31	.00	---	1.6	1.5	---	4.9	---	.33	---	.00	.00	---
TOTAL	.00	2.76	96.85	48.35	48.64	140.15	457.6	95.47	4.81	.07	.00	98.47
MEAN	.00	.09	3.12	1.56	1.74	4.52	15.3	3.08	.16	.00	.00	3.28
MAX	.00	.49	20	7.7	4.8	20	97	13	.61	.04	.00	34
MIN	.00	.00	.40	.33	.64	.60	3.7	.33	.00	.00	.00	.00
CFSM	.00	.05	1.61	.80	.90	2.33	7.89	1.59	.08	.00	.00	1.69
IN.	.00	.05	1.86	.93	.93	2.69	8.77	1.83	.09	.00	.00	1.89

CAL YR 1986 TOTAL 306.58 MEAN .84 MAX 20 MIN .00 CFSM .43 IN. 5.88
WTR YR 1987 TOTAL 993.17 MEAN 2.72 MAX 97 MIN .00 CFSM 1.40 IN. 19.03

e Estimated.

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 northeast of Lynnwood and 3.3 mi downstream from confluence of North and South Rivers.

DRAINAGE AREA.--1,084 mi².

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

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

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

REMARKS.--Records good. Diurnal fluctuation at low flow prior to 1960 caused by mill at Lynnwood. National Weather Service rain gage and gage-height telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--57 years, 1,010 ft³/s, 12.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,100 ft³/s, Nov. 5, 1985, gage height, 29.46 ft, from flood-marks, from rating curve extended above 22,000 ft³/s on basis of computations of flow over dam at gage heights 23.60 ft and 27.2 ft; minimum, 32 ft³/s, Sept. 20, 1932, gage height, 1.63 ft; minimum daily, 93 ft³/s, Sept. 21, 29, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Nov. 5, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 7,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 2	0300	7,520	9.41	Apr. 25	2100	10,300	11.16
Apr. 17	1400	*33,900	*19.29	Sept. 8	1230	11,200	11.65

Minimum daily discharge, 204 ft³/s, Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	225	354	867	1130	3960	3230	2370	1030	404	333	252
2	215	240	440	822	1100	7040	2720	2130	1200	405	308	249
3	214	262	1480	771	1490	4900	2230	2110	1120	417	293	246
4	217	246	1060	698	2480	3580	2500	3490	1130	408	288	245
5	208	254	846	662	2300	2720	3000	3430	1190	483	384	256
6	205	331	711	630	1960	2170	2890	2790	1020	547	342	368
7	206	308	631	596	1790	1850	2980	2410	936	634	295	448
8	204	332	573	581	1740	1670	3420	2150	857	436	283	7340
9	208	320	533	565	1650	1780	3420	2020	e780	513	277	3650
10	212	301	551	556	1400	2330	3000	1830	e740	839	275	4070
11	211	288	566	563	1270	2360	2520	1670	e700	556	268	2370
12	208	317	693	542	1190	2000	2180	1550	e680	507	257	2780
13	217	298	704	516	1190	1710	1920	1490	e665	870	255	1880
14	227	283	661	493	1140	1470	1630	1390	e655	494	252	1860
15	223	277	627	502	1080	1310	1880	1330	e640	433	251	1190
16	219	279	594	486	998	1210	12400	1270	e620	402	250	938
17	219	278	560	475	958	1130	29800	1210	e580	382	257	806
18	218	276	554	476	934	1030	17200	1170	e550	373	251	736
19	216	277	558	1010	888	972	9230	1240	537	364	245	703
20	217	279	519	3200	828	929	7020	2620	520	355	244	1490
21	219	301	484	2680	796	894	5340	2630	532	350	243	2090
22	217	303	461	2170	802	855	4090	2140	552	349	244	1630
23	220	291	437	1880	893	822	3310	1790	505	339	320	1350
24	219	291	666	1420	952	788	3490	1830	479	330	297	1200
25	222	290	4870	1270	933	774	8250	1720	463	319	267	1030
26	239	313	3370	1040	1000	778	7960	1620	455	308	263	912
27	246	404	2280	e920	1040	747	5450	1440	493	308	263	840
28	238	422	1710	e920	1080	795	4260	1530	455	305	261	768
29	228	399	1330	e960	---	841	3430	1350	435	294	259	680
30	227	368	1100	973	---	813	2860	1200	421	287	255	626
31	225	---	955	1100	---	1860	---	1090	---	295	251	---
TOTAL	6775	9053	30878	30344	35012	56088	163610	58010	20940	13306	8531	43003
MEAN	219	302	996	979	1250	1809	5454	1871	698	429	275	1433
MAX	246	422	4870	3200	2480	7040	29800	3490	1200	870	384	7340
MIN	204	225	354	475	796	747	1630	1090	421	287	243	245
CFSM	.20	.28	.92	.90	1.15	1.67	5.03	1.73	.64	.40	.25	1.32
IN.	.23	.31	1.06	1.04	1.20	1.92	5.61	1.99	.72	.46	.29	1.48

CAL YR 1986 TOTAL 218767 MEAN 599 MAX 5800 MIN 204 CFSM .55 IN. 7.51
WTR YR 1987 TOTAL 475550 MEAN 1303 MAX 29800 MIN 204 CFSM 1.20 IN. 16.32

e Estimated.

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 mi².

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

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

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

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

AVERAGE DISCHARGE.--26 years, 1,336 ft³/s, 13.18 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 110,000 ft³/s, Nov. 5, 1985, gage height, 26.72 ft; minimum, 70 ft³/s, Sept. 27, 1941, gage height, 2.15 ft; minimum daily, 135 ft³/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 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 2	1200	10,300	8.73	Apr. 26	0500	13,200	9.89
Apr. 17	1930	*47,000	*18.50	Sept. 8	2000	15,400	10.74

Minimum discharge, 250 ft³/s, Oct. 12, gage height, 2.80 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	313	287	439	1080	1390	2930	3240	3180	1270	544	382	337
2	302	301	444	1000	1340	9540	3520	2710	1430	534	419	337
3	296	306	1120	929	1620	7200	2840	2490	1480	529	405	333
4	299	343	1620	868	2810	4960	3130	3630	1650	536	375	332
5	303	353	1140	768	3130	3790	4270	4960	1620	526	383	333
6	297	356	941	736	2570	2990	4050	3900	1390	593	456	387
7	289	408	785	711	2230	2450	4280	3320	1180	685	439	498
8	275	431	679	677	2100	2150	4500	2870	1060	742	389	7040
9	275	412	664	659	2040	2110	4660	2470	943	536	372	7580
10	293	406	634	644	1800	2590	4100	2180	912	858	369	5680
11	288	390	671	639	1570	3000	3430	1970	847	794	361	4680
12	271	385	705	638	1450	2640	2890	1820	840	640	352	4270
13	296	394	834	614	1390	2230	2440	1690	812	823	340	2710
14	309	379	799	577	1370	1910	2050	1580	801	853	330	2730
15	309	340	746	571	1300	1680	1870	1490	773	581	329	1920
16	304	341	707	578	1190	1540	11400	1420	742	519	337	1440
17	294	347	665	549	1140	1430	39800	1320	696	511	338	1200
18	297	341	641	551	1120	1330	32100	1260	756	463	346	1070
19	294	354	625	781	1070	1230	14900	1410	705	454	352	947
20	288	348	623	2890	1000	1160	10300	2060	670	455	346	1050
21	287	369	593	3650	943	1110	7570	3470	681	440	338	2650
22	285	373	517	2850	924	1050	5590	2670	922	438	328	2330
23	290	381	508	2370	1020	1000	4510	2200	718	427	371	1840
24	292	362	560	1810	1090	959	4110	2010	653	421	399	1510
25	294	346	3870	1500	1120	905	7720	2020	597	409	409	1280
26	301	385	5030	1350	1150	905	11600	1890	596	404	371	1110
27	313	400	3200	e1120	1210	888	7530	1850	620	381	363	1010
28	328	475	2270	e1080	1260	877	5620	1820	622	385	363	871
29	320	494	1750	e1100	---	953	4550	1650	571	386	359	825
30	301	467	1420	e1160	---	966	3790	1490	555	374	348	805
31	286	---	1200	1230	---	1250	---	1330	---	374	344	---
TOTAL	9189	11274	36400	35680	42347	69723	222360	70130	27112	16615	11413	59105
MEAN	296	376	1174	1151	1512	2249	7412	2262	904	536	368	1970
MAX	328	494	5030	3650	3130	9540	39800	4960	1650	858	456	7580
MIN	271	287	439	549	924	877	1870	1260	555	374	328	332
CFSM	.22	.27	.85	.84	1.10	1.63	5.38	1.64	.66	.39	.27	1.43
IN.	.25	.30	.98	.96	1.14	1.88	6.01	1.89	.73	.45	.31	1.60

CAL YR 1986 TOTAL 282621 MEAN 774 MAX 7890 MIN 267 CFSM .56 IN. 7.64
WTR YR 1987 TOTAL 611348 MEAN 1675 MAX 39800 MIN 271 CFSM 1.22 IN. 16.52

e Estimated.

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA

LOCATION.--Lat 38°54'50" (corrected), 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 mi².
PERIOD OF RECORD.--June 1899 to September 1906, September 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.
REVISED RECORDS.--WSP 951: 1936(M). WSP 1171: 1935(M), 1937(M). WSP 2103: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 469.38 ft above National Geodetic Vertical Datum of 1929. June 1899 to July 1906, nonrecording gage at site 1.0 mi upstream at different datum.
REMARKS.--Records good except for period with ice effect, Jan. 26 to Feb. 3, which is fair. Large diurnal fluctuation at low and medium flow caused by powerplants upstream from station prior to 1954; occasional large diurnal fluctuation thereafter. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--64 years, 1,604 ft³/s, 13.27 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s, Oct. 16, 1942, gage height, 34.8 ft, from floodmark in gage well, from rating curve extended above 92,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 59 ft³/s, Jan. 30, 1934, gage height, 0.56 ft; minimum daily, 103 ft³/s, Sept. 30, 1930.
EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 16, 1942.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 8,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 2	2115	9,740	7.09	Apr. 26	1515	12,700	8.28
Apr. 18	0700	*49,400	*18.51	Sept. 9	0900	15,400	9.93

Minimum discharge, 278 ft³/s, Oct. 5, 11; minimum daily, 283 ft³/s, Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	315	522	1300	e1700	2120	1970	3600	1420	645	421	463
2	345	332	577	1240	e1670	6970	3660	3090	1510	672	400	419
3	339	326	805	1120	e1900	8500	3320	2760	1610	628	413	416
4	327	339	1420	1060	2360	5880	3910	3030	1780	606	452	402
5	299	380	1460	1010	3320	4490	4830	4910	1980	610	425	405
6	306	435	1040	907	3060	3600	4920	4520	1840	599	404	468
7	310	406	952	880	2620	3000	5120	3740	1510	661	466	519
8	312	444	732	863	2410	2630	4850	3370	1360	709	536	1220
9	302	484	765	839	2300	2490	5030	3050	1090	781	451	10900
10	293	428	695	843	2200	2580	4680	2760	1060	605	420	4980
11	283	526	691	784	1950	2990	4020	2480	1010	835	416	6230
12	312	484	752	801	1780	3060	3430	2250	957	941	415	3910
13	305	455	764	794	1690	2690	2970	2100	934	764	389	4180
14	321	432	843	777	1600	2360	2580	1980	900	815	381	2710
15	334	436	814	762	1590	2120	2280	1870	887	842	374	2640
16	323	409	767	719	1510	2000	4450	1790	868	657	350	1920
17	327	374	731	744	1430	1860	33900	1680	809	576	375	1560
18	325	388	729	735	1330	1750	43700	1580	782	525	396	1530
19	312	426	697	990	1360	1530	20600	1570	809	532	473	1330
20	305	366	678	1710	1310	1470	12100	1760	822	476	396	1130
21	309	430	669	3670	1200	1390	e8890	2730	882	481	398	1600
22	302	420	646	3300	1180	1330	e6720	3030	788	472	385	2970
23	312	419	626	2750	1280	1290	5330	2530	984	474	409	2320
24	310	441	734	2420	1310	1210	4530	2210	828	434	452	1960
25	323	414	1510	1940	1370	1190	5250	2720	720	460	480	1620
26	324	437	5280	e1680	1420	1120	11100	2310	711	427	556	1420
27	320	442	3890	e1460	1440	1130	8990	2090	727	419	501	1180
28	328	463	2780	e1320	1520	1160	6390	2150	709	425	480	1080
29	345	508	2150	e1350	---	1110	5130	1990	709	377	489	997
30	342	543	1780	e1440	---	1210	4240	1740	675	395	460	944
31	337	---	1470	e1550	---	1280	---	1580	---	426	459	---
TOTAL	9872	12702	37969	41758	49810	77510	238890	78970	31671	18269	13422	63423
MEAN	318	423	1225	1347	1779	2500	7963	2547	1056	589	433	2114
MAX	345	543	5280	3670	3320	8500	43700	4910	1980	941	556	10900
MIN	283	315	522	719	1180	1110	1970	1570	675	377	350	402
CFSM	.19	.26	.75	.82	1.08	1.52	4.85	1.55	.64	.36	.26	1.29
IN.	.22	.29	.86	.95	1.13	1.76	5.41	1.79	.72	.41	.30	1.44

CAL YR 1986 TOTAL 324276 MEAN 888 MAX 8290 MIN 283 CFSM .54 IN. 7.35
WTR YR 1987 TOTAL 674266 MEAN 1847 MAX 43700 MIN 283 CFSM 1.13 IN. 15.28

e Estimated.

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 mi².

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

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

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

REMARKS.--Records good except those for period with ice effect, Jan. 24-29, and period of doubtful gage-height record, Aug. 7-30, which are fair. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--62 years, 193 ft³/s, 12.48 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s, Oct. 15, 1942, gage height, 25.3 ft, from flood-mark, from rating curve extended above 9,000 ft³/s on basis of contracted-opening measurement of peak flow; minimum, 0.20 ft³/s, Aug. 28, 29, Sept. 4, 1957, Sept. 7-10, 1966; minimum gage height, 1.74 ft, Sept. 7-10, 1966.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 16	2245	*12,000	*13.72	Sept. 12	1945	4,180	8.15
Sept. 11	2215	4,590	8.55				

Minimum discharge, 0.85 ft³/s, Sept. 2-4, 5, gage height, 1.82 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	2.1	27	108	161	1510	965	217	121	8.5	2.2	1.1
2	1.6	2.7	57	96	230	2050	615	186	200	9.1	2.2	.98
3	1.3	2.4	322	80	601	1030	442	273	130	7.7	2.1	.91
4	1.3	2.5	239	69	648	627	727	1630	148	7.3	1.9	.89
5	1.3	4.6	167	59	539	429	719	1280	164	7.9	3.8	1.2
6	1.1	6.9	126	51	400	325	814	741	113	9.2	3.3	3.6
7	1.1	5.5	98	49	324	271	1450	505	85	9.4	e2.3	4.6
8	1.1	7.3	78	48	284	290	1950	364	64	7.9	e2.2	1260
9	1.1	6.2	66	47	252	393	1360	278	51	7.7	e2.0	539
10	1.1	5.1	59	47	209	428	801	225	44	7.7	e1.9	225
11	1.1	7.7	56	48	181	321	551	188	37	8.4	e1.8	631
12	1.2	38	78	47	163	249	404	173	34	7.9	e1.9	1590
13	1.2	32	82	45	159	207	308	174	33	8.4	e1.8	1370
14	1.6	24	71	44	150	175	241	138	28	13	e1.7	516
15	1.3	22	70	45	145	155	430	124	25	11	e1.6	228
16	1.3	20	65	45	130	149	5650	111	23	11	e1.9	146
17	1.3	18	59	44	123	138	7410	94	21	9.5	e1.8	173
18	1.4	18	56	45	118	137	3110	100	19	8.6	e1.7	189
19	1.4	17	50	875	104	141	1480	499	17	7.7	e1.6	134
20	1.6	17	46	1400	96	142	932	1570	16	6.6	e1.6	448
21	1.7	20	42	670	94	138	591	776	17	5.8	e1.6	872
22	1.6	28	37	430	96	133	418	473	15	5.0	e2.5	432
23	1.6	29	34	307	115	125	325	320	14	4.6	e4.0	245
24	1.6	27	324	e205	133	116	355	243	13	4.4	e2.4	164
25	1.9	25	1130	e180	161	112	520	193	12	3.8	e1.7	122
26	2.0	26	643	e160	230	108	610	158	13	3.2	e1.7	92
27	2.0	33	372	e140	242	101	516	138	13	3.1	e1.6	71
28	1.7	33	249	e130	245	100	411	152	12	2.9	e1.5	55
29	1.7	32	186	e118	---	95	325	136	11	2.5	e1.3	45
30	1.7	30	150	121	---	105	264	111	9.5	2.3	e1.1	43
31	1.7	---	125	151	---	593	---	91	---	2.2	1.1	---
TOTAL	44.9	542.0	5164	5904	6333	10893	34694	11661	1502.5	214.3	61.8	9603.28
MEAN	1.45	18.1	167	190	226	351	1156	376	50.1	6.91	1.99	320
MAX	2.0	38	1130	1400	648	2050	7410	1630	200	13	4.0	1590
MIN	1.1	2.1	27	44	94	95	241	91	9.5	2.2	1.1	.89
CFSM	.01	.09	.80	.91	1.08	1.67	5.51	1.79	.24	.03	.01	1.52
IN.	.01	.10	.91	1.05	1.12	1.93	6.15	2.07	.27	.04	.01	1.70

CAL YR 1986 TOTAL 37025.10 MEAN 101 MAX 3960 MIN 1.1 CFSM .48 IN. 6.56
WTR YR 1987 TOTAL 86617.78 MEAN 237 MAX 7410 MIN .89 CFSM 1.13 IN. 15.34

e Estimated.

01632082 LINVILLE CREEK AT BROADWAY, VA

LOCATION.--Lat 38°36'24", long 78°48'13", Rockingham County, Hydrologic Unit 02070006, on left bank at Linville, 170 ft downstream from bridge on State Highway 1421, and 1.1 mi upstream from mouth.

DRAINAGE AREA.--45.5 mi².

PERIOD OF RECORD.--August 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,029.90 ft above National Geodetic Vertical Datum of 1929.

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

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

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,160 ft³/s, Nov. 4, 1985, gage height, 6.22 ft; minimum, 2.8 ft³/s, Sept. 13, 14, 17, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	1730	738	3.53	June 4	1315	268	2.47
Apr. 16	1800	*1,950	*5.07	Sept. 8	1030	1,370	4.42
Apr. 17	1230	1,370	4.43	Sept. 12	0245	1,730	4.84
May 19	2015	630	3.34	Sept. 20	1900	506	3.08
June 1	2145	288	2.53				

Minimum daily discharge, 5.4 ft³/s, Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	8.4	9.7	21	41	258	24	57	61	18	10	8.1
2	7.1	12	19	20	46	154	23	54	67	19	10	7.7
3	6.5	9.4	35	18	77	95	26	77	52	17	9.8	8.0
4	6.4	8.7	24	17	104	76	98	135	103	18	9.4	8.1
5	6.3	15	20	e16	83	65	90	91	70	17	10	9.0
6	5.4	15	17	e15	71	59	107	75	56	16	10	15
7	5.8	12	15	14	66	54	93	67	49	16	9.7	13
8	5.7	15	14	14	62	50	76	60	44	15	9.6	487
9	6.5	13	14	13	54	49	65	55	41	15	9.5	111
10	6.3	10	14	13	48	51	58	51	38	15	9.3	71
11	5.9	13	16	13	45	44	53	48	35	15	8.6	59
12	6.2	15	22	12	43	42	49	51	34	15	8.4	388
13	7.2	12	20	11	40	40	44	47	32	14	8.2	132
14	8.5	10	e17	11	37	37	40	42	29	14	8.2	122
15	6.7	10	e16	12	35	36	99	44	27	13	7.7	89
16	6.3	10	14	11	31	36	752	39	26	13	8.6	75
17	6.4	8.9	14	11	30	33	738	36	25	13	8.5	69
18	6.4	8.5	14	12	30	31	291	53	23	13	7.6	77
19	6.1	8.8	13	92	27	30	183	224	22	12	7.9	64
20	6.3	9.0	12	86	25	28	140	149	23	12	7.9	174
21	6.5	12	11	60	25	27	116	89	24	12	7.1	134
22	7.0	11	e11	54	25	25	100	73	21	12	9.4	83
23	6.9	10	e11	46	30	25	89	63	20	12	15	67
24	6.9	10	26	e39	27	24	103	57	20	11	8.8	57
25	7.9	8.7	55	e34	28	24	102	52	19	11	8.9	51
26	8.2	11	40	e35	30	22	88	49	33	11	9.1	45
27	7.3	15	33	e32	31	21	78	45	31	11	8.8	41
28	7.0	12	29	e31	36	22	73	42	22	10	8.0	38
29	7.4	11	26	32	---	20	67	39	20	9.9	8.0	37
30	7.7	10	24	33	---	23	61	36	19	9.7	8.0	38
31	8.1	---	22	42	---	27	---	34	---	10	8.1	---
TOTAL	210.0	334.4	627.7	870	1227	1528	3926	2034	1086	419.6	278.1	2577.9
MEAN	6.77	11.1	20.2	28.1	43.8	49.3	131	65.6	36.2	13.5	8.97	85.9
MAX	8.5	15	55	92	104	258	752	224	103	19	15	487
MIN	5.4	8.4	9.7	11	25	20	23	34	19	9.7	7.1	7.7
CFSM	.15	.24	.44	.62	.96	1.08	2.88	1.44	.80	.30	.20	1.89
IN.	.17	.27	.51	.71	1.00	1.25	3.21	1.66	.89	.34	.23	2.11

CAL YR 1986 TOTAL 6401.1 MEAN 17.5 MAX 222 MIN 3.2 CFSM .39 IN. 5.23
WTR YR 1987 TOTAL 15118.7 MEAN 41.4 MAX 752 MIN 5.4 CFSM .91 IN. 12.36

e Estimated.

01632900 SMITH CREEK NEAR NEW MARKET, VA

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

DRAINAGE AREA.--93.2 mi².

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

REVISED RECORDS.--WSP 2103: Drainage area.

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

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

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

AVERAGE DISCHARGE.--27 years, 73.4 ft³/s, 10.69 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft³/s, Oct. 6, 1972, gage height, 16.38 ft, from rating curve extended above 2,300 ft³/s on basis of contracted-opening measurement of peak flow; minimum, 4.5 ft³/s, Feb. 9, 1981, result of freezeup.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 650 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	2400	864	5.68	Sept. 8	1730	864	5.68
Apr. 17	0030	*4,020	*11.20				

Minimum discharge, 6.0 ft³/s, Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	9.3	13	29	82	329	75	145	64	34	22	16
2	9.3	14	16	29	82	484	65	136	73	35	22	16
3	8.4	13	63	27	134	238	71	138	81	34	21	16
4	7.9	13	40	25	197	173	223	329	107	34	19	15
5	8.5	15	28	23	154	139	257	267	88	34	22	17
6	7.9	21	24	22	117	119	280	196	68	31	26	23
7	6.5	17	22	22	104	105	327	169	61	32	21	25
8	7.3	18	20	22	99	103	269	150	56	30	21	416
9	7.1	17	19	21	91	113	208	135	53	34	20	143
10	7.7	15	20	21	78	131	171	124	51	30	19	71
11	11	16	20	22	71	108	146	115	49	34	18	60
12	7.3	21	30	21	67	97	129	111	48	33	18	117
13	8.0	17	27	20	63	89	112	114	49	30	18	86
14	8.9	15	23	19	59	81	98	100	46	29	18	113
15	7.8	13	21	19	56	77	121	100	44	29	17	71
16	8.0	13	19	20	51	77	1380	94	42	28	18	60
17	7.6	13	17	19	49	73	2770	86	41	27	18	81
18	8.1	12	20	19	49	67	1170	85	40	27	17	83
19	8.5	12	19	132	45	65	527	130	39	26	17	60
20	8.2	12	18	195	42	61	379	192	47	25	17	120
21	8.9	15	17	97	41	59	302	126	47	24	16	135
22	8.6	16	16	79	41	56	256	106	54	23	20	93
23	8.6	15	16	71	54	53	223	92	43	23	24	73
24	8.4	14	30	e68	50	50	285	85	39	22	20	64
25	13	13	108	e64	51	49	303	80	37	22	18	58
26	9.6	14	76	e64	54	49	263	77	37	22	18	53
27	9.7	17	53	e62	54	46	217	108	58	22	18	50
28	8.4	17	42	e60	60	48	198	94	42	21	17	47
29	9.1	15	36	e62	---	46	178	72	37	21	17	44
30	9.1	14	33	67	---	49	161	66	36	21	17	46
31	9.4	---	31	87	---	77	---	62	---	20	16	---
TOTAL	265.4	446.3	937	1508	2095	3311	11163	3884	1577	857	590	2272
MEAN	8.56	14.9	30.2	48.6	74.8	107	372	125	52.6	27.6	19.0	75.7
MAX	13	21	108	195	197	484	2770	329	107	35	26	416
MIN	6.5	9.3	13	19	41	46	65	62	36	20	16	15
CFSM	.09	.16	.32	.52	.80	1.15	3.99	1.34	.56	.30	.20	.81
IN.	.11	.18	.37	.60	.84	1.32	4.46	1.55	.63	.34	.24	.91

CAL YR 1986 TOTAL 13599.5 MEAN 37.3 MAX 652 MIN 6.5 CFSM .40 IN. 5.43
WTR YR 1987 TOTAL 28905.7 MEAN 79.2 MAX 2770 MIN 6.5 CFSM .85 IN. 11.54

e Estimated.

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 mi².
PERIOD OF RECORD.--October 1943 to current year.
REVISED RECORDS.--WSP 1382: 1945, 1948-50(M), 1951-53(P), 1954(M). WSP 2103: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 838.55 ft above National Geodetic Vertical Datum of 1929. Prior to July 1, 1976, nonrecording gage, and July 1, 1976, to Oct. 23, 1981, water-stage recorder, at site 400 ft upstream at same datum.
REMARKS.--Records good except for period of no gage-height record, Apr. 29 to June 17, which is fair. Some diversion during low flow by irrigation at points upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--44 years, 391 ft³/s, 10.49 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,800 ft³/s, Nov. 5, 1985, gage height, 17.79 ft, from rating curve extended above 19,000 ft³/s on basis of peak runoff for stations at Cootes Store and near Strasburg; maximum gage height, 18.10 ft, Oct. 6, 1972; minimum discharge observed, 7.0 ft³/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 ft³/s, from rating curve extended above 18,000 ft³/s on basis of peak runoff for flood in October 1942 for stations at Cootes Store and near Strasburg.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 2	0100	5,650	9.01	Sept. 12	0330	5,860	9.16
Apr. 17	0230	*19,600	*15.08	Sept. 13	0030	5,390	8.82

Minimum discharge, 10 ft³/s, Oct. 8, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	23	62	199	358	1700	1270	e680	e330	108	56	41
2	21	35	68	186	371	3830	908	e620	e310	109	57	39
3	22	37	373	162	868	1850	710	e580	e410	107	54	38
4	23	35	455	144	1210	1210	1200	e830	e370	103	49	37
5	22	42	304	129	1060	876	1580	e2600	e420	100	50	40
6	21	59	218	117	807	700	1430	e1600	e480	95	68	60
7	15	58	169	112	673	598	2080	e1200	e360	96	57	75
8	14	58	137	108	601	567	2760	e920	e310	91	53	2100
9	14	59	121	106	548	650	2050	e760	e270	91	52	1250
10	14	50	112	105	460	754	1370	e660	e250	88	50	546
11	19	52	108	106	408	643	1010	e580	e230	94	45	384
12	25	74	140	103	370	542	804	e520	e230	105	41	2490
13	23	100	161	98	350	473	657	e480	e210	98	42	2530
14	32	63	142	95	329	415	549	e470	e210	91	41	1040
15	30	53	128	97	311	379	555	e430	e190	92	40	525
16	24	49	118	98	284	366	7050	e400	e180	88	44	359
17	23	45	106	96	268	347	15800	e380	e165	83	45	355
18	21	42	107	98	264	326	7690	e360	153	80	43	446
19	24	41	100	634	243	329	3200	e385	145	77	39	328
20	23	41	90	2390	224	323	2090	e900	155	74	39	636
21	20	48	81	1160	217	312	1540	e1700	170	68	38	1470
22	22	51	74	765	217	299	1190	e1000	157	64	54	854
23	20	57	67	592	256	282	981	e770	139	62	75	546
24	18	60	129	e450	270	264	1040	e620	129	62	62	404
25	27	56	1420	e400	296	253	1260	e700	123	61	47	322
26	29	58	990	e340	383	248	1310	e540	121	61	48	265
27	29	65	627	e325	436	232	1140	e450	171	58	48	231
28	28	74	436	e310	440	234	974	e460	134	55	47	202
29	21	71	329	e300	---	226	e850	e480	119	53	44	181
30	20	68	269	281	---	222	e750	e410	113	53	42	182
31	22	---	229	316	---	467	---	e360	---	55	41	---
TOTAL	687	1624	7870	10422	12522	19917	65798	22845	6754	2522	1511	17976
MEAN	22.2	54.1	254	335	447	642	2193	737	225	81.4	48.7	599
MAX	32	100	1420	2390	1210	3830	15800	2600	480	109	75	2530
MIN	14	23	62	95	217	222	549	360	113	53	38	37
CFSM	.04	.11	.50	.66	.88	1.27	4.33	1.46	.45	.16	.10	1.18
IN.	.05	.12	.58	.77	.92	1.46	4.84	1.68	.50	.19	.11	1.32

CAL YR 1986 TOTAL 78715 MEAN 216 MAX 6680 MIN 14 CFSM .43 IN. 5.79
WTR YR 1987 TOTAL 170448 MEAN 467 MAX 15800 MIN 14 CFSM .92 IN. 12.53

e Estimated.

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 mi².

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

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

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

REMARKS.--Records good except for period with ice effect, Jan. 27 to Feb. 2, which is fair. Large diurnal fluctuation at low and medium flow from unknown cause. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--62 years, 588 ft³/s, 10.40 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft³/s, Oct. 16, 1942, gage height, 31.2 ft, from high-water mark in well, from rating curve extended above 46,000 ft³/s; minimum, 6.0 ft³/s, Feb. 9, 1934, gage height, 1.52 ft; minimum daily, 35 ft³/s, Oct. 15, 1985, Sept. 14, 18, 1986.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 17	1945	*19,800	*18.27	No other peak equal to or greater than base discharge.			

Minimum discharge, 32 ft³/s, Oct. 3, 5, 12; minimum daily, 44 ft³/s, Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	109	141	350	e510	938	733	1010	491	190	123	109
2	63	108	161	315	e570	3730	1370	908	455	178	99	90
3	64	63	198	304	770	3240	1080	845	606	180	122	103
4	57	122	326	264	1400	2020	1270	1310	546	184	125	108
5	57	121	534	226	1560	1460	2320	3370	656	181	115	95
6	60	125	389	221	1310	1150	2110	2340	690	181	123	115
7	58	139	308	212	1060	964	2490	1700	529	191	110	101
8	44	136	262	195	919	846	2800	1350	456	181	122	347
9	74	175	237	195	828	813	2850	1120	391	173	160	2260
10	64	111	220	200	742	901	2180	956	366	161	83	1250
11	64	152	199	178	645	947	1620	850	341	172	102	711
12	49	216	231	194	591	815	1310	763	349	200	116	1300
13	50	125	211	188	548	713	1090	707	303	200	108	3770
14	70	207	249	172	520	633	899	714	305	223	108	2300
15	113	146	220	174	487	577	811	637	272	181	102	1260
16	61	167	235	186	458	555	1610	598	269	178	94	779
17	74	123	181	151	429	548	14400	566	274	174	97	650
18	73	121	221	200	409	516	13300	531	207	167	93	601
19	90	117	194	454	397	500	5560	575	247	153	91	640
20	86	129	198	2030	380	495	3300	1480	304	154	113	609
21	74	122	195	2180	323	483	2400	2330	284	147	112	1080
22	84	135	149	1350	350	466	1910	1490	213	128	105	1630
23	90	129	164	1020	342	450	1590	1130	244	116	115	1060
24	83	96	238	796	420	424	1440	914	241	146	83	757
25	96	127	542	611	409	418	1800	1070	205	119	158	594
26	163	135	1720	500	440	410	1820	799	200	120	115	493
27	77	154	1130	e475	534	400	1710	671	215	148	129	423
28	61	145	783	e450	622	397	1480	691	222	92	115	372
29	70	139	588	e430	---	372	1310	723	278	127	123	334
30	77	131	472	e420	---	346	1150	603	205	123	112	328
31	96	---	398	e460	---	378	---	534	---	105	110	---
TOTAL	2326	4025	11294	15101	17973	26905	79713	33285	10364	4973	3483	24269
MEAN	75.0	134	364	487	642	868	2657	1074	345	160	112	809
MAX	163	216	1720	2180	1560	3730	14400	3370	690	223	160	3770
MIN	44	63	141	151	323	346	733	531	200	92	83	90
CFSM	.10	.17	.47	.63	.84	1.13	3.46	1.40	.45	.21	.15	1.05
IN.	.11	.19	.55	.73	.87	1.30	3.86	1.61	.50	.24	.17	1.18

CAL YR 1986 TOTAL 117902 MEAN 323 MAX 6000 MIN 35 CFSM .42 IN. 5.71
WTR YR 1987 TOTAL 233711 MEAN 640 MAX 14400 MIN 44 CFSM .83 IN. 11.32

e Estimated.

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 mi².
PERIOD OF RECORD.--June 1937 to current year.
REVISED RECORDS.--WSP 2103: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 647.09 ft above National Geodetic Vertical Datum of 1929.
REMARKS.--Records good. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--50 years, 94.9 ft³/s, 12.51 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft³/s, Oct. 15, 1942, gage height, 27.0 ft, from flood-marks, from rating curve extended above 15,000 ft³/s; minimum, 1.8 ft³/s, Feb. 19, 1941, Dec. 7, 1958, result of freezeups; minimum daily, 2.8 ft³/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 ft³/s, from information by local residents.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2200	1,850	6.30	Apr. 17	0800	*4,690	*11.06
Jan. 19	1700	1,850	6.30	Apr. 25	0500	1,060	4.71
Mar. 1	2030	1,460	5.54	May 4	1130	2,110	6.78
Apr. 4	1500	2,560	7.55	May 23	2030	1,090	4.78
Apr. 6	1800	1,550	5.72	Sept. 18	0100	1,190	5.01
Apr. 16	1830	3,760	9.54	Sept. 20	0930	1,370	5.36

Minimum discharge, 5.8 ft³/s, Aug. 15, 16, Sept. 2, 3, 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	25	21	63	e105	756	116	190	45	58	8.8	7.1
2	13	45	56	64	169	774	104	171	59	45	8.7	6.4
3	11	29	285	56	316	376	115	182	97	41	8.1	6.1
4	11	36	136	50	330	252	1160	1070	91	32	7.7	6.1
5	13	60	87	44	255	197	778	561	64	27	8.1	6.8
6	11	139	61	43	201	162	948	345	50	24	11	25
7	9.2	77	50	46	176	146	784	260	42	27	11	35
8	9.2	159	44	56	162	129	514	213	36	23	10	188
9	9.5	109	51	50	138	131	365	179	34	19	9.3	85
10	9.8	77	75	52	111	117	280	153	38	17	9.1	37
11	9.9	159	69	60	101	100	227	130	31	17	7.9	28
12	9.8	130	90	55	97	93	194	113	30	18	6.8	64
13	14	49	85	51	92	86	164	102	36	27	6.9	132
14	20	28	65	47	81	79	138	92	32	38	6.9	68
15	20	21	58	53	74	77	174	85	25	29	6.6	45
16	17	18	49	52	63	85	1580	76	23	20	6.7	35
17	16	15	44	44	63	91	3230	68	23	16	7.5	40
18	18	13	65	45	61	95	1160	62	20	15	8.2	307
19	19	23	78	674	55	89	639	77	18	13	8.2	86
20	18	27	63	601	50	83	445	109	91	11	9.7	611
21	17	67	61	265	50	78	354	84	62	10	8.2	280
22	16	51	50	200	48	73	293	74	33	8.8	8.6	151
23	16	35	43	167	65	69	243	174	27	7.9	17	98
24	16	29	342	e110	64	65	390	190	25	8.5	12	74
25	17	23	633	e100	69	63	834	100	23	9.2	8.2	59
26	20	28	245	e100	83	63	477	86	171	8.2	8.6	48
27	24	51	162	e95	83	58	357	79	136	8.3	9.1	40
28	22	43	118	e92	105	61	310	74	53	7.8	8.9	34
29	23	34	95	e92	---	58	254	63	37	6.8	9.3	30
30	26	27	83	94	---	62	226	54	33	6.7	8.4	37
31	24	---	72	111	---	103	---	49	---	7.1	7.5	---
TOTAL	490.4	1627	3436	3632	3267	4671	16853	5265	1485	606.3	273.0	2669.5
MEAN	15.8	54.2	111	117	117	151	562	170	49.5	19.6	8.81	89.0
MAX	26	159	633	674	330	774	3230	1070	171	58	17	611
MIN	9.2	13	21	43	48	58	104	49	18	6.7	6.6	6.1
CFSM	.15	.53	1.08	1.14	1.14	1.47	5.46	1.65	.48	.19	.09	.86
IN.	.18	.59	1.24	1.31	1.18	1.69	6.09	1.90	.54	.22	.10	.96

CAL YR 1986 TOTAL 25312.1 MEAN 69.3 MAX 1880 MIN 4.1 CFSM .67 IN. 9.14
WTR YR 1987 TOTAL 44275.2 MEAN 121 MAX 3230 MIN 6.1 CFSM 1.18 IN. 15.99

e Estimated.

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 mi².

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

REVISED RECORDS.--WSP 2103: Drainage area.

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

REMARKS.--Records good. Occasional diurnal fluctuation during low flow caused by State Fish Hatchery 2 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--55 years, 68.9 ft³/s, 10.66 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 ft³/s, Oct. 15, 1942, gage height, 15.5 ft, from high-water mark in well, from rating curve extended above 5,200 ft³/s; minimum observed, 0.1 ft³/s, Aug. 5, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 2	0030	1,040	6.10	Apr. 17	0430	*2,040	*7.60
Apr. 7	0200	1,060	6.13				

Minimum discharge, 0.76 ft³/s, July 29, gage height, 2.69 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	3.4	11	29	e99	479	90	119	31	6.6	1.6	2.8
2	1.8	7.0	21	29	e111	641	76	106	31	6.5	2.8	2.3
3	1.4	7.8	98	27	203	299	99	99	30	6.1	2.4	2.1
4	1.5	11	46	24	261	206	580	324	27	5.8	1.8	1.7
5	2.1	11	28	23	207	157	529	286	33	5.6	2.8	1.9
6	1.9	14	21	23	161	132	565	191	25	7.2	2.5	3.9
7	1.8	17	18	24	141	119	781	153	21	10	2.0	9.5
8	1.7	16	16	28	136	112	440	131	18	8.7	2.5	226
9	2.0	15	16	30	127	114	302	113	15	7.3	2.3	100
10	3.8	11	23	31	99	119	228	100	14	5.7	1.8	28
11	3.2	13	25	33	85	104	181	85	13	5.4	1.5	20
12	2.2	35	40	31	80	91	152	74	12	8.8	1.8	117
13	3.1	20	36	28	81	82	131	67	14	21	1.8	61
14	3.2	13	26	26	71	72	112	57	14	15	1.4	36
15	3.4	9.9	22	26	63	69	126	52	12	10	1.4	24
16	3.9	9.0	21	27	53	74	846	49	9.8	7.6	1.4	18
17	4.0	8.0	18	25	50	83	1830	41	8.9	6.0	1.4	61
18	3.8	8.1	22	26	49	91	998	38	8.4	5.8	1.3	58
19	3.6	7.6	29	328	44	85	534	61	7.6	5.3	1.7	40
20	3.3	8.8	26	441	40	76	354	109	8.5	5.2	1.7	71
21	2.8	13	22	172	41	69	268	79	21	4.4	1.8	181
22	3.0	20	19	126	39	62	217	63	21	4.2	2.3	76
23	3.2	15	e17	109	49	55	179	52	14	3.5	2.9	43
24	3.0	12	78	e66	58	51	219	45	10	3.1	3.2	32
25	2.9	11	291	e64	67	48	374	240	9.2	2.8	4.4	25
26	3.5	16	121	e62	92	47	298	108	19	3.1	3.4	21
27	4.0	16	73	e60	93	42	224	79	14	3.2	2.8	18
28	3.9	18	50	e60	99	46	191	63	12	2.1	2.5	15
29	3.7	15	40	e58	---	47	160	50	9.5	.80	2.5	13
30	3.5	13	35	e71	---	47	139	41	7.3	1.1	3.3	15
31	3.2	---	32	e84	---	89	---	35	---	1.4	3.4	---
TOTAL	91.2	394.6	1341	2191	2699	3808	11223	3110	490.2	189.30	70.4	1323.2
MEAN	2.94	13.2	43.3	70.7	96.4	123	374	100	16.3	6.11	2.27	44.1
MAX	4.0	35	291	441	261	641	1830	324	33	21	4.4	226
MIN	1.4	3.4	11	23	39	42	76	35	7.3	.80	1.3	1.7
CFSM	.03	.15	.49	.81	1.10	1.40	4.26	1.14	.19	.07	.03	.50
IN.	.04	.17	.57	.93	1.14	1.61	4.76	1.32	.21	.08	.03	.56

CAL YR 1986 TOTAL 13343.40 MEAN 36.6 MAX 984 MIN 1.4 CFSM .42 IN. 5.65
WTR YR 1987 TOTAL 26930.90 MEAN 73.8 MAX 1830 MIN .80 CFSM .84 IN. 11.41

e Estimated.

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1895 to March 1909, August 1928 to current year.
REVISED RECORDS.--WSP 951: 1936(M). WSP 1432: Drainage area at former site, 1895-99, 1901-2, 1905, 1907-8, 1932(M), 1935(M).
GAGE.--Water-stage recorder. Datum of gage is 293.00 ft above National Geodetic Vertical Datum of 1929. Apr. 15, 1895, to Mar. 31, 1909, nonrecording gage at site 0.8 mi downstream at datum 0.32 ft higher.
REMARKS.--No estimated daily discharges. Records good. Regulation by hydroelectric plants, particularly that of Potomac Light and Power Company, 0.5 mi upstream from station. U.S. Army Corps of Engineers satellite telemeter and National Weather Service gage-height telemeter at station.
AVERAGE DISCHARGE.--72 years (water years 1896-1908, 1929-87), 2,703 ft³/s, 12.07 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft³/s, Oct. 16, 1942, gage height, 32.4 ft, from floodmarks; minimum, about 59 ft³/s, Oct. 4, 1930, gage height, 0.39 ft; minimum daily, 194 ft³/s, July 24, 1930.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1870 reached practically same stage as flood of Mar. 18, 1936, 26.36 ft, discharge, 151,000 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 3	0730	16,900	8.93	Apr. 27	0200	15,800	8.64
Apr. 18	1600	*64,500	*17.44				

Minimum discharge, 242 ft³/s, Oct. 14, gage height, 0.94 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	429	435	795	2220	3130	3890	2330	5980	2520	1820	621	527
2	437	483	844	2070	2770	8150	4020	5290	2300	1780	633	530
3	433	491	1460	1880	3610	15600	5540	4710	2390	2380	611	449
4	438	474	1960	1750	4510	11200	7070	4790	2690	1300	596	450
5	439	489	2290	1640	5750	8000	10900	8350	2880	1150	619	486
6	384	587	2320	1480	5920	6300	10200	9690	3040	1080	683	511
7	419	647	1810	1390	5090	5290	11000	7400	2850	1070	614	578
8	406	750	1600	1330	4520	4610	10300	6170	2340	1060	590	776
9	406	690	1310	1340	4190	4210	9710	5340	2130	1110	696	4890
10	405	799	1340	1310	3890	4030	9070	4690	1770	1210	703	9140
11	388	793	1250	1310	3560	4230	7630	4190	1720	1010	634	5740
12	378	989	1260	1280	3170	4530	6450	3800	1570	1090	557	5710
13	392	1130	1410	1230	2940	4340	5570	3510	1600	1510	528	5860
14	384	838	1370	1310	2750	3830	4830	3260	1530	1360	540	6900
15	430	725	1420	1130	2640	3430	4290	3080	1500	1230	529	4740
16	419	731	1370	1110	2520	3170	4380	2860	1420	1350	524	3640
17	468	677	1290	1160	2320	3000	29100	2720	1280	1110	530	2650
18	453	645	1300	1130	2240	2830	61100	2550	1280	950	510	2420
19	430	617	1240	1300	2080	2710	43800	2550	1130	888	490	2460
20	439	659	1240	4430	2070	2510	21300	2740	1260	835	502	2180
21	435	647	1230	6430	1980	2360	15100	4320	1420	788	547	2490
22	434	692	1150	6510	1860	2280	11500	5850	1670	759	480	3820
23	430	723	1120	5230	1970	2200	8950	4830	1220	776	530	4400
24	425	741	1130	4240	2000	2120	7490	4280	1440	712	514	3370
25	422	664	3460	3500	2100	2020	8240	3920	1180	721	513	2700
26	431	669	5290	2500	2200	1980	11900	4580	1160	678	533	2250
27	441	694	7140	2290	2310	1880	14300	3690	1310	684	583	1960
28	499	759	5080	2050	2470	1820	10400	3310	1630	669	620	1610
29	438	766	3890	2090	---	1860	8240	3430	1240	654	548	1560
30	415	764	3150	2390	---	1810	6970	3160	1180	597	552	1490
31	428	---	2580	2780	---	2040	---	2770	---	567	551	---
TOTAL	13175	20768	64099	71810	86560	128230	371680	137810	52650	32898	17681	86287
MEAN	425	692	2068	2316	3091	4136	12390	4445	1755	1061	570	2876
MAX	499	1130	7140	6510	5920	15600	61100	9690	3040	2380	703	9140
MIN	378	435	795	1110	1860	1810	2330	2550	1130	567	480	449
CFSM	.14	.23	.68	.76	1.02	1.36	4.08	1.46	.58	.35	.19	.95
IN.	.16	.25	.78	.88	1.06	1.57	4.55	1.69	.64	.40	.22	1.06

CAL YR 1986 TOTAL 562491 MEAN 1541 MAX 16300 MIN 378 CFSM .51 IN. 6.88
WTR YR 1987 TOTAL 1083650 MEAN 2969 MAX 61100 MIN 378 CFSM .98 IN. 13.3

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

WATER-QUALITY RECORDS

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

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1980 to September 1983 (discontinued).
WATER TEMPERATURES: October 1980 to September 1983 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (water years 1981-82): Maximum, 778 microsiemens, Dec. 29, 1980; minimum, 212 microsiemens, Jan. 17, 1982.
WATER TEMPERATURE: Maximum, 30.0°C, July 20, 21, 1981; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (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...	1530	632	490	8.41	11.5	9.0	753	1.6	13.4	117	--	--
JAN												
05...	1000	1660	257	8.01	2.0	1.0	768	1.9	15.3	107	K2	K3
MAR												
05...	0930	8220	185	7.83	3.0	6.0	770	30	11.7	93	120	100
MAY												
11...	1015	4260	272	8.01	26.0	20.0	758	3.3	8.7	96	43	50
JUL												
06...	0845	368	435	8.28	24.5	26.0	760	1.5	6.5	80	160	930
SEP												
08...	1015	271	575	8.20	24.0	22.0	753	3.5	7.4	86	K530	2100

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD 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)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV												
17...	180	24	48	14	34	29	1	3.2	155	69	35	0.20
JAN												
05...	110	16	32	7.8	15	22	0.6	2.0	96	44	11	<0.10
MAR												
05...	74	14	22	4.7	5.7	14	0.3	1.6	60	20	6.4	<0.10
MAY												
11...	120	13	34	8.0	8.7	14	0.4	1.6	105	24	7.4	0.10
JUL												
06...	170	14	45	13	25	24	0.9	2.9	152	55	23	0.10
SEP												
08...	180	40	44	16	55	40	2	2.9	136	110	23	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS NO2)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (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)
NOV												
17...	1.8	301	300	--	<0.010	--	1.10	0.010	0.030	0.04	0.40	0.140
JAN												
05...	5.1	172	170	--	<0.010	--	1.50	0.030	0.020	0.03	0.60	0.060
MAR												
05...	6.4	99	100	1.19	0.010	0.03	1.20	0.100	0.110	0.14	0.90	0.130
MAY												
11...	6.3	142	150	1.29	0.010	0.03	1.30	0.010	0.020	0.03	1.1	0.060
JUL												
06...	4.3	254	260	1.09	0.010	0.03	1.10	0.030	0.030	0.04	0.90	0.100
SEP												
08...	3.3	340	340	--	--	--	--	--	--	--	--	--

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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 PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 17...	0.140	0.100	0.31	<10	<1	34	<0.5	1	<1	<3	4	30
JAN 05...	0.050	0.040	0.12	--	--	--	--	--	--	--	--	--
MAR 05...	0.060	0.040	0.12	50	<1	25	<0.5	1	<1	<3	2	74
MAY 11...	0.050	0.040	0.12	10	<1	36	<0.5	<1	<1	<3	2	10
JUL 06...	0.110	0.040	0.12	--	--	--	--	--	--	--	--	--
SEP 08...	--	--	--	10	1	38	<0.5	<1	3	<3	3	12

DATE	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)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 17...	<5	11	3	0.2	<10	<1	<1	<1	180	<6	14
JAN 05...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	<5	5	6	<0.1	<10	3	<1	<1	67	<6	4
MAY 11...	<5	4	5	<0.1	<10	<1	<1	<1	100	<6	56
JUL 06...	--	--	--	--	--	--	--	--	--	--	--
SEP 08...	<5	11	7	0.3	<10	2	<1	<1	170	<6	13

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 17...	1530	632	4	7.3	90
JAN 05...	1000	1660	4	18	62
MAR 05...	0930	8220	72	1600	96
MAY 11...	1015	4260	23	265	95
JUL 06...	0845	368	40	40	93
SEP 08...	1015	271	22	16	92

01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA

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

DRAINAGE AREA.--89.6 mi².

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

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

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

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

AVERAGE DISCHARGE.--16 years, 105 ft³/s, 15.91 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,800 ft³/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 ft³/s on basis of contracted-opening measurement of peak flow; minimum daily, 0.20 ft³/s, Sept. 23, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2330	1,560	6.85	July 1	0015	*13,200	*17.99
Mar. 1	1915	2,280	8.06	July 1	2215	2,710	8.78
Apr. 4	1730	3,290	9.75	July 2	2315	7,600	15.08
Apr. 17	0915	2,760	8.86				

Minimum discharge, 0.28 ft³/s, Oct. 11, 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.52	4.6	16	68	90	1260	134	114	33	3190	17	e6.7
2	.76	9.0	e103	79	92	708	82	110	32	1720	18	e6.4
3	.76	21	e470	79	144	377	114	107	33	1990	18	e6.1
4	.76	8.3	127	72	283	277	1830	229	349	322	16	e5.8
5	1.0	8.7	77	62	253	222	688	175	147	209	16	e5.8
6	.92	27	56	57	198	191	496	123	63	159	20	30
7	.76	24	47	56	201	168	500	105	48	129	19	e20
8	.60	31	41	63	217	149	347	94	40	106	17	210
9	.52	27	45	68	178	135	279	86	35	87	16	121
10	.44	14	76	81	135	118	233	79	34	76	24	37
11	.60	59	59	89	129	99	201	74	31	72	20	23
12	.52	104	92	78	128	93	182	71	30	69	14	e40
13	.36	28	70	79	124	88	164	72	32	73	13	e80
14	.84	16	49	83	107	81	143	65	29	63	11	e45
15	1.2	12	46	91	95	78	137	67	26	63	10	22
16	1.6	9.7	44	88	81	83	388	62	24	49	10	55
17	1.8	8.7	40	79	81	80	1360	57	23	44	14	65
18	2.0	7.4	79	85	77	70	486	53	21	40	13	282
19	1.5	7.8	127	365	72	65	342	66	20	37	10	86
20	e1.5	9.2	72	406	65	61	278	76	31	34	11	84
21	e1.4	33	58	222	64	59	235	72	79	30	11	162
22	e1.3	33	50	177	64	55	205	63	51	28	11	e72
23	e1.3	19	44	e160	87	52	180	86	34	26	12	63
24	e1.3	16	311	151	92	64	185	62	26	25	11	48
25	e1.4	14	756	138	85	77	329	51	22	28	9.3	38
26	2.8	16	242	e94	84	82	218	50	27	26	8.5	32
27	3.6	47	172	e91	83	74	177	48	40	23	9.0	29
28	9.7	34	123	e88	99	83	155	46	27	22	8.9	26
29	11	24	98	e90	---	77	144	43	21	20	8.5	24
30	6.4	19	87	92	---	73	128	38	1510	18	7.6	28
31	4.9	---	77	98	---	145	---	36	---	18	e7.0	---
TOTAL	64.06	691.4	3754	3529	3408	5244	10340	2480	2918	8796	410.8	1752.8
MEAN	2.07	23.0	121	114	122	169	345	80.0	97.3	284	13.3	58.4
MAX	11	104	756	406	283	1260	1830	229	1510	3190	24	282
MIN	.36	4.6	16	56	64	52	82	36	20	18	7.0	5.8
CFSM	.02	.26	1.35	1.27	1.36	1.89	3.85	.89	1.09	3.17	.15	.65
IN.	.03	.29	1.56	1.47	1.41	2.18	4.29	1.03	1.21	3.65	.17	.73

CAL YR 1986 TOTAL 18975.36 MEAN 52.0 MAX 911 MIN .20 CFSM .58 IN. 7.88
WTR YR 1987 TOTAL 43388.06 MEAN 119 MAX 3190 MIN .36 CFSM 1.33 IN. 18.01

e Estimated.

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD

LOCATION.--Lat 39°16'25", long 77°32'35", Frederick County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on U.S. Highway 15 at Point of Rocks, 0.3 mi downstream from Catoctin Creek (Virginia), 6 mi upstream from Monocacy River, and at mile 159.5.
DRAINAGE AREA.--9,651 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1895 to current year.
REVISED RECORDS.--WSP 192: 1895-1905. WSP 1432: 1899, 1901-2, 1904-5, 1912, 1914(M), 1915, 1917(M), 1918, 1919(M), 1920, 1921-23(M), 1924, 1925-28(M), 1930(M).
GAGE.--Water-stage recorder. Datum of gage is 200.63 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1929, nonrecording gage at same site. Prior to Sept. 2, 1902, at datum about 0.45 ft higher.
REMARKS.--Estimated daily discharges: Dec. 25, 26, Jan. 11-18, 29-31. Records good except those for estimated daily discharges (ice effect), which are fair. Low flow affected slightly from 1913 to July 1981 by Stony River Reservoir, since December 1950 by Savage River Reservoir, and since July 1981, by Jennings Randolph Lake. Low flow affected extensively at times by run-of-the-river hydroelectric plants. National Weather Service gage-height telemeter at station.
AVERAGE DISCHARGE.--92 years, 9,410 ft³/s, 13.24 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft³/s, Mar. 19, 1936, gage height, 41.03 ft, from rating curve extended above 300,000 ft³/s on the basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow; minimum discharge, 530 ft³/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 ft³/s from rating curve extended as explained above.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 35,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 3	1600	47,200	10.34	Apr. 18	2000	*153,000	*23.49
Apr. 5	2230	76,700	14.53				

Minimum discharge, 1,170 ft³/s, Oct. 12, 13, gage height, 0.67 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1780	1500	5600	9200	9730	12600	10100	16500	7330	9860	1680	1510
2	1930	1700	5500	8300	8670	24000	19600	15200	6710	5520	1650	1430
3	1820	1660	6560	7600	10000	42600	21200	13700	6520	13700	1640	1380
4	1520	1750	9900	6960	17400	37900	24400	13800	7850	5040	1630	1320
5	1470	1780	12500	6370	23800	27100	59200	19600	8670	3970	1620	1300
6	1480	2040	11700	5870	21300	21000	62400	31300	8090	3600	1820	1410
7	1500	2290	8750	5310	18100	17300	52300	26500	7170	3390	1830	1600
8	1540	2860	7150	4960	15900	14900	51900	21900	6180	3630	1770	2490
9	1480	3290	6370	5030	14400	13500	42900	18200	5510	3740	1790	4330
10	1410	3630	6310	5160	13100	13500	39500	15200	4880	3380	1900	15200
11	1340	4710	7450	5280	11800	14200	34000	13200	4530	3090	1720	10300
12	1230	5290	8130	5220	10700	15000	27300	11900	4230	2830	1610	10800
13	1280	6020	7650	5050	9880	13800	23700	10700	4140	3270	1490	8930
14	1440	5780	7200	5050	9290	12000	20600	9680	4180	3540	1480	13700
15	1380	4350	6640	4890	8840	10800	17400	9010	4440	4480	1440	12200
16	1410	3450	6250	4680	8640	9840	16000	8390	4030	4610	1410	8890
17	1450	3080	5870	4890	7930	9260	41000	7930	3790	3700	1400	6580
18	1480	2970	5820	4880	7520	8710	136000	7390	3550	3150	1380	6180
19	1430	2720	5910	5810	7070	8330	119000	7410	3360	2790	1340	5850
20	1410	2830	6140	11800	6710	7810	64500	8100	3190	2600	1290	5490
21	1380	3400	5850	27500	6440	7520	45600	9450	3780	2360	1350	6200
22	1380	4440	5250	27600	6110	7260	35700	16200	4600	2570	1320	8100
23	1400	5230	4900	20400	6250	7040	28400	15200	4660	2440	1330	11200
24	1380	4960	5470	16000	6430	6840	23100	12500	4710	2040	1410	8410
25	1310	4380	9840	12300	6620	6590	21000	10900	4140	2130	1480	6830
26	1340	4020	23000	9740	7010	6460	26300	10600	3530	1840	1650	5610
27	1410	3810	26500	8430	7410	6380	32200	9330	3470	1800	1710	4800
28	1490	4380	20900	7100	7950	6380	27000	8600	4260	1770	1750	4100
29	1780	6060	16100	7290	---	6380	22400	8350	3650	1740	1630	3740
30	1790	5850	13100	7690	---	6380	18900	8340	4300	1680	1580	3550
31	1390	---	10700	8720	---	6730	---	8150	---	1630	1540	---
TOTAL	45830	110230	289010	275080	295000	408110	1163600	403230	149450	111890	48640	183430
MEAN	1478	3674	9323	8874	10540	13160	38790	13010	4982	3609	1569	6114
MAX	1930	6060	26500	27600	23800	42600	136000	31300	8670	13700	1900	15200
MIN	1230	1500	4900	4680	6110	6380	10100	7390	3190	1630	1290	1300
CFSM	.15	.38	.97	.92	1.09	1.36	4.02	1.35	.52	.37	.16	.63
IN.	.18	.42	1.11	1.06	1.14	1.57	4.49	1.55	.58	.43	.19	.71

CAL YR 1986 TOTAL 2584870 MEAN 7082 MAX 110000 MIN 1170 CFSM .73 IN 9.96
WTR YR 1987 TOTAL 3483500 MEAN 9544 MAX 136000 MIN 1230 CFSM .99 IN 13.43

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1960 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1960 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum daily, 33.5°C, Aug. 24, 1964, July 19, 1977; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATION: Maximum daily mean, 2,690 mg/L, Nov. 7, 1985; minimum daily mean, 1 mg/L on many days most years.
SEDIMENT LOAD: Maximum daily, 1,930,000 tons, Nov. 7, 1985; minimum daily, 2.0 tons on many days during 1964, 1966-69.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum daily, 33.0°C, July 24; minimum daily, 0.0°C, Feb. 1.
SEDIMENT CONCENTRATION: Maximum daily mean, 755 mg/L, Apr. 18; minimum daily mean, 1 mg/L, Nov. 17, 18.
SEDIMENT LOAD: Maximum daily, 277,000 tons, Apr. 18; minimum daily, 7.5 tons, Oct. 15.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .004 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
APR 06...	1015	63300	411	70200	49	95	98	99	100

TEMPERATURE, WATER, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	12.0	5.0	---	.0	7.0	12.0	13.0	24.0	25.0	29.0	25.0
2	25.0	15.0	5.0	---	3.0	6.0	12.0	14.0	24.0	27.0	28.0	25.0
3	24.0	12.0	6.0	---	2.0	7.0	8.0	10.0	25.0	25.0	31.0	25.0
4	23.0	12.0	6.0	---	2.0	5.0	8.0	12.0	24.0	27.0	31.0	24.0
5	23.0	10.0	5.0	---	2.0	6.0	7.0	13.0	22.0	28.0	29.0	23.0
6	18.0	11.0	5.0	---	3.0	5.0	6.0	13.0	23.0	27.0	26.0	21.0
7	15.0	11.0	8.0	---	4.0	5.0	6.0	16.0	25.0	28.0	26.0	22.0
8	16.0	13.0	5.0	---	3.0	9.0	7.0	14.0	27.0	27.0	26.0	21.0
9	17.0	13.0	---	---	3.0	9.0	10.0	17.0	24.0	30.0	30.0	23.0
10	18.0	10.0	---	---	4.0	6.0	9.0	18.0	24.0	29.0	28.0	24.0
11	16.0	10.0	---	---	8.0	7.0	10.0	20.0	20.0	30.0	27.0	24.0
12	16.0	9.0	---	---	6.0	7.0	11.0	19.0	21.0	30.0	29.0	23.0
13	21.0	7.0	---	4.0	3.0	7.0	11.0	18.0	23.0	28.0	30.0	24.0
14	18.0	6.0	---	4.0	2.0	7.0	12.0	19.0	25.0	28.0	28.0	25.0
15	15.0	5.0	---	4.0	2.0	6.0	10.0	19.0	25.0	28.0	27.0	24.0
16	15.0	8.0	---	5.0	1.0	5.0	10.0	18.0	25.0	32.0	27.0	22.0
17	24.0	7.0	---	---	2.0	6.0	10.0	22.0	25.0	28.0	27.0	23.0
18	14.0	6.0	---	2.0	3.0	7.0	10.0	20.0	25.0	25.0	29.0	23.0
19	15.0	6.0	---	3.0	2.0	9.0	12.0	20.0	28.0	30.0	27.0	21.0
20	14.0	5.0	---	4.0	2.0	10.0	12.0	18.0	29.0	28.0	27.0	20.0
21	15.0	8.0	---	3.0	4.0	10.0	13.0	19.0	28.0	31.0	28.0	20.0
22	13.0	5.0	---	---	5.0	10.0	13.0	19.0	28.0	29.0	26.0	22.0
23	14.0	5.0	---	---	3.0	9.0	14.0	19.0	27.0	30.0	25.0	20.0
24	16.0	6.0	---	---	3.0	12.0	15.0	22.0	25.0	33.0	24.0	21.0
25	14.0	5.0	---	---	1.0	10.0	14.0	20.0	25.0	30.0	23.0	22.0
26	14.0	6.0	---	---	4.0	13.0	14.0	19.0	25.0	30.0	22.0	21.0
27	14.0	7.0	---	---	4.0	12.0	13.0	19.0	27.0	30.0	25.0	20.0
28	15.0	6.0	---	---	4.0	13.0	13.0	23.0	25.0	28.0	25.0	22.0
29	16.0	6.0	---	---	---	13.0	15.0	21.0	27.0	27.0	25.0	22.0
30	13.0	6.0	---	2.0	---	13.0	14.0	22.0	25.0	30.0	25.0	20.0
31	12.0	---	---	---	---	13.0	---	25.0	---	28.0	25.0	---

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

SEDIMENT, SUSPENDED CONCENTRATION (MG/L), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	22	106	2	8.1	4	60	28	696	10	263	18	612
2	19	99	2	9.2	3	45	23	515	5	117	68	4410
3	16	79	2	9.0	7	124	19	390	12	324	143	16400
4	21	86	2	9.5	27	722	15	282	48	2260	131	13400
5	9	36	3	14	31	1050	11	189	79	5080	72	5270
6	11	44	4	22	30	948	7	111	48	2760	37	2100
7	9	36	8	49	17	402	7	100	27	1320	22	1030
8	10	42	4	31	16	309	7	94	15	644	18	724
9	10	40	6	53	15	258	7	95	14	544	15	547
10	5	19	5	49	13	221	7	98	14	495	12	437
11	7	25	15	191	12	241	7	100	11	350	9	345
12	4	13	13	186	14	307	7	99	7	202	7	283
13	4	14	18	293	14	289	5	68	7	187	4	149
14	5	19	6	94	11	214	5	68	7	176	4	130
15	2	7.5	2	23	9	161	5	66	6	143	4	117
16	2	7.6	2	19	6	101	6	76	6	140	4	106
17	3	12	1	8.3	5	79	8	106	7	150	4	100
18	2	8.0	1	8.0	5	79	7	92	8	162	6	141
19	3	12	2	15	5	80	8	125	14	267	6	135
20	3	11	3	23	5	83	15	478	19	344	6	127
21	3	11	7	64	5	79	60	4450	13	226	7	142
22	4	15	3	36	5	71	63	4690	6	99	8	157
23	5	19	3	42	5	66	47	2590	2	34	10	190
24	4	15	4	54	10	148	38	1640	2	35	12	222
25	5	18	4	47	48	1280	30	996	5	89	12	214
26	4	14	3	33	120	7450	22	579	5	95	11	192
27	4	15	2	21	131	9370	15	341	4	80	12	207
28	5	20	2	24	73	4120	11	211	5	107	13	224
29	6	29	3	49	54	2350	9	177	---	---	14	241
30	7	34	4	63	42	1490	8	166	---	---	26	448
31	13	49	---	---	35	1010	8	188	---	---	46	836
TOTAL	---	955.1	---	1547.1	---	33207	---	19876	---	16693	---	49636
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	39	1060	29	1290	12	237	355	9450	9	41	6	24
2	42	2220	31	1270	11	199	68	1010	9	40	5	19
3	47	2690	22	814	11	194	286	10600	7	31	4	15
4	86	5670	23	857	17	360	76	1030	8	35	5	18
5	484	77400	38	2010	21	492	54	579	10	44	4	14
6	512	86300	65	5490	19	415	36	350	14	69	5	19
7	160	22600	56	4010	17	329	36	330	17	84	6	26
8	98	13700	41	2420	15	250	37	363	13	62	104	699
9	86	9960	27	1330	14	208	37	374	8	39	56	655
10	79	8430	21	862	12	158	33	301	9	46	193	7920
11	74	6790	18	642	10	122	29	242	12	56	76	2110
12	55	4050	16	514	8	91	27	206	21	91	108	3150
13	39	2500	13	376	9	101	33	291	26	105	48	1160
14	33	1840	11	287	9	102	24	229	17	68	97	3590
15	27	1270	12	292	8	96	26	314	9	35	103	3390
16	25	1080	13	294	7	76	22	274	9	34	64	1540
17	204	22600	12	257	6	61	17	170	9	34	46	817
18	755	277000	11	219	6	58	16	136	8	30	34	567
19	718	231000	10	200	5	45	8	60	7	25	31	490
20	295	51400	10	219	4	34	9	63	11	38	28	415
21	150	18500	13	332	8	82	6	38	24	87	28	469
22	110	10600	34	1490	12	149	6	42	11	39	43	940
23	72	5520	25	1030	12	151	6	40	6	22	44	1330
24	59	3680	22	742	15	191	6	33	5	19	35	795
25	58	3290	21	618	18	201	5	29	6	24	24	443
26	54	3830	19	544	21	200	3	15	5	22	26	394
27	68	5910	17	428	23	215	2	9.7	5	23	35	454
28	55	4010	15	348	15	173	6	29	4	19	31	343
29	43	2600	14	316	11	108	6	28	5	22	23	232
30	32	1630	13	293	126	1460	5	23	8	34	12	115
31	---	---	12	264	---	---	8	35	7	29	---	---
TOTAL	---	889130	---	30058	---	6558	---	26693.7	---	1347	---	32153
YEAR		1107853										

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 mi².

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

REVISED RECORDS.--WSP 2103: Drainage area.

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

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

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

AVERAGE DISCHARGE.--20 years, 134 ft³/s, 14.79 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft³/s, June 22, 1972, gage height, 27.46 ft, from flood-marks, from rating curve extended above 2,900 ft³/s on basis of slope-area measurements at gage heights 14.44 ft and 27.46 ft; no flow Sept. 21-26, 1985, Sept. 29 to Oct. 3, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,350 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	1700	1,420	6.72	Apr. 17	0730	*2,340	*9.16
Apr. 4	1100	1,650	7.32				

No flow Oct. 1-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e.25	12	62	113	953	203	200	49	17	3.4	.40
2	.00	.84	38	70	119	765	171	185	49	30	2.7	.40
3	.00	.71	358	68	180	532	205	175	46	27	2.7	.38
4	.03	.73	105	59	283	397	1120	400	69	20	2.6	.34
5	.06	1.7	59	52	256	316	985	280	84	18	2.0	.31
6	e.05	8.5	43	50	223	261	823	227	50	16	1.6	.53
7	e.04	23	36	50	230	223	691	196	41	15	2.0	4.8
8	e.03	14	31	49	247	198	549	173	37	14	2.0	331
9	e.02	13	31	45	205	185	441	153	35	18	1.6	171
10	e.02	13	40	46	160	170	360	140	53	14	1.5	36
11	e.01	13	37	52	147	138	305	123	36	14	1.4	21
12	e.01	54	63	45	143	128	269	121	33	12	1.1	198
13	.11	28	50	41	141	119	233	131	41	30	1.0	110
14	.20	15	e36	39	122	109	199	105	43	19	.84	70
15	.18	8.6	e34	45	110	101	207	102	32	17	.67	39
16	.15	6.8	34	45	89	128	874	91	27	14	.67	28
17	.14	5.3	31	39	88	135	1770	82	25	12	.63	26
18	e.13	5.3	44	43	84	105	1030	76	23	11	.60	67
19	e.12	5.3	61	349	76	95	708	110	21	8.9	.81	39
20	e.11	4.9	47	434	69	89	552	134	21	7.3	1.3	74
21	e.10	22	38	266	69	83	454	101	34	6.3	1.2	161
22	e.10	26	33	200	67	78	385	90	34	5.3	.78	78
23	e.10	16	e28	201	106	75	328	99	34	3.9	.62	51
24	e.10	11	183	e131	108	72	329	96	25	3.6	.56	39
25	.14	9.3	569	e120	104	70	513	76	22	11	.52	31
26	.23	11	233	129	105	73	377	78	22	9.6	.56	25
27	.30	32	153	139	106	66	328	75	76	5.7	.57	21
28	.36	29	115	119	135	80	299	71	35	4.4	.75	18
29	.34	20	91	116	---	74	270	63	23	3.5	.75	16
30	e.28	15	80	117	---	67	231	56	19	2.7	.63	20
31	e.26	---	71	128	---	222	---	53	---	2.5	.48	---
TOTAL	3.72	413.23	2784	3349	3885	6107	15209	4062	1139	392.7	38.54	1677.16
MEAN	.12	13.8	89.8	108	139	197	507	131	38.0	12.7	1.24	55.9
MAX	.36	54	569	434	283	953	1770	400	84	30	3.4	331
MIN	.00	.25	12	39	67	66	171	53	19	2.5	.48	.31
CFSM	.00	.11	.73	.88	1.13	1.60	4.12	1.07	.31	.10	.01	.45
IN.	.00	.12	.84	1.01	1.17	1.85	4.60	1.23	.34	.12	.01	.51

CAL YR 1986 TOTAL 25676.50 MEAN 70.3 MAX 1060 MIN .00 CFSM .57 IN. 7.77
WTR YR 1987 TOTAL 39060.35 MEAN 107 MAX 1770 MIN .00 CFSM .87 IN. 11.81

e Estimated.

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 mi².
PERIOD OF RECORD.--July 1909 to April 1911, September 1911 to December 1912, January 1930 to current year.
REVISED RECORDS.--WSP 851: 1935-37. WSP 951: 1933(M), 1937. WSP 1302: 1934-35(M). WSP 2103: Drainage area. WDR VA-72-1: 1937(M), 1943(M), 1951(M), 1956(M). WDR VA-79-1: 1978.
GAGE.--Water-stage recorder. Datum of gage is 248.93 ft above National Geodetic Vertical Datum of 1929. July 12, 1909, to Dec. 31, 1912, nonrecording gage at site 1,000 ft downstream at different datum. Jan. 21, 1930, to Nov. 28, 1938, nonrecording gage at site 400 ft downstream at datum 4.20 ft lower than present datum.
REMARKS.--Records good except those for periods with backwater from debris, Oct. 1-4, Oct. 6 to Nov. 10, and Aug. 6 to Sept. 8, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--59 years (water years 1910, 1912, 1931-87), 316 ft³/s, 12.93 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,100 ft³/s, June 22, 1972, gage height, 30.59 ft, from high-water mark in gage house, from rating curve extended above 11,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 0.40 ft³/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 ft³/s, site and datum in use 1930-38, from information by local residents.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	2130	4,170	6.87	Apr. 17	1100	5,210	8.38
Apr. 4	1700	*5,460	*8.72				

Minimum daily discharge, 1.0 ft³/s, Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.3	e9.0	49	193	303	2700	517	446	152	353	13	e1.4
2	e1.2	e40	187	218	314	2270	390	425	140	320	12	e1.3
3	e1.2	e44	1070	233	441	1330	432	419	138	182	10	e1.2
4	e1.3	e24	390	200	669	969	3330	871	501	113	8.8	e1.2
5	1.4	e25	200	174	741	765	2620	829	386	81	6.6	e1.2
6	e1.3	e110	137	145	627	655	1960	607	208	67	e5.6	e2.5
7	e1.2	e68	110	165	626	577	1790	531	156	60	e6.6	e15
8	e1.1	e100	94	155	689	518	1300	476	133	53	e7.0	e188
9	e1.0	e45	94	143	613	486	1020	433	116	45	e5.6	628
10	e1.1	e26	114	139	465	469	827	395	143	45	e5.0	92
11	e1.4	111	127	156	461	396	702	360	127	41	e4.5	39
12	e1.8	183	185	144	445	365	628	332	105	36	e3.8	305
13	e2.4	170	169	124	445	342	565	377	115	41	e3.3	197
14	e3.5	76	122	112	399	315	492	316	128	58	e2.8	147
15	e5.0	43	103	121	363	297	469	309	116	46	e2.3	76
16	e4.0	34	101	132	301	337	1240	299	89	38	e2.2	49
17	e3.0	21	94	115	291	398	4440	261	77	33	e2.1	47
18	e2.8	16	130	121	277	317	2190	239	69	29	e2.0	318
19	e2.7	17	198	912	260	285	1530	271	63	26	e2.8	117
20	e2.6	32	154	1380	234	266	1170	364	117	23	e4.4	93
21	e2.6	68	127	741	226	248	953	320	151	20	e4.0	287
22	e2.5	73	107	589	222	233	809	273	153	17	e2.6	188
23	e2.5	68	85	594	279	220	693	256	111	14	e2.1	114
24	e2.7	48	744	411	375	211	660	293	89	12	e1.9	78
25	e4.5	39	1990	e330	341	204	1040	224	68	10	e1.8	60
26	e7.0	52	721	326	341	218	830	218	67	15	e1.9	48
27	e11	89	481	340	338	202	662	214	178	27	e2.0	42
28	e25	95	368	309	388	217	601	203	129	16	e2.5	39
29	e30	76	296	297	---	234	556	189	77	13	e2.6	36
30	e19	59	254	300	---	202	500	170	57	15	e2.1	38
31	e12	---	223	320	---	388	---	165	---	15	e1.6	---
TOTAL	160.1	1861.0	9224	9639	11474	16634	34916	11085	4159	1864	135.5	3249.8
MEAN	5.16	62.0	298	311	410	537	1164	358	139	60.1	4.37	108
MAX	30	183	1990	1380	741	2700	4440	871	501	353	13	628
MIN	1.0	9.0	49	112	222	202	390	165	57	10	1.6	1.2
CFSM	.02	.19	.90	.94	1.24	1.62	3.51	1.08	.42	.18	.01	.33
IN.	.02	.21	1.03	1.08	1.29	1.86	3.91	1.24	.47	.21	.02	.36

CAL YR 1986 TOTAL 74987.75 MEAN 205 MAX 2790 MIN .80 CFSM .62 IN. 8.40
WTR YR 1987 TOTAL 104401.40 MEAN 286 MAX 4440 MIN 1.0 CFSM .86 IN. 11.70

e Estimated.

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 mi².

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

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

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

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

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

AVERAGE DISCHARGE.--53 years, 59.4 ft³/s, 13.93 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,200 ft³/s, June 22, 1972, gage height, 21.40 ft, from flood-marks, from rating curve extended above 1,600 ft³/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 ft³/s, Sept. 9, 10, 1966, gage height, 1.65 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0300	1,430	8.29	Sept. 8	2200	*1,490	*8.41

Minimum daily discharge, 0.94 ft³/s, Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	5.7	15	30	49	556	63	39	27	40	8.4	4.7
2	2.5	49	143	122	64	166	45	41	37	66	8.7	3.9
3	3.0	16	358	82	111	87	46	45	62	30	7.9	3.1
4	2.6	12	51	51	139	66	576	308	286	23	7.4	2.8
5	2.0	64	31	39	99	56	151	102	224	22	7.3	3.2
6	1.6	78	26	35	68	53	135	65	48	21	14	34
7	1.7	23	23	34	70	51	111	54	34	20	8.2	17
8	1.2	44	22	32	83	48	74	47	30	18	7.6	552
9	.94	17	33	30	80	47	61	42	27	20	7.1	281
10	1.2	12	50	31	53	50	55	39	26	33	6.5	30
11	2.3	67	71	31	50	42	51	36	24	19	5.9	20
12	2.6	55	90	28	58	41	48	36	24	75	5.4	169
13	5.6	18	35	27	62	40	49	47	46	69	5.3	315
14	25	13	27	25	52	42	44	34	77	64	5.4	59
15	13	11	25	28	47	43	44	170	29	43	5.6	30
16	5.7	11	24	27	47	64	116	100	25	22	17	24
17	4.9	10	23	25	45	52	289	46	23	19	12	23
18	4.7	11	77	66	47	41	99	38	21	17	6.5	101
19	4.5	33	49	322	45	39	68	36	20	16	5.1	28
20	4.4	35	29	158	41	38	59	79	23	15	5.1	46
21	e4.3	126	26	66	39	36	55	56	73	14	5.0	32
22	e4.0	24	24	61	37	35	51	45	36	13	5.4	24
23	e3.8	17	23	63	67	34	46	38	38	12	10	22
24	e4.5	17	291	e52	83	33	87	35	22	13	5.7	18
25	6.4	16	649	46	78	33	82	35	20	21	4.4	16
26	18	73	84	51	69	34	58	40	135	14	7.8	15
27	15	72	55	47	60	32	50	35	288	12	8.2	14
28	36	25	45	42	70	46	48	34	39	11	28	15
29	10	20	38	41	---	39	46	31	30	9.7	20	15
30	7.4	17	35	49	---	41	42	30	25	9.1	7.1	19
31	5.9	---	32	54	---	122	---	28	---	8.6	5.2	---
TOTAL	207.14	991.7	2504	1795	1813	2107	2749	1811	1819	789.4	263.2	1936.7
MEAN	6.68	33.1	80.8	57.9	64.8	68.0	91.6	58.4	60.6	25.5	8.49	64.6
MAX	36	126	649	322	139	556	576	308	288	75	28	552
MIN	.94	5.7	15	25	37	32	42	28	20	8.6	4.4	2.8
CFSM	.12	.57	1.40	1.00	1.12	1.17	1.58	1.01	1.05	.44	.15	1.12
IN.	.13	.64	1.61	1.15	1.16	1.35	1.77	1.16	1.17	.51	.17	1.24

CAL YR 1986 TOTAL 12596.04 MEAN 34.5 MAX 649 MIN .94 CFSM .60 IN. 8.09
WTR YR 1987 TOTAL 18786.14 MEAN 51.5 MAX 649 MIN .94 CFSM .89 IN. 12.07

e Estimated.

01646500 POTOMAC RIVER NEAR WASHINGTON, DC

LOCATION.--Lat 38°56'58", long 77°07'40", Montgomery County, Md., Hydrologic Unit 02070008, on left bank just upstream from Little Falls Dam, 1 mi upstream from District of Columbia boundary line, 1.2 mi upstream from Chain Bridge, 1.8 mi east of Langley, Fairfax County, Va., and at mile 117.4.
DRAINAGE AREA.--11,560 mi².
PERIOD OF RECORD.--March 1930 to current year.
REVISED RECORDS.--WSP 726: Drainage area. WDR MD-DE-75-1: 1973-74(M).
GAGE.--Water-stage recorder and concrete control. Datum of gage is 37.95 ft above National Geodetic Vertical Datum of 1929. Prior to June 7, 1930, nonrecording gage, and June 7, 1930, to Jan. 22, 1965, water-stage recorder at site 1 mi upstream on right bank at same datum.
REMARKS.--Estimated daily discharges: Oct. 1-7, Dec. 13-19, and May 27-29. Records good except those for estimated daily discharges (missing record), which are fair. Diversions at Great Falls through aqueducts, and since June 1959, from gage pool at Little Falls Dam, for municipal supply of Washington, D.C.; since October 1958, at Rockville Filtration Plant, for municipal supply of city of Rockville; since April 1961, at Potomac Filtration Plant for water supply of Washington Suburban Sanitary District; since October 1961, at Fairfax Water Treatment Plant for water supply of city of Fairfax (from Goose Creek); since April 1964, at Violets Lock to Chesapeake and Ohio Canal; and since October 1985, at Fairfax County Water Authority Treatment Plant for water supply of the county. Low flow affected slightly prior to July 1981 by Stony River Reservoir, since December 1950, by Savage River Reservoir, and since July 1981, by Jennings Randolph Lake. Gage-height telemeter at station.
AVERAGE DISCHARGE.--57 years, 11,530 ft³/s, 13.55 in/yr, adjusted for diversions.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 484,000 ft³/s, Mar. 19, 1936, gage height, 28.1 ft, site then in use; minimum daily discharge observed at gaging station, 121 ft³/s, Sept. 9, 1966, does not include diversion of 489 ft³/s for municipal use; minimum daily discharge (adjusted), 601 ft³/s, Sept. 10, 1966, include diversion of 449 ft³/s for municipal use.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, was of approximately the same magnitude as that of March 19, 1936.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 45,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 4	0215	56,400	7.02	Apr. 19	0330	*167,000	*11.41
Apr. 6	0415	92,700	8.58				

Minimum daily discharge, 757 ft³/s, Aug. 21, does not include diversion for municipal use; minimum daily (adjusted) discharge, 1,480 ft³/s, Oct. 12, 13, Aug. 22.

DISCHARGE (MEAN VALUES), IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	1070	5840	11700	13000	18300	9150	19600	8250	14500	1190	1160
2	1050	1420	6060	10800	11100	37800	16300	17700	7400	11500	1160	1170
3	1470	1480	11400	10100	11100	47000	24200	16300	6880	17600	1140	959
4	1510	1450	16700	9170	15400	50900	31400	16600	8750	10600	1120	944
5	1250	1600	14000	8190	27700	36200	66100	19500	11600	6120	1040	890
6	1090	2140	14000	7420	27200	27200	83800	32800	10400	4400	1120	1080
7	950	1830	11700	6640	23300	22300	64900	33100	8600	3920	1290	1200
8	985	2380	9040	6020	20800	19000	64700	26600	7290	3550	1400	3290
9	1090	2780	7720	5790	18600	16500	52300	22400	6200	3710	1290	7960
10	950	2900	7360	5960	16700	15600	47200	18600	5420	3780	1400	12000
11	963	3590	8600	6290	14800	15700	41800	16000	4770	3360	1440	13200
12	852	5630	9800	6320	13600	16400	33600	14200	4430	3230	1260	11900
13	863	5620	9000	6280	12500	16500	28300	12900	4200	3730	1120	11300
14	1030	6210	8200	5870	11600	14700	24900	12000	4160	5410	997	11900
15	991	5430	7500	5850	10800	13000	21500	11100	4290	4220	937	15200
16	993	3930	7200	5870	10200	11900	19000	10400	4370	5140	968	12300
17	939	3100	6900	6260	9520	11000	33700	9350	3860	4680	1030	8840
18	930	2790	6600	6250	8930	10400	129000	8770	3470	3620	965	11200
19	994	2750	6500	8640	8530	9630	153000	8690	3220	3020	806	9530
20	949	2620	7000	17300	7860	9170	87800	9290	3120	2590	827	8050
21	955	3910	6500	27100	7410	8380	57500	11900	3590	2370	757	7300
22	959	4730	6200	36300	7100	8240	43700	14600	3800	2030	799	8000
23	889	5530	5800	27500	7460	7940	35000	19400	4860	2050	953	10300
24	899	5490	7030	21000	7270	7670	28700	15900	4700	2090	872	10900
25	978	4880	23900	16600	7680	7530	24600	14100	4510	1820	986	8310
26	941	4640	30200	13000	7880	7270	26900	12300	4020	1810	974	6660
27	964	4780	31400	10600	8300	6970	35000	11400	4340	1560	1100	5460
28	1060	4600	27900	8820	8770	6930	33200	10700	3570	1350	1220	4540
29	974	5470	21100	8120	---	7060	27100	10000	4060	1270	1320	3870
30	1120	6400	16900	9630	---	7000	23000	9130	3480	1260	1210	3530
31	1460	---	13900	10500	---	7520	---	8980	---	1160	1070	---
TOTAL	32068	111150	371950	345890	355110	501710	1367350	474310	161610	137450	33761	212943
MEAN	1034	3705	12000	11160	12680	16180	45580	15300	5387	4434	1089	7098
MAX	1510	6400	31400	36300	27700	50900	153000	33100	11600	17600	1440	15200
MIN	852	1070	5800	5790	7100	6930	9150	8690	3120	1160	757	890
(*)	626	578	533	548	547	541	551	593	650	733	739	626
MEAN‡	1660	4283	12530	11700	13220	16720	46150	15910	6037	5168	1828	7717
CFSM‡	.14	.37	1.08	1.01	1.14	1.45	3.99	1.38	.52	.45	.16	.67
IN.‡	.17	.41	1.25	1.19	1.19	1.67	4.46	1.59	.58	.52	.18	.75

CAL YR 1986 TOTAL 2968286 MEAN 8133 MAX 122000 MIN 577 MEAN‡ 8741 CFSM‡ .76 IN.‡ 10.27
WTR YR 1987 TOTAL 4105303 MEAN 11250 MAX 153000 MIN 757 MEAN‡ 11850 CFSM‡ 1.03 IN.‡ 13.92

* Diversions, in cubic feet per second, for municipal supply of Washington, D.C., Washington Suburban Sanitary District, city of Rockville, city of Fairfax (from Goose Creek), Fairfax County, and the Chesapeake and Ohio Canal (insignificant diversion to canal during current water year). Records provided by U.S. Army Corps of Engineers, Washington Suburban Sanitary Commission, city of Rockville, city of Fairfax, and Fairfax County Water Authority.
‡ Adjusted for diversion.

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 mi².

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1978 to September 1981 (discontinued).
pH: June 1978 to September 1981 (discontinued).
WATER TEMPERATURE: June 1978 to September 1981 (discontinued).
DISSOLVED OXYGEN: June 1978 to September 1981 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: October 1978 to September 1981 (discontinued).

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

REMARKS.--High flows are sampled from the George Mason Memorial Bridge (14th Street) located 6 mi downstream from Chain Bridge.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (water years 1979, 1981): Maximum, 598 microsiemens, Sept. 12, 1981; minimum, 116 microsiemens, Jan. 25, 1979.
pH (water years 1979, 1981): Maximum, 9.3 units, Mar. 29, 1981; minimum, 6.7 units, June 2, 1981.
WATER TEMPERATURE (water years 1979, 1981): Maximum, 31.0°C, July 23, 24, 1978; minimum, 0.0°C on many days during winter periods.
DISSOLVED OXYGEN (water years 1979, 1981): Maximum, 16.4 mg/L, on many days in 1979; minimum, 5.6 mg/L, June 2, 1981.
SEDIMENT CONCENTRATION: Maximum daily mean, 812 mg/L, Sept. 6, 1979; minimum daily mean, 1 mg/L on many days during winter periods.
SEDIMENT LOAD: Maximum daily, 281,000 tons, Feb. 27, 1979; minimum daily, 3.2 tons, Jan. 5, 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV											
04...	1100	1650	492	8.34	14.0	14.0	768	1.2	11.4	110	--
04...	1105	1650	442	8.25	14.0	14.0	768	--	11.4	110	36
JAN											
06...	1110	7680	260	7.68	17.0	3.0	773	--	14.8	108	--
06...	1115	7680	266	7.81	7.0	3.0	773	4.1	14.8	108	K3
MAR											
02...	1115	3790	230	7.52	14.0	7.0	761	60	13.8	114	--
02...	1120	3790	224	7.86	14.0	7.0	761	--	13.8	114	K380
MAY											
14...	1015	12400	233	8.29	17.0	20.0	773	--	10.0	108	--
14...	1020	12400	235	8.39	17.0	20.0	773	0.60	10.0	108	20
JUL											
07...	1105	4100	284	7.88	25.0	26.0	766	--	6.8	83	--
07...	1110	4100	284	8.04	25.0	26.0	766	10	6.8	83	150
SEP											
09...	1025	7130	310	7.76	25.0	23.0	762	--	8.1	95	--
09...	1030	7130	306	7.72	25.0	23.0	762	54	8.1	95	K10000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD 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)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV											
04...	--	190	72	56	12	28	24	0.9	3.2	120	96
04...	710	--	--	--	--	--	--	--	--	120	--
JAN											
06...	--	--	--	--	--	--	--	--	--	68	--
06...	K13	100	37	31	6.5	8.9	15	0.4	1.9	67	37
MAR											
02...	--	80	26	23	5.5	8.4	18	0.4	2.8	54	26
02...	K890	--	--	--	--	--	--	--	--	58	--
MAY											
14...	--	--	--	--	--	--	--	--	--	81	--
14...	360	110	19	31	6.7	6.3	11	0.3	1.8	86	29
JUL											
07...	--	--	--	--	--	--	--	--	--	92	--
07...	240	120	25	34	7.8	9.7	15	0.4	3.7	92	31
SEP											
09...	--	--	--	--	--	--	--	--	--	75	--
09...	K3300	110	36	30	7.6	18	26	0.8	3.7	70	44

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS NO2)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)
NOV										
04...	29	0.20	0.5	309	300	--	<0.010	--	0.670	0.030
04...	--	--	0.6	--	--	0.677	0.003	0.01	0.680	--
JAN										
06...	--	--	6.3	--	--	2.09	0.007	0.02	2.10	--
06...	13	<0.10	6.5	150	150	2.09	0.010	0.03	2.10	0.060
MAR										
02...	26	<0.10	4.3	124	130	1.88	0.020	0.07	1.90	0.170
02...	--	--	4.1	--	--	1.88	0.018	0.06	1.90	--
MAY										
14...	--	--	3.9	--	--	0.953	0.007	0.02	0.960	--
14...	11	<0.10	3.9	139	140	0.970	0.030	0.10	1.00	<0.010
JUL										
07...	--	--	6.4	--	--	--	<0.001	--	1.60	--
07...	12	0.10	5.3	173	160	1.57	0.030	0.10	1.60	0.040
SEP										
09...	--	--	4.2	--	--	0.908	0.012	0.04	0.920	--
09...	19	0.20	4.1	179	170	0.920	0.010	0.03	0.930	0.100

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ALUMINUM, DISSOLVED (UG/L AS AL)
NOV										
04...	0.030	0.04	--	<0.20	--	0.030	0.040	0.010	0.03	<10
04...	0.030	0.04	0.17	0.40	0.20	0.030	0.020	0.010	0.03	20
JAN										
06...	0.060	0.08	0.44	1.0	0.50	0.050	0.070	0.030	0.09	10
06...	0.050	0.06	--	0.90	--	0.050	0.060	0.020	0.06	--
MAR										
02...	0.160	0.21	--	1.0	--	0.100	0.030	0.030	0.09	40
02...	0.150	0.19	0.45	1.0	0.60	0.110	0.020	0.030	0.09	80
MAY										
14...	0.020	0.03	0.28	0.90	0.30	0.050	0.010	<0.010	--	20
14...	0.040	0.05	--	0.90	--	0.050	0.010	0.030	0.09	<10
JUL										
07...	0.050	0.06	0.75	0.60	0.80	0.120	0.110	0.070	0.21	50
07...	0.040	0.05	--	0.60	--	0.130	0.090	0.070	0.21	--
SEP										
09...	0.080	0.10	0.22	0.70	0.30	0.150	0.040	0.020	0.06	70
09...	0.120	0.15	--	1.1	--	0.210	0.080	0.030	0.09	40

DATE	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
NOV										
04...	<1	45	<0.5	<1	<1	<3	1	8	<5	11
04...	--	--	--	--	--	--	--	--	--	--
JAN										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
MAR										
02...	<1	26	1	1	<1	<3	3	77	<5	5
02...	--	--	--	--	--	--	--	--	--	--
MAY										
14...	--	--	--	--	--	--	--	--	--	--
14...	<1	38	<0.5	<1	<1	<3	4	8	<5	6
JUL										
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
SEP										
09...	--	--	--	--	--	--	--	--	--	--
09...	<1	32	<0.5	<1	<1	<3	2	35	<5	<4

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV										
04...	12	<0.1	<10	<1	<1	<1	260	<6	11	--
04...	--	--	--	--	--	--	--	--	--	3.8
JAN										
06...	--	--	--	--	--	--	--	--	--	4.0
06...	--	--	--	--	--	--	--	--	--	--
MAR										
02...	21	<0.1	<10	3	<1	<1	91	<6	<3	--
02...	--	--	--	--	--	--	--	--	--	11
MAY										
14...	--	--	--	--	--	--	--	--	--	3.4
14...	1	<0.1	<10	<1	<1	<1	120	<6	<3	--
JUL										
07...	--	--	--	--	--	--	--	--	--	5.1
07...	--	--	--	--	--	--	--	--	--	--
SEP										
09...	--	--	--	--	--	--	--	--	--	8.6
09...	21	<0.1	<10	2	<1	<1	140	<6	<3	--

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV					
04...	1100	1650	5	20	--
04...	1105	1650	7	31	--
JAN					
06...	1110	7680	6	129	--
06...	1115	7680	12	249	69
MAR					
02...	1115	3790	336	3440	96
02...	1120	3790	238	2440	--
MAY					
14...	1015	12400	17	573	--
14...	1020	12400	19	636	97
JUL					
07...	1105	4100	28	310	--
07...	1110	4100	33	365	90
SEP					
09...	1025	7130	154	2970	--
09...	1030	7130	164	3160	99

RADIOCHEMICAL ANALYSES

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	URANIUM DISSOLVED, EXTRACTION (UG/L)
MAR										
02...	1115	3790	<0.4	4.3	3.9	2.9	3.1	2.6	0.06	0.02

01653000 CAMERON RUN AT ALEXANDRIA, VA

LOCATION (REVISED).--Lat 38°48'23", long 77°06'36", Fairfax County, Hydrologic Unit 02070010, on left downstream side of Norfolk Southern Railway bridge at Alexandria, 800 ft downstream from confluence of Holmes Run and Backlick Run, 0.5 mi east of the U.S. Army Quartermaster Depot, and 3.4 mi upstream from mouth. Prior to Mar. 31, 1979, at site 0.5 mi downstream.

DRAINAGE AREA.--33.7 mi².

PERIOD OF RECORD.--June 1955 to March 1979, October 1979 to September 1980, October 1980 to September 1986 (annual maximum only), October 1986 to September 1987.

GAGE.--Water-stage recorder. Gage reinstalled Nov. 8, 1979. Datum of gage is 31.07 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1965, at present site at datum 7.78 ft higher. Sept. 20, 1965, to Jan. 19, 1976, at present site at datum 5.44 ft higher. Jan. 20, 1976, to Nov. 8, 1976, at site 1,200 ft downstream at datum 10.00 ft lower. Nov. 9, 1976, to Mar. 31, 1979, at site 0.5 mi downstream at datum 7.22 ft lower.

REMARKS.--Records good except for period with ice effect, Jan. 23-30, which is fair. Some regulation by Lake Barcroft, formerly Alexandria Reservoir, on Holmes Run 3.6 mi upstream, usable capacity, 2,092 acre-ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--25 years (water year 1956-78, 1980, 1987), 36.5 ft³/s, 14.71 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,900 ft³/s, June 22, 1972, gage height, 18.14 ft, from rating curve extended above 2,500 ft³/s on basis of culvert computations of peak flow for main channel and bypass channels; minimum, 1.1 ft³/s, Aug. 15, 1957, Sept. 22-25, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,890 ft³/s, Dec. 24; minimum, 1.8 ft³/s, Oct. 6-7, gage height, 0.74 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	3.8	8.6	78	29	327	30	14	11	8.9	5.2	3.3
2	2.9	81	220	151	83	55	20	13	13	9.2	5.0	2.2
3	2.7	11	167	34	104	31	25	44	17	8.4	3.9	2.2
4	3.1	7.3	24	22	102	25	306	173	203	24	3.8	2.3
5	3.2	104	17	18	47	21	49	30	44	13	117	4.5
6	2.4	26	13	16	34	20	49	20	15	7.1	17	118
7	2.0	17	12	15	36	19	35	17	11	6.6	8.2	21
8	2.4	30	12	14	38	18	24	15	9.1	6.5	5.8	415
9	2.7	13	48	13	37	17	21	14	8.1	7.0	14	53
10	2.6	9.0	27	14	28	17	20	13	7.1	12	11	17
11	2.6	104	73	13	26	15	17	12	7.0	8.3	4.7	10
12	2.7	23	29	13	37	14	17	16	71	73	4.2	745
13	15	12	17	12	26	14	16	28	212	24	4.4	215
14	44	8.4	14	11	20	13	15	12	79	42	4.4	32
15	5.8	7.0	12	12	18	15	16	59	23	28	4.8	19
16	4.2	6.4	10	10	21	47	86	25	17	13	16	13
17	4.2	5.8	9.8	9.4	16	20	158	13	13	8.4	5.5	11
18	3.9	22	71	72	16	15	31	11	10	7.2	4.6	11
19	3.8	19	22	263	15	14	29	10	8.8	6.6	3.8	11
20	3.8	131	15	61	14	15	24	48	11	6.2	3.7	67
21	3.8	52	13	27	13	13	19	19	35	5.8	3.1	22
22	4.1	16	11	43	13	13	18	14	134	5.4	13	14
23	4.2	12	10	e35	75	12	17	212	38	5.3	6.3	11
24	4.4	11	699	e28	66	12	62	62	17	4.8	3.8	8.2
25	4.5	8.7	229	e22	41	11	45	21	12	57	3.0	6.7
26	22	143	48	e24	32	11	22	16	251	7.4	3.4	5.5
27	29	31	28	e27	27	11	19	13	109	6.0	4.3	4.8
28	13	17	22	e23	75	24	17	12	25	8.6	58	5.5
29	6.5	12	18	e22	---	15	16	11	14	5.2	7.9	5.1
30	4.9	9.9	16	e29	---	28	15	9.8	9.8	4.9	4.1	23
31	3.9	---	13	37	---	151	---	9.4	---	5.3	3.4	---
TOTAL	217.2	953.3	1928.4	1168.4	1089	1033	1238	986.2	1434.9	435.1	357.3	1878.3
MEAN	7.01	31.8	62.2	37.7	38.9	33.3	41.3	31.8	47.8	14.0	11.5	62.6
MAX	44	143	699	263	104	327	306	212	251	73	117	745
MIN	2.0	3.8	8.6	9.4	13	11	15	9.4	7.0	4.8	3.0	2.2
CFSM	.21	.94	1.85	1.12	1.15	.99	1.22	.94	1.42	.42	.34	1.86
IN.	.24	1.05	2.13	1.29	1.20	1.14	1.37	1.09	1.58	.48	.39	2.07

WTR YR 1987 TOTAL 12719.1 MEAN 34.8 MAX 745 MIN 2.0 CFSM 1.03 IN. 14.04

e Estimated.

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA

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

DRAINAGE AREA.--23.5 mi².

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

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

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

REMARKS.--Records good except those for periods of no gage-height record, Oct. 1 and Nov. 1-19, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--40 years, 27.6 ft³/s, 15.95 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s, June 22, 1972, gage height, 15.96 ft, from high-water mark in gage house, from rating curve extended above 6,600 ft³/s on basis of contracted-opening and flow-over-road measurement of peak flow; minimum, 0.02 ft³/s, Oct. 9-13, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2400	*2,710	*9.81	June 27	0030	1,790	8.53

Minimum discharge, 0.02 ft³/s, Oct. 9-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e12	e1.3	4.2	26	17	271	19	16	9.5	7.5	1.7	.87
2	8.0	e30	226	121	50	41	14	16	16	14	1.9	.79
3	1.7	e5.0	171	25	65	23	18	36	17	7.4	1.9	.69
4	1.7	e2.9	14	15	70	18	357	161	249	6.3	1.8	.62
5	1.3	e30	7.9	12	30	16	52	25	36	6.0	18	3.7
6	.89	e50	5.9	11	21	14	72	19	14	5.4	9.9	62
7	.34	e5.0	5.1	9.7	28	14	39	17	9.9	5.2	3.2	6.1
8	.12	e40	4.9	8.8	28	14	27	15	9.0	5.1	2.3	310
9	.04	e6.0	38	8.4	20	14	23	14	8.3	4.6	2.1	19
10	.02	e2.3	21	9.5	12	16	21	13	7.5	5.6	2.0	5.8
11	.02	e50	66	9.1	11	12	20	12	6.5	4.5	2.0	5.8
12	.02	e26	27	7.8	24	11	20	19	36	62	1.7	268
13	7.4	e5.0	8.6	7.7	16	11	21	18	153	14	1.6	129
14	46	e3.7	5.8	7.6	12	11	18	11	40	81	1.4	14
15	4.7	e3.0	5.3	9.6	9.9	12	20	170	12	13	1.4	7.8
16	.53	e2.7	4.7	9.3	8.4	40	112	31	8.7	6.3	20	5.4
17	.29	e2.5	4.5	8.1	8.1	15	132	14	8.1	4.6	4.0	4.7
18	.26	e25	62	50	8.1	12	30	12	6.9	4.1	1.9	5.6
19	.86	e20	12	212	7.7	12	26	15	6.6	3.7	1.5	5.2
20	1.1	90	6.8	38	7.2	12	23	52	36	3.1	1.3	34
21	.36	63	5.4	16	7.0	11	22	18	31	3.1	.94	9.0
22	.25	7.8	4.6	18	7.2	11	21	12	58	3.0	7.4	5.0
23	.24	5.1	4.4	e16	35	11	19	70	18	2.7	7.8	3.8
24	.35	6.2	632	e15	45	10	51	20	7.6	2.7	1.7	3.1
25	.44	5.0	284	12	31	10	32	19	7.3	29	.89	2.8
26	23	113	19	13	21	9.9	21	19	198	3.4	.79	2.4
27	57	25	13	14	16	9.8	18	11	142	2.3	1.1	2.6
28	28	8.3	9.4	13	58	21	19	10	14	2.3	42	2.3
29	1.8	6.0	8.0	13	---	11	18	9.2	11	2.1	8.0	3.0
30	11	4.8	7.2	17	---	28	17	8.7	8.7	1.8	1.8	18
31	3.6	---	9.9	23	---	104	---	7.9	---	1.7	.98	---
TOTAL	213.33	644.6	1697.6	775.6	673.6	825.7	1302	890.8	1185.6	317.5	155.00	941.07
MEAN	6.88	21.5	54.8	25.0	24.1	26.6	43.4	28.7	39.5	10.2	5.00	31.4
MAX	57	113	632	212	70	271	357	170	249	81	42	310
MIN	.02	1.3	4.2	7.6	7.0	9.8	14	7.9	6.5	1.7	.79	.62
CFSM	.29	.92	2.33	1.06	1.03	1.13	1.85	1.22	1.68	.43	.21	1.34
IN.	.34	1.02	2.69	1.23	1.07	1.31	2.06	1.41	1.88	.50	.25	1.49

CAL YR 1986 TOTAL 6303.52 MEAN 17.3 MAX 632 MIN .02 CFSM .74 IN. 9.98
WTR YR 1987 TOTAL 9622.40 MEAN 26.4 MAX 632 MIN .02 CFSM 1.12 IN. 15.23

e Estimated.

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 mi².
PERIOD OF RECORD.--October 1972 to November 1987 (discontinued).
GAGE.--Water-stage recorder. Datum of gage is 166.27 ft above National Geodetic Vertical Datum of 1929.
REMARKS.--Records good for period October 1986 to September 1987 except period of backwater from debris, Oct. 1 to Nov. 19, which is fair. Records good for period October to November 1987. Occasional diurnal fluctuation during low flow caused by irrigation dam 4.5 mi upstream from gage. Several measurements of water temperature were made during the year.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--15 years, 181 ft³/s, 15.86 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,900 ft³/s, Oct. 1, 1979, gage height, 15.29 ft, from rating curve extended above 6,600 ft³/s; minimum daily, 0.25 ft³/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 PERIOD OCTOBER 1986 TO SEPTEMBER 1987.--Peak discharges equal to or greater than base discharge of 3,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0500	*6,920	*12.41	Sept. 9	0430	5,320	11.65
Apr. 17	0400	6,880	12.39				

October 1986 to September 1987: Minimum daily discharge, 0.62 ft³/s, Oct. 11.

October to November 1987: Maximum discharge during period, 90 ft³/s, Oct. 28, gage height, 3.30 ft; minimum, 5.6 ft³/s, Oct. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.94	e2.7	12	79	192	2390	111	67	25	4.1	1.9	.97
2	.89	e7.0	183	321	217	922	68	60	67	3.7	1.7	1.3
3	.82	e6.0	1080	317	488	395	66	55	34	3.5	1.6	.91
4	.87	e7.0	217	169	1020	261	970	558	29	3.5	1.5	.71
5	.77	e9.0	97	121	648	198	544	383	131	3.5	2.4	.66
6	.78	e40	62	92	395	172	472	182	53	3.3	3.0	1.4
7	.69	e15	46	88	428	154	497	122	29	3.1	1.3	1.8
8	.74	e8.0	41	100	517	138	266	88	18	2.9	1.0	1040
9	e.67	e12	41	89	407	133	176	69	16	2.6	1.1	2410
10	e.64	8.6	94	88	219	163	136	57	10	2.3	1.2	225
11	e.62	25	140	91	195	123	110	48	7.7	2.3	1.0	76
12	e.68	22	295	80	203	107	95	41	7.5	2.8	.87	646
13	.79	55	119	72	239	95	87	68	10	209	.90	447
14	1.1	21	69	66	195	85	74	39	16	43	.83	167
15	e1.4	e7.0	52	63	162	80	70	36	11	21	.81	76
16	e1.2	e4.6	46	63	124	146	1520	37	8.2	13	.97	48
17	e1.0	e3.8	42	56	107	253	5080	30	6.1	6.7	1.1	40
18	e1.6	e6.0	87	66	108	148	901	26	4.3	4.2	1.2	74
19	2.0	e4.2	130	935	101	120	478	24	3.3	3.8	.96	43
20	1.8	5.0	67	803	91	101	352	35	3.4	3.8	.91	90
21	e1.7	72	48	307	87	91	248	40	12	3.7	.91	214
22	e1.5	43	39	207	84	82	159	34	22	3.5	.94	93
23	e1.5	19	33	e200	112	74	139	33	35	3.4	.92	56
24	e1.6	12	876	e193	213	69	140	27	12	51	.93	39
25	e1.8	10	3720	e190	290	66	243	24	7.7	11	.84	28
26	e3.2	16	393	e182	278	69	261	27	11	3.2	.77	20
27	4.1	118	217	e185	257	64	153	25	69	2.7	.82	16
28	4.6	50	158	e174	375	70	118	22	23	2.5	.80	12
29	e3.8	27	120	e174	---	75	96	19	8.5	2.2	.77	9.7
30	e3.3	18	104	178	---	66	82	16	5.2	2.1	.72	9.5
31	e2.9	---	91	193	---	106	---	16	---	1.9	.71	---
TOTAL	50.00	653.9	8719	5942	7752	7016	13712	2308	694.9	429.3	35.38	5886.95
MEAN	1.61	21.8	281	192	277	226	457	74.5	23.2	13.8	1.14	196
MAX	4.6	118	3720	935	1020	2390	5080	558	131	209	3.0	2410
MIN	.62	2.7	12	56	84	64	66	16	3.3	1.9	.71	.66
CFSM	.01	.14	1.81	1.24	1.79	1.46	2.95	.48	.15	.09	.01	1.27
IN.	.01	.16	2.09	1.43	1.86	1.68	3.29	.55	.17	.10	.01	1.41

CAL YR 1986 TOTAL 28673.18 MEAN 78.6 MAX 3720 MIN .55 CFSM .51 IN. 6.88
WTR YR 1987 TOTAL 53199.43 MEAN 146 MAX 5080 MIN .62 CFSM .94 IN. 12.77

e Estimated.

01656100 CEDAR RUN NEAR ADEN, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER TO NOVEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	12	---	---	---	---	---	---	---	---	---	---
2	11	10	---	---	---	---	---	---	---	---	---	---
3	14	11	---	---	---	---	---	---	---	---	---	---
4	25	---	---	---	---	---	---	---	---	---	---	---
5	19	---	---	---	---	---	---	---	---	---	---	---
6	15	---	---	---	---	---	---	---	---	---	---	---
7	11	---	---	---	---	---	---	---	---	---	---	---
8	18	---	---	---	---	---	---	---	---	---	---	---
9	14	---	---	---	---	---	---	---	---	---	---	---
10	11	---	---	---	---	---	---	---	---	---	---	---
11	9.6	---	---	---	---	---	---	---	---	---	---	---
12	8.0	---	---	---	---	---	---	---	---	---	---	---
13	9.3	---	---	---	---	---	---	---	---	---	---	---
14	9.2	---	---	---	---	---	---	---	---	---	---	---
15	6.9	---	---	---	---	---	---	---	---	---	---	---
16	5.9	---	---	---	---	---	---	---	---	---	---	---
17	5.8	---	---	---	---	---	---	---	---	---	---	---
18	e6.0	---	---	---	---	---	---	---	---	---	---	---
19	e6.0	---	---	---	---	---	---	---	---	---	---	---
20	e6.0	---	---	---	---	---	---	---	---	---	---	---
21	e6.2	---	---	---	---	---	---	---	---	---	---	---
22	e6.2	---	---	---	---	---	---	---	---	---	---	---
23	e6.2	---	---	---	---	---	---	---	---	---	---	---
24	e6.2	---	---	---	---	---	---	---	---	---	---	---
25	e6.2	---	---	---	---	---	---	---	---	---	---	---
26	e6.4	---	---	---	---	---	---	---	---	---	---	---
27	e15	---	---	---	---	---	---	---	---	---	---	---
28	60	---	---	---	---	---	---	---	---	---	---	---
29	39	---	---	---	---	---	---	---	---	---	---	---
30	22	---	---	---	---	---	---	---	---	---	---	---
31	15	---	---	---	---	---	---	---	---	---	---	---
TOTAL	409.1	---	---	---	---	---	---	---	---	---	---	---
MEAN	13.2	---	---	---	---	---	---	---	---	---	---	---
MAX	60	---	---	---	---	---	---	---	---	---	---	---
MIN	5.8	---	---	---	---	---	---	---	---	---	---	---
CFSM	.09	---	---	---	---	---	---	---	---	---	---	---
IN.	.10	---	---	---	---	---	---	---	---	---	---	---

e Estimated.

01657020 BULL RUN NEAR MANASSAS PARK, VA

LOCATION.--Lat 38°48'12", long 77°26'59", Fairfax County, Hydrologic Unit 02070010, on left bank 34 ft upstream from bridge on State Highway 28, 1.2 mi upstream from Little Rocky Run, 1.5 mi downstream from Cub Run, and 1.5 mi northeast of Manassas.

DRAINAGE AREA.--148 mi².

PERIOD OF RECORD.--November 1984 to November 1987 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 135 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Some diurnal fluctuation caused by discharge from sewage treatment plant about 0.5 mi upstream from station. Most of the water discharged from the treatment plant was diverted from another drainage basin for municipal supply. Several measurements of water temperature were made during the year.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,800 ft³/s, Feb. 12, 1985, gage height, 15.80 ft, from rating curve extended above 2,900 ft³/s; minimum, 5.6 ft³/s, Sept. 26, 1985.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of about 44.8 ft, discharge, 76,000 ft³/s, by slope-area measurement of peak flow.

EXTREMES FOR CURRENT PERIOD OCTOBER 1986 TO SEPTEMBER 1987.--Peak discharges equal to or greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0800	*6,050	*15.05	Sept. 9	0230	4,290	12.65
Apr. 4	2100	4,240	12.56				

October 1986 to September 1987: Minimum discharge, 9.5 ft³/s, Oct. 11.

October to November 1987: Maximum discharge during period, 349 ft³/s, Oct. 28, gage height 4.04 ft; minimum, 18 ft³/s, Oct. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	18	42	104	213	2750	165	69	25	26	20	20
2	13	55	300	205	247	1160	101	64	36	78	19	19
3	13	38	1640	334	498	429	107	72	63	42	18	19
4	14	23	316	234	827	291	2410	657	507	30	19	20
5	14	91	181	153	706	226	1270	367	457	25	20	19
6	14	158	128	109	431	196	777	178	102	24	22	39
7	13	61	96	107	430	174	786	126	58	21	20	35
8	13	90	83	100	564	153	392	97	45	20	22	1470
9	13	56	96	82	501	140	277	79	44	20	21	1670
10	14	38	155	76	276	137	216	68	43	20	19	167
11	12	112	215	79	243	117	178	60	36	17	18	103
12	14	175	452	67	266	103	154	54	82	319	17	427
13	15	73	203	59	329	96	141	67	63	1010	17	766
14	19	43	124	54	254	87	118	54	69	194	18	278
15	20	35	99	54	202	82	103	59	46	171	17	128
16	17	32	91	56	147	140	697	58	32	57	19	78
17	16	28	82	49	127	204	2070	46	27	34	22	64
18	16	26	178	76	119	132	558	41	24	31	21	56
19	16	39	254	1200	111	107	339	41	25	27	19	63
20	15	70	132	1090	96	96	247	74	25	26	19	93
21	14	264	97	378	91	84	205	72	126	26	17	82
22	14	107	80	282	91	77	174	57	156	27	18	67
23	14	63	65	278	139	70	142	50	79	24	21	47
24	15	45	977	218	257	64	174	41	52	25	23	38
25	17	42	3740	184	341	60	232	38	33	24	21	32
26	23	131	488	183	318	62	176	38	48	29	21	29
27	30	290	289	183	286	59	127	38	114	24	21	25
28	63	116	220	164	325	72	104	34	46	21	27	24
29	26	72	160	159	---	90	90	30	32	20	28	23
30	19	52	140	173	---	74	78	28	26	20	24	25
31	17	---	124	204	---	123	---	28	---	21	21	---
TOTAL	546	2443	11247	6694	8435	7655	12608	2785	2521	2453	629	5926
MEAN	17.6	81.4	363	216	301	247	420	89.8	84.0	79.1	20.3	198
MAX	63	290	3740	1200	827	2750	2410	657	507	1010	28	1670
MIN	12	18	42	49	91	59	78	28	24	17	17	19
CFSM	.12	.55	2.45	1.46	2.03	1.67	2.84	.61	.57	.53	.14	1.34
IN.	.14	.61	2.83	1.68	2.12	1.92	3.17	.70	.63	.62	.16	1.49

CAL YR 1986 TOTAL 42958 MEAN 118 MAX 3740 MIN 11 CFSM .80 IN. 10.80
WTR YR 1987 TOTAL 63942 MEAN 175 MAX 3740 MIN 12 CFSM 1.18 IN. 16.07

01657020 BULL RUN NEAR MANASSAS PARK, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER TO NOVEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	31	---	---	---	---	---	---	---	---	---	---
2	23	29	---	---	---	---	---	---	---	---	---	---
3	61	27	---	---	---	---	---	---	---	---	---	---
4	83	---	---	---	---	---	---	---	---	---	---	---
5	40	---	---	---	---	---	---	---	---	---	---	---
6	32	---	---	---	---	---	---	---	---	---	---	---
7	35	---	---	---	---	---	---	---	---	---	---	---
8	33	---	---	---	---	---	---	---	---	---	---	---
9	28	---	---	---	---	---	---	---	---	---	---	---
10	26	---	---	---	---	---	---	---	---	---	---	---
11	25	---	---	---	---	---	---	---	---	---	---	---
12	23	---	---	---	---	---	---	---	---	---	---	---
13	23	---	---	---	---	---	---	---	---	---	---	---
14	23	---	---	---	---	---	---	---	---	---	---	---
15	22	---	---	---	---	---	---	---	---	---	---	---
16	21	---	---	---	---	---	---	---	---	---	---	---
17	22	---	---	---	---	---	---	---	---	---	---	---
18	23	---	---	---	---	---	---	---	---	---	---	---
19	23	---	---	---	---	---	---	---	---	---	---	---
20	23	---	---	---	---	---	---	---	---	---	---	---
21	23	---	---	---	---	---	---	---	---	---	---	---
22	22	---	---	---	---	---	---	---	---	---	---	---
23	23	---	---	---	---	---	---	---	---	---	---	---
24	24	---	---	---	---	---	---	---	---	---	---	---
25	23	---	---	---	---	---	---	---	---	---	---	---
26	25	---	---	---	---	---	---	---	---	---	---	---
27	89	---	---	---	---	---	---	---	---	---	---	---
28	220	---	---	---	---	---	---	---	---	---	---	---
29	87	---	---	---	---	---	---	---	---	---	---	---
30	50	---	---	---	---	---	---	---	---	---	---	---
31	38	---	---	---	---	---	---	---	---	---	---	---
TOTAL	1237	---	---	---	---	---	---	---	---	---	---	---
MEAN	39.9	---	---	---	---	---	---	---	---	---	---	---
MAX	220	---	---	---	---	---	---	---	---	---	---	---
MIN	21	---	---	---	---	---	---	---	---	---	---	---
CFSM	.27	---	---	---	---	---	---	---	---	---	---	---
IN.	.31	---	---	---	---	---	---	---	---	---	---	---

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 mi².

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 238.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period with ice effect, Jan. 27-30, and period of doubtful gage-height record, June 14-20, which are fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--36 years, 6.85 ft³/s, 12.18 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,940 ft³/s, June 21, 1972, gage height, 11.35 ft; no flow at times in 1954, 1957, 1962-66, 1983, 1985, and 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2230	*400	*6.69	Apr. 16	2115	342	6.35

No flow part or all of each day Aug. 14-16, 18, Aug. 19 to Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.13	1.0	2.7	5.4	101	6.5	5.2	2.8	1.4	.23	.00
2	.06	.22	28	19	7.5	27	4.8	4.9	2.6	1.9	.25	.00
3	.06	.15	53	11	16	11	4.5	6.4	8.7	2.2	.15	.00
4	.05	.11	8.3	5.3	22	7.5	56	45	44	2.5	.09	.00
5	.05	.52	3.8	3.8	15	6.0	20	19	20	2.8	.24	.00
6	.05	.67	2.7	3.1	9.6	5.2	17	11	5.8	3.1	.43	.06
7	.05	.61	2.1	2.9	11	4.8	17	7.6	3.3	3.5	.40	.05
8	.05	1.2	2.0	2.4	14	4.6	10	5.9	2.4	3.7	.34	16
9	.06	1.1	2.5	2.3	12	4.7	7.6	4.9	2.5	3.3	.20	3.6
10	.06	1.8	5.3	2.4	6.9	5.3	6.3	4.2	2.1	2.8	.14	.80
11	.06	2.9	6.8	2.5	5.9	4.2	5.5	3.8	2.8	2.5	.11	.42
12	.07	2.7	9.6	2.2	6.5	3.9	5.2	3.3	3.6	2.0	.06	23
13	.09	1.1	4.4	2.0	7.9	3.7	4.8	2.8	4.5	2.4	.05	13
14	.20	.70	3.0	1.8	6.5	3.6	4.2	2.6	e2.9	2.7	.01	3.0
15	.11	.61	2.5	1.8	5.4	3.5	5.0	3.3	e1.9	2.6	.00	1.3
16	.11	.54	2.2	1.7	4.3	8.0	102	3.0	e1.7	2.5	.01	.72
17	.11	.48	2.0	1.7	4.1	10	121	2.4	e1.5	2.1	.03	.67
18	.11	.49	3.9	3.0	4.0	6.5	25	2.1	e1.4	1.6	.01	.87
19	.10	.70	4.8	32	3.7	5.4	16	2.2	e1.3	1.1	.00	.59
20	.10	1.2	3.3	18	3.3	4.7	13	3.4	e3.0	1.1	.00	2.3
21	.10	7.2	2.5	7.0	3.3	4.2	10	3.5	7.5	.84	.00	3.9
22	.10	2.3	2.2	5.9	3.3	3.7	8.5	3.1	8.3	.87	.00	1.9
23	.08	1.4	2.0	6.1	5.4	3.6	7.2	2.6	9.9	.48	.00	1.6
24	.07	1.0	81	4.6	7.9	3.5	11	3.5	8.3	1.0	.00	1.5
25	.09	.82	74	4.1	9.3	3.3	27	11	6.4	2.1	.00	1.4
26	.08	4.5	10	4.6	8.7	3.5	19	4.2	7.9	1.8	.00	1.6
27	.16	7.4	5.3	e4.5	7.9	3.3	11	3.3	6.7	1.7	.00	1.8
28	.13	2.7	3.7	e4.4	12	4.0	8.7	2.8	2.1	1.1	.00	1.7
29	.10	1.7	3.0	e4.0	---	3.8	7.2	2.4	1.2	.57	.00	1.7
30	.12	1.2	2.8	e4.4	---	4.4	6.1	2.2	.95	.34	.00	2.2
31	.18	---	2.4	5.6	---	9.3	---	2.9	---	.24	.00	---
TOTAL	2.83	48.15	340.1	176.8	228.8	277.2	567.1	184.5	178.05	58.84	2.75	85.68
MEAN	.09	1.61	11.0	5.70	8.17	8.94	18.9	5.95	5.93	1.90	.09	2.86
MAX	.20	7.4	81	32	22	101	121	45	44	3.7	.43	23
MIN	.05	.11	1.0	1.7	3.3	3.3	4.2	2.1	.95	.24	.00	.00
CFSM	.01	.21	1.44	.75	1.07	1.17	2.47	.78	.78	.25	.01	.37
IN.	.01	.23	1.66	.86	1.11	1.35	2.76	.90	.87	.29	.01	.42

CAL YR 1986 TOTAL 1326.66 MEAN 3.63 MAX 81 MIN .05 CFSM .48 IN. 6.46
WTR YR 1987 TOTAL 2150.80 MEAN 5.89 MAX 121 MIN .00 CFSM .77 IN. 10.47

e Estimated.

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 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 120 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for periods of backwater from beaver dams, Oct. 1 to Nov. 15 and July 16 to Sept. 30, which are fair. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--16 years, 36.4 ft³/s, 14.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,600 ft³/s, June 22, 1972, gage height, 16.32 ft, from rating curve extended above 1,600 ft³/s on basis of contracted-opening measurement of peak flow; no flow Sept. 15-17, 1980, Aug. 24-27, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1930	1,060	4.72	Apr. 16	1830	*1,260	*5.17

Minimum daily discharge, 0.02 ft³/s, Oct. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.45	.88	7.9	23	42	357	37	24	11	4.6	e1.8	e.38
2	.18	4.1	135	88	46	138	27	23	28	4.3	1.7	e.50
3	.09	3.4	206	61	88	65	25	26	19	4.2	1.7	e.35
4	.04	4.2	38	38	128	46	135	189	30	4.2	1.5	e.30
5	.04	5.9	16	28	89	37	82	99	56	5.2	11	e.25
6	.06	11	11	23	60	33	62	54	22	6.7	13	e.40
7	.05	7.4	11	21	60	30	68	39	14	7.5	e6.0	e1.5
8	.05	10	9.9	20	71	28	48	31	11	6.8	e2.0	e6.0
9	.04	8.4	14	19	64	29	36	26	9.3	6.7	1.6	e22
10	.03	13	29	18	43	40	31	23	7.9	6.1	1.3	e17
11	.03	33	50	19	36	31	28	20	6.6	5.1	e1.0	14
12	.02	28	67	17	35	27	26	18	6.5	4.5	e.82	103
13	.51	14	29	15	41	26	25	18	6.6	9.2	e.68	52
14	14	8.6	17	15	37	24	22	19	6.5	9.4	e.56	28
15	17	7.6	13	15	33	23	24	17	6.1	7.8	e.47	16
16	12	5.6	12	14	28	36	463	18	5.7	e7.0	e.40	7.8
17	5.5	4.2	10	13	26	44	546	16	5.4	e6.0	e.45	4.5
18	4.0	4.6	15	16	26	33	125	14	5.2	e4.5	e.52	4.9
19	3.7	3.9	20	119	24	28	72	14	4.9	e3.5	e.58	2.3
20	2.8	32	14	114	21	25	66	18	5.4	e3.5	e.65	20
21	2.9	76	11	50	20	23	50	19	29	e3.0	e.60	24
22	2.0	24	10	44	21	22	41	18	17	e2.5	e.70	9.1
23	.78	11	8.8	e42	40	21	34	18	14	e2.4	e.60	5.1
24	.49	6.6	292	e39	58	20	37	18	8.9	e2.6	e.54	3.8
25	.51	6.1	391	35	56	19	76	17	6.9	e2.8	e.50	e3.0
26	2.8	38	72	e39	52	19	77	17	6.8	3.0	e.43	e2.8
27	5.7	55	42	e38	46	19	49	16	10	e2.7	e.39	e2.5
28	5.7	27	30	e35	60	21	38	14	7.8	e2.2	e.35	e2.2
29	5.1	16	25	e35	---	23	32	13	6.4	e2.0	e.40	e1.9
30	1.7	10	22	e44	---	26	27	12	5.3	e1.9	e.35	e2.3
31	.78	---	20	46	---	50	---	11	---	e1.8	e.31	---
TOTAL	89.05	479.48	1648.6	1143	1351	1363	2409	879	379.2	143.7	52.90	357.88
MEAN	2.87	16.0	53.2	36.9	48.3	44.0	80.3	28.4	12.6	4.64	1.71	11.9
MAX	17	76	391	119	128	357	546	189	56	9.4	13	103
MIN	.02	.88	7.9	13	20	19	22	11	4.9	1.8	.31	.25
CFSM	.08	.46	1.52	1.06	1.38	1.26	2.30	.81	.36	.13	.05	.34
IN.	.09	.51	1.76	1.22	1.44	1.45	2.57	.94	.40	.15	.06	.38

CAL YR 1986 TOTAL 6377.86 MEAN 17.5 MAX 391 MIN .02 CFSM .50 IN. 6.80
WTR YR 1987 TOTAL 10295.81 MEAN 28.2 MAX 546 MIN .02 CFSM .81 IN. 10.97

e Estimated.

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 mi².

PERIOD OF RECORD.--April 1958 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-72-1: 1971. WDR VA-74-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 374.62 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for period of backwater from beaver dam, Oct. 2 to Nov. 2, which is fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--29 years, 26.3 ft³/s, 12.94 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,120 ft³/s, Oct. 9, 1976, gage height, 13.90 ft, from flood-mark, from rating curve extended above 2,500 ft³/s on basis of velocity-area study; no flow many days in September 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 310 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2000	547	6.14	May 24	1900	414	5.44
Apr. 16	1530	890	7.14	Sept. 8	1330	*1,030	*7.55
May 23	1630	356	5.12				

Minimum discharge, 0.81 ft³/s, Aug. 30-31, Sept. 4-5, gage height, 2.13 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	e2.2	6.3	18	23	196	36	31	24	9.5	8.3	5.9
2	e1.6	e2.6	48	20	26	129	32	30	25	13	3.9	1.6
3	e1.6	3.0	77	19	34	82	33	34	20	9.9	3.0	1.4
4	e1.5	2.2	28	17	51	61	111	63	59	9.2	2.5	1.0
5	e1.7	6.6	18	16	53	49	99	44	36	8.8	5.5	1.1
6	e1.5	12	14	16	47	43	95	38	25	7.9	5.1	9.4
7	e1.3	4.8	12	15	47	38	81	34	21	7.9	2.9	6.9
8	e1.2	7.5	11	14	47	35	64	31	18	7.2	2.8	229
9	e1.1	7.5	11	14	40	34	52	28	17	7.3	2.5	43
10	e1.2	5.4	12	15	35	32	45	26	16	7.3	2.2	17
11	e1.2	5.9	14	14	35	27	41	24	15	15	1.7	17
12	e1.3	11	18	13	32	26	38	23	25	8.2	1.5	88
13	e1.6	6.3	14	13	30	27	34	23	20	8.1	1.4	66
14	e2.3	4.3	14	12	28	23	32	21	15	7.3	1.3	33
15	e2.7	4.1	12	14	26	22	35	23	14	6.5	1.9	22
16	e2.3	3.8	11	13	23	31	304	21	13	5.7	2.8	18
17	e2.1	3.8	10	13	23	28	250	18	12	5.5	2.7	36
18	e1.9	3.8	13	20	22	24	173	19	11	6.3	1.7	31
19	e1.9	5.5	12	73	20	23	118	32	11	4.9	1.4	21
20	e1.9	6.2	15	73	20	24	92	29	35	4.3	1.4	43
21	e1.5	12	11	50	19	21	76	23	26	3.8	1.2	46
22	e1.7	7.0	10	e33	19	20	64	20	14	3.2	1.5	32
23	e2.1	5.8	11	e33	27	19	56	62	12	2.8	2.7	24
24	e1.8	5.4	106	e31	25	18	57	105	11	2.7	1.7	19
25	e2.3	5.0	115	e27	26	19	56	86	10	2.7	1.2	16
26	e3.7	8.6	56	24	28	19	47	56	19	2.5	1.2	15
27	e3.4	13	38	26	28	17	42	45	31	2.4	1.2	14
28	e3.1	8.7	31	25	44	24	39	38	12	2.3	1.1	13
29	e2.7	10	24	24	---	18	36	32	12	1.8	2.7	12
30	e2.2	7.6	21	23	---	24	33	27	9.8	1.8	1.1	14
31	e2.0	---	18	25	---	48	---	23	---	6.5	1.4	---
TOTAL	60.0	191.6	811.3	743	878	1201	2271	1109	588.8	192.3	73.5	896.3
MEAN	1.94	6.39	26.2	24.0	31.4	38.7	75.7	35.8	19.6	6.20	2.37	29.9
MAX	3.7	13	115	73	53	196	304	105	59	15	8.3	229
MIN	1.1	2.2	6.3	12	19	17	32	18	9.8	1.8	1.1	1.0
CFSM	.07	.23	.95	.87	1.14	1.40	2.74	1.30	.71	.23	.09	1.08
IN.	.08	.26	1.09	1.00	1.18	1.62	3.06	1.49	.79	.26	.10	1.21

CAL YR 1986 TOTAL 5550.5 MEAN 15.2 MAX 136 MIN 1.1 CFSM .55 IN. 7.48
WTR YR 1987 TOTAL 9015.8 MEAN 24.7 MAX 304 MIN 1.0 CFSM .90 IN. 12.15

e Estimated.

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 mi².

PERIOD OF RECORD.--August 1942 to current year.

REVISED RECORDS.--WSP 971: 1942. WSP 1622: 1957-58. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.30 ft above National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--45 years, 341 ft³/s, 16.14 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,000 ft³/s, Oct. 15, 1942, gage height, 31.8 ft, from rating curve extended above 27,000 ft³/s; minimum, 1.1 ft³/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 ft³/s, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0130	3,840	11.31	Sept. 8	1900	5,620	13.82
Apr. 16	2230	*9,060	*16.60	Sept. 12	0700	5,170	13.26

Minimum discharge, 1.8 ft³/s, Sept. 4-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	23	84	228	317	1700	564	391	287	83	69	3.8
2	19	29	226	254	283	1590	466	372	658	90	52	5.7
3	19	43	1340	257	403	1020	446	357	341	100	36	3.4
4	16	47	519	216	573	770	931	627	710	89	29	2.2
5	20	46	324	197	581	626	1160	589	900	84	27	1.9
6	14	143	238	178	487	539	1010	482	474	80	116	13
7	11	106	195	179	457	485	975	435	366	77	60	99
8	10	86	171	174	458	449	827	396	307	76	40	2110
9	8.7	92	159	164	421	438	705	363	264	72	35	1070
10	9.6	69	177	161	352	440	615	340	244	66	32	699
11	10	60	175	168	329	389	544	314	217	80	31	484
12	10	82	267	155	313	364	493	295	205	103	27	2730
13	16	96	224	145	312	342	450	355	257	111	21	1220
14	24	69	181	138	287	318	398	286	221	84	17	773
15	28	57	168	145	268	303	403	284	185	72	14	455
16	27	53	154	149	239	329	3270	274	164	62	15	330
17	22	52	145	138	237	348	5140	244	153	55	18	273
18	20	48	155	142	232	305	3270	228	140	51	18	423
19	20	51	186	423	218	289	1900	381	129	48	16	294
20	20	58	156	822	203	278	1370	420	131	43	13	403
21	17	112	146	516	201	263	1070	346	295	38	11	669
22	20	122	131	435	197	251	873	317	176	32	.10	456
23	20	87	128	429	245	241	735	331	147	29	13	334
24	18	74	486	e296	291	233	700	577	129	25	19	265
25	20	67	1960	e293	276	229	693	829	117	24	24	223
26	31	81	781	e265	295	234	611	558	110	23	17	189
27	54	191	528	e317	295	217	537	500	186	21	14	170
28	43	154	408	e300	327	241	503	451	126	19	12	153
29	30	114	331	e295	---	247	469	390	99	19	10	140
30	25	99	288	282	---	235	430	338	90	15	7.8	143
31	22	---	256	303	---	535	---	299	---	28	6.7	---
TOTAL	644.3	2411	10687	8164	9097	14248	31558	12369	7828	1799	830.5	14135.0
MEAN	20.8	80.4	345	263	325	460	1052	399	261	58.0	26.8	471
MAX	54	191	1960	822	581	1700	5140	829	900	111	116	2730
MIN	8.7	23	84	138	197	217	398	228	90	15	6.7	1.9
CFSM	.07	.28	1.20	.92	1.13	1.60	3.67	1.39	.91	.20	.09	1.64
IN.	.08	.31	1.39	1.06	1.18	1.85	4.09	1.60	1.01	.23	.11	1.83

CAL YR 1986 TOTAL 73348.3 MEAN 201 MAX 1960 MIN 8.7 CFSM .70 IN. 9.51
WTR YR 1987 TOTAL 113770.8 MEAN 312 MAX 5140 MIN 1.9 CFSM 1.09 IN. 14.75

e Estimated.

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA

LOCATION.--Lat 38°31'50", long 77°48'50", Fauquier County, Hydrologic Unit 02080103, on left bank 80 ft upstream from bridge on alternate U.S. Highway 29, at Remington, 0.3 mi upstream from Tinpot Run, 0.4 mi downstream from Ruffans Run, and 2.5 mi downstream from Hazel River.

DRAINAGE AREA.--620 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 252.53 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 21, 1951, nonrecording gage at bridge 80 ft downstream at same datum.

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

AVERAGE DISCHARGE.--45 years, 678 ft³/s, 14.85 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,000 ft³/s, Oct. 16, 1942, gage height, 30.0 ft, from flood-marks, from rating curve extended above 43,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 2.8 ft³/s, Sept. 13, 1966, gage height, 2.31 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1828, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0745	6,330	11.43	Sept. 9	0045	10,000	14.42
Apr. 17	0830	*12,300	*15.53	Sept. 12	0900	9,180	13.82

Minimum discharge, 9.3 ft³/s, Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	39	151	446	692	3470	1260	835	454	141	91	34
2	21	44	238	497	599	3840	987	798	1020	134	93	23
3	20	57	2370	558	828	2080	921	771	585	199	62	21
4	20	79	1090	451	1240	1540	2010	1210	783	166	47	17
5	18	70	629	396	1330	1290	2720	1500	1840	146	50	15
6	19	151	437	346	1120	1130	2140	1110	897	136	105	24
7	15	186	352	366	1040	1010	2180	976	630	127	96	83
8	13	131	307	356	1100	927	1730	870	501	123	58	3880
9	12	128	280	338	1040	893	1450	786	423	116	49	4910
10	11	111	308	323	831	923	1290	729	386	108	50	1500
11	9.7	97	329	337	772	811	1150	659	350	105	43	833
12	11	112	531	320	728	733	1040	595	316	148	38	6460
13	15	157	465	296	734	686	964	671	418	467	34	2560
14	21	129	360	278	689	630	840	568	398	202	29	1600
15	28	102	308	280	626	585	798	542	325	136	26	970
16	30	89	296	302	539	655	3640	561	277	109	26	682
17	30	86	271	284	495	802	11000	477	250	93	27	527
18	26	82	281	279	493	689	6550	432	234	87	28	714
19	26	83	363	762	466	620	3610	582	212	79	26	566
20	27	88	325	2040	420	566	2550	832	206	71	24	682
21	28	145	283	1220	403	528	2020	709	484	63	22	1280
22	28	218	252	975	396	486	1710	599	381	56	22	938
23	32	173	227	944	454	457	1470	525	272	49	25	680
24	35	137	745	e620	640	434	1370	791	226	44	27	507
25	35	120	4420	e620	661	423	1440	1350	199	43	31	415
26	43	124	1590	e560	702	440	1350	943	183	45	30	345
27	59	258	1060	723	703	418	1170	842	271	46	26	309
28	63	302	821	643	745	429	1080	763	254	40	25	283
29	49	214	672	617	---	492	1010	654	181	36	22	263
30	40	180	574	648	---	429	930	555	155	32	20	259
31	42	---	510	611	---	980	---	479	---	29	19	---
TOTAL	846.7	3892	20845	17436	20486	29396	62380	23714	13111	3376	1271	31380
MEAN	27.3	130	672	562	732	948	2079	765	437	109	41.0	1046
MAX	63	302	4420	2040	1330	3840	11000	1500	1840	467	105	6460
MIN	9.7	39	151	278	396	418	798	432	155	29	19	15
CFSM	.04	.21	1.08	.91	1.18	1.53	3.35	1.23	.71	.18	.07	1.69
IN.	.05	.23	1.25	1.05	1.23	1.76	3.74	1.42	.79	.20	.08	1.88

CAL YR 1986 TOTAL 139640.7 MEAN 383 MAX 4420 MIN 9.7 CFSM .62 IN. 8.38
WTR YR 1987 TOTAL 228133.7 MEAN 625 MAX 11000 MIN 9.7 CFSM 1.01 IN. 13.69

e Estimated.

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 October 1986.
WATER TEMPERATURE: May 1951 to September 1956, October 1965 to September 1976, October 1977 to October 1986.
SUSPENDED-SEDIMENT DISCHARGE: April 1951 to current year.

REMARKS.--Daily sediment records based on fragmentary concentration and transport curves due to unreliable observer sampling.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 150 microsiemens, Sept. 3, 1974; minimum daily, 24 microsiemens, July 6, 1975.
WATER TEMPERATURE: Maximum, 33.0°C, July 6, 1986; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATION: Maximum daily mean, 1,910 mg/L, Mar. 15, 1986; minimum daily mean, 1 mg/L on many days during each year.
SEDIMENT LOAD: Maximum daily, 55,600 tons, Sept. 26, 1975; minimum daily, 0.03 ton, Sept. 9, 11, 1983, Oct. 9-12, 1986.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATION: Maximum daily mean, 670 mg/L, Sept. 12; minimum daily mean, 1 mg/L on many days during the year.
SEDIMENT LOAD: Maximum daily, 11,700 tons, Sept. 12; minimum daily, 0.03 ton, Oct. 9-12.

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	1	.05	1	.11	4	1.6	8	9.6	11	21	314	7260
2	1	.06	1	.12	6	3.9	10	13	8	13	138	1430
3	1	.05	1	.15	160	1020	12	18	27	60	54	303
4	1	.05	1	.21	54	159	9	11	44	147	36	150
5	1	.05	1	.19	26	44	7	7.5	55	198	10	35
6	1	.05	4	1.6	15	18	6	5.6	19	57	5	15
7	1	.04	8	4.0	11	10	6	5.9	17	48	3	8.2
8	1	.04	3	1.1	9	7.5	6	5.8	14	42	6	15
9	1	.03	3	1.0	8	6.0	6	5.5	13	37	3	7.2
10	1	.03	2	.60	9	7.5	5	4.4	8	18	7	17
11	1	.03	2	.52	10	8.9	6	5.5	6	13	9	20
12	1	.03	2	.60	20	29	5	4.3	7	14	9	18
13	1	.04	4	1.7	17	21	4	3.2	5	9.9	9	17
14	1	.06	3	1.0	11	11	4	3.0	3	5.6	8	14
15	1	.08	3	.83	9	7.5	4	3.0	8	14	9	14
16	1	.04	4	.96	9	7.2	5	4.1	4	5.8	8	14
17	1	.08	4	.93	8	5.9	4	3.1	2	2.7	10	22
18	1	.07	4	.89	8	6.1	4	3.0	2	2.7	9	17
19	1	.07	4	.90	11	11	36	74	2	2.5	9	15
20	1	.07	4	.95	10	8.8	130	716	3	3.4	10	15
21	1	.08	5	2.0	8	6.1	60	198	4	4.4	8	11
22	1	.08	6	3.5	7	4.8	48	126	9	9.6	6	7.9
23	1	.09	4	1.9	6	3.7	44	112	9	11	2	2.5
24	1	.09	3	1.1	33	66	10	17	9	16	2	2.3
25	1	.09	2	.65	390	4650	10	17	8	14	2	2.3
26	1	.12	2	.67	90	386	8	12	2	3.8	2	2.4
27	1	.16	7	4.9	52	149	11	21	2	3.8	2	2.3
28	1	.17	9	7.3	36	80	10	17	9	18	1	1.2
29	1	.13	5	2.9	28	51	9	15	---	---	2	2.7
30	1	.11	4	1.9	22	34	10	17	---	---	4	4.6
31	1	.11	---	---	19	26	9	15	---	---	5	13
TOTAL	---	2.25	---	45.18	---	6850.5	---	1472.5	---	795.2	---	9458.6

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	4	14	15	34	16	20	3	1.1	2	.49	1	.09
2	3	8.0	17	37	50	138	3	1.1	2	.50	1	.06
3	3	7.5	38	79	23	36	5	2.7	1	.17	1	.06
4	94	510	20	65	35	69	4	1.8	1	.13	1	.05
5	145	1060	100	405	110	546	3	1.2	1	.14	1	.04
6	90	520	56	168	40	97	3	1.1	2	.55	1	.06
7	30	177	40	105	25	43	3	1.0	2	.52	2	.45
8	7	33	18	42	19	26	3	1.0	1	.16	320	3350
9	4	16	11	23	14	16	2	.63	1	.13	460	6100
10	5	17	12	24	13	14	2	.58	1	.14	86	348
11	3	9.3	11	20	11	10	2	.57	1	.12	36	81
12	5	14	12	19	10	8.5	3	1.2	6	.62	670	11700
13	5	13	11	20	14	16	17	21	1	.09	180	1240
14	10	23	10	15	13	14	5	2.7	1	.08	92	397
15	14	30	13	19	10	8.8	3	1.1	1	.07	46	120
16	495	4860	13	20	8	6.0	2	.59	1	.07	29	53
17	275	8170	10	13	7	4.7	2	.50	1	.07	20	28
18	133	2350	8	9.3	6	3.8	2	.47	1	.08	30	58
19	13	127	13	20	6	3.4	1	.21	1	.07	22	34
20	11	76	20	45	5	2.8	1	.19	1	.06	29	53
21	12	65	21	40	17	22	1	.17	1	.06	69	238
22	13	60	13	21	12	12	1	.15	1	.06	42	106
23	14	56	11	16	8	5.9	1	.13	1	.07	29	53
24	16	59	35	75	6	3.7	1	.12	1	.07	19	26
25	13	51	75	273	5	2.7	1	.12	1	.08	14	16
26	13	47	42	107	4	2.0	1	.12	1	.08	11	10
27	12	38	37	84	8	5.9	1	.12	1	.07	9	7.5
28	13	38	32	64	7	4.8	1	.11	1	.07	8	6.1
29	17	46	27	48	4	2.0	1	.10	1	.06	7	5.0
30	15	38	20	30	3	1.3	1	.09	1	.05	7	4.9
31	---	---	16	21	---	---	1	.08	1	.05	---	---
TOTAL	---	18532.8	---	1961.3	---	1145.3	---	42.05	---	4.98	---	24035.31

TOTAL LOAD FOR YEAR: 64345.97 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 mi², of which 10.9 mi² are above flood-detention structures.

PERIOD OF RECORD.--September 1949 to current year.

REVISED RECORDS.--WSP 1332: 1950-51. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 389.46 ft above National Geodetic Vertical Datum of 1929.

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

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

AVERAGE DISCHARGE.--38 years, 16.7 ft³/s, 14.26 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,440 ft³/s, Aug. 18, 1955, from rating curve extended above 910 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 11.20 ft, Dec. 4, 1950; minimum discharge, 0.09 ft³/s, Sept. 30, Oct. 1, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 16	1415	544	6.02	Sept. 10	0515	306	4.64
Apr. 17	2100	352	4.95	Sept. 11	2245	700	6.72
Sept. 8	1200	*2,210	*9.28				

Minimum discharge, 1.1 ft³/s, Sept. 3-4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	2.2	3.9	11	15	98	18	12	38	2.6	3.4	1.6
2	1.6	2.7	29	13	16	55	14	11	28	2.8	2.5	1.4
3	1.6	3.8	44	14	26	30	15	13	15	3.1	2.2	1.2
4	1.6	4.0	13	12	40	22	31	27	25	3.0	1.7	1.2
5	1.4	5.4	9.7	11	33	18	25	23	22	3.0	13	1.5
6	1.3	5.6	8.3	10	26	17	29	16	13	2.6	14	3.5
7	1.5	3.6	7.4	9.5	25	15	29	14	9.6	17	5.9	3.1
8	1.6	4.5	7.0	9.0	25	14	22	12	7.7	17	4.0	343
9	1.7	4.1	7.5	8.4	22	14	17	11	6.4	8.6	3.3	228
10	1.7	3.6	8.7	8.7	18	15	15	9.6	5.8	6.0	3.3	242
11	1.4	4.5	11	8.8	17	13	13	8.8	5.0	4.6	2.5	249
12	1.7	5.0	15	8.1	16	13	13	8.8	4.9	11	2.0	227
13	1.8	3.2	11	7.4	16	12	12	12	11	12	1.8	168
14	1.9	2.5	8.7	7.1	15	11	11	10	22	6.7	1.8	99
15	1.7	2.4	7.8	7.6	14	11	14	10	9.3	4.6	1.6	68
16	1.6	2.4	7.3	7.4	13	13	203	9.5	6.8	3.6	2.0	51
17	1.6	2.4	6.9	7.0	13	13	231	8.1	5.9	3.0	2.0	17
18	1.7	2.4	8.6	8.1	13	12	149	7.4	4.8	2.6	1.8	15
19	1.7	3.2	8.8	35	12	11	90	10	4.4	2.3	1.7	9.8
20	1.6	4.4	7.5	36	11	10	61	12	17	2.2	1.8	45
21	1.7	7.8	6.9	23	11	9.8	27	10	12	2.0	1.6	36
22	1.7	4.7	6.5	22	11	9.4	22	9.4	8.9	2.0	1.9	18
23	1.7	3.7	6.3	21	18	9.0	19	8.5	6.5	1.8	2.2	12
24	1.9	3.5	65	16	19	8.9	19	9.5	5.1	1.8	1.9	9.3
25	3.0	3.3	113	15	19	8.9	21	18	4.4	1.7	1.7	7.8
26	4.7	6.3	39	e16	20	9.4	20	15	4.1	1.7	1.7	6.7
27	3.9	9.1	21	e15	19	8.8	17	13	4.5	1.7	1.7	6.2
28	3.2	5.6	16	e13	25	11	15	11	3.7	1.8	1.5	5.8
29	3.1	4.7	13	e12	---	10	14	9.0	3.1	1.6	1.4	5.8
30	3.1	4.3	12	13	---	13	13	7.8	2.7	1.5	1.5	6.2
31	2.4	---	11	15	---	25	---	8.3	---	2.2	1.5	---
TOTAL	62.8	124.9	540.8	420.1	528	540.2	1199	364.7	316.6	138.1	90.9	1889.1
MEAN	2.03	4.16	17.4	13.6	18.9	17.4	40.0	11.8	10.6	4.45	2.93	63.0
MAX	4.7	9.1	113	36	40	98	231	27	38	17	14	343
MIN	1.3	2.2	3.9	7.0	11	8.8	11	7.4	2.7	1.5	1.4	1.2
CFSM	.13	.26	1.09	.86	1.19	1.09	2.52	.74	.67	.28	.18	3.96
IN.	.15	.29	1.27	.98	1.24	1.26	2.81	.85	.74	.32	.21	4.42

CAL YR 1986 TOTAL 3172.2 MEAN 8.69 MAX 113 MIN 1.2 CFSM .55 IN. 7.42
WTR YR 1987 TOTAL 6215.2 MEAN 17.0 MAX 343 MIN 1.2 CFSM 1.07 IN. 14.54

e Estimated.

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 northeast of Ruckersville, and at mile 63.5.

DRAINAGE AREA.--114 mi².

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944-45(M). WSP 1382: 1943(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.44 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of backwater from beaver dam, Oct. 1 to Dec. 23, and period with ice effect, Jan. 22 to Feb. 2, which are fair. Diversion 0.4 mi upstream from station since 1973 by Rapidan Service Authority for municipal water supply of Greene County and town of Stanardsville has averaged less than 0.25 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--45 years, 150 ft³/s, 17.87 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,700 ft³/s, Oct. 15, 1942, gage height, 20.8 ft, from floodmark in gage house, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement at gage height 17.78 ft; minimum daily, 0.90 ft³/s, Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1930	1,790	5.06	Sept. 10	1600	1,820	5.10
Apr. 17	1330	5,650	9.87	Sept. 12	0130	3,800	7.81
Sept. 8	1330	*7,430	*11.48	Sept. 13	0100	1,920	5.26
Sept. 10	0700	4,300	8.42				

Minimum daily discharge, 4.9 ft³/s, Aug. 14, Sept. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	14	60	140	e128	720	245	202	66	22	14	5.9
2	13	17	207	148	e120	633	217	188	82	25	14	5.4
3	12	21	546	127	208	438	210	189	94	33	12	4.9
4	11	23	320	115	287	337	316	261	157	33	11	5.3
5	10	28	234	106	237	277	349	224	136	28	9.8	8.1
6	9.5	41	182	99	201	238	340	203	90	24	19	40
7	8.5	37	144	98	190	212	339	190	77	25	14	68
8	8.2	39	122	94	186	202	332	176	67	26	12	2120
9	7.9	43	116	88	169	210	305	161	60	20	9.8	415
10	8.1	37	127	88	151	220	278	148	56	21	8.6	1570
11	8.2	39	137	85	137	200	253	135	53	22	7.1	637
12	9.1	47	186	79	130	185	234	127	52	22	6.1	1810
13	12	44	150	76	125	168	210	120	57	26	5.4	1150
14	17	33	122	72	112	152	189	112	55	24	4.9	563
15	16	29	110	73	103	142	223	110	46	20	5.2	352
16	15	28	99	72	93	136	2220	100	42	18	5.2	250
17	13	27	89	68	92	121	3830	91	41	17	5.8	196
18	12	24	107	73	89	111	1900	91	38	15	5.4	154
19	12	34	100	230	84	104	1070	101	36	14	21	125
20	11	35	85	266	78	98	720	118	35	12	12	300
21	11	68	77	201	76	95	534	95	38	11	6.7	352
22	11	54	69	e165	76	89	433	88	37	11	6.3	217
23	11	46	66	e155	105	85	366	83	38	9.8	17	166
24	12	44	457	e120	108	81	354	90	32	9.6	12	135
25	16	40	620	e118	117	79	364	112	30	9.6	7.8	113
26	27	80	356	e95	120	78	314	87	28	8.7	7.0	99
27	24	112	275	e128	112	75	278	85	33	11	7.3	89
28	19	90	228	e115	141	88	261	93	28	9.1	7.5	80
29	17	76	196	e118	---	78	238	78	26	7.8	6.6	75
30	14	67	175	e110	---	92	218	72	24	7.2	6.6	77
31	13	---	154	e118	---	237	---	66	---	8.3	5.5	---
TOTAL	403.5	1317	5916	3640	3775	5981	17140	3996	1654	550.1	292.6	11182.6
MEAN	13.0	43.9	191	117	135	193	571	129	55.1	17.7	9.44	373
MAX	27	112	620	266	287	720	3830	261	157	33	21	2120
MIN	7.9	14	60	68	76	75	189	66	24	7.2	4.9	4.9
CFSM	.11	.39	1.68	1.03	1.18	1.69	5.01	1.13	.48	.16	.08	3.27
IN.	.13	.43	1.93	1.19	1.23	1.95	5.59	1.30	.54	.18	.10	3.65

CAL YR 1986 TOTAL 30809.5 MEAN 84.4 MAX 643 MIN 7.9 CFSM .74 IN. 10.05
WTR YR 1987 TOTAL 55847.8 MEAN 153 MAX 3830 MIN 4.9 CFSM 1.34 IN. 18.22

e Estimated.

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 mi².

PERIOD OF RECORD.--July 1943 to current year. Prior to October 1965, published as Robertson River near Locust Dale.

REVISED RECORDS.--WSP 1171: 1948(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 283.70 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for period with ice effect, Jan. 22 to Feb. 2, which is fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--44 years, 221 ft³/s, 16.77 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft³/s, June 22, 1972, gage height, 20.92 ft, from rating curve extended above 9,100 ft³/s on basis of records for other stations in Rappahannock River basin; minimum, 1.2 ft³/s, Sept. 7, 13, 1954; minimum daily, 1.8 ft³/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 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2330	2,440	9.40	Sept. 10	0645	5,400	15.66
Apr. 16	1900	6,050	16.32	Sept. 12	0445	3,770	13.47
Sept. 8	1845	*9,550	*19.16	Sept. 13	0345	1,910	9.14

Minimum discharge, 11 ft³/s, Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	24	67	153	e168	1060	292	245	176	55	40	15
2	19	29	184	176	e180	797	243	232	243	57	32	15
3	17	35	754	172	362	510	240	228	340	65	26	13
4	17	31	298	144	382	394	525	398	515	83	23	12
5	17	38	199	130	345	326	538	354	519	66	22	14
6	14	90	157	120	278	283	473	297	326	59	78	68
7	13	62	134	118	268	255	457	269	259	94	39	80
8	12	73	121	113	279	242	396	245	215	69	31	4220
9	14	65	116	107	257	250	353	225	182	55	29	1540
10	14	53	136	107	211	270	314	211	164	58	26	2830
11	13	52	134	108	194	236	282	197	146	54	24	591
12	14	82	190	101	187	221	257	185	138	50	20	2170
13	17	62	157	95	185	206	235	202	141	55	19	1340
14	29	51	133	92	175	192	210	179	135	53	18	717
15	25	47	123	94	163	184	218	176	119	51	17	520
16	19	45	114	94	149	186	2920	170	107	45	18	368
17	17	42	107	91	146	175	5070	156	102	41	19	312
18	18	41	117	93	145	164	2310	148	96	39	18	240
19	18	43	e126	316	140	157	1170	169	89	36	18	194
20	18	48	e111	441	133	150	807	220	88	33	31	512
21	18	111	102	268	131	143	623	194	126	31	19	542
22	17	81	96	e210	129	140	514	181	104	28	16	338
23	18	67	95	e215	166	136	435	167	94	25	40	248
24	18	60	559	e185	186	132	416	190	85	24	30	200
25	19	55	1230	e145	189	129	458	328	77	24	20	178
26	34	82	496	e115	199	132	404	248	72	24	19	158
27	44	162	350	e155	188	127	337	232	78	22	22	138
28	30	108	274	e150	218	139	314	240	69	21	22	127
29	25	87	223	e158	---	139	291	215	64	19	24	118
30	24	75	194	e155	---	138	266	189	59	18	20	121
31	24	---	170	e160	---	280	---	168	---	17	16	---
TOTAL	617	1901	7267	4781	5753	7893	21368	6858	4928	1371	796	17939
MEAN	19.9	63.4	234	154	205	255	712	221	164	44.2	25.7	598
MAX	44	162	1230	441	382	1060	5070	398	519	94	78	4220
MIN	12	24	67	91	129	127	210	148	59	17	16	12
CFSM	.11	.35	1.31	.86	1.15	1.43	3.98	1.24	.92	.25	.14	3.34
IN.	.13	.40	1.51	.99	1.20	1.64	4.44	1.43	1.02	.28	.17	3.73

CAL YR 1986 TOTAL 45356 MEAN 124 MAX 1230 MIN 12 CFSM .69 IN. 9.43
WTR YR 1987 TOTAL 81472 MEAN 223 MAX 5070 MIN 12 CFSM 1.25 IN. 16.93

e Estimated.

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 mi².

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

REVISED RECORDS.--WSP 741: 1931. WSP 801: 1934(M), 1936(M). WSP 1081: 1943-46. WSP 1171: 1932(M), 1933-35. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 241.36 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for period with ice effect, Jan. 23-31, which is fair. Diurnal fluctuation at low flow caused by mill at Rapidan. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 528 ft³/s, 15.19 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,100 ft³/s, Oct. 16, 1942, gage height, 30.3 ft, from floodmark, from rating curve extended above 43,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 2.1 ft³/s, Oct. 4, 5, 11, 1954; minimum daily, 2.2 ft³/s, Oct. 4, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0315	5,110	7.73	Sept. 10	1530	6,600	9.85
Apr. 17	1745	12,600	15.97	Sept. 12	1215	6,330	9.47
Sept. 9	0330	*15,500	*17.77	Sept. 13	0815	5,450	8.22

Minimum discharge, 9.9 ft³/s, Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	50	177	407	547	2760	794	698	340	117	43	23
2	50	57	331	456	489	2230	660	650	402	121	70	20
3	44	71	1870	492	698	1440	661	624	553	143	53	25
4	42	71	877	411	1090	1120	1160	996	986	163	54	25
5	40	76	557	364	1040	939	1330	969	1090	161	40	12
6	35	141	424	331	821	824	1180	764	646	143	79	48
7	32	161	355	321	770	742	1200	679	489	179	68	182
8	29	157	315	306	822	687	1030	613	416	142	50	6370
9	28	175	301	285	786	705	934	562	360	127	54	8140
10	32	140	394	278	618	817	848	521	332	109	48	4610
11	34	126	375	285	554	691	772	485	302	109	40	1930
12	34	176	567	263	531	631	710	454	287	111	35	4280
13	37	165	457	246	539	587	652	466	306	187	30	4180
14	55	133	362	233	500	540	576	431	301	124	28	2080
15	71	113	324	234	457	508	583	420	275	110	26	1280
16	57	107	298	237	411	499	4880	412	245	94	31	977
17	47	103	277	226	390	480	12200	372	230	84	33	842
18	46	97	289	227	391	441	7810	353	218	78	34	703
19	47	100	342	672	387	419	3190	412	202	74	29	582
20	45	110	289	1250	357	400	2130	489	194	68	51	1240
21	44	266	260	780	341	381	1620	440	259	58	57	1960
22	43	242	238	651	337	364	1340	400	223	55	39	1110
23	44	181	225	e540	435	347	1140	373	207	50	47	839
24	45	155	937	e445	563	335	1070	398	195	48	87	671
25	44	139	3140	e375	598	325	1720	807	173	45	49	565
26	71	168	1240	e295	629	333	1570	533	157	44	40	482
27	111	464	895	e425	564	315	1090	473	160	42	38	432
28	84	320	710	e415	587	338	960	461	160	42	37	386
29	64	239	582	e420	---	368	862	433	139	39	35	349
30	53	204	507	e415	---	339	778	384	126	46	39	352
31	50	---	452	e440	---	637	---	345	---	38	18	---
TOTAL	1515	4707	18367	12725	16252	21542	55450	16417	9973	2951	1382	44695
MEAN	48.9	157	592	410	580	695	1848	530	332	95.2	44.6	1490
MAX	111	464	3140	1250	1090	2760	12200	996	1090	187	87	8140
MIN	28	50	177	226	337	315	576	345	126	38	18	12
CFSM	.10	.33	1.25	.87	1.23	1.47	3.92	1.12	.70	.20	.09	3.16
IN.	.12	.37	1.45	1.00	1.28	1.70	4.37	1.29	.79	.23	.11	3.52

CAL YR 1986 TOTAL 109109 MEAN 299 MAX 3140 MIN 28 CFSM .63 IN. 8.60
WTR YR 1987 TOTAL 205976 MEAN 564 MAX 12200 MIN 12 CFSM 1.20 IN. 16.23

e Estimated.

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA
(National stream-quality accounting network station)

LOCATION.--Lat 38°19'20", long 77°31'05", Spotsylvania County, Hydrologic Unit 02080104, on right bank 1.6 mi upstream from dam of Virginia Power, 2.2 mi downstream from Motts Run, and 3.8 mi upstream from Fredericksburg.
DRAINAGE AREA.--1,596 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1907 to current year. Monthly discharge only for some periods, published in WSP 1302.
REVISED RECORDS.--WSP 801: 1924(M). WSP 951: 1937(M). WSP 1302: 1907-12, 1913(M), 1916(M), 1918(M), 1920-21(M). WSP 2103: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 55.18 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 15, 1922, nonrecording gage, and Jan. 15, 1922, to Aug. 2, 1966, water-stage recorder at same site at datum 1.00 ft higher.
REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 26, 27, Nov. 5-9, 20, 26, Nov. 28 to Dec. 3, Dec. 9, 10, 24-28, and Jan. 1, 2, 21, which are fair, and those for period with ice effect, Jan. 24 to Feb. 5, and period of no gage-height record, Aug. 18 to Sept. 30, which are poor.
AVERAGE DISCHARGE.--80 years, 1,660 ft³/s, 14.12 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 140,000 ft³/s, Oct. 16, 1942, gage height, 26.9 ft, present datum, from floodmarks, from rating curve extended above 76,000 ft³/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 ft³/s, Oct. 11, 12, 1930.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1889 was probably several feet lower than that of Oct. 16, 1942.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	Unknown	17,700	a8.62	Sept. 9	Unknown	Unknown	Unknown
Apr. 17	1330	*31,900	*11.35				

a From high-water mark.

Minimum daily discharge, 69 ft³/s, Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	137	e410	e900	e1250	8730	1940	1430	784	299	111	e90
2	123	143	e1600	e1010	e1400	10500	1660	1300	1250	279	136	e82
3	122	204	e5000	1220	e1800	4820	1420	1260	1070	354	186	e77
4	116	220	1800	1180	e3000	3140	2560	2310	1830	396	169	e74
5	115	e230	1120	929	e3200	2400	5320	3790	3210	371	205	e70
6	107	e310	840	789	2660	1960	3650	2140	1580	331	649	e69
7	102	e420	699	712	2220	1700	4100	1670	1110	309	262	e2000
8	97	e450	625	699	2580	1530	3130	1450	912	328	253	e13000
9	89	e430	e600	648	2650	1460	2530	1280	790	390	179	e17000
10	93	396	e700	608	1840	1750	2130	1160	703	319	146	e7000
11	86	378	832	612	1490	1610	1840	1070	662	266	141	e3200
12	80	361	1300	612	1370	1340	1650	993	614	250	136	e12800
13	86	405	1240	557	1450	1230	1520	981	621	455	130	e7200
14	120	418	903	515	1410	1140	1360	1010	838	583	119	e4500
15	114	348	717	495	1250	1060	1260	918	663	378	110	e2650
16	105	296	640	505	1080	1060	7190	918	564	302	104	e2000
17	127	269	594	509	931	1270	30100	863	502	257	94	e1600
18	133	263	588	496	900	1200	24500	788	462	223	e85	e1450
19	126	255	762	1320	904	1050	9970	765	431	205	e94	e1510
20	117	e253	683	5370	854	973	5730	1030	436	188	e100	e2200
21	112	348	580	e2900	802	913	4110	1140	805	173	e110	e3950
22	110	620	516	1930	791	857	3200	979	822	156	e108	e2300
23	110	594	465	1660	894	817	2630	898	612	140	e95	e1700
24	111	463	e2000	e1300	1350	786	2310	1300	499	128	e160	e1300
25	113	385	e10000	e1210	1720	759	2900	2080	435	124	e220	e1010
26	e150	e410	e4550	e1190	1810	754	4180	1840	393	120	e145	e850
27	e190	945	e2500	e1300	1660	769	2580	1350	391	123	e125	e790
28	202	e790	e1800	e1220	1480	743	2040	1180	450	158	e109	e700
29	164	e560	1430	e1160	---	830	1800	1040	410	140	e99	e650
30	142	e440	1150	e1120	---	844	1620	906	337	106	e93	e640
31	140	---	944	e1140	---	1040	---	818	---	102	e102	---
TOTAL	3733	11741	47588	35816	44746	59035	140930	40657	24186	7953	4775	92462
MEAN	120	391	1535	1155	1598	1904	4698	1312	806	257	154	3082
MAX	202	945	10000	5370	3200	10500	30100	3790	3210	583	649	17000
MIN	80	137	410	495	791	743	1260	765	337	102	85	69
CFSM	.08	.25	.96	.72	1.00	1.19	2.94	.82	.51	.16	.10	1.93
IN.	.09	.27	1.11	.83	1.04	1.38	3.28	.95	.56	.19	.11	2.16

CAL YR 1986 TOTAL 321026 MEAN 880 MAX 10000 MIN 80 CFSM .55 IN. 7.48
WTR YR 1987 TOTAL 513622 MEAN 1407 MAX 30100 MIN 69 CFSM .88 IN. 11.97

e Estimated.

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1929-30, 1956, 1967-74, 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1955 to September 1956, April 1968 to August 1974.
WATER TEMPERATURE: October 1955 to September 1956, April 1968 to August 1974.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV												
20...	1100	247	91	93	7.00	7.60	6.5	758	1.6	10.9	89	16
JAN												
21...	0930	2840	77	82	6.30	6.94	5.0	758	52	12.3	97	440
MAR												
04...	1130	3130	67	69	6.90	7.29	9.5	778	3.2	12.1	104	50
APR												
14...	1030	1370	76	66	7.20	7.90	14.0	775	2.5	10.1	96	K7
18...	1300	24400	54	57	6.50	7.40	11.0	753	100	11.0	101	K17000
JUL												
07...	1030	312	78	82	6.40	6.90	25.0	756	1.5	6.6	81	10
AUG												
18...	0845	86	90	92	7.60	8.30	28.0	760	17	7.5	96	K1

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV												
20...	14	30	3	7.7	2.6	5.1	3.2	29	27	27	33	9.8
JAN												
21...	4500	24	10	6.0	2.2	3.2	2.2	15	14	14	17	12
MAR												
04...	160	22	12	5.4	2.0	3.1	1.3	13	11	10	12	10
APR												
14...	K6	22	5	5.5	2.1	3.4	1.1	17	17	17	20	7.6
18...	37000	18	9	4.6	1.5	2.0	2.0	11	10	9.0	10	9.9
JUL												
07...	110	24	1	5.9	2.3	4.0	2.3	26	23	23	27	6.7
AUG												
18...	100	24	0	4.7	3.0	5.6	3.5	25	25	25	30	12

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (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)
NOV												
20...	6.6	0.10	9.5	69	61	<0.010	<0.100	<0.010	<0.010	0.60	0.050	0.020
JAN												
21...	6.0	<0.10	9.9	65	50	<0.010	0.910	0.080	0.120	0.70	0.180	0.040
MAR												
04...	4.6	<0.10	11	46	44	<0.010	0.890	0.020	0.020	0.50	0.070	0.020
APR												
14...	3.9	0.10	10	46	44	<0.010	0.420	0.010	<0.010	0.80	0.030	0.010
18...	2.6	0.10	8.3	41	37	<0.010	0.570	0.060	0.110	1.0	0.420	0.040
JUL												
07...	4.5	<0.10	8.4	50	47	<0.010	0.210	0.020	0.030	0.20	0.020	0.010
AUG												
18...	6.5	0.10	7.3	50	58	<0.010	<0.100	0.020	0.010	0.70	0.080	0.020

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV												
20...	<0.010	<10	<1	18	<0.5	1	<1	<3	2	98	<5	4
JAN												
21...	0.030	--	--	--	--	--	--	--	--	--	--	--
MAR												
04...	0.010	60	<1	20	<0.5	<1	<1	<3	2	96	<5	<4
APR												
14...	0.010	10	<1	17	<0.5	2	2	<3	3	78	<5	<4
18...	0.020	250	<1	66	<0.5	<1	<1	<3	<1	280	<5	<4
JUL												
07...	<0.010	--	--	--	--	--	--	--	--	--	--	--
AUG												
18...	<0.010	40	<1	15	<0.5	<1	<1	<3	1	140	<5	<4

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
20...	4	<0.1	<10	2	<1	<1	44	<6	7	2	40
JAN											
21...	--	--	--	--	--	--	--	--	--	88	98
MAR											
04...	9	<0.1	<10	3	<1	<1	24	<6	9	39	99
APR											
14...	15	<0.1	<10	2	<1	<1	29	<6	15	11	79
18...	21	1.4	<10	<1	<1	<1	21	<6	26	282	77
JUL											
07...	--	--	--	--	--	--	--	--	--	3	93
AUG											
18...	17	<0.1	<10	2	<1	<1	41	<6	6	6	88

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 mi².

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

REVISED RECORDS.--WSP 1382: 1944(M), 1945, 1946-51(M), 1952(P), 1953-54(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3.04 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 19, 1953, nonrecording gage near right bank at downstream side of highway bridge at same datum.

REMARKS.--Records good except for period of no gage-height record, Jan. 24-29, which is fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--44 years, 44.6 ft³/s, 13.28 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,820 ft³/s, Aug. 20, 1969, gage height, 10.45 ft, from rating curve extended above 1,400 ft³/s; no flow at times in 1943, 1957, 1959-60, 1966, and 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1935 exceeded 9.3 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	1200	*714	*6.49	June 14	2300	381	5.81
June 14	0500	353	5.74				

Minimum daily discharge, 0.68 ft³/s, Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	12	12	48	76	120	52	55	33	13	6.6	1.2
2	2.4	11	15	108	75	111	45	52	97	16	5.7	1.0
3	2.2	11	28	103	76	80	41	57	47	30	4.8	.93
4	2.1	10	27	70	81	65	55	147	52	18	4.0	.73
5	1.9	10	19	56	84	58	56	187	67	21	7.7	.68
6	1.8	11	15	50	79	54	51	112	59	20	47	.95
7	1.7	11	13	46	72	52	45	81	42	20	40	1.3
8	1.5	12	12	43	73	50	42	66	33	18	23	1.6
9	1.4	12	15	41	74	58	39	56	30	15	16	2.2
10	1.3	12	21	47	66	67	37	51	31	14	14	2.4
11	1.5	14	30	54	61	62	36	47	25	13	11	2.4
12	1.4	16	48	48	59	56	36	45	23	12	9.6	5.6
13	1.5	15	31	42	57	51	36	67	34	11	8.1	10
14	8.6	14	19	40	55	48	34	55	243	10	7.0	10
15	18	13	16	41	51	45	36	51	193	9.4	5.9	9.6
16	15	12	14	39	49	50	70	46	44	9.4	5.7	7.5
17	10	11	13	38	49	50	128	42	25	9.0	5.2	6.4
18	8.3	11	13	52	48	49	101	40	19	8.4	4.4	5.5
19	7.2	11	14	106	45	45	79	91	17	7.4	4.0	4.9
20	6.3	11	13	154	43	42	68	87	17	6.6	3.8	6.1
21	5.5	14	12	107	41	40	64	68	53	6.1	3.3	7.5
22	4.9	14	11	82	42	40	60	56	42	11	2.9	7.1
23	4.6	13	11	86	129	39	55	49	21	10	3.0	6.7
24	4.2	12	77	e80	137	38	56	43	18	9.6	2.7	6.4
25	4.4	12	553	e77	95	37	102	40	16	7.6	2.6	5.9
26	12	12	204	e74	71	36	119	40	17	6.4	2.3	5.5
27	18	15	95	e73	64	36	100	38	23	7.9	2.2	4.9
28	16	16	67	e72	59	42	79	37	18	7.5	2.0	4.6
29	15	16	56	e74	---	43	70	34	16	5.8	1.8	4.1
30	14	14	50	81	---	45	61	30	14	4.6	1.5	5.0
31	13	---	46	79	---	55	---	28	---	5.4	1.3	---
TOTAL	208.4	378	1570	2111	1911	1664	1853	1898	1369	363.1	259.1	138.69
MEAN	6.72	12.6	50.6	68.1	68.3	53.7	61.8	61.2	45.6	11.7	8.36	4.62
MAX	18	16	553	154	137	120	128	187	243	30	47	10
MIN	1.3	10	11	38	41	36	34	28	14	4.6	1.3	.68
CFSM	.15	.28	1.11	1.49	1.50	1.18	1.36	1.34	1.00	.26	.18	.10
IN.	.17	.31	1.28	1.72	1.56	1.36	1.51	1.55	1.12	.30	.21	.11

CAL YR 1986 TOTAL 10085.33 MEAN 27.6 MAX 553 MIN .32 CFSM .61 IN. 8.23
WTR YR 1987 TOTAL 13723.29 MEAN 37.6 MAX 553 MIN .68 CFSM .83 IN. 11.20

e Estimated.

01669000 PISCATAWAY CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°52'37", long 76°54'03", Essex County, Hydrologic Unit 02080104, on right bank at upstream side of bridge on State Highway 691, 0.6 mi south of Hensley Fork, 2.3 mi downstream from Sturgeon Swamp, and 4.2 mi southwest of Tappahannock.

DRAINAGE AREA.--28.0 mi².

PERIOD OF RECORD.--July 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-79-1: 1970-76(P), 1978(P).

GAGE.--Water-stage recorder. Datum of gage is 2.50 ft above National Geodetic Vertical Datum of 1929.

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

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

AVERAGE DISCHARGE.--36 years, 32.0 ft³/s, 15.52 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,380 ft³/s, Aug. 20, 1969, gage height, 7.52 ft, from rating curve extended above 1,400 ft³/s; minimum, 0.01 ft³/s, Oct. 2, 1954; minimum gage height, 0.07 ft, July 24, 25, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0930	*353	*4.04	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 0.97 ft³/s, Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	7.6	9.5	33	35	85	52	42	23	10	2.1	1.5
2	1.5	7.3	18	81	34	74	42	41	31	11	2.1	1.4
3	1.5	7.7	43	59	39	56	38	43	31	27	2.3	1.4
4	1.3	7.9	35	38	44	49	55	72	44	62	2.4	1.3
5	1.3	8.9	19	31	43	46	59	76	79	50	5.1	1.3
6	1.2	11	13	28	40	45	47	56	54	30	10	1.4
7	1.0	11	11	27	42	44	43	48	32	21	7.7	1.5
8	.97	12	11	25	51	43	40	43	24	17	6.5	2.3
9	1.1	11	14	23	54	48	37	40	21	14	5.4	2.5
10	1.2	10	31	27	47	52	35	37	20	12	4.2	3.0
11	1.2	10	40	34	43	46	34	35	21	11	3.3	2.2
12	1.3	14	52	29	44	42	33	33	20	10	2.4	4.1
13	1.5	15	35	24	46	40	32	40	23	9.1	2.5	14
14	9.1	12	20	22	42	39	32	45	29	8.5	2.2	18
15	14	11	16	22	40	38	33	39	23	8.1	1.7	14
16	11	9.4	14	22	36	41	98	44	20	7.8	1.4	9.7
17	6.2	8.8	13	21	37	44	165	37	18	7.1	1.3	5.4
18	3.3	8.3	14	31	41	40	78	35	16	6.5	1.4	3.7
19	2.4	9.7	15	75	42	37	63	61	14	6.2	1.6	3.0
20	2.2	11	14	89	39	37	57	48	14	5.6	1.6	6.2
21	2.1	15	12	56	37	35	55	41	22	5.1	1.6	7.3
22	2.1	15	10	50	38	34	52	38	23	7.9	1.8	8.6
23	2.0	12	9.9	53	98	33	47	34	18	7.1	2.0	6.9
24	2.4	10	66	47	83	33	47	32	16	5.5	1.8	5.4
25	4.7	8.8	270	36	59	32	85	32	14	4.7	1.7	4.2
26	13	11	84	e35	51	31	82	36	14	3.6	1.7	3.4
27	19	34	50	e34	47	31	62	36	21	3.2	1.9	2.9
28	16	30	38	e33	47	48	54	31	22	3.3	1.7	2.7
29	12	17	33	e33	---	53	50	28	16	2.9	1.8	2.4
30	9.5	12	30	e34	---	43	46	25	12	2.6	1.5	3.5
31	8.1	---	28	35	---	54	---	22	---	2.3	1.4	---
TOTAL	155.77	368.4	1068.4	1187	1299	1373	1653	1270	735	382.1	86.1	145.2
MEAN	5.02	12.3	34.5	38.3	46.4	44.3	55.1	41.0	24.5	12.3	2.78	4.84
MAX	19	34	270	89	98	85	165	76	79	62	10	18
MIN	.97	7.3	9.5	21	34	31	32	22	12	2.3	1.3	1.3
CFSM	.18	.44	1.23	1.37	1.66	1.58	1.97	1.46	.88	.44	.10	.17
IN.	.21	.49	1.42	1.58	1.73	1.82	2.20	1.69	.98	.51	.11	.19

CAL YR 1986 TOTAL 7482.15 MEAN 20.5 MAX 270 MIN .97 CFSM .73 IN. 9.94
WTR YR 1987 TOTAL 9722.97 MEAN 26.6 MAX 270 MIN .97 CFSM .95 IN. 12.92

e Estimated.

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 mi².

PERIOD OF RECORD.--August 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 21.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Dec. 28 to Jan. 14, and period of backwater from beaver dam, Sept. 1-12, which are fair. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--6 years, 114 ft³/s, 14.33 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,530 ft³/s, Apr. 17, 1983, gage height, 8.85 ft, from rating curve extended above 1,400 ft³/s; minimum, 0.18 ft³/s, July 18-20, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 27	0200	*601	*6.45	No other peak equal to or greater than base discharge.			

Minimum discharge, 0.52 ft³/s, Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	71	39	e250	192	246	221	259	128	55	7.6	e1.1
2	1.1	57	54	e270	204	253	199	213	154	74	8.4	e1.1
3	1.2	47	111	e290	229	253	180	192	178	124	8.0	e1.0
4	.78	38	150	e280	263	280	188	273	269	132	7.9	e.95
5	.65	33	143	e220	286	255	185	279	336	143	8.3	e1.3
6	.64	33	123	e170	302	212	178	292	323	205	12	e1.7
7	.66	31	105	e150	296	180	176	326	301	341	11	e1.5
8	.59	30	92	e120	265	161	174	298	279	308	9.2	e2.0
9	.54	30	83	e95	243	160	163	258	262	229	8.1	e3.0
10	.63	32	80	e110	221	184	147	218	257	161	7.1	e2.7
11	.62	31	88	e130	207	187	131	185	214	111	6.4	e2.5
12	.62	40	119	e120	206	186	122	160	173	82	5.8	e3.5
13	.98	42	121	e100	197	180	119	142	184	65	5.0	17
14	11	43	119	e90	179	167	112	131	169	54	4.6	16
15	15	42	119	92	160	151	109	133	174	47	3.9	15
16	12	41	109	89	144	141	144	133	191	45	3.9	13
17	11	39	95	85	141	136	219	128	179	45	3.4	13
18	12	37	87	104	146	131	334	121	159	40	3.1	14
19	14	40	83	242	152	126	442	132	132	35	3.1	14
20	14	39	75	441	153	124	377	152	105	30	2.9	18
21	13	48	69	506	145	120	290	153	86	26	2.7	25
22	13	47	64	521	144	114	234	145	70	23	2.0	34
23	11	48	58	470	273	108	200	147	60	19	1.8	31
24	11	51	113	377	348	104	180	154	57	16	2.3	25
25	11	52	358	287	395	101	313	163	60	14	2.5	20
26	29	51	422	217	409	98	521	146	73	13	2.4	18
27	42	52	328	207	313	95	593	123	87	12	2.3	16
28	55	49	e300	170	244	104	544	110	74	10	2.1	15
29	71	45	e250	147	---	123	423	101	64	9.2	1.7	14
30	77	42	e210	158	---	182	327	94	57	8.1	1.2	15
31	82	---	e180	182	---	224	---	93	---	6.7	1.1	---
TOTAL	514.21	1281	4347	6690	6457	5086	7545	5454	4855	2483.0	151.8	355.35
MEAN	16.6	42.7	140	216	231	164	252	176	162	80.1	4.90	11.8
MAX	82	71	422	521	409	280	593	326	336	341	12	34
MIN	.54	30	39	85	141	95	109	93	57	6.7	1.1	.95
CFSM	.15	.40	1.30	2.00	2.14	1.52	2.33	1.63	1.50	.74	.05	.11
IN.	.18	.44	1.50	2.30	2.22	1.75	2.60	1.88	1.67	.86	.05	.12

CAL YR 1986 TOTAL 28418.72 MEAN 77.9 MAX 422 MIN .18 CFSM .72 IN. 9.79
WTR YR 1987 TOTAL 45219.36 MEAN 124 MAX 593 MIN .54 CFSM 1.15 IN. 15.58

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1502: 1950, 1951-52(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 36.43 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 8 to Nov. 19, Dec. 4-24, Mar. 16 to Apr. 19, July 1-22, Aug. 11-14, and Sept. 6-30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--38 years, 7.17 ft³/s, 14.69 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 570 ft³/s, Sept. 12, 1960, gage height, 5.88 ft, from rating curve extended above 130 ft³/s; no flow July 30 to Aug. 2, 1953, Aug. 18, Sept. 4, Sept. 29 to Oct. 2, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 65 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0300	99	3.69	Jan. 22	2130	116	3.71
Jan. 19	1830	*160	*3.80	June 2	0600	67	3.40

Minimum daily discharge, 0.12 ft³/s, Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	e3.2	3.8	6.5	12	19	e10	7.1	45	e2.5	.90	1.4
2	.35	e3.5	7.8	20	12	17	e6.2	7.0	46	e4.0	.95	1.7
3	.31	e4.0	15	12	14	12	e5.6	8.3	18	e6.3	.90	1.4
4	.27	e4.5	e8.3	8.3	15	9.1	e9.0	34	19	e10	1.4	.95
5	.23	e5.0	e5.0	6.5	12	8.3	e12	22	29	e16	3.8	.80
6	.14	e5.6	e3.8	5.6	9.6	7.8	e9.0	14	17	e14	5.8	e.80
7	.13	e6.6	e3.5	5.0	8.5	7.4	e7.4	11	11	e9.0	3.6	e1.0
8	e.12	e6.0	e3.5	4.6	8.5	7.3	e6.4	9.6	7.8	e6.0	2.1	e3.0
9	e.13	e5.6	e4.0	4.2	8.9	9.1	e5.7	8.7	6.2	e4.0	1.4	e8.0
10	e.14	e5.2	e5.0	4.6	7.8	16	e5.4	7.8	5.4	e2.9	.95	e1.5
11	e.14	e5.6	e7.0	6.2	6.8	12	e5.4	7.0	5.1	e2.7	e.75	e1.3
12	e.14	e8.4	e13	6.2	7.4	9.6	e5.6	6.3	5.1	e3.0	e.62	e1.5
13	e.19	e6.4	e7.0	4.6	7.8	8.5	e5.8	6.0	7.8	e3.5	e.58	e17
14	e10	e5.2	e4.5	4.1	6.6	7.4	e5.4	6.0	8.9	e3.0	e.58	e6.0
15	e11	e4.5	e3.9	4.0	6.3	6.6	e5.7	6.5	7.1	e2.7	.58	e3.0
16	e4.5	e4.3	e3.9	4.0	5.6	e7.3	e30	6.5	5.6	e2.5	.68	e1.5
17	e1.0	e4.2	e3.9	4.2	5.1	e8.6	e32	5.4	4.6	e2.6	.68	e.80
18	e.90	e4.1	e4.5	29	10	e7.4	e16	5.2	4.1	e2.6	.62	e.64
19	e.82	e4.3	e5.0	82	9.6	e7.0	e11	26	3.2	e2.4	.80	e.62
20	e.75	4.8	e4.8	50	8.0	e6.6	9.6	15	3.1	e2.3	1.0	e.80
21	e.74	6.5	e4.7	20	8.0	e6.4	9.1	10	3.6	e2.2	.90	e1.0
22	e.72	6.5	e4.3	44	9.1	e6.2	8.3	8.3	3.6	e2.1	.90	e.65
23	e.70	5.1	e3.7	49	42	e6.2	7.1	6.3	3.2	2.0	.80	e.62
24	e.80	5.1	e13	18	20	e6.2	7.8	5.2	3.1	1.9	.70	e.60
25	e1.3	5.1	55	13	13	e6.0	27	6.6	3.0	1.8	.62	e.60
26	e10	4.4	15	8.9	9.6	e5.8	20	11	3.2	1.6	.70	e.58
27	e12	4.8	9.1	14	8.9	e5.3	12	8.5	12	1.6	.68	e.58
28	e7.0	4.8	6.8	12	8.9	e8.0	9.8	5.8	7.3	1.4	.58	e.58
29	e4.3	4.4	5.8	9.1	---	e10	9.1	4.5	4.1	1.2	.62	e.58
30	e3.5	4.1	5.6	10	---	e8.4	7.8	3.4	2.6	.80	.55	e.95
31	e3.0	---	5.0	13	---	e12	---	5.6	---	.62	.68	---
TOTAL	75.77	151.8	245.2	482.6	301.0	274.5	321.2	294.6	304.7	119.22	36.42	60.45
MEAN	2.44	5.06	7.91	15.6	10.8	8.85	10.7	9.50	10.2	3.85	1.17	2.02
MAX	12	8.4	55	82	42	19	32	34	46	16	5.8	17
MIN	.12	3.2	3.5	4.0	5.1	5.3	5.4	3.4	2.6	.62	.55	.58
CFSM	.37	.76	1.19	2.35	1.63	1.34	1.61	1.43	1.54	.58	.18	.31
IN.	.43	.85	1.38	2.71	1.69	1.54	1.80	1.65	1.71	.67	.20	.34

CAL YR 1986 TOTAL 1735.85 MEAN 4.76 MAX 55 MIN .06 CFSM .72 IN. 9.74
WTR YR 1987 TOTAL 2667.46 MEAN 7.31 MAX 82 MIN .12 CFSM 1.10 IN. 14.96

e Estimated.

01670400 NORTH ANNA RIVER NEAR PARTLOW, VA

LOCATION.--Lat 38°00'46", long 77°42'06", Spotsylvania County, Hydrologic Unit 02080106, on left downstream side of bridge on State Highway 601, 1.1 mi upstream from Northeast Creek, and 3.8 mi southwest of Partlow.

DRAINAGE AREA.--344 mi².

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 168.25 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 0.5 mi upstream. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--9 years, 298 ft³/s, 11.76 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft³/s, Feb. 26, 1979, gage height, 25.30 ft, from rating curve extended above 7,200 ft³/s; minimum, 27 ft³/s, July 30, 1987.

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, 6,660 ft³/s, Apr. 17, gage height, 18.02 ft; minimum, 27 ft³/s, July 30; minimum daily, 40 ft³/s, Aug. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	64	66	274	292	1960	151	265	185	51	59	56
2	63	64	75	302	210	2220	47	127	333	50	58	64
3	62	67	84	356	296	1730	169	412	293	52	66	58
4	63	72	77	380	1210	294	330	1800	973	54	64	60
5	63	73	74	329	1000	334	345	1770	1940	52	65	67
6	62	71	71	327	302	319	346	1040	1280	65	64	63
7	61	69	71	325	334	193	346	286	123	51	78	55
8	62	70	72	320	357	173	345	285	184	52	50	62
9	62	72	74	319	356	330	345	282	125	52	49	63
10	63	71	67	315	349	342	327	282	219	51	49	86
11	60	70	66	311	349	340	255	213	44	50	44	57
12	61	60	67	304	806	340	207	94	62	50	40	1200
13	65	62	69	213	846	215	207	126	128	49	40	2070
14	63	59	68	56	290	48	137	125	45	48	48	351
15	54	59	68	58	290	83	144	127	44	46	58	200
16	52	59	68	60	290	288	2680	127	45	50	58	125
17	52	58	68	60	155	197	6460	125	44	51	60	88
18	52	57	69	64	48	49	5060	125	49	49	80	146
19	54	58	70	484	172	149	2410	237	51	51	60	148
20	60	58	70	1710	268	183	1790	327	52	52	60	398
21	63	60	70	763	220	159	1210	289	55	51	58	1370
22	62	58	70	246	223	108	921	54	55	49	53	140
23	61	59	70	372	1460	107	323	70	55	51	53	181
24	62	61	251	371	1570	71	814	1180	55	51	50	181
25	64	63	1880	370	454	75	2580	3120	55	51	43	153
26	70	66	1320	372	326	156	2650	2230	56	52	60	53
27	70	63	395	371	331	70	1810	1750	57	55	65	51
28	69	63	666	372	496	44	1370	342	55	55	60	54
29	68	64	640	374	---	46	277	152	54	52	60	67
30	67	64	302	370	---	49	332	337	53	50	58	56
31	65	---	272	371	---	217	---	336	---	63	57	---
TOTAL	1920	1914	7350	10919	13300	10889	34388	18035	6769	1606	1767	7723
MEAN	61.9	63.8	237	352	475	351	1146	582	226	51.8	57.0	257
MAX	70	73	1880	1710	1570	2220	6460	3120	1940	65	80	2070
MIN	52	57	66	56	48	44	47	54	44	46	40	51
CFSM	.18	.19	.69	1.02	1.38	1.02	3.33	1.69	.66	.15	.17	.75
IN.	.21	.21	.79	1.18	1.44	1.18	3.72	1.95	.73	.17	.19	.84

CAL YR 1986 TOTAL 54025 MEAN 148 MAX 1880 MIN 47 CFSM .43 IN. 5.84
WTR YR 1987 TOTAL 116580 MEAN 319 MAX 6460 MIN 40 CFSM .93 IN. 12.61

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 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 43 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 27.7 mi upstream. At a point 0.8 mi upstream from station, there is diversion for municipal water supply by Hanover County Department of Public Utilities since June 1975. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--8 years, 390 ft³/s, 11.44 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft³/s, Mar. 30, 1984, gage height, 21.28 ft; minimum, 42 ft³/s, Aug. 13, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1969 reached a stage of 28.02 ft, from floodmark, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,020 ft³/s, Apr. 18, gage height, 18.98 ft; minimum, 42 ft³/s, Aug. 13; minimum daily, 45 ft³/s, Aug. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	64	79	358	521	1850	445	524	441	73	53	57
2	72	63	92	686	405	2730	235	379	358	75	61	55
3	68	64	296	613	443	2230	171	317	448	86	58	61
4	66	64	298	553	892	1230	405	1740	476	109	67	59
5	65	72	201	476	1580	549	591	2500	1960	92	82	60
6	62	87	138	422	751	533	553	2000	1760	89	81	88
7	60	85	116	409	555	477	525	680	666	104	71	86
8	58	87	108	394	603	318	505	492	272	82	72	68
9	61	92	118	379	631	400	481	452	286	75	63	76
10	61	88	151	383	577	537	468	435	269	73	56	77
11	62	87	171	396	521	515	428	422	250	71	53	99
12	60	103	354	376	517	495	343	296	120	74	45	173
13	64	95	259	361	1280	466	316	222	141	102	54	1730
14	134	85	178	236	550	300	306	243	195	69	68	1130
15	131	80	138	119	451	168	219	240	111	62	51	518
16	77	76	124	116	426	252	1530	252	104	62	70	278
17	65	75	118	111	418	428	6390	234	95	68	69	187
18	63	76	116	125	231	272	7720	222	88	65	66	129
19	59	77	116	247	181	164	4930	219	85	60	92	183
20	57	76	113	1400	366	276	2670	371	88	58	69	225
21	56	91	110	1620	352	291	1750	414	99	60	63	751
22	62	101	106	416	336	251	1490	330	97	58	62	838
23	63	95	103	500	1300	207	588	141	93	56	84	233
24	61	91	401	505	1980	209	522	907	89	54	68	230
25	62	87	2740	493	1430	166	2180	1930	86	57	65	222
26	75	86	2880	493	591	176	3760	3460	87	55	e64	182
27	83	110	1230	483	541	236	2860	2110	98	53	e80	75
28	75	102	577	481	533	176	2050	1300	95	52	e70	65
29	71	91	956	474	---	158	939	303	80	51	61	63
30	69	84	462	479	---	154	529	368	76	50	60	95
31	65	---	388	509	---	208	---	450	---	48	56	---
TOTAL	2159	2534	13237	14613	18962	16422	45899	23953	9113	2143	2034	8093
MEAN	69.6	84.5	427	471	677	530	1530	773	304	69.1	65.6	270
MAX	134	110	2880	1620	1980	2730	7720	3460	1960	109	92	1730
MIN	56	63	79	111	181	154	171	141	76	48	45	55
(*)	2.6	2.3	2.2	2.2	2.4	2.6	2.5	3.2	3.4	3.6	3.6	2.9
MEAN‡	72.2	86.8	429	473	679	533	1532	776	307	72.7	69.2	273
CFSM‡	.16	.19	.93	1.02	1.47	1.15	3.31	1.68	.66	.16	.15	.59
IN‡	.18	.21	1.07	1.18	1.53	1.33	3.69	1.93	.74	.18	.17	.66

CAL YR 1986	TOTAL 79175	MEAN 217	MAX 2880	MIN 53	MEAN‡ 220	CFSM‡ .48	IN.‡ 6.45
WTR YR 1987	TOTAL 159162	MEAN 436	MAX 7720	MIN 45	MEAN‡ 439	CFSM‡ .95	IN.‡ 12.87

* Average diversion, equivalent in cubic feet per second; provided by Hanover County Department of Public Utilities.
‡ Adjusted for diversion.
e Estimated.

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 mi².

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 132.30 ft above National Geodetic Vertical Datum of 1929 (levels by La Prade Bros., Engineers).

REMARKS.--Records good. Frequent quarry dewatering by the General Crushed Stone Company upstream from gage adds about 0.5 ft³/s at times. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--26 years, 99.2 ft³/s, 12.59 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s, Aug. 21, 1969, gage height, 11.09 ft, from rating curve extended above 7,600 ft³/s on basis of contracted-opening measurement of peak flow; minimum, 0.10 ft³/s, Sept. 25, 26, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 650 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 26	0030	1,380	5.40	Apr. 17	0630	*2,340	*6.29
Feb. 24	1030	670	4.38	Apr. 26	2330	1,050	5.00
Mar. 2	1000	718	4.47				

Minimum discharge, 1.6 ft³/s, Sept. 2-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	23	52	91	134	440	130	139	73	28	5.3	1.7
2	11	22	53	286	141	702	112	123	108	25	5.8	1.7
3	9.7	19	130	328	173	414	96	118	76	31	5.6	1.6
4	9.8	20	215	219	255	210	115	312	117	129	5.0	1.6
5	9.8	23	179	148	292	155	140	570	361	83	7.2	1.9
6	9.0	31	109	119	240	132	127	434	455	62	14	3.8
7	7.3	39	80	107	210	121	123	241	295	54	12	3.5
8	7.7	44	66	100	197	114	116	167	127	43	9.9	3.3
9	6.4	45	63	96	217	113	106	137	83	34	7.5	4.3
10	6.7	45	87	94	201	129	97	120	71	30	5.9	3.5
11	6.5	43	106	101	159	131	89	102	59	26	3.9	2.7
12	5.7	48	223	e90	138	118	84	91	54	23	3.3	6.7
13	6.6	49	243	83	140	109	82	136	51	21	3.5	12
14	25	47	154	76	138	103	79	129	59	25	3.5	92
15	56	43	106	71	131	96	80	103	58	25	5.0	140
16	63	40	88	70	121	95	449	99	57	23	3.9	87
17	45	36	76	68	109	96	1970	90	50	19	3.7	47
18	32	33	70	73	107	97	1360	81	45	17	3.2	30
19	25	32	69	131	113	96	577	88	39	16	2.8	21
20	21	33	69	271	115	91	307	96	35	13	2.7	19
21	17	38	65	268	116	88	205	93	35	12	2.3	23
22	16	44	58	178	111	87	164	88	33	11	2.2	24
23	14	51	55	146	380	82	139	84	32	9.8	3.9	28
24	12	52	187	e140	646	78	131	124	30	8.9	3.1	29
25	11	48	1020	126	411	77	334	153	26	8.0	2.7	26
26	19	46	1150	98	217	77	853	197	26	7.2	2.5	21
27	29	57	403	112	160	77	845	348	33	6.0	2.5	16
28	31	61	173	119	140	85	354	194	34	5.7	2.5	13
29	30	60	124	111	---	95	220	120	35	5.3	2.5	10
30	26	57	104	110	---	96	168	94	32	5.3	2.2	12
31	24	---	93	120	---	121	---	82	---	5.3	1.8	---
TOTAL	603.2	1229	5670	4150	5512	4525	9652	4953	2589	811.5	141.9	686.3
MEAN	19.5	41.0	183	134	197	146	322	160	86.3	26.2	4.58	22.9
MAX	63	61	1150	328	646	702	1970	570	455	129	14	140
MIN	5.7	19	52	68	107	77	79	81	26	5.3	1.8	1.6
CFSM	.18	.38	1.71	1.25	1.84	1.36	3.01	1.50	.81	.25	.04	.21
IN.	.21	.43	1.97	1.44	1.92	1.57	3.36	1.72	.90	.28	.05	.24

CAL YR 1986 TOTAL 26124.6 MEAN 71.6 MAX 1150 MIN 3.1 CFSM .67 IN. 9.08
WTR YR 1987 TOTAL 40522.9 MEAN 111 MAX 1970 MIN 1.6 CFSM 1.04 IN. 14.09

e Estimated.

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 mi².

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

REVISED RECORDS.--WSP 801: 1935(M). WSP 1502: 1935, 1939. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 83.74 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for period of no gage-height record, Dec. 13 to Feb. 20, which is poor. Since 1966, diversion 150 ft upstream from station for town of Ashland water supply has averaged less than 0.6 ft³/s. Capacity of the diversion pickup is about 1.5 ft³/s. Small diurnal fluctuation at low flow in some years caused by gristmills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 368 ft³/s, 12.68 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,100 ft³/s, Aug. 23, 1969, gage height, 24.99 ft; minimum, 0.10 ft³/s, Sept. 12, 1966, caused by diversion upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 15, 1928, reached a stage of about 24 ft, discharge, about 14,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 26	Unknown	3,060	a10.38	Apr. 27	0230	2,330	8.79
Apr. 20	0800	*4,940	*13.91				

a From high-water mark.

Minimum discharge, 14 ft³/s, Sept. 4, gage height, 1.21 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	60	147	e380	e510	1530	561	507	326	97	32	19
2	43	55	154	e1100	e545	2080	506	444	416	92	33	19
3	43	54	540	e1390	e700	1970	389	426	296	240	31	18
4	42	58	1310	e840	e1040	947	399	808	899	686	30	16
5	40	63	673	e600	e1250	648	550	1650	1620	341	30	19
6	35	87	346	e490	e900	535	655	1350	1680	285	32	34
7	33	121	254	e423	e810	472	552	733	943	193	29	41
8	32	155	211	e400	e760	450	555	552	409	155	28	35
9	32	152	216	e380	e850	471	472	452	309	131	29	251
10	30	161	347	e370	e780	521	404	395	328	121	26	1350
11	30	156	410	e395	e645	516	362	351	261	106	26	1200
12	28	155	913	e380	e560	457	342	320	228	95	24	383
13	32	179	e1500	e340	e530	415	326	312	202	109	23	937
14	118	187	e590	e310	e540	391	310	312	203	88	21	1040
15	206	145	e350	e280	e510	368	321	309	209	78	21	633
16	145	123	e280	e273	e475	360	1790	298	183	72	19	326
17	107	107	e255	e264	e435	373	3270	293	163	72	18	204
18	79	100	e236	e300	e420	371	3060	279	146	67	18	147
19	62	100	e240	e540	e410	351	4100	313	133	77	17	117
20	52	101	e235	e1100	e405	333	4820	303	123	71	18	111
21	48	119	e210	e1200	434	321	3700	302	138	63	19	147
22	46	190	e190	e710	469	308	1240	313	131	55	20	868
23	45	230	e180	e580	1570	298	722	294	181	49	21	459
24	44	175	e720	e540	1970	288	610	282	214	47	19	261
25	44	143	e2300	e495	1480	281	1430	266	140	43	17	185
26	59	132	e2800	e425	833	283	2210	1300	121	41	18	141
27	81	166	e1560	e465	644	274	2270	810	150	38	18	112
28	96	222	e795	e495	573	308	1630	415	197	37	21	93
29	94	225	e600	e475	---	341	782	324	134	36	22	83
30	84	174	e470	e445	---	355	614	270	108	34	19	87
31	68	---	e400	e470	---	450	---	234	---	33	19	---
TOTAL	1944	4095	19432	16855	21048	17066	38952	15217	10591	3652	718	9336
MEAN	62.7	136	627	544	752	551	1298	491	353	118	23.2	311
MAX	206	230	2800	1390	1970	2080	4820	1650	1680	686	33	1350
MIN	28	54	147	264	405	274	310	234	108	33	17	16
CFSM	.16	.35	1.59	1.38	1.91	1.40	3.30	1.25	.90	.30	.06	.79
IN.	.18	.39	1.83	1.59	1.99	1.61	3.68	1.44	1.00	.34	.07	.88

CAL YR 1986 TOTAL 92400 MEAN 253 MAX 2800 MIN 27 CFSM .64 IN. 8.72
WTR YR 1987 TOTAL 158906 MEAN 435 MAX 4820 MIN 16 CFSM 1.10 IN. 15.00

e Estimated.

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1302: 1944(M). WSP 1382: 1949. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 14.72 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 15, 1976, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, Dec. 26 to Feb. 18 and Mar. 4-25, which are poor. Some regulation since January 1972 by Lake Anna, capacity, 373,000 acre-ft, and occasional diurnal fluctuation at low flow caused by mill upstream from station. Unknown amount of diversion for irrigation upstream from gage.

AVERAGE DISCHARGE.--46 years, 1,006 ft³/s, 12.64 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,300 ft³/s, Aug. 23, 1969, gage height, 31.12 ft, from flood-marks, from rating curve extended above 22,000 ft³/s; minimum, 12 ft³/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, 11,000 ft³/s, Apr. 19, gage height, 22.24 ft; minimum, 57 ft³/s, July 30, gage height, 2.30 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	171	353	e770	e1180	2810	1180	1600	896	204	75	89
2	126	161	339	e1900	e1300	4630	1170	1320	1090	180	88	87
3	121	153	600	e2200	e1500	5500	817	1060	1000	195	92	82
4	117	151	1590	e1600	e1900	e5000	907	1790	1660	1150	89	89
5	115	155	1760	e1200	e2600	e2500	1320	4090	3520	989	105	91
6	111	182	957	e1000	e2300	e1500	1540	4820	4450	756	110	116
7	104	231	641	e890	e1950	e1240	1400	4080	4180	521	116	183
8	101	283	512	e800	e1720	e1100	1310	1940	1700	395	107	160
9	100	325	464	e775	e1740	e1000	1230	1370	916	301	116	130
10	98	321	652	e755	e1590	e1090	1100	1200	836	249	103	825
11	99	327	762	e795	e1400	e1150	1000	1100	865	217	90	1730
12	101	347	1380	e790	e1230	e1130	884	973	562	189	86	946
13	101	351	1770	e710	e1110	e990	795	756	462	242	80	1560
14	153	361	1330	e625	e1130	e900	756	839	516	215	80	3220
15	374	351	852	e570	e1050	e850	718	783	476	171	88	1730
16	377	298	655	e550	e950	e830	1830	782	418	156	79	1120
17	286	269	567	e555	e875	e800	6070	733	370	144	91	605
18	220	256	521	e580	e830	e770	10200	668	325	147	86	376
19	178	243	503	e900	801	e765	10900	716	292	131	85	326
20	152	245	497	e2000	865	e760	9830	821	269	140	112	329
21	141	270	487	e2460	1040	e720	8690	940	277	129	92	537
22	126	306	452	e1900	997	e670	7290	909	293	118	88	1820
23	131	399	417	e1300	2420	e630	4840	680	275	107	101	1200
24	131	420	686	e1200	4370	e590	2260	700	428	103	111	668
25	127	355	4270	e945	4900	e570	3060	2140	339	93	93	504
26	141	325	e6000	e800	3730	558	4910	3560	259	85	87	417
27	174	353	e5000	e840	1910	646	6490	4540	288	88	84	296
28	203	406	e1500	e890	1460	634	6900	3700	397	98	84	200
29	213	454	e1600	e900	---	682	5660	1590	342	87	101	175
30	206	414	e1000	e935	---	675	2910	786	245	60	96	173
31	189	---	e850	e1100	---	814	---	898	---	78	93	---
TOTAL	4944	8883	38967	33235	48848	42504	107967	51884	27946	7738	2908	19784
MEAN	159	296	1257	1072	1745	1371	3599	1674	932	250	93.8	659
MAX	377	454	6000	2460	4900	5500	10900	4820	4450	1150	116	3220
MIN	98	151	339	550	801	558	718	668	245	60	75	82
CFSM	.15	.27	1.16	.99	1.61	1.27	3.33	1.55	.86	.23	.09	.61
IN.	.17	.31	1.34	1.14	1.68	1.46	3.72	1.79	.96	.27	.10	.68

CAL YR 1986 TOTAL 226770 MEAN 621 MAX 6000 MIN 82 CFSM .57 IN. 7.80
WTR YR 1987 TOTAL 395608 MEAN 1084 MAX 10900 MIN 60 CFSM 1.00 IN. 13.61

e Estimated.

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to January 1976.
WATER TEMPERATURE: October 1945 to September 1946, April 1968 to January 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV												
13...	1330	350	161	161	7.30	7.50	10.0	760	3.4	9.2	82	36
FEB												
18...	1000	976	85	87	6.30	7.19	3.0	755	6.4	12.8	96	19
MAR												
26...	1200	562	103	101	6.70	7.43	13.0	751	2.0	9.9	95	K9
MAY												
18...	1145	668	100	101	6.90	7.80	20.5	766	2.4	7.9	87	10
JUL												
09...	1000	306	87	90	6.80	7.70	28.0	754	7.9	5.8	75	210
AUG												
20...	1330	123	209	215	7.10	7.60	26.5	756	1.3	6.2	78	34

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV												
13...	45	30	0	7.5	2.8	19	3.4	30	29	30	36	36
FEB												
18...	200	20	7	4.4	2.1	7.3	1.7	15	13	13	15	16
MAR												
26...	350	24	5	5.7	2.3	9.8	1.7	21	19	19	23	19
MAY												
18...	14	25	6	5.8	2.5	8.1	1.7	23	21	19	23	13
JUL												
09...	160	24	1	5.5	2.6	6.3	2.4	24	23	23	27	21
AUG												
20...	52	38	8	10	3.1	25	3.5	31	30	30	36	51

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
NOV												
13...	7.8	<0.10	14	110	110	<0.010	0.120	0.040	0.030	0.50	0.140	0.120
FEB												
18...	5.4	<0.10	12	67	56	<0.010	0.280	0.040	0.030	0.30	0.040	<0.010
MAR												
26...	5.8	<0.10	10	58	66	<0.010	0.150	0.020	0.020	0.30	0.050	0.030
MAY												
18...	4.7	<0.10	12	77	60	0.010	0.270	0.060	0.050	0.50	0.040	0.040
JUL												
09...	4.7	<0.10	14	68	70	<0.010	0.310	0.070	0.040	0.80	0.080	0.050
AUG												
20...	7.6	0.20	9.6	136	130	0.020	0.440	0.040	0.050	0.60	0.220	0.180

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV 13...	0.120	20	<1	22	<0.5	<1	<1	<3	2	290	5	<4
FEB 18...	0.010	--	--	--	--	--	--	--	--	--	--	--
MAR 26...	0.020	40	<1	27	<0.5	<1	<1	<3	3	300	<5	<4
MAY 18...	0.020	30	<1	30	<0.5	1	<1	<3	2	620	12	5
JUL 09...	0.040	--	--	--	--	--	--	--	--	--	--	--
AUG 20...	0.160	10	<1	24	0.5	<1	<1	<3	3	210	<5	<4

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 13...	95	<0.1	<10	4	<1	<1	40	<6	23	4	91
FEB 18...	--	--	--	--	--	--	--	--	--	10	79
MAR 26...	54	<0.1	<10	1	<1	<1	32	<6	13	7	91
MAY 18...	42	<0.1	<10	<1	<1	<1	38	<6	19	16	79
JUL 09...	--	--	--	--	--	--	--	--	--	11	98
AUG 20...	230	<0.1	<10	<1	<1	<1	55	<6	20	5	89

01673550 TOTOPOTOMOY CREEK NEAR STUDLEY, VA

LOCATION.--Lat 37°39'44", 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 mi².

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 38.36 ft above National Geodetic Vertical Datum of 1929.

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

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

AVERAGE DISCHARGE.--10 years, 30.0 ft³/s, 15.55 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 802 ft³/s, Aug. 19, 1985, gage height, 8.22 ft; maximum gage height, 8.77 ft, Feb. 25, 1979; minimum daily discharge, 0.35 ft³/s, Oct. 1-7, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 160 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	1230	342	6.61	Apr. 17	0700	*610	*7.65
Feb. 24	0500	201	5.64	Apr. 25	2100	432	7.03

Minimum discharge, 2.0 ft³/s, Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	6.4	12	32	34	87	36	47	30	13	4.4	5.9
2	2.7	6.6	18	90	37	99	30	44	33	14	4.5	5.3
3	2.6	7.1	36	74	52	57	26	47	39	15	4.6	5.0
4	2.6	6.8	29	40	68	45	38	63	118	23	4.6	4.8
5	2.5	7.8	19	32	62	39	39	77	118	24	7.0	6.3
6	2.5	9.2	14	28	51	37	34	55	72	20	11	12
7	2.2	9.2	12	26	46	35	31	44	36	16	18	16
8	2.3	11	11	24	45	35	28	39	27	14	15	14
9	2.4	10	14	22	46	40	26	36	23	14	9.6	9.7
10	2.9	9.5	22	23	39	40	24	34	22	11	6.8	7.7
11	2.9	11	31	27	36	37	23	30	21	9.6	5.5	6.5
12	2.9	15	51	26	35	33	23	27	21	8.8	5.3	7.9
13	3.2	16	33	23	33	31	24	27	23	8.7	5.1	15
14	12	12	20	21	31	29	22	28	29	22	4.7	12
15	23	9.9	16	20	30	29	25	29	23	20	4.6	9.3
16	14	9.1	14	20	28	30	155	33	19	14	4.4	7.2
17	7.9	8.5	13	20	29	32	534	29	17	10	4.4	6.3
18	5.8	8.6	14	28	36	29	207	25	16	8.8	4.2	5.9
19	4.9	9.9	14	97	34	28	92	26	14	8.0	5.2	5.5
20	4.5	10	13	149	32	27	66	26	13	7.3	6.4	8.8
21	4.2	16	12	71	33	26	55	27	14	6.7	6.9	9.6
22	4.0	17	11	53	37	25	48	25	15	6.2	6.7	9.8
23	4.0	12	11	56	144	25	42	23	14	5.6	6.2	8.4
24	4.1	11	75	e46	159	24	48	21	13	5.3	5.2	7.0
25	4.7	9.8	291	38	67	23	265	26	14	5.2	4.6	6.0
26	11	12	149	38	51	22	355	48	23	5.0	4.6	5.4
27	12	26	47	e43	44	22	158	35	97	4.9	5.4	5.0
28	11	23	33	e32	43	29	81	26	64	4.8	4.9	5.0
29	7.8	15	28	e30	---	34	63	23	23	4.7	5.0	4.7
30	6.9	12	25	28	---	30	53	21	17	4.6	4.6	6.9
31	6.5	---	23	31	---	35	---	22	---	4.5	5.1	---
TOTAL	183.0	347.4	1111	1288	1382	1114	2651	1063	1008	338.7	194.5	238.9
MEAN	5.90	11.6	35.8	41.5	49.4	35.9	88.4	34.3	33.6	10.9	6.27	7.96
MAX	23	26	291	149	159	99	534	77	118	24	18	16
MIN	2.2	6.4	11	20	28	22	22	21	13	4.5	4.2	4.7
CFSM	.23	.44	1.37	1.58	1.89	1.37	3.37	1.31	1.28	.42	.24	.30
IN.	.26	.49	1.58	1.83	1.96	1.58	3.76	1.51	1.43	.48	.28	.34

CAL YR 1986 TOTAL 6998.3 MEAN 19.2 MAX 291 MIN 2.2 CFSM .73 IN. 9.94
WTR YR 1987 TOTAL 10919.5 MEAN 29.9 MAX 534 MIN 2.2 CFSM 1.14 IN. 15.50

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 183.76 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1964, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--25 years, 75.5 ft³/s, 13.25 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,900 ft³/s, June 22, 1972, gage height, 19.03 ft, from rating curve extended above 3,400 ft³/s; minimum daily, 0.05 ft³/s, Oct. 11, 12, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 900 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 26	0200	1,520	9.27	Apr. 17	1800	*2,300	*11.08

Minimum daily discharge, 0.05 ft³/s, Oct. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	e3.0	12	46	97	452	104	68	43	7.2	1.3	.57
2	.11	e5.0	27	147	97	723	72	61	55	6.0	1.7	.57
3	.09	e4.3	219	186	125	207	59	73	63	6.8	1.3	.32
4	.09	e3.4	178	100	198	128	120	240	128	8.4	1.3	.28
5	.08	e11	59	70	196	100	209	315	203	8.4	4.4	.26
6	.07	e13	33	56	149	87	123	138	111	8.0	5.4	.81
7	.07	e12	25	49	129	79	130	100	61	9.0	4.2	1.2
8	.06	e14	21	44	161	73	108	79	44	8.4	4.5	3.3
9	.06	e16	24	38	177	78	85	65	35	7.3	3.2	11
10	.06	e15	43	38	121	115	71	55	34	6.0	2.2	22
11	.05	14	74	41	95	105	63	47	32	5.2	1.5	11
12	.05	19	160	38	94	80	58	43	29	4.7	1.2	18
13	.14	25	92	33	114	71	55	50	34	3.9	.97	71
14	.61	15	47	30	105	64	50	54	35	3.3	.80	82
15	.31	11	33	30	90	61	53	47	29	2.9	.72	60
16	.17	9.1	28	29	74	63	425	42	24	4.0	.59	25
17	.13	7.7	25	28	64	69	1740	37	21	4.3	.68	14
18	.11	6.7	26	32	63	65	868	33	18	3.2	.82	8.2
19	.20	5.8	30	108	66	58	197	47	16	2.6	.97	5.3
20	.28	7.4	32	395	62	54	138	64	14	2.6	1.2	7.9
21	.64	25	26	168	48	50	112	57	13	2.6	1.0	25
22	.35	43	22	105	46	48	98	48	18	2.3	1.0	46
23	.32	23	19	104	122	45	84	43	21	2.0	1.3	23
24	.67	15	185	88	267	43	78	224	25	1.9	1.0	14
25	1.0	9.9	901	e81	187	42	224	461	20	1.7	1.0	9.4
26	3.1	14	850	e78	140	41	364	777	16	2.0	.92	6.8
27	5.7	28	125	e79	113	41	167	190	13	2.4	.82	5.0
28	6.7	39	84	e82	111	50	115	111	11	1.9	.58	4.1
29	e5.6	23	64	e86	---	59	95	83	9.3	1.6	.67	3.3
30	e5.0	16	53	e87	---	60	80	62	8.2	1.4	.67	3.7
31	e3.9	---	45	91	---	110	---	48	---	1.3	.35	---
TOTAL	35.85	453.3	3562	2587	3311	3321	6145	3762	1183.5	133.3	48.26	483.01
MEAN	1.16	15.1	115	83.5	118	107	205	121	39.5	4.30	1.56	16.1
MAX	6.7	43	901	395	267	723	1740	777	203	9.0	5.4	82
MIN	.05	3.0	12	28	46	41	50	33	8.2	1.3	.35	.26
CFSM	.02	.20	1.49	1.08	1.53	1.38	2.65	1.56	.51	.06	.02	.21
IN.	.02	.22	1.71	1.24	1.59	1.60	2.95	1.81	.57	.06	.02	.23

CAL YR 1986 TOTAL 13508.98 MEAN 37.0 MAX 901 MIN .05 CFSM .48 IN. 6.49
WTR YR 1987 TOTAL 25025.22 MEAN 68.6 MAX 1740 MIN .05 CFSM .89 IN. 12.03

e Estimated.

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 mi².
PERIOD OF RECORD.--September 1942 to current year.
REVISED RECORDS.--WSP 1382: 1943, 1945(M), 1948(M), 1949, 1953(M). WSP 2103: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 85.14 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1978, gage located on left bank at same datum.
REMARKS.--Records good except those for periods of backwater from beaver dam, Oct. 8-12, 15-17, and Oct. 27 to Nov. 5, which are fair, and those for periods of no gage-height record, Jan. 13 to June 11 and July 7-22, which are poor. Some diurnal fluctuation from gristmill upstream on Po River. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--45 years, 239 ft³/s, 12.63 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s, June 23, 1972, gage height, 18.95 ft, from high-water mark in well, from rating curve extended above 8,100 ft³/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 ft³/s, from rating curve extended above 8,100 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 26	2400	2,340	10.12	Apr. 20	Unknown	*4,260	*a12.37
Mar. 6	Unknown	3,500	a11.60				

a From high-water mark.

Minimum daily discharge, 0.50 ft³/s, Oct. 9-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	e20	50	234	e200	e500	e340	e560	e180	34	24	2.9
2	2.1	e14	46	356	e230	e410	e285	e410	e190	30	24	2.3
3	1.8	e12	179	459	e300	e375	e250	e365	e255	31	15	2.3
4	1.5	e12	316	517	e375	e520	e230	e330	e395	66	10	2.1
5	1.2	e15	348	448	e455	e795	e290	e560	e760	68	13	1.9
6	.85	17	252	320	e640	e890	e390	e850	e870	52	53	4.5
7	.61	30	139	263	e720	e610	e440	e1050	e640	e45	35	19
8	e.55	48	93	229	e600	e390	e350	e1190	e395	e37	23	17
9	e.50	68	81	201	e490	e300	e285	e930	e265	e33	17	16
10	e.50	60	96	192	e425	e250	e240	e560	e180	e30	13	14
11	e.50	60	125	214	e350	e305	e210	e320	e160	e26	11	18
12	e.50	75	256	200	e315	e360	e190	e290	143	e35	8.8	41
13	2.1	76	335	e185	e270	e295	e180	e255	150	e46	6.4	82
14	12	65	302	e169	e240	e250	e160	e230	164	e60	5.2	128
15	e92	56	188	e150	e228	e220	e155	e238	163	e51	4.3	231
16	e72	44	130	e140	e220	e200	e350	e240	138	e43	4.3	192
17	e20	35	103	e125	e212	e218	e740	e210	116	e38	4.5	98
18	9.6	28	94	e110	e220	e205	e1200	e198	97	e30	4.7	54
19	7.6	23	96	e150	e224	e188	e1880	e186	81	e25	5.3	34
20	6.0	22	90	e300	e208	e170	e2300	e175	71	e22	5.6	33
21	5.8	47	86	e570	e200	e165	e1700	e200	129	e18	6.1	65
22	6.4	63	72	e630	e190	e160	e1200	e245	129	e14	5.8	82
23	6.5	92	59	e515	e230	e158	e810	e217	96	12	6.2	102
24	6.9	58	146	e430	e300	e155	e600	e180	95	8.7	5.9	72
25	8.1	43	708	e325	e480	e152	e510	e170	90	8.1	5.9	51
26	16	39	1710	e290	e635	e151	e480	e270	78	7.1	5.3	38
27	e39	57	2140	e260	e690	e157	e570	e500	70	6.9	4.9	24
28	e36	77	1190	e240	e600	e185	e880	e560	58	6.2	4.4	18
29	e35	85	569	e230	---	e210	e970	e490	47	6.1	4.5	14
30	e35	69	335	e220	---	e200	e770	e350	39	5.2	3.7	17
31	e27	---	267	e210	---	e262	---	e230	---	7.0	3.2	---
TOTAL	455.61	1410	10601	8882	10247	9406	18955	12559	6244	901.3	343.0	1476.0
MEAN	14.7	47.0	342	287	366	303	632	405	208	29.1	11.1	49.2
MAX	92	92	2140	630	720	890	2300	1190	870	68	53	231
MIN	.50	12	46	110	190	151	155	170	39	5.2	3.2	1.9
CFSM	.06	.18	1.33	1.12	1.42	1.18	2.46	1.58	.81	.11	.04	.19
IN.	.07	.20	1.53	1.29	1.48	1.36	2.74	1.82	.90	.13	.05	.21

CAL YR 1986 TOTAL 47782.11 MEAN 131 MAX 2140 MIN .50 CFSM .51 IN. 6.92
WTR YR 1987 TOTAL 81479.91 MEAN 223 MAX 2300 MIN .50 CFSM .87 IN. 11.79

e Estimated.

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1941 to September 1987 (discontinued).

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 12.43 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation). Prior to Oct. 14, 1942, nonrecording gage, and Oct. 14, 1942, to Aug. 8, 1974, water-stage recorder at site 80 ft upstream at same datum.

REMARKS.--Records good except for period of no gage-height record, Sept. 8-30, which is poor. Diurnal fluctuation at times during low flow caused by gristmill on Po River.

AVERAGE DISCHARGE.--46 years, 591 ft³/s, 13.35 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft³/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 ft³/s, Sept. 14, 1966, gage height, 0.94 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,570 ft³/s, Apr. 21, gage height, 15.97 ft; minimum, 15 ft³/s, Oct. 9, gage height, 1.76 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	80	227	1200	e590	1420	663	2060	519	171	49	34
2	28	75	222	829	e725	1460	760	1600	534	150	55	32
3	26	75	326	955	833	1430	719	1010	683	177	90	29
4	23	70	459	1040	952	1440	663	972	975	215	91	26
5	21	64	584	1070	1070	1570	704	1420	1340	298	73	25
6	20	78	592	1000	1160	1780	813	1860	1660	332	76	29
7	18	96	520	828	1230	1790	869	2020	1700	278	96	54
8	17	131	396	632	1300	1380	876	2270	1610	240	151	e79
9	16	147	332	539	1320	886	807	2350	1280	213	121	e66
10	24	154	401	495	1230	779	698	2020	652	181	94	e56
11	22	164	478	514	1110	780	615	1390	475	152	79	e47
12	18	198	597	526	1020	799	551	817	401	128	65	e150
13	17	215	674	499	934	769	505	794	361	188	55	e280
14	56	219	703	456	823	685	468	709	418	264	49	e530
15	174	197	640	419	754	610	443	659	583	286	43	e580
16	220	184	525	400	707	576	616	628	554	219	40	e560
17	197	175	423	391	662	570	1550	628	403	176	39	e475
18	141	158	368	399	622	569	2350	593	333	148	36	e300
19	100	156	338	545	604	544	2720	528	285	124	35	e210
20	81	150	323	854	589	520	3680	493	256	104	37	e200
21	66	162	304	996	566	495	4490	535	300	92	38	e260
22	56	176	282	1070	543	476	4090	548	307	82	38	e290
23	52	195	265	1170	728	456	3020	531	336	74	45	e320
24	47	196	325	1230	1020	438	2140	492	333	70	48	e295
25	45	203	979	1180	1160	421	1670	471	287	65	55	e235
26	52	196	1560	879	1260	407	1660	659	251	62	53	e190
27	85	224	1830	753	1340	395	1820	892	274	64	50	e158
28	94	252	1980	e700	1380	414	1920	995	258	63	46	e130
29	105	266	2280	e660	---	461	2100	1080	236	62	45	e120
30	101	248	2440	e640	---	477	2230	1150	199	56	40	e135
31	86	---	2110	e625	---	529	---	924	---	51	37	---
TOTAL	2037	4904	23483	23494	26232	25326	46210	33098	17803	4785	1869	5895
MEAN	65.7	163	758	758	937	817	1540	1068	593	154	60.3	196
MAX	220	266	2440	1230	1380	1790	4490	2350	1700	332	151	580
MIN	16	64	222	391	543	395	443	471	199	51	35	25
CFSM	.11	.27	1.26	1.26	1.56	1.36	2.56	1.78	.99	.26	.10	.33
IN.	.13	.30	1.45	1.45	1.62	1.57	2.86	2.05	1.10	.30	.12	.36

CAL YR 1986 TOTAL 122367 MEAN 335 MAX 2440 MIN 16 CFSM .56 IN. 7.57
WTR YR 1987 TOTAL 215136 MEAN 589 MAX 4490 MIN 16 CFSM .98 IN. 13.32

e Estimated.

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 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV												
13...	1030	212	58	60	6.30	7.00	10.0	760	7.8	9.3	83	140
JAN												
21...	1200	1000	52	55	6.00	6.46	4.0	755	8.6	12.0	92	98
MAR												
24...	1200	438	52	51	6.30	6.86	10.0	754	3.5	10.5	94	15
MAY												
18...	0845	604	61	52	6.80	7.40	21.0	767	3.6	7.6	85	51
JUL												
08...	1000	244	46	48	6.30	7.20	26.0	755	3.2	6.3	78	170
AUG												
20...	1100	36	50	55	6.20	7.40	24.0	756	3.5	6.1	73	40

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV												
13...	K6	12	2	2.6	1.4	5.1	2.7	9.0	10	10	12	14
JAN												
21...	170	12	8	2.6	1.4	3.4	1.4	5.0	4	4.0	5.0	10
MAR												
24...	K2100	13	7	2.7	1.4	3.7	1.1	8.0	6	6.0	7.0	9.2
MAY												
18...	35	14	5	2.9	1.6	3.2	1.1	11	10	9.0	10	12
JUL												
03...	130	12	4	2.5	1.5	3.4	1.3	10	9	8.0	10	17
AUG												
20...	72	14	4	2.8	1.6	3.7	1.9	11	10	10	12	11

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, 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, AMMONIA TOTAL (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)
NOV												
13...	8.2	<0.10	8.2	48	49	<0.010	<0.100	<0.010	<0.010	0.90	0.040	0.020
JAN												
21...	5.9	<0.10	8.1	43	35	<0.010	0.180	0.020	0.060	0.20	0.080	0.030
MAR												
24...	5.6	<0.10	5.5	23	33	<0.010	0.130	0.010	<0.010	0.30	0.030	0.010
MAY												
18...	4.5	<0.10	6.9	49	39	<0.010	0.170	0.060	0.050	0.70	0.050	0.030
JUL												
08...	4.6	<0.10	7.3	44	43	<0.010	0.180	0.040	0.020	0.70	0.070	0.020
AUG												
20...	4.9	0.10	6.4	40	40	<0.010	0.120	0.020	0.020	0.60	0.080	0.020

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV 13...	0.010	50	<1	24	<0.5	<1	<1	<3	3	730	5	<4
JAN 21...	0.020	--	--	--	--	--	--	--	--	--	--	--
MAR 24...	<0.010	50	<1	27	<0.5	<1	<1	<3	<1	370	<5	<4
MAY 18...	<0.010	50	<1	30	1	<1	<1	<3	<1	1100	17	5
JUL 08...	<0.010	--	--	--	--	--	--	--	--	--	--	--
AUG 20...	<0.010	20	<1	27	<0.5	<1	<1	<3	<1	1000	<5	<4

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 13...	22	<0.1	<10	3	<1	<1	19	<6	31	11	80
JAN 21...	--	--	--	--	--	--	--	--	--	20	86
MAR 24...	58	<0.1	<10	2	<1	<1	16	<6	15	8	90
MAY 18...	75	<0.1	<10	<1	<1	<1	24	<6	10	17	88
JUL 08...	--	--	--	--	--	--	--	--	--	10	85
AUG 20...	130	<0.1	<10	<1	<1	<1	26	<6	6	5	84

01677000 WARE CREEK NEAR TOANO, VA

LOCATION.--Lat 37°26'17", long 76°47'12", New Kent County, Hydrologic Unit 02080107, on left bank at upstream side of bridge on State Highway 600, 0.8 mi upstream from France Swamp, and 4.9 mi north of Toano.

DRAINAGE AREA.--6.29 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to October 1981, March 1982 to current year.

REVISED RECORDS.--WDR VA-83-1: 1981.

GAGE.--Water-stage recorder. Elevation of gage is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good.

AVERAGE DISCHARGE.--7 years, 6.54 ft³/s, 14.12 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 260 ft³/s, Sept. 27, 1985, gage height, 2.60 ft, from flood-mark, from rating curve extended above 120 ft³/s; no flow at times September 1980 and July to September 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 71 ft³/s, Jan. 19, gage height, 1.59 ft; minimum, 0.93 ft³/s, Oct. 7, gage height, 0.63 ft; gage height of 0.44 ft, May 10, result of diversion for culvert reconstruction.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	3.7	3.1	7.0	9.8	17	9.9	6.8	20	3.6	2.0	e3.6
2	2.5	4.2	7.2	19	9.9	14	7.4	6.8	15	4.3	2.0	e5.9
3	2.3	4.7	13	9.8	11	9.6	6.1	8.3	11	9.2	2.1	e4.3
4	2.4	4.8	7.3	6.3	10	8.0	10	37	32	8.1	2.2	2.9
5	2.2	5.3	4.3	5.4	8.9	7.5	11	15	32	21	2.7	2.6
6	2.2	6.8	3.6	5.0	7.9	7.4	8.7	9.0	14	15	3.1	3.1
7	1.6	6.6	3.6	5.0	7.6	7.4	7.5	7.0	8.3	7.8	3.3	3.5
8	1.4	6.5	3.6	5.1	7.8	8.2	6.8	6.1	6.9	5.9	3.3	6.0
9	1.6	6.3	4.2	4.5	7.9	10	6.2	5.3	6.2	4.8	3.3	9.2
10	1.9	6.1	5.0	5.4	6.9	16	6.3	e4.9	6.1	4.1	2.9	5.5
11	2.0	6.4	7.3	8.0	6.6	12	6.2	e5.2	5.8	3.9	2.4	4.4
12	2.0	8.6	11	6.8	7.0	9.3	6.5	6.2	5.9	4.2	2.2	4.6
13	2.4	5.6	6.3	5.6	7.5	8.2	6.7	6.3	8.6	9.3	2.2	22
14	11	3.8	4.1	4.7	6.7	7.5	6.6	6.7	7.8	6.2	2.2	10
15	12	3.6	3.7	4.5	6.5	7.4	6.7	7.4	6.7	4.0	2.2	5.2
16	5.0	4.2	3.7	4.4	6.1	8.1	26	7.3	6.0	3.5	2.5	3.6
17	3.0	4.1	3.7	4.7	7.3	8.9	26	6.6	11	3.9	2.7	3.0
18	2.6	3.8	4.3	13	9.3	7.7	11	6.5	6.8	4.1	2.6	3.0
19	2.4	4.1	4.8	43	9.0	7.4	8.8	6.1	4.9	3.6	2.7	2.8
20	2.5	4.1	4.6	27	8.0	7.2	7.7	10	4.5	3.3	3.0	3.8
21	2.5	6.8	4.7	12	8.0	7.0	7.4	9.6	4.7	3.0	3.0	5.2
22	2.7	5.4	3.7	22	8.7	6.9	6.6	7.7	5.7	2.7	3.0	4.5
23	2.8	4.1	3.5	24	27	7.1	6.0	7.1	5.6	2.5	2.9	3.5
24	2.8	4.0	18	12	15	7.0	6.4	6.8	6.0	2.5	2.7	2.9
25	3.1	3.8	26	10	9.8	6.7	40	18	5.9	2.7	2.5	2.6
26	9.2	3.8	9.5	8.3	8.0	6.5	19	21	5.2	2.5	2.5	2.5
27	12	4.5	6.4	9.7	7.5	6.3	11	11	7.8	2.5	2.7	2.5
28	6.0	5.7	5.4	8.9	7.8	8.8	9.3	7.8	6.5	2.4	2.5	2.5
29	4.0	4.2	4.9	7.7	---	9.5	8.7	6.7	4.6	2.2	2.8	2.5
30	3.7	3.4	4.9	8.4	---	8.3	7.5	6.2	3.8	2.1	2.7	4.3
31	3.5	---	4.9	10	---	11	---	6.3	---	2.0	2.6	---
TOTAL	117.9	149.0	200.3	327.2	253.5	273.9	314.0	282.7	275.3	156.9	81.5	142.0
MEAN	3.80	4.97	6.46	10.6	9.05	8.84	10.5	9.12	9.18	5.06	2.63	4.73
MAX	12	8.6	26	43	27	17	40	37	32	21	3.3	22
MIN	1.4	3.4	3.1	4.4	6.1	6.3	6.0	4.9	3.8	2.0	2.0	2.5
CFSM	.61	.80	1.04	1.71	1.46	1.43	1.69	1.47	1.48	.82	.42	.76
IN.	.71	.89	1.20	1.96	1.52	1.64	1.88	1.70	1.65	.94	.49	.85

CAL YR 1986 TOTAL 2187.44 MEAN 5.99 MAX 34 MIN .09 CFSM .97 IN. 13.12
WTR YR 1987 TOTAL 2574.20 MEAN 7.05 MAX 43 MIN 1.4 CFSM 1.14 IN. 15.44

e Estimated.

01677000 WARE CREEK NEAR TOANO, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979-81, October 1985 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)
OCT									
06...	1315	2.2	132	6.80	24.0	767	8.3	98	<0.010
DEC									
10...	1130	4.9	110	6.80	8.5	762	10.3	88	<0.010
JAN									
13...	0930	5.6	90	6.10	3.0	758	11.9	89	<0.010
MAR									
11...	1020	12	98	6.90	6.0	778	11.8	93	0.010
APR									
17...	1100	24	91	7.10	13.5	748	8.0	78	<0.010
JUN									
03...	1230	8.3	92	7.40	26.0	768	8.0	98	<0.010
JUL									
10...	1200	4.2	125	7.20	31.0	767	10.0	134	<0.010
SEP									
03...	1415	4.6	119	7.40	25.0	758	9.1	111	<0.010

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT								
06...	<0.100	0.030	1.9	0.040	<0.010	810	140	9.5
DEC								
10...	0.210	0.040	0.60	0.020	<0.010	180	20	5.3
JAN								
13...	0.260	0.060	0.40	<0.010	0.020	560	30	6.7
MAR								
11...	0.170	0.030	0.50	0.030	<0.010	390	20	5.0
APR								
17...	0.260	<0.010	1.4	0.040	0.010	370	60	6.4
JUN								
03...	<0.100	0.010	1.0	0.070	<0.010	2000	20	9.7
JUL								
10...	<0.100	0.040	0.80	0.060	<0.010	690	<10	8.0
SEP								
03...	<0.100	0.050	1.0	0.030	<0.010	320	<10	10

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 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,639.20 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--13 years, 174 ft³/s, 14.96 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft³/s, Nov. 4, 1985, gage height, 22.25 ft, from flood-mark, from rating curve extended above 1,300 ft³/s on basis of slope-area measurements at gage heights 8.88 ft, 11.40 ft, 13.88 ft, and 22.25 ft; minimum, 17 ft³/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 ft³/s, and flood of Dec. 26, 1973, reached a stage of 13.88 ft, discharge, 7,560 ft³/s, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2300	2,490	8.81	Apr. 17	0030	*4,380	*11.02
Mar. 1	2130	2,500	8.83	Apr. 25	0530	1,920	8.00

Minimum discharge, 20 ft³/s, Aug. 19-22, Sept. 2, 3, 4; minimum gage height, 2.51 ft, Aug. 20, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	25	78	150	147	1530	744	286	114	43	32	22
2	26	41	118	139	164	1590	499	253	303	43	30	21
3	24	41	294	122	243	882	397	227	163	47	30	21
4	24	34	222	108	241	617	351	365	151	48	29	20
5	25	36	168	99	225	458	316	331	125	64	28	23
6	26	60	133	92	206	374	302	285	107	59	29	40
7	24	59	110	90	205	349	480	258	95	49	28	90
8	23	56	97	92	215	409	782	231	87	44	28	395
9	23	64	104	85	201	537	641	206	85	43	28	174
10	23	68	181	83	172	618	494	188	85	42	27	127
11	23	63	209	85	156	443	398	171	75	44	26	172
12	22	90	265	80	166	348	335	162	72	53	23	156
13	25	77	204	75	241	291	286	160	74	52	23	108
14	32	62	160	72	216	248	239	144	69	49	22	85
15	30	55	136	80	199	222	1240	134	64	47	22	71
16	26	51	117	85	184	201	4020	130	66	41	22	62
17	25	47	106	82	177	181	3390	118	82	39	22	57
18	24	44	111	92	166	164	1660	112	66	37	22	58
19	23	46	109	605	144	155	985	123	59	35	21	55
20	23	51	96	765	132	147	689	149	57	34	20	139
21	23	70	87	446	131	138	524	125	59	33	20	105
22	23	77	79	352	136	132	418	113	57	32	23	81
23	23	68	74	286	154	126	347	113	55	34	42	70
24	23	63	915	219	142	121	592	109	52	43	30	62
25	25	58	1310	203	141	124	1540	116	51	37	24	56
26	31	108	596	182	157	131	887	113	52	33	24	51
27	30	178	391	174	161	124	623	116	56	33	24	47
28	27	136	297	166	239	135	500	125	48	32	24	44
29	25	108	237	151	---	129	401	116	45	30	25	42
30	25	90	200	136	---	189	338	104	44	30	23	45
31	25	---	171	165	---	838	---	95	---	30	22	---
TOTAL	776	2026	7375	5561	5061	11951	24418	5278	2518	1280	793	2499
MEAN	25.0	67.5	238	179	181	386	814	170	83.9	41.3	25.6	83.3
MAX	32	178	1310	765	243	1590	4020	365	303	64	42	395
MIN	22	25	74	72	131	121	239	95	44	30	20	20
CFSM	.16	.43	1.51	1.14	1.14	2.44	5.15	1.08	.53	.26	.16	.53
IN.	.18	.48	1.74	1.31	1.19	2.81	5.75	1.24	.59	.30	.19	.59

CAL YR 1986 TOTAL 42507 MEAN 116 MAX 2850 MIN 22 CFSM .74 IN. 10.01
WTR YR 1987 TOTAL 69536 MEAN 191 MAX 4020 MIN 20 CFSM 1.21 IN. 16.37

02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: March 1978 to September 1981, October 1982 to current year.

INSTRUMENTATION.--Water-temperature recorder March 1978 to September 1981, and since October 1982.

REMARKS.--Some record in prior years fragmentary due to instrument malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum recorded (water years 1978-81, 1983-87), 29.5°C, July 21, 1980, July 22, 1987; minimum recorded (water years 1978-81, 1984-87), 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 29.5°C, July 22; minimum, 0.0°C on many days during winter period.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	24.0	20.5	22.0	10.5	9.5	10.0	7.0	5.0	6.0	3.5	2.5	3.0
2	23.5	21.0	22.0	12.5	10.5	11.5	7.0	5.0	5.5	3.5	2.5	3.0
3	22.5	19.5	21.0	12.0	11.0	11.5	7.0	6.0	7.0	2.5	2.0	2.5
4	21.5	20.0	20.5	12.5	10.5	11.5	6.0	4.0	5.0	3.0	1.0	2.0
5	22.0	18.5	20.0	12.0	11.0	11.5	4.5	3.0	3.5	2.0	.0	1.0
6	18.5	15.5	17.0	12.5	11.0	11.5	4.0	1.0	2.5	2.0	.0	1.0
7	16.5	13.0	14.5	12.0	11.5	11.5	3.5	1.0	2.5	2.5	1.0	1.5
8	16.5	12.0	14.5	13.5	11.5	12.5	5.0	3.5	4.0	3.5	2.0	2.5
9	17.0	14.0	15.5	13.5	11.5	13.0	7.0	5.0	6.0	3.5	1.5	2.5
10	16.0	13.5	15.0	11.0	9.0	10.0	8.0	7.0	7.5	4.0	2.5	3.5
11	14.5	11.5	13.0	9.5	8.5	9.0	7.0	6.5	6.5	3.5	2.0	3.0
12	14.5	13.0	13.5	9.0	8.0	8.5	6.0	5.0	6.0	3.5	1.0	2.0
13	16.0	14.0	15.0	8.0	5.0	6.5	4.5	2.0	3.5	3.5	1.0	2.5
14	16.5	14.0	15.5	4.5	2.0	3.5	2.5	.5	1.5	3.0	1.0	2.5
15	14.0	11.5	13.0	4.5	2.0	3.0	3.0	.0	1.5	5.0	3.5	4.5
16	13.0	10.0	11.5	5.5	4.5	5.0	3.5	1.0	2.0	6.0	5.0	5.5
17	12.5	10.5	11.5	7.5	5.5	6.5	4.5	3.0	3.5	5.5	4.5	5.0
18	12.5	9.5	11.0	7.0	6.0	6.5	5.0	4.5	4.5	4.5	4.0	4.5
19	12.0	8.0	10.0	7.5	6.0	6.5	5.0	3.5	4.0	5.5	4.5	5.0
20	12.0	7.5	10.0	5.5	4.5	5.0	4.5	2.5	3.5	4.5	4.0	4.0
21	11.5	7.5	9.5	4.5	4.0	4.5	3.0	1.5	2.5	4.5	3.5	4.0
22	13.0	9.0	11.0	5.5	3.0	4.5	1.5	.0	1.0	4.0	1.5	2.5
23	13.0	10.5	11.5	5.5	3.5	4.5	.5	.0	.5	1.5	.0	1.0
24	14.0	11.0	12.5	7.0	5.5	6.0	4.0	1.0	3.0	.0	.0	.0
25	13.0	12.0	12.5	7.0	5.5	6.5	6.0	4.0	5.0	.0	.0	.0
26	14.0	12.0	13.0	8.5	7.0	8.0	6.0	5.0	5.5	.0	.0	.0
27	15.0	13.0	13.5	10.0	8.5	9.0	5.0	4.5	4.5	.0	.0	.0
28	14.5	12.5	13.0	9.0	7.5	8.0	5.5	4.0	5.0	.0	.0	.0
29	13.5	10.5	12.0	9.0	7.0	8.0	4.5	3.5	4.0	.0	.0	.0
30	13.5	10.5	12.0	8.0	5.5	7.0	4.0	3.0	3.5	.5	.0	.0
31	12.5	9.5	11.0	---	---	---	4.5	3.0	3.5	1.0	.0	.5
MONTH	24.0	7.5	14.0	13.5	2.0	8.0	8.0	.0	4.0	6.0	.0	2.0

02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.5	.0	1.0	4.5	3.0	4.0	7.0	4.0	5.5	15.5	11.0	13.0
2	4.0	2.0	3.0	5.5	3.5	4.5	6.5	5.5	6.0	16.0	12.0	14.0
3	3.5	2.0	3.0	6.0	4.0	5.0	6.0	3.0	4.5	17.0	13.0	15.0
4	5.0	3.0	4.0	5.0	4.0	4.5	3.5	2.5	3.0	15.0	12.0	13.5
5	4.5	2.0	3.0	5.5	3.0	4.0	5.5	3.0	4.0	15.0	10.0	12.5
6	4.5	2.0	3.0	7.5	4.0	5.5	5.5	4.0	5.0	16.0	11.5	13.5
7	5.5	2.5	4.0	8.5	5.0	6.5	8.5	5.0	7.0	17.0	11.5	14.0
8	4.5	2.5	3.5	7.5	5.5	6.5	10.0	7.5	8.5	17.0	13.0	14.5
9	2.5	.5	1.5	8.0	7.0	7.5	10.0	7.0	8.5	17.0	11.0	14.0
10	2.5	.0	1.0	7.5	4.5	6.0	11.0	7.0	9.0	18.5	12.0	15.0
11	3.5	.0	1.5	5.5	3.0	4.0	10.0	8.5	9.0	19.0	13.5	16.5
12	4.5	2.5	3.5	6.0	4.0	4.5	10.0	8.0	8.5	18.0	14.5	16.5
13	5.5	3.0	4.0	6.5	3.5	5.0	13.5	8.0	10.5	16.5	15.0	15.5
14	4.0	2.5	3.5	6.5	3.0	4.5	12.5	10.5	11.5	19.0	14.0	16.5
15	6.0	3.5	4.5	6.0	4.0	5.0	11.0	9.0	10.0	19.5	15.5	17.5
16	5.0	.5	3.0	5.0	3.5	4.5	8.5	8.0	8.0	20.0	14.5	17.5
17	1.0	.0	.5	7.5	2.5	5.0	9.0	7.5	8.5	21.0	15.0	18.5
18	3.0	.5	1.5	7.0	3.0	5.5	11.0	8.5	9.5	21.5	16.5	19.0
19	3.5	.0	1.5	7.0	4.5	5.5	12.5	9.0	11.0	20.5	18.0	19.0
20	3.5	.0	2.0	9.5	5.0	7.0	14.0	10.0	12.0	19.5	17.5	18.5
21	4.0	2.0	3.5	9.5	4.5	7.5	14.5	11.0	13.0	17.5	16.0	17.0
22	4.0	1.5	3.0	10.5	5.0	8.0	15.5	12.5	14.0	19.5	15.5	17.5
23	4.0	.5	2.0	11.0	5.5	8.5	14.5	12.5	13.5	21.0	17.5	19.0
24	4.0	.5	2.5	11.0	6.0	8.5	12.5	11.5	12.5	21.5	19.0	20.5
25	5.5	1.5	3.5	9.5	8.0	8.5	11.5	9.0	10.0	21.5	19.0	20.0
26	5.0	1.5	3.5	12.0	7.0	9.5	12.0	8.0	10.0	20.5	18.5	19.5
27	4.0	2.5	3.0	10.0	7.5	9.0	11.5	9.0	10.5	21.5	18.5	20.0
28	3.0	2.0	2.5	13.0	9.0	11.0	11.0	9.5	10.5	23.5	19.0	21.0
29	---	---	---	14.0	9.5	12.0	13.0	8.0	10.5	24.0	19.5	21.5
30	---	---	---	12.5	10.5	11.0	16.0	12.5	14.0	24.5	20.0	22.0
31	---	---	---	10.5	5.5	8.0	---	---	---	23.5	20.5	22.0
MONTH	6.0	.0	2.5	14.0	2.5	6.5	16.0	2.5	9.5	24.5	10.0	17.0
		JUNE			JULY			AUGUST			SEPTEMBER	
1	24.0	20.0	22.0	25.0	22.0	23.5	26.0	22.0	24.0	23.5	18.5	20.5
2	21.0	17.5	19.5	25.5	22.5	24.0	25.5	22.5	24.0	22.0	15.5	18.5
3	21.5	18.5	20.0	25.0	22.5	23.5	28.0	23.0	25.0	22.0	16.0	19.0
4	20.5	18.5	19.5	24.5	22.0	23.0	28.0	23.5	25.5	20.5	17.0	18.5
5	21.5	16.5	19.0	26.0	22.0	24.0	27.0	23.5	25.0	18.5	17.0	17.5
6	21.5	16.5	19.0	27.0	23.0	25.0	27.5	22.5	24.5	19.0	17.0	18.0
7	22.5	17.5	20.0	27.0	23.5	25.5	25.0	22.5	23.5	18.5	17.5	18.5
8	23.5	18.5	21.0	27.0	23.0	25.0	26.5	22.5	24.0	19.5	17.5	18.5
9	22.0	20.0	21.0	28.0	23.5	26.0	26.5	22.0	24.5	21.0	18.5	19.5
10	22.5	17.5	20.0	27.5	24.0	25.5	26.0	23.5	24.5	20.0	18.5	19.5
11	22.0	18.0	20.0	27.5	23.5	25.5	26.5	22.0	24.0	19.5	17.5	18.5
12	21.0	19.5	20.5	26.0	23.0	24.5	26.5	21.5	23.5	19.5	17.5	18.5
13	23.0	19.0	21.0	25.0	22.5	23.5	26.0	20.5	23.0	21.0	18.5	19.5
14	25.5	20.5	23.0	25.5	22.5	23.5	26.0	20.0	22.5	22.0	18.5	20.0
15	25.5	21.5	23.5	24.0	20.0	22.0	24.0	20.5	22.5	21.5	18.5	20.0
16	25.0	22.5	23.5	23.0	19.5	21.5	26.5	22.0	24.0	21.5	19.0	20.5
17	25.0	20.5	22.5	24.0	20.0	22.0	27.5	22.5	25.0	22.5	20.0	21.0
18	25.5	21.5	23.5	26.0	20.5	23.0	28.5	23.5	25.5	22.0	20.0	21.0
19	26.5	22.0	24.0	27.0	21.5	24.0	26.5	22.5	24.5	21.0	19.5	20.0
20	27.0	23.0	24.5	28.0	22.5	25.0	26.5	21.0	23.0	20.5	18.0	19.0
21	26.0	23.5	24.5	29.0	23.0	25.5	25.0	19.5	22.0	18.5	17.0	18.0
22	25.5	22.5	24.0	29.5	24.0	26.0	24.5	21.5	22.5	17.5	16.5	17.0
23	25.0	22.5	24.0	29.0	23.5	26.0	25.0	21.5	23.0	17.0	15.5	16.0
24	24.5	22.0	23.0	28.5	24.0	26.5	24.5	19.0	21.5	18.0	14.5	16.0
25	23.5	21.5	22.5	28.5	23.5	26.0	20.5	18.5	19.5	18.0	15.0	16.5
26	23.5	21.0	22.0	27.0	23.5	25.0	22.5	18.0	20.0	17.5	13.5	15.5
27	24.5	20.5	22.0	27.0	22.5	24.5	25.0	20.5	22.5	17.5	13.5	15.5
28	24.0	18.5	21.0	28.0	23.0	25.0	24.5	21.5	23.0	18.0	14.5	16.5
29	23.5	18.5	21.0	26.5	22.0	24.0	23.0	21.0	22.0	19.0	15.5	17.5
30	25.5	20.5	23.0	25.5	21.5	23.5	22.0	19.0	20.5	18.5	16.0	17.5
31	---	---	---	24.5	22.0	23.5	22.5	18.5	20.5	---	---	---
MONTH	27.0	16.5	22.0	29.5	19.5	24.5	28.5	18.0	23.0	23.5	13.5	18.5
YEAR	29.5	.0	12.5									

02011460 BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°14'43", long 79°46'08", Bath County, Hydrologic Unit 02080201, on right bank 900 ft upstream from bridge on State Highway 600, 0.8 mi upstream from Gap Run, and 4.8 mi northeast of Sunrise.

DRAINAGE AREA.--60.1 mi².

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Records good except those for period with ice effect, Jan. 27, 28, and period of doubtful or no gage-height record, Apr. 15-17, which are fair. Virginia Power gage-height transmitter at station, receiver at Back Creek Dam.

AVERAGE DISCHARGE.--13 years, 93.8 ft³/s, 21.19 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s, Nov. 4, 1985, gage height, 10.01 ft, from rating curve extended above 3,800 ft³/s; minimum, 1.5 ft³/s, Sept. 13, 14, 1980; minimum gage height, 0.07 ft, July 21, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2045	1,610	4.61	Apr. 17	Unknown	*1,920	*4.88
Jan. 19	1820	1,060	4.02	Apr. 25	0205	1,370	4.37
Mar. 1	2015	1,160	4.14				

Minimum discharge, 2.9 ft³/s, Aug. 21, 22, gage height, 0.57 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	6.9	61	68	66	716	348	106	96	11	5.0	3.9
2	7.2	15	93	63	73	635	215	93	159	11	5.0	3.6
3	6.6	19	293	55	112	315	166	84	113	12	8.0	3.4
4	6.0	16	200	45	110	209	148	138	86	12	8.7	3.2
5	7.5	20	139	38	118	165	126	169	67	19	4.1	3.8
6	8.1	72	104	35	120	140	116	138	52	16	4.0	10
7	7.3	56	83	38	120	155	159	118	41	12	4.0	24
8	6.7	63	70	37	130	212	382	100	34	11	4.2	156
9	6.3	68	83	33	111	323	368	86	29	12	4.4	65
10	6.0	76	171	32	93	323	226	76	28	10	4.2	40
11	5.6	96	166	34	81	181	172	68	24	9.7	4.0	39
12	5.5	140	184	34	97	137	142	64	22	14	3.8	56
13	5.6	96	154	32	148	109	116	60	24	15	3.7	46
14	7.4	64	117	30	135	88	97	52	23	22	3.5	32
15	8.1	50	100	37	117	76	e700	55	19	15	3.4	21
16	8.1	42	81	48	104	75	e1500	55	21	12	3.4	16
17	7.6	35	70	55	97	73	e1300	48	31	9.7	3.4	13
18	7.3	30	65	62	87	68	552	45	21	8.5	3.3	12
19	6.7	33	61	465	72	65	294	49	17	7.8	3.1	12
20	6.3	37	53	462	65	65	207	101	16	7.0	3.1	28
21	6.1	70	47	228	68	67	170	85	19	6.6	2.9	35
22	5.9	81	41	167	70	67	147	72	18	6.2	3.2	25
23	5.8	71	39	132	72	65	126	63	16	6.0	7.1	19
24	5.8	62	549	117	66	65	345	54	15	6.5	6.0	15
25	5.9	53	632	90	70	69	782	58	13	6.5	5.1	12
26	7.0	103	262	82	94	75	336	62	14	6.1	4.8	11
27	8.1	198	172	e72	95	72	219	137	13	5.8	4.6	8.8
28	8.1	139	134	e66	104	72	176	119	12	5.4	4.4	8.1
29	7.6	103	109	59	---	68	147	108	11	5.0	4.2	7.8
30	7.3	78	94	58	---	90	128	137	11	4.9	4.2	15
31	6.9	---	80	65	---	431	---	98	---	4.8	4.0	---
TOTAL	211.9	1992.9	4507	2839	2695	5271	9910	2698	1065	310.5	136.8	744.6
MEAN	6.84	66.4	145	91.6	96.2	170	330	87.0	35.5	10.0	4.41	24.8
MAX	8.1	198	632	465	148	716	1500	169	159	22	8.7	156
MIN	5.5	6.9	39	30	65	65	97	45	11	4.8	2.9	3.2
CFSM	.11	1.11	2.42	1.52	1.60	2.83	5.50	1.45	.59	.17	.07	.41
IN.	.13	1.23	2.79	1.76	1.67	3.26	6.13	1.67	.66	.19	.08	.46

CAL YR 1986 TOTAL 23893.3 MEAN 65.5 MAX 1460 MIN 5.3 CFSM 1.09 IN. 14.79
WTR YR 1987 TOTAL 32381.7 MEAN 88.7 MAX 1500 MIN 2.9 CFSM 1.48 IN. 20.04

e Estimated.

02011460 BACK CREEK NEAR SUNRISE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1984 to current year.

INSTRUMENTATION.--Water-temperature recorder since October 1984.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 27.0°C, July 22, 1987; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 27.0°C, July 22; minimum, 0.0°C on many days during winter period.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	22.0	19.0	20.0	10.5	9.0	9.5	6.5	5.0	5.5	3.0	2.5	3.0
2	22.0	18.5	20.0	12.5	10.5	11.5	6.5	5.0	5.5	3.0	2.0	2.5
3	20.5	17.5	19.0	11.5	11.0	11.5	7.0	6.0	6.5	2.5	1.5	2.0
4	20.0	18.5	19.5	12.0	10.5	11.5	6.0	4.0	5.0	3.5	1.0	2.0
5	20.0	17.0	18.5	11.5	10.5	11.0	5.0	3.5	4.0	3.0	.0	1.5
6	16.5	14.0	15.5	12.0	10.5	11.0	4.5	2.0	3.0	2.5	.0	1.5
7	15.5	11.5	13.0	11.0	11.0	11.0	5.0	2.5	4.0	4.0	1.5	2.5
8	16.0	11.0	13.0	12.5	11.0	12.0	5.5	4.5	5.0	3.5	2.0	2.5
9	16.0	12.5	14.0	13.0	10.5	12.0	7.5	5.5	6.5	3.5	1.0	2.0
10	15.5	13.0	14.0	10.5	8.5	9.5	7.5	6.0	7.0	4.5	2.5	3.5
11	14.5	11.0	12.5	9.0	8.5	8.5	6.0	5.5	6.0	3.5	1.5	2.5
12	13.5	12.0	13.0	9.0	8.0	8.5	6.0	4.5	5.5	3.0	.0	1.5
13	15.5	13.5	14.5	8.0	4.5	6.5	4.0	2.5	3.5	3.5	.0	2.0
14	16.0	13.0	15.0	5.0	3.0	4.0	3.5	1.0	2.5	3.5	1.0	2.0
15	14.0	11.0	12.0	6.0	3.0	4.5	4.0	1.5	3.0	5.0	3.5	4.0
16	13.0	9.0	11.0	7.0	6.0	6.5	4.0	2.5	3.0	5.0	4.5	5.0
17	12.5	10.5	11.5	7.5	5.5	6.5	5.0	4.0	4.5	4.5	3.5	4.0
18	12.5	9.0	10.5	7.0	6.0	6.5	5.5	3.5	4.5	4.0	3.0	3.5
19	12.0	8.0	10.0	8.0	6.0	6.5	5.0	2.5	3.5	5.5	4.0	4.5
20	12.0	7.5	9.5	5.5	5.0	5.5	4.5	2.5	3.5	4.5	4.0	4.5
21	12.0	7.5	9.5	5.0	4.5	5.0	3.5	1.5	2.5	4.5	3.5	4.0
22	12.0	9.0	10.5	6.0	3.5	5.0	2.5	.0	1.0	4.0	1.0	2.0
23	12.5	9.5	11.0	6.5	4.0	5.5	2.0	.0	1.0	2.0	.0	1.0
24	13.0	10.5	12.0	8.0	6.5	7.0	5.0	2.0	3.5	1.0	.0	.0
25	12.0	11.5	12.0	7.5	5.5	6.5	6.5	5.0	5.5	1.5	.0	.5
26	13.5	11.5	12.5	8.5	7.5	8.0	6.0	4.5	5.0	1.5	.0	.5
27	13.5	12.5	13.0	9.5	7.5	8.5	5.0	3.5	4.5	.0	.0	.0
28	14.0	11.0	12.5	8.0	6.5	7.5	5.5	3.5	4.0	.0	.0	.0
29	13.0	9.0	11.0	8.5	6.5	7.5	4.5	2.5	3.5	2.0	.0	1.0
30	13.0	9.5	11.0	7.5	5.0	6.5	4.0	3.0	3.5	3.5	1.5	2.5
31	12.0	8.5	10.5	---	---	---	4.5	2.5	3.5	2.5	1.0	1.5
MONTH	22.0	7.5	13.5	13.0	3.0	8.0	7.5	.0	4.0	5.5	.0	2.0

02011460 BACK CREEK NEAR SUNRISE, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

02011470 BACK CREEK AT SUNRISE, VA

LOCATION.--Lat 38°11'25", long 79°48'43", Bath County, Hydrologic Unit 02080201, on left bank 75 ft upstream from bridge on State Highway 600 at Sunrise, 180 ft upstream from Beaver Run, 0.5 mi downstream from Back Creek Dam, and 7.6 mi northeast of Mountain Grove.

DRAINAGE AREA.--76.1 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder. Concrete control since Oct. 24, 1984. Datum of gage is 1,968.52 ft above National Geodetic Vertical Datum of 1929 (Virginia Power bench mark).

REMARKS.--No estimated daily discharges. Records good. Flow regulated since October 1984 by Back Creek Lake 0.5 mi upstream, amount unknown. Virginia Power gage-height transmitter at station, receiver at Back Creek Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,100 ft^3/s, Nov. 5, 1985, gage height, 11.37 ft, from rating curve extended above 960 ft^3/s on basis of release from Back Creek Lake at peak flow; minimum daily, 5.2 ft^3/s, Nov. 3, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,530 ft^3/s, Apr. 16, 17, gage height, 8.04 ft, from rating curve extended as explained above; minimum daily, 13 ft^3/s, July 3, 6-11, July 13 to Aug. 13, Sept. 1-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	14	60	87	63	1280	720	141	172	22	13	13
2	15	16	54	96	64	1160	305	143	205	21	13	13
3	15	15	406	59	98	497	197	135	90	13	13	13
4	15	15	515	37	122	252	171	163	57	14	13	13
5	14	16	152	36	149	165	165	149	129	14	13	14
6	14	16	111	37	170	170	208	186	84	13	13	15
7	14	15	101	38	167	191	148	190	83	13	13	19
8	14	15	97	38	162	400	377	228	82	13	13	21
9	14	16	102	45	163	643	795	232	67	13	13	15
10	14	15	370	49	167	477	366	139	35	13	13	23
11	14	16	494	49	166	293	367	95	23	13	13	22
12	14	16	165	49	113	164	169	76	23	20	13	48
13	15	15	159	49	101	160	230	44	23	13	13	55
14	15	15	148	49	171	117	249	43	22	13	14	50
15	15	15	146	49	201	89	534	44	21	13	14	33
16	14	24	144	50	207	166	2240	63	23	13	14	23
17	14	35	69	50	165	116	2010	68	23	13	14	18
18	14	35	71	67	160	77	904	69	22	13	14	14
19	14	35	74	665	97	75	708	75	21	13	14	14
20	15	38	75	908	95	76	295	77	22	13	14	20
21	15	40	73	520	95	72	144	77	21	13	14	19
22	15	47	69	173	95	69	136	77	21	13	15	20
23	14	71	43	163	95	69	136	78	22	13	15	19
24	15	77	710	163	99	46	379	75	22	13	14	19
25	15	82	1250	112	101	83	1490	70	23	13	14	20
26	15	100	384	106	102	115	558	131	23	13	14	19
27	15	268	195	109	99	122	244	143	22	13	14	19
28	15	457	142	95	181	120	298	146	21	13	14	15
29	15	239	119	64	---	122	222	137	21	13	14	14
30	14	40	93	47	---	128	122	164	22	13	14	22
31	14	---	82	52	---	667	---	180	---	13	14	---
TOTAL	450	1818	6673	4111	3668	8181	14887	3638	1445	429	423	642
MEAN	14.5	60.6	215	133	131	264	496	117	48.2	13.8	13.6	21.4
MAX	15	457	1250	908	207	1280	2240	232	205	22	15	55
MIN	14	14	43	36	63	46	122	43	21	13	13	13

CAL YR 1986 TOTAL 29938 MEAN 82.0 MAX 1920 MIN 13
WTR YR 1987 TOTAL 46365 MEAN 127 MAX 2240 MIN 13

02011470 BACK CREEK AT SUNRISE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1984 to current year.

INSTRUMENTATION.--Water-temperature recorder since October 1984.

REMARKS.--Interruption in the record was due to malfunction of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 27.5°C, Aug. 10, 1985; minimum, 0.0°C, Jan. 20, 21, 1985.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 27.0°C, Aug. 6; minimum, 3.5°C, Feb. 22, 23.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	23.0	19.5	20.5	15.5	14.0	15.0	12.0	11.0	11.5	8.0	7.5	7.5
2	23.0	19.0	20.5	16.5	15.0	15.5	12.0	11.5	12.0	7.5	7.5	7.5
3	22.0	18.5	20.0	15.0	15.0	15.0	12.0	12.0	12.0	7.5	7.0	7.5
4	20.5	19.5	20.0	16.5	14.5	15.0	12.0	11.5	11.5	8.5	7.5	8.0
5	21.5	18.0	19.5	15.0	14.5	14.5	11.5	11.0	11.0	8.5	8.0	8.0
6	20.0	17.0	18.0	16.5	14.5	15.0	11.5	11.0	11.0	8.0	8.0	8.0
7	20.0	16.0	17.5	15.5	15.0	15.0	11.0	9.5	10.5	8.0	8.0	8.0
8	20.5	16.0	18.0	16.5	15.0	15.5	10.5	9.5	10.0	8.0	8.0	8.0
9	20.5	17.0	18.5	15.5	13.0	15.0	11.0	10.5	10.5	8.0	7.0	7.5
10	20.0	16.5	17.5	16.0	12.5	13.5	11.0	10.5	11.0	7.5	7.0	7.5
11	20.0	15.5	17.0	13.5	13.0	13.5	10.5	10.5	10.5	7.5	7.0	7.0
12	18.0	16.5	17.0	14.0	13.0	13.5	10.5	10.0	10.5	7.0	7.0	7.0
13	19.0	17.5	18.0	13.0	10.5	12.0	10.0	10.0	10.0	7.0	7.0	7.0
14	19.0	15.5	17.5	13.0	10.0	11.0	10.0	9.0	9.5	7.0	7.0	7.0
15	18.5	15.0	16.0	13.0	10.0	11.5	10.0	8.5	9.0	7.0	7.0	7.0
16	18.5	15.0	16.0	14.0	12.0	13.0	9.5	9.0	9.5	7.0	7.0	7.0
17	17.0	15.0	16.0	14.5	13.0	14.0	9.5	9.0	9.5	7.0	7.0	7.0
18	18.5	14.0	15.5	14.0	13.5	13.5	9.5	9.0	9.0	7.0	6.5	6.5
19	18.5	13.5	15.0	14.5	13.0	13.5	9.5	9.0	9.0	6.5	6.0	6.0
20	17.5	13.0	15.0	13.0	13.0	13.0	9.5	9.0	9.0	6.0	5.5	6.0
21	18.0	13.5	15.5	13.0	12.5	12.5	9.0	8.5	8.5	6.0	5.5	5.5
22	18.5	14.5	16.0	14.0	12.5	13.0	9.0	8.0	8.5	5.5	5.5	5.5
23	17.5	14.5	15.5	13.0	12.5	13.0	9.0	8.0	8.0	5.5	5.0	5.5
24	18.0	15.0	16.0	13.0	12.0	13.0	8.5	7.5	8.5	5.0	5.0	5.0
25	16.0	15.5	16.0	13.5	12.5	13.0	8.5	8.0	8.0	5.0	4.5	5.0
26	17.5	15.5	16.5	13.5	13.0	13.0	8.0	8.0	8.0	5.0	4.5	4.5
27	17.5	15.5	16.0	13.5	12.0	12.5	8.0	8.0	8.0	4.5	4.5	4.5
28	17.5	14.5	15.5	13.0	12.0	12.5	8.0	8.0	8.0	4.5	4.0	4.5
29	18.0	14.0	15.5	13.0	12.5	12.5	8.0	7.5	7.5	5.0	4.5	4.5
30	18.0	14.5	15.5	13.5	11.0	12.0	8.0	8.0	8.0	5.0	4.5	5.0
31	17.5	13.5	15.0	---	---	---	8.0	7.5	8.0	5.0	4.5	5.0
MONTH	23.0	13.0	17.0	16.5	10.0	13.5	12.0	7.5	9.5	8.5	4.0	6.5

02011470 BACK CREEK AT SUNRISE, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

02011490 LITTLE BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°12'52", long 79°50'16", Bath County, Hydrologic Unit 02080201, in George Washington National Forest, on right bank 600 ft downstream from Long Spring Run, 1.2 mi downstream from Little Back Creek Dam, and 8.5 mi northeast of Mountain Grove.

DRAINAGE AREA.--4.91 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder. Concrete control with rectangular weir plate. Datum of gage is 2,638.48 ft above National Geodetic Vertical Datum of 1929 (Virginia Power bench mark).

REMARKS.--Records good except for period with ice effect, Jan. 25 to Feb. 1, which is poor. Flow regulated since January 1985 by Little Back Creek Lake 1.2 mi upstream, amount unknown.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 580 ft³/s, Nov. 4, 1985, gage height, 4.06 ft, from rating curve extended above 30 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.89 ft³/s, Oct. 12, 13, 1984, gage height, 0.66 ft; minimum daily, 0.90 ft³/s, Oct. 13, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 68 ft³/s, Apr. 15, gage height, 2.78 ft, from rating curve extended as explained above; minimum, 1.7 ft³/s, Oct. 26, gage height, 0.75 ft; minimum daily, 1.9 ft³/s, Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.1	3.5	3.7	e3.5	28	18	4.5	3.1	2.4	2.3	2.6
2	2.1	2.8	4.5	3.6	4.0	25	10	4.2	4.0	2.5	2.4	2.5
3	2.0	2.7	9.7	3.3	4.9	14	7.7	3.9	4.1	2.5	2.5	2.4
4	2.1	2.4	8.4	3.0	4.6	9.8	6.5	4.9	5.0	2.5	2.5	2.3
5	2.2	2.7	5.9	3.0	4.6	7.6	5.7	6.0	4.2	3.1	2.5	2.6
6	2.2	3.5	4.5	3.0	4.7	6.4	5.4	6.2	3.6	2.7	2.3	3.1
7	2.2	2.9	3.8	3.0	5.1	8.4	7.4	5.7	3.2	2.5	2.3	3.9
8	2.2	3.0	3.7	2.8	5.9	14	18	4.9	3.0	2.4	2.5	6.3
9	2.1	3.6	4.8	2.8	5.2	20	18	4.2	2.9	2.4	2.4	4.1
10	2.1	3.8	8.6	2.8	4.4	19	11	4.0	2.7	2.4	2.5	5.1
11	1.9	4.0	8.6	2.8	4.0	10	8.4	3.5	2.6	2.4	2.5	6.2
12	2.0	4.1	9.6	2.8	4.1	7.3	6.7	3.6	2.5	2.3	2.4	5.6
13	2.4	3.5	7.5	2.7	4.9	5.7	5.6	3.5	2.5	2.7	2.4	4.9
14	2.7	3.2	5.6	2.7	5.1	5.0	4.8	3.3	2.3	2.9	2.4	4.3
15	2.4	3.0	4.8	3.0	4.8	4.5	27	3.3	2.4	2.6	2.4	3.2
16	2.3	2.8	4.2	3.4	4.7	4.3	55	3.2	3.8	2.5	2.4	2.5
17	2.2	2.8	3.8	3.7	4.6	3.9	39	3.0	4.5	2.4	2.5	2.3
18	2.1	2.9	3.9	4.0	4.2	3.8	18	3.1	3.3	2.2	2.4	2.3
19	2.1	3.3	3.7	18	3.8	3.7	11	3.3	2.8	2.2	2.4	2.2
20	2.1	3.3	3.6	19	3.7	3.9	8.0	4.2	2.7	2.3	2.3	4.4
21	2.2	3.8	3.4	10	3.8	3.9	6.4	4.1	2.8	2.3	2.3	4.3
22	2.2	3.5	3.3	7.5	3.9	4.1	5.4	3.9	2.8	2.2	2.7	3.2
23	2.1	3.4	3.3	5.8	4.1	4.2	4.8	3.7	2.7	2.3	3.4	2.8
24	2.1	3.4	15	5.3	3.7	4.2	13	3.4	2.6	2.4	2.9	2.5
25	2.0	3.4	21	e4.5	3.6	4.3	30	3.4	2.5	2.5	2.7	2.4
26	2.1	5.8	11	e4.2	4.2	4.1	15	3.4	2.9	2.5	2.8	2.2
27	2.3	8.2	7.5	e4.0	4.3	3.9	9.3	3.3	2.7	2.6	2.6	2.1
28	2.3	6.2	5.8	e3.5	4.9	4.0	7.2	3.1	2.6	2.5	2.6	2.0
29	2.3	4.8	4.9	e3.0	---	3.9	5.9	2.9	2.7	2.4	2.6	2.2
30	2.2	4.0	4.4	e2.8	---	7.2	5.1	2.7	2.6	2.4	2.6	3.2
31	2.0	---	3.9	e3.0	---	27	---	2.6	---	2.3	2.6	---
TOTAL	67.4	108.9	196.2	146.7	123.3	275.1	393.3	119.0	92.1	76.3	78.1	99.7
MEAN	2.17	3.63	6.33	4.73	4.40	8.87	13.1	3.84	3.07	2.46	2.52	3.32
MAX	2.7	8.2	21	19	5.9	28	55	6.2	5.0	3.1	3.4	6.3
MIN	1.9	2.1	3.3	2.7	3.5	3.7	4.8	2.6	2.3	2.2	2.3	2.0

CAL YR 1986 TOTAL 1406.7 MEAN 3.85 MAX 43 MIN 1.9
WTR YR 1987 TOTAL 1776.1 MEAN 4.87 MAX 55 MIN 1.9

e Estimated.

02011490 LITTLE BACK CREEK NEAR SUNRISE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1984 to current year.

INSTRUMENTATION.--Water-temperature recorder since October 1984.

REMARKS.--Interruption in the record was due to malfunction of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 25.0°C, July 18, 1986, July 24, 1987; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 25.0°C, July 24; minimum, 0.0°C, Jan. 24, 27.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.5	18.5	19.0	12.0	11.0	11.5	6.5	5.5	6.0	3.5	3.0	3.0
2	19.5	19.0	19.0	12.0	11.5	11.5	6.0	5.0	5.5	3.5	2.5	3.0
3	19.5	18.5	19.0	11.5	11.5	11.5	6.5	6.0	6.0	2.5	2.0	2.5
4	---	---	---	12.0	11.5	11.5	5.5	5.0	5.0	2.5	1.5	2.0
5	---	---	---	11.5	11.0	11.5	4.5	4.0	4.5	2.5	1.5	2.0
6	---	---	---	11.5	11.0	11.5	4.5	3.5	4.0	3.0	2.0	2.5
7	16.5	15.0	16.0	11.5	11.0	11.5	4.5	3.5	4.0	3.0	2.5	3.0
8	16.5	15.0	16.0	12.0	11.5	11.5	5.0	4.5	4.5	3.0	2.5	2.5
9	17.0	15.5	16.0	12.0	10.5	11.5	6.0	5.0	5.5	3.0	2.0	2.5
10	16.0	14.5	15.5	11.0	10.0	10.5	6.0	5.5	6.0	3.5	2.5	3.0
11	15.0	14.0	14.5	10.0	9.5	10.0	6.0	5.5	5.5	3.0	2.5	2.5
12	15.0	14.5	14.5	9.5	9.0	9.5	5.5	5.0	5.5	2.5	2.0	2.5
13	15.5	15.0	15.0	9.0	6.5	8.0	4.5	3.5	4.0	3.0	2.0	2.5
14	15.0	13.5	14.5	7.0	6.0	6.5	4.0	3.0	3.5	3.5	2.5	3.0
15	13.5	13.0	13.0	7.0	5.5	6.5	4.0	3.0	3.5	3.5	3.0	3.5
16	13.0	12.0	12.5	7.0	7.0	7.0	4.0	3.5	4.0	4.0	3.5	3.5
17	13.0	12.5	12.5	7.5	7.0	7.0	4.5	4.0	4.0	3.5	3.0	3.5
18	13.0	11.5	12.0	7.5	6.5	7.0	4.5	4.0	4.0	3.5	3.0	3.0
19	13.0	11.0	12.0	7.0	6.5	6.5	4.0	3.5	3.5	4.5	3.5	4.0
20	12.0	11.0	11.5	6.5	6.0	6.0	4.0	3.0	3.5	4.0	4.0	4.0
21	12.5	11.0	11.5	6.0	5.5	5.5	3.5	2.5	3.0	4.0	3.5	3.5
22	13.0	11.5	12.0	5.5	5.0	5.0	3.0	2.5	2.5	3.5	2.0	2.5
23	12.5	12.0	12.0	6.0	5.0	5.5	3.5	2.0	3.0	2.5	.5	1.5
24	13.0	12.0	12.5	6.5	6.0	6.5	5.0	3.0	4.0	1.0	.0	.5
25	12.5	12.0	12.0	6.5	5.5	6.0	5.5	5.0	5.5	1.5	.5	1.0
26	12.5	12.0	12.0	7.5	6.5	7.0	5.5	4.5	5.0	1.5	.5	1.0
27	12.5	12.0	12.0	8.5	7.0	8.0	5.0	4.0	4.5	1.5	.0	1.0
28	12.0	11.5	12.0	7.5	7.0	7.5	4.5	4.0	4.0	2.0	1.0	1.5
29	12.0	11.0	11.5	7.5	7.0	7.0	4.0	3.5	4.0	2.0	1.5	2.0
30	12.5	11.5	12.0	7.5	6.5	7.0	4.5	3.5	4.0	3.0	2.0	2.5
31	12.0	11.0	11.5	---	---	---	4.0	3.0	3.5	2.5	2.0	2.0
MONTH	19.5	11.0	13.5	12.0	5.0	8.5	6.5	2.0	4.5	4.5	.0	2.5

02011490 LITTLE BACK CREEK NEAR SUNRISE, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA

LOCATION.--Lat 38°04'10", long 79°53'50", Bath County, Hydrologic Unit 02080201, on left bank 0.3 mi downstream from Cummings Run, 0.8 mi downstream from bridge on State Highway 39, and 2.1 mi south of Mountain Grove.

DRAINAGE AREA.--134 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,701.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 1-7, Apr. 8-29, July 16 to Aug. 11, and Aug. 18-22, which are fair. Flow regulated since October 1984 by Back Creek Lake 11.3 mi upstream, amount unknown, and since January 1985 by Little Back Creek Lake 14.4 mi upstream, amount unknown. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--36 years, 184 ft³/s, 18.65 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft³/s, Nov. 4, 1985, gage height, 11.24 ft, from rating curve extended above 4,000 ft³/s on basis of slope-area measurements at gage heights 7.39 ft, 9.05 ft, and 9.35 ft; minimum, 1.5 ft³/s, Aug. 18, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,750 ft³/s, Apr. 16, gage height, 7.62 ft; minimum daily, 14 ft³/s, Aug. 11-13, Sept. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e22	22	92	127	124	2040	1040	209	183	30	e24	18
2	e22	33	88	133	134	1820	545	200	205	30	e23	17
3	e22	28	393	109	221	855	362	188	158	26	e22	14
4	e22	26	592	70	246	520	295	237	83	23	e20	14
5	e20	31	249	65	285	336	271	247	150	31	e19	17
6	e20	42	160	63	288	296	299	266	107	26	e22	25
7	e20	37	141	63	279	316	611	261	99	25	e21	82
8	20	39	126	64	282	558	e500	278	93	24	e20	197
9	20	48	138	65	265	893	e1300	281	95	24	e19	73
10	20	50	382	73	246	723	e650	220	57	23	e18	82
11	20	47	596	73	231	498	e600	143	42	22	e14	183
12	20	47	377	72	198	281	e280	128	39	24	14	223
13	22	43	274	71	171	247	e370	100	39	51	14	144
14	25	38	228	70	260	199	e420	87	36	45	15	107
15	22	35	200	71	278	139	e900	84	33	32	16	77
16	21	33	192	72	282	199	e3500	89	46	e30	16	54
17	20	47	119	75	249	178	e3300	99	67	e28	16	44
18	20	48	110	92	225	117	e1500	95	48	e26	e16	36
19	20	48	109	846	163	112	e1200	104	40	e25	e15	33
20	20	52	109	1310	145	110	e550	106	37	e24	e15	134
21	20	65	105	710	149	108	e250	105	37	e23	e16	100
22	20	70	100	373	158	103	e230	104	34	e25	e20	68
23	20	92	83	274	167	101	e220	104	34	e35	25	51
24	20	94	889	243	167	89	e650	100	33	e30	17	41
25	22	98	1730	191	183	98	e2500	95	32	e27	16	37
26	23	146	626	166	218	140	e900	124	36	e25	17	34
27	22	307	345	160	206	152	e400	168	33	e26	17	33
28	21	488	240	153	315	154	e500	202	31	e24	16	32
29	21	337	200	116	---	151	e360	178	29	e23	17	26
30	21	98	158	94	---	263	212	175	30	e22	18	33
31	20	---	132	108	---	1070	---	192	---	e22	18	---
TOTAL	648	2589	9283	6172	6135	12866	24715	4969	1986	851	556	2029
MEAN	20.9	86.3	299	199	219	415	824	160	66.2	27.5	17.9	67.6
MAX	25	488	1730	1310	315	2040	3500	281	205	51	25	223
MIN	20	22	83	63	124	89	212	84	29	22	14	14

CAL YR 1986 TOTAL 46574 MEAN 128 MAX 4010 MIN 19
WTR YR 1987 TOTAL 72799 MEAN 199 MAX 3500 MIN 14

e Estimated.

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: June 1978 to current year.

INSTRUMENTATION.--Water-temperature recorder since June 1978.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Some record in prior years fragmentary due to instrument malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum recorded, 32.0°C, Aug. 18, 1987; minimum recorded, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 32.0°C, Aug. 18; minimum recorded, 0.0°C, Jan. 23, 24, 27, 28.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	4.0	1.0	2.5	6.5	5.0	5.5	10.0	5.5	7.0	18.0	8.0	12.5
2	5.5	3.5	4.5	7.0	4.5	5.5	8.0	6.0	7.0	18.0	9.5	13.5
3	4.5	2.0	3.5	8.5	4.5	6.0	6.0	4.5	5.5	17.0	10.5	14.0
4	6.0	3.5	4.5	7.0	4.0	5.0	6.5	4.5	5.5	14.0	11.5	12.0
5	6.0	2.0	3.5	9.0	3.0	5.5	7.5	5.0	6.0	18.0	9.0	13.0
6	6.0	2.5	4.0	10.5	3.5	6.5	7.5	5.5	6.5	18.0	8.5	12.5
7	7.0	2.5	4.5	11.5	4.0	7.0	11.0	6.0	8.0	18.5	9.0	13.0
8	5.5	2.5	3.5	9.0	4.5	6.5	12.0	6.5	8.5	16.5	10.0	13.0
9	4.0	1.0	2.5	8.0	6.5	7.0	11.5	6.0	8.0	18.0	8.0	12.5
10	5.5	.5	3.0	8.0	4.5	6.0	14.5	6.0	9.5	20.0	9.5	14.5
11	6.0	2.0	3.5	9.0	3.5	5.5	10.5	6.5	8.0	19.0	11.0	15.0
12	5.5	3.5	4.5	8.5	4.5	6.0	11.0	7.0	8.5	17.0	12.0	14.5
13	6.5	1.0	3.5	9.5	3.5	6.0	15.5	8.0	10.5	15.5	13.5	14.5
14	7.5	2.5	4.5	9.5	3.0	6.0	12.0	7.5	10.0	21.0	12.5	16.0
15	7.0	1.0	3.0	7.5	4.0	6.0	---	---	---	20.0	15.0	17.0
16	4.5	3.0	3.5	7.5	4.5	6.0	---	---	---	21.0	12.0	16.5
17	5.5	1.0	3.5	11.0	3.0	6.5	---	---	---	22.0	12.5	17.0
18	6.0	1.5	4.5	9.0	4.0	6.5	---	---	---	20.5	13.5	17.0
19	6.0	3.5	5.0	9.0	5.5	6.5	---	---	---	19.5	15.0	17.0
20	5.0	1.5	3.5	12.0	5.0	8.0	---	---	---	17.0	15.0	16.0
21	6.5	1.5	4.0	12.0	4.0	7.5	---	---	---	16.5	14.0	15.5
22	---	---	---	13.0	4.5	8.5	---	---	---	20.0	14.0	16.5
23	---	---	---	13.5	5.0	9.0	---	---	---	20.0	15.5	18.0
24	---	---	---	12.5	5.5	9.0	---	---	---	19.0	15.5	17.5
25	---	---	---	10.0	8.0	9.0	---	---	---	19.0	15.5	17.5
26	6.5	2.5	4.5	15.0	6.5	10.0	---	---	---	19.5	16.0	17.5
27	5.0	4.0	4.0	10.5	6.0	8.5	---	---	---	19.5	15.0	17.0
28	5.5	4.0	4.5	15.0	8.0	11.0	---	---	---	21.5	15.0	18.0
29	---	---	---	14.0	7.0	10.5	---	---	---	22.0	15.0	18.0
30	---	---	---	11.0	9.5	10.0	18.0	11.0	13.5	22.5	15.5	18.5
31	---	---	---	9.5	6.0	8.0	---	---	---	20.5	15.0	17.5
MONTH	7.5	.5	4.0	15.0	3.0	7.0	18.0	4.5	8.0	22.5	8.0	15.5
		JUNE			JULY			AUGUST			SEPTEMBER	
1	20.5	14.5	17.0	24.5	20.0	22.0	28.0	20.0	23.5	27.5	19.0	22.0
2	22.0	15.0	18.0	26.0	20.0	22.5	27.0	21.5	24.0	26.0	15.5	20.0
3	19.5	15.0	17.5	25.0	20.5	22.0	29.5	22.0	25.5	26.0	16.0	20.5
4	20.0	17.0	18.0	24.0	20.0	21.5	29.5	22.5	25.5	23.0	17.5	20.0
5	22.0	14.0	17.5	26.5	19.5	22.5	27.0	22.5	24.5	20.0	18.0	18.5
6	22.0	13.0	17.5	28.0	20.5	23.5	30.0	20.5	24.5	21.0	18.5	19.5
7	23.0	14.5	18.5	28.0	21.5	24.5	26.0	21.5	23.5	20.5	19.0	20.0
8	23.5	15.0	19.5	26.5	20.0	23.0	28.0	21.5	24.5	22.5	18.5	20.5
9	20.5	16.5	18.5	28.0	21.0	24.0	29.5	21.5	25.0	24.5	19.5	21.5
10	23.0	14.0	18.0	27.5	21.0	24.0	27.0	23.0	24.5	22.5	19.5	21.0
11	23.0	14.5	18.5	27.0	21.0	23.5	30.0	21.5	25.0	22.0	19.0	20.0
12	20.0	17.5	18.5	25.0	21.0	23.0	30.5	21.5	25.5	21.5	19.0	20.0
13	25.0	17.0	20.5	24.0	20.0	22.0	30.0	20.5	24.5	24.5	20.0	21.5
14	27.0	18.5	22.0	24.5	19.5	21.5	30.5	20.0	24.5	25.0	19.5	22.0
15	26.5	19.0	22.5	22.5	16.5	19.5	27.0	21.0	24.0	24.5	18.5	21.5
16	24.5	19.0	21.5	22.5	16.5	19.0	30.5	23.0	26.0	24.5	19.5	22.0
17	25.5	17.5	21.0	25.5	17.0	20.5	30.5	23.5	27.0	25.0	21.0	23.0
18	26.0	18.0	21.5	27.0	18.0	22.0	32.0	24.5	27.5	24.5	21.0	22.5
19	27.0	19.0	22.5	28.0	19.0	23.0	31.5	22.5	26.0	22.0	20.5	21.0
20	26.3	20.0	23.0	28.5	19.5	23.5	30.5	21.0	25.0	23.0	19.0	20.5
21	26.0	21.0	23.0	30.0	21.0	25.0	27.5	19.0	23.5	20.5	17.5	19.0
22	25.0	19.5	22.0	30.5	21.5	25.5	27.0	21.5	24.0	19.5	17.0	18.0
23	24.5	19.5	21.5	29.5	21.5	25.0	28.5	22.5	24.5	20.0	16.5	18.0
24	24.5	19.5	21.5	30.0	22.0	25.5	27.5	18.5	22.5	21.5	15.0	18.0
25	22.0	19.5	20.5	29.0	21.0	25.0	22.5	18.5	20.5	22.0	15.5	18.0
26	23.0	19.5	21.0	26.5	21.5	24.0	26.0	19.0	22.0	20.5	13.5	16.5
27	24.5	18.0	20.5	28.0	21.0	24.0	28.0	21.5	24.5	20.5	13.5	17.0
28	24.5	15.0	19.5	30.0	21.0	24.5	27.5	22.5	24.5	22.0	15.0	18.5
29	24.0	15.5	19.5	28.5	20.0	23.5	27.0	22.0	24.0	23.0	16.5	19.5
30	25.5	18.5	21.5	27.0	19.5	23.0	25.5	19.0	22.0	20.0	17.5	19.0
31	---	---	---	24.0	20.0	22.5	25.5	19.0	22.0	---	---	---
MONTH	27.0	13.0	20.0	30.5	16.5	23.0	32.0	18.5	24.5	27.5	13.5	20.0
YEAR	32.0	.0	13.5									

02011795 LAKE MOOMAW NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°57'04", long 79°59'21", Alleghany County, Hydrologic Unit 02080201, in control tower at Gathright Dam on Jackson River, 0.9 mi upstream from Cedar Creek, 7.6 mi southwest of Hot Springs, and 19 mi upstream from Covington.

DRAINAGE AREA.--344 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Lake is formed by rolled rockfill dam with an impervious compacted earth (clay) core. Spillway with crest at elevation 1,667.5 ft is in a divide about 2.5 mi south of the dam, ungated, and 2,450 ft long with a base width of 100 ft. Except for flood flows, all discharge will be through a diversion tunnel with the invert of the entrance being in an intake tower 260 ft high. Elevation of invert is 1,430.5 ft. Portals in the tower at nine levels permit oxygenated water from the surface and cold water from the bottom of the lake to be mixed for water-quality control. Sluice gates in the tower control flood flow releases. Storage began Dec. 10, 1979. Total capacity at top of dam, elevation 1,684.5 ft, is 502,600 acre-ft of which 81,100 acre-ft is above spillway crest. Capacity at maximum conservation pool, elevation 1,582.0 ft, is 123,700 acre-ft; capacity at minimum conservation pool, elevation 1,554.0 ft, is 63,000 acre-ft. Lake is used for flood control, low-water augmentation for water-quality control, and recreation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 160,300 acre-ft, Apr. 18, 1987, elevation, 1,595.6 ft; minimum, (after first filling to minimum conservation pool), 82,300 acre-ft, Nov. 4-7, 1986, elevation, 1,564.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 160,300 acre-ft, Apr. 18, elevation, 1,595.6 ft; minimum, 82,300 acre-ft, Nov. 4-7, elevation, 1,564.0 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,567.1	88,900	-
Oct. 31	1,564.1	82,500	-6,400
Nov. 30	1,566.0	86,500	+4,000
Dec. 31	1,579.7	118,000	+31,500
CAL YR 1986	-	-	-5,700
Jan. 31	1,579.3	117,000	-1,000
Feb. 28	1,583.0	126,300	+9,300
Mar. 31	1,584.1	129,100	+2,800
Apr. 30	1,582.0	123,700	-5,400
May 31	1,582.0	123,700	0
June 30	1,579.9	118,500	-5,200
July 31	1,575.9	108,800	-9,700
Aug. 31	1,570.9	97,200	-11,600
Sept. 30	1,571.3	98,100	+900
WTR YR 1987	-	-	+9,200

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

LOCATION.--Lat 37°56'54", long 79°56'58", Alleghany County, Hydrologic Unit 02080201, on right bank 0.4 mi upstream from Cedar Creek, 0.5 mi downstream from Gathright Dam and Moomaw Lake, and 7.3 mi southwest of Hot Springs.

DRAINAGE AREA.--345 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 to current year.

REVISED RECORDS.--WDR VA-81-1: 1980.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Dec. 20, 1973, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 0.5 mi upstream; since October 1984 by Back Creek Lake 28.5 mi upstream, amount unknown; and since January 1985 by Little Back Creek Lake 31.6 mi upstream, amount unknown. U.S. Army Corps of Engineers water-quality and gage-height transmitters at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--14 years, 457 ft³/s, 17.99 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft³/s, Dec. 26, 1973, result of cofferdam failure during construction of Gathright Dam, gage height, 18.77 ft, from rating curve extended above 9,200 ft³/s on basis of slope-area measurement of peak flow; minimum, 3.0 ft³/s, July 12, 1979, result of gate closure at Gathright Dam, gage height, 7.78 ft; minimum daily, 47 ft³/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, 7,840 ft³/s, Apr. 19, gage height, 14.48 ft; minimum, 7.7 ft³/s, Nov. 7, gage height, 7.83 ft; minimum daily, 129 ft³/s, Nov. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	178	153	153	158	324	152	2770	544	320	268	264	228
2	178	153	153	158	231	1530	2990	540	498	268	264	223
3	178	153	155	158	156	4150	965	436	544	268	263	223
4	178	153	156	158	156	4730	815	626	389	268	264	223
5	178	153	156	154	156	2800	815	782	286	266	264	223
6	178	153	156	150	156	833	815	855	262	264	264	223
7	178	129	156	150	156	674	815	821	262	256	264	225
8	178	153	156	150	156	822	1030	512	263	247	264	224
9	178	153	156	150	320	1670	1270	437	264	256	264	223
10	178	153	156	150	476	1780	2430	559	247	264	264	223
11	178	153	156	150	490	1300	1380	521	264	264	264	224
12	178	153	157	150	490	946	597	437	263	264	264	226
13	178	153	158	150	490	688	776	357	261	264	264	224
14	178	153	158	150	490	612	704	266	261	264	264	224
15	178	153	156	151	561	482	427	243	261	264	264	223
16	178	153	153	153	635	432	156	243	255	264	264	223
17	178	153	153	153	634	434	1510	243	250	263	263	223
18	178	153	153	153	756	432	5420	243	250	262	261	223
19	178	153	153	153	582	393	7250	269	250	261	261	223
20	178	153	153	688	361	332	7630	331	250	261	261	223
21	178	153	153	2490	361	295	7480	326	250	261	261	223
22	178	153	153	2040	361	286	968	275	250	261	261	223
23	178	153	153	1120	449	286	731	264	250	261	261	223
24	178	153	155	1120	515	286	865	264	250	261	261	223
25	178	153	156	1120	457	286	620	264	250	261	261	223
26	178	153	156	1120	414	286	2250	298	250	261	261	223
27	178	153	158	1110	463	311	4640	366	250	262	261	223
28	178	153	158	684	287	332	2170	523	250	264	261	223
29	178	153	158	324	---	332	791	448	250	264	261	223
30	163	153	158	324	---	286	492	320	258	264	261	204
31	153	---	158	324	---	517	---	320	---	264	250	---
TOTAL	5478	4566	4819	15363	11083	28695	61572	12933	8408	8140	8129	6685
MEAN	177	152	155	496	396	926	2052	417	280	263	262	223
MAX	178	153	158	2490	756	4730	7630	855	544	268	264	228
MIN	153	129	153	150	156	152	156	243	247	247	250	204
(*)	-104	+67	+512	-16	+167	+46	-91	.00	-87	-158	-189	+15
MEAN‡	72.7	219	667	480	563	972	1961	4.17	193	105	73.2	238
CFSM‡	.21	.63	1.93	1.39	1.63	2.82	5.68	1.21	.56	.30	.21	.69
IN.‡	.24	.71	2.23	1.60	1.70	3.25	6.34	1.39	.63	.35	.24	.77

CAL YR 1986	TOTAL 115190	MEAN 316	MAX 4730	MIN 129	MEAN‡ 308	CFSM‡ .89	IN.‡ 12.11
WTR YR 1987	TOTAL 175871	MEAN 482	MAX 7630	MIN 129	MEAN‡ 495	CFSM‡ 1.43	IN.‡ 19.48

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1978 to current year.
pH: October 1978 to current year.
WATER TEMPERATURE: October 1978 to current year.
DISSOLVED OXYGEN: October 1978 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1978.

REMARKS.--Interruptions in the record were due to malfunctions of the instruments. The intake tower at Gathright Dam permits selective withdrawal of water from one or more reservoir depths. Some record in prior years fragmentary due to instrument malfunction.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE (water years 1979, 1981-87): Maximum recorded, 249 microsiemens, Nov. 5, 1985; minimum recorded, 78 microsiemens, May 14, 1979.
pH (water years 1979, 1981-87): Maximum recorded, 8.60 units, Jan. 29, 1982, Jan. 13, 1983; minimum recorded, 6.90 units, Aug. 14-17, 1984, Nov. 5-7, 1985.
WATER TEMPERATURE (water years 1979, 1981-87): Maximum recorded, 28.0°C, Aug. 1, 2, 1979; minimum recorded, 0.0°C, Feb. 16-19, 1979.
DISSOLVED OXYGEN (water years 1979, 1981, 1984-87): Maximum recorded, 19.5 mg/L, Jan. 16, 1979; minimum recorded, 5.7 mg/L, Aug. 1, 3, 1987.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 212 microsiemens, Nov. 30; minimum, 90 microsiemens, May 13.
pH: Maximum, 8.11 units, June 19; minimum, 6.93 units, Dec. 12.
WATER TEMPERATURE: Maximum, 24.5°C on several days during summer period; minimum recorded, 3.5°C, Feb. 25-27, Mar. 2, 3, but may have been less during instrument malfunction Dec. 12 to Feb. 24.
DISSOLVED OXYGEN: Maximum recorded, 17.1 mg/L, Jan. 28, but may have been higher during instrument malfunction Jan. 29 to Feb. 2; minimum, 5.7 mg/L, Aug. 1, 3.

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	162	157	160	163	157	160	198	167	178	190	174	179
2	166	158	161	165	161	162	179	165	172	---	---	---
3	166	159	162	167	162	165	199	163	171	---	---	---
4	163	156	160	164	162	163	199	163	178	---	---	---
5	168	159	164	163	159	161	185	169	172	---	---	---
6	166	163	165	164	161	162	173	169	170	---	---	---
7	163	158	160	204	162	166	171	167	168	---	---	---
8	---	---	---	164	160	163	170	167	169	---	---	---
9	---	---	---	164	159	162	169	165	168	160	140	144
10	171	155	160	164	159	163	171	168	169	143	137	140
11	171	163	167	163	158	162	173	168	171	147	136	141
12	164	155	160	162	156	158	206	171	191	154	138	141
13	159	153	156	156	151	154	170	164	166	144	140	142
14	161	154	156	159	146	149	167	165	165	144	140	142
15	158	154	155	147	144	146	168	164	165	162	139	147
16	154	146	151	151	146	147	169	164	166	154	146	149
17	150	145	148	147	146	146	195	166	175	160	144	147
18	149	143	146	148	145	146	167	161	163	147	142	145
19	147	140	145	149	144	147	164	160	162	147	134	141
20	184	142	153	165	147	158	177	158	162	140	134	138
21	178	150	156	164	151	156	177	158	165	136	131	133
22	153	146	149	157	149	152	173	159	160	140	130	134
23	149	141	145	164	150	156	183	159	169	140	122	131
24	173	138	149	164	152	155	167	161	164	144	130	134
25	170	138	144	156	153	155	183	162	166	142	126	131
26	144	134	140	155	153	154	168	159	163	141	126	132
27	142	134	138	158	154	156	164	158	160	132	125	129
28	169	135	154	160	155	156	182	157	161	139	125	130
29	165	150	153	163	149	154	160	157	158	---	---	---
30	165	149	153	212	151	164	193	159	163	---	---	---
31	188	151	159	---	---	---	194	161	165	---	---	---
MONTH	188	134	154	212	144	157	206	157	168	190	122	140

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

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	137	131	132	132	128	130	110	102	107
2	---	---	---	133	125	130	131	125	129	105	101	103
3	133	129	131	125	121	123	132	118	127	106	101	104
4	130	125	127	132	124	126	131	116	119	106	100	102
5	130	125	127	130	122	126	121	116	118	103	100	101
6	130	125	126	132	125	129	120	114	116	107	99	101
7	132	126	127	127	125	126	127	115	117	102	97	99
8	129	125	127	127	125	126	126	111	116	101	95	99
9	129	121	124	128	126	127	150	108	113	100	97	99
10	131	123	126	130	128	129	112	108	110	99	95	97
11	128	122	124	130	128	129	117	110	113	101	92	96
12	128	122	124	133	130	131	121	109	114	100	92	95
13	126	119	121	132	130	131	118	110	113	112	90	105
14	122	119	120	133	131	132	117	110	113	106	98	102
15	121	119	120	135	132	134	128	113	119	102	97	99
16	122	118	120	136	132	134	134	121	127	100	95	97
17	122	119	120	135	133	134	138	111	123	105	96	100
18	120	118	119	136	133	135	114	108	111	104	100	103
19	122	118	120	136	134	135	111	107	109	112	104	106
20	125	123	124	136	130	134	111	106	108	106	102	104
21	126	123	125	136	133	134	112	104	107	111	103	106
22	126	124	125	136	134	135	117	111	114	110	103	108
23	---	---	---	139	136	137	118	113	115	114	109	111
24	130	121	123	142	135	139	120	112	116	114	107	109
25	122	119	120	174	137	146	129	112	120	111	108	110
26	123	121	122	161	139	147	128	103	116	111	105	108
27	124	122	122	145	132	135	105	101	103	108	105	107
28	131	123	127	153	133	144	112	103	108	114	106	110
29	---	---	---	137	131	134	114	106	110	117	109	112
30	---	---	---	138	127	131	113	108	111	116	112	113
31	---	---	---	141	130	135	---	---	---	116	108	110
MONTH	133	118	124	174	121	133	150	101	116	117	90	104
		JUNE			JULY			AUGUST			SEPTEMBER	
1	115	108	111	135	130	132	137	134	136	149	144	146
2	112	107	110	132	129	131	138	135	137	148	144	146
3	118	108	112	137	129	134	139	137	138	147	142	144
4	126	111	120	141	132	135	141	139	140	145	141	143
5	127	124	126	135	132	134	145	135	139	145	141	143
6	129	125	127	138	133	135	137	133	135	144	139	141
7	128	122	125	139	132	135	138	134	136	143	138	140
8	130	123	126	137	135	136	138	135	137	141	137	139
9	132	126	130	136	134	135	140	136	138	140	136	137
10	170	131	137	139	135	137	144	135	140	147	135	138
11	129	121	126	141	136	138	145	139	142	140	134	138
12	129	122	126	142	134	137	145	140	142	142	137	139
13	131	126	128	133	130	132	147	142	144	140	138	139
14	131	126	129	136	134	135	148	143	144	143	141	142
15	131	126	128	137	131	134	148	144	145	145	142	144
16	132	127	130	144	133	138	149	142	145	146	144	145
17	128	126	127	136	132	134	144	140	142	148	145	147
18	131	125	128	136	134	135	145	141	143	149	147	148
19	129	127	128	136	135	135	147	143	145	151	148	149
20	130	126	129	136	133	135	148	142	146	152	150	151
21	133	128	131	140	133	134	147	142	144	164	149	152
22	133	126	130	134	132	133	149	139	145	153	149	151
23	133	128	131	133	131	132	151	139	146	153	148	151
24	134	130	132	134	131	132	149	138	145	162	151	154
25	132	128	130	132	130	130	150	138	146	164	152	156
26	133	129	131	146	128	131	148	143	146	157	155	156
27	134	129	132	130	127	129	149	143	146	158	154	156
28	132	127	130	133	129	132	149	144	146	157	155	156
29	134	126	130	134	131	132	151	146	148	158	156	157
30	141	128	132	134	131	133	150	144	147	159	156	158
31	---	---	---	137	134	135	147	143	146	---	---	---
MONTH	170	107	127	146	127	134	151	133	143	164	134	147
YEAR	212	90	137									

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

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.64	7.47	7.54	7.61	7.50	7.56	7.28	7.19	7.23	7.50	7.43	7.46
2	7.64	7.46	7.54	7.60	7.51	7.56	7.28	7.17	7.24	---	---	---
3	7.66	7.47	7.54	7.59	7.51	7.55	7.36	7.23	7.29	---	---	---
4	7.62	7.44	7.52	7.61	7.50	7.55	7.33	7.28	7.31	---	---	---
5	7.69	7.47	7.57	7.62	7.54	7.57	7.33	7.27	7.30	---	---	---
6	7.73	7.52	7.61	7.61	7.51	7.56	7.31	7.18	7.25	---	---	---
7	7.66	7.50	7.56	7.62	7.51	7.55	7.29	7.21	7.24	---	---	---
8	---	---	---	7.62	7.51	7.55	7.24	7.18	7.21	---	---	---
9	---	---	---	7.66	7.53	7.59	7.23	7.14	7.18	7.60	7.51	7.56
10	7.65	7.48	7.55	7.66	7.57	7.61	7.24	7.11	7.17	7.64	7.55	7.58
11	7.61	7.48	7.54	7.62	7.56	7.58	7.20	7.13	7.17	7.64	7.55	7.59
12	7.64	7.50	7.56	7.64	7.55	7.58	7.11	6.93	7.02	7.64	7.57	7.60
13	7.62	7.50	7.55	7.62	7.50	7.56	7.36	7.31	7.33	7.66	7.59	7.62
14	7.66	7.47	7.55	7.58	7.47	7.54	7.36	7.24	7.32	7.71	7.60	7.63
15	7.64	7.55	7.58	7.63	7.43	7.53	7.38	7.32	7.34	7.67	7.59	7.62
16	7.62	7.52	7.57	7.59	7.53	7.56	7.41	7.33	7.36	7.67	7.59	7.61
17	7.64	7.49	7.56	7.62	7.53	7.56	7.40	7.35	7.37	7.68	7.58	7.62
18	7.60	7.49	7.54	7.61	7.52	7.55	7.42	7.36	7.39	7.66	7.59	7.61
19	7.58	7.47	7.52	7.58	7.50	7.55	7.44	7.38	7.41	7.67	7.58	7.61
20	7.57	7.47	7.52	7.50	7.46	7.48	7.41	7.37	7.39	7.62	7.53	7.56
21	7.57	7.46	7.51	7.55	7.44	7.49	7.42	7.34	7.37	7.54	7.47	7.50
22	7.57	7.47	7.51	7.50	7.44	7.47	7.41	7.33	7.36	7.55	7.47	7.52
23	7.57	7.49	7.52	7.50	7.42	7.45	7.43	7.33	7.37	7.57	7.53	7.55
24	7.61	7.50	7.54	7.44	7.40	7.42	7.44	7.38	7.40	7.59	7.55	7.56
25	7.59	7.52	7.54	7.45	7.38	7.40	7.44	7.39	7.41	7.58	7.53	7.56
26	7.63	7.51	7.55	7.38	7.34	7.36	7.44	7.40	7.42	7.56	7.52	7.54
27	7.63	7.51	7.57	7.42	7.33	7.37	7.47	7.39	7.42	7.57	7.52	7.54
28	7.67	7.53	7.58	7.41	7.29	7.34	7.46	7.38	7.42	7.65	7.52	7.59
29	7.57	7.47	7.53	7.35	7.30	7.32	7.47	7.39	7.42	---	---	---
30	7.66	7.52	7.56	7.37	7.27	7.31	7.48	7.40	7.43	---	---	---
31	7.63	7.53	7.57	---	---	---	7.48	7.42	7.45	---	---	---
MONTH	7.73	7.44	7.55	7.66	7.27	7.50	7.48	6.93	7.32	7.71	7.43	7.57
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	7.88	7.75	7.80	7.51	7.46	7.48	7.68	7.57	7.64
2	---	---	---	7.82	7.74	7.76	7.66	7.46	7.53	7.68	7.57	7.61
3	7.72	7.66	7.69	7.75	7.70	7.72	7.61	7.55	7.57	7.63	7.55	7.58
4	7.74	7.66	7.70	7.73	7.69	7.70	7.61	7.56	7.58	7.68	7.49	7.61
5	7.73	7.66	7.69	7.76	7.68	7.72	7.59	7.55	7.57	7.64	7.55	7.59
6	7.73	7.64	7.68	7.77	7.72	7.75	7.61	7.54	7.57	7.62	7.53	7.58
7	7.71	7.65	7.67	7.77	7.74	7.75	7.63	7.56	7.60	7.66	7.53	7.59
8	7.71	7.62	7.66	7.76	7.73	7.74	7.72	7.58	7.64	7.70	7.56	7.62
9	7.71	7.63	7.66	7.76	7.71	7.73	7.77	7.57	7.65	7.64	7.54	7.60
10	7.67	7.63	7.65	7.73	7.69	7.71	7.59	7.55	7.57	7.68	7.54	7.59
11	7.68	7.64	7.66	7.73	7.70	7.72	7.77	7.58	7.66	7.62	7.51	7.57
12	7.69	7.64	7.66	7.75	7.69	7.72	7.74	7.68	7.71	7.66	7.51	7.57
13	7.68	7.61	7.65	7.74	7.69	7.71	7.71	7.67	7.70	7.62	7.51	7.56
14	7.70	7.63	7.68	7.75	7.69	7.72	7.73	7.68	7.70	7.69	7.53	7.59
15	7.68	7.64	7.65	7.75	7.70	7.72	7.80	7.66	7.70	7.68	7.52	7.58
16	7.66	7.60	7.63	7.75	7.69	7.72	7.74	7.65	7.69	7.69	7.52	7.59
17	7.65	7.59	7.61	7.72	7.67	7.70	7.74	7.50	7.63	7.70	7.52	7.60
18	7.64	7.57	7.61	7.73	7.69	7.70	7.56	7.50	7.54	7.70	7.51	7.58
19	7.65	7.56	7.62	7.74	7.68	7.70	7.59	7.56	7.57	7.81	7.50	7.64
20	7.67	7.56	7.62	7.73	7.65	7.69	7.55	7.53	7.54	7.77	7.59	7.67
21	7.67	7.60	7.63	7.75	7.64	7.70	7.55	7.52	7.53	7.80	7.56	7.67
22	7.68	7.60	7.64	7.75	7.66	7.70	7.71	7.51	7.62	7.81	7.56	7.66
23	---	---	---	7.74	7.63	7.68	7.66	7.62	7.65	7.83	7.55	7.68
24	7.83	7.59	7.71	7.72	7.63	7.67	7.69	7.62	7.65	7.84	7.56	7.66
25	7.86	7.81	7.83	7.70	7.62	7.66	7.73	7.62	7.66	7.85	7.57	7.65
26	7.86	7.80	7.82	7.72	7.62	7.66	7.71	7.41	7.53	7.78	7.57	7.66
27	7.83	7.78	7.81	7.69	7.60	7.64	7.51	7.41	7.45	7.76	7.60	7.67
28	7.86	7.77	7.81	7.69	7.60	7.64	7.74	7.44	7.62	7.79	7.61	7.69
29	---	---	---	7.72	7.60	7.66	7.74	7.63	7.68	7.84	7.63	7.71
30	---	---	---	7.67	7.56	7.61	7.75	7.64	7.67	7.81	7.62	7.70
31	---	---	---	7.72	7.47	7.57	---	---	---	7.84	7.62	7.71
MONTH	7.86	7.56	7.68	7.88	7.47	7.70	7.80	7.41	7.61	7.85	7.49	7.63

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

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.85	7.63	7.71	7.99	7.79	7.88	7.96	7.79	7.86	7.91	7.65	7.80
2	7.85	7.64	7.73	7.99	7.80	7.87	7.97	7.79	7.87	7.95	7.71	7.80
3	7.79	7.63	7.71	7.99	7.80	7.88	7.96	7.79	7.87	7.93	7.72	7.83
4	8.01	7.61	7.81	7.93	7.78	7.83	7.96	7.77	7.86	7.96	7.70	7.82
5	7.98	7.75	7.87	7.95	7.75	7.84	7.93	7.77	7.85	7.88	7.73	7.81
6	8.00	7.74	7.86	7.93	7.74	7.84	7.94	7.76	7.85	7.88	7.72	7.78
7	7.97	7.71	7.82	7.92	7.73	7.82	7.93	7.78	7.83	7.80	7.72	7.76
8	8.00	7.73	7.84	7.97	7.71	7.84	7.93	7.77	7.84	7.85	7.73	7.78
9	8.00	7.77	7.84	8.00	7.76	7.87	7.93	7.77	7.84	7.85	7.70	7.76
10	7.94	7.78	7.85	7.99	7.78	7.87	7.90	7.77	7.83	7.86	7.70	7.75
11	7.95	7.79	7.87	8.02	7.77	7.87	7.91	7.75	7.83	7.86	7.69	7.76
12	7.98	7.76	7.85	7.99	7.76	7.87	7.92	7.76	7.83	7.84	7.70	7.75
13	7.98	7.77	7.86	7.98	7.77	7.85	7.93	7.77	7.83	7.84	7.68	7.75
14	8.00	7.78	7.90	7.97	7.75	7.84	7.92	7.75	7.83	7.86	7.71	7.77
15	8.03	7.81	7.92	7.98	7.75	7.85	7.92	7.76	7.82	7.87	7.72	7.77
16	8.05	7.86	7.93	7.97	7.77	7.87	7.89	7.74	7.80	7.87	7.71	7.77
17	8.05	7.85	7.95	7.97	7.76	7.86	7.88	7.70	7.79	7.89	7.70	7.78
18	8.04	7.80	7.93	8.01	7.79	7.88	7.89	7.72	7.79	7.88	7.72	7.79
19	8.11	7.87	7.98	7.98	7.77	7.87	7.86	7.74	7.78	7.85	7.68	7.75
20	8.07	7.84	7.96	7.98	7.76	7.87	7.88	7.70	7.78	7.86	7.73	7.79
21	8.08	7.86	7.96	8.00	7.78	7.87	7.88	7.72	7.79	7.89	7.73	7.80
22	8.06	7.80	7.93	7.97	7.77	7.85	7.90	7.71	7.79	7.91	7.73	7.80
23	8.10	7.85	7.95	7.97	7.77	7.85	7.90	7.75	7.80	7.91	7.69	7.80
24	8.02	7.80	7.91	7.99	7.78	7.87	7.91	7.73	7.80	7.87	7.72	7.80
25	7.98	7.82	7.89	7.97	7.78	7.87	7.89	7.74	7.80	7.87	7.70	7.79
26	8.01	7.81	7.90	7.96	7.77	7.85	7.90	7.74	7.80	7.89	7.72	7.80
27	8.01	7.74	7.88	7.94	7.76	7.85	7.90	7.73	7.79	7.87	7.73	7.78
28	7.99	7.76	7.88	7.93	7.76	7.83	7.88	7.72	7.78	7.87	7.72	7.77
29	8.00	7.81	7.90	7.96	7.77	7.85	7.89	7.74	7.81	7.86	7.71	7.77
30	8.03	7.81	7.91	7.97	7.79	7.87	7.89	7.73	7.81	7.89	7.69	7.78
31	---	---	---	7.96	7.79	7.87	7.94	7.73	7.82	---	---	---
MONTH	8.11	7.61	7.88	8.02	7.71	7.86	7.97	7.70	7.82	7.96	7.65	7.78
YEAR	8.11	6.93	7.66									

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

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.0	18.0	18.5	13.0	13.0	13.0	8.0	7.5	8.0			
2	19.0	18.0	18.5	13.5	13.0	13.0	8.5	8.0	8.0			
3	19.0	18.0	18.5	13.5	13.0	13.0	8.5	8.0	8.5			
4	19.0	17.5	18.5	13.5	13.0	13.0	8.5	8.0	8.0			
5	19.5	18.5	19.0	13.5	13.0	13.5	8.0	7.5	7.5			
6	19.0	18.0	18.5	13.5	13.0	13.5	7.5	7.5	7.5			
7	18.0	17.0	17.5	13.5	13.0	13.5	8.0	7.5	7.5			
8	---	---	---	13.5	13.0	13.5	8.0	8.0	8.0			
9	---	---	---	13.5	13.0	13.5	8.0	8.0	8.0			
10	17.0	16.0	16.5	13.0	13.0	13.0	8.0	7.5	8.0			
11	16.5	16.0	16.0	13.0	13.0	13.0	8.0	7.0	7.5			
12	16.0	16.0	16.0	13.0	12.5	13.0	---	---	---			
13	16.5	16.0	16.0	12.5	12.0	12.5	---	---	---			
14	16.0	15.5	16.0	12.0	11.5	11.5	---	---	---			
15	15.5	15.0	15.5	12.0	11.0	11.5	---	---	---			
16	15.0	15.0	15.0	11.5	11.0	11.0	---	---	---			
17	15.0	14.5	15.0	11.0	11.0	11.0	---	---	---			
18	14.5	14.0	14.5	11.0	10.5	10.5	---	---	---			
19	14.5	14.0	14.0	10.5	10.0	10.5	---	---	---			
20	14.0	13.5	14.0	10.0	8.0	9.0	---	---	---			
21	14.0	13.5	13.5	8.0	7.5	8.0	---	---	---			
22	14.0	13.0	13.5	8.0	7.5	7.5	---	---	---			
23	14.0	13.5	13.5	8.0	7.5	8.0	---	---	---			
24	14.0	13.5	13.5	8.0	8.0	8.0	---	---	---			
25	13.5	13.5	13.5	8.0	8.0	8.0	---	---	---			
26	13.5	13.5	13.5	8.5	8.0	8.0	---	---	---			
27	13.5	13.5	13.5	8.5	8.0	8.5	---	---	---			
28	13.5	13.0	13.5	8.5	8.0	8.5	---	---	---			
29	13.5	13.0	13.0	8.5	8.0	8.5	---	---	---			
30	13.5	13.0	13.0	8.5	8.0	8.5	---	---	---			
31	13.5	13.0	13.0	---	---	---	---	---	---			
MONTH	19.5	13.0	15.5	13.5	7.5	11.0	8.5	7.0	8.0			
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	5.0	4.0	4.5	5.5	5.0	5.0	10.5	9.5	10.0
2	---	---	---	4.5	3.5	4.0	7.0	5.5	6.0	11.0	9.5	10.0
3	---	---	---	4.0	3.5	4.0	7.0	6.5	6.5	10.5	10.0	10.0
4	---	---	---	4.0	4.0	4.0	6.5	6.5	6.5	11.0	10.0	10.5
5	---	---	---	4.0	4.0	4.0	6.5	6.5	6.5	11.0	10.5	10.5
6	---	---	---	4.0	4.0	4.0	6.5	6.5	6.5	11.0	10.5	10.5
7	---	---	---	4.5	4.0	4.0	7.0	6.5	6.5	11.5	10.5	11.0
8	---	---	---	4.5	4.0	4.5	7.0	6.5	7.0	12.0	11.0	11.5
9	---	---	---	4.5	4.0	4.0	8.5	5.5	6.5	11.5	11.0	11.5
10	---	---	---	4.5	4.0	4.0	6.0	5.5	6.0	12.0	11.0	11.5
11	---	---	---	4.5	4.5	4.5	7.5	6.0	6.5	11.5	11.0	11.5
12	---	---	---	5.0	4.5	5.0	8.0	7.0	7.5	12.0	11.0	11.5
13	---	---	---	5.0	5.0	5.0	7.5	7.0	7.0	12.0	11.5	11.5
14	---	---	---	5.5	5.0	5.0	7.5	7.0	7.5	12.0	11.0	11.5
15	---	---	---	5.5	5.0	5.0	8.0	7.0	7.5	12.5	11.5	12.0
16	---	---	---	5.0	5.0	5.0	8.0	7.5	8.0	12.5	11.5	12.0
17	---	---	---	5.5	5.0	5.0	8.5	6.0	7.5	13.0	11.5	12.0
18	---	---	---	5.5	5.0	5.5	7.0	6.5	6.5	12.5	12.0	12.0
19	---	---	---	5.5	5.0	5.5	7.5	7.0	7.0	14.5	11.5	13.5
20	---	---	---	6.0	5.5	5.5	8.0	7.5	7.5	15.0	13.5	14.5
21	---	---	---	6.0	5.5	5.5	8.0	8.0	8.0	15.0	13.5	14.5
22	---	---	---	6.0	5.5	6.0	9.0	7.0	8.0	15.0	13.5	14.5
23	---	---	---	6.5	5.5	6.0	8.5	8.5	8.5	15.0	14.0	14.5
24	---	---	---	6.5	6.0	6.0	9.5	8.5	9.0	15.0	14.0	14.5
25	4.0	3.5	4.0	6.0	5.5	6.0	9.5	9.0	9.5	15.5	14.0	14.5
26	4.0	3.5	4.0	6.5	5.5	6.0	9.5	7.0	8.5	15.0	14.5	14.5
27	4.0	3.5	4.0	6.5	6.0	6.0	8.5	8.0	8.0	15.0	14.5	14.5
28	4.5	4.0	4.0	6.5	6.0	6.0	10.5	8.5	10.0	15.5	14.5	15.0
29	---	---	---	7.0	6.0	6.5	10.5	9.5	10.0	16.0	14.5	15.5
30	---	---	---	6.5	6.0	6.0	11.0	10.0	10.5	16.0	14.5	15.5
31	---	---	---	7.5	5.0	6.0	---	---	---	16.0	15.0	15.5
MONTH	4.5	3.5	4.0	7.5	3.5	5.0	11.0	5.0	7.5	16.0	9.5	12.5

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

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	16.0	14.5	15.5	22.0	21.0	21.5	24.0	23.5	23.5	21.5	20.5	21.0
2	16.5	15.0	15.5	22.0	20.5	21.5	24.0	23.0	23.5	21.0	20.0	20.5
3	16.5	15.5	16.0	22.0	21.0	21.5	24.0	23.0	24.0	21.0	20.0	20.5
4	20.0	15.5	18.0	22.0	21.5	22.0	24.5	24.0	24.0	20.5	20.0	20.0
5	20.0	19.0	19.5	22.0	21.5	22.0	24.5	23.0	23.5	20.0	19.5	20.0
6	21.0	18.5	19.5	22.5	21.5	22.0	23.5	22.0	22.5	20.0	19.5	19.5
7	20.5	18.0	19.0	22.5	22.0	22.5	23.0	22.0	22.5	19.5	19.5	19.5
8	20.5	18.0	19.0	23.0	22.0	22.5	23.0	22.0	22.5	20.0	19.5	20.0
9	20.5	18.0	19.0	23.5	22.5	23.0	23.5	22.0	22.5	20.0	19.5	20.0
10	20.5	18.5	19.5	23.0	22.0	23.0	23.0	22.0	22.5	20.0	19.5	19.5
11	20.0	18.5	19.5	23.5	22.5	23.0	23.0	22.0	22.5	20.0	19.5	20.0
12	20.0	18.5	19.5	23.5	23.0	23.0	23.0	22.0	22.5	20.0	19.5	19.5
13	20.0	19.0	19.5	24.0	22.5	23.0	23.0	22.0	22.5	20.0	19.5	19.5
14	21.0	19.5	20.0	24.0	22.5	23.5	23.0	22.0	22.5	20.0	19.5	20.0
15	21.0	19.5	20.0	23.5	22.0	23.0	22.5	22.0	22.0	20.5	19.5	20.0
16	21.0	19.5	20.5	23.0	22.5	22.5	22.0	21.0	21.5	20.0	19.5	20.0
17	21.5	20.0	20.5	23.0	22.0	22.5	22.5	21.0	21.5	20.0	19.5	20.0
18	21.5	19.5	20.5	23.0	22.0	22.5	22.5	21.5	22.0	20.5	19.5	20.0
19	21.5	20.0	20.5	23.0	22.0	22.5	22.5	22.0	22.0	20.0	19.5	20.0
20	22.0	20.0	21.0	23.5	22.5	23.0	23.0	21.5	22.5	20.0	19.5	20.0
21	21.5	20.5	21.0	23.5	23.0	23.0	22.5	21.5	22.0	20.0	19.5	20.0
22	22.0	20.0	21.0	24.0	23.0	23.5	22.5	21.0	22.0	20.0	19.0	19.5
23	22.5	20.0	21.5	24.0	23.5	23.5	23.0	21.5	22.0	19.5	19.0	19.0
24	22.0	21.0	21.5	24.0	23.5	23.5	22.5	21.0	21.5	19.0	18.5	19.0
25	21.5	21.0	21.5	24.5	23.5	24.0	21.5	21.0	21.5	19.0	18.5	18.5
26	22.0	21.0	21.5	24.5	23.5	24.0	21.5	21.0	21.0	19.0	18.5	18.5
27	22.5	21.0	22.0	24.5	23.5	24.0	22.0	21.0	21.5	19.0	18.5	18.5
28	22.0	20.5	21.5	24.5	23.5	24.0	21.5	21.0	21.0	18.5	18.0	18.5
29	22.0	20.5	21.0	24.5	23.5	24.0	21.5	21.0	21.5	18.5	18.0	18.5
30	22.0	20.5	21.5	24.0	23.5	23.5	21.5	20.5	21.0	18.5	18.0	18.0
31	---	---	---	24.0	23.0	23.5	21.5	20.5	21.0	---	---	---
MONTH	22.5	14.5	20.0	24.5	20.5	23.0	24.5	20.5	22.0	21.5	18.0	19.5
YEAR	24.5	3.5	14.5									

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

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.6	8.3	8.4	11.2	10.6	10.8	12.0	11.6	11.8	13.4	13.1	13.3
2	8.6	8.2	8.4	11.3	10.8	11.1	11.7	11.4	11.6	---	---	---
3	8.6	8.2	8.3	11.5	11.2	11.4	11.8	11.5	11.6	---	---	---
4	8.5	8.2	8.3	11.8	11.3	11.5	12.0	11.7	11.8	---	---	---
5	8.5	8.1	8.2	11.8	11.4	11.6	12.1	11.7	11.9	---	---	---
6	8.5	8.1	8.2	11.9	11.5	11.7	12.1	11.8	11.9	---	---	---
7	8.6	8.2	8.3	11.8	11.3	11.7	12.2	11.8	11.9	---	---	---
8	---	---	---	12.0	11.6	11.7	12.2	11.9	12.0	---	---	---
9	---	---	---	11.9	11.5	11.6	12.1	11.8	11.9	14.3	13.7	14.0
10	9.1	8.7	8.8	12.0	11.5	11.7	12.2	11.8	11.9	15.6	13.8	14.7
11	9.0	8.7	8.9	11.8	11.5	11.7	12.1	11.9	12.0	14.1	13.2	13.6
12	9.6	8.7	9.1	12.0	11.6	11.7	12.5	11.9	12.2	13.6	13.1	13.4
13	10.0	8.7	9.5	12.0	11.5	11.8	13.2	12.7	13.0	13.3	12.9	13.1
14	10.7	9.6	10.3	12.2	11.7	11.8	13.2	12.9	13.0	13.0	12.7	12.8
15	11.0	9.6	10.3	12.1	11.6	11.8	13.2	13.0	13.0	12.8	12.4	12.6
16	10.0	9.3	9.7	11.8	11.5	11.6	13.3	13.0	13.1	12.7	12.5	12.6
17	10.1	9.5	9.8	11.8	11.5	11.6	13.2	12.9	13.1	12.9	12.6	12.8
18	10.0	8.8	9.5	11.7	11.3	11.4	13.1	12.9	13.0	13.0	12.9	12.9
19	10.7	9.2	9.7	11.7	11.1	11.4	13.2	13.0	13.1	13.3	13.0	13.1
20	10.2	8.6	9.3	11.5	11.0	11.2	13.2	13.0	13.1	13.7	13.1	13.2
21	10.6	9.2	9.8	11.3	11.0	11.1	13.4	13.1	13.2	14.3	12.9	13.4
22	10.1	9.5	9.8	11.5	11.2	11.3	13.4	13.2	13.3	14.1	13.0	13.6
23	10.1	9.4	9.7	11.6	11.2	11.4	13.4	13.1	13.2	14.8	13.5	14.3
24	9.9	9.4	9.7	11.6	11.3	11.4	13.2	12.9	13.1	15.4	14.9	15.1
25	9.6	9.3	9.4	11.8	11.4	11.5	13.3	13.0	13.1	15.3	14.9	15.2
26	9.6	9.4	9.4	11.5	11.3	11.4	13.4	13.2	13.2	16.2	14.9	15.6
27	9.5	9.1	9.3	11.7	11.3	11.5	13.5	13.2	13.3	16.8	16.3	16.5
28	10.0	9.0	9.4	11.8	11.4	11.6	13.5	13.2	13.3	17.1	16.8	17.0
29	10.2	7.3	8.8	11.7	11.4	11.5	13.5	13.1	13.3	---	---	---
30	10.3	7.4	9.6	11.8	11.4	11.6	13.4	13.1	13.2	---	---	---
31	10.8	9.9	10.3	---	---	---	13.5	13.2	13.3	---	---	---
MONTH	11.0	7.3	9.3	12.2	10.6	11.5	13.5	11.4	12.7	17.1	12.4	13.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	11.8	11.5	11.7				---	---	---
2	---	---	---	13.9	9.0	11.6				---	---	---
3	15.0	13.6	14.4	9.1	8.7	8.9				---	---	---
4	15.4	13.3	14.7	9.0	9.0	9.0				---	---	---
5	15.5	15.1	15.4	9.3	9.1	9.2				---	---	---
6	15.4	15.0	15.2	9.4	9.0	9.2				---	---	---
7	15.2	14.9	15.1	9.5	9.2	9.4				---	---	---
8	15.0	14.8	14.9	9.9	9.8	9.8				---	---	---
9	15.6	14.6	15.2	10.3	10.1	10.2				---	---	---
10	15.5	15.3	15.4	10.6	10.5	10.5				---	---	---
11	15.3	15.1	15.2	10.8	10.8	10.8				---	---	---
12	14.9	14.7	14.8	11.1	11.0	11.0				---	---	---
13	14.8	14.6	14.7	11.3	11.2	11.3				---	---	---
14	14.4	14.2	14.3	11.6	11.5	11.5				11.0	10.7	10.8
15	14.3	14.0	14.1	11.9	11.8	11.8				11.0	10.6	10.8
16	14.0	13.8	13.9	12.2	12.1	12.2				11.0	10.6	10.8
17	13.6	13.4	13.5	12.5	12.5	12.5				11.0	10.6	10.8
18	13.6	13.2	13.4	---	---	---				11.0	10.6	10.7
19	13.4	12.6	13.0	---	---	---				10.9	10.3	10.5
20	12.6	12.3	12.4	---	---	---				10.6	10.2	10.4
21	12.1	11.9	12.0	---	---	---				10.6	10.3	10.5
22	11.7	11.2	11.5	---	---	---				10.7	10.3	10.5
23	---	---	---	---	---	---				10.6	10.2	10.4
24	11.4	11.0	11.1	---	---	---				10.6	10.1	10.3
25	11.4	11.2	11.3	---	---	---				10.5	10.1	10.3
26	11.7	11.5	11.6	---	---	---				10.6	10.1	10.3
27	11.9	11.7	11.8	---	---	---				10.5	10.1	10.3
28	12.1	11.4	11.8	---	---	---				10.5	10.1	10.4
29	---	---	---	---	---	---				10.4	10.0	10.3
30	---	---	---	---	---	---				10.3	10.0	10.2
31	---	---	---	---	---	---				10.2	9.9	10.1
MONTH	15.6	11.0	13.6	13.9	8.7	10.6				11.0	9.9	10.5

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

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10.1	9.9	10.0	8.2	7.8	8.0	7.1	5.7	6.4	8.2	7.5	7.8
2	10.2	9.8	10.0	8.2	7.9	8.1	6.2	5.8	6.0	8.1	7.6	7.8
3	10.1	9.8	10.0	8.2	7.8	8.0	6.4	5.7	6.1	8.2	7.6	7.9
4	10.0	9.0	9.5	8.1	7.8	7.9	6.6	5.8	6.3	8.1	7.7	7.8
5	9.4	8.8	9.2	8.1	7.7	8.0	7.9	6.6	7.4	8.1	7.7	7.9
6	9.3	8.7	9.0	8.2	7.8	8.0	8.3	7.7	8.1	8.1	7.6	7.8
7	9.2	8.8	9.1	8.1	7.7	7.9	8.5	8.1	8.3	7.8	7.6	7.7
8	9.2	8.9	9.1	8.9	7.6	8.1	8.6	7.8	8.3	7.9	7.2	7.6
9	9.2	8.8	8.9	9.8	8.7	9.4	8.4	7.9	8.2	8.0	7.5	7.7
10	8.9	7.2	8.2	10.2	9.7	9.9	8.5	8.0	8.2	8.0	7.6	7.8
11	8.4	7.1	7.8	10.3	9.9	10.1	8.6	8.2	8.3	8.0	7.6	7.8
12	8.8	8.3	8.5	10.5	9.9	10.2	8.6	8.2	8.4	8.0	7.6	7.8
13	8.8	8.5	8.7	10.5	9.9	10.2	8.6	8.3	8.4	8.1	7.7	7.8
14	8.7	8.5	8.6	10.4	9.8	10.1	8.6	8.2	8.4	8.1	7.7	7.8
15	8.7	8.4	8.5	10.3	9.7	10.1	8.8	8.3	8.5	8.1	7.7	7.8
16	8.5	8.1	8.3	10.3	9.8	10.1	8.9	8.4	8.6	8.0	7.6	7.8
17	8.4	8.1	8.2	10.2	9.7	10.0	8.8	8.3	8.6	8.0	7.5	7.7
18	8.2	7.9	8.1	10.0	9.6	9.8	8.8	8.3	8.5	7.8	7.4	7.6
19	8.0	7.7	7.9	9.8	9.4	9.6	8.4	7.7	8.1	7.8	7.5	7.6
20	8.0	7.7	7.9	9.6	9.1	9.4	8.5	7.8	8.1	7.8	7.4	7.6
21	8.0	7.7	7.8	9.3	8.9	9.1	8.5	7.9	8.2	7.8	7.4	7.6
22	8.0	7.7	7.9	9.1	8.6	8.8	8.4	7.8	8.1	7.8	7.4	7.6
23	8.0	7.6	7.8	8.8	8.4	8.6	8.4	7.7	8.0	7.8	7.4	7.6
24	8.4	7.9	8.2	8.6	8.2	8.4	8.3	7.9	8.1	7.9	7.5	7.7
25	8.1	7.8	8.0	8.3	7.9	8.1	8.3	7.9	8.1	8.1	7.9	8.0
26	7.9	7.6	7.8	8.1	7.6	7.8	8.4	7.8	8.1	8.3	7.9	8.1
27	7.9	7.5	7.7	7.9	7.4	7.6	8.2	7.7	7.9	8.4	8.0	8.1
28	7.9	7.6	7.8	8.2	7.3	7.7	8.1	7.6	7.9	8.4	7.9	8.1
29	8.1	7.8	8.0	8.0	7.6	7.8	8.2	7.7	7.9	8.2	7.8	8.0
30	8.2	7.8	8.0	7.9	7.2	7.5	8.3	7.8	8.0	8.0	7.7	7.8
31	---	---	---	7.7	6.8	7.2	8.1	7.7	7.9	---	---	---
MONTH	10.2	7.1	8.5	10.5	6.8	8.8	8.9	5.7	7.9	8.4	7.2	7.8
YEAR	17.1	5.7	10.3									

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 mi².

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: June 1978 to current year.

INSTRUMENTATION.--Water-temperature recorder since June 1978.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Some record in prior years fragmentary due to instrument malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum recorded, 30.5°C, July 21, 1980; minimum recorded, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum recorded, 28.5°C, July 23; minimum, 1.5°C on several days during February.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	22.5	20.0	21.0	13.5	11.5	12.0	8.0	5.5	7.5	---	---	---
2	22.5	19.0	21.0	14.5	12.0	13.5	8.0	6.0	6.5	---	---	---
3	21.0	18.5	20.0	13.0	12.0	12.5	8.5	8.0	8.5	---	---	---
4	20.5	19.5	20.0	13.0	11.0	12.5	8.0	6.0	7.0	7.0	4.5	5.5
5	22.0	19.0	20.0	13.0	12.0	12.5	6.5	5.0	5.5	5.0	4.0	4.5
6	19.0	17.0	18.0	13.5	11.5	12.5	5.5	3.5	4.5	4.5	3.0	4.0
7	17.0	14.5	16.0	13.0	12.5	12.5	5.5	4.0	5.0	4.5	3.5	4.0
8	17.0	14.0	15.5	13.5	12.0	13.0	7.0	5.5	6.5	6.0	4.5	4.5
9	17.5	15.5	16.5	14.0	12.5	13.5	10.0	7.0	8.5	4.5	3.5	4.0
10	16.5	14.5	16.0	12.0	10.5	11.0	10.5	8.5	10.0	6.0	4.5	5.5
11	16.5	13.5	15.0	10.0	10.0	10.0	10.5	8.5	9.5	5.5	4.5	5.0
12	15.5	14.5	15.0	10.0	10.0	10.0	9.0	7.0	7.5	5.0	3.0	4.0
13	17.0	10.0	15.5	10.0	6.5	8.5	7.0	4.0	5.5	5.0	4.0	4.5
14	17.0	15.5	16.5	6.5	4.5	5.5	4.0	2.5	3.5	5.0	4.0	4.5
15	15.5	13.5	14.0	8.0	4.5	6.5	5.5	3.5	4.5	7.0	5.0	6.0
16	14.0	12.0	13.0	9.5	8.0	8.5	5.5	4.0	5.0	6.5	6.0	6.5
17	14.0	12.0	13.0	10.0	8.5	9.5	7.0	5.5	6.0	6.5	5.5	6.0
18	14.0	12.0	13.0	10.0	9.0	9.5	---	---	---	6.0	5.0	5.5
19	13.5	11.0	12.5	10.0	8.0	8.5	8.5	7.0	8.0	6.5	5.0	6.0
20	13.5	10.5	12.0	8.5	6.5	7.5	7.5	5.5	6.5	6.0	5.0	5.5
21	13.5	10.5	12.0	7.0	6.5	6.5	5.0	3.5	4.5	5.5	4.5	4.5
22	14.5	12.0	13.0	8.0	6.0	6.5	4.0	2.5	3.5	4.5	3.5	4.0
23	14.5	12.5	13.5	7.5	6.5	7.0	4.0	2.0	3.0	4.0	2.5	3.5
24	15.0	13.0	14.0	9.5	7.5	8.5	---	---	---	4.0	2.0	3.0
25	15.0	13.5	14.0	9.0	8.0	8.5	---	---	---	3.5	2.0	3.0
26	14.5	10.0	13.0	10.5	8.0	10.0	8.0	7.0	7.5	4.0	2.0	3.0
27	15.5	13.5	14.0	10.5	9.5	10.0	7.0	6.5	6.5	3.5	2.0	2.5
28	15.0	13.5	14.0	10.0	9.5	10.0	7.5	6.0	6.5	3.5	2.0	2.5
29	13.5	12.0	12.5	10.0	8.5	9.0	6.5	5.0	5.5	4.0	2.5	3.0
30	14.0	11.0	12.5	9.0	8.0	8.5	5.5	4.5	5.0	5.0	3.5	4.0
31	13.5	11.5	12.5	---	---	---	6.5	4.5	5.5	4.5	3.0	3.5
MONTH	22.5	10.0	15.0	14.5	4.5	10.0	10.5	2.0	6.0	7.0	2.0	4.5

02012800 JACKSON RIVER AT FILTRATION PLANT, AT COVINGTON, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

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 mi².
PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.
REVISED RECORDS.--WSP 972: 1929-30, 1932-34, 1942. WSP 1303: 1929-35(M), 1937-38(M), 1941-48(M). WSP 2104: Drainage area. WDR VA-74-1: 1969(M), 1972, 1973(P).
GAGE.--Water-stage recorder. Datum of gage is 1,294.70 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 8, 1949, nonrecording gage at same site and datum.
REMARKS.--Records good except for period with ice effect, Jan. 28-30, which is fair. Occasional diurnal fluctuation caused by dam 7.9 mi upstream from station. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--59 years, 168 ft³/s, 13.91 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,400 ft³/s, June 21, 1972, gage height, 15.65 ft, from rating curve extended above 4,500 ft³/s on basis of step-backwater computations and contracted-opening measurement at gage height 15.65 ft; minimum, 2.0 ft³/s, July 4, 1970; minimum daily, 7.0 ft³/s, Sept. 9, 1966; minimum gage height, 0.69 ft, June 6, July 14, 1969.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 18 ft, from information by local residents.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2330	5,400	8.56	Apr. 16	0630	*7,100	*9.62
Jan. 19	1830	3,320	6.71	Apr. 17	0030	6,950	9.54
Mar. 1	1730	5,170	8.40	Apr. 25	0630	5,090	8.34
Mar. 31	1330	2,520	5.91				

Minimum discharge, 5.2 ft³/s, Aug. 9, gage height, 1.11 ft; minimum daily, 15 ft³/s, Aug. 19-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	27	73	135	357	3900	1040	277	126	28	21	17
2	20	41	82	127	338	2700	587	237	240	30	19	16
3	20	53	300	113	552	1210	421	208	143	37	19	16
4	21	46	284	100	658	772	358	397	112	57	19	16
5	21	47	182	90	643	518	307	471	93	109	18	18
6	21	94	129	83	503	393	332	353	79	67	18	25
7	21	97	103	86	420	389	611	282	70	49	18	66
8	20	97	87	90	404	538	1080	232	62	39	18	163
9	20	102	99	89	364	701	911	193	59	35	16	74
10	20	123	304	91	292	730	540	166	61	33	17	229
11	19	105	413	95	249	459	386	146	56	34	17	175
12	19	87	619	93	237	340	304	134	54	45	16	139
13	22	74	337	88	326	272	253	126	58	69	16	151
14	25	64	211	84	333	226	205	112	53	66	16	88
15	25	56	160	87	305	198	1070	104	48	48	16	61
16	24	52	128	93	279	180	5540	98	47	40	16	48
17	23	48	108	99	275	165	3940	90	55	35	16	41
18	22	45	116	111	244	155	1840	84	48	32	16	38
19	21	42	138	1630	208	167	941	81	43	30	15	36
20	21	42	140	1510	192	192	604	97	41	28	15	48
21	20	46	127	653	204	207	441	81	40	26	15	54
22	21	55	109	444	245	197	351	74	38	25	16	45
23	21	56	96	328	307	176	292	69	37	27	21	40
24	20	55	1780	231	372	158	1580	289	34	28	19	36
25	24	53	2190	207	376	150	4330	411	34	26	17	35
26	31	83	651	192	479	141	1730	345	35	25	18	35
27	39	183	389	162	444	127	805	236	35	24	18	35
28	33	145	281	e150	622	177	563	359	31	23	18	31
29	29	109	218	e140	---	215	415	226	30	22	18	31
30	28	87	184	e130	---	473	339	159	29	21	17	32
31	27	---	156	434	---	1800	---	121	---	21	17	---
TOTAL	718	2214	10194	7965	10228	18026	32116	6258	1891	1179	536	1839
MEAN	23.2	73.8	329	257	365	581	1071	202	63.0	38.0	17.3	61.3
MAX	39	183	2190	1630	658	3900	5540	471	240	109	21	229
MIN	19	27	73	83	192	127	205	69	29	21	15	16
CFSM	.14	.45	2.01	1.57	2.23	3.55	6.53	1.23	.38	.23	.11	.37
IN.	.16	.50	2.31	1.81	2.32	4.09	7.28	1.42	.43	.27	.12	.42

CAL YR 1986 TOTAL 46318 MEAN 127 MAX 3330 MIN 16 CFSM .77 IN. 10.51
WTR YR 1987 TOTAL 93164 MEAN 255 MAX 5540 MIN 15 CFSM 1.56 IN. 21.13

e Estimated.

02013100 JACKSON RIVER BELOW DUNLAP CREEK, AT COVINGTON, VA

LOCATION.--Lat 37°47'19", long 80°00'03", Covington City, Hydrologic Unit 02080201, on left bank in city recreation park and 0.5 mi downstream from Dunlap Creek.

DRAINAGE AREA.--614 mi².

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

REVISED RECORDS.--WDR VA-76-1: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 1,206.53 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Small diurnal fluctuation at low flow caused by Westvaco plant 0.8 mi upstream and occasionally by dam on Dunlap Creek 12.7 mi upstream. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 19.9 mi upstream; since October 1984 by Back Creek Lake 47.9 mi upstream, amount unknown; and since January 1985 by Little Back Creek Lake 51.0 mi upstream, amount unknown. Diversion by Westvaco plant averages 47 ft³/s for industrial use of which approximately 42 ft³/s is returned upstream from station. Diversion 2.0 mi upstream from station for city of Covington water supply averages less than 4.0 ft³/s. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years, 740 ft³/s, 16.37 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,300 ft³/s, Nov. 4, 1985, gage height, 23.31 ft, from rating curve extended above 19,000 ft³/s; minimum, 41 ft³/s, Jan. 5, 1981, gage height, 4.38 ft, result of freezeup; minimum daily, 67 ft³/s, Sept. 3, 27-29, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 24.36 ft, discharge, 34,000 ft³/s, from floodmarks, and flood of Dec. 27, 1973, reached a stage of 22.09 ft, from floodmarks, discharge, 28,300 ft³/s, from rating curve extended above 19,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,000 ft³/s, Apr. 16, gage height, 13.72 ft; minimum, 175 ft³/s, Oct. 31; minimum daily, 188 ft³/s, Oct. 31; minimum gage height, 4.70 ft, Oct. 20, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	217	193	262	387	834	4730	3670	980	501	317	300	279
2	222	229	290	373	771	4340	4520	1020	745	329	301	267
3	219	223	664	349	947	5510	1810	814	792	338	298	269
4	217	215	625	324	1050	5710	1510	1210	630	395	297	267
5	223	228	446	310	1010	4200	1420	1530	452	469	300	282
6	217	275	355	288	840	1630	1460	1360	385	380	298	298
7	223	276	309	284	748	1320	1850	1390	369	351	296	449
8	217	293	284	291	735	1580	2590	970	358	321	300	732
9	220	308	306	285	761	2400	2450	786	357	314	299	412
10	212	335	608	296	896	3120	3190	807	342	323	298	552
11	212	320	759	296	867	2040	2610	846	350	320	302	641
12	214	293	1130	296	854	1710	1080	690	350	325	302	576
13	225	274	713	290	961	1200	1280	632	348	384	299	555
14	223	255	492	279	968	1080	1160	488	344	361	299	411
15	218	245	400	290	962	911	2480	432	336	339	301	345
16	212	234	343	296	1040	804	8390	423	339	326	304	317
17	213	225	310	308	1030	771	6710	409	342	319	296	302
18	205	222	323	326	1060	748	7220	398	330	315	301	299
19	204	220	349	2130	1030	742	7740	412	320	311	297	297
20	203	221	349	2310	653	694	7720	552	319	310	300	373
21	204	229	329	2800	676	660	7340	514	321	304	298	353
22	200	237	304	3120	741	631	2710	422	317	302	304	318
23	199	235	284	1630	871	603	1320	393	312	303	333	304
24	202	233	2160	1490	1050	578	2650	561	315	308	310	295
25	213	229	3190	1460	1010	574	5780	855	317	304	306	286
26	219	275	1180	1420	1070	560	3580	805	314	304	307	283
27	220	474	802	1370	1040	552	5610	678	313	304	305	275
28	216	381	628	1120	1200	703	3620	927	308	301	304	277
29	213	319	525	584	---	755	1610	858	307	298	302	273
30	211	285	466	607	---	1110	1130	567	302	298	302	274
31	188	---	418	947	---	2790	---	507	---	299	301	---
TOTAL	6601	7981	19603	26556	25675	54756	106210	23236	11435	10172	9360	10861
MEAN	213	266	632	857	917	1766	3540	750	381	328	302	362
MAX	225	474	3190	3120	1200	5710	8390	1530	792	469	333	732
MIN	188	193	262	279	653	552	1080	393	302	298	296	267
(*)	-104	+67	+512	-16	+167	+46	-91	.00	-87	-158	-189	+15
MEAN‡	109	333	1144	841	1084	1812	3449	750	294	170	113	377
CFSM‡	.18	.54	1.86	1.37	1.77	2.95	5.62	1.22	.48	.28	.18	.61
IN.‡	.20	.61	2.15	1.58	1.84	3.40	6.27	1.41	.53	.32	.21	.69

CAL YR 1986	TOTAL 191354	MEAN 524	MAX 5970	MIN 188	MEAN‡ 516	CFSM‡ .84	IN.‡ 11.42	
WTR YR 1987	TOTAL 312446	MEAN 856	MAX 8390	MIN 188	MEAN‡ 869	CFSM‡ 1.42	IN.‡ 19.22	

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

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 mi².

PERIOD OF RECORD.--October 1928 to September 1956, October 1965 to current year.

REVISED RECORDS.--WSP 1723: 1935, 1936(M), 1940(M), 1942(M), 1948-49(M), 1951-52(M), 1954(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,273.93 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1956, nonrecording gage at site 1.3 mi downstream at different datum.

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

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

AVERAGE DISCHARGE.--50 years, 181 ft³/s, 16.07 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,400 ft³/s, Nov. 4, 1985, gage height, 13.46 ft, from rating curve extended above 12,000 ft³/s; minimum observed, 13 ft³/s, Nov. 29, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0230	3,580	8.13	Apr. 17	0030	*5,920	*9.56
Mar. 1	2000	3,720	8.23	Apr. 25	0530	5,560	9.38
Mar. 31	1530	2,630	7.37				

Minimum discharge, 16 ft³/s, Aug. 22, gage height, 2.50 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	37	101	177	285	2710	1210	366	91	38	26	24
2	26	52	124	168	282	2420	744	311	106	42	26	23
3	28	61	273	148	451	1270	575	267	88	61	26	22
4	29	54	248	131	560	866	491	320	80	57	26	22
5	28	60	192	126	464	631	416	322	77	50	25	26
6	27	146	152	111	390	492	399	284	71	64	24	41
7	26	143	129	113	354	440	567	252	66	49	25	148
8	26	133	113	117	338	471	812	224	63	42	26	188
9	26	122	124	112	315	582	840	196	62	39	25	81
10	26	112	188	110	262	886	680	178	64	39	25	52
11	25	98	243	111	e235	649	545	164	63	41	23	46
12	25	98	485	108	234	490	445	158	60	46	23	57
13	29	89	315	104	269	395	378	145	70	84	22	91
14	33	79	225	100	258	331	312	135	62	61	22	67
15	34	73	184	102	257	288	962	127	57	48	22	49
16	33	70	154	111	240	261	5030	120	55	42	22	42
17	30	66	134	108	232	236	3930	112	55	40	22	37
18	29	62	149	114	221	221	1820	106	53	37	22	35
19	28	59	173	895	193	233	1050	102	50	36	21	35
20	28	55	152	942	177	261	726	105	49	34	21	49
21	28	60	136	569	175	257	551	98	50	33	23	44
22	28	69	120	445	197	252	437	94	48	32	20	38
23	28	65	107	355	240	235	368	89	45	33	29	34
24	28	63	1120	263	258	216	1980	88	44	32	27	32
25	33	62	2050	240	246	208	4960	97	43	30	26	31
26	51	71	770	e203	284	200	2310	97	46	29	26	30
27	60	246	490	e172	292	184	1150	107	48	28	25	29
28	47	179	361	e176	443	234	787	148	45	27	27	28
29	41	143	283	176	---	225	578	116	41	25	29	28
30	39	119	238	188	---	724	457	102	40	25	27	30
31	37	---	202	338	---	1950	---	93	---	25	25	---
TOTAL	983	2746	9735	7133	8152	18818	35510	5123	1792	1269	758	1459
MEAN	31.7	91.5	314	230	291	607	1184	165	59.7	40.9	24.5	48.6
MAX	60	246	2050	942	560	2710	5030	366	106	84	29	188
MIN	25	37	101	100	175	184	312	88	40	25	20	22
CFSM	.21	.60	2.05	1.50	1.90	3.97	7.74	1.08	.39	.27	.16	.32
IN.	.24	.67	2.37	1.73	1.98	4.58	8.63	1.25	.44	.31	.18	.35

CAL YR 1986 TOTAL 46629 MEAN 128 MAX 2790 MIN 24 CFSM .84 IN. 11.34
WTR YR 1987 TOTAL 93478 MEAN 256 MAX 5030 MIN 20 CFSM 1.67 IN. 22.73

e Estimated.

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 mi².

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

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,610.14 ft above National Geodetic Vertical Datum of 1929. Prior to July 12, 1974, at site 700 ft upstream at datum 11.84 ft higher.

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

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

AVERAGE DISCHARGE.--27 years, 149 ft³/s, 18.39 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,900 ft³/s, Nov. 4, 1985, gage height, 14.39 ft, from flood-marks, from rating curve extended above 3,300 ft³/s on basis of slope-area measurement of peak flow; minimum, 19 ft³/s, Jan. 4, 1981, result of freezeup; minimum daily, 23 ft³/s, Sept. 8, 9, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2000	2,820	5.24	Apr. 17	0130	3,210	5.52
Apr. 15	1900	*4,260	*6.23	Apr. 24	2230	2,240	4.80
Apr. 16	0930	2,600	5.08	Sept. 8	0330	3,080	5.43

Minimum discharge, 30 ft³/s, Oct. 7, gage height, 1.34 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	35	77	120	124	1250	716	226	322	48	38	33
2	33	47	109	112	191	1260	445	200	492	48	34	32
3	33	46	258	103	290	751	348	185	258	49	35	32
4	33	41	170	88	270	516	308	349	206	62	35	32
5	35	49	124	83	232	380	274	308	167	72	34	35
6	34	88	103	78	203	304	299	262	132	58	34	66
7	32	60	90	85	197	294	540	229	112	52	33	110
8	32	67	83	87	200	358	709	200	102	47	34	1380
9	32	66	97	80	178	480	546	173	93	45	34	236
10	33	e94	151	78	148	492	405	152	91	45	33	e310
11	33	e90	155	82	142	330	322	138	80	45	33	e300
12	33	e86	218	74	172	254	266	130	75	53	33	328
13	35	67	158	72	246	209	218	126	79	70	32	176
14	40	57	118	67	200	180	182	112	72	57	32	126
15	40	51	108	74	180	162	1340	108	68	52	32	95
16	35	50	99	77	155	151	2310	102	68	45	33	75
17	34	47	92	74	142	137	2520	95	77	43	33	66
18	34	45	101	78	142	129	1370	91	68	41	33	63
19	33	57	97	704	122	122	832	205	64	41	33	58
20	33	57	87	660	114	118	558	525	63	40	32	355
21	33	94	80	362	120	114	420	250	66	38	31	232
22	33	80	69	266	118	110	335	185	64	37	33	140
23	33	70	66	218	124	106	270	176	63	40	47	104
24	33	64	1140	158	122	105	830	315	60	44	38	87
25	34	60	1120	151	124	106	1260	495	57	40	35	74
26	37	146	516	139	142	129	723	330	62	37	35	64
27	37	200	317	e118	142	114	510	379	58	36	35	57
28	37	124	232	e116	172	122	410	559	53	34	35	53
29	35	103	180	e118	---	116	330	390	49	33	35	50
30	35	87	155	120	---	222	282	258	50	33	34	70
31	34	---	135	137	---	1080	---	200	---	41	33	---
TOTAL	1061	2228	6505	4779	4712	10201	19878	7453	3271	1426	1061	4839
MEAN	34.2	74.3	210	154	168	329	663	240	109	46.0	34.2	161
MAX	40	200	1140	704	290	1260	2520	559	492	72	47	1380
MIN	32	35	66	67	114	105	182	91	49	33	31	32
CFSM	.31	.68	1.91	1.40	1.53	2.99	6.03	2.18	.99	.42	.31	1.46
IN.	.36	.75	2.20	1.62	1.59	3.45	6.72	2.52	1.11	.48	.36	1.64

CAL YR 1986 TOTAL 42493 MEAN 116 MAX 2300 MIN 30 CFSM 1.06 IN. 14.37
WTR YR 1987 TOTAL 67414 MEAN 185 MAX 2520 MIN 31 CFSM 1.68 IN. 22.80

e Estimated.

02016000 COWPASTURE RIVER NEAR CLIFTON FORGE, VA

LOCATION.--Lat 37°47'30", long 79°45'35", Alleghany County, Hydrologic Unit 02080201, on left bank 100 ft downstream from bridge on State Highway 633, 2.5 mi upstream from confluence with Jackson River, and 4.0 mi southeast of Clifton Forge.
DRAINAGE AREA.--461 mi².
PERIOD OF RECORD.--March 1925 to current year. Records for May 1907 to August 1908, published in WSP 242, are unreliable and should not be used.
REVISED RECORDS.--WSP 952: 1925-41. WSP 2104: Drainage area. See also PERIOD OF RECORD.
GAGE.--Water-stage recorder. Datum of gage is 1,006.93 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to October 1934, nonrecording gage at site 100 ft upstream at present datum.
REMARKS.--Records good. Low flow affected by springs and by occasional regulation from unknown source. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--62 years, 530 ft³/s, 15.61 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,900 ft³/s, Nov. 5, 1985, gage height, 19.15 ft, from rating curve extended above 13,000 ft³/s on basis of slope-area measurements at gage heights 15.70 ft and 19.15 ft; minimum, 38 ft³/s, Sept. 2, 1932; minimum daily, 40 ft³/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 ft³/s, from rating curve extended above 13,000 ft³/s on basis of records for other stations in James River basin.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0930	9,540	9.89	Apr. 16	1130	*15,500	*12.44
Mar. 2	0730	7,600	8.89	Apr. 25	1130	11,100	10.63
Apr. 1	0130	5,020	7.35	Sept. 8	1700	9,040	9.64

Minimum discharge, 70 ft³/s, Aug. 21-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	83	267	432	629	4610	3590	773	428	114	96	76
2	78	100	353	399	569	6420	1820	662	950	124	104	73
3	79	115	942	364	1070	3290	1330	617	803	159	99	72
4	77	116	857	325	1450	2010	1130	1100	585	177	95	72
5	76	128	585	293	1280	1420	1030	1310	481	219	90	78
6	75	182	434	274	994	1090	1120	1020	394	315	88	109
7	72	212	344	260	846	918	1740	847	329	234	86	621
8	74	232	291	265	802	904	2670	722	284	204	86	7290
9	74	236	303	263	766	1100	2050	614	255	163	85	1840
10	74	234	499	253	639	1520	1510	537	243	138	85	734
11	74	222	695	249	557	1320	1150	480	228	137	82	1290
12	74	210	1110	248	521	973	943	435	210	152	79	1290
13	82	224	847	235	611	794	787	408	200	317	77	1070
14	90	197	595	220	659	667	650	381	193	251	75	683
15	89	170	458	220	594	583	3530	345	181	186	76	507
16	87	153	387	233	541	540	14300	320	170	154	77	362
17	85	143	331	244	510	493	12500	303	181	135	77	284
18	81	137	345	257	477	445	6770	281	176	126	76	241
19	78	132	390	1590	431	422	3010	288	159	119	76	225
20	78	135	368	3760	382	402	1880	1590	147	113	73	1170
21	77	164	318	1780	392	382	1370	1180	145	109	71	1270
22	77	215	278	1180	435	363	1080	688	145	105	71	790
23	78	223	245	928	536	343	889	529	141	100	94	519
24	78	194	2110	667	667	323	1630	730	136	97	99	387
25	84	175	7150	e571	658	315	8670	910	131	102	91	307
26	95	245	2330	e470	765	319	3630	871	131	104	85	252
27	98	929	1310	e446	753	334	2030	694	144	99	83	214
28	95	673	911	418	893	386	1470	896	140	96	85	188
29	89	443	696	e432	---	476	1140	883	124	94	81	170
30	85	333	569	465	---	775	925	654	117	100	78	163
31	82	---	494	626	---	3250	---	513	---	112	78	---
TOTAL	2515	6955	26812	18367	19427	37187	86344	21581	7951	4655	2598	22347
MEAN	81.1	232	865	592	694	1200	2878	696	265	150	83.8	745
MAX	98	929	7150	3760	1450	6420	14300	1590	950	317	104	7290
MIN	72	83	245	220	382	315	650	281	117	94	71	72
CFSM	.18	.50	1.88	1.28	1.51	2.60	6.24	1.51	.58	.33	.18	1.62
IN.	.20	.56	2.16	1.48	1.57	3.00	6.97	1.74	.64	.38	.21	1.80

CAL YR 1986 TOTAL 131562 MEAN 360 MAX 11600 MIN 72 CFSM .78 IN. 10.62
WTR YR 1987 TOTAL 256739 MEAN 703 MAX 14300 MIN 71 CFSM 1.53 IN. 20.72

e Estimated.

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^2.
PERIOD OF RECORD.--April 1925 to current year.
REVISED RECORDS.--WSP 852: 1936-37. WSP 972: 1927, 1930(M), 1932(M), 1935-36. WSP 1303: 1927-28(M). WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 978.30 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 26, 1928, nonrecording gage at same site and datum.
REMARKS.--Records good. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 43.7 mi upstream from station; since October 1984 by Back Creek Lake 71.7 mi upstream; and since January 1985 by Little Back Creek Lake 74.8 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--62 years, 1,622 ft^3/s, 16.04 in/yr, unadjusted.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,500 ft^3/s, Nov. 5, 1985, gage height, 30.22 ft, from rating curve extended above 66,000 ft^3/s; minimum, 133 ft^3/s, Jan. 6, 1981, result of freezeup; minimum daily, 156 ft^3/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^3/s. Flood in March 1913 reached a stage of 30.4 ft, from floodmarks, discharge, about 98,000 ft^3/s.
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,000 ft^3/s, Apr. 16, gage height, 20.23 ft; minimum, 330 ft^3/s, Oct. 12, gage height, 1.65 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	367	347	730	1080	2010	13500	10500	2610	1170	513	456	406
2	357	432	857	1020	1810	16600	9690	2480	1870	560	460	381
3	352	444	1970	933	2800	12400	4790	2070	1920	664	459	376
4	348	443	2020	845	3770	10700	3920	3090	1480	709	453	372
5	353	465	1420	778	3440	8540	3520	4020	1150	1000	445	397
6	343	588	1110	733	2700	4190	3630	3280	983	972	443	491
7	339	750	933	702	2290	3190	4940	3170	884	755	437	1490
8	341	736	810	711	2140	3400	7360	2390	817	654	439	9400
9	340	772	840	710	2040	4470	6510	1900	756	587	437	2840
10	344	771	1320	699	1990	7010	6430	1720	758	559	433	1320
11	348	738	1740	700	1820	4920	5830	1760	706	559	427	2360
12	335	689	3170	696	1710	4040	2870	1470	701	574	425	2140
13	363	668	2270	669	1950	2820	2870	1390	701	858	420	2000
14	387	608	1530	649	2050	2420	2450	1200	686	796	419	1360
15	374	558	1210	656	1930	2010	7640	1080	652	653	417	1040
16	367	525	1050	675	1940	1740	32500	1020	631	589	424	831
17	359	501	930	694	1920	1610	28100	973	648	556	421	708
18	349	486	964	731	1810	1480	19500	932	626	533	418	652
19	341	476	1070	4490	1900	1460	14800	925	599	518	418	627
20	342	469	1030	9340	1290	1430	12900	2430	578	505	409	1670
21	341	513	942	5860	1280	1360	11500	2080	579	494	402	1840
22	343	565	846	6360	1410	1310	6560	1380	577	483	412	1270
23	342	587	761	3560	1750	1250	3300	1150	559	478	486	962
24	344	557	4470	2780	2350	1190	6570	1350	558	485	455	801
25	364	530	15800	2590	2230	1160	22400	2180	560	477	441	696
26	416	640	5650	2370	2460	1150	12200	2030	550	476	436	627
27	422	1640	3280	2130	2420	1120	11300	1650	560	472	433	581
28	416	1410	2260	e1840	2830	1340	8190	2170	550	462	432	552
29	390	1050	1710	1340	---	1580	4420	2360	526	457	431	530
30	379	864	1400	1300	---	3100	3290	1590	510	454	423	530
31	354	---	1210	2060	---	10400	---	1300	---	475	421	---
TOTAL	11160	19822	65303	59701	60040	132890	280480	59150	23845	18327	13432	39250
MEAN	360	661	2107	1926	2144	4287	9349	1908	795	591	433	1308
MAX	422	1640	15800	9340	3770	16600	32500	4020	1920	1000	486	9400
MIN	335	347	730	649	1280	1120	2450	925	510	454	402	372
(*)	-104	+67	+512	-16	+167	+46	-91	0	-87	-158	-189	+15
MEAN‡	256	728	2619	1910	2311	4333	9258	1908	708	433	244	1323
CFSM‡	.19	.53	1.91	1.39	1.68	3.16	6.74	1.39	.52	.32	.18	.96
IN‡	.22	.59	2.20	1.60	1.75	3.64	7.53	1.60	.58	.36	.20	1.08

CAL YR 1986 TOTAL 423213 MEAN 1159 MAX 22900 MIN 335 MEAN‡ 1151 CFSM‡ .84 IN.‡ 11.38
WTR YR 1987 TOTAL 783400 MEAN 2146 MAX 32500 MIN 335 MEAN‡ 2159 CFSM‡ 1.57 IN.‡ 21.35

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.
e Estimated.

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 mi².

PERIOD OF RECORD.--April 1926 to current year.

REVISED RECORDS.--WSP 972: 1935-36(M), 1940(M). WSP 1203: 1928, 1935. WSP 1303: 1927(M), 1928, 1929-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,254.30 ft above National Geodetic Vertical Datum of 1929. Prior to June 7, 1937, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--61 years, 128 ft³/s, 16.71 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft³/s, Jan. 23, 1935, from rating curve extended above 3,200 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 12.48 ft, June 21, 1972; minimum discharge, 6.0 ft³/s, Dec. 5, 1946, result of freezeup; minimum daily, 6.6 ft³/s, Oct. 1, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2400	2,610	8.89	Apr. 16	1600	*4,060	*10.01
Mar. 1	2130	2,360	8.66	Apr. 25	0330	3,710	9.77

Minimum discharge, 9.2 ft³/s, Aug. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	24	128	172	216	1810	618	419	99	19	12	11
2	16	33	185	152	247	1550	512	371	112	29	14	11
3	17	41	275	128	449	982	455	305	95	50	13	10
4	16	38	209	109	511	725	416	390	84	70	13	10
5	15	51	179	95	407	566	355	306	76	105	12	13
6	15	145	157	85	331	453	340	241	66	77	11	20
7	14	156	139	84	296	399	412	203	58	50	12	79
8	14	169	124	87	271	375	463	176	51	36	12	139
9	14	157	123	80	240	384	411	155	45	30	12	66
10	14	144	143	78	205	443	363	140	45	26	11	38
11	14	129	212	78	187	367	323	126	40	24	11	30
12	14	113	340	73	184	324	291	114	39	26	11	108
13	15	98	254	69	183	283	256	104	43	30	10	285
14	18	83	209	65	173	245	220	97	38	24	10	98
15	19	72	185	68	167	215	638	90	34	21	10	59
16	19	65	159	70	157	191	3030	82	31	20	11	40
17	18	59	139	72	157	175	1970	75	32	19	11	30
18	17	54	139	85	145	166	1090	69	29	18	11	23
19	17	48	131	686	131	191	757	71	29	17	10	21
20	16	47	119	654	122	210	606	77	30	16	10	30
21	16	56	109	454	120	201	508	65	33	16	9.9	25
22	16	61	98	385	135	190	435	61	28	15	9.6	21
23	16	60	90	312	178	176	368	71	24	14	12	19
24	16	58	915	250	216	164	2110	100	23	14	11	18
25	18	55	1220	215	216	158	3240	94	23	14	11	17
26	28	97	607	191	249	152	1570	101	27	13	12	16
27	34	268	472	e154	253	140	1040	139	27	13	16	16
28	30	201	380	e143	399	141	745	166	24	13	13	16
29	28	174	300	e140	---	134	572	124	21	12	12	15
30	27	150	245	152	---	385	484	106	20	12	11	16
31	24	---	204	246	---	723	---	94	---	12	11	---
TOTAL	571	2906	8189	5632	6545	12618	24598	4732	1326	855	355.5	1300
MEAN	18.4	96.9	264	182	234	407	820	153	44.2	27.6	11.5	43.3
MAX	34	268	1220	686	511	1810	3240	419	112	105	16	285
MIN	14	24	90	65	120	134	220	61	20	12	9.6	10
CFSM	.18	.93	2.54	1.75	2.25	3.91	7.89	1.47	.43	.27	.11	.42
IN.	.20	1.04	2.93	2.01	2.34	4.51	8.80	1.69	.47	.31	.13	.46

CAL YR 1986 TOTAL 35506.0 MEAN 97.3 MAX 1480 MIN 11 CFSM .94 IN. 12.70
WTR YR 1987 TOTAL 69627.5 MEAN 191 MAX 3240 MIN 9.6 CFSM 1.84 IN. 24.90

e Estimated.

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 mi².

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

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1935-36. WSP 1303: 1929-30(M), 1932-35(M), 1937-38(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 992.50 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 7, 1937, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--62 years, 388 ft³/s, 16.02 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,500 ft³/s, Nov. 4, 1985, gage height, 24.76 ft, from high-water mark in gage house, from rating curve extended above 11,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 20 ft³/s, probably occurred Dec. 21, 25, 1980, or Jan. 4, 1981, gage height, 3.20 ft, result of freezeup; minimum daily, 25 ft³/s, Sept. 4, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	1000	6,220	10.26	Apr. 16	1630	*12,800	*13.67
Mar. 2	0330	7,700	11.17	Apr. 25	1430	11,300	13.03

Minimum discharge, 39 ft³/s, Aug. 21, 22, gage height, 3.41 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	70	309	436	698	5320	2060	980	235	62	44	41
2	50	80	423	401	643	6210	1300	850	239	68	44	40
3	49	88	1100	351	1070	3240	1040	744	230	88	44	40
4	48	103	746	306	1500	2150	946	817	196	115	48	40
5	49	121	544	273	1220	1530	818	798	178	124	47	42
6	46	164	435	249	958	1160	779	653	162	176	46	54
7	46	302	366	236	824	981	941	531	146	130	44	418
8	45	325	319	242	742	904	1110	466	133	100	44	1570
9	45	365	299	248	678	921	1050	413	121	85	43	427
10	45	313	350	244	586	1090	897	372	112	73	43	226
11	45	272	441	246	525	997	775	338	109	71	43	152
12	45	241	1120	237	483	856	686	308	105	70	42	130
13	48	210	870	224	482	753	618	284	114	89	40	670
14	52	183	628	213	450	663	537	263	113	130	40	434
15	53	163	516	205	441	594	1240	248	100	88	40	259
16	53	150	439	207	415	543	9720	231	93	72	41	182
17	53	140	376	206	403	498	9260	213	86	65	41	141
18	53	131	356	209	389	438	4110	198	84	62	41	115
19	51	123	360	1090	349	451	2550	189	80	58	41	97
20	51	117	333	2740	320	583	1780	261	81	56	40	96
21	51	121	310	1310	305	604	1340	230	89	54	39	108
22	51	139	283	989	331	564	1090	195	91	53	39	96
23	50	156	257	828	454	508	927	180	79	51	42	82
24	50	160	721	637	842	446	3240	227	73	51	42	74
25	54	155	4670	e560	759	416	9530	334	69	49	42	68
26	67	167	1760	e510	792	405	6500	279	68	49	42	65
27	90	666	1110	e415	785	372	3110	261	73	47	42	61
28	98	605	856	e370	892	365	2150	542	73	46	46	59
29	85	451	694	e379	---	363	1520	450	69	45	47	58
30	76	369	583	398	---	709	1180	335	63	45	43	57
31	71	---	504	645	---	2900	---	270	---	45	42	---
TOTAL	1719	6650	22078	15604	18336	37534	72804	12460	3464	2317	1322	5902
MEAN	55.5	222	712	503	655	1211	2427	402	115	74.7	42.6	197
MAX	98	666	4670	2740	1500	6210	9720	980	239	176	48	1570
MIN	45	70	257	205	305	363	537	180	63	45	39	40
CFSM	.17	.68	2.16	1.53	1.99	3.68	7.38	1.22	.35	.23	.13	.60
IN.	.19	.75	2.50	1.76	2.07	4.24	8.23	1.41	.39	.26	.15	.67

CAL YR 1986 TOTAL 99683 MEAN 273 MAX 5120 MIN 44 CFSM .83 IN. 11.27
WTR YR 1987 TOTAL 200190 MEAN 548 MAX 9720 MIN 39 CFSM 1.67 IN. 22.64

e Estimated.

02018500 CATAWBA CREEK NEAR CATAWBA, VA

LOCATION.--Lat 37°28'05", long 80°00'20", Botetourt County, Hydrologic Unit 02080201, on right bank 80 ft upstream from bridge on State Highway 779, 1.0 mi downstream from Little Catawba Creek, 1.9 mi west of Haymakertown, and 8.2 mi northeast of Catawba.
DRAINAGE AREA.--34.3 mi².
PERIOD OF RECORD.--September 1943 to current year.
REVISED RECORDS.--WSP 1303: 1944-45(M). WSP 2104: Drainage area. WDR VA-72-1: 1954, 1955(P), 1957-58(P), 1959, 1960-62(P), 1963, 1964(M), 1965-67(P), 1968(M), 1969, 1970(M), 1971.
GAGE.--Water-stage recorder. Datum of gage is 1,299.96 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1953, nonrecording gage at site 80 ft downstream at same datum.
REMARKS.--Records good. At a point 5.3 mi upstream from station, there is transmountain diversion through a tunnel into Roanoke River basin for municipal water supply of city of Roanoke since December 1974. Prior to October 1976, monthly means adjusted for pumpage by Citadel Cement Corporation. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--44 years, 37.1 ft³/s, 14.69 in/yr, adjusted for pumpage from October 1952 to September 1976, and transmountain diversion since December 1974.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft³/s, Nov. 4, 1985, gage height, 19.19 ft, from high-water mark, from rating curve extended above 1,700 ft³/s on basis of slope-area measurements at gage heights 10.35 ft and 19.19 ft; minimum, 0.28 ft³/s, Aug. 21, 1987, gage height, 0.99 ft, cause unknown; minimum daily, 0.67 ft³/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, 3,320 ft³/s, Apr. 16, gage height, 7.11 ft; minimum, 0.28 ft³/s, Aug. 21, gage height, 0.99 ft, cause unknown.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	7.2	13	15	87	1320	228	136	35	11	6.8	4.4
2	5.1	11	64	13	100	623	146	121	34	14	6.5	4.0
3	4.8	9.0	58	11	187	328	114	107	31	18	6.4	3.9
4	4.5	7.8	34	9.9	225	214	104	106	32	17	6.9	3.9
5	4.3	16	17	9.2	157	153	93	91	29	14	6.3	7.7
6	3.2	17	13	8.5	121	121	99	83	28	14	5.8	21
7	3.1	16	10	9.0	102	102	119	77	26	12	6.0	250
8	3.8	16	8.9	10	91	94	120	70	24	11	6.5	96
9	2.7	13	11	9.9	78	96	103	66	23	11	6.1	34
10	2.5	11	13	10	68	107	88	60	24	10	5.3	28
11	3.6	10	25	9.5	62	85	76	55	22	14	5.1	25
12	4.2	11	33	9.2	60	75	68	50	23	16	5.0	25
13	4.3	9.2	26	9.0	58	68	61	48	23	13	4.9	21
14	6.4	8.4	19	8.4	54	61	55	47	21	12	4.3	14
15	5.3	8.2	17	9.1	50	57	578	45	20	11	4.3	9.9
16	4.5	7.8	19	8.8	48	56	2140	43	20	10	5.4	7.3
17	4.2	7.3	18	7.0	47	50	792	41	19	9.6	4.4	6.1
18	4.3	6.7	20	9.3	43	48	430	39	14	9.3	4.5	4.8
19	4.1	6.9	18	102	39	60	278	44	12	8.9	4.8	4.9
20	2.9	9.9	16	64	37	63	207	58	14	8.5	4.7	6.0
21	4.1	14	15	42	36	59	169	43	13	8.3	2.7	4.5
22	3.0	12	14	36	40	55	145	39	13	9.6	3.3	3.8
23	4.0	11	13	28	101	52	132	39	12	8.1	3.5	3.3
24	4.2	12	306	21	121	48	948	39	12	7.7	2.6	3.0
25	8.1	11	241	e19	106	47	1330	41	12	7.6	4.6	2.6
26	18	24	64	e15	111	44	570	41	13	7.0	8.5	2.4
27	11	26	29	e13	102	40	323	49	14	6.8	7.2	2.3
28	11	19	24	e12	315	42	238	88	12	6.6	5.5	2.2
29	8.4	17	20	20	---	37	188	54	12	6.3	4.7	2.1
30	7.5	14	18	59	---	203	157	46	11	7.3	4.3	3.4
31	6.8	---	16	113	---	451	---	39	---	7.3	4.5	---
TOTAL	168.8	369.4	1212.9	719.8	2646	4859	10099	1905	598	326.9	161.4	606.5
MEAN	5.45	12.3	39.1	23.2	94.5	157	337	61.5	19.9	10.5	5.21	20.2
MAX	18	26	306	113	315	1320	2140	136	35	18	8.5	250
MIN	2.5	6.7	8.9	7.0	36	37	55	39	11	6.3	2.6	2.1
(*)	0	.8	36.4	8.2	0	0	0	0	0	0	0	12.1
MEAN‡	5.45	13.1	75.5	31.4	94.5	157	337	61.5	19.9	10.5	5.21	32.3
CFSM‡	.16	.38	2.20	.92	2.76	4.58	9.82	1.79	.58	.31	.15	.94
IN.‡	.18	.43	2.54	1.06	2.87	5.28	10.96	2.07	.65	.35	.18	1.05

CAL YR 1986 TOTAL 8556.6 MEAN 23.4 MAX 490 MIN 1.8 MEAN‡ 27.1 CFSM‡ .79 IN.‡ 10.73
WTR YR 1987 TOTAL 23672.7 MEAN 64.9 MAX 2140 MIN 2.1 MEAN‡ 69.7 CFSM‡ 2.03 IN.‡ 27.59

* Average diversion, equivalent in cubic feet per second, provided by city of Roanoke.
‡ Adjusted for diversion.
e Estimated.

02019500 JAMES RIVER AT BUCHANAN, VA

LOCATION.--Lat 37°31'50", long 79°40'45", Botetourt County, Hydrologic Unit 02080201, on left bank 300 ft upstream from bridge on U.S. Highway 11 at Buchanan, 1,000 ft upstream from Purgatory Creek, 1.5 mi downstream from Looney Creek, and at mile 306.4.
DRAINAGE AREA.--2,075 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1898 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for August 1895 to Feb. 11, 1898, published in WSP 11, 15, and 27 are in error and should not be used. Gage-height records collected at this site since 1893 are contained in reports of the National Weather Service.
REVISED RECORDS.--WSP 602: 1917-24. WSP 972: 1935-36. WSP 1303: 1898-1916, 1917-20(M), 1922(M), 1924(M). WSP 1383: 1927. WSP 2104: Drainage area. WDR VA-72-1: 1913(M). See also PERIOD OF RECORD.
GAGE.--Water-stage recorder. Datum of gage is 802.90 ft above National Geodetic Vertical Datum of 1929. Prior to July 1, 1927, nonrecording gage at same site and datum.
REMARKS.--No estimated daily discharges. Records good. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 79.6 mi upstream; since October 1984 by Back Creek Lake 107.6 mi upstream, amount unknown; and since January 1985 by Little Back Creek Lake 110.7 mi upstream, amount unknown. National Weather Service gage-height telemeter at station.
AVERAGE DISCHARGE.--89 years, 2,485 ft³/s, 16.26 in/yr, unadjusted.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 179,000 ft³/s, Nov. 5, 1985, gage height, 38.84 ft, from floodmarks, from rating curve extended above 110,000 ft³/s; minimum, 202 ft³/s, Sept. 8, 1966, gage height, 1.44 ft; minimum daily, 207 ft³/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 ft³/s, from rating curve extended above 110,000 ft³/s.
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 76,100 ft³/s, Apr. 16, gage height, 24.81 ft; minimum, 447 ft³/s, Oct. 7, 8, gage height, 2.15 ft; minimum daily, 451 ft³/s, Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	520	522	1390	2400	4140	23200	17100	5300	2090	886	705	622
2	492	567	1770	2210	3650	34000	13000	4670	2130	999	677	588
3	481	646	3590	2010	4680	20300	8860	4220	2980	1320	685	559
4	479	652	3710	1810	7280	15700	6690	4850	2430	1360	898	553
5	469	712	2770	1630	6860	12800	5930	6120	2070	1550	737	575
6	462	891	2150	1510	5550	8090	5870	5510	1760	1630	682	787
7	451	1100	1780	1410	4690	5840	6890	5030	1560	1530	661	5170
8	452	1310	1530	1400	4270	5410	9230	4220	1440	1230	655	15700
9	458	1370	1410	1410	4040	6040	9700	3460	1360	1160	654	7750
10	458	1320	1780	1400	3730	8560	8410	3060	1330	1010	649	2990
11	458	1270	2450	1390	3450	7940	8250	2930	1260	965	639	2780
12	456	1180	4370	1360	3250	6360	5530	2720	1290	944	627	2940
13	477	1090	4270	1320	3240	4960	4450	2500	1290	1120	618	3360
14	533	1010	3010	1260	3460	4070	3970	2330	1250	1550	612	3070
15	533	913	2370	1240	3330	3500	8750	2120	1200	1240	615	2160
16	514	849	2020	1250	3230	3080	60600	1980	1150	1050	621	1690
17	507	801	1770	1280	3250	2820	63800	1880	1160	951	631	1420
18	498	766	1680	1310	3100	2550	34700	1790	1130	886	618	1250
19	486	741	1810	3240	3040	2460	22500	1740	1090	841	624	1160
20	474	723	1810	15400	2680	2540	17800	1970	1050	806	610	1680
21	471	751	1670	9320	2330	2550	15100	3760	1030	785	582	2580
22	473	797	1520	8870	2470	2430	11800	2470	1030	763	578	2220
23	474	877	1380	6260	3100	2260	6020	2040	1020	738	660	1680
24	471	880	4020	4690	4570	2100	10500	1890	982	735	711	1390
25	492	845	25100	4170	4500	2000	40000	2670	1020	729	663	1220
26	610	892	11700	3940	4640	1970	31900	3090	982	709	652	1100
27	632	1840	6530	3500	4690	1900	18100	2680	974	705	651	1020
28	621	2800	4710	3300	5440	1960	14400	2670	975	697	653	947
29	610	2040	3730	2970	---	2350	8620	3600	940	681	647	896
30	570	1640	3120	2530	---	3790	6560	2900	907	674	643	873
31	548	---	2710	3390	---	14700	---	2300	---	686	620	---
TOTAL	15630	31795	113630	99180	112660	218230	485030	98470	40880	30930	20278	70730
MEAN	504	1060	3665	3199	4024	7040	16170	3176	1363	998	654	2358
MAX	632	2800	25100	15400	7280	34000	63800	6120	2980	1630	898	15700
MIN	451	522	1380	1240	2330	1900	3970	1740	907	674	578	553
(*)	-104	+67	+512	-16	+167	+46	-91	.00	-87	-158	-189	+15
MEAN‡	400	1127	4177	3183	4191	7086	16080	3176	1276	840	465	2373
CFSM‡	.19	.54	2.01	1.53	2.02	3.41	7.75	1.53	.61	.40	.22	1.14
IN.‡	.22	.61	2.32	1.77	2.10	3.94	8.65	1.77	.69	.47	.26	1.28

CAL YR 1986	TOTAL	619244	MEAN 1697	MAX 30100	MIN 451	MEAN‡ 1689	CFSM‡ .81	IN.‡ 11.05
WTR YR 1987	TOTAL	1337443	MEAN 3664	MAX 63800	MIN 451	MEAN‡ 3677	CFSM‡ 1.77	IN.‡ 24.06

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.

02019500 JAMES RIVER AT BUCHANAN, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1951-56, 1968 to August 1986, May 1987 to January 1988 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1952 to September 1956, April 1968 to August 1986, May 1987 to January 1988 (discontinued).
WATER TEMPERATURE: October 1947 to September 1948, May 1951 to September 1956, April 1968 to August 1986, May 1987 to January 1988 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: May 1951 to September 1956.

INSTRUMENTATION.--Water-quality monitor since May 1987.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 945 microsiemens, Sept. 27, 1954; minimum daily, 67 microsiemens, Oct. 20, 1975, Oct. 10, 1976.
WATER TEMPERATURE: Maximum daily, 31.0°C, July 5, 1955, July 17, 21, 1980; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR PERIOD MAY 1987 TO JANUARY 1988.--
SPECIFIC CONDUCTANCE: May to September 1987: Maximum during period, 599 microsiemens, Sept. 7; minimum, 189 microsiemens, May 27.
October 1987 to January 1988: Maximum during period, 554 microsiemens, Nov. 9; minimum, 119 microsiemens, Dec. 1.
WATER TEMPERATURE: May to September 1987: Maximum during period, 30.0°C, July 23-26; minimum, 17.5°C, Sept. 26.
October 1987 to January 1988: Maximum during period, 19.5°C, Oct. 1; minimum, 0.0°C, Jan. 13.

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), MAY TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN
		MAY	
27	232	189	216
28	244	219	225
29	258	235	249
30	231	222	225
31	230	217	222
MONTH	258	189	227

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	249	233	243	397	378	389	487	468	480	545	513	532
2	268	242	255	388	375	381	465	397	428	543	526	532
3	261	199	235	404	285	379	433	387	405	553	534	545
4	213	198	207	391	357	369	450	436	445	559	532	541
5	223	207	214	394	355	375	465	411	450	567	550	558
6	234	223	229	372	348	358	437	373	398	569	539	553
7	258	233	244	359	316	332	476	442	468	599	238	482
8	280	258	266	320	297	304	497	473	482	350	249	299
9	287	276	281	394	315	361	499	483	491	249	239	243
10	313	280	296	412	396	406	499	480	485	283	256	270
11	330	314	324	425	412	419	509	494	504	321	288	302
12	340	321	330	442	425	431	493	481	485	375	326	350
13	341	314	322	456	443	451	483	457	466	325	306	316
14	378	344	361	453	427	440	478	465	473	335	322	326
15	374	356	362	425	401	411	472	460	465	341	328	332
16	355	336	345	408	401	404	477	450	468	347	334	339
17	335	314	322	403	363	371	537	445	476	385	351	374
18	314	302	306	385	361	370	547	497	526	397	387	392
19	305	293	297	400	384	392	495	475	486	408	398	404
20	329	295	314	418	399	408	483	472	478	430	410	417
21	340	329	335	454	418	439	483	468	475	436	348	394
22	371	337	349	465	453	459	494	487	490	378	349	362
23	393	373	382	460	450	455	504	457	490	380	356	364
24	394	372	382	460	442	451	510	444	469	377	359	367
25	398	390	395	448	395	433	513	489	506	417	381	396
26	402	380	395	413	398	407	490	468	478	423	407	413
27	405	380	397	441	405	422	477	463	471	414	410	412
28	420	401	412	446	437	441	504	481	493	424	416	421
29	404	377	392	445	431	436	533	507	519	432	427	429
30	408	383	393	440	427	433	538	527	532	442	434	438
31	---	---	---	485	441	461	530	509	519	---	---	---
MONTH	420	198	320	485	285	406	547	373	477	599	238	403
YEAR	599	189	395									

02019500 JAMES RIVER AT BUCHANAN, VA--Continued

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), OCTOBER 1987 TO JANUARY 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	449	438	443	493	476	488	163	119	144	187	176	183
2	461	447	453	475	433	455	163	148	155	223	186	205
3	463	447	455	433	418	424	178	163	172	218	212	215
4	453	440	447	451	435	447	184	178	180	222	213	218
5	474	453	462	448	429	439	198	181	189	230	221	226
6	498	475	488	455	438	446	214	199	206	245	229	237
7	516	498	506	465	446	457	226	215	221	253	246	249
8	521	517	519	489	441	451	232	227	230	268	254	261
9	523	512	515	554	492	533	240	230	234	277	268	272
10	526	513	520	503	302	377	252	228	245	279	270	275
11	517	510	513	409	307	371	249	227	240	284	272	277
12	515	489	500	379	324	352	254	240	247	293	285	289
13	517	489	501	338	312	329	265	253	259	308	294	302
14	520	489	505	311	258	276	273	266	269	309	306	307
15	489	479	483	271	255	260	283	274	278	318	310	313
16	482	472	478	295	271	285	281	261	270	315	296	304
17	501	476	487	293	265	274	287	272	281	301	290	296
18	502	480	492	294	276	282	283	273	278	299	292	295
19	481	472	477	317	295	311	271	261	266	299	281	289
20	471	449	457	322	289	309	272	264	269	306	237	279
21	481	456	472	288	208	231	277	269	272	233	170	189
22	494	477	482	214	205	207	277	263	268	231	170	190
23	503	494	499	223	214	220	259	244	252	253	230	243
24	516	501	511	229	219	223	271	260	266	272	249	258
25	511	489	500	238	227	231	284	272	278	272	248	262
26	498	489	494	251	238	245	297	285	291	276	260	266
27	502	496	499	263	247	255	307	297	302	347	275	301
28	497	472	487	265	256	260	304	216	264	307	293	298
29	488	471	479	261	194	250	213	184	199	308	293	300
30	513	489	505	193	142	159	183	161	170	306	292	297
31	508	484	493	---	---	---	175	161	167	321	299	303
MONTH	526	438	488	554	142	328	307	119	237	347	170	264

02019500 JAMES RIVER AT BUCHANAN, VA--Continued

TEMPERATURE, WATER (DEG. C), MAY TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN
		MAY	
27	21.5	20.0	20.5
28	23.0	20.5	21.5
29	24.0	22.0	22.5
30	24.5	22.0	23.0
31	24.0	22.5	23.5
MONTH	24.5	20.0	22.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	24.5	23.0	24.0	26.5	24.0	25.5	28.5	26.0	27.0	26.0	22.5	23.5
2	24.5	22.5	24.0	26.5	25.0	25.5	28.5	26.0	27.5	25.5	21.0	23.0
3	24.5	23.5	24.0	26.5	24.0	25.5	29.0	26.5	28.0	25.0	21.0	22.5
4	24.0	22.5	23.0	26.5	25.0	26.0	28.5	27.0	28.0	24.0	21.5	22.5
5	23.0	21.5	22.5	27.0	25.5	26.0	28.5	27.0	28.0	21.5	19.5	20.5
6	23.5	21.0	22.5	28.0	25.5	26.5	28.5	26.0	27.5	20.5	19.5	20.0
7	24.0	21.5	23.0	28.0	26.0	27.0	28.0	26.5	27.0	20.5	19.5	20.0
8	25.0	22.0	23.5	28.5	26.0	27.5	28.5	26.0	27.0	19.5	19.0	19.5
9	24.5	23.0	24.0	28.5	26.5	28.0	28.5	26.0	27.5	20.0	19.0	19.5
10	24.5	22.5	23.5	28.0	27.0	27.5	28.0	26.5	27.5	21.0	20.0	20.5
11	23.5	22.0	23.0	28.5	26.5	27.5	28.0	25.5	27.0	21.5	20.5	21.0
12	23.5	23.0	23.0	28.5	27.0	27.5	28.0	25.5	26.5	21.5	21.0	21.5
13	24.0	22.5	23.5	28.5	26.5	27.5	27.5	25.0	26.0	21.5	20.5	21.0
14	25.0	23.5	24.5	27.5	26.0	26.5	27.0	24.0	25.5	22.5	21.0	21.5
15	26.0	24.0	25.5	26.0	24.0	25.0	25.5	25.0	25.5	22.5	21.0	22.0
16	26.5	25.0	25.5	26.0	24.0	25.0	27.0	24.5	25.5	22.5	21.5	22.0
17	26.0	24.5	25.5	26.0	24.5	25.0	28.0	25.5	26.5	23.0	21.5	22.5
18	26.0	24.5	25.5	26.5	24.5	25.5	28.5	26.0	27.0	23.5	22.5	23.0
19	27.0	25.0	26.0	27.5	25.0	26.0	28.5	26.0	27.0	23.0	22.0	22.5
20	27.0	25.5	26.5	28.0	25.5	27.0	29.0	26.0	27.5	23.0	21.5	22.0
21	27.5	26.0	27.0	29.0	26.0	27.5	28.0	25.0	26.5	22.0	20.5	21.5
22	27.0	26.0	27.0	29.5	26.5	28.0	27.5	25.5	26.5	20.5	20.0	20.0
23	27.5	26.0	27.0	30.0	27.0	28.5	27.5	25.0	26.0	20.0	18.5	19.5
24	27.0	26.0	26.5	30.0	27.5	29.0	27.0	24.0	25.0	20.0	18.0	19.0
25	26.5	25.5	26.0	30.0	27.5	29.0	26.0	23.0	24.0	20.0	18.0	19.0
26	26.0	25.0	25.5	30.0	27.5	28.5	25.5	23.0	24.0	19.5	17.5	18.5
27	26.0	24.5	25.0	29.5	27.0	28.5	26.5	23.0	24.5	20.0	18.0	19.0
28	25.5	23.0	24.5	29.0	27.0	28.0	26.0	24.0	25.0	20.5	18.5	19.5
29	25.5	23.0	24.5	28.0	26.5	27.0	27.0	24.0	25.0	21.0	18.5	19.5
30	26.5	24.0	25.0	28.0	25.5	27.0	26.0	23.0	24.0	20.0	19.0	19.5
31	---	---	---	28.5	26.0	27.0	25.0	22.5	23.5	---	---	---
MONTH	27.5	21.0	24.5	30.0	24.0	27.0	29.0	22.5	26.0	26.0	17.5	21.0
YEAR	30.0	17.5	24.5									

02019500 JAMES RIVER AT BUCHANAN, VA--Continued

TEMPERATURE, WATER (DEG. C), OCTOBER 1987 TO JANUARY 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.5	17.0	18.0	15.0	11.5	13.0	10.0	9.0	9.5	4.5	4.0	4.0
2	19.0	16.0	17.5	15.0	12.0	13.0	9.0	7.5	8.5	5.0	4.5	4.5
3	17.0	15.0	16.5	15.5	12.5	13.5	7.5	6.5	7.0	4.5	4.0	4.0
4	16.5	13.5	15.0	15.5	13.0	14.0	6.5	5.5	6.0	4.0	3.0	3.5
5	16.5	13.0	14.5	15.5	12.5	14.0	5.5	5.0	5.5	3.0	1.5	2.5
6	15.0	13.5	14.5	13.5	10.5	12.0	5.5	4.5	5.0	1.5	.5	1.0
7	15.5	13.0	14.0	12.5	10.0	11.0	5.0	4.0	4.5	1.5	.5	1.0
8	14.0	12.5	13.5	13.5	10.5	11.5	5.5	4.5	5.0	1.5	.5	1.0
9	14.5	12.0	13.0	13.0	11.0	12.0	6.5	5.0	6.0	1.0	.5	1.0
10	15.0	12.0	13.5	12.0	10.5	11.5	7.0	6.5	6.5	1.5	.5	1.0
11	16.0	13.0	14.0	10.5	8.5	9.5	8.5	7.0	7.5	1.5	.5	1.0
12	14.0	13.0	13.5	9.0	7.5	8.0	8.5	7.0	8.0	1.0	.5	1.0
13	15.0	12.5	13.5	9.0	6.5	8.0	8.0	7.0	7.5	1.0	.0	.5
14	15.0	12.0	13.0	9.5	7.0	8.0	7.0	7.0	7.0	1.0	.5	1.0
15	15.0	11.5	13.0	10.0	7.0	8.0	7.0	6.5	6.5	1.5	.5	1.0
16	15.0	11.5	13.0	8.5	7.5	8.0	6.5	5.0	6.0	1.0	.5	1.0
17	15.0	12.0	13.0	10.0	8.5	9.5	5.0	4.0	4.5	1.0	.5	.5
18	15.5	12.0	13.5	12.5	9.5	10.5	5.0	4.0	4.5	1.5	.5	1.0
19	16.0	12.5	14.0	11.5	10.0	10.5	5.0	4.0	4.5	1.0	.5	.5
20	16.0	13.5	14.5	11.0	9.0	10.0	7.0	5.0	6.0	2.5	.5	2.0
21	16.0	12.5	14.5	8.5	6.5	7.5	7.0	6.5	6.5	4.5	2.0	3.5
22	15.0	12.0	13.0	7.5	5.5	6.5	7.5	6.5	7.0	5.0	4.5	4.5
23	14.0	11.0	12.5	7.5	5.0	6.0	8.5	6.5	7.5	5.0	4.0	4.5
24	14.5	11.0	12.5	9.0	6.0	7.0	8.0	6.0	7.0	5.0	3.5	4.5
25	14.0	12.0	12.5	9.5	7.0	8.0	8.0	7.0	7.5	4.5	3.5	4.0
26	14.0	11.0	12.5	10.5	8.0	9.0	8.5	7.5	8.0	4.0	2.5	3.0
27	11.5	11.0	11.0	9.5	9.0	9.5	9.0	8.5	8.5	2.5	1.0	2.0
28	12.5	10.0	11.0	9.0	9.0	9.0	9.0	8.0	8.5	2.0	.5	1.0
29	11.5	9.5	10.0	9.5	9.0	9.5	8.0	6.0	7.0	2.0	.5	1.5
30	13.0	10.0	11.0	10.0	9.5	10.0	7.0	6.0	6.5	3.0	1.5	2.0
31	13.5	10.5	12.0	---	---	---	4.5	3.5	4.0	4.0	2.0	3.0
MONTH	19.5	9.5	13.5	15.5	5.0	10.0	10.0	3.5	6.5	5.0	.0	2.0

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 mi².

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. Datum of gage is 1,384.84 ft above National Geodetic Vertical Datum of 1929.

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

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

AVERAGE DISCHARGE.--49 years, 166 ft³/s, 15.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,300 ft³/s, Nov. 4, 1985, gage height, 20.23 ft, from rating curve extended above 9,200 ft³/s on basis of slope-area measurements of gage heights 12.78 ft and 20.23 ft; no flow Sept. 5, 6, 1957, Sept. 28, 1959, result of diversion.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0100	3,620	6.56	Apr. 25	0400	3,320	6.27
Mar. 2	0030	2,700	5.61	Sept. 8	0630	3,250	6.20
Apr. 17	0730	*5,120	*7.80				

Minimum daily discharge, 3.5 ft³/s, Aug. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	9.5	67	109	e190	1790	1230	271	186	8.3	11	5.2
2	6.1	16	74	99	162	2030	720	215	320	12	10	3.7
3	8.3	20	214	87	461	1140	503	187	216	28	6.4	5.2
4	7.5	18	266	77	581	740	418	292	209	24	5.4	5.6
5	7.4	21	182	70	497	504	415	518	177	41	5.4	9.4
6	7.5	28	128	65	378	362	448	461	144	38	6.2	33
7	5.7	26	93	59	304	278	672	368	117	28	6.6	146
8	4.8	36	71	57	267	290	1070	287	97	21	5.9	2230
9	5.4	38	64	54	234	479	841	221	84	17	5.7	765
10	5.4	48	79	52	175	830	585	182	78	12	5.8	1530
11	4.0	47	114	52	142	627	409	157	67	16	4.6	1030
12	4.5	51	251	50	128	411	305	140	60	18	4.4	705
13	8.7	48	244	48	143	290	216	129	55	66	3.8	493
14	14	41	176	46	138	207	155	114	48	50	4.0	326
15	13	36	135	49	129	162	1150	103	40	47	4.0	193
16	10	31	104	50	113	134	4090	93	36	38	4.9	130
17	7.3	26	81	50	110	111	4070	84	42	31	6.3	104
18	5.6	23	78	52	102	95	2030	76	35	26	7.0	94
19	5.3	22	72	614	88	86	1150	82	27	22	5.1	86
20	4.7	21	63	1440	81	80	779	1210	23	18	4.5	213
21	4.8	27	56	794	78	75	572	706	25	13	3.6	433
22	4.9	35	49	536	81	69	439	396	22	12	3.5	282
23	5.4	40	45	e360	93	64	345	254	19	49	14	168
24	5.5	40	811	e250	105	60	823	363	18	18	17	119
25	7.7	35	2200	e220	117	59	2620	1270	18	11	14	96
26	14	59	895	e170	177	61	1380	842	22	6.0	12	81
27	13	281	497	e130	194	58	881	592	27	5.1	14	71
28	11	204	312	e120	241	66	635	983	21	5.9	11	63
29	8.4	136	207	e110	---	65	465	516	13	7.7	8.6	56
30	8.0	92	157	106	---	99	357	335	11	7.7	8.0	53
31	8.2	---	129	173	---	1130	---	228	---	8.9	6.8	---
TOTAL	233.8	1555.5	7914	6149	5509	12452	29773	11675	2257	705.6	229.5	9529.1
MEAN	7.54	51.9	255	198	197	402	992	377	75.2	22.8	7.40	318
MAX	14	281	2200	1440	581	2030	4090	1270	320	66	17	2230
MIN	4.0	9.5	45	46	78	58	155	76	11	5.1	3.5	3.7
CFSM	.05	.36	1.77	1.38	1.37	2.79	6.89	2.62	.52	.16	.05	2.21
IN.	.06	.40	2.04	1.59	1.42	3.22	7.69	3.02	.58	.18	.06	2.46

CAL YR 1986 TOTAL 32641.3 MEAN 89.4 MAX 3740 MIN 4.0 CFSM .62 IN. 8.43
WTR YR 1987 TOTAL 87982.5 MEAN 241 MAX 4090 MIN 3.5 CFSM 1.67 IN. 22.73

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River at Rockbridge Baths.

REVISED RECORDS.--WSP 972: 1929-40, 1941(M). WSP 1002: 1930(m). WSP 1553: 1931(m).

GAGE.--Water-stage recorder. Datum of gage is 1,100.33 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for periods of no gage-height record, May 18 to June 30, July 13, 18-20, Aug. 5, and Sept. 5-30, which are fair. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--59 years, 379 ft³/s, 15.64 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,700 ft³/s, Nov. 5, 1985, gage height, 19.19 ft, from flood-mark, from rating curve extended above 16,000 ft³/s on basis of slope-area measurement at peak flow; minimum, 5.8 ft³/s, Sept. 10, 1966, gage height, 0.79 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0300	7,260	7.72	Apr. 25	0700	9,220	8.40
Mar. 1	2200	6,360	7.34	Sept. 8	Unknown	10,900	a8.89
Apr. 16	1030	*11,800	*9.14				

a From high-water mark.

Minimum daily discharge, 21 ft³/s, Aug. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	108	152	287	471	4280	2450	594	e160	47	32	24
2	30	103	245	263	479	4510	1440	484	e170	45	31	23
3	65	91	581	225	912	2280	1080	480	e160	56	29	23
4	76	77	533	193	1190	1480	943	1020	e180	61	28	22
5	58	91	360	172	1040	1050	930	1140	e160	77	e28	e30
6	46	96	258	153	834	816	990	932	e140	91	29	e100
7	39	79	203	148	727	690	1480	765	e124	88	27	e500
8	33	89	172	152	692	669	2000	604	e114	76	27	e6600
9	31	98	165	142	630	853	1570	466	e105	74	27	e1300
10	30	104	255	141	513	1420	1140	416	e110	58	26	e1200
11	30	109	342	143	449	1140	873	367	e108	59	25	e1400
12	47	113	664	134	419	844	724	324	e102	63	23	e520
13	52	115	547	124	457	683	595	293	e97	e60	23	e300
14	84	99	383	118	439	558	486	262	e87	52	22	e210
15	86	91	292	126	407	484	3000	236	e82	46	23	e168
16	78	85	237	137	358	433	11200	213	e76	43	25	e138
17	69	79	202	132	340	388	9740	194	e82	40	24	e128
18	59	72	209	139	321	340	4360	e179	e78	e39	23	e120
19	63	70	218	1180	272	311	2240	e170	e71	e38	23	e115
20	62	70	197	2550	248	289	1440	e720	e67	e38	22	e325
21	65	86	177	1340	243	267	1060	e790	e70	37	21	e720
22	54	101	156	939	264	246	829	e450	e68	40	22	e390
23	57	102	140	723	315	226	572	e355	e63	54	31	e270
24	58	100	1620	497	367	211	1330	e340	e60	41	30	e200
25	80	93	4700	468	401	207	6980	e1700	e58	38	28	e155
26	81	140	1660	377	515	212	3050	e660	e55	35	26	e125
27	77	523	963	320	545	199	1840	e480	e60	32	26	e112
28	71	391	681	317	681	266	1320	e910	e54	31	27	e102
29	71	261	515	317	---	283	916	e500	e51	30	25	e94
30	95	194	416	304	---	588	775	e340	e49	29	25	e87
31	107	---	339	463	---	2790	---	e170	---	31	24	---
TOTAL	1876	3830	17582	12724	14529	29013	67353	16554	2861	1549	802	15501
MEAN	60.5	128	567	410	519	936	2245	534	95.4	50.0	25.9	517
MAX	107	523	4700	2550	1190	4510	11200	1700	180	91	32	6600
MIN	22	70	140	118	243	199	486	170	49	29	21	22
CFSM	.18	.39	1.72	1.25	1.58	2.85	6.82	1.62	.29	.15	.08	1.57
IN.	.21	.43	1.99	1.44	1.64	3.28	7.62	1.87	.32	.18	.09	1.75

CAL YR 1986 TOTAL 77996 MEAN 214 MAX 7820 MIN 13 CFSM .65 IN. 8.82
WTR YR 1987 TOTAL 184174 MEAN 505 MAX 11200 MIN 21 CFSM 1.54 IN. 20.82

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1203: 1927-29, 1930-34(M), 1935-40, 1941(M), 1942, 1943-48(M), 1949. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 980.32 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Jan. 27, 1927, to Sept. 30, 1953, nonrecording gage at site 1,000 ft downstream at different datum.

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

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

AVERAGE DISCHARGE.--61 years, 36.0 ft³/s, 13.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft³/s, Sept. 10, 1950, gage height, 13.8 ft, from floodmarks, site and datum then in use, from rating curve extended above 800 ft³/s on basis of contracted-opening and slope-area measurements of peak flow; minimum, 0.90 ft³/s, July 22, 1966 (result of temporary dam upstream); minimum daily, 4.0 ft³/s many days in August and September 1932, Nov. 21, 1938, July 22, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1630	2,430	7.23	Apr. 16	0445	3,870	8.33
Mar. 1	0700	1,160	5.92	Apr. 24	1745	4,000	8.41
Mar. 31	0645	1,240	6.02	Apr. 24	2130	3,950	8.38
Apr. 15	1415	5,300	9.19	Sept. 7	2315	*6,800	*10.02

Minimum discharge, 6.7 ft³/s, Oct. 6, gage height, 2.18 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	8.2	12	28	48	845	162	76	26	11	12	8.1
2	7.1	11	76	26	52	332	101	69	25	12	10	8.0
3	7.1	9.5	73	23	97	166	80	65	22	14	9.7	7.9
4	7.0	8.8	35	21	113	110	81	119	21	16	9.6	7.8
5	6.9	16	25	20	84	83	82	89	20	19	9.3	9.1
6	6.8	17	20	19	68	68	131	74	18	16	9.0	19
7	6.8	13	17	19	61	60	172	64	17	14	9.0	752
8	7.0	16	16	19	58	64	152	57	17	13	9.1	830
9	7.0	13	24	18	50	73	105	50	16	12	8.8	84
10	7.0	11	39	18	44	82	82	47	16	11	8.6	46
11	7.0	11	59	17	40	63	69	42	15	12	8.4	34
12	7.0	11	60	16	40	54	60	40	16	12	8.2	30
13	8.0	10	38	15	42	48	51	37	16	15	8.2	35
14	8.2	9.6	29	15	39	43	45	35	15	14	8.2	27
15	7.5	9.5	25	16	35	39	1140	33	14	11	8.3	22
16	7.2	9.5	22	15	32	39	1940	31	14	11	8.6	19
17	7.2	9.1	19	15	e31	35	718	29	14	11	8.4	18
18	7.3	9.1	30	17	30	32	338	28	13	11	8.2	17
19	7.3	9.1	28	209	28	32	195	29	13	10	8.7	17
20	7.3	9.5	24	120	27	30	137	31	13	10	8.2	65
21	7.3	13	21	69	28	29	107	26	12	9.5	8.0	39
22	7.3	11	19	59	30	27	89	25	12	9.3	8.4	29
23	7.3	10	18	46	39	26	76	30	12	16	10	24
24	7.3	10	711	44	48	25	1140	43	12	12	8.7	21
25	8.0	9.6	229	39	50	26	1070	45	12	10	8.6	19
26	11	21	93	e36	57	25	324	32	13	9.8	8.6	17
27	8.7	25	62	e32	54	23	192	33	13	9.6	8.6	16
28	8.0	16	48	e30	142	36	140	53	11	9.4	8.5	15
29	7.8	14	39	26	---	32	109	35	11	9.4	8.3	14
30	7.8	13	34	33	---	176	90	30	11	11	8.2	15
31	7.7	---	29	56	---	429	---	27	---	11	8.2	---
TOTAL	232.1	363.5	1974	1136	1467	3152	9178	1424	460	372.0	272.6	2264.9
MEAN	7.49	12.1	63.7	36.6	52.4	102	306	45.9	15.3	12.0	8.79	75.5
MAX	11	25	711	209	142	845	1940	119	26	19	12	830
MIN	6.8	8.2	12	15	27	23	45	25	11	9.3	8.0	7.8
CFSM	.21	.35	1.82	1.05	1.50	2.91	8.74	1.31	.44	.34	.25	2.16
IN.	.25	.39	2.10	1.21	1.56	3.35	9.75	1.51	.49	.40	.29	2.41

CAL YR 1986 TOTAL 8199.7 MEAN 22.5 MAX 711 MIN 6.8 CFSM .64 IN. 8.71
WTR YR 1987 TOTAL 22296.1 MEAN 61.1 MAX 1940 MIN 6.8 CFSM 1.75 IN. 23.70

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River near Buena Vista.

REVISED RECORDS.--WSP 952: 1940-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 846.58 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--49 years, 666 ft³/s, 14.00 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft³/s, Aug. 20, 1969, gage height, 31.23 ft, from flood-marks, from rating curve extended above 17,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 20 ft³/s, Oct. 10, 1941, occurred during filling of a small reservoir 2 mi upstream; unqualified minimum, 37 ft³/s, Sept. 9, 1966; minimum gage height, 0.98 ft, Jan. 5, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of about 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0630	8,220	9.13	Apr. 25	1030	13,400	11.90
Mar. 2	0030	8,410	9.24	Sept. 8	0700	13,600	12.00
Apr. 16	1130	*16,600	*13.36				

Minimum discharge, 72 ft³/s, Sept. 4, gage height, 1.05 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	160	291	563	799	5870	3450	1540	571	163	130	87
2	82	189	576	527	771	6640	2090	1310	648	167	119	83
3	92	176	1180	469	1190	3570	1630	1230	638	192	116	81
4	126	142	948	421	1760	2390	1500	1790	610	284	114	79
5	124	182	681	382	1620	1800	1470	2000	561	312	109	90
6	104	225	519	351	1360	1460	1540	1700	482	253	113	191
7	92	193	424	339	1190	1240	1980	1490	419	253	110	465
8	90	200	365	334	1130	1150	2620	1280	373	217	108	9090
9	85	204	358	323	1070	1290	2270	1070	338	211	110	2140
10	84	187	482	314	916	1820	1790	983	333	196	103	2180
11	84	194	595	315	815	1700	1440	908	315	181	97	2280
12	83	199	992	302	755	1330	1230	840	301	225	93	1230
13	112	202	902	283	775	1120	1050	786	297	218	92	978
14	134	186	684	273	756	960	898	736	296	223	92	682
15	152	173	552	275	715	856	4090	691	265	196	91	524
16	140	166	471	286	654	794	15400	646	253	183	100	423
17	130	156	415	282	626	731	14200	605	260	169	99	361
18	116	145	438	286	606	664	7350	597	249	159	95	334
19	112	145	453	1110	541	627	4050	589	232	152	109	314
20	113	147	414	3330	502	593	2840	1390	221	146	101	683
21	119	175	379	1930	487	557	2250	1440	213	140	90	1170
22	117	189	346	1430	508	526	1910	995	211	133	88	916
23	109	195	318	1150	637	497	1490	814	201	132	126	668
24	112	191	2220	815	718	472	4050	837	193	164	117	522
25	124	184	6260	801	737	462	11700	2380	190	137	101	430
26	190	225	2530	670	836	463	5720	1510	196	127	100	364
27	154	590	1560	619	903	443	3470	1070	216	123	101	323
28	136	601	1140	604	1090	513	2730	1620	193	119	96	290
29	118	439	894	603	---	563	2140	1200	177	113	91	267
30	130	348	746	568	---	833	1820	874	168	114	86	260
31	152	---	638	739	---	3180	---	608	---	121	86	---
TOTAL	3600	6708	28771	20694	24467	45114	110168	35529	9620	5523	3183	27505
MEAN	116	224	928	668	874	1455	3672	1146	321	178	103	917
MAX	190	601	6260	3330	1760	6640	15400	2380	648	312	130	9090
MIN	82	142	291	273	487	443	898	589	168	113	86	79
CFSM	.18	.35	1.44	1.03	1.35	2.25	5.68	1.77	.50	.28	.16	1.42
IN.	.21	.39	1.66	1.19	1.41	2.60	6.34	2.05	.55	.32	.18	1.58

CAL YR 1986 TOTAL 138819 MEAN 380 MAX 8680 MIN 75 CFSM .59 IN. 7.99
WTR YR 1987 TOTAL 320882 MEAN 879 MAX 15400 MIN 79 CFSM 1.36 IN. 18.48

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 mi².
PERIOD OF RECORD.--January 1900 to September 1915 (gage heights only), October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303. Published as "at Salt Creek" December 1926 to June 1931.
REVISED RECORDS.--WSP 972: 1913(M), 1932-33, 1935(M), 1936. WSP 1303: 1928(M). WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 548.53 ft above National Geodetic Vertical Datum of 1929. January 1900 to September 1915, nonrecording gage in powerhouse of Owens Illinois Glass Company 1,000 ft upstream at different datum. December 1926 to June 1931, water-stage recorder at site 2 mi downstream at different datum.
REMARKS.--Records good. Some diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 117.4 mi upstream; since October 1984 by Back Creek Lake 145.4 mi upstream; and since January 1985 by Little Back Creek Lake 148.5 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--61 years, 3,613 ft³/s, 15.06 in/yr, unadjusted.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 207,000 ft³/s, Nov. 5, 1985, gage height, 42.15 ft, from high-water mark in gage house, from rating curve extended above 73,000 ft³/s on basis of records for other stations in James River basin; minimum, 30 ft³/s, Aug. 13, 1987, gage height, 2.85 ft; minimum daily, 223 ft³/s, July 28, 1930.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 31.3 ft, from floodmarks, discharge, 118,000 ft³/s, from rating curve extended as explained above.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 25,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	1615	35,800	17.22	Apr. 25	2145	61,500	22.59
Mar. 2	0745	45,600	19.47	Sept. 8	0300	71,100	24.20
Apr. 17	0200	*97,900	*28.36				

Minimum discharge, 30 ft³/s, Aug. 13, gage height, 2.85 ft; minimum daily, 468 ft³/s, Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	755	859	1980	3120	4740	30300	22400	8000	3080	1290	968	761
2	701	892	2310	2840	4420	42700	15800	6800	3130	1320	898	739
3	736	1010	5010	2570	4970	27000	12200	6230	3190	1380	862	738
4	468	950	5200	2380	8650	19300	8840	7100	3410	1570	895	732
5	592	1130	4080	2200	9030	15700	7830	8410	3240	1750	1010	722
6	632	1260	3100	2010	7420	11400	7620	7830	2880	1850	876	1040
7	639	1500	2510	1940	6170	7740	8580	6740	2560	1930	844	2940
8	634	1650	2200	1890	5530	6720	11400	6080	2330	1940	823	42300
9	658	1690	2080	1870	5160	7080	12600	5040	2170	1810	833	13900
10	641	1790	2110	1880	4700	9270	10600	4470	2090	1690	828	5930
11	632	1660	2870	1860	4330	10500	9720	4110	2020	1540	822	5100
12	686	1590	4470	1900	4020	7950	7820	4120	1920	1360	803	4620
13	686	1580	5810	1700	3860	6600	5710	3880	1880	1390	513	4240
14	677	1270	4270	1760	3990	5420	5250	3580	1910	1480	790	4200
15	811	1370	3260	1660	3970	4810	12200	3380	1820	1610	782	3030
16	806	1230	2830	1640	3780	4410	71900	3290	1760	1630	732	2480
17	822	1190	2420	1710	3790	3970	87400	3060	1800	1390	764	2090
18	795	1130	2280	1740	3630	3720	49700	2840	1750	1300	788	1850
19	738	1070	2370	2720	3410	3530	29800	2750	1690	1260	738	1590
20	764	1090	2450	16400	3300	3470	22400	2830	1630	1210	803	1890
21	800	1150	2290	13000	2770	3450	18500	4710	1580	1120	735	3600
22	698	1150	2140	9910	2810	3340	15900	4070	1490	994	720	3370
23	684	1190	1970	8320	3640	3180	8870	3560	1470	1060	730	2620
24	672	1260	6790	5680	4950	2970	17000	3080	1420	1210	822	2130
25	689	1260	29600	4840	5320	2890	56700	4250	1390	1000	835	1860
26	934	1430	19000	4460	5250	2840	45300	4830	1420	881	800	1620
27	1080	1880	9330	4020	5520	2740	24900	4080	1470	828	803	1500
28	933	3390	6400	3740	6770	2790	19600	4060	1310	893	765	1480
29	929	2870	4980	e3400	---	3060	13600	4550	1310	852	750	1390
30	808	2320	4050	3100	---	4240	9940	4260	1310	837	767	1370
31	866	---	3420	3460	---	14900	---	3610	---	859	774	---
TOTAL	22966	43811	153580	119720	135900	277990	650080	145600	60430	41234	24873	121832
MEAN	741	1460	4954	3862	4854	8967	21670	4697	2014	1330	802	4061
MAX	1080	3390	29600	16400	9030	42700	87400	8410	3410	1940	1010	42300
MIN	468	859	1970	1640	2770	2740	5250	2750	1310	828	513	722
(*)	-104	+67	+512	-16	+167	+46	-91	0	-87	-158	-189	+15
MEAN‡	637	1527	5466	3846	5021	9013	21580	4697	1927	1172	613	4076
CFSM‡	.20	.47	1.68	1.18	1.54	2.77	6.62	1.44	.59	.36	.19	1.25
IN.‡	.23	.52	1.93	1.36	1.60	3.19	7.39	1.66	.66	.41	.22	1.40

CAL YR 1986	TOTAL 859140	MEAN 2354	MAX 31300	MIN 468	MEAN‡ 2346	CFSM‡ .72	IN.‡ 9.77
WTR YR 1987	TOTAL 1798016	MEAN 4926	MAX 87400	MIN 468	MEAN‡ 4939	CFSM‡ 1.52	IN.‡ 20.58

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.
e Estimated.

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 mi².
PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to 1926, published as "at Bent Creek, near Gladstone."
REVISED RECORDS.--WSP 742: 1931(m). WSP 972: 1935-36. WSP 1066: 1940. WSP 1203: 1942. WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 381.39 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 12, 1930, nonrecording gage at same site and datum.
REMARKS.--Records good except for period of no gage-height record, Sept. 16-30, which is fair. Large diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 158.3 mi upstream; since October 1984 by Back Creek Lake 186.3 mi upstream; and since January 1985 by Little Back Creek Lake 189.4 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--63 years, 4,209 ft³/s, 15.52 in/yr, unadjusted.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 226,000 ft³/s, Nov. 5, 1985, gage height, 30.76 ft, from floodmarks, from rating curve extended above 177,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 222 ft³/s, Oct. 13, 14, 1930, gage height, 2.21 ft.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 26,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	2400	36,700	12.14	Apr. 26	0230	68,900	16.67
Mar. 2	1415	49,000	14.05	Sept. 8	1130	101,000	20.25
Apr. 17	1215	*115,000	*21.73				

Minimum daily discharge, 503 ft³/s, Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	739	880	2410	3540	5650	29600	23700	9730	3780	1200	908	940
2	888	804	2890	4160	5520	46700	17600	8210	3700	1430	1280	768
3	687	777	5150	2860	5880	32700	14700	7690	3680	1690	1020	722
4	692	975	6250	2970	8720	21800	10400	7960	4310	2210	1350	760
5	663	1150	5850	2800	10800	17400	9280	9180	3910	2560	972	717
6	510	1080	3780	2380	9380	13900	8600	9440	3120	2450	1060	1390
7	503	1380	3600	2440	7980	9580	9030	8030	2840	2450	1070	2710
8	523	2370	2670	1820	7310	8000	11100	7470	2650	2260	931	53000
9	590	1820	2450	2270	6870	7990	13500	6690	2350	2140	799	24500
10	776	1690	2310	1780	6130	9220	11900	5430	2270	1400	979	11900
11	551	1800	2940	2060	5650	11800	10900	5150	2020	1880	1160	7510
12	532	1700	4860	2150	5270	9490	10000	5300	2110	1080	879	6670
13	682	1390	6880	2060	5040	8320	6980	4630	2050	1600	970	7090
14	911	1670	6270	1710	4560	6750	6490	4390	2270	1780	703	6370
15	886	1090	4630	2160	4890	6110	8590	4060	1850	2050	640	5860
16	757	1170	3390	1590	5010	5590	63100	3220	1890	2070	795	e4430
17	872	1490	3390	1590	4850	5440	107000	3500	2050	1670	887	e3450
18	782	1080	2420	2310	4950	4640	68300	3730	1940	1140	729	e3000
19	758	959	2630	3120	3950	4640	35100	3300	1880	1210	974	e2500
20	750	1130	2550	12000	4560	4310	24700	3700	1710	1330	851	e4000
21	728	1510	2860	16300	3480	4310	20200	4280	1750	1320	885	e6000
22	766	886	2420	11300	3530	4090	17400	5860	2360	1270	753	e5900
23	667	979	2590	10700	6070	4320	12300	4070	1090	1220	787	e5000
24	646	1270	4580	7290	6600	3880	10400	3570	1380	1330	807	e4000
25	658	1310	25000	6240	6920	3630	52200	4310	1420	1330	1050	e2650
26	863	1270	25400	5710	6610	3640	58500	6380	1770	1280	954	e2000
27	1090	1850	12100	5650	6790	3580	30000	5420	1810	974	799	e1800
28	1160	2990	8300	5620	8210	3160	22200	4760	1110	1160	858	e1850
29	800	3420	6410	5080	---	3540	16600	5110	1400	1070	769	e2000
30	849	2660	5580	4260	---	4460	11900	5100	1770	933	751	e1750
31	750	---	4740	3930	---	10900	---	4510	---	1090	717	---
TOTAL	23029	44550	177300	139850	171180	313490	722670	174180	68240	48577	28087	181237
MEAN	743	1485	5719	4511	6114	10110	24090	5619	2275	1567	906	6041
MAX	1160	3420	25400	16300	10800	46700	107000	9730	4310	2560	1350	53000
MIN	503	777	2310	1590	3480	3160	6490	3220	1090	933	640	717
(*)	-104	+67	+512	-16	+167	+46	-91	.00	-87	-158	-189	+15
MEAN‡	639	1552	6231	4495	6281	10160	24000	5619	2188	1409	717	6056
CFSM‡	.17	.42	1.69	1.22	1.71	2.76	6.52	1.53	.59	.38	.19	1.64
IN.‡	.20	.47	1.95	1.41	1.78	3.18	7.27	1.76	.66	.44	.22	1.84

CAL YR 1986	TOTAL 979034	MEAN 2682	MAX 37700	MIN 503	MEAN‡ 2674	CFSM‡ .73	IN.‡ 9.86
WTR YR 1987	TOTAL 2092390	MEAN 5733	MAX 107000	MIN 503	MEAN‡ 5746	CFSM‡ 1.56	IN.‡ 21.18

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.
e Estimated.

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 Lovingston.

DRAINAGE AREA.--92.8 mi².

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 578.39 ft above National Geodetic Vertical Datum of 1929. Sept. 15, 1969, to Oct. 15, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Oct. 29 to Nov. 1, Dec. 10, Mar. 12-29, Apr. 3-6, 9-14, May 8-19, 21-23, May 25 to June 1, June 5-20, 22-26, June 28 to July 1, July 3, 6, 9-12, 14, 16-20, 27-29, Aug. 1-3, 13-15, 18, 19, 21-23, and Aug. 25 to Sept. 6, which are poor. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--49 years, 155 ft³/s, 22.68 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,000 ft³/s, Aug. 20, 1969, gage height, 29.0 ft, from flood-marks, from rating curve extended above 7,600 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.50 ft³/s, Sept. 10, 11, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1930	1,690	4.62	Apr. 17	0115	*3,720	*7.83
Mar. 1	0915	1,840	4.93				

Minimum daily discharge, 5.4 ft³/s, Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	e22	100	183	147	1520	574	411	e90	e25	e9.5	e6.3
2	19	26	382	173	147	1200	480	377	108	38	e9.2	e6.0
3	17	28	597	152	180	819	e330	343	96	e35	e8.9	e5.6
4	17	26	353	138	230	616	e500	421	110	44	11	e5.4
5	17	46	260	129	220	495	e410	347	e88	90	11	e6.0
6	15	76	209	121	207	420	e370	318	e77	e47	10	e8.0
7	14	59	177	120	201	377	347	299	e69	53	10	175
8	14	100	154	115	202	360	379	e260	e64	46	10	996
9	15	75	156	105	192	369	e320	e240	e60	e37	9.9	310
10	15	60	e150	104	176	407	e290	e225	e64	e33	9.9	251
11	15	56	188	102	167	380	e265	e200	e60	e29	9.7	208
12	15	61	221	92	160	e330	e250	e190	e61	e50	9.5	232
13	21	53	194	90	157	e280	e235	e170	e66	42	e8.5	272
14	29	48	171	89	149	e250	e230	e160	e57	e40	e8.2	185
15	24	45	157	92	143	e230	599	e150	e53	35	e8.5	141
16	21	45	143	91	134	e220	2260	e140	e51	e25	9.5	116
17	19	43	131	91	134	e200	2540	e130	e49	e24	9.8	100
18	18	41	154	94	132	e180	1440	e128	e46	e23	e8.6	93
19	18	42	136	255	118	e160	1030	e120	e43	e20	e9.5	107
20	18	49	118	303	117	e150	800	154	e45	e17	9.9	498
21	18	99	108	249	118	e140	644	e115	61	15	e9.0	424
22	17	69	101	237	120	e135	540	e110	e43	16	e8.5	284
23	17	61	98	212	204	e130	465	e105	e39	18	e14	219
24	17	58	683	183	173	e128	617	132	e36	16	12	178
25	19	55	936	e160	158	e125	1320	e110	e35	15	e11	146
26	50	172	548	e140	155	e122	1030	e100	e45	13	e8.5	125
27	38	230	398	e130	151	e118	802	e100	50	e11	e8.1	108
28	27	164	317	e120	300	e145	657	e95	e37	e10	e8.2	94
29	e23	136	267	e130	---	e125	555	e89	e30	e9.5	e7.4	84
30	e21	116	235	146	---	319	476	e84	e26	10	e6.6	78
31	e22	---	202	162	---	663	---	e80	---	10	e6.4	---
TOTAL	630	2161	8044	4508	4692	11113	20755	5903	1759	896.5	290.8	5461.3
MEAN	20.3	72.0	259	145	168	358	692	190	58.6	28.9	9.38	182
MAX	50	230	936	303	300	1520	2540	421	110	90	14	996
MIN	14	22	98	89	117	118	230	80	26	9.5	6.4	5.4
CFSM	.22	.78	2.79	1.56	1.81	3.86	7.46	2.05	.63	.31	.10	1.96
IN.	.25	.87	3.22	1.81	1.88	4.45	8.32	2.37	.71	.36	.12	2.19

CAL YR 1986 TOTAL 32448.0 MEAN 88.9 MAX 936 MIN 11 CFSM .96 IN. 13.01
WTR YR 1987 TOTAL 66213.6 MEAN 181 MAX 2540 MIN 5.4 CFSM 1.95 IN. 26.54

e Estimated.

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 mi².
PERIOD OF RECORD.--July 1949 to current year.
REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-72-1: 1971(M).
GAGE.--Water-stage recorder. Datum of gage is 633.58 ft above National Geodetic Vertical Datum of 1929. Prior to May 27, 1969, water-stage recorder, and Nov. 4, 1969, to Feb. 26, 1970, nonrecording gage at site 20 ft downstream from former highway bridge at same datum. Feb. 26, 1970, to Sept. 20, 1973, on right bank 20 ft upstream from bridge at same datum.
REMARKS.--Records good. Periodic dewatering of upstream quarries adds small amount of inflow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--38 years, 94.8 ft³/s, 27.05 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft³/s, Aug. 20, 1969, gage height, 13.8 ft, from floodmarks, from rating curve extended above 6,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 1.1 ft³/s, Sept. 13, 1966.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1949 reached a stage of 9.9 ft, from floodmarks.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 650 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1900	1,010	3.45	Apr. 16	2200	*2,070	*5.10
Mar. 1	1215	1,340	4.00	Apr. 25	0645	805	3.08
Apr. 15	1445	859	3.18	Sept. 8	0730	870	3.20

Minimum discharge, 2.9 ft³/s, Sept. 2, 3, 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	13	74	135	84	986	318	232	43	18	6.2	3.5
2	9.0	17	201	120	84	747	273	203	45	26	6.1	3.5
3	8.0	20	354	103	100	486	238	179	47	22	6.1	3.1
4	7.1	17	272	92	125	371	247	214	58	23	5.3	3.0
5	6.5	33	212	84	124	302	217	182	49	23	5.2	5.2
6	6.9	46	172	77	118	253	203	172	42	22	4.9	44
7	6.7	41	142	73	116	216	190	161	39	20	4.8	74
8	7.3	57	119	69	114	196	184	150	37	17	4.9	490
9	8.0	51	118	64	109	200	180	138	35	16	4.7	187
10	8.1	47	107	63	102	216	177	127	36	15	4.5	134
11	7.3	47	118	60	97	204	169	116	34	14	4.0	110
12	7.9	46	125	55	94	186	159	106	36	28	3.8	105
13	17	42	116	52	90	167	145	98	39	23	3.8	106
14	19	39	111	52	85	150	132	91	46	20	3.7	87
15	13	39	105	53	81	135	386	86	36	17	3.8	69
16	12	45	96	50	77	127	1520	78	33	15	4.2	58
17	11	45	87	45	78	113	1650	73	32	14	4.7	50
18	5.8	43	101	52	74	104	965	71	30	14	4.3	47
19	8.3	38	86	136	69	96	612	69	29	12	4.5	49
20	8.8	36	80	159	66	90	453	74	28	12	6.8	256
21	8.0	53	76	153	66	84	356	63	29	11	5.5	314
22	8.5	46	72	158	68	80	295	60	27	9.6	4.6	181
23	8.3	46	70	136	118	75	250	56	26	9.2	7.5	138
24	8.7	45	474	123	97	72	365	61	25	9.3	7.3	109
25	12	44	623	112	90	72	758	57	24	9.5	5.4	88
26	34	102	406	e100	88	69	601	53	25	8.0	5.2	74
27	22	122	308	e90	87	66	476	53	26	6.2	4.9	63
28	16	107	246	e80	165	76	388	51	22	6.5	4.7	55
29	14	95	203	e84	---	68	323	47	20	6.2	4.0	49
30	13	84	172	85	---	168	272	43	19	6.5	3.5	46
31	12	---	146	90	---	314	---	43	---	6.4	3.6	---
TOTAL	344.2	1506	5592	2805	2666	6489	12502	3207	1017	459.4	152.5	3001.3
MEAN	11.1	50.2	180	90.5	95.2	209	417	103	33.9	14.8	4.92	100
MAX	34	122	623	159	165	986	1650	232	58	28	7.5	490
MIN	5.8	13	70	45	66	66	132	43	19	6.2	3.5	3.0
CFSM	.23	1.06	3.78	1.90	2.00	4.39	8.76	2.16	.71	.31	.10	2.10
IN.	.27	1.18	4.37	2.19	2.08	5.07	9.77	2.51	.79	.36	.12	2.35

CAL YR 1986 TOTAL 19281.1 MEAN 52.8 MAX 623 MIN 5.8 CFSM 1.11 IN. 15.07
WTR YR 1987 TOTAL 39741.4 MEAN 109 MAX 1650 MIN 3.0 CFSM 2.29 IN. 31.06

e Estimated.

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 mi².
PERIOD OF RECORD.--August 1960 to current year.
REVISED RECORDS.--WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 444.39 ft above National Geodetic Vertical Datum of 1929.
REMARKS.--Records good except for period of no gage-height record, Jan. 14 to Mar. 2, which is fair, and those for periods of doubtful gage-height record, Apr. 21, 22, May 7-19, May 21 to June 4, June 6-22, 24, 25, June 28 to July 1, July 10-12, July 14 to Aug. 15, Aug. 26 to Sept. 4, and Sept. 14-18, 20-26, which are poor. Several measurements of water temperature were made during the year.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--27 years, 171 ft³/s, 15.80 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft³/s, Aug. 20, 1969, gage height, 27.95 ft, from flood-mark, from rating curve extended above 1,800 ft³/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 ft³/s, Sept. 8-13, 1966; minimum gage height, 0.28 ft, Sept. 9-13, 1964.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2045	3,160	8.36	Apr. 25	0315	1,660	6.12
Mar. 1	Unknown	3,020	a8.22	Sept. 7	2100	3,270	8.47
Apr. 15	2045	2,350	7.39	Sept. 8	0815	*4,950	*10.05
Apr. 16	2230	4,670	9.79	Sept. 12	2345	2,200	7.17
Apr. 17	1200	4,040	9.22	Sept. 20	Unknown	b1,400	Unknown

a From high-water mark.
b Daily mean discharge; actual peak is known to be greater than the value shown.

Minimum daily discharge, 9.5 ft³/s, Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	29	92	172	e205	e2000	253	438	e105	e48	e24	e13
2	19	28	162	173	e210	e880	223	412	e110	99	e23	e12
3	17	30	509	164	e250	599	213	404	e140	109	e22	e10
4	17	31	254	150	e330	418	237	562	e170	96	e21	e9.5
5	16	34	179	138	e305	350	225	431	203	123	e38	26
6	14	62	142	129	e290	301	217	363	e130	95	e25	93
7	13	64	120	121	e270	279	201	e320	e100	88	e22	747
8	13	137	106	114	e275	259	195	e290	e90	80	e22	2360
9	13	99	107	107	e260	262	185	e265	e85	77	e21	681
10	13	80	134	90	e240	268	181	e250	e90	e70	e19	520
11	13	70	173	93	e230	205	178	e235	e86	e62	e17	369
12	13	74	251	86	e220	197	170	e230	e90	e76	e15	458
13	14	72	171	80	e210	186	163	e225	e97	97	e15	913
14	30	63	134	e78	e200	175	153	e210	e125	e55	e14	e400
15	40	58	120	e80	e190	170	737	e190	e105	e47	e18	e270
16	31	56	107	e79	e180	171	3420	e175	e86	e42	22	e170
17	25	54	101	e78	e190	169	3110	e165	e83	e38	23	e130
18	23	51	108	e155	e175	159	1460	e160	e74	e35	22	e160
19	22	50	113	e300	e165	152	887	e155	e66	e35	22	179
20	21	49	101	e350	e160	148	562	243	e62	e33	34	e1400
21	21	69	101	e300	e165	141	e435	e180	e98	e31	27	e700
22	21	82	101	e270	e200	136	e400	e160	e82	e30	23	e500
23	22	73	99	e230	e290	132	488	e150	78	e30	27	e350
24	22	67	1000	e210	e250	130	592	e170	e70	e32	30	e255
25	22	64	1050	e195	e240	130	1440	e150	e66	e31	25	e195
26	37	72	558	e190	e235	132	1080	e145	78	e29	e20	e155
27	55	198	415	e178	e255	128	728	e140	97	e27	e16	134
28	44	131	316	e170	e1000	143	608	e135	e66	e25	e15	129
29	36	103	278	e180	---	137	532	e120	e56	e23	e14	123
30	32	98	231	e200	---	215	480	e105	e50	e21	e13	124
31	30	---	202	e230	---	358	---	e100	---	e22	e13	---
TOTAL	728	2148	7535	5090	7190	9130	19753	7278	2838	1706	662	11585.5
MEAN	23.5	71.6	243	164	257	295	658	235	94.6	55.0	21.4	386
MAX	55	198	1050	350	1000	2000	3420	562	203	123	38	2360
MIN	13	28	92	78	160	128	153	100	50	21	13	9.5
CFSM	.16	.49	1.65	1.12	1.75	2.01	4.48	1.60	.64	.37	.15	2.63
IN.	.18	.54	1.91	1.29	1.82	2.31	5.00	1.84	.72	.43	.17	2.93

CAL YR 1986 TOTAL 35331.0 MEAN 96.8 MAX 1050 MIN 12 CFSM .66 IN. 8.94
WTR YR 1987 TOTAL 75643.5 MEAN 207 MAX 3420 MIN 9.5 CFSM 1.41 IN. 19.14

e Estimated.

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 mi².
PERIOD OF RECORD.--April 1943 to current year.
REVISED RECORDS.--WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 530.29 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 21, 1943, nonrecording gage at same site and datum.
REMARKS.--Records good. Several measurements of water temperature were made during the year.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--44 years, 141 ft³/s, 20.24 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,000 ft³/s, Aug. 20, 1969, gage height, 31.2 ft, from floodmarks, from rating curve extended above 8,500 ft³/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 ft³/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 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1900	2,400	6.46	Sept. 7	2230	3,810	7.93
Mar. 1	1100	2,410	6.48	Sept. 8	1030	*4,990	*9.10
Apr. 17	0200	3,850	7.97	Sept. 20	1500	2,210	6.23
Apr. 25	1000	1,480	5.18				

Minimum discharge, 5.1 ft³/s, Sept. 4-5, gage height, 0.17 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	20	67	142	138	1560	436	307	91	24	30	6.6
2	19	23	497	142	144	1080	348	290	98	27	19	6.0
3	18	23	578	124	220	726	309	255	84	35	17	5.4
4	17	22	310	115	298	564	528	335	108	49	15	5.1
5	16	40	214	110	256	461	419	268	98	48	18	15
6	15	54	168	101	222	402	384	247	79	41	17	81
7	14	42	142	94	207	362	343	237	72	51	14	552
8	14	68	124	94	202	329	320	209	69	37	14	2610
9	15	52	119	87	183	326	295	190	66	28	13	495
10	15	42	115	90	168	348	273	174	69	27	11	498
11	15	39	126	87	159	298	250	160	64	27	9.6	292
12	15	41	142	80	155	276	225	152	64	25	8.4	331
13	18	39	117	79	150	250	202	142	65	25	8.1	402
14	23	36	106	76	142	220	181	139	61	25	8.1	250
15	21	37	104	74	132	204	416	131	58	24	8.1	183
16	18	38	97	71	122	200	1980	122	55	22	8.4	142
17	17	36	90	67	124	181	2290	116	54	21	9.0	121
18	17	34	97	71	121	172	1190	116	50	20	8.4	128
19	17	34	90	232	115	164	830	126	45	19	8.7	177
20	17	37	84	262	112	153	618	206	45	17	13	1290
21	16	72	77	204	112	144	477	133	58	15	11	676
22	16	53	73	202	117	132	394	121	49	16	8.7	389
23	16	48	71	172	195	121	327	114	39	15	17	274
24	16	45	799	159	195	119	407	124	37	13	12	204
25	17	43	804	138	177	117	1310	108	36	12	9.0	162
26	45	133	444	e126	166	112	986	108	37	11	8.4	137
27	30	156	312	e119	155	108	694	108	37	11	8.4	121
28	22	104	245	e115	263	138	528	104	31	9.6	8.4	108
29	20	87	197	e117	---	122	428	96	28	9.0	7.5	99
30	20	74	175	e119	---	259	363	91	27	30	6.9	96
31	20	---	153	146	---	512	---	84	---	30	6.9	---
TOTAL	579	1572	6737	3815	4750	10160	17751	5113	1774	763.6	362.0	9856.1
MEAN	18.7	52.4	217	123	170	328	592	165	59.1	24.6	11.7	329
MAX	45	156	804	262	298	1560	2290	335	108	51	30	2610
MIN	14	20	67	67	112	108	181	84	27	9.0	6.9	5.1
CFSM	.20	.55	2.29	1.30	1.80	3.47	6.26	1.74	.63	.26	.12	3.48
IN.	.23	.62	2.65	1.50	1.87	4.00	6.98	2.01	.70	.30	.14	3.88

CAL YR 1986 TOTAL 27891.2 MEAN 76.4 MAX 804 MIN 7.6 CFSM .81 IN. 10.97
WTR YR 1987 TOTAL 63232.7 MEAN 173 MAX 2610 MIN 5.1 CFSM 1.83 IN. 24.87

e Estimated.

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303.
REVISED RECORDS.--WSP 727: 1931(m). WSP 972: 1936(M), 1940(M). WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 253.18 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1928, nonrecording gage at same site and datum.
REMARKS.--Records good except for period of no gage-height record, Mar. 12-17, which is fair. Large diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 197.5 mi upstream; since October 1984 by Back Creek Lake 225.5 mi upstream; and since January 1985 by Little Back Creek Lake 228.6 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--63 years, 5,189 ft³/s, 15.37 in/yr, unadjusted.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 301,000 ft³/s, June 22, 1972, gage height, 34.02 ft, from floodmarks, from rating curve extended above 120,000 ft³/s on basis of slope-conveyance study; minimum daily, 300 ft³/s, Sept. 13, 1966.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1870 reached a stage of 30.7 ft, discharge, about 215,000 ft³/s, and flood in November 1877 reached a stage of 27.9 ft, discharge, about 160,000 ft³/s, from information by local resident. Flood in March 1913 reached a stage of 25.16 ft, from floodmarks, discharge, 121,000 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 35,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 26	0815	37,900	15.01	Apr. 26	1045	75,200	20.73
Mar. 2	2130	51,500	17.45	Sept. 8	2015	114,000	24.56
Apr. 17	1845	*133,000	*26.17				

Minimum discharge, 580 ft³/s, Oct. 8, 9; minimum daily, 589 ft³/s, Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	924	976	3210	5370	5810	28700	23500	13600	4710	1550	1140	748
2	925	1130	3340	4320	7040	49100	22500	11700	4700	1470	976	1020
3	1090	1050	7550	4840	6680	42400	18100	10400	4620	1730	1250	780
4	850	1030	8330	3290	9290	27200	14300	11300	5040	2170	1030	797
5	841	1430	8110	3580	13100	21600	12300	12300	5260	3150	1320	841
6	836	1620	6360	3430	12300	18000	11200	12300	4730	2800	949	1130
7	633	1850	4210	2770	10500	13500	11000	11200	3370	3190	1050	2160
8	589	2420	3800	2900	9620	10700	12300	9850	3270	2780	1060	67800
9	605	2990	3410	2610	9020	9880	15100	9240	3620	2460	938	43900
10	678	2330	3340	2710	7860	10700	14900	8060	2790	1720	789	14700
11	924	2400	3340	2510	7250	13000	13000	6760	2600	1940	952	9830
12	683	2430	6080	2510	6600	e12500	12300	6790	2210	1680	1110	8480
13	702	2260	6590	2750	6140	e10100	9950	6730	2740	1310	860	15400
14	993	1810	8160	2370	5790	e8600	7900	5950	2680	2070	927	10100
15	1320	2150	5990	2200	5690	e7600	8220	5470	2750	2090	696	7900
16	1180	1410	4880	2540	5600	e7000	51500	5050	2470	2220	623	5000
17	976	1600	4060	2040	5740	e6300	124000	4440	2240	2260	745	4110
18	1080	2000	3680	2040	5730	6070	102000	4450	2570	1470	889	3690
19	1010	1430	3230	3350	5110	5350	48700	4820	2210	1240	766	2860
20	951	1310	3550	8360	4910	5410	32300	5110	2240	1340	1050	4760
21	940	2090	3160	20700	4400	4910	25900	5320	2050	1440	846	7190
22	924	1860	3130	14400	4500	4560	22100	6580	2370	1380	927	7200
23	967	1410	3170	13100	7250	4520	17900	6610	2430	1350	832	6210
24	867	1560	4410	9980	9290	4660	12800	4500	1300	1300	873	4370
25	838	1860	25400	8090	8690	4730	44500	5100	1770	1470	854	3470
26	1000	1720	33600	6750	8300	4060	71200	6270	2070	1360	1110	2660
27	1360	2630	17700	6790	8090	4090	41400	7280	1700	1320	1030	2210
28	1530	2790	11800	6120	8670	4090	28100	6230	2000	980	862	2230
29	1500	4740	8920	5730	---	3790	22500	5560	1360	1120	884	2490
30	1060	3490	7240	5760	---	4450	16400	6470	1990	1350	833	2140
31	1080	---	6280	4710	---	9580	---	5710	---	1350	785	---
TOTAL	29856	59776	226030	168620	208970	367150	867870	231150	85860	55060	28956	246176
MEAN	963	1993	7291	5439	7463	11840	28930	7456	2862	1776	934	8206
MAX	1530	4740	33600	20700	13100	49100	124000	13600	5260	3190	1320	67800
MIN	589	976	3130	2040	4400	3790	7900	4440	1300	980	623	748
(*)	-104	+67	+512	-16	+167	+46	-91	.00	-87	-158	-189	+15
MEAN‡	859	2060	7803	5423	7630	11890	28840	7456	2775	1618	745	8221
CFSM‡	.19	.45	1.70	1.18	1.66	2.59	6.29	1.63	.61	.35	.16	1.79
IN.‡	.22	.50	1.96	1.36	1.73	2.99	7.02	1.88	.68	.41	.19	2.00

CAL YR 1986	TOTAL	1212257	MEAN	3321	MAX	38900	MIN	589	MEAN‡	3313	CFSM‡	.72	IN.‡	9.81
WTR YR 1987	TOTAL	2575474	MEAN	7056	MAX	124000	MIN	589	MEAN‡	7069	CFSM‡	1.54	IN.‡	20.94

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.
e Estimated.

02029000 JAMES RIVER AT SCOTTSVILLE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May to December 1987 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May to December 1987 (discontinued).
WATER TEMPERATURE: May to December 1987 (discontinued).

INSTRUMENTATION.--Water-quality monitor since May 1987.

EXTREMES FOR PERIOD MAY TO DECEMBER 1987.--
SPECIFIC CONDUCTANCE: May to September 1987: Maximum during period, 404 microsiemens, Sept. 4; minimum, 84 microsiemens, Sept. 8.
October to December 1987: Maximum during period, 295 microsiemens, Oct. 20; minimum, 132 microsiemens, Nov. 29.
WATER TEMPERATURE: May to September 1987: Maximum during period, 31.0°C, Aug. 3; minimum, 18.5°C, Sept. 26.
October to December 1987: Maximum during period, 20.5°C, Oct. 1; minimum, 3.5°C, Dec. 7.

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), MAY TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN
		MAY	
27	156	154	155
28	172	155	165
29	168	155	161
30	183	163	172
31	179	156	164
MONTH	183	154	163

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	170	153	161				283	221	264	393	373	385
2	166	150	156				306	252	278	395	383	389
3	162	153	159				326	250	288	396	389	392
4	163	154	158				345	276	308	404	389	397
5	162	149	158				347	284	317	394	353	384
6	183	161	170				360	294	329	358	299	335
7	---	---	---				345	294	317	336	128	267
8	---	---	---				360	293	328	205	84	133
9	---	---	---				358	300	325	122	85	103
10	---	---	---				357	294	324	121	114	118
11	---	---	---				---	---	---	119	110	115
12	---	---	---				346	330	335	128	111	122
13	---	---	---				345	339	343	120	91	102
14	---	---	---				360	343	353	117	110	115
15	---	---	---				362	350	357	148	117	129
16	---	---	---				367	355	361	177	141	156
17	---	---	---				363	345	358	251	176	207
18	---	---	---				365	352	357	233	221	226
19	---	---	---				355	312	345	238	224	230
20	---	---	---				350	321	342	231	188	211
21	---	---	---				351	335	344	190	182	185
22	---	---	---				351	333	345	200	185	193
23	---	---	---				342	333	338	213	200	207
24	---	---	---				349	334	342	217	210	213
25	---	---	---				351	341	345	220	215	217
26	---	---	---				369	315	345	229	221	226
27	---	---	---				386	338	361	236	229	232
28	---	---	---				390	361	374	234	220	227
29	---	---	---				388	360	382	228	208	215
30	---	---	---				384	377	381	223	214	218
31	---	---	---				382	374	379	---	---	---
MONTH	183	149	160				390	221	339	404	84	222
YEAR	404	84	262									

02029000 JAMES RIVER AT SCOTTSVILLE, VA--Continued

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), OCTOBER TO DECEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER	
1	223	214	219	264	254	261	---	---	---
2	219	210	215	254	242	248	---	---	---
3	219	211	215	---	---	---	---	---	---
4	226	206	214	272	249	263	---	---	---
5	237	208	218	267	242	254	---	---	---
6	246	234	239	288	262	276	---	---	---
7	245	216	230	---	---	---	---	---	---
8	235	218	224	279	260	270	---	---	---
9	---	---	---	270	244	263	157	148	153
10	230	223	226	261	209	230	---	---	---
11	235	227	232	---	---	---	149	144	146
12	259	228	231	---	---	---	150	147	148
13	252	232	242	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---
16	264	253	259	---	---	---	---	---	---
17	268	258	263	241	196	218	---	---	---
18	272	255	259	240	216	230	---	---	---
19	276	260	269	---	---	---	---	---	---
20	295	272	277	---	---	---	---	---	---
21	276	269	272	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---
24	284	260	269	243	192	210	---	---	---
25	268	260	263	223	179	210	---	---	---
26	---	---	---	217	199	212	---	---	---
27	---	---	---	---	---	---	---	---	---
28	248	241	245	---	---	---	---	---	---
29	---	---	---	160	132	143	---	---	---
30	---	---	---	---	---	---	---	---	---
31	264	249	255	---	---	---	---	---	---
MONTH	295	206	243	288	132	235	157	144	149

02029000 JAMES RIVER AT SCOTTSVILLE, VA--Continued

TEMPERATURE, WATER (DEG. C), MAY TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN
		MAY	
27	21.5	20.5	21.0
28	23.5	21.0	22.0
29	25.5	22.5	24.0
30	25.5	24.0	25.0
31	26.5	24.5	25.5
MONTH	26.5	20.5	23.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	27.0	25.0	26.0				29.0	26.5	27.5	26.5	24.5	25.5
2	27.0	24.5	26.0				29.5	27.5	28.5	25.5	23.0	24.5
3	27.5	25.5	26.5				31.0	28.0	29.5	25.0	23.0	24.5
4	26.0	24.5	25.5				30.5	29.0	30.0	25.0	23.5	24.0
5	25.0	23.5	24.0				30.5	29.0	30.0	24.0	21.5	22.5
6	25.5	23.0	24.0				30.0	27.5	29.0	22.0	21.0	21.5
7	---	---	---				29.5	27.5	28.5	23.0	21.5	22.0
8	---	---	---				30.0	27.0	28.5	22.5	21.0	22.0
9	---	---	---				30.5	28.0	29.5	21.0	20.5	21.0
10	---	---	---				30.0	28.5	29.5	22.0	21.0	21.5
11	---	---	---				---	---	---	22.0	21.0	21.5
12	---	---	---				28.5	26.0	27.5	22.5	21.5	22.0
13	---	---	---				27.5	26.0	27.0	22.5	21.5	22.0
14	---	---	---				28.0	25.5	27.0	23.0	22.0	22.5
15	---	---	---				27.5	26.5	27.0	23.5	22.0	22.5
16	---	---	---				27.5	26.0	26.5	24.5	22.5	23.5
17	---	---	---				30.0	27.0	28.5	25.5	23.0	24.0
18	---	---	---				30.0	28.5	29.5	25.5	23.5	24.5
19	---	---	---				30.0	27.0	28.0	24.5	23.0	24.0
20	---	---	---				28.5	26.0	27.5	23.0	21.0	22.0
21	---	---	---				28.0	26.5	27.5	21.5	20.0	20.5
22	---	---	---				28.0	26.0	27.5	22.0	20.5	21.0
23	---	---	---				28.0	26.0	27.0	21.5	20.0	21.0
24	---	---	---				27.5	25.0	26.5	21.5	19.5	20.5
25	---	---	---				26.0	24.0	25.0	21.0	19.5	20.0
26	---	---	---				24.5	23.0	24.0	21.0	18.5	19.5
27	---	---	---				27.5	24.0	26.0	21.5	19.0	20.5
28	---	---	---				27.5	26.5	27.0	22.0	20.0	21.0
29	---	---	---				28.0	26.5	27.0	22.0	20.0	21.0
30	---	---	---				27.5	25.0	26.0	22.0	20.5	21.5
31	---	---	---				26.0	24.5	25.0	---	---	---
MONTH	27.5	23.0	25.5				31.0	23.0	27.5	26.5	18.5	22.0
YEAR	31.0	18.5	25.0									

02029000 JAMES RIVER AT SCOTTSVILLE, VA--Continued

TEMPERATURE, WATER (DEG. C), OCTOBER TO DECEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER	
1	20.5	19.0	20.0	14.0	12.0	13.0	---	---	---
2	19.5	17.5	18.5	14.0	12.5	13.5	---	---	---
3	19.0	16.0	17.0	---	---	---	---	---	---
4	17.0	15.0	16.0	16.0	13.0	14.5	---	---	---
5	17.5	14.0	16.0	15.5	14.0	14.5	6.5	4.5	5.5
6	17.0	15.0	15.5	14.0	12.0	13.0	---	---	---
7	16.5	14.5	16.0	---	---	---	5.0	3.5	4.5
8	16.0	14.0	15.0	13.0	10.5	12.0	---	---	---
9	---	---	---	14.0	11.5	13.0	6.5	5.5	6.0
10	16.5	13.5	15.0	13.5	10.5	12.0	7.5	6.5	6.5
11	17.0	14.5	16.0	---	---	---	8.0	7.0	7.5
12	16.0	14.5	15.0	---	---	---	7.5	6.5	7.0
13	14.5	13.0	14.0	---	---	---	---	---	---
14	---	---	---	9.0	7.0	8.0	6.0	6.0	6.0
15	---	---	---	---	---	---	---	---	---
16	14.5	12.0	13.5	10.0	8.5	9.5	---	---	---
17	15.0	12.5	13.5	11.0	10.0	10.5	---	---	---
18	15.5	12.5	14.0	12.5	10.5	11.5	---	---	---
19	16.0	13.0	14.5	11.5	10.5	11.0	---	---	---
20	16.5	14.0	15.0	---	---	---	---	---	---
21	16.5	14.0	15.5	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---
24	14.0	11.5	13.0	7.5	5.5	7.0	---	---	---
25	13.5	12.0	12.5	9.0	7.0	8.5	---	---	---
26	---	---	---	10.0	8.5	9.5	---	---	---
27	---	---	---	---	---	---	---	---	---
28	12.0	10.0	11.0	8.5	8.0	8.5	---	---	---
29	11.5	9.5	10.5	9.5	8.0	9.0	---	---	---
30	---	---	---	---	---	---	---	---	---
31	14.0	11.0	12.5	---	---	---	---	---	---
MONTH	20.5	9.5	15.0	16.0	5.5	11.0	8.0	3.5	6.0

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 mi².

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 952: 1941(M). WSP 1002: 1940, 1943. WSP 1032: 1940, 1944.

GAGE.--Water-stage recorder. Datum of gage is 294.96 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of no gage-height record, Dec. 3, Feb. 1, Feb. 28 to Mar. 2, Apr. 16, 17, 25, 26, and Sept. 8, 9, 13, 14, 20, 21, which are fair. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--49 years, 128 ft³/s, 14.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,000 ft³/s, Aug. 20, 1969, gage height, 31.0 ft, from flood-marks, from rating curve extended above 18,000 ft³/s on basis of slope-area measurements at gage heights 23.8 ft and 31.0 ft; minimum, 0.10 ft³/s, Sept. 5-8, 1966; minimum gage height, 0.81 ft, Sept. 8, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0330	1,650	9.28	Apr. 25	Unknown	a1,450	Unknown
Mar. 1	Unknown	a1,050	Unknown	Sept. 8	Unknown	*12,400	*b21.39
Apr. 17	Unknown	a2,500	Unknown	Sept. 20	Unknown	a1,100	Unknown

a Daily mean discharge; actual peak is known to be greater than the value shown.
b From high-water mark.

Minimum discharge, 8.9 ft³/s, Sept. 4-5, gage height, 1.13 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	22	42	88	e215	e1050	161	238	108	40	21	12
2	21	24	123	110	192	e520	133	225	120	43	19	11
3	20	26	e580	106	225	345	135	222	103	49	17	9.8
4	20	24	156	92	303	255	208	359	164	64	15	9.4
5	19	38	101	85	272	212	202	291	217	89	17	12
6	17	79	80	79	212	184	185	232	122	57	21	82
7	16	49	67	78	209	169	175	207	102	49	17	145
8	16	86	61	75	239	159	151	188	93	48	17	e3000
9	17	71	60	69	213	158	133	176	91	42	16	e750
10	18	49	68	72	164	165	123	165	102	41	15	328
11	17	46	91	74	142	141	117	154	81	39	13	220
12	17	56	160	66	138	133	115	147	80	44	12	316
13	22	44	100	62	142	127	110	146	126	39	11	e800
14	40	36	77	59	127	121	103	144	127	36	11	e520
15	31	32	68	59	115	118	216	142	88	36	12	283
16	23	33	62	58	105	118	e1800	133	76	34	14	206
17	21	31	57	56	107	117	e2500	125	71	31	14	171
18	21	31	61	61	106	111	1100	123	63	30	12	157
19	21	31	60	259	104	109	619	157	61	28	13	138
20	20	34	52	361	109	107	453	234	60	26	22	e1100
21	21	85	49	184	111	105	370	156	87	24	16	e600
22	21	58	46	150	117	101	320	139	73	25	13	316
23	21	45	44	148	448	97	283	125	61	24	19	223
24	21	40	438	116	352	96	315	144	55	22	19	182
25	22	37	914	e105	216	96	e1450	126	53	23	14	157
26	51	46	270	e98	172	98	e600	128	68	22	14	140
27	49	117	176	e94	149	93	430	124	69	20	14	129
28	28	72	135	e92	e400	112	347	118	50	18	16	121
29	23	55	113	e100	---	107	296	110	45	16	15	113
30	23	48	103	e130	---	140	268	102	42	16	12	115
31	22	---	93	e170	---	264	---	96	---	17	12	---
TOTAL	723	1445	4507	3356	5404	5728	13418	5176	2658	1092	473	10366.2
MEAN	23.3	48.2	145	108	193	185	447	167	88.6	35.2	15.3	346
MAX	51	117	914	361	448	1050	2500	359	217	89	22	3000
MIN	16	22	42	56	104	93	103	96	42	16	11	9.4
CFSM	.20	.42	1.25	.93	1.66	1.60	3.85	1.44	.76	.30	.13	2.98
IN.	.23	.46	1.45	1.08	1.73	1.84	4.30	1.66	.85	.35	.15	3.32

CAL YR 1986 TOTAL 24217.7 MEAN 66.3 MAX 914 MIN 7.5 CFSM .57 IN. 7.77
WTR YR 1987 TOTAL 54346.2 MEAN 149 MAX 3000 MIN 9.4 CFSM 1.28 IN. 17.43

e Estimated.

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 Arvonia, 2.9 mi upstream from Hunts Creek, and 3.8 mi upstream from mouth.

DRAINAGE AREA.--226 mi².

PERIOD OF RECORD.--April 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1928-29, 1932, 1933-34(M), 1935. WSP 2104: 1928(M), 1935-37(M), 1940(M), 1944(M), 1949(M), 1955(M), drainage area. WDR VA-72-1: 1935, 1937, 1944, 1949, 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 238.78 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Feb. 15, 1936, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 23, 25, and Jan. 29 to Feb. 4, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 229 ft³/s, 13.76 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,200 ft³/s, June 22, 1972, gage height, 25.10 ft, from high-water mark in gage house, from rating curve extended above 5,900 ft³/s on basis of slope-area measurement of peak flow; minimum, 2.0 ft³/s, Sept. 28 to Oct. 2, 1930; minimum gage height, 1.35 ft, Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0300	2,580	9.27	Sept. 8	2130	*7,620	*14.60
Mar. 1	1200	3,090	9.99	Sept. 20	1500	2,210	8.70
Apr. 16	2330	6,180	13.43				

Minimum discharge, 7.6 ft³/s, Sept. 5, gage height, 1.78 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	30	61	115	e290	2700	214	209	97	44	87	11
2	18	30	92	231	e250	1370	169	207	110	46	47	11
3	17	31	527	240	e325	461	155	286	124	436	37	9.6
4	16	32	284	175	e550	309	173	862	142	143	33	8.3
5	14	44	150	145	498	246	195	625	156	152	32	8.2
6	12	92	108	126	366	215	179	343	129	104	26	30
7	11	89	90	117	357	197	185	262	104	79	23	75
8	9.9	104	81	112	466	186	166	220	91	71	22	2160
9	9.8	138	82	104	471	190	151	193	83	62	21	5250
10	10	86	132	105	312	201	141	177	80	54	20	773
11	10	68	213	119	242	176	135	165	77	49	18	568
12	11	81	469	110	232	161	133	155	74	46	15	554
13	15	84	250	100	288	155	131	155	86	43	13	424
14	42	67	158	94	253	148	125	161	86	46	11	294
15	73	55	124	93	210	145	194	153	79	57	11	201
16	49	51	108	94	182	146	3170	159	74	48	12	128
17	33	49	97	92	169	166	5220	165	74	43	13	99
18	27	48	97	97	189	157	2770	139	71	40	14	84
19	26	48	116	366	167	147	830	129	65	38	19	77
20	24	51	107	673	164	144	479	278	62	36	32	1520
21	23	115	93	311	175	139	306	261	62	34	25	1050
22	26	135	84	228	220	133	255	179	60	31	23	330
23	25	87	77	e190	1210	128	224	156	58	29	21	193
24	24	70	723	171	977	125	219	137	66	26	21	142
25	25	63	2050	e160	484	123	697	130	61	26	19	115
26	41	63	498	151	345	126	1310	138	57	25	18	100
27	75	85	260	263	275	124	534	139	70	26	17	91
28	58	95	187	259	377	142	347	133	69	23	17	85
29	41	78	152	e215	---	162	277	122	56	20	16	79
30	34	68	134	e201	---	152	237	110	48	19	15	87
31	31	---	121	e260	---	239	---	101	---	139	13	---
TOTAL	849.7	2137	7725	5717	10044	9213	19321	6649	2471	2035	711	14557.1
MEAN	27.4	71.2	249	184	359	297	644	214	82.4	65.6	22.9	485
MAX	75	138	2050	673	1210	2700	5220	862	156	436	87	5250
MIN	9.8	30	61	92	164	123	125	101	48	19	11	8.2
CFSM	.12	.32	1.10	.81	1.59	1.31	2.85	.95	.37	.29	.10	2.15
IN.	.14	.35	1.27	.94	1.65	1.52	3.18	1.09	.41	.33	.12	2.40

CAL YR 1986 TOTAL 39333.5 MEAN 108 MAX 2050 MIN 7.9 CFSM .48 IN. 6.47
WTR YR 1987 TOTAL 81429.8 MEAN 223 MAX 5250 MIN 8.2 CFSM .99 IN. 13.40

e Estimated.

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 mi².
PERIOD OF RECORD.--October 1942 to September 1951, October 1979 to current year. Prior to September 1951, published as Mechum River near Ivy.
GAGE.--Water-stage recorder. Datum of gage is 429.75 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1942, to Sept. 30, 1951, on right bank 20 ft downstream from former highway bridge at different datum.
REMARKS.--Records good except those for periods of doubtful or no gage-height record, Dec. 24 to Jan. 15, Aug. 26 to Sept. 8, and Sept. 20, 21, which are fair. Several measurements of water temperature were made during the year.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--17 years, 110 ft³/s, 15.66 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s, Oct. 15, 1942, gage height, 30.3 ft, datum then in use, from floodmarks, from rating curve extended above 8,000 ft³/s; minimum, 0.6 ft³/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 ft³/s, from rating curve extended above 8,300 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	Unknown	a720	Unknown	Sept. 8	1400	*8,060	*19.24
Mar. 1	1200	1,680	9.77	Sept. 9	0030	3,510	13.39
Apr. 16	1830	3,740	13.77	Sept. 13	0030	1,620	9.64
Apr. 17	0530	4,690	15.15	Sept. 20	Unknown	a1,040	Unknown

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

Minimum daily discharge, 8.0 ft³/s, Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	15	36	e82	104	972	191	195	109	28	16	e10
2	15	18	354	e92	108	510	154	175	136	28	15	e9.7
3	13	20	444	e81	210	318	147	171	97	31	14	e8.7
4	13	18	168	e74	293	234	440	286	208	61	16	e8.0
5	11	27	110	e69	225	191	292	234	177	53	25	e14
6	10	48	87	e62	175	160	249	199	107	47	20	e100
7	9.5	33	75	e61	154	144	229	177	86	46	16	e700
8	9.8	53	66	e57	147	132	195	158	76	35	16	e4000
9	10	44	61	e54	133	130	175	142	71	31	14	1070
10	11	31	68	e53	116	147	156	132	73	32	13	516
11	12	27	68	e53	107	116	142	120	65	35	11	393
12	10	32	92	e50	101	108	128	112	62	39	12	559
13	12	30	74	e48	97	106	115	104	68	40	12	888
14	18	26	63	e47	91	97	104	106	63	33	10	433
15	16	25	60	e47	85	92	203	104	56	30	11	318
16	13	27	56	47	79	91	2200	94	52	26	13	277
17	13	24	51	44	84	90	2540	90	51	24	14	245
18	13	23	61	47	81	81	1190	92	48	22	11	260
19	12	24	61	178	80	80	587	112	45	22	11	218
20	12	24	52	224	76	78	406	192	42	21	16	e1040
21	13	49	49	145	75	75	318	116	64	20	13	e478
22	13	36	47	130	76	76	267	104	49	19	11	256
23	12	31	48	e125	134	72	220	98	43	18	20	181
24	11	28	e350	113	178	70	246	152	39	20	18	140
25	13	27	e720	e105	147	68	903	108	36	20	13	113
26	31	91	e300	e95	130	74	613	154	41	18	e12	97
27	27	130	e185	e85	118	70	398	106	43	17	e12	88
28	18	65	e140	e80	139	92	318	102	32	16	e11	80
29	15	51	e115	e86	---	84	267	93	30	14	e11	74
30	15	42	e100	92	---	108	225	85	28	11	e10	74
31	15	---	e86	112	---	216	---	76	---	14	e10	---
TOTAL	432.3	1119	4247	2638	3543	4882	13618	4189	2097	871	427	12648.4
MEAN	13.9	37.3	137	85.1	127	157	454	135	69.9	28.1	13.8	422
MAX	31	130	720	224	293	972	2540	286	208	61	25	4000
MIN	9.5	15	36	44	75	68	104	76	28	11	10	8.0
CFSM	.15	.39	1.44	.89	1.33	1.65	4.76	1.42	.73	.30	.15	4.42
IN.	.17	.44	1.66	1.03	1.38	1.90	5.31	1.63	.82	.34	.17	4.93

CAL YR 1986 TOTAL 21917.2 MEAN 60.0 MAX 720 MIN 6.8 CFSM .63 IN. 8.55
WTR YR 1987 TOTAL 50711.7 MEAN 139 MAX 4000 MIN 8.0 CFSM 1.46 IN. 19.77

e Estimated.

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 mi².
PERIOD OF RECORD.--October 1979 to current year.
GAGE.--Water-stage recorder. Datum of gage is 403.11 ft above National Geodetic Vertical Datum of 1929.
REMARKS.--Records good except those for periods of doubtful gage-height record, Jan. 9-13, Feb. 7, 8, 13-16, Apr. 5-8, 22, and July 10, which are fair. Flow regulated by Rivanna Water and Sewer Authority at Sugar Hollow Reservoir 12.0 mi upstream from station, capacity, 1,320 acre-ft, from which an average of 5.6 ft³/s is diverted for industrial and municipal use. Several measurements of water temperature were made during the year.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--8 years, 105 ft³/s, 19.11 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft³/s, Nov. 4, 1985, gage height, 20.41 ft, from high-water mark, from rating curve extended above 5,600 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.58 ft³/s, Sept. 5, 1987.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 20.2 ft, from floodmarks, discharge, 15,100 ft³/s, and flood of Sept. 6, 1979, reached a stage of 21.55 ft, from floodmarks, discharge, about 16,500 ft³/s, from rating curve extended as explained above.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 2	2300	1,350	6.67	Apr. 16	1830	5,690	13.55
Dec. 24	2000	1,980	7.85	Apr. 25	0700	1,520	7.00
Dec. 25	1700	895	5.76	Sept. 8	1000	*7,070	*14.78
Mar. 1	1130	1,080	6.12	Sept. 10	0600	735	5.44
Apr. 5	0100	a450	Unknown	Sept. 12	2300	1,680	7.30
Apr. 15	1900	745	5.46				

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

Minimum discharge, 0.58 ft³/s, Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	6.6	26	97	116	808	435	235	41	7.6	1.1	.73
2	4.9	9.0	391	102	124	835	314	203	50	7.6	1.2	.73
3	4.4	11	665	83	235	525	254	207	42	10	1.1	.67
4	4.4	9.0	332	67	338	354	568	363	96	12	1.1	.61
5	4.9	16	206	58	276	276	e450	318	88	15	3.6	.73
6	4.0	31	147	53	232	232	e390	279	50	13	1.3	3.9
7	3.4	23	110	43	e185	190	e370	241	40	15	1.2	297
8	3.4	44	90	40	e150	177	e350	203	35	9.5	1.1	2510
9	3.8	31	83	e38	152	200	342	171	30	9.0	1.1	452
10	4.0	23	97	e37	102	225	272	152	30	e8.8	1.0	497
11	4.0	20	88	e40	92	184	228	136	28	9.0	.97	334
12	4.0	29	113	e39	90	161	193	116	28	38	.91	502
13	4.7	24	102	e38	e87	144	164	105	35	25	.85	568
14	8.0	20	90	37	e84	124	141	100	79	10	.79	164
15	7.2	18	85	36	e82	113	324	97	35	6.9	.76	90
16	5.5	18	74	34	e81	108	2690	83	28	4.9	.73	59
17	5.3	16	65	36	88	97	3490	73	24	4.2	.73	49
18	5.1	15	76	43	83	85	1760	65	20	3.6	.73	39
19	5.1	14	73	175	74	80	1040	67	19	3.3	.73	32
20	4.9	16	58	283	69	76	685	88	17	2.8	.76	226
21	4.9	32	54	238	65	71	415	69	18	2.3	.76	150
22	4.9	27	49	222	65	65	e350	65	19	2.0	.76	108
23	4.7	24	87	187	122	60	306	58	15	1.9	1.0	74
24	4.4	21	618	138	141	59	338	54	13	1.8	1.0	55
25	5.1	20	1030	105	130	56	988	55	12	1.6	.94	46
26	17	36	e350	e98	130	59	730	58	14	1.4	1.0	39
27	14	55	e240	e88	124	54	590	58	26	1.4	.97	33
28	9.0	41	e200	e79	136	74	435	58	14	1.2	.94	28
29	7.6	34	171	e88	---	69	338	49	10	1.2	.91	25
30	7.2	29	138	95	---	87	276	45	9.5	1.1	.82	22
31	6.6	---	110	124	---	358	---	40	---	1.0	.76	---
TOTAL	181.9	712.6	6018	2841	3653	6006	19226	3911	965.5	232.1	31.62	6406.37
MEAN	5.87	23.8	194	91.6	130	194	641	126	32.2	7.49	1.02	214
MAX	17	55	1030	283	338	835	3490	363	96	38	3.6	2510
MIN	3.4	6.6	26	34	65	54	141	40	9.5	1.0	.73	.61
CFSM	.08	.32	2.60	1.23	1.74	2.60	8.59	1.69	.43	.10	.01	2.87
IN.	.09	.36	3.00	1.42	1.82	2.99	9.59	1.95	.48	.12	.02	3.19

CAL YR 1986 TOTAL 23797.60 MEAN 65.2 MAX 1030 MIN 1.4 CFSM .87 IN. 11.87
WTR YR 1987 TOTAL 50185.09 MEAN 137 MAX 3490 MIN .61 CFSM 1.84 IN. 25.03

e Estimated.

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 mi².
PERIOD OF RECORD.--October 1979 to current year.
GAGE.--Water-stage recorder. Datum of gage is 408.71 ft above National Geodetic Vertical Datum of 1929.
REMARKS.--Records good except those for periods of doubtful gage-height record, Oct. 2-9, 11, 17-24, 29-31, June 9-12, 16-21, 23-25, June 29 to July 1, Aug. 10-19, and Sept. 4, 16-19, 21, which are fair. Several measurements of water temperature were made during the year.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--8 years, 44.7 ft³/s, 16.40 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,200 ft³/s, Sept. 8, 1987, gage height, 9.50 ft, from rating curve extended above 1,200 ft³/s on basis of contracted-opening measurement of peak flow; minimum, 0.35 ft³/s, Aug. 21, 1987.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 22, 1979, reached a stage of 11.12 ft, from floodmarks, discharge, about 6,600 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1900	1,400	5.58	Sept. 7	2230	2,930	7.51
Mar. 1	1015	608	3.88	Sept. 8	0930	*6,200	*9.50
Apr. 16	1015	1,810	6.25	Sept. 9	2400	723	4.17
Apr. 16	1745	3,700	8.10	Sept. 10	0545	1,170	5.14
Apr. 17	1130	1,700	6.08	Sept. 10	1345	986	4.77
Apr. 25	0400	573	3.78	Sept. 11	2145	1,230	5.26
June 14	0230	528	3.65	Sept. 12	2245	986	4.77

Minimum discharge, 0.35 ft³/s, Aug. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	5.5	13	32	48	380	92	95	33	e9.0	2.0	.93
2	e3.5	8.1	189	38	52	219	77	87	33	14	2.1	.67
3	e2.7	8.1	233	34	99	134	72	88	32	27	1.8	.51
4	e2.6	6.9	95	32	124	109	133	143	71	25	1.7	e.45
5	e2.9	14	60	24	99	93	120	120	63	22	2.3	1.7
6	e2.6	20	43	23	81	80	111	99	48	24	1.5	22
7	e2.2	11	40	21	74	76	108	92	39	17	1.4	371
8	e2.3	24	31	20	71	64	98	81	31	13	1.5	1730
9	e2.4	14	28	18	59	67	83	76	e23	11	1.2	195
10	2.8	11	35	18	51	87	76	65	e22	8.0	e.95	568
11	e2.4	11	36	19	47	71	66	62	e21	7.0	e.76	279
12	2.6	15	51	17	45	48	62	55	e22	7.2	e.80	380
13	3.5	12	41	16	46	43	48	51	30	6.6	e.79	370
14	6.3	9.6	36	15	43	39	38	48	131	6.5	e.64	173
15	5.4	8.0	32	16	40	37	74	49	45	5.4	e.50	120
16	4.2	7.8	30	16	37	35	1390	45	e33	4.4	e.54	e80
17	e3.7	7.5	29	15	39	35	1250	42	e28	3.9	e.59	e55
18	e3.5	7.2	32	18	35	31	516	38	e21	3.6	e.51	e42
19	e3.2	8.0	29	97	31	30	265	40	e16	3.4	e.52	e33
20	e3.2	8.9	25	107	29	28	182	59	e15	2.9	.75	206
21	e3.0	18	22	75	28	27	144	46	e21	3.9	.51	e98
22	e2.9	14	21	67	28	26	119	40	24	3.7	.57	76
23	e3.0	11	22	63	60	25	103	38	e18	2.5	5.2	58
24	e2.5	10	348	69	67	25	124	37	e14	2.2	2.7	47
25	4.7	9.2	263	41	65	25	445	44	e13	2.1	1.8	39
26	14	27	112	e40	58	25	240	40	19	2.0	1.7	33
27	8.3	40	80	e37	53	25	171	40	26	1.9	1.6	29
28	5.6	26	61	e35	68	32	131	38	17	1.6	1.5	25
29	e4.5	20	49	37	---	27	120	34	e13	1.5	1.1	24
30	e3.8	14	41	39	---	42	107	30	e12	1.3	.91	25
31	e3.0	---	36	53	---	99	---	29	---	1.5	.76	---
TOTAL	121.2	406.8	2163	1152	1577	2084	6565	1851	934	245.1	41.20	5082.26
MEAN	3.91	13.6	69.8	37.2	56.3	67.2	219	59.7	31.1	7.91	1.33	169
MAX	14	40	348	107	124	380	1390	143	131	27	5.2	1730
MIN	2.2	5.5	13	15	28	25	38	29	12	1.3	.50	.45
CFSM	.11	.37	1.89	1.01	1.52	1.82	5.92	1.61	.84	.21	.04	4.57
IN.	.12	.41	2.17	1.16	1.59	2.10	6.60	1.86	.94	.25	.04	5.11

CAL YR 1986 TOTAL 8318.90 MEAN 22.8 MAX 348 MIN .70 CFSM .62 IN. 8.36
WTR YR 1987 TOTAL 22222.56 MEAN 60.9 MAX 1730 MIN .45 CFSM 1.65 IN. 22.34

e Estimated.

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 at downstream side of 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 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 330 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Nov. 25, 26, Dec. 5-9, Jan. 20 to Mar. 6, Mar. 12-16, and Mar. 31 to Apr. 8, 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 15.4 ft³/s is diverted for industrial and municipal use. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--8 years, 299 ft³/s, 15.62 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,200 ft³/s, Sept. 6, 1979, gage height, 23.50 ft, from flood-marks, from rating curve extended above 12,000 ft³/s; minimum, 3.3 ft³/s, Sept. 1, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,200 ft³/s, Sept. 8, gage height, 22.52 ft; minimum, 3.3 ft³/s, Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	20	119	247	e315	e2500	e525	475	160	58	13	13
2	17	34	583	198	e285	e1800	e460	418	256	58	14	25
3	14	41	1660	210	e390	e1050	e435	404	203	65	13	25
4	15	34	699	186	e850	e740	e500	710	228	97	12	24
5	14	68	e300	170	e670	e520	e660	843	519	100	23	24
6	6.4	129	e220	154	e500	e440	e590	522	243	91	23	26
7	4.4	108	e185	146	e430	387	e580	464	182	86	14	118
8	5.2	146	e175	138	e450	355	e540	404	156	73	13	7370
9	6.0	130	e230	140	e390	360	512	329	138	59	13	2130
10	7.6	85	250	142	e300	430	445	315	140	60	11	1180
11	6.8	83	243	138	e270	335	387	288	123	63	8.4	798
12	7.6	100	312	129	e265	e300	348	271	117	83	6.5	1050
13	19	79	287	127	e260	e280	305	245	126	107	5.5	2200
14	46	62	252	119	e245	e265	283	241	264	66	5.8	738
15	32	55	234	119	e225	e255	420	245	166	56	4.2	428
16	21	57	219	115	e205	e250	5550	223	123	45	4.4	310
17	21	53	206	112	e200	254	7320	210	107	40	6.5	261
18	24	53	223	115	e195	236	3590	208	99	37	7.0	243
19	22	51	232	402	e190	232	1940	250	91	34	8.4	206
20	20	64	202	e860	e180	225	1310	296	87	30	9.1	1520
21	20	117	188	e540	e175	215	890	254	110	27	8.0	1210
22	19	110	190	e410	e190	206	744	221	115	26	8.0	504
23	20	85	148	e390	e370	202	591	203	91	22	15	324
24	15	79	1050	e300	e480	196	620	241	77	20	13	252
25	29	e200	2590	e275	e420	194	2110	223	72	18	10	208
26	83	e290	940	e220	e325	196	1720	203	104	17	8.0	174
27	92	222	716	e210	e315	188	1160	206	157	14	8.8	156
28	48	200	500	e185	e340	221	880	208	84	13	7.7	134
29	31	154	338	e220	---	225	674	192	69	11	5.0	121
30	25	134	278	e240	---	232	565	172	62	12	3.9	121
31	20	---	206	e270	---	e600	---	160	---	11	3.6	---
TOTAL	736.0	3043	13975	7227	9430	13889	36654	9644	4469	1499	305.8	21893
MEAN	23.7	101	451	233	337	448	1222	311	149	48.4	9.86	730
MAX	92	290	2590	860	850	2500	7320	843	519	107	23	7370
MIN	4.4	20	119	112	175	188	283	160	62	11	3.6	13
*FT³/S	16.5	15.0	13.6	13.3	14.4	14.1	14.3	14.8	15.8	17.8	18.4	17.3

CAL YR 1986	TOTAL 61631.0	MEAN 169	MAX 2590	MIN 4.4	*FT³/S 15.3
WTR YR 1987	TOTAL 122764.8	MEAN 336	MAX 7370	MIN 3.6	*FT³/S 15.4

* Average diversion, in cubic feet per second, at South Fork Rivanna and Sugar Hollow Reservoirs; provided by Rivanna Water and Sewer Authority.
e Estimated.

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 mi².

PERIOD OF RECORD.--April 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 323.43 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of doubtful gage-height record, July 30, 31, Aug. 4-8, 11-22, and Aug. 26 to Sept. 4, which are fair. Rivanna Water and Sewer Authority diverts about 0.2 ft³/s daily for municipal water supply 7.8 mi upstream from station. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--17 years, 249 ft³/s, 19.21 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,800 ft³/s, June 21, 1972, gage height, 30.4 ft, from flood-marks, from rating curve extended above 9,000 ft³/s; minimum, 1.8 ft³/s, Oct. 6, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 3	0500	1,610	6.25	Sept. 8	1800	*10,100	*18.17
Dec. 25	0100	3,070	9.67	Sept. 10	1130	3,530	10.72
Mar. 1	1600	2,420	8.16	Sept. 13	0430	3,280	10.16
Apr. 17	0130	8,730	17.26	Sept. 20	2130	1,850	6.80
Apr. 25	1130	1,860	6.83				

Minimum daily discharge, 6.0 ft³/s, Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	20	67	131	183	1740	288	295	99	37	14	e8.5
2	19	26	287	149	173	1130	227	267	103	36	15	e7.5
3	17	28	1040	134	313	623	211	285	189	44	14	e6.5
4	17	24	361	122	575	398	280	559	279	95	e15	e6.0
5	16	34	204	112	454	295	322	425	276	62	e17	10
6	15	74	148	103	324	232	326	332	161	55	e16	42
7	14	55	123	102	285	195	335	283	131	49	e17	33
8	14	82	122	97	291	179	302	249	113	40	e13	5350
9	14	67	150	91	257	189	259	222	97	37	12	1690
10	15	53	179	92	196	246	213	205	96	35	11	1680
11	14	54	173	92	177	192	181	187	82	34	e10	701
12	16	70	232	86	173	169	164	177	79	87	e9.5	1320
13	16	56	176	76	175	149	147	174	93	58	e8.5	2030
14	24	45	141	73	159	137	129	164	328	36	e7.4	763
15	24	41	127	74	145	129	199	161	141	32	e7.1	370
16	20	41	118	72	132	127	4310	153	100	27	e7.6	242
17	18	39	110	68	130	120	7300	141	89	24	e9.4	188
18	18	37	121	72	130	111	3280	138	71	23	e8.9	157
19	18	40	125	368	127	109	1460	151	63	22	e13	133
20	17	47	105	563	114	102	883	191	62	19	e15	998
21	17	106	95	328	111	98	613	158	62	18	e12	878
22	18	79	87	268	111	96	466	144	68	21	e10	364
23	18	64	87	253	174	91	382	132	63	20	43	237
24	18	56	648	201	254	87	399	136	55	18	17	184
25	19	50	1540	182	254	86	1490	146	49	17	14	153
26	41	90	532	156	223	89	1110	136	52	16	e13	130
27	40	200	341	e140	192	84	661	135	94	16	e12	115
28	27	118	250	e120	237	106	501	129	56	15	e11	103
29	22	95	196	e135	---	101	405	117	45	14	e11	94
30	22	77	173	146	---	99	345	106	40	e13	e10	97
31	20	---	143	172	---	264	---	100	---	e12	e9.0	---
TOTAL	608	1868	8201	4778	6069	7773	27188	6198	3236	1032	402.4	18090.5
MEAN	19.6	62.3	265	154	217	251	906	200	108	33.3	13.0	603
MAX	41	200	1540	563	575	1740	7300	559	328	95	43	5350
MIN	14	20	67	68	111	84	129	100	40	12	7.1	6.0
CFSM	.11	.35	1.51	.88	1.23	1.43	5.15	1.14	.61	.19	.07	3.43
IN.	.13	.39	1.73	1.01	1.28	1.64	5.75	1.31	.68	.22	.09	3.82

CAL YR 1986 TOTAL 39240.0 MEAN 108 MAX 1540 MIN 13 CFSM .61 IN. 8.29
WTR YR 1987 TOTAL 85443.9 MEAN 234 MAX 7300 MIN 6.0 CFSM 1.33 IN. 18.06

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1933 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1936(M). WSP 852: 1937. WSP 892: 1934-35. WSP 1303: 1945-46(M). WSP 1503: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 210.39 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 24, 1942, water-stage recorder at site 200 ft downstream at same datum. Oct. 24, 1942, to Dec. 18, 1947, nonrecording gage 10 ft downstream at same datum.

REMARKS.--Records good except for period with ice effect, Jan. 27-31, which is fair. Some diurnal fluctuation at times mostly at low and medium flow by South Fork Rivanna River Reservoir. Combined diversion for water supply and discharge from waste-water treatment plant upstream at Charlottesville resulted in an average gain of about 1.3 ft³/s upstream from the gage. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 724 ft³/s, 14.81 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,000 ft³/s, Aug. 20, 1969, gage height, 39.85 ft, from rating curve extended above 76,000 ft³/s on basis of contracted-opening measurement of peak flow and velocity-area study; minimum, 5.2 ft³/s, Sept. 9-11, 1966, gage height, 2.13 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0930	7,230	13.04	Sept. 9	0230	*32,200	*26.65
Mar. 1	2030	6,550	12.04	Sept. 13	1130	6,710	12.27
Apr. 17	0930	28,700	25.59	Sept. 20	2400	6,170	11.47

Minimum discharge, 28 ft³/s, Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	65	251	500	755	4980	1210	1140	375	184	56	32
2	69	65	403	659	748	4150	1070	1020	698	176	55	30
3	63	81	3340	645	992	2210	999	972	492	195	58	36
4	56	87	1600	570	1860	1530	1130	1700	1260	273	57	54
5	50	100	967	515	1780	1180	1590	1700	1570	305	78	64
6	46	220	620	478	1340	1010	1320	1290	793	249	66	204
7	42	236	545	456	1180	890	1330	1110	523	230	71	169
8	33	292	496	447	1200	813	1140	968	424	209	63	11800
9	29	285	513	426	1140	804	1080	806	374	185	56	20200
10	29	235	550	428	913	957	979	722	406	164	53	2670
11	31	192	622	436	774	844	853	658	335	164	48	2140
12	34	240	980	405	727	740	774	609	312	170	41	2310
13	38	219	751	379	734	684	705	575	336	236	37	5050
14	96	178	595	362	700	625	627	545	692	209	33	2660
15	115	145	509	341	651	586	789	540	558	166	31	1250
16	83	134	470	337	593	555	10500	513	356	146	36	792
17	66	129	431	331	570	552	26800	466	309	134	37	587
18	55	126	426	328	575	518	13900	450	284	124	34	503
19	49	124	488	738	574	500	4680	529	255	116	39	425
20	47	131	428	2070	547	490	2950	686	250	108	46	2040
21	47	319	376	1290	526	476	2020	654	454	99	42	4130
22	47	301	349	1060	530	459	1620	522	313	91	41	1610
23	48	227	333	1040	1230	441	1360	463	283	89	44	1010
24	48	190	1030	761	1470	426	1310	449	229	87	91	708
25	49	174	5650	701	1150	420	4030	562	219	80	67	553
26	108	194	2240	575	1010	427	4300	494	227	75	56	447
27	177	660	1310	e525	887	414	2600	462	501	70	48	391
28	136	358	1020	e490	931	461	1930	460	308	66	45	352
29	94	320	824	e550	---	526	1550	423	226	60	43	326
30	74	250	691	e600	---	495	1330	391	196	52	40	323
31	68	---	602	e660	---	1000	---	354	---	50	36	---
TOTAL	2008	6277	29410	19103	26087	30163	96476	22233	13558	4562	1548	62866
MEAN	64.8	209	949	616	932	973	3216	717	452	147	49.9	2096
MAX	177	660	5650	2070	1860	4980	26800	1700	1570	305	91	20200
MIN	29	65	251	328	526	414	627	354	196	50	31	30
CFSM	.10	.32	1.43	.93	1.40	1.47	4.84	1.08	.68	.22	.08	3.16
IN.	.11	.35	1.65	1.07	1.46	1.69	5.40	1.25	.76	.26	.09	3.52

CAL YR 1986 TOTAL 138863 MEAN 380 MAX 5650 MIN 29 CFSM .57 IN. 7.78
WTR YR 1987 TOTAL 314291 MEAN 861 MAX 26800 MIN 29 CFSM 1.30 IN. 17.61

e Estimated.

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 at Cartersville, 1.8 mi downstream from Willis River, and at mile 156.4.

DRAINAGE AREA.--6,257 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1898 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1203: 1901-2(M), 1923-25(M), 1928(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 163.90 ft above National Geodetic Vertical Datum of 1929. Prior to June 4, 1927, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, May 12 to June 2, June 17 to July 14, Aug. 19-24, and Sept. 14-30, which are fair. Moderate diurnal fluctuation caused by powerplants upstream from station. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--89 years, 7,087 ft³/s, 15.38 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 362,000 ft³/s, June 22, 1972, gage height, 37.87 ft, from flood-marks, from rating curve extended above 160,000 ft³/s on basis of slope-conveyance study; minimum, 316 ft³/s, Sept. 13, 14, 1966, gage height, 0.02 ft; minimum daily, 330 ft³/s, Sept. 14, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 40,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 26	1630	40,300	14.00	Apr. 26	2100	78,100	21.25
Mar. 2	1300	57,300	17.58	Sept. 9	1100	114,000	25.44
Apr. 18	0700	*142,000	*27.96				

Minimum discharge, 758 ft³/s, Oct. 10-11; minimum gage height, 0.39 ft, Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1160	1280	4160	7050	7410	28900	20300	16900	e5800	e2400	1540	959
2	1150	1200	4230	7350	8720	56200	27200	14300	e5400	e2550	1300	947
3	1150	1350	10500	7380	9080	53900	20400	13100	5740	e2700	1220	1170
4	1260	1290	12100	6160	11500	35800	17400	15100	6230	e2600	1370	930
5	1020	1380	9900	5240	15700	26100	15000	17600	8150	e3500	1410	1030
6	985	2150	8300	5030	16000	21300	13500	15800	6800	e3900	1420	1270
7	963	2240	6190	4830	13800	17000	13000	14500	5570	e3400	1160	2030
8	847	2760	5440	4210	13000	12900	13200	12400	4500	e3500	1290	32900
9	788	3930	4740	3960	12600	11400	15400	11200	4270	e3050	1290	102000
10	763	3620	4780	4020	11100	11800	16900	9930	4330	e2800	1120	38400
11	783	2860	5230	3980	9630	13200	14800	8480	3680	e2520	939	16000
12	1020	3290	7580	4100	8770	14700	13700	e7700	3380	e2700	1120	13600
13	892	3250	8240	3600	8490	12300	12400	e7800	3350	e2400	1270	20400
14	1090	2890	9250	3980	8260	10800	9350	e7300	4190	e2220	1020	e17000
15	1480	2440	7950	3480	7570	9140	8950	e6800	4370	2540	1070	e1200
16	1710	2390	6550	3420	7560	8470	37300	e6200	3750	2420	869	e8000
17	1420	1880	5470	3570	7560	8040	111000	e5950	e3400	2560	816	e5800
18	1200	2020	5190	3120	7450	7800	134000	e5500	e3200	2460	848	e4950
19	1270	2390	4780	4160	7520	6960	88500	e5550	e3300	1580	e1120	e4200
20	1180	1840	4360	10500	6720	6850	46900	e5900	e3000	1450	e1080	e5900
21	1120	2090	4510	18900	7020	6510	33600	e6350	e2950	1560	e1200	e12000
22	1100	3520	4180	18900	6510	6330	27600	e6800	e3120	1600	e1130	e10700
23	1080	2490	4070	15000	11200	6140	23700	e7600	e3270	1530	e1010	e8600
24	1110	2010	5530	13200	15500	6170	16900	e6450	e2750	1510	e1050	e6200
25	1030	2220	30600	9950	12900	5830	30500	e5800	e2310	1450	1140	e5300
26	1130	2520	38100	8690	11900	5660	73800	e6600	e2400	1580	1130	e4550
27	1480	2690	26200	8070	10700	5560	63700	e8000	e3100	1400	1330	e3900
28	1940	4460	15600	7980	10500	5580	36200	e7000	e2700	1400	1240	e3350
29	1860	4420	11400	7750	---	5650	28400	e6300	e2280	1150	1050	e3600
30	1640	5390	9110	7450	---	5740	21400	e7300	e2200	1220	1070	e3400
31	1280	---	8040	7340	---	8260	---	e6500	---	1650	1020	---
TOTAL	36901	78260	292280	222370	284670	440990	1005000	282710	119490	69300	35642	340286
MEAN	1190	2609	9428	7173	10170	14230	33500	9120	3983	2235	1150	11340
MAX	1940	5390	38100	18900	16000	56200	134000	17600	8150	3900	1540	102000
MIN	763	1200	4070	3120	6510	5560	8950	5500	2200	1150	816	930
CFSM	.19	.42	1.51	1.15	1.62	2.27	5.35	1.46	.64	.36	.18	1.81
IN.	.22	.47	1.74	1.32	1.69	2.62	5.98	1.68	.71	.41	.21	2.02

CAL YR 1986 TOTAL 1531234 MEAN 4195 MAX 38100 MIN 763 CFSM .67 IN. 9.10
WTR YR 1987 TOTAL 3207899 MEAN 8789 MAX 134000 MIN 763 CFSM 1.41 IN. 19.07

e Estimated.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to January 1976, October 1980 to May 1981.
WATER TEMPERATURE: April 1968 to January 1976, October 1980 to May 1981.
SUSPENDED-SEDIMENT DISCHARGE: October 1980 to May 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV												
24...	1200	2000	200	197	7.70	8.00	8.5	751	2.1	11.6	101	13
JAN												
29...	1100	7800	128	133	7.00	7.43	0.0	757	5.3	14.4	99	K4
FEB												
25...	1130	12700	128	137	7.20	7.89	5.0	759	12	12.5	98	130
APR												
18...	0800	141000	79	82	7.00	7.70	10.5	746	78	10.3	94	K6500
JUN												
29...	1200	1870	198	205	7.60	8.20	27.5	751	1.9	7.5	97	14
AUG												
27...	1330	1270	320	320	8.40	8.60	27.5	748	0.40	8.3	107	27

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV												
24...	K20	72	15	21	4.6	11	2.8	58	56	57	69	18
JAN												
29...	K6	48	10	14	3.1	5.2	1.3	39	37	38	46	12
FEB												
25...	75	45	11	13	3.1	7.4	1.4	35	34	34	41	12
APR												
18...	7300	33	8	10	1.9	2.0	1.4	28	26	25	30	9.5
JUN												
29...	62	63	6	17	5.1	12	2.4	59	57	57	69	17
AUG												
27...	K6	100	22	29	7.0	24	2.6	81	79	79	89	26

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (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)
NOV												
24...	13	0.10	8.5	125	110	<0.010	0.400	0.020	0.010	0.30	0.260	0.230
JAN												
29...	6.8	<0.10	8.7	74	74	<0.010	0.460	0.080	0.070	0.40	0.080	0.050
FEB												
25...	10	<0.10	7.6	70	75	<0.010	0.380	0.020	0.040	1.4	0.110	0.070
APR												
18...	2.2	0.10	6.1	53	48	<0.010	0.250	0.040	0.110	0.60	0.440	0.030
JUN												
29...	12	0.10	6.8	111	110	<0.010	<0.100	0.040	0.040	0.80	0.200	0.190
AUG												
27...	31	0.20	6.8	182	180	<0.010	<0.100	<0.010	<0.010	<0.20	0.380	0.360

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV												
24...	0.230	30	<1	31	<0.5	<1	<1	<3	2	140	<5	7
JAN												
29...	0.040	--	--	--	--	--	--	--	--	--	--	--
FEB												
25...	0.070	90	<1	26	1	<1	<1	<3	2	150	6	4
APR												
18...	0.020	110	<1	95	<0.5	<1	<1	<3	<1	150	<5	<4
JUN												
29...	0.170	--	--	--	--	--	--	--	--	--	--	--
AUG												
27...	0.320	40	1	40	<0.5	<1	<5	<3	<10	17	<10	<4

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
24...	7	<0.1	<10	3	<1	<1	94	<6	53	3	97
JAN											
29...	--	--	--	--	--	--	--	--	--	7	99
FEB											
25...	16	<0.1	<10	3	<1	<1	58	<6	15	46	71
APR											
18...	7	1.0	<10	1	<1	<1	35	<6	29	519	90
JUN											
29...	--	--	--	--	--	--	--	--	--	9	75
AUG											
27...	7	0.1	<10	<10	<1	<1	140	<6	3	3	66

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 mi².

PERIOD OF RECORD.--July 1944 to current year.

REVISED RECORDS.--WSP 1203: 1948. WSP 1303: 1945(M). WSP 1383: 1954. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 156.59 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1953, nonrecording gage and crest-stage gage at site 75 ft upstream at same datum.

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

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

AVERAGE DISCHARGE.--43 years, 20.3 ft³/s, 12.47 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,180 ft³/s, Oct. 6, 1972, gage height, 9.02 ft, from rating curve extended above 2,600 ft³/s; minimum daily, 0.08 ft³/s, Oct. 1, 1968; minimum gage height, 1.53 ft, Sept. 30, Oct. 1, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	1030	270	3.09	Apr. 16	2000	*640	*3.90
Feb. 23	1600	231	2.97	Apr. 26	0430	240	3.00

Minimum discharge, 0.22 ft³/s, Sept. 3-5, gage height, 1.56 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	4.6	8.6	24	30	151	22	24	7.0	2.3	1.5	.25
2	3.6	4.3	19	92	29	108	18	25	8.8	3.3	1.4	.24
3	3.5	3.9	42	61	36	52	17	73	14	9.9	1.1	.23
4	3.5	3.7	33	33	55	37	21	82	25	56	.87	.22
5	3.4	6.1	20	29	55	30	24	65	25	27	1.2	3.6
6	3.1	8.8	15	25	42	27	22	40	14	12	1.3	8.8
7	3.2	11	13	23	39	26	22	31	10	7.1	.81	9.1
8	3.0	12	12	18	42	24	20	26	7.9	5.7	.77	14
9	3.1	12	17	16	46	30	18	21	6.9	4.9	.68	12
10	3.2	8.6	33	16	36	32	16	19	7.0	4.2	1.7	6.8
11	3.0	10	42	19	30	26	16	17	7.0	3.6	1.0	12
12	3.1	13	69	17	28	23	15	16	7.9	3.2	.69	32
13	3.8	14	42	14	27	21	16	21	10	2.7	.71	25
14	16	11	27	13	25	20	15	20	11	2.2	.56	12
15	21	8.5	22	13	23	19	25	19	9.8	3.0	.64	6.9
16	12	7.4	17	13	20	20	305	18	7.9	2.9	1.1	5.9
17	7.2	8.4	15	14	19	23	401	15	7.0	2.4	.78	4.7
18	5.0	8.6	16	19	28	21	144	13	6.1	2.1	.36	3.8
19	4.3	8.0	15	58	29	20	83	12	5.4	1.7	3.0	3.3
20	3.7	9.0	14	93	24	19	58	17	5.0	1.4	5.2	6.7
21	3.7	13	12	45	25	18	45	17	4.8	1.0	4.7	9.2
22	3.5	14	11	31	32	17	38	15	4.3	.97	2.4	7.0
23	3.7	11	10	e30	181	17	32	13	4.2	.81	1.3	5.3
24	3.7	9.2	55	e27	124	16	32	12	4.2	.79	.36	4.4
25	4.3	9.4	191	25	62	16	166	11	4.0	.99	.27	3.2
26	11	13	68	21	41	16	197	12	4.1	1.6	.27	2.6
27	16	18	35	e19	33	15	80	12	5.1	2.7	.28	2.1
28	12	17	25	e18	35	18	47	12	4.3	2.0	.28	1.7
29	7.6	12	21	e20	---	19	37	10	3.3	1.2	.28	1.7
30	6.1	10	18	e24	---	20	28	8.8	2.7	1.3	.25	5.5
31	5.4	---	16	30	---	27	---	7.5	---	1.4	.25	---
TOTAL	189.3	299.5	953.6	900	1196	928	1980	704.3	243.7	172.36	36.01	210.24
MEAN	6.11	9.98	30.8	29.0	42.7	29.9	66.0	22.7	8.12	5.56	1.16	7.01
MAX	21	18	191	93	181	151	401	82	25	56	5.2	32
MIN	3.0	3.7	8.6	13	19	15	15	7.5	2.7	.79	.25	.22
CFSM	.28	.45	1.39	1.31	1.93	1.35	2.99	1.03	.37	.25	.05	.32
IN.	.32	.50	1.61	1.51	2.01	1.56	3.33	1.19	.41	.29	.06	.35

CAL YR 1986 TOTAL 5561.60 MEAN 15.2 MAX 358 MIN 1.7 CFSM .69 IN. 9.36
WTR YR 1987 TOTAL 7813.01 MEAN 21.4 MAX 401 MIN .22 CFSM .97 IN. 13.15

e Estimated.

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 Bosher Dam on James River, 1.6 mi upstream from Huguenot Memorial Bridge, and 2.0 mi west of Richmond city limits.

PERIOD OF RECORD.--September 1936 to current year.

GAGE.--Water-stage recorder. Datum of gage is 106.07 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1938, at datum 3.06 ft higher.

REMARKS.--Records good. Canal diverts from James River 1,200 ft upstream from Bosher Dam and discharges into river at several points downstream from gaging station near Richmond. Above 2,540 ft^3/s, gage height, 14.5 ft, there is interchange of flow with James River; discharge above 2,540 ft^3/s included in discharge for James River near Richmond (station 02037500). Figures given show flow in canal only. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--51 years, 742 ft^3/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 29.1 ft, June 23, 1972, from floodmarks, interchange of flow with James River makes maximum discharge indeterminate; no flow at times when head gates were closed.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 20.74 ft, Apr. 18, interchange of flow with James River makes maximum discharge indeterminate; minimum discharge, 3.1 ft^3/s, Aug. 29-31, result of head gates being closed.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	85	329	280	240	190	4.8	6.7	16	428	510	471
2	56	84	296	158	243	198	4.9	15	17	478	485	488
3	56	85	281	218	244	208	4.5	14	18	477	487	496
4	61	83	277	246	248	234	5.9	13	24	469	508	500
5	61	111	298	281	257	233	5.5	9.8	20	468	514	486
6	45	148	312	291	261	257	5.0	9.5	16	457	498	463
7	7.0	239	299	300	257	259	4.7	11	15	452	492	459
8	6.1	251	295	297	252	203	4.4	9.6	14	466	485	431
9	5.7	257	284	302	252	279	4.2	9.0	93	467	498	402
10	5.5	230	286	279	250	272	4.2	8.8	299	448	502	1330
11	5.0	217	273	305	245	275	4.3	8.6	376	454	487	55
12	4.4	276	250	302	254	281	4.4	7.9	436	456	497	20
13	4.5	277	265	301	256	277	4.4	7.3	432	471	500	10
14	13	276	262	216	253	271	4.3	7.5	441	449	403	10
15	4.6	273	272	297	251	268	7.4	8.6	444	446	12	9.6
16	93	271	306	295	249	218	124	7.8	442	456	6.7	9.8
17	74	209	318	297	250	113	577	7.2	442	455	5.9	9.7
18	63	151	317	214	250	206	2540	8.4	447	456	7.3	9.5
19	63	213	315	198	250	264	2540	9.6	446	451	5.0	9.0
20	149	295	310	232	247	264	813	98	442	436	4.2	9.7
21	120	303	311	249	246	264	14	294	441	422	4.0	8.0
22	61	309	308	240	248	262	18	283	441	439	3.9	7.1
23	86	316	306	252	239	260	13	286	443	549	3.8	6.8
24	72	307	343	244	237	259	20	291	449	544	3.7	7.4
25	73	303	177	235	252	260	115	293	431	529	3.7	7.6
26	67	311	225	e235	244	259	35	194	427	510	3.6	7.4
27	77	313	223	e230	240	257	77	21	439	485	3.2	6.9
28	84	316	291	e240	230	261	25	19	448	479	3.2	6.1
29	87	323	303	e240	---	257	13	18	441	481	3.2	5.2
30	85	331	307	e238	---	18	8.9	16	423	502	3.1	57
31	85	---	303	e238	---	5.7	---	15	---	514	329	---
TOTAL	1739.8	7163	8942	7950	6945	7132.7	7005.8	2007.3	9263	14594	7271.5	5797.8
MEAN	56.1	239	288	256	248	230	234	64.8	309	471	235	193
MAX	149	331	343	305	261	281	2540	294	449	549	514	1330
MIN	4.4	83	177	158	230	5.7	4.2	6.7	14	422	3.1	5.2

CAL YR 1986 TOTAL 66665.8 MEAN 183 MAX 891 MIN 2.2
WTR YR 1987 TOTAL 85811.9 MEAN 235 MAX 2540 MIN 3.1

e Estimated.

02037500 JAMES RIVER NEAR RICHMOND, VA

LOCATION.--Lat 37°33'47", long 77°32'50", Henrico County, Hydrologic Unit 02080205, on left bank 0.2 mi upstream from Huguenot Memorial Bridge, 0.5 mi southwest of Richmond city limits, 1.7 mi downstream from Bosher Dam, 3.3 mi upstream from Powhite Creek, and at mile 116.6.
DRAINAGE AREA.--6,758 mi².
PERIOD OF RECORD.--October 1934 to current year. Gage-height records collected in vicinity of Mayo's Bridge, at mile 109.5, 1876-1956, and at mile 108.7 since 1957, are contained in reports of the National Weather Service.
REVISED RECORDS.--WSP 972: 1936(M). WSP 1433: 1951(M). WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Control is Williams Island dams which divert flow for city of Richmond water supply. Datum of gage is 98.82 ft above National Geodetic Vertical Datum of 1929.
REMARKS.--Records good. City of Richmond takes from 40 ft³/s to 90 ft³/s for water supply from river downstream from gage except during periods of low flow when supply is obtained from James River and Kanawha Canal. Flow regulated by powerplants upstream from station. Above 18.2 ft stage, there is interchange of flow with James River and Kanawha Canal. Records of daily discharge include diversion by city of Richmond but do not include flow in James River and Kanawha Canal (station 02037000) which diverts around station. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--53 years, 7,566 ft³/s, 15.20 in/yr, includes flow in James River and Kanawha Canal.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 313,000 ft³/s, includes canal flow, June 23, 1972, gage height, 28.62 ft; minimum daily, about 10 ft³/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 ft³/s, Oct. 5, 1941, caused by recharging of the pool above Bosher Dam after the canal gates were closed.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 50,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 3	0500	60,000	14.33	Apr. 27	1400	82,700	16.50
Apr. 18	2200	*163,000	*21.91	Sept. 10	0430	108,000	18.53

Minimum discharge, 416 ft³/s, Sept. 3, gage height, 3.26 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1260	1440	4270	7390	7180	19200	12500	17900	6250	1890	1370	551
2	1270	1440	3960	8710	8000	52900	26700	15000	5810	2280	1240	475
3	1190	1360	5530	8230	9260	59400	22300	13600	5860	1740	990	476
4	1110	1490	12300	7380	10500	44800	19100	13700	6100	2550	899	654
5	1210	1480	9920	5510	14700	28900	15700	17800	7370	2640	1030	613
6	1010	1630	8590	5220	17100	23000	14300	15800	7850	3450	1080	810
7	1010	2220	6930	4890	15000	19100	13100	14700	6190	3530	1070	921
8	1010	2320	5230	4460	13500	14600	12800	12800	4780	3250	817	5250
9	884	2780	4990	4260	13200	11900	14000	11300	4370	3080	883	75900
10	804	3710	4860	3930	12000	11100	16600	10400	4220	2780	864	87300
11	796	3240	5030	4190	10100	11900	15700	9140	3840	2530	741	20100
12	827	2860	6510	4000	9140	14100	13900	7940	3510	1840	597	14900
13	1100	3120	8490	4020	8550	12900	13000	8080	3380	2220	691	15600
14	1320	2950	7940	3830	8230	11000	10600	7830	3410	1530	826	20600
15	1490	2670	8530	3780	7740	9530	9060	7110	3770	1800	1030	12600
16	1620	2440	6790	3420	7310	8460	21700	6690	3770	2290	1090	9290
17	1730	2310	5790	3540	7160	8040	82000	6250	3280	2240	883	6680
18	1500	2090	5040	3580	7250	7710	148000	5670	3100	2300	790	5370
19	1290	2190	4830	4550	7330	7210	141000	5590	2950	2150	947	4810
20	1260	2280	4420	8700	6920	6500	77200	6040	2880	1360	1170	4440
21	1160	1970	4430	15200	6630	6460	37300	6270	2730	1270	1070	10100
22	1200	2400	4170	21900	6560	6050	28700	6530	2670	1360	1260	12700
23	1170	3180	4050	16100	11200	5780	24300	7200	2730	1300	1060	9770
24	1170	2350	4920	14500	17700	5690	19300	7210	3190	1220	1130	7930
25	1240	2050	21200	11100	14800	5780	22100	5540	2390	1200	1040	6070
26	1290	2320	40900	9370	12400	5680	64000	6170	1860	1180	1100	5080
27	1340	2670	34100	e7900	11100	5220	80200	7070	2380	1330	1100	4430
28	1660	3180	18700	e7300	10300	5460	48300	7840	3000	1110	1250	4010
29	2070	3880	13000	e7130	---	5570	30100	6940	2650	1110	1190	3660
30	1970	4620	9910	7130	---	5600	23500	6260	1940	874	1000	3610
31	1740	---	8190	7550	---	6340	---	6910	---	888	775	---
TOTAL	39701	74640	293520	228770	290860	445880	1077060	287280	118230	60292	30983	354700
MEAN	1281	2488	9468	7380	10390	14380	35900	9267	3941	1945	999	11820
MAX	2070	4620	40900	21900	17700	59400	148000	17900	7850	3530	1370	87300
MIN	796	1360	3960	3420	6560	5220	9060	5540	1860	874	597	475
(*)	56.1	239	288	256	248	230	234	64.8	309	471	235	193
MEAN‡	1337	2727	9756	7636	10640	14610	36130	9332	4250	2416	1234	12010
CFSM‡	.20	.40	1.44	1.13	1.57	2.16	5.35	1.38	.63	.36	.18	1.78
IN‡	.23	.45	1.66	1.30	1.64	2.49	5.97	1.59	.70	.41	.21	1.98

CAL YR 1986	TOTAL 1593953	MEAN 4367	MAX 42400	MIN 459	MEAN‡ 4550	CFSM‡ .67	IN.‡ 9.14
WTR YR 1987	TOTAL 3301916	MEAN 9046	MAX 148000	MIN 475	MEAN‡ 9281	CFSM‡ 1.37	IN.‡ 18.65

* Average diversion, in cubic feet per second, by James River & Kanawha Canal.
‡ Adjusted for diversion.
e Estimated.

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 mi².

PERIOD OF RECORD.--October 1955 to current year.

REVISED RECORDS.--WSP 1904: 1957(M), 1958-60.

GAGE.--Water-stage recorder. Datum of gage is 126.39 ft above National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--32 years, 33.8 ft³/s, 13.99 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft³/s, Oct. 1, 1979, gage height, 15.32 ft, from flood-marks, from rating curve extended above 3,200 ft³/s on basis of slope-conveyance study; minimum, 0.01 ft³/s, Sept. 20, Oct. 3, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 220 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0100	802	9.34	Apr. 16	2300	*1,130	*10.27
Jan. 20	0045	581	8.47	Apr. 26	0415	912	9.68
Feb. 23	1715	518	8.17				

Minimum discharge, 1.2 ft³/s, Aug. 9-10; minimum gage height, 2.72 ft, Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	7.0	13	44	e55	169	35	44	13	6.4	5.1	2.6
2	2.0	6.8	29	172	59	103	24	40	25	5.9	4.4	1.8
3	2.0	8.7	70	70	86	56	21	47	17	6.0	2.0	1.7
4	1.9	9.7	35	42	107	45	35	47	32	7.5	1.7	1.6
5	2.0	11	20	33	80	39	33	54	48	7.7	1.7	12
6	2.0	13	15	28	61	35	27	40	24	7.1	2.1	37
7	2.0	13	13	26	58	33	26	33	15	5.9	1.9	20
8	1.9	17	12	23	57	31	24	29	12	4.8	1.4	13
9	1.9	21	15	21	52	34	22	26	10	4.0	1.3	11
10	2.0	21	42	23	41	38	21	23	9.9	3.5	1.4	9.8
11	1.8	20	46	28	36	31	19	22	8.5	3.2	1.3	10
12	2.0	25	70	23	35	28	20	20	9.1	4.8	1.3	27
13	3.4	24	36	20	34	26	20	18	29	52	1.4	22
14	14	16	23	18	30	24	18	18	23	18	1.4	13
15	7.2	13	20	19	28	23	31	19	15	9.0	1.4	8.1
16	8.9	12	18	18	25	25	511	18	11	5.6	1.5	6.2
17	5.8	11	16	18	29	30	574	17	10	4.0	1.5	4.7
18	4.2	10	16	49	34	26	130	16	8.2	3.3	1.5	3.7
19	3.5	14	16	294	35	24	78	17	7.0	2.8	12	3.4
20	3.2	16	15	332	35	23	63	17	6.4	2.6	7.7	21
21	3.1	25	14	75	38	22	54	17	6.9	2.1	8.6	24
22	2.8	25	13	63	52	21	50	17	6.3	1.9	4.7	13
23	2.8	18	12	63	408	20	46	16	7.8	1.8	3.4	9.1
24	3.6	16	169	48	169	20	70	15	9.6	1.7	2.3	5.8
25	6.0	14	551	40	71	20	563	48	7.9	1.7	1.9	4.3
26	15	16	87	39	53	19	645	24	30	1.7	1.8	3.4
27	13	36	50	40	44	18	140	18	87	1.8	1.8	3.0
28	11	26	38	44	47	26	80	16	22	1.8	1.7	2.8
29	8.4	17	32	37	---	29	64	14	12	1.8	2.0	2.6
30	7.4	14	29	36	---	27	56	13	8.5	1.7	2.0	5.1
31	7.0	---	26	e49	---	43	---	12	---	1.7	2.4	---
TOTAL	153.7	496.2	1561	1835	1859	1108	3500	775	531.1	183.8	86.6	302.7
MEAN	4.96	16.5	50.4	59.2	66.4	35.7	117	25.0	17.7	5.93	2.79	10.1
MAX	15	36	551	332	408	169	645	54	87	52	12	37
MIN	1.8	6.8	12	18	25	18	18	12	6.3	1.7	1.3	1.6
CFSM	.15	.50	1.54	1.80	2.02	1.09	3.56	.76	.54	.18	.09	.31
IN.	.17	.56	1.77	2.08	2.11	1.26	3.97	.88	.60	.21	.10	.34

CAL YR 1986 TOTAL 7542.4 MEAN 20.7 MAX 551 MIN 1.4 CFSM .63 IN. 8.55
WTR YR 1987 TOTAL 12392.1 MEAN 34.0 MAX 645 MIN 1.3 CFSM 1.04 IN. 14.05

e Estimated.

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1966 to current year.

REVISED RECORDS.--WDR VA-72-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 472.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods with ice effect, Jan. 24, 26, 27, and Feb. 16-18, and period of doubtful gage-height record, Sept. 8, which are fair. Recording rain gage at station.

AVERAGE DISCHARGE.--21 years, 8.77 ft³/s, 13.96 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft³/s, June 21, 1972, gage height, 14.64 ft, from high-water mark in gage house, from rating curve extended above 4,200 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.10 ft³/s, Sept. 11, 12, 1966; minimum gage height, 0.73 ft, Aug. 12, 14, 15, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1700	245	3.02	Apr. 17	0745	453	4.10
Mar. 1	0315	171	2.60	Sept. 8	0830	*2,950	*a9.94

a From high-water mark.

Minimum discharge, 0.27 ft³/s, Aug. 12, 14-15, gage height, 0.73 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.89	1.4	1.9	3.9	6.9	105	6.1	6.6	2.9	1.2	.68	.45
2	.82	1.4	6.7	6.8	6.7	22	5.2	7.2	3.2	1.6	.64	.37
3	.79	1.4	11	4.9	11	12	5.0	9.9	2.9	3.4	.63	.34
4	.79	1.4	4.3	4.0	13	8.7	6.2	13	3.7	3.5	.48	.33
5	.75	2.9	3.0	3.5	11	7.4	5.4	9.7	4.0	2.5	.50	.98
6	.69	3.0	2.5	3.6	9.4	6.4	5.4	7.8	3.0	2.0	.59	3.1
7	.68	3.8	2.3	3.2	11	5.8	5.1	6.8	2.7	2.1	.54	2.2
8	.69	6.8	2.2	2.9	13	5.7	4.6	6.0	2.5	1.7	.56	e301
9	.75	3.2	3.5	2.8	12	5.9	4.4	5.5	2.3	1.5	.50	16
10	.78	2.3	5.2	3.2	7.9	5.4	4.3	5.2	2.2	1.3	.44	6.3
11	.79	2.9	11	3.1	6.7	5.0	4.2	4.7	2.2	1.2	.36	3.4
12	.80	3.8	9.7	2.8	7.8	4.9	4.2	4.8	2.4	1.2	.32	3.4
13	1.6	2.6	5.2	2.7	9.0	4.8	4.1	5.8	2.6	1.2	.34	3.8
14	3.8	2.1	3.7	2.7	7.2	4.5	3.9	5.2	2.4	1.5	.32	3.4
15	1.7	2.0	3.2	2.9	5.8	4.5	40	7.0	2.3	1.2	.35	2.6
16	1.2	2.0	2.8	2.9	e5.2	5.5	178	7.8	2.1	1.1	.68	2.2
17	1.1	2.0	2.6	3.0	e4.5	5.5	165	5.3	2.1	1.1	.71	1.9
18	1.0	2.0	3.3	4.0	e7.0	5.1	35	5.3	1.9	1.0	.57	1.7
19	1.0	2.1	3.1	15	6.7	5.0	18	5.7	1.8	.94	1.0	5.1
20	1.0	2.9	2.6	11	5.9	4.8	12	6.3	1.8	.87	.97	24
21	1.0	5.6	2.5	6.7	5.8	4.5	9.5	5.3	1.7	.77	.75	10
22	1.0	3.0	2.3	10	9.0	4.3	8.2	4.9	1.7	.71	.65	4.9
23	1.0	2.4	2.7	8.2	34	4.3	7.4	4.2	1.7	.65	.78	3.3
24	1.0	2.3	59	e6.2	20	4.2	8.8	3.9	1.6	1.2	.67	2.6
25	1.3	2.1	23	5.2	14	4.2	24	4.1	1.6	2.1	.67	2.3
26	3.5	2.9	8.2	e4.8	11	4.3	21	4.4	1.7	1.1	.66	2.1
27	2.0	3.4	5.2	e9.5	8.6	4.3	13	4.2	1.9	.91	.71	2.0
28	1.6	2.6	4.1	8.9	36	6.7	10	3.9	1.5	.77	.58	1.9
29	1.4	2.3	3.7	9.2	---	5.2	8.3	3.5	1.3	.71	.48	1.8
30	1.4	2.2	3.4	11	---	6.5	7.3	3.1	1.3	.69	.40	2.3
31	1.3	---	3.1	11	---	7.9	---	2.9	---	.73	.40	---
TOTAL	38.12	80.8	207.0	179.6	306.1	290.3	633.6	180.0	67.0	42.45	17.93	415.77
MEAN	1.23	2.69	6.68	5.79	10.9	9.36	21.1	5.81	2.23	1.37	.58	13.9
MAX	3.8	6.8	59	15	36	105	178	13	4.0	3.5	1.0	301
MIN	.68	1.4	1.9	2.7	4.5	4.2	3.9	2.9	1.3	.65	.32	.33
CFSM	.14	.32	.78	.68	1.28	1.10	2.47	.68	.26	.16	.07	1.63
IN.	.17	.35	.90	.78	1.33	1.27	2.76	.78	.29	.19	.08	1.81

CAL YR 1986 TOTAL 1471.07 MEAN 4.03 MAX 59 MIN .48 CFSM .47 IN. 6.41
WTR YR 1987 TOTAL 2458.67 MEAN 6.74 MAX 301 MIN .32 CFSM .79 IN. 10.72

e Estimated.

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 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
DEC											
09...	0915	2.6	38	40	6.70	7.10	6.0	755	2.3	12.2	99
MAR											
17...	1000	5.6	31	33	6.40	7.46	4.0	759	2.2	13.4	103
JUL											
08...	0900	1.9	38	42	6.70	7.10	23.0	754	3.2	8.0	94
AUG											
25...	0915	0.59	43	48	7.00	8.00	18.0	758	3.7	9.2	98

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)
DEC											
09...	40	210	11	1	2.6	1.2	2.9	0.80	13	13	11
MAR											
17...	K4	K5	9	2	2.0	0.90	2.3	0.40	10	9	7.0
JUL											
08...	36	740	13	0	2.9	1.4	2.8	0.70	16	15	15
AUG											
25...	70	490	14	0	3.4	1.4	3.1	1.0	19	16	16

DATE	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
DEC											
09...	13	6.4	2.2	13	34	36	<0.100	<0.010	<0.010	<0.20	0.010
MAR											
17...	9.0	6.3	1.7	12	26	30	<0.100	<0.010	<0.010	0.40	0.020
JUL											
08...	18	6.0	1.6	13	46	38	<0.100	0.010	0.040	0.90	0.070
AUG											
25...	20	5.8	1.2	13	36	39	<0.100	0.010	<0.010	0.40	0.030

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOSPHORUS, DISSOLVED (MG/L AS P)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
DEC 09...	0.010	<1	15	<0.5	<1	<1	<3	1	320	<5
MAR 17...	0.010	<1	15	<0.5	1	<1	<3	1	230	<5
JUL 08...	0.010	<1	18	<0.5	1	<1	<3	<1	760	<5
AUG 25...	0.020	<1	15	<0.5	<1	6	<3	<1	320	<5

DATE	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
DEC 09...	<4	6	<0.1	<10	<1	<1	<1	22	<6	120
MAR 17...	6	12	<0.1	<10	<1	<1	<1	17	<6	14
JUL 08...	<4	21	0.4	<10	1	<1	<1	27	<6	11
AUG 25...	<4	15	0.1	<10	3	<1	<1	31	<6	6

DATE	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	URANIUM DISSOLVED, EXTRACTION (UG/L)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC 09...	--	--	--	--	--	--	--	--	4	95
MAR 17...	<0.4	<0.4	0.6	<0.4	0.6	<0.4	0.03	0.01	3	67
JUL 08...	--	--	--	--	--	--	--	--	13	58
AUG 25...	--	--	--	--	--	--	--	--	7	58

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 mi².
PERIOD OF RECORD.--August 1946 to current year.
REVISED RECORDS.--WSP 1303: 1948-50(M). WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 339.19 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation). Prior to Aug. 19, 1953, nonrecording gage at same site and datum.
REMARKS.--Records good except for period of no gage-height record, Sept. 22-30, which is fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--41 years, 67.2 ft³/s, 13.09 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,160 ft³/s, June 21, 1972, gage height, 12.38 ft, from rating curve extended above 1,600 ft³/s on basis of slope-area measurement at gage height 11.96 ft; minimum daily, 2.7 ft³/s, Oct. 7, 8, 1970.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 15 ft, from information by local resident.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0530	623	5.94	Apr. 17	1330	*2,110	*7.85
Mar. 1	0800	1,310	7.08	Sept. 8	1730	990	6.58

Minimum discharge, 9.0 ft³/s, Aug. 15, gage height, 1.10 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	26	31	94	108	993	77	68	33	23	13	13
2	18	26	42	299	108	485	67	63	35	24	13	12
3	17	26	116	153	150	314	64	62	35	28	12	11
4	16	26	83	97	212	221	67	62	43	51	12	10
5	16	28	60	74	183	150	64	59	59	54	12	16
6	16	35	49	63	140	114	63	55	45	40	12	30
7	15	41	43	57	127	94	62	52	39	33	13	35
8	15	72	40	53	129	84	60	50	36	30	13	490
9	15	55	43	49	126	85	57	48	33	27	13	414
10	15	44	88	50	100	86	56	47	31	25	12	244
11	15	39	126	51	86	77	55	45	29	24	11	138
12	15	49	207	48	80	71	54	43	29	26	11	80
13	17	42	119	45	78	67	54	45	32	34	9.9	95
14	35	37	78	44	71	63	53	45	32	28	9.5	77
15	30	34	63	43	67	61	122	44	32	25	9.5	57
16	25	33	55	42	64	66	640	43	31	24	12	46
17	22	31	52	41	64	74	1330	41	30	23	13	41
18	20	30	48	52	97	69	565	40	29	22	11	37
19	19	30	45	209	75	69	394	40	28	21	12	34
20	19	31	42	328	68	71	299	43	28	20	17	49
21	19	43	40	167	70	64	215	43	28	19	14	46
22	19	37	38	126	85	59	152	42	27	18	13	e40
23	19	35	37	e110	343	56	115	40	28	17	13	e35
24	19	34	145	e90	385	54	110	38	28	17	12	e33
25	20	32	458	81	263	53	158	38	27	16	11	e32
26	48	34	216	e78	209	53	226	38	27	15	14	e32
27	38	42	124	e65	158	54	152	38	29	15	16	e31
28	32	38	87	e60	185	64	116	37	27	14	17	e31
29	29	35	69	e65	---	61	93	36	25	13	14	e30
30	28	33	63	e85	---	62	79	35	24	13	12	e35
31	26	---	63	106	---	83	---	33	---	13	11	---
TOTAL	675	1098	2770	2925	3831	3977	5619	1413	959	752	387.9	2274
MEAN	21.8	36.6	89.4	94.4	137	128	187	45.6	32.0	24.3	12.5	75.8
MAX	48	72	458	328	385	993	1330	68	59	54	17	490
MIN	15	26	31	41	64	53	53	33	24	13	9.5	10
CFSM	.31	.53	1.28	1.35	1.97	1.84	2.68	.65	.46	.35	.18	1.09
IN.	.36	.59	1.48	1.56	2.04	2.12	3.00	.75	.51	.40	.21	1.21

CAL YR 1986 TOTAL 16306.0 MEAN 44.7 MAX 458 MIN 11 CFSM .64 IN. 8.70
WTR YR 1987 TOTAL 26680.9 MEAN 73.1 MAX 1330 MIN 9.5 CFSM 1.05 IN. 14.24

e Estimated.

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 mi².

PERIOD OF RECORD.--March 1926 to current year.

REVISED RECORDS.--WSP 972: 1927-37, 1938(M). WSP 1303: 1927(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 281.93 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 29, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, Feb. 22 to Mar. 13 and May 31 to June 5, which are fair. Diurnal fluctuation at low flow caused by Prince Edward Mill 0.2 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 287 ft³/s, 12.86 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,100 ft³/s, June 22, 1972, gage height, 29.70 ft, from flood-marks, from rating curve extended above 12,000 ft³/s on basis of contracted-opening measurement of peak flow; minimum, 3.8 ft³/s, Sept. 25, 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,900 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	2330	2,510	13.22	Apr. 18	0800	7,790	18.23
Mar. 2	Unknown	Unknown	Unknown	Sept. 9	1100	*10,200	*19.82

Minimum discharge, 26 ft³/s, Sept. 4, gage height, 3.16 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	58	95	196	429	e1100	288	270	e93	52	34	32
2	44	60	143	675	396	e1600	224	248	e97	52	34	32
3	42	60	369	608	418	e1300	195	262	e116	71	34	30
4	41	76	343	368	699	e880	211	265	e142	157	33	28
5	40	114	209	272	843	e600	215	271	e190	245	32	32
6	39	139	158	229	658	e500	200	237	159	155	32	45
7	37	152	135	206	503	e380	194	214	117	92	32	81
8	36	210	124	194	498	e315	177	197	100	77	33	1170
9	38	241	135	179	547	e330	163	178	89	65	34	7220
10	38	173	261	173	504	e305	152	167	81	56	33	1630
11	37	155	386	189	363	e260	145	156	76	52	33	410
12	37	175	761	180	307	e225	143	146	75	79	31	270
13	39	171	488	164	297	e205	144	147	93	97	30	287
14	87	145	290	140	290	191	139	158	96	70	30	264
15	112	130	221	135	260	184	338	154	87	61	31	247
16	78	125	188	137	230	191	2930	154	82	56	33	163
17	58	121	164	133	151	226	6520	150	79	52	34	127
18	51	118	160	140	307	210	6500	131	74	50	36	108
19	47	118	174	300	302	198	1800	139	69	49	36	96
20	46	123	163	945	254	201	862	173	69	46	38	247
21	45	155	147	781	256	191	639	174	66	44	36	367
22	46	165	136	436	e350	172	475	154	64	43	34	215
23	48	119	126	357	e760	160	373	140	62	41	34	141
24	50	105	327	336	e1300	152	345	127	65	41	34	112
25	55	98	1970	299	e1180	149	492	122	63	40	33	97
26	100	103	1410	233	e950	149	1100	128	63	41	34	87
27	135	130	521	254	e500	147	706	131	70	41	37	82
28	98	133	333	368	e700	213	455	126	67	38	36	79
29	74	116	262	347	---	217	362	117	59	36	35	75
30	64	104	228	279	---	191	307	107	54	35	32	138
31	60	---	207	316	---	290	---	e100	---	34	31	---
TOTAL	1767	3892	10634	9569	14252	11432	26794	5243	2617	2068	1039	13932
MEAN	57.0	130	343	309	509	369	893	169	87.2	66.7	33.5	464
MAX	135	241	1970	945	1300	1600	6520	271	190	245	38	7220
MIN	36	58	95	133	151	147	139	100	54	34	30	28
CFSM	.19	.43	1.13	1.02	1.68	1.22	2.95	.56	.29	.22	.11	1.53
IN.	.22	.48	1.31	1.17	1.75	1.40	3.29	.64	.32	.25	.13	1.71

CAL YR 1986 TOTAL 60238 MEAN 165 MAX 1970 MIN 36 CFSM .55 IN. 7.40
WTR YR 1987 TOTAL 103239 MEAN 283 MAX 7220 MIN 28 CFSM .93 IN. 12.67

e Estimated.

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 Norfolk Southern Railway bridge at Mattoax, 0.3 mi upstream from Skinquarter Creek, and 3.7 mi upstream from Flat Creek.

DRAINAGE AREA.--726 mi².

PERIOD OF RECORD.--August 1900 to December 1905, March 1926 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 972: 1928, 1932, 1934-38. WSP 1303: 1901(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 174.51 ft above National Geodetic Vertical Datum of 1929. August 1900 to December 1905, nonrecording gage at same site, different datum. March 1926 to October 1936, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, June 10-24, 26, July 17-27, Aug. 20-25, and Aug. 28 to Sept. 2, which are fair. Appomattox Water Authority gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--66 years, 723 ft³/s, 13.52 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s, Aug. 18, 1940, gage height, 35.3 ft, from flood-mark in gage house, from rating curve extended above 20,000 ft³/s on basis of records for stations at Farmville and near Petersburg; minimum, 11 ft³/s, Oct. 2, 1930, gage height, 3.52 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 5	0500	5,580	21.47	Apr. 19	2000	*11,300	*25.96

Minimum discharge, 34 ft³/s, Sept. 4, gage height, 5.56 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	128	246	575	1180	3160	686	812	259	168	70	e53
2	82	119	261	2060	1150	3760	672	737	254	133	66	e54
3	79	116	597	2860	1290	4070	566	797	250	146	63	52
4	77	119	1120	2340	2140	4850	541	797	306	186	58	37
5	72	126	797	963	2490	5340	555	798	392	282	66	49
6	69	164	516	735	2130	2330	560	737	687	400	67	61
7	66	216	401	631	1510	1060	546	654	653	341	57	64
8	63	243	344	571	1460	900	523	592	414	236	55	204
9	63	320	329	524	1560	858	485	544	325	187	55	1950
10	63	395	446	498	1330	874	455	501	e250	162	54	2670
11	63	329	724	505	1010	835	428	466	e210	138	52	2940
12	65	316	1520	510	846	755	414	439	e180	124	51	3190
13	69	317	1750	471	799	680	402	418	e182	288	49	807
14	102	313	993	436	768	635	394	423	e200	363	47	920
15	180	278	662	407	733	598	463	442	e224	235	47	1230
16	240	247	530	397	665	586	2800	416	e220	175	50	633
17	199	233	463	393	602	615	4850	400	e215	e140	50	419
18	149	224	426	424	565	661	7830	384	e200	e120	49	322
19	118	222	414	1420	698	624	10900	354	e195	e110	105	277
20	105	222	410	2980	710	591	10800	359	e195	e98	e90	557
21	100	253	385	3120	692	583	8210	453	e190	e86	e66	758
22	97	295	353	2680	753	556	4450	429	e185	e78	e62	680
23	96	330	331	1190	2620	517	1420	389	e185	e74	e60	472
24	96	281	838	973	3410	485	1110	357	e220	e70	e56	328
25	97	240	3150	793	3560	466	1490	338	262	e74	e65	266
26	126	231	3130	683	3770	452	2380	328	e215	e72	84	264
27	172	264	3230	612	3250	443	2440	338	442	e72	65	194
28	245	295	1670	e600	1530	478	1710	335	359	73	e60	174
29	223	314	799	e640	---	585	1150	322	246	69	e57	164
30	177	278	653	e740	---	590	945	301	214	71	e52	190
31	143	---	571	e900	---	607	---	278	---	69	e47	---
TOTAL	3579	7428	28059	32631	43221	39544	70175	14938	8329	4840	1875	19979
MEAN	115	248	905	1053	1544	1276	2339	482	278	156	60.5	666
MAX	245	395	3230	3120	3770	5340	10900	812	687	400	105	3190
MIN	63	116	246	393	565	443	394	278	180	69	47	37
CFSM	.16	.34	1.25	1.45	2.13	1.76	3.22	.66	.38	.22	.08	.92
IN.	.18	.38	1.44	1.67	2.21	2.03	3.60	.77	.43	.25	.10	1.02

CAL YR 1986 TOTAL 155814 MEAN 427 MAX 3230 MIN 46 CFSM .59 IN. 7.98
WTR YR 1987 TOTAL 274598 MEAN 752 MAX 10900 MIN 37 CFSM 1.04 IN. 14.07

e Estimated.

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 mi².

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

REVISED RECORDS.--WSP 1203: 1948 (calendar year figures only). WSP 2104: Drainage area. WDR VA-79-1: 1973-76(P), 1978.

GAGE.--Water-stage recorder. Datum of gage is 177.20 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 2, 1949, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--41 years, 151 ft³/s, 12.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft³/s, Oct. 6, 1972, gage height, 24.04 ft, from high-water mark, from rating curve extended above 3,900 ft³/s; minimum, 0.03 ft³/s, Oct. 4, 5, 1968; minimum gage height, 0.29 ft, Aug. 9-12, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 14.8 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 26	0100	1,970	8.44	Feb. 24	0830	1,910	8.36
Jan. 3	0930	1,200	7.30	Mar. 2	0200	2,930	9.44
Jan. 20	1500	2,650	9.17	Apr. 17	0930	*9,880	*14.92

Minimum discharge, 1.3 ft³/s, Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	17	46	132	282	1120	212	162	51	28	1.9	2.4
2	10	15	58	538	277	2130	160	143	52	26	1.8	2.8
3	10	12	185	1050	342	783	131	145	58	31	1.4	3.7
4	10	13	236	441	584	333	125	162	104	45	1.5	2.8
5	9.9	13	152	202	690	232	126	161	146	45	3.1	3.0
6	9.3	20	94	150	459	197	125	145	174	57	14	4.7
7	8.7	26	71	126	319	176	122	127	113	44	8.4	5.7
8	8.1	49	61	111	281	163	115	113	68	33	7.5	32
9	8.0	61	62	99	255	176	108	101	52	23	6.1	167
10	8.7	62	90	92	216	192	97	91	45	18	4.9	219
11	8.9	50	123	96	174	190	90	82	39	15	4.0	118
12	8.2	57	215	94	153	167	91	75	36	14	3.4	94
13	8.5	60	234	87	142	148	92	71	35	17	2.9	63
14	20	57	146	75	131	138	87	73	35	19	2.6	59
15	28	46	100	71	124	130	130	78	36	15	2.3	53
16	32	40	83	69	115	130	1540	78	35	12	2.3	45
17	38	34	76	68	90	159	8180	73	35	10	2.4	39
18	27	31	72	110	130	164	2410	67	34	8.7	2.4	34
19	19	30	70	519	161	146	897	63	32	7.8	2.6	30
20	15	30	65	2020	177	146	506	94	30	7.0	3.1	79
21	13	49	60	1210	174	144	334	100	30	6.1	3.0	202
22	12	60	52	468	194	131	245	88	44	5.6	2.7	129
23	11	61	48	303	721	119	203	79	44	4.7	2.6	70
24	11	50	220	260	1690	113	196	71	41	4.1	2.3	44
25	11	43	1140	e210	1010	106	341	70	41	3.8	2.1	34
26	30	40	1440	178	510	104	752	81	39	3.8	2.3	29
27	53	73	480	e160	319	103	804	94	43	3.8	2.5	26
28	65	79	204	e150	277	124	331	83	47	3.6	2.6	24
29	46	77	146	e135	---	148	228	72	36	2.9	2.6	22
30	31	58	119	e175	---	139	189	63	30	2.6	2.7	25
31	22	---	102	e215	---	176	---	57	---	2.2	2.4	---
TOTAL	603.3	1313	6250	9614	9997	8427	18967	2962	1605	518.7	106.4	1662.1
MEAN	19.5	43.8	202	310	357	272	632	95.5	53.5	16.7	3.43	55.4
MAX	65	79	1440	2020	1690	2130	8180	162	174	57	14	219
MIN	8.0	12	46	68	90	103	87	57	30	2.2	1.4	2.4
CFSM	.12	.28	1.28	1.96	2.26	1.72	4.00	.60	.34	.11	.02	.35
IN.	.14	.31	1.47	2.26	2.35	1.98	4.47	.70	.38	.12	.03	.39

CAL YR 1986 TOTAL 33454.4 MEAN 91.7 MAX 1440 MIN 4.3 CFSM .58 IN. 7.88
WTR YR 1987 TOTAL 62025.5 MEAN 170 MAX 8180 MIN 1.4 CFSM 1.08 IN. 14.60

e Estimated.

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 68.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Appomattox Water Authority at Lake Chesdin, capacity, 36,000 acre-ft, 2.8 mi upstream from which an average of 12.4 ft³/s is diverted for industrial and municipal use. Records do not include flow of Upper Appomattox Canal of city of Petersburg which diverts around station. National Weather Service gage-height telemeter at station.

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

AVERAGE DISCHARGE.--18 years, 1,476 ft³/s, 14.91 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,800 ft³/s, Oct. 7, 1972, gage height, 18.39 ft; minimum, 41 ft³/s, Oct. 4, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,300 ft³/s, Apr. 18, gage height, 12.04 ft; minimum, 68 ft³/s, Aug. 29-31, gage height, 1.49 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	247	465	1090	1820	4700	1280	1440	414	297	89	74
2	97	227	533	2780	2190	7020	1250	1250	417	258	89	73
3	94	202	813	4870	2570	7680	1160	1170	376	238	92	73
4	98	194	1220	5130	3640	7170	1130	1320	516	253	96	73
5	92	203	1470	3320	4590	6580	1100	1350	963	319	101	103
6	94	218	1130	1660	4610	6530	1090	1270	981	363	89	94
7	88	253	833	1260	3620	4140	1060	1140	1060	485	88	83
8	88	325	670	1070	2780	1810	1020	1020	865	463	87	99
9	89	394	623	960	2600	1510	978	898	610	353	87	81
10	91	437	696	919	2250	1600	899	819	462	274	87	1140
11	90	526	904	937	1930	1530	842	735	343	231	88	3010
12	91	527	1500	868	1620	1440	837	682	308	203	86	3400
13	110	513	2250	848	1350	1290	821	643	297	182	85	2930
14	136	468	2080	786	1270	1150	752	637	306	271	82	1160
15	90	459	1390	751	1210	1080	861	666	316	350	83	1120
16	122	420	1020	705	1160	1080	4860	651	338	280	85	1120
17	223	378	854	689	1200	1130	10600	623	362	223	80	721
18	251	350	792	890	1060	1160	13500	598	308	192	75	502
19	223	368	726	2920	1100	1180	13400	552	303	172	106	350
20	184	354	665	7310	1250	1140	12400	696	304	149	89	532
21	160	445	655	7560	1320	1090	12200	733	283	127	88	1040
22	150	409	599	6970	1450	1060	11500	752	278	112	88	1130
23	146	464	559	4650	4480	978	9590	691	281	92	87	900
24	142	509	1070	2300	7350	927	4460	628	299	89	86	618
25	154	465	5530	1770	7500	876	3630	636	335	94	79	440
26	286	431	6990	1640	6890	875	5890	675	318	92	74	325
27	284	452	6340	1420	6080	834	5630	669	325	89	73	273
28	319	493	4790	1060	4600	913	4520	635	501	89	71	215
29	358	532	2200	1090	---	980	2680	599	478	89	69	190
30	342	521	1330	1230	---	1110	1800	523	365	89	68	223
31	280	---	1060	1510	---	1280	---	462	---	89	71	---
TOTAL	5069	11784	51757	70963	83490	71843	131740	25163	13312	6607	2618	22092
MEAN	164	393	1670	2289	2982	2318	4391	812	444	213	84.5	736
MAX	358	532	6990	7560	7500	7680	13500	1440	1060	485	106	3400
MIN	88	194	465	689	1060	834	752	462	278	89	68	73

CAL YR 1986 TOTAL 277587 MEAN 761 MAX 6990 MIN 72
WTR YR 1987 TOTAL 496438 MEAN 1360 MAX 13500 MIN 68

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 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV												
14...	0830	476	82	91	7.30	7.90	12.0	768	4.0	10.1	93	19
JAN												
20...	1300	7630	77	77	6.50	7.17	4.5	754	19	13.5	105	K15
FEB												
23...	1300	4910	72	73	6.80	7.57	4.0	749	10	13.5	105	K10
MAY												
28...	1300	682	78	84	7.10	8.10	22.0	755	1.4	9.3	107	K6
JUL												
10...	0900	285	88	91	7.10	7.90	28.0	751	2.7	6.3	82	56
AUG												
19...	0930	115	103	110	7.00	7.90	25.0	750	3.7	6.1	75	300

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV												
14...	16	32	0	7.3	3.3	5.8	3.0	32	33	33	40	9.2
JAN												
20...	36	22	5	4.9	2.3	4.5	1.9	18	17	17	21	12
FEB												
23...	170	21	6	4.9	2.2	4.5	1.5	17	16	15	18	10
MAY												
28...	K5	27	1	6.2	2.9	4.8	1.8	29	27	26	32	5.0
JUL												
10...	160	30	0	6.9	3.1	5.0	1.9	35	33	34	41	9.4
AUG												
19...	600	39	0	10	3.4	5.7	2.6	44	42	43	52	10

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (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)
NOV												
14...	4.8	0.10	15	66	68	<0.010	<0.100	0.030	0.030	0.50	0.020	0.020
JAN												
20...	4.8	<0.10	16	62	57	<0.010	0.240	0.030	0.060	0.30	0.060	0.020
FEB												
23...	4.1	<0.10	14	51	51	<0.010	0.180	0.010	<0.010	1.1	0.010	0.010
MAY												
28...	2.8	<0.10	14	65	54	<0.010	<0.100	0.040	0.030	0.50	0.030	0.030
JUL												
10...	3.6	0.10	17	67	67	<0.010	0.100	0.050	0.030	0.80	0.050	0.020
AUG												
19...	3.4	0.20	18	78	82	0.010	0.500	0.050	0.060	0.60	0.050	0.020

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV 14...	0.010	10	<1	23	<0.5	<1	<1	<3	2	38	5	<4
JAN 20...	<0.010	--	--	--	--	--	--	--	--	--	--	--
FEB 23...	0.010	80	<1	21	1	1	<1	<3	2	260	<5	<4
MAY 28...	<0.010	30	<1	22	<0.5	<1	<1	<3	1	200	6	<4
JUL 10...	<0.010	--	--	--	--	--	--	--	--	--	--	--
AUG 19...	<0.010	<10	<1	15	<0.5	<1	<1	<3	1	2400	<5	<4

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 14...	11	<0.1	<10	3	<1	<1	59	<6	<3	6	48
JAN 20...	--	--	--	--	--	--	--	--	--	20	80
FEB 23...	53	<0.1	<10	2	<1	<1	35	<6	14	14	94
MAY 28...	36	<0.1	<10	6	<1	<1	50	<6	<3	16	66
JUL 10...	--	--	--	--	--	--	--	--	--	6	97
AUG 19...	410	<0.1	<10	<1	<1	<1	73	<6	<3	10	83

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1942 to current year.

REVISED RECORDS.--WSP 1553: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 6.07 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Oct. 1-6, period with ice effect, Jan. 24-31, and period of backwater from beaver dam, Aug. 2 to Sept. 3, which are fair.

AVERAGE DISCHARGE.--45 years, 264 ft³/s, 14.46 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,710 ft³/s, Aug. 15, 1955, gage height, 11.67 ft; minimum, 0.70 ft³/s, July 7, 1977; minimum gage height, 1.53 ft, Sept. 13, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,530 ft³/s, Apr. 20, gage height, 9.64 ft; minimum, 1.5 ft³/s, Oct. 9; minimum gage height, 1.80 ft, Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e7.0	57	120	667	411	932	228	1030	215	116	8.7	6.4
2	e5.8	49	139	640	435	802	245	750	217	132	10	4.5
3	e4.3	49	203	635	476	743	255	569	193	188	8.5	2.7
4	e3.2	52	233	661	541	643	259	496	315	260	9.9	2.9
5	e2.5	45	266	579	637	689	282	474	515	348	11	3.4
6	e2.0	43	257	578	721	733	304	434	657	322	11	5.3
7	1.9	40	225	577	744	640	302	395	552	207	11	5.5
8	1.8	42	233	538	738	504	276	370	438	150	9.1	7.8
9	1.7	47	254	458	701	406	273	374	373	114	8.9	10
10	2.8	47	255	371	620	367	266	382	365	97	8.9	15
11	2.7	49	245	319	537	343	242	364	368	90	10	22
12	2.3	74	273	281	463	313	220	329	356	88	9.3	40
13	2.4	77	282	252	421	291	210	289	363	85	8.3	51
14	14	73	294	221	397	271	190	253	343	80	8.0	50
15	21	78	325	211	374	260	175	230	304	68	7.7	51
16	12	78	365	209	342	253	278	212	263	61	7.6	50
17	22	80	397	207	282	251	1180	193	217	62	7.6	54
18	27	84	377	232	312	238	2090	182	175	63	5.9	56
19	33	86	340	398	317	225	2150	174	148	60	7.1	53
20	40	84	286	741	315	211	2430	190	133	53	8.1	56
21	45	104	219	1100	309	199	1780	197	122	43	7.8	57
22	43	111	174	1130	317	190	1170	205	114	34	6.4	52
23	38	113	149	1320	462	182	858	204	97	25	6.2	45
24	31	119	212	e1180	723	174	629	192	82	19	6.5	41
25	25	113	663	e1020	1020	166	963	191	72	14	7.6	38
26	41	106	1140	e740	1040	155	2060	200	61	12	8.3	34
27	75	108	1020	e540	1140	146	2190	179	71	11	9.0	31
28	80	110	1240	e450	1050	166	1980	176	104	10	10	28
29	91	118	1530	e415	---	181	1850	165	122	10	11	22
30	89	122	1250	e395	---	191	1420	152	122	9.5	8.6	20
31	71	---	916	e385	---	219	---	149	---	8.7	7.0	---
TOTAL	838.4	2358	13882	17450	15845	11084	26755	9700	7477	2840.2	265.0	914.5
MEAN	27.0	78.6	448	563	566	358	892	313	249	91.6	8.55	30.5
MAX	91	122	1530	1320	1140	932	2430	1030	657	348	11	57
MIN	1.7	40	120	207	282	146	175	149	61	8.7	5.9	2.7
CFSM	.11	.32	1.81	2.27	2.28	1.44	3.60	1.26	1.00	.37	.03	.12
IN.	.13	.35	2.08	2.62	2.38	1.66	4.01	1.45	1.12	.43	.04	.14

CAL YR 1986 TOTAL 61332.3 MEAN 168 MAX 1530 MIN 1.7 CFSM .68 IN. 9.20
WTR YR 1987 TOTAL 109409.1 MEAN 300 MAX 2430 MIN 1.7 CFSM 1.21 IN. 16.41

e Estimated.

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 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)
DEC 1986										
16...	1215	360	123	6.90	2.0	45	765	13.0	94	22
FEB 1987										
17...	1200	266	165	6.40	0.0	25	755	12.2	84	23
MAR										
25...	0900	168	120	6.50	9.0	50	760	9.0	78	23
APR										
09...	0945	274	115	6.00	13.0	65	750	7.5	72	22
MAY										
13...	0845	295	105	6.50	20.0	110	762	4.8	53	25
JUN										
23...	0800	100	115	6.90	25.0	70	751	4.7	58	35
AUG										
05...	0815	7.0	120	6.50	26.0	27	751	7.5	94	37
SEP										
15...	1030	52	198	6.60	23.0	18	760	6.4	75	56

DATE	HARD-NESS NONCARB WH WAT TOT FLD 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)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
DEC 1986									
16...	14	5.9	1.7	12	3.9	8.0	20	17	<0.10
FEB 1987									
17...	15	6.4	1.7	17	2.0	8.0	15	27	<0.10
MAR									
25...	7	6.7	1.6	13	2.0	16	14	19	<0.10
APR									
09...	5	6.3	1.6	13	1.9	17	11	20	<0.10
MAY									
13...	2	6.9	1.8	8.9	1.7	23	9.2	12	0.10
JUN									
23...	0	9.9	2.4	9.1	0.60	35	12	10	0.10
AUG									
05...	0	11	2.4	7.9	1.1	37	15	8.9	0.20
SEP									
15...	47	17	3.2	12	0.90	9.0	53	11	0.10

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 mi².

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
OCT 1986												
10...	1100	210	--	22.0	--	--	--	--	--	--	--	--
11...	0700	418	--	19.5	--	--	--	--	--	--	--	--
13...	0730	653	--	19.0	--	--	--	--	--	--	--	--
17...	0800	350	6.70	17.0	45	760	8.0	83	51	29	11	5.6
DEC												
16...	0830	128	6.90	6.5	38	765	14.3	116	24	14	6.8	1.8
FEB 1987												
17...	1000	155	6.50	1.0	12	755	12.5	89	27	17	7.8	1.8
MAR												
25...	1000	109	6.40	8.0	39	760	9.9	84	21	8	6.0	1.4
APR												
09...	1130	110	6.10	15.0	60	750	8.3	84	24	5	6.9	1.6
MAY												
13...	1000	80	6.10	19.0	85	762	3.7	40	21	3	6.1	1.4
JUN												
23...	0930	83	6.40	27.0	65	751	3.8	48	24	2	7.0	1.7
AUG												
05...	0900	92	6.70	29.0	25	751	6.3	83	27	2	8.0	1.8
SEP												
15...	1130	145	7.00	26.0	28	760	5.5	68	31	7	8.2	2.5

DATE	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)
OCT 1986												
10...	22	--	--	--	38	--	--	--	--	--	--	--
11...	55	--	--	--	100	--	--	--	--	--	--	--
13...	89	--	--	--	170	--	--	--	--	--	--	--
17...	46	2.5	22	20	80	0.30	5.0	180	<0.010	<0.010	1.0	0.032
DEC												
16...	11	4.6	10	18	21	<0.10	10	80	0.012	<0.010	0.70	0.045
FEB 1987												
17...	19	2.2	10	14	34	<0.10	4.3	90	0.129	0.280	1.1	0.111
MAR												
25...	12	1.6	13	11	18	<0.10	0.8	59	0.010	<0.010	0.70	0.033
APR												
09...	11	2.0	19	11	16	<0.10	1.9	63	0.110	0.010	1.8	0.061
MAY												
13...	6.7	1.7	18	11	9.3	0.10	3.0	51	0.035	0.050	0.90	0.074
JUN												
23...	6.7	0.80	22	17	8.9	0.10	0.2	57	<0.010	0.040	1.3	0.079
AUG												
05...	7.1	0.80	25	14	8.8	0.20	8.4	64	<0.010	<0.010	1.6	0.052
SEP												
15...	15	1.3	24	11	21	0.10	4.9	78	<0.010	<0.010	0.20	0.026

02042720 CHICKAHOMINY RIVER ABOVE WALKERS DAM, AT WALKERS, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	CADMIUM DISSOLVED (UG/L AS CD)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1986												
10...	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
17...	<0.005	<0.001	<1	1	320	52	<5	90	3	<0.1	14	9.8
DEC												
16...	0.019	0.004	<1	<1	840	320	<5	50	35	<0.1	7	7.2
FEB 1987												
17...	0.063	0.049	<1	16	320	160	<5	30	20	<0.1	16	4.4
MAR												
25...	0.017	0.004	<1	1	730	270	<5	60	36	0.2	3	5.1
APR												
09...	0.035	0.016	<1	<1	1400	890	<5	60	36	<0.1	13	11
MAY												
13...	0.041	0.013	<1	3	1600	700	<5	190	110	<0.1	14	13
JUN												
23...	0.035	0.024	<1	<1	1400	710	<5	300	260	<0.1	130	11
AUG												
05...	0.007	0.004	<1	1	850	160	<5	190	5	0.1	<3	12
SEP												
15...	0.010	0.002	1	<1	590	32	<5	140	19	<0.1	<3	11

02042726 DIASCUND CREEK AT RT. 628, NEAR NEW KENT, VA

LOCATION.--Lat 37°28'52", long 76°58'21", New Kent County, Hydrologic Unit 02080206, at bridge on State Highway 628, 2.4 mi south of New Kent, and 6.0 mi upstream from Timber Swamp.

DRAINAGE AREA.--9.25 mi².

PERIOD OF RECORD.--October 1985 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	ALKA-LINITY LAB (MG/L AS CACO3)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 1986											
17...	1130	3.4	70	6.30	10.0	759	7.3	65	24	6.3	7.2
DEC											
16...	1100	4.4	67	7.10	2.5	765	13.1	96	41	13	7.5
FEB 1987											
18...	1130	11	58	6.60	1.0	756	11.3	80	18	6.1	5.9
MAR											
25...	1300	7.1	65	6.80	12.0	760	11.1	103	22	4.5	3.6
MAY											
13...	0830	9.2	89	6.80	19.0	771	5.4	58	31	4.5	4.6
JUN											
24...	1030	7.9	70	6.40	22.0	755	4.3	50	30	4.8	6.9
AUG											
05...	1030	4.4	78	6.50	25.5	751	5.7	71	30	4.6	6.3
SEP											
15...	1430	6.5	72	6.90	25.0	760	5.5	67	25	4.6	7.6

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1986										
17...	<0.010	<0.010	0.70	0.110	0.009	2100	740	60	58	7.7
DEC										
16...	<0.010	0.020	0.30	0.053	0.011	1100	590	60	52	4.6
FEB 1987										
18...	0.032	0.020	0.40	0.042	0.008	690	280	40	38	3.7
MAR										
25...	<0.010	<0.010	0.40	0.045	0.021	920	620	60	45	5.2
MAY										
13...	<0.010	0.030	0.80	0.142	0.014	3600	860	160	150	10
JUN										
24...	0.014	0.030	0.60	0.162	0.014	4000	1200	160	150	8.3
AUG										
05...	0.133	0.050	1.0	0.071	0.030	3100	830	180	160	8.8
SEP										
15...	0.012	0.030	0.20	0.086	0.009	2000	490	100	100	8.9

02042734 DIASCUND CREEK RESERVOIR OFF TIMBER SWAMP, NEAR WALKERS, VA

LOCATION.--Lat 37°25'48", long 76°54'19", New Kent County, Hydrologic Unit 02080206, in Diascund Creek Reservoir at mouth of Timber Swamp, 0.3 mi west of bridge on State Highway 603, and 2.1 mi east of Walkers.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)
OCT 1986							
16...	0915	3.00	79	6.90	18.5	760	6.8
16...	0930	10.0	78	7.00	18.5	760	6.7
16...	0945	18.0	82	7.00	17.5	760	6.6
DEC							
17...	0900	3.00	75	7.10	6.5	763	10.1
17...	0915	10.0	74	7.10	6.5	763	9.5
17...	0930	18.0	74	7.00	6.5	763	8.7
FEB 1987							
24...	0915	3.00	71	7.20	3.0	765	13.1
24...	0930	10.0	63	7.20	3.0	765	13.0
24...	0945	18.0	63	7.20	3.0	765	12.9
MAR							
24...	0845	3.00	71	7.10	8.0	758	11.4
24...	0900	10.0	75	6.80	7.5	758	10.6
24...	0915	18.0	72	6.80	7.0	758	9.4
MAY							
12...	0915	3.00	70	7.20	21.0	757	8.4
12...	0930	10.0	79	6.70	17.0	757	5.0
12...	0945	18.0	84	6.60	15.0	757	2.2
JUN							
25...	0830	3.00	71	7.00	26.5	754	6.2
25...	0845	10.0	71	6.90	26.0	754	4.2
25...	0900	18.0	111	6.80	16.5	754	0
AUG							
04...	0815	3.00	63	7.60	30.0	751	7.6
04...	0830	10.0	68	6.80	28.0	751	1.0
04...	0845	18.0	161	6.80	17.0	751	0
SEP							
16...	1345	3.00	68	7.60	27.0	757	8.3
16...	1400	10.0	68	7.40	26.5	757	7.4
16...	1415	18.0	147	6.80	20.5	757	0

02042734 DIASCUND CREEK RESERVOIR OFF TIMBER SWAMP, NEAR WALKERS, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)
OCT 1986						
16...	73	0.027	0.040	1.2	0.023	0.004
16...	72	0.027	0.050	1.2	0.025	0.003
16...	69	0.025	0.110	0.90	0.013	0.004
DEC						
17...	82	0.027	0.130	0.80	0.055	0.004
17...	77	0.028	0.130	0.60	0.060	0.002
17...	71	0.031	0.180	0.70	0.063	0.005
FEB 1987						
24...	97	<0.010	<0.010	1.5	0.043	0.005
24...	96	<0.010	<0.010	1.9	0.055	0.003
24...	95	<0.010	<0.010	2.2	0.044	0.006
MAR						
24...	97	<0.010	<0.010	1.0	0.034	0.003
24...	89	<0.010	<0.010	0.80	0.032	0.004
24...	78	<0.010	<0.010	0.70	0.034	0.004
MAY						
12...	95	<0.010	0.110	0.70	0.032	<0.001
12...	52	0.023	0.040	2.1	0.027	<0.001
12...	22	0.015	0.200	0.50	0.028	<0.001
JUN						
25...	78	<0.010	0.050	0.20	0.047	0.002
25...	52	<0.010	0.060	0.20	0.043	0.002
25...	0	<0.010	0.340	1.2	0.031	0.002
AUG						
04...	102	<0.010	0.030	1.5	0.040	<0.001
04...	13	<0.010	0.010	1.5	0.040	<0.001
04...	0	<0.010	1.40	2.5	0.040	<0.001
SEP						
16...	105	<0.010	0.010	0.50	0.016	0.001
16...	93	<0.010	0.010	0.60	0.016	0.006
16...	0	<0.010	1.40	2.1	0.023	0.003

02042736 BEAVERDAM CREEK AT RT. 632, NEAR BARHAMSVILLE, VA

LOCATION.--Lat 37°28'58" (corrected), long 76°54'23", New Kent County, Hydrologic Unit 02080206, on State Highway 632, 4.0 mi northwest of Barhamsville, and 4.1 mi upstream from mouth.

DRAINAGE AREA.--4.82 mi².

PERIOD OF RECORD.--October 1985 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	ALKA-LINITY LAB (MG/L AS CACO3)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 1986											
17...	1030	1.3	185	6.40	12.5	759	0.6	6	67	11	10
DEC											
16...	1015	2.5	123	6.80	2.5	765	7.6	55	40	10	8.7
FEB 1987											
18...	1030	4.7	148	6.70	1.5	756	8.5	61	44	14	5.9
MAR											
25...	1145	4.4	145	6.90	11.5	760	8.2	75	50	9.2	3.3
MAY											
13...	0930	3.6	197	6.90	19.0	771	2.8	30	63	12	4.5
JUN											
24...	0930	1.6	180	6.70	23.5	755	1.4	17	70	5.0	9.8
SEP											
15...	1330	1.0	165	6.80	24.0	760	1.4	17	52	10	9.9

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1986										
17...	<0.010	<0.010	0.80	0.135	0.002	8000	730	640	600	13
DEC										
16...	<0.010	<0.010	0.20	0.043	0.003	1000	380	20	13	6.1
FEB 1987										
18...	<0.010	0.020	0.20	0.027	0.002	660	200	40	32	3.6
MAR										
25...	<0.010	<0.010	0.50	0.025	0.005	810	220	40	33	4.9
MAY										
13...	0.018	0.030	0.70	0.088	0.012	2900	160	340	330	8.9
JUN										
24...	<0.010	0.030	0.60	0.114	0.005	3700	1100	900	910	8.5
SEP										
15...	<0.010	0.040	0.30	0.085	0.007	3700	1300	390	370	12

02042742 WAHRANI SWAMP AT RT. 632, NEAR BARHAMSVILLE, VA

LOCATION.--Lat 37°27'30", long 76°51'57", New Kent County, Hydrologic Unit 02080206, on State Highway 632, 1.3 mi west of Barhamsville, and 1.8 mi upstream from Barnes Swamp.

DRAINAGE AREA.--4.02 mi².

PERIOD OF RECORD.--October 1985 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	ALKA-LINITY LAB (MG/L AS CACO3)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 1986											
17...	0945	1.2	105	6.00	9.0	760	4.2	36	16	11	11
DEC											
16...	0930	2.7	93	6.80	2.5	765	10.5	77	21	11	10
FEB 1987											
18...	0900	3.0	82	6.30	3.5	756	11.3	86	20	7.2	6.8
MAR											
25...	1100	3.0	90	6.80	9.0	760	11.4	99	24	8.2	4.7
MAY											
13...	1015	2.7	115	6.60	18.0	773	3.4	35	38	6.8	5.3
JUN											
24...	0830	1.4	125	6.50	22.0	755	1.8	21	44	6.1	9.1
SEP											
15...	1230	1.1	127	6.20	22.0	760	0.4	5	29	12	11

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1986										
17...	0.028	<0.010	0.60	0.125	0.004	3100	790	140	130	8.2
DEC										
16...	0.109	0.040	0.60	0.089	0.005	2400	800	100	83	7.4
FEB 1987										
18...	0.270	0.020	0.30	0.053	0.009	1200	500	50	45	4.7
MAR										
25...	0.211	<0.010	0.60	0.051	0.007	1100	390	40	29	7.3
MAY										
13...	0.094	0.030	1.0	0.152	0.015	4400	710	290	240	13
JUN										
24...	0.062	0.050	0.40	0.194	0.023	9100	4500	640	650	11
SEP										
15...	<0.010	0.020	0.50	0.101	0.013	4700	1800	560	560	15

02042746 DIASCUND CREEK RESERVOIR OFF PUMP STATION, NEAR WALKERS, VA

LOCATION.--Lat 37°25'51", long 76°53'38", New Kent County, Hydrologic Unit 02080206, in Diascund Creek Reservoir 0.1 mi northwest of city of Newport News pumping station, 0.4 mi east of bridge on State Highway 603, and 2.8 mi east of Walkers.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	ALKALINITY LAB (MG/L AS CACO3)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT 1986											
16...	1000	3.00	84	7.00	18.5	760	6.9	74	27	8.1	2.6
16...	1015	10.0	86	7.00	18.5	760	6.8	73	26	8.0	2.6
16...	1030	18.0	86	7.10	18.0	760	6.7	71	27	8.0	2.6
DEC											
17...	0945	3.00	83	7.00	7.0	763	10.2	84	23	7.9	3.9
17...	1000	10.0	84	6.90	7.0	763	10.1	83	23	11	3.9
17...	1015	18.0	83	6.90	6.5	763	9.4	76	23	12	3.9
FEB 1987											
24...	1000	3.00	79	7.20	3.0	765	13.1	97	17	8.3	4.8
24...	1015	10.0	74	7.30	3.0	765	13.2	98	18	8.4	4.9
24...	1030	18.0	76	7.30	3.0	765	13.1	97	17	8.0	4.8
MAR											
24...	0930	3.00	93	7.10	8.0	758	12.4	105	17	9.1	4.1
24...	0945	10.0	120	7.10	7.0	758	11.4	94	18	9.2	4.2
24...	1000	18.0	100	7.20	7.0	758	10.5	87	17	9.2	4.1
MAY											
12...	0945	3.00	72	7.20	21.0	757	8.4	95	19	7.9	2.0
12...	1000	10.0	79	6.70	17.0	757	5.5	57	20	8.3	2.7
12...	1015	18.0	85	6.60	15.0	757	2.4	24	23	8.5	3.5
JUN											
25...	0915	3.00	76	7.30	27.0	754	6.7	85	23	6.4	2.6
25...	0930	10.0	77	7.30	26.5	754	6.4	81	23	6.6	2.8
25...	0945	18.0	118	6.70	16.5	754	0.0	1	31	8.4	5.8
AUG											
04...	0900	3.00	69	7.80	30.0	751	7.6	102	22	6.1	3.2
04...	0915	10.0	72	6.80	28.0	751	2.1	27	23	7.8	6.2
04...	0930	18.0	173	6.90	18.0	751	0	0	43	9.2	8.4
SEP											
16...	1430	3.00	73	7.70	27.0	757	8.0	101	25	5.6	3.4
16...	1445	10.0	73	7.20	26.0	757	5.4	67	25	5.5	3.5
16...	1500	18.0	140	6.90	21.5	757	0	0	36	6.7	6.4

02042746 DIASCUND CREEK RESERVOIR OFF PUMP STATION, NEAR WALKERS, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1986											
16...	0.019	0.100	0.50	0.020	<0.005	0.003	610	100	100	3	6.8
16...	0.020	0.090	0.20	0.020	0.006	0.003	610	91	100	3	6.4
16...	0.022	0.100	<0.20	0.019	<0.005	0.003	650	100	110	4	7.3
DEC											
17...	0.021	0.100	0.90	0.053	0.021	0.002	790	140	90	28	9.0
17...	0.020	0.120	1.0	0.060	0.021	<0.001	810	72	90	36	8.7
17...	0.022	0.140	0.90	0.060	0.024	0.007	920	170	110	49	8.9
FEB 1987											
24...	<0.010	<0.010	1.2	0.046	0.015	0.004	650	280	70	44	7.7
24...	<0.010	<0.010	1.2	0.043	0.026	0.005	620	330	80	53	7.0
24...	<0.010	<0.010	1.0	0.048	0.014	0.003	800	200	70	40	7.9
MAR											
24...	<0.010	<0.010	0.50	0.031	<0.005	0.002	310	150	40	11	5.5
24...	<0.010	<0.010	0.70	0.031	<0.005	0.003	570	62	80	36	5.2
24...	<0.010	0.010	0.90	0.028	<0.005	0.003	450	120	50	10	7.0
MAY											
12...	0.017	0.030	0.50	0.029	0.013	<0.001	690	510	50	10	8.6
12...	0.041	0.020	0.60	0.030	0.013	<0.001	880	630	140	110	8.7
12...	0.022	0.170	0.80	0.034	0.015	0.005	1500	890	360	340	10
JUN											
25...	<0.010	0.090	0.90	0.036	0.013	<0.001	730	430	80	10	9.5
25...	<0.010	0.070	0.50	0.037	0.011	<0.001	740	420	90	49	9.0
25...	<0.010	0.010	1.0	0.036	0.013	0.006	8100	8400	1300	1400	11
AUG											
04...	<0.010	0.030	0.70	0.033	0.005	<0.001	240	29	150	2	9.5
04...	<0.010	0.560	0.90	0.032	<0.005	<0.001	430	25	200	200	9.5
04...	<0.010	1.60	2.5	0.032	0.008	<0.001	18000	18000	2200	2200	11
SEP											
16...	<0.010	0.010	0.50	0.015	0.006	0.003	320	70	90	5	7.3
16...	<0.010	0.040	0.60	0.016	0.008	<0.001	530	100	160	62	7.7
16...	<0.010	0.930	1.8	0.024	0.005	0.003	12000	11000	1700	1700	11

0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA

LOCATION.--Lat 37°21'43", long 76°49'42", James City County, Hydrologic Unit 02080206, near city of Newport News pumping station in north-central arm of Little Creek Reservoir, 1.8 mi south of Toano, and 3.3 mi west of Norge.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	ALKALINITY LAB (MG/L AS CACO3)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT 1986											
16...	1100	3.00	100	6.90	19.0	760	6.3	68	--	--	1.9
16...	1115	10.0	102	6.90	19.0	760	6.3	68	28	10	1.9
16...	1130	20.0	102	7.00	19.0	760	6.2	67	--	--	1.9
16...	1145	30.0	192	6.80	17.0	760	0	0	--	--	3.6
16...	1200	40.0	211	6.80	13.0	760	0	0	45	11	4.8
DEC											
17...	1100	3.00	112	7.10	9.0	763	9.8	85	--	--	2.3
17...	1115	10.0	112	7.10	8.5	763	9.6	82	26	13	2.5
17...	1130	20.0	114	7.10	8.5	763	9.5	81	--	--	2.4
17...	1145	30.0	114	7.00	8.5	763	9.4	80	--	--	2.6
17...	1200	40.0	114	6.90	8.5	763	9.3	79	25	17	2.9
FEB 1987											
19...	0930	3.00	120	6.80	2.5	763	12.5	91	--	--	--
19...	0945	10.0	118	7.10	2.0	763	12.2	88	19	12	2.9
19...	1000	20.0	118	7.20	2.0	763	11.9	86	--	--	--
19...	1015	30.0	118	7.30	2.5	763	11.9	87	--	--	--
19...	1030	40.0	120	7.30	2.5	763	11.8	86	19	12	3.0
MAR											
24...	1100	3.00	127	7.20	7.5	758	13.2	111	--	--	2.4
24...	1115	10.0	119	6.90	6.0	758	13.2	107	21	13	2.5
24...	1130	20.0	140	7.20	5.0	758	12.4	98	--	--	2.5
24...	1145	30.0	145	7.30	5.0	758	11.9	94	--	--	2.5
24...	1200	40.0	160	7.20	4.5	758	11.8	92	20	11	2.5
MAY											
12...	1030	3.00	110	7.30	21.0	757	9.0	102	--	--	1.8
12...	1045	10.0	108	7.30	10.5	757	8.8	79	21	12	1.7
12...	1100	20.0	101	6.80	13.0	757	7.2	69	--	--	2.0
12...	1115	30.0	107	6.60	10.5	757	5.3	48	--	--	2.5
12...	1130	40.0	112	6.60	9.5	757	4.3	38	22	12	2.7
JUN											
25...	1030	3.00	100	6.60	27.5	754	7.4	95	--	--	0.9
25...	1045	10.0	108	6.70	27.0	754	7.2	91	22	11	0.9
25...	1100	20.0	112	6.70	15.0	754	2.6	26	--	--	2.1
25...	1115	30.0	117	6.60	11.0	754	1.0	9	--	--	2.6
25...	1130	40.0	121	6.50	10.0	754	0.1	1	22	13	2.9
AUG											
04...	1030	3.00	104	7.50	30.0	751	7.8	105	--	--	1.4
04...	1045	10.0	105	7.50	29.5	751	7.5	100	24	11	1.5
04...	1100	20.0	122	6.60	17.0	751	0	0	--	--	1.7
04...	1115	30.0	129	6.60	11.5	751	0	0	--	--	7.9
04...	1130	40.0	140	6.70	10.5	751	0	0	29	12	3.3
SEP											
16...	1030	3.00	103	7.50	26.0	757	7.8	97	--	--	1.7
16...	1045	10.0	101	7.50	26.0	757	7.7	96	24	11	1.7
16...	1100	20.0	111	6.60	16.0	757	0	0	--	--	2.4
16...	1115	30.0	143	6.70	12.0	757	0	0	--	--	3.5
16...	1130	40.0	152	6.80	11.0	757	0	0	33	13	3.8

0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1986											
16...	<0.010	0.020	0.70	0.012	0.005	0.005	--	73	--	44	--
16...	<0.010	0.030	0.90	0.010	0.007	0.004	440	54	140	38	6.3
16...	<0.010	0.020	0.90	0.016	0.005	0.005	--	85	--	36	--
16...	<0.010	1.50	2.7	0.012	0.006	0.006	--	22000	--	1100	--
16...	0.028	1.90	3.1	0.020	0.005	0.006	28000	28000	1300	1300	9.4
DEC											
17...	0.048	0.160	0.80	0.016	0.012	<0.001	--	28	--	4	--
17...	0.051	0.150	1.1	0.013	0.012	<0.001	220	80	30	15	5.2
17...	0.054	0.140	0.60	0.016	0.012	<0.001	--	30	--	4	--
17...	0.062	0.130	0.50	0.016	0.012	<0.001	--	35	--	10	--
17...	0.071	0.130	0.40	0.021	0.014	0.002	380	66	50	31	5.5
FEB 1987											
19...	0.089	0.030	0.70	0.019	0.011	0.001	--	80	--	<10	--
19...	0.089	0.030	0.40	0.019	0.011	0.006	230	35	20	3	5.6
19...	0.091	0.030	0.50	0.019	0.011	0.006	--	80	--	<10	--
19...	0.090	0.030	0.50	0.017	0.007	0.002	--	60	--	<10	--
19...	0.088	0.040	0.60	0.019	<0.005	0.003	200	75	20	3	5.4
MAR											
24...	0.052	<0.010	0.60	0.014	0.010	<0.001	--	72	--	3	--
24...	0.055	<0.010	0.40	0.013	<0.005	<0.001	230	63	20	1	4.8
24...	0.085	<0.010	0.70	0.013	0.005	0.001	--	32	--	<1	--
24...	0.091	0.010	0.40	0.013	<0.005	<0.001	--	73	--	1	--
24...	0.090	0.010	0.30	0.013	<0.005	<0.001	310	71	20	1	5.2
MAY											
12...	<0.010	0.010	0.50	0.022	<0.005	0.002	--	99	--	17	--
12...	<0.010	0.010	1.0	0.022	0.005	<0.001	320	96	20	15	9.0
12...	0.010	<0.010	0.70	0.029	<0.005	<0.001	--	86	--	9	--
12...	0.052	0.110	0.60	0.016	<0.005	<0.001	--	73	--	28	--
12...	0.078	0.170	0.60	0.018	0.010	<0.001	470	140	90	72	6.0
JUN											
25...	<0.010	0.040	1.0	0.009	0.007	<0.001	--	100	--	4	--
25...	<0.010	0.060	<0.20	0.011	0.008	0.002	220	80	<10	<1	6.6
25...	0.025	0.150	0.70	0.018	0.008	<0.001	--	38	--	150	--
25...	<0.010	0.310	0.60	0.009	0.007	<0.001	--	110	--	330	--
25...	0.052	0.410	0.50	0.011	0.008	0.002	950	260	440	430	5.6
AUG											
04...	<0.010	0.020	0.60	0.009	<0.005	<0.001	--	78	--	7	--
04...	<0.010	0.030	1.4	0.009	0.007	<0.001	250	74	40	3	6.9
04...	<0.010	0.120	1.1	0.023	<0.005	<0.001	--	29	--	390	--
04...	<0.010	0.340	0.80	0.015	<0.005	<0.001	--	3200	--	830	--
04...	<0.010	0.500	1.6	0.014	<0.005	<0.001	4900	5000	610	700	7.3
SEP											
16...	<0.010	0.050	0.60	<0.005	0.007	<0.001	--	40	--	<10	--
16...	<0.010	<0.010	0.50	0.005	<0.005	<0.001	120	40	20	<10	5.9
16...	<0.010	0.030	0.50	0.012	0.008	0.001	--	40	--	770	--
16...	<0.010	0.530	0.90	0.014	0.005	<0.001	--	6800	--	1100	--
16...	<0.010	0.720	1.2	0.010	0.005	0.004	8600	8600	860	850	7.7

0204275470 LITTLE CREEK RESERVOIR (SOUTH CENTRAL) NEAR NORGE, VA

LOCATION.--Lat 37°21'17", long 76°50'27", James City County, Hydrologic Unit 02080206, 0.3 mi north of Little Creek Reservoir dam, 0.9 mi southwest of city of Newport News pumping station, 2.7 mi southwest of Toano, and 4.0 mi west of Norge.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)
OCT 1986							
16...	1215	3.00	100	7.00	19.0	760	6.1
16...	1230	10.0	102	6.90	19.0	760	6.1
16...	1245	20.0	102	6.90	19.0	760	5.9
16...	1300	35.0	158	6.80	14.5	760	0
16...	1315	49.0	200	6.80	11.0	760	0
DEC							
17...	1215	3.00	114	7.10	9.0	763	9.4
17...	1230	10.0	113	7.10	9.0	763	9.3
17...	1245	20.0	113	7.00	9.0	763	9.2
17...	1300	35.0	111	7.00	8.5	763	9.2
17...	1315	50.0	111	7.00	8.5	763	8.9
FEB 1987							
19...	1100	3.00	125	6.70	2.0	763	12.2
19...	1115	10.0	118	7.20	2.0	763	12.2
19...	1130	20.0	120	7.20	2.0	763	12.0
19...	1145	35.0	120	7.30	2.0	763	12.0
19...	1200	50.0	120	7.30	2.0	763	12.0
MAR							
24...	1200	3.00	150	7.20	7.0	758	--
24...	1215	10.0	160	7.50	6.0	758	--
24...	1230	20.0	110	7.70	4.5	758	--
24...	1245	35.0	110	7.40	4.0	758	--
24...	1300	50.0	117	7.30	3.5	758	--
MAY							
12...	1145	3.00	107	7.20	18.5	757	9.0
12...	1200	10.0	109	7.20	15.5	757	8.8
12...	1215	20.0	105	6.80	12.5	757	7.0
12...	1230	35.0	105	6.80	10.0	757	5.8
12...	1245	50.0	105	6.70	9.0	757	4.5
JUN							
25...	1145	3.00	102	6.90	27.0	754	7.5
25...	1200	10.0	100	6.80	27.0	754	7.6
25...	1215	20.0	105	6.50	15.0	754	4.5
25...	1230	35.0	120	6.30	10.0	754	1.5
25...	1245	50.0	115	6.10	10.0	754	0.6
AUG							
04...	1145	3.00	106	7.70	30.0	751	8.0
04...	1200	10.0	109	7.70	29.5	751	7.9
04...	1215	20.0	110	6.60	16.5	751	0.5
04...	1230	35.0	112	6.50	10.5	751	0
04...	1245	50.0	114	6.50	10.0	751	0
SEP							
16...	1130	3.00	103	7.50	26.0	757	8.0
16...	1145	10.0	101	7.20	25.0	757	7.0
16...	1200	20.0	111	6.50	16.0	757	0
16...	1215	35.0	135	6.70	11.0	757	0
16...	1230	50.0	144	6.70	10.5	757	0

0204275470 LITTLE CREEK RESERVOIR (SOUTH CENTRAL) NEAR NORGE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT 1986							
16...	66	<0.010	0.020	1.4	<0.005	--	0.004
16...	66	<0.010	0.030	0.60	<0.005	--	0.004
16...	64	<0.010	0.030	2.0	0.009	--	0.005
16...	0	<0.010	1.00	1.2	0.007	--	--
16...	0	<0.010	2.10	3.3	0.009	--	0.004
DEC							
17...	81	0.049	0.170	1.0	0.016	--	<0.001
17...	80	0.048	0.170	0.80	0.016	--	<0.001
17...	79	0.049	0.180	1.4	0.016	--	0.001
17...	79	0.048	0.170	0.50	0.019	--	<0.001
17...	76	0.053	0.180	0.90	0.016	--	<0.001
FEB 1987							
19...	88	0.087	0.050	0.60	0.017	0.006	<0.001
19...	88	0.086	0.050	0.50	0.019	0.009	0.002
19...	87	0.088	0.050	0.40	0.018	0.011	0.005
19...	87	0.086	0.050	0.30	0.017	0.010	<0.001
19...	87	0.086	0.060	0.40	0.017	0.011	0.006
MAR							
24...	--	0.050	<0.010	0.70	0.013	--	0.002
24...	--	0.050	0.010	0.60	0.017	--	<0.001
24...	--	0.049	<0.010	0.40	0.013	--	<0.001
24...	--	0.085	<0.010	0.70	0.013	--	0.003
24...	--	0.082	0.010	0.40	0.012	--	<0.001
MAY							
12...	97	<0.010	<0.010	1.2	0.024	--	<0.001
12...	89	<0.010	0.020	0.90	0.021	--	<0.001
12...	66	0.026	0.030	0.60	0.017	--	<0.001
12...	52	0.061	0.130	0.70	0.013	--	<0.001
12...	39	0.067	0.180	0.70	0.015	--	<0.001
JUN							
25...	95	0.030	0.050	0.30	0.007	--	0.001
25...	97	0.021	0.050	0.50	0.009	--	<0.001
25...	45	<0.010	0.080	0.70	0.020	--	<0.001
25...	13	0.062	0.250	0.30	0.008	--	<0.001
25...	5	<0.067	0.340	1.0	0.009	--	<0.001
AUG							
04...	108	<0.010	0.020	0.70	0.008	--	<0.001
04...	105	<0.010	<0.010	0.60	0.010	--	<0.001
04...	5	0.010	0.130	1.3	0.015	--	<0.001
04...	0	0.010	0.120	1.0	0.014	--	<0.001
04...	0	0.013	0.130	0.90	0.015	--	<0.001
SEP							
16...	99	<0.010	<0.010	0.60	<0.005	--	0.003
16...	85	<0.010	<0.010	0.70	0.006	--	<0.001
16...	0	<0.010	0.030	0.60	0.010	--	<0.001
16...	0	<0.010	0.560	1.1	0.008	--	<0.001
16...	0	<0.010	0.660	1.3	0.009	--	0.006

02043500 CYPRESS SWAMP AT CYPRESS CHAPEL, VA

LOCATION.--Lat 36°37'24", long 76°36'07", Suffolk City, Hydrologic Unit 03010205, near center of span on downstream side of bridge on State Highway 32, 0.5 mi downstream from Dragon Swamp, 0.8 mi northwest of Cypress Chapel, and 6.5 mi south of downtown Suffolk.

DRAINAGE AREA.--23.8 mi².

PERIOD OF RECORD.--October 1953 to September 1971, March 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 28.65 ft above National Geodetic Vertical Datum of 1929. October 1953 to September 1971, recording gage on right bank 30 ft upstream at same datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 25 to Feb. 2 and Feb. 17, 18, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--27 years, 26.8 ft³/s, 15.29 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft³/s, Aug. 11, 1967, gage height, 6.85 ft; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 20	0200	*584	*5.44	Feb. 23	2200	303	4.65
Jan. 23	0630	447	5.09	Mar. 2	0800	260	4.49

No flow part or all of October to December, May to September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	13	e30	104	31	15	.00	.00	.00	.00
2	.00	.00	.00	47	e27	235	24	11	.00	.00	.00	.00
3	.00	.00	.00	66	26	138	19	8.7	.00	.00	.00	.00
4	.00	.00	.00	42	25	75	26	35	.52	.00	.00	.00
5	.00	.00	.00	25	21	52	33	78	6.5	.00	.00	.00
6	.00	.00	.00	18	17	40	26	58	5.0	.13	.00	1.2
7	.00	.00	.00	14	16	33	21	37	.91	.11	.00	54
8	.00	.00	.00	12	14	32	18	23	.10	.02	.00	63
9	.00	.00	.01	10	14	29	15	16	.02	.00	.00	18
10	.00	.00	.02	9.9	11	76	12	11	.00	.00	.00	12
11	.00	.00	.42	12	9.4	147	10	7.1	.00	.00	.00	33
12	.00	.00	1.3	13	8.8	92	9.5	3.7	.00	.00	.00	24
13	.00	.00	1.6	12	8.7	66	8.0	2.1	.00	.00	.00	54
14	.00	.00	2.4	10	8.4	52	6.3	1.3	.00	.00	.00	95
15	.00	.00	3.0	8.6	8.0	41	6.0	1.1	.00	.00	.00	53
16	.00	.00	2.6	7.6	7.4	36	42	.92	.00	.00	.00	20
17	.00	.00	2.0	7.4	e35	33	108	.55	.00	.00	.00	7.6
18	.00	.00	1.7	30	e135	30	92	.27	.00	.00	.00	2.9
19	.00	.00	1.9	291	125	25	56	.11	.00	.00	.00	1.1
20	.00	.00	1.5	479	77	26	40	.05	.00	.00	1.1	3.6
21	.00	.00	1.5	197	53	27	32	.05	.00	.00	11	12
22	.00	.00	1.4	178	43	24	30	.05	.00	.00	1.0	13
23	.00	.00	1.3	389	194	20	23	.03	.00	.00	.07	7.4
24	.00	.00	3.9	186	237	17	18	.01	.56	.00	.01	3.2
25	.00	.00	23	e86	123	15	44	.01	.91	.00	.00	1.3
26	.00	.00	54	e71	73	13	86	.00	.04	.00	.00	.54
27	.00	.00	36	e61	54	11	65	.00	.32	.00	.00	.19
28	.00	.00	20	e52	44	20	42	.00	.26	.00	.00	.07
29	.00	.00	13	e42	---	30	29	.00	.03	.00	.00	.04
30	.00	.00	10	e36	---	26	21	.00	.00	.00	.00	.04
31	.00	---	8.6	e33	---	26	---	.00	---	.00	.00	---
TOTAL	.00	.00	191.15	2458.5	1444.7	1591	992.8	310.05	15.17	.26	13.18	480.18
MEAN	.00	.00	6.17	79.3	51.6	51.3	33.1	10.0	.51	.01	.43	16.0
MAX	.00	.00	54	479	237	235	108	78	6.5	.13	11	95
MIN	.00	.00	.00	7.4	7.4	11	6.0	.00	.00	.00	.00	.00
CFSM	.00	.00	.26	3.33	2.17	2.16	1.39	.42	.02	.00	.02	.67
IN.	.00	.00	.30	3.84	2.26	2.49	1.55	.48	.02	.00	.02	.75

CAL YR 1986 TOTAL 2969.68 MEAN 8.14 MAX 99 MIN .00 CFSM .34 IN. 4.64
WTR YR 1987 TOTAL 7496.99 MEAN 20.5 MAX 479 MIN .00 CFSM .86 IN. 11.72

e Estimated.

02043600 LAKE DRUMMOND IN GREAT DISMAL SWAMP, VA

LOCATION.--Lat 36°35'42", long 76°26'23", Chesapeake City, Hydrologic Unit 03010205, on right bank in outlet canal, 200 ft upstream from dam and gates, 0.5 mi downstream from Lake Drummond, 3.1 mi north of North Carolina State line, and 20 mi southwest of Norfolk.

PERIOD OF RECORD.--May 1926 to current year. Prior to October 1973, published as Lake Drummond in Dismal Swamp.

REVISED RECORDS.--WSP 1032: 1934-43.

GAGE.--Nonrecording gage. Datum of gage is 12.16 ft above National Geodetic Vertical Datum of 1929. Aug. 22, 1978, to Oct. 1, 1981, water-stage recorder at same site and datum.

REMARKS.--Mean daily gage heights are shown in table below.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 6.68 ft, Sept. 17, 1960; minimum, -0.67 ft, Nov. 3, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.24 ft, Jan. 27; minimum, 3.16 ft, Oct. 23-26, Nov. 1-3, Dec. 2.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.36	3.16	3.22	3.54	4.97	5.12	5.02	5.09	5.02	4.88	4.30	4.34
2	3.34	3.16	3.16	3.70	4.99	5.05	5.08	5.16	5.12	4.86	4.30	4.33
3	3.34	3.16	3.41	3.70	5.04	5.02	5.14	5.15	5.09	4.78	4.30	4.29
4	3.30	3.26	3.34	3.70	4.97	5.02	5.09	5.15	5.15	4.80	4.29	4.27
5	3.30	3.25	3.35	3.74	4.90	5.00	5.03	5.12	5.14	4.76	4.30	4.30
6	3.30	3.25	3.35	3.70	4.91	4.96	4.99	5.05	5.10	4.76	4.42	4.46
7	3.28	3.23	3.35	3.77	5.00	5.00	4.95	4.95	5.08	4.80	4.41	4.48
8	3.23	3.22	3.32	3.78	5.05	5.04	5.09	5.11	5.10	4.74	4.40	4.52
9	3.22	3.26	3.34	3.78	5.13	5.03	5.12	5.15	5.10	4.74	4.36	4.52
10	3.22	3.26	3.34	3.82	5.10	5.03	5.09	5.20	5.10	4.70	4.36	4.70
11	3.18	3.20	3.34	3.90	5.14	5.01	5.15	5.18	5.08	4.70	4.35	4.68
12	3.18	3.22	3.34	3.90	5.06	4.98	5.22	5.22	5.06	4.70	4.33	4.66
13	3.20	3.24	3.36	3.92	5.07	5.00	5.15	5.09	5.06	4.69	4.28	4.79
14	3.18	3.22	3.36	3.92	5.10	4.97	5.03	5.06	5.08	4.64	4.25	4.86
15	3.20	3.22	3.36	3.92	5.10	5.00	5.09	5.04	5.10	4.68	4.25	4.92
16	3.20	3.22	3.36	3.92	5.08	5.00	5.09	5.08	5.10	4.62	4.25	4.94
17	3.20	3.22	3.36	3.96	5.05	5.03	5.10	5.18	5.10	4.60	4.24	4.97
18	3.20	3.22	3.36	4.10	5.00	5.06	5.09	5.20	5.08	4.58	4.24	5.01
19	3.20	3.22	3.36	4.26	4.98	5.10	5.04	5.20	5.08	4.58	4.59	5.05
20	3.20	3.22	3.36	4.41	5.00	5.05	5.15	5.18	5.02	4.57	4.52	5.11
21	3.20	3.29	3.36	4.48	5.00	4.96	5.10	5.15	5.04	4.54	4.49	5.08
22	3.19	3.22	3.36	4.52	4.98	5.00	5.20	5.10	5.00	4.53	4.50	5.04
23	3.16	3.22	3.36	5.04	5.13	5.02	5.10	5.10	4.97	4.48	4.50	5.09
24	3.16	3.22	3.36	5.09	5.02	5.10	5.09	5.10	5.00	4.48	4.50	5.01
25	3.16	3.22	3.44	5.10	5.02	5.14	5.09	5.20	5.00	4.48	4.42	5.04
26	3.16	3.22	3.42	5.10	5.10	5.18	5.00	5.13	4.98	4.43	4.42	5.00
27	3.22	3.22	3.46	5.24	5.12	5.18	5.03	5.07	5.00	4.41	4.39	5.02
28	3.24	3.22	3.46	5.15	5.04	5.05	5.00	5.04	4.97	4.38	4.44	5.02
29	3.21	3.22	3.46	5.09	---	5.00	5.00	4.99	4.90	4.36	4.42	5.03
30	3.20	3.22	3.52	5.04	---	4.98	5.05	5.01	4.92	4.35	4.42	5.06
31	3.20	---	3.52	5.04	---	5.00	---	5.05	---	4.32	4.32	---
MEAN	3.22	3.22	3.37	4.27	5.04	5.03	5.08	5.11	5.05	4.61	4.37	4.79
MAX	3.36	3.29	3.52	5.24	5.14	5.18	5.22	5.22	5.15	4.88	4.59	5.11
MIN	3.16	3.16	3.16	3.54	4.90	4.96	4.95	4.95	4.90	4.32	4.24	4.27

CAL YR 1986 MEAN 4.14 MAX 5.20 MIN 3.16
WTR YR 1987 MEAN 4.42 MAX 5.24 MIN 3.16

02044500 NOTTOWAY RIVER NEAR RAWLINGS, VA

LOCATION.--Lat 36°59'00", long 77°48'00", Brunswick County, Hydrologic Unit 03010201, on right bank at downstream side of bridge on State Highway 612 at Harpers Bridge, 0.1 mi upstream from Beaver Pond Creek, and 2.6 mi northwest of Rawlings.

DRAINAGE AREA.--309 mi².

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

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 184.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for period of no gage-height record, Jan. 26-30, which is fair. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--37 years, 314 ft³/s, 13.80 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,900 ft³/s, Oct. 6, 1972, gage height, 23.25 ft, from rating curve extended above 16,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.40 ft³/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 ft³/s, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 20	2200	3,680	9.05	Mar. 2	1500	4,900	10.68
Feb. 24	1930	3,060	8.17	Apr. 17	1230	*12,900	*16.78

Minimum discharge, 9.6 ft³/s, Aug. 14-15, gage height, 2.21 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	58	104	254	497	1880	438	404	186	61	15	18
2	41	53	131	1040	513	4310	365	366	184	92	14	17
3	39	53	260	1410	639	2260	325	349	181	169	14	17
4	37	53	441	610	987	736	324	344	201	147	22	16
5	37	54	287	388	984	575	327	355	261	178	47	16
6	35	57	199	310	731	488	314	338	307	245	42	26
7	32	60	155	274	576	439	298	315	229	167	40	34
8	30	91	136	252	520	405	289	297	183	126	56	332
9	30	132	128	230	486	434	275	280	157	101	30	1510
10	32	133	164	220	426	592	261	261	141	84	22	636
11	32	101	267	224	354	525	253	246	127	75	18	301
12	32	100	447	215	326	443	252	238	119	72	14	186
13	36	117	453	197	318	389	264	238	115	90	12	203
14	69	116	300	185	302	359	255	254	119	74	10	188
15	124	102	228	179	291	340	337	258	121	65	10	184
16	114	92	193	176	276	337	2840	253	117	70	12	135
17	81	85	171	174	286	390	11700	239	110	57	18	101
18	65	80	162	270	322	395	6730	229	103	44	19	83
19	53	78	159	1430	344	370	2230	223	95	40	60	69
20	46	78	148	3150	320	370	905	232	95	37	98	73
21	43	114	135	2590	322	357	700	236	92	34	68	102
22	41	141	121	780	402	328	597	243	85	31	43	111
23	40	152	115	682	1420	304	509	238	79	28	32	90
24	39	130	390	495	2780	290	501	239	92	25	25	71
25	39	130	2220	404	2190	280	716	265	98	23	20	58
26	82	116	1850	e330	1010	276	1170	298	94	21	18	51
27	183	122	587	e295	790	270	1190	302	89	20	21	47
28	178	153	373	e270	721	436	676	258	89	18	22	44
29	116	158	294	e255	---	420	538	234	80	17	22	42
30	84	122	254	e245	---	361	457	218	70	16	20	48
31	67	---	228	372	---	394	---	200	---	15	18	---
TOTAL	1919	3031	11100	17906	19133	19753	36036	8450	4019	2242	882	4809
MEAN	61.9	101	358	578	683	637	1201	273	134	72.3	28.5	160
MAX	183	158	2220	3150	2780	4310	11700	404	307	245	98	1510
MIN	30	53	104	174	276	270	252	200	70	15	10	16
CFSM	.20	.33	1.16	1.87	2.21	2.06	3.89	.88	.43	.23	.09	.52
IN.	.23	.36	1.34	2.16	2.30	2.38	4.34	1.02	.48	.27	.11	.58

CAL YR 1986 TOTAL 72261 MEAN 198 MAX 2220 MIN 14 CFSM .64 IN. 8.70
WTR YR 1987 TOTAL 129280 MEAN 354 MAX 11700 MIN 10 CFSM 1.15 IN. 15.56

e Estimated.

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 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 mi².

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1935(M). WSP 972: 1931(M), 1932, 1934-35, 1939. WSP 2104: Drainage area. WDR VA-74-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 58.42 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 11, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by Baskerville Mill, 33 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--58 years, 567 ft³/s, 13.30 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,200 ft³/s, Aug. 17, 1940, gage height, 23.66 ft, from rating curve extended above 13,000 ft³/s; minimum, 3.4 ft³/s, Aug. 15, 16, 1977; minimum gage height, 0.62 ft, Sept. 2, 5, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 26	0200	5,510	15.61	Mar. 4	0100	5,350	15.46
Jan. 20	2000	7,380	17.04	Apr. 19	0930	*13,200	*19.69
Feb. 24	1830	5,220	15.34				

Minimum discharge, 20 ft³/s, Aug. 18, gage height, 2.45 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	99	188	584	1060	3100	984	778	251	88	25	33
2	54	87	183	2720	1150	4870	806	697	270	84	25	31
3	52	85	573	2870	1220	5140	677	639	263	124	25	30
4	50	82	677	1960	1410	4320	696	612	290	240	24	28
5	46	80	632	1000	1620	1380	725	652	601	212	30	33
6	43	80	402	770	1360	1040	657	631	481	225	30	53
7	41	83	292	656	1090	934	623	575	401	271	56	72
8	38	89	241	595	949	858	585	527	298	187	48	70
9	36	115	220	538	883	863	552	490	238	140	46	601
10	36	152	223	511	806	2080	513	450	200	113	54	1800
11	37	168	376	561	721	2380	483	411	176	94	39	883
12	36	149	1070	538	654	1400	481	382	160	82	32	431
13	37	160	913	486	644	1090	535	372	151	402	28	436
14	45	170	672	438	616	920	528	383	150	231	25	396
15	153	166	456	415	593	825	518	399	154	124	23	283
16	165	154	359	405	574	778	2930	393	156	90	23	242
17	150	145	310	402	624	889	7090	371	148	82	22	188
18	110	133	281	675	689	876	9660	344	140	74	20	151
19	88	124	275	3010	790	814	12700	324	129	63	29	128
20	72	119	262	6740	802	830	8620	317	121	57	60	124
21	62	141	239	6790	804	779	2640	322	116	52	110	140
22	57	210	218	5530	954	709	1260	328	113	48	88	149
23	55	206	200	4350	3100	645	1050	330	111	44	63	150
24	52	203	535	2170	5010	608	1010	323	197	41	49	127
25	50	187	4480	1230	5050	577	2910	459	157	37	41	105
26	70	201	5220	1030	4150	552	e2710	447	137	35	36	91
27	172	255	3240	e830	2000	539	e2310	422	127	32	32	82
28	251	307	1060	e750	1460	662	e1600	400	118	31	31	78
29	216	262	762	e680	---	990	1090	358	110	28	35	71
30	160	233	632	e640	---	793	901	316	100	27	36	70
31	124	---	560	899	---	847	---	279	---	26	34	---
TOTAL	2612	4645	25751	50773	40783	43088	67844	13731	6064	3384	1219	7076
MEAN	84.3	155	831	1638	1457	1390	2261	443	202	109	39.3	236
MAX	251	307	5220	6790	5050	5140	12700	778	601	402	110	1800
MIN	36	80	183	402	574	539	481	279	100	26	20	28
CFSM	.15	.27	1.44	2.83	2.52	2.40	3.91	.77	.35	.19	.07	.41
IN.	.17	.30	1.65	3.26	2.62	2.77	4.36	.88	.39	.22	.08	.45

CAL YR 1986 TOTAL 139241 MEAN 381 MAX 5220 MIN 18 CFSM .66 IN. 8.95
WTR YR 1987 TOTAL 266970 MEAN 731 MAX 12700 MIN 20 CFSM 1.26 IN. 17.15

e Estimated.

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 mi².

PERIOD OF RECORD.--September 1946 to current year. Published as "at Dinwiddie" September 1946 to September 1947 and October 1949 to September 1950.

REVISED RECORDS.--WSP 1303: 1947(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 129.94 ft above National Geodetic Vertical Datum of 1929. Prior to June 12, 1957, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except for period of doubtful gage-height record, Oct. 1 to Nov. 11, which is fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--41 years, 113 ft³/s, 13.70 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,400 ft³/s, Oct. 6, 1972, gage height, 20.84 ft, from rating curve extended above 5,800 ft³/s on basis of contracted-opening measurement of peak flow; no flow for part of Oct. 13, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0800	1,530	9.05	Apr. 16	2330	*3,370	*12.28
Jan. 20	0030	2,350	10.55	June 5	0330	2,430	10.70
Feb. 24	0330	1,420	8.81				

Minimum discharge, 0.68 ft³/s, July 30, 31, gage height, 0.93 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e4.6	e11	26	110	210	738	174	120	48	9.4	.84	1.3
2	e4.2	e9.9	45	629	236	770	127	108	57	10	.97	1.1
3	e4.0	e9.5	125	441	313	385	109	100	52	59	1.1	1.1
4	e4.0	e9.4	98	209	372	231	136	100	265	55	1.0	1.0
5	e3.8	e9.9	70	131	306	174	135	106	1520	61	1.6	1.6
6	e3.6	e12	53	105	223	146	116	100	450	46	3.0	4.4
7	e3.2	e15	44	93	179	132	111	91	137	34	2.1	4.4
8	e3.0	e23	39	84	153	125	104	84	85	27	2.8	6.5
9	e3.0	e46	40	77	130	129	95	78	66	21	3.7	10
10	e3.2	e48	48	75	113	417	89	71	52	16	5.5	23
11	e3.4	e23	78	81	103	331	82	66	42	13	4.2	134
12	e3.4	32	158	76	100	227	81	60	36	11	3.7	105
13	e12	33	107	69	98	193	92	114	35	10	2.7	75
14	e22	32	76	63	94	154	86	103	35	8.9	2.0	153
15	e35	30	60	60	93	134	126	86	35	7.4	1.8	94
16	e27	30	53	64	90	132	1820	77	34	6.3	1.2	47
17	e25	29	49	58	104	178	2680	71	31	5.6	1.3	28
18	e17	27	48	172	108	156	1290	65	27	5.3	1.0	18
19	e13	28	49	1160	122	136	520	58	24	4.6	5.4	13
20	e11	29	46	1860	126	149	305	58	21	3.6	5.0	15
21	e9.8	47	42	748	139	135	228	61	18	3.0	4.1	25
22	e8.6	51	39	399	192	119	183	61	20	2.6	3.4	26
23	e8.2	47	37	462	947	109	149	59	25	2.2	2.7	21
24	e8.2	42	230	276	1250	106	175	58	39	1.9	1.9	15
25	e10	40	1340	193	687	99	690	61	29	1.8	1.4	11
26	e25	38	738	e130	380	93	556	102	24	1.6	1.5	8.6
27	e54	44	266	e110	271	90	379	94	21	1.6	1.6	7.0
28	e33	41	140	e98	238	169	243	76	17	1.3	1.5	5.9
29	e27	35	106	e90	---	222	181	66	13	.87	1.2	5.0
30	e19	29	91	e84	---	141	142	58	11	.76	1.1	5.1
31	e14	---	79	175	---	187	---	51	---	.71	1.2	---
TOTAL	422.2	900.7	4420	8382	7377	6507	11204	2463	3269	432.44	72.51	866.0
MEAN	13.6	30.0	143	270	263	210	373	79.5	109	13.9	2.34	28.9
MAX	54	51	1340	1860	1250	770	2680	120	1520	61	5.5	153
MIN	3.0	9.4	26	58	90	90	81	51	11	.71	.84	1.0
CFSM	.12	.27	1.28	2.41	2.35	1.88	3.33	.71	.97	.12	.02	.26
IN.	.14	.30	1.47	2.78	2.45	2.16	3.72	.82	1.09	.14	.02	.29

CAL YR 1986 TOTAL 26436.60 MEAN 72.4 MAX 1340 MIN 1.4 CFSM .65 IN. 8.78
WTR YR 1987 TOTAL 46315.85 MEAN 127 MAX 2680 MIN .71 CFSM 1.13 IN. 15.38

e Estimated.

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1942, 1944, 1948-49. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5.94 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--46 years, 1,378 ft³/s, 13.17 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft³/s, July 19, 1975, gage height, 24.43 ft; minimum, 4.0 ft³/s, Oct. 25, 1981; minimum gage height, 2.82 ft, Oct. 24-25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,500 ft³/s, Apr. 21, gage height, 20.66 ft; minimum, 44 ft³/s, Aug. 19, gage height, 3.05 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	220	462	3020	2930	8180	2340	5250	661	197	57	56
2	92	171	414	2360	3080	7200	2550	3820	580	176	54	55
3	90	145	430	2820	3250	6520	2560	2830	578	165	52	54
4	87	128	776	3490	3380	6700	2310	2250	730	193	63	51
5	84	120	1210	4440	3490	7360	2100	1930	1200	394	58	52
6	80	113	1210	5320	3550	7490	2130	1800	2090	478	63	57
7	74	112	956	4920	3570	6640	2060	1710	2590	480	71	64
8	71	112	762	3550	3450	5050	1930	1590	2870	532	66	95
9	68	113	660	2430	3080	3630	1760	1460	2470	425	77	127
10	66	121	593	1790	2630	3320	1610	1340	1320	320	80	342
11	63	157	585	1540	2300	3640	1460	1200	754	255	74	1380
12	60	216	815	1500	2000	4100	1360	1080	553	208	76	1490
13	63	230	1520	1460	1780	4740	1350	979	463	193	67	982
14	70	240	1820	1360	1690	5120	1340	965	411	804	57	855
15	77	277	1590	1250	1610	4640	1390	1070	382	1170	54	819
16	88	297	1250	1150	1530	3750	2220	1060	369	684	51	695
17	205	294	1040	1080	1570	3080	5780	993	363	356	48	601
18	215	269	905	1170	1750	2750	8520	907	340	236	46	490
19	181	246	795	2170	2020	2670	10700	829	310	196	98	398
20	140	225	733	4330	2310	2600	13300	772	285	163	165	360
21	118	228	689	6920	2550	2500	14300	731	263	134	83	329
22	104	240	632	9460	2730	2410	13300	723	242	117	104	325
23	94	326	574	12600	3410	2240	10700	731	227	107	153	339
24	88	404	605	13500	4740	1990	7920	753	219	99	120	318
25	84	403	1340	12500	6060	1800	6120	700	277	91	92	280
26	89	386	2530	10900	7460	1660	5560	846	343	84	76	229
27	99	396	3300	e8660	8660	1530	6200	1040	302	78	67	186
28	141	439	4620	e6480	8810	1520	7060	962	275	72	66	156
29	313	543	6330	e4660	---	1670	7300	905	251	66	61	134
30	347	518	6400	3540	---	2070	6580	799	221	62	55	123
31	281	---	4850	3050	---	2240	---	744	---	61	54	---
TOTAL	3729	7689	50396	143420	95390	120810	153810	42769	21939	8596	2308	11442
MEAN	120	256	1626	4626	3407	3897	5127	1380	731	277	74.5	381
MAX	347	543	6400	13500	8810	8180	14300	5250	2870	1170	165	1490
MIN	60	112	414	1080	1530	1520	1340	700	219	61	46	51
CFSM	.08	.18	1.14	3.26	2.40	2.74	3.61	.97	.51	.20	.05	.27
IN.	.10	.20	1.32	3.75	2.50	3.16	4.03	1.12	.57	.23	.06	.30

CAL YR 1986 TOTAL 343545 MEAN 941 MAX 6400 MIN 36 CFSM .66 IN. 8.99
WTR YR 1987 TOTAL 662298 MEAN 1815 MAX 14300 MIN 46 CFSM 1.28 IN. 17.34

e Estimated.

02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947, 1978 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1946 to September 1947.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCTANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV												
19...	1100	247	90	91	6.80	7.30	10.5	758	2.7	--	--	54
FEB												
13...	0900	1700	62	65	6.40	7.02	4.0	755	7.2	11.7	90	42
MAY												
06...	1000	1710	60	67	6.50	7.13	16.0	756	5.0	7.8	80	42
AUG												
14...	1000	58	98	114	6.90	8.00	24.0	751	0.90	6.1	74	35

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV												
19...	44	26	2	6.6	2.3	6.8	3.3	26	25	24	29	14
FEB												
13...	290	17	8	4.3	1.5	4.2	1.5	11	9	9.0	11	12
MAY												
06...	56	19	4	4.9	1.7	4.1	1.7	16	15	15	18	12
AUG												
14...	48	33	1	8.4	3.0	7.0	2.3	34	32	32	39	10

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (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)
NOV												
19...	8.1	<0.10	17	56	73	<0.010	<0.100	<0.010	<0.010	0.80	0.060	0.020
FEB												
13...	6.3	<0.10	11	58	47	<0.010	0.180	<0.010	<0.010	0.50	0.020	0.010
MAY												
06...	4.7	<0.10	9.5	53	49	<0.010	0.140	0.040	0.040	0.80	0.060	0.060
AUG												
14...	6.2	0.10	13	68	70	<0.010	0.100	0.030	0.020	0.90	0.040	0.020

02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV												
19...	0.010	40	<1	28	<0.5	<1	<1	<3	3	610	<5	4
FEB												
13...	<0.010	190	<1	28	<0.5	<1	<1	<3	1	320	<5	<4
MAY												
06...	0.020	120	<1	35	<0.5	<1	<1	<3	<1	850	<5	<4
AUG												
14...	<0.010	10	<1	29	0.6	<1	<1	<3	1	240	<5	<4

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
19...	28	<0.1	<10	2	<1	<1	51	<6	14	6	33
FEB											
13...	27	<0.1	<10	1	<1	<1	29	<6	18	10	84
MAY											
06...	61	<0.1	<10	<1	<1	<1	40	<6	16	16	95
AUG											
14...	180	0.2	<10	3	<1	<1	75	<6	4	11	77

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 mi².

PERIOD OF RECORD.--March 1982 to November 1987 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 20 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good for period October 1986 to September 1987 except those for periods of no gage-height record, Jan. 7-20, 26-31, which are fair. No estimated daily discharges for period October to November 1987. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--5 years, 95.6 ft³/s, 15.03 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,480 ft³/s, Apr. 18, 1987, gage height, 9.34 ft; no flow at times each year.

EXTREMES FOR CURRENT PERIOD OCTOBER 1986 TO SEPTEMBER 1987.--Maximum discharge, 3,480 ft³/s, Apr. 18, gage height, 9.34 ft; no flow many days during year.

October to November 1987: Maximum discharge during period, 2.6 ft³/s, Oct. 9, gage height, 1.96 ft; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.04	35	135	222	334	127	192	6.0	.00	.00	.00
2	.00	.04	41	178	242	388	148	146	4.6	.00	.00	.00
3	.00	.05	53	202	252	436	158	119	4.9	.00	.00	.00
4	.00	.04	51	248	250	463	150	110	37	.00	.00	.00
5	.00	.04	48	289	238	376	134	93	79	.00	.00	.00
6	.00	.04	48	263	218	275	122	82	184	.00	.00	.00
7	.00	.05	59	e184	200	204	111	77	418	.00	.00	.00
8	.00	.06	61	e130	180	166	103	76	373	.00	.00	.00
9	.00	.08	52	e95	156	148	93	71	232	.00	.00	.00
10	.00	.08	45	e82	137	245	84	62	123	.00	.00	.00
11	.00	.05	49	e88	119	275	76	55	60	.00	.00	.00
12	.00	.17	70	e92	110	288	72	48	34	.00	.00	.00
13	.00	.80	75	e78	103	298	75	42	20	.00	.00	.00
14	.00	1.9	82	e72	97	272	74	40	14	.00	.00	2.8
15	.00	4.0	97	e69	93	228	78	46	8.8	.00	.00	2.8
16	.00	7.5	95	e68	89	192	261	50	5.2	.00	.00	1.5
17	.00	13	79	e67	97	176	2220	46	4.0	.00	.00	1.2
18	.00	11	66	e100	134	156	3050	40	2.8	.00	.00	1.2
19	.00	11	58	e400	160	146	1460	36	1.4	.00	.00	.62
20	.00	12	50	e800	186	139	724	32	.80	.00	.00	2.2
21	.00	18	43	1780	206	130	479	28	.20	.00	.00	12
22	.00	21	38	1270	222	122	367	26	.11	.00	.00	14
23	.00	20	35	1090	372	111	260	23	.02	.00	.00	9.6
24	.00	20	54	1120	622	100	218	20	.02	.00	.00	4.9
25	.00	23	138	888	849	92	406	18	.01	.00	.00	2.4
26	.04	25	212	e440	695	84	685	18	.01	.00	.00	1.5
27	.12	27	352	e210	482	78	757	18	.04	.00	.00	.98
28	.08	27	385	e140	352	83	553	17	.01	.00	.00	.50
29	.05	28	313	e115	---	89	379	16	.00	.00	.00	.15
30	.05	31	224	e95	---	99	268	45	.00	.00	.00	.18
31	.04	---	162	e130	---	116	---	9.6	---	.00	.00	---
TOTAL	.38	301.94	3170	10918	7083	6309	13692	1701.6	1612.92	.00	.00	58.53
MEAN	.01	10.1	102	352	253	204	456	54.9	53.8	.00	.00	1.95
MAX	.12	31	385	1780	849	463	3050	192	418	.00	.00	14
MIN	.00	.04	35	67	89	78	72	9.6	.00	.00	.00	.00
CFSM	.00	.12	1.18	4.07	2.93	2.36	5.28	.64	.62	.00	.00	.02
IN.	.00	.13	1.36	4.70	3.05	2.72	5.90	.73	.69	.00	.00	.03

CAL YR 1986 TOTAL 18438.58 MEAN 50.5 MAX 520 MIN .00 CFSM .58 IN. 7.94
WTR YR 1987 TOTAL 44847.37 MEAN 123 MAX 3050 MIN .00 CFSM 1.42 IN. 19.31

e Estimated.

02047100 ASSAMOOSICK SWAMP NEAR SEBRELL, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER TO NOVEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.38	.01	---	---	---	---	---	---	---	---	---	---
2	.15	.01	---	---	---	---	---	---	---	---	---	---
3	.15	.01	---	---	---	---	---	---	---	---	---	---
4	.15	.01	---	---	---	---	---	---	---	---	---	---
5	.06	.01	---	---	---	---	---	---	---	---	---	---
6	.02	.01	---	---	---	---	---	---	---	---	---	---
7	.74	.01	---	---	---	---	---	---	---	---	---	---
8	1.5	.00	---	---	---	---	---	---	---	---	---	---
9	2.3	.00	---	---	---	---	---	---	---	---	---	---
10	1.8	.49	---	---	---	---	---	---	---	---	---	---
11	1.6	---	---	---	---	---	---	---	---	---	---	---
12	1.4	---	---	---	---	---	---	---	---	---	---	---
13	1.1	---	---	---	---	---	---	---	---	---	---	---
14	.80	---	---	---	---	---	---	---	---	---	---	---
15	.50	---	---	---	---	---	---	---	---	---	---	---
16	.26	---	---	---	---	---	---	---	---	---	---	---
17	.15	---	---	---	---	---	---	---	---	---	---	---
18	.09	---	---	---	---	---	---	---	---	---	---	---
19	.02	---	---	---	---	---	---	---	---	---	---	---
20	.01	---	---	---	---	---	---	---	---	---	---	---
21	.01	---	---	---	---	---	---	---	---	---	---	---
22	.00	---	---	---	---	---	---	---	---	---	---	---
23	.00	---	---	---	---	---	---	---	---	---	---	---
24	.00	---	---	---	---	---	---	---	---	---	---	---
25	.00	---	---	---	---	---	---	---	---	---	---	---
26	.00	---	---	---	---	---	---	---	---	---	---	---
27	.00	---	---	---	---	---	---	---	---	---	---	---
28	.01	---	---	---	---	---	---	---	---	---	---	---
29	.02	---	---	---	---	---	---	---	---	---	---	---
30	.02	---	---	---	---	---	---	---	---	---	---	---
31	.02	---	---	---	---	---	---	---	---	---	---	---
TOTAL	13.26	---	---	---	---	---	---	---	---	---	---	---
MEAN	.43	---	---	---	---	---	---	---	---	---	---	---
MAX	2.3	---	---	---	---	---	---	---	---	---	---	---
MIN	.00	---	---	---	---	---	---	---	---	---	---	---
CFSM	.00	---	---	---	---	---	---	---	---	---	---	---
IN.	.01	---	---	---	---	---	---	---	---	---	---	---

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 mi².

PERIOD OF RECORD.--October 1942 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 8.56 ft above National Geodetic Vertical Datum of 1929. Prior to July 18, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of backwater from beaver dam, Oct. 1 to Dec. 3 and July 21 to Sept. 30, and period of no gage-height record, Jan. 28-29, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--45 years, 501 ft³/s, 14.92 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft³/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 ft³/s, from rating curve extended above 5,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,200 ft³/s, Jan. 24, gage height, 14.90 ft; minimum daily, 0.09 ft³/s, Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.5	e1.0	e75	1180	2320	2620	614	2500	569	74	e1.9	e1.1
2	e1.7	e1.0	e90	1310	2120	2770	598	2050	437	39	e2.3	e.35
3	e1.6	e1.3	e110	1370	2030	2760	560	1610	362	79	e1.6	e.17
4	e1.4	e1.8	134	1390	1970	2600	544	1270	679	111	e1.1	e.09
5	e1.3	e2.3	138	1370	1880	2320	564	1020	2270	106	e.90	e.28
6	e1.1	e2.7	154	1250	1770	1970	583	846	3540	181	e.85	e1.0
7	e1.1	e3.2	168	1090	1670	1650	570	744	4240	211	e1.2	e17
8	e1.0	e4.4	169	997	1560	1420	533	669	3740	139	e1.5	e16
9	e.95	e6.0	160	946	1460	1250	493	572	2810	91	e5.0	e10
10	e.82	e5.8	152	921	1360	1210	461	483	1900	81	e5.6	e8.0
11	e.74	e3.0	155	876	1250	1180	433	410	1190	81	e4.0	e6.4
12	e.56	e2.4	199	807	1190	1230	418	361	767	77	e2.6	e4.8
13	e.76	e2.5	246	722	1080	1280	426	328	543	74	e2.3	e4.5
14	e5.0	e2.8	273	623	948	1170	426	301	397	63	e1.9	e3.5
15	e5.4	e2.9	285	531	843	1040	411	278	289	54	e1.6	e2.5
16	e4.0	e3.0	287	454	772	1000	505	286	202	55	e1.3	e1.3
17	e3.3	e3.2	284	404	763	1030	937	267	130	72	e1.2	e1.2
18	e2.0	e4.6	278	431	743	1020	1480	240	92	80	e1.1	e1.0
19	e1.8	e5.4	274	941	737	956	2910	232	68	64	e4.5	e1.2
20	e1.6	e9.5	266	2370	793	871	3990	215	49	33	e8.0	e3.0
21	e1.3	e10	253	3970	851	764	4330	219	32	e20	e12	e5.5
22	e1.1	e12	234	5000	911	669	4060	213	16	e8.0	e13	e6.2
23	e.95	e15	211	5750	1300	600	3420	175	6.4	e5.4	e3.2	e3.7
24	e.90	e19	214	6110	1900	537	2690	134	7.6	e4.2	e1.3	e1.7
25	e.85	e25	428	6060	2500	484	2720	129	15	e3.7	e.70	e1.3
26	e1.4	e33	627	5440	2870	458	3130	206	13	e3.3	e.56	e1.2
27	e2.0	e28	855	4440	2840	440	3850	347	108	e2.8	e.50	e1.0
28	e2.5	e27	1040	e3700	2650	454	3930	580	391	e2.3	e1.6	e.90
29	e1.7	e32	1130	e3300	---	475	3420	810	405	e.40	e3.6	e.85
30	e1.2	e46	1120	2960	---	487	2920	835	194	e.35	e3.3	e.80
31	e1.1	---	1130	2580	---	534	---	724	---	e1.0	e3.0	---
TOTAL	53.63	315.8	11139	69293	43081	37249	51926	19054	25462.0	1816.45	93.21	106.54
MEAN	1.73	10.5	359	2235	1539	1202	1731	615	849	58.6	3.01	3.55
MAX	5.4	46	1130	6110	2870	2770	4330	2500	4240	211	13	17
MIN	.56	1.0	75	404	737	440	411	129	6.4	.35	.50	.09
CFSM	.00	.02	.79	4.90	3.38	2.64	3.80	1.35	1.86	.13	.01	.01
IN.	.00	.03	.91	5.65	3.51	3.04	4.24	1.55	2.08	.15	.01	.01

CAL YR 1986 TOTAL 88371.19 MEAN 242 MAX 1430 MIN .05 CFSM .53 IN. 7.21
WTR YR 1987 TOTAL 259589.63 MEAN 711 MAX 6110 MIN .09 CFSM 1.56 IN. 21.18

e Estimated.

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1944 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of tidal effect below 20 ft³/s during October, November, and July to September, which are poor. Low flow reversed by tide some years. Diversion upstream from station by city of Norfolk for municipal water supply most years.

AVERAGE DISCHARGE.--43 years, 641 ft³/s, 14.11 in/yr, adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s, Sept. 14, 1960, gage height, 17.14 ft, from flood-marks; minimum daily, 0.07 ft³/s, Oct. 16, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 22 ft, discharge, 21,000 ft³/s, from rating curve extended above 9,400 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,600 ft³/s, Jan. 24-25, gage height, 13.67 ft; minimum daily, 0.20 ft³/s, Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.8	48	1040	2090	2560	740	2690	653	235	1.5	1.2
2	1.4	2.4	60	1260	1890	2690	753	2350	571	113	1.8	.33
3	1.7	3.2	92	1440	1740	2790	723	2010	468	70	2.1	.27
4	1.8	2.4	133	1470	1640	2740	699	1690	476	69	1.9	.24
5	1.7	4.4	156	1460	1570	2570	697	1410	844	89	1.4	.20
6	2.5	5.6	161	1390	1480	2290	696	1200	1800	97	1.4	3.6
7	.93	4.8	178	1250	1380	1990	695	1030	2880	140	.60	7.1
8	2.1	4.7	169	1090	1280	1720	676	903	3240	165	1.6	14
9	3.6	6.4	162	975	1180	1510	641	807	2920	126	2.4	13
10	1.6	6.2	156	903	1090	1500	603	713	2350	89	4.7	8.8
11	1.1	4.7	159	876	1010	1560	568	626	1760	76	5.2	5.7
12	.80	4.5	192	863	948	1600	540	548	1240	72	3.6	5.9
13	1.8	4.8	230	802	899	1590	544	479	837	70	3.3	8.0
14	19	4.7	267	725	845	1520	547	429	610	69	2.7	5.9
15	8.0	4.9	293	656	776	1390	542	393	462	77	6.7	1.9
16	1.9	5.1	301	589	714	1260	626	367	330	65	15	3.0
17	1.2	5.2	295	533	727	1180	1190	359	232	56	13	3.3
18	1.0	5.6	286	557	860	1150	1980	332	156	56	7.8	3.6
19	.93	16	280	1080	952	1130	2610	282	104	61	5.7	3.9
20	1.0	9.4	271	2440	975	1080	3070	258	81	58	2.7	7.3
21	1.0	6.0	260	3520	1000	1000	3520	236	65	43	1.2	3.9
22	1.7	6.2	243	4420	1050	901	3650	227	49	24	1.7	7.8
23	2.3	7.6	222	5290	1410	807	3460	220	34	9.7	3.8	4.7
24	1.8	11	240	5560	2000	729	3050	196	23	5.9	.93	2.7
25	1.6	24	618	5560	2410	674	3000	176	17	9.0	.87	3.2
26	2.0	32	869	5310	2640	623	3360	179	17	7.6	1.6	3.3
27	5.6	36	935	e4740	2690	588	3700	194	28	3.3	1.6	5.6
28	4.1	33	1040	e3950	2600	598	3780	293	84	1.5	3.2	5.6
29	2.3	34	1090	e3240	---	628	3540	485	303	.53	2.9	2.4
30	2.3	49	1080	2730	---	631	3090	645	358	.53	2.7	1.9
31	1.9	---	1040	2380	---	657	---	695	---	1.6	2.1	---
TOTAL	81.86	345.6	11526	68099	39846	43656	53290	22422	22992	1959.66	107.70	138.34
MEAN	2.64	11.5	372	2197	1423	1408	1776	723	766	63.2	3.47	4.61
MAX	19	49	1090	5560	2690	2790	3780	2690	3240	235	15	14
MIN	.80	1.8	48	533	714	588	540	176	17	.53	.60	.20
(*)	7.07	22.1	36.3	28.6	.00	.00	.00	.00	15.2	33.6	32.4	32.5
MEAN‡	9.71	33.6	408	2226	1423	1408	1776	723	781	96.8	35.9	37.1
CFSM‡	.02	.05	.66	3.61	2.31	2.28	2.88	1.17	1.27	.16	.06	.06
IN.‡	.02	.06	.76	4.16	2.40	2.63	3.21	1.35	1.41	.18	.07	.07

CAL YR 1986 TOTAL 108652.08 MEAN 298 MAX 1520 MIN .10 MEAN‡ 316 CFSM‡ .51 IN.‡ 6.96
WTR YR 1987 TOTAL 264464.16 MEAN 725 MAX 5560 MIN .20 MEAN‡ 742 CFSM‡ 1.20 IN.‡ 16.33

* Average diversion, in cubic feet per second, by city of Norfolk.
‡ Adjusted for diversion.
e Estimated.

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 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV												
18...	1100	5.6	180	178	6.70	7.10	11.5	753	1.8	--	--	62
FEB												
12...	1100	950	86	90	6.40	6.80	3.5	745	3.4	11.5	89	35
MAY												
05...	1000	1430	68	78	6.20	6.98	16.5	760	4.5	5.4	55	36
AUG												
13...	1300	3.2	108	112	6.60	7.20	28.5	756	2.5	3.1	40	46

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV												
18...	40	66	30	21	3.3	6.9	3.5	38	35	36	43	27
FEB												
12...	82	28	21	8.6	1.6	3.5	1.8	10	8	7.0	9.0	16
MAY												
05...	46	25	12	7.9	1.3	3.8	1.5	15	13	13	16	11
AUG												
13...	K2300	43	9	14	2.0	4.2	1.9	36	34	34	41	20

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (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)
NOV												
18...	11	<0.10	8.1	133	100	<0.010	<0.100	0.010	0.020	0.50	0.050	0.020
FEB												
12...	9.5	<0.10	5.5	68	51	<0.010	0.490	<0.010	<0.010	0.50	0.010	0.010
MAY												
05...	6.4	0.10	4.1	70	46	0.010	0.200	0.080	0.080	1.1	0.050	0.050
AUG												
13...	7.4	0.10	7.8	96	79	<0.010	<0.100	0.030	0.030	1.5	0.070	0.020

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV												
18...	<0.010	10	<1	65	<0.5	1	<1	<3	7	250	<5	5
FEB												
12...	<0.010	150	<1	38	<0.5	<1	<1	<3	2	200	<5	<4
MAY												
05...	0.010	190	<1	120	<0.5	<1	<1	<3	2	940	<5	5
AUG												
13...	<0.010	20	1	52	<0.5	<1	<1	<3	1	740	<5	<4

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
18...	230	<0.1	<10	4	<1	<1	110	<6	10	7	81
FEB											
12...	13	<0.1	<10	2	<1	<1	42	<6	20	4	90
MAY											
05...	60	<0.1	<10	<1	<1	<1	46	<6	41	8	97
AUG											
13...	550	<0.1	<10	3	<1	<1	85	<6	7	11	82

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 mi².
PERIOD OF RECORD.--August 1946 to September 1980, October 1981 to current year.
REVISED RECORDS.--WSP 1303: 1947(M), 1949(M). WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 333.7 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to July 5, 1951, nonrecording gage at same site and datum. July 5, 1951, to July 11, 1980, water-stage recorder at site 20 ft downstream at same datum.
REMARKS.--Records good except for period of doubtful or no gage-height record, Oct. 1 to Nov. 25, which is fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--40 years, 53.0 ft³/s, 12.94 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,400 ft³/s, Oct. 23, 1971, gage height, 28.30 ft, from rating curve extended above 1,700 ft³/s on basis of slope-area measurement of peak flow; no flow Sept. 5-21, Oct. 8-14, 1954.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 48 ft, from information by local resident.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 17	1030	*1,410	*9.64		No peak equal to or greater than base discharge.		

Minimum daily discharge, 1.0 ft³/s, Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.0	e3.2	12	105	86	486	48	43	12	5.2	2.7	1.4
2	e1.9	e3.4	38	234	100	202	39	41	12	6.2	2.8	1.4
3	e1.8	e3.5	121	84	202	108	36	38	13	9.2	2.7	1.4
4	e1.7	e3.5	39	49	212	79	48	37	76	15	2.4	1.2
5	e1.6	e4.0	23	37	142	66	45	39	80	31	2.1	1.2
6	e1.3	e3.8	18	30	88	58	40	34	26	12	2.5	5.4
7	e1.0	e4.2	16	27	83	53	38	30	17	13	2.5	39
8	e1.1	e9.0	14	24	90	49	36	30	13	8.9	2.4	309
9	e1.2	e16	15	22	79	57	34	27	10	6.9	2.2	43
10	e1.6	e9.4	39	23	50	68	31	24	9.8	5.6	3.8	15
11	e1.3	e6.6	96	24	43	57	31	22	8.4	5.2	3.9	9.5
12	e1.2	e8.8	93	21	42	48	31	21	8.4	7.4	2.5	8.8
13	e1.4	e15	40	20	45	45	31	28	11	21	2.0	227
14	e12	e13	26	18	37	41	29	28	10	8.4	1.8	36
15	e5.0	e12	22	18	35	40	182	26	9.8	6.7	1.6	16
16	e3.1	e11	20	18	31	46	426	22	9.5	5.4	2.1	11
17	e2.0	e9.5	19	18	35	67	569	20	8.4	4.5	2.8	8.4
18	e1.7	e8.7	19	110	42	58	210	19	7.6	4.1	2.7	6.7
19	e1.5	e8.0	20	315	39	53	123	17	7.4	3.6	6.4	5.8
20	e1.4	e9.6	17	203	38	56	91	17	7.4	3.3	6.7	20
21	e1.2	e12	16	80	49	46	73	17	7.4	3.1	3.9	16
22	e1.2	e18	15	e57	103	41	63	18	7.4	2.8	3.0	10
23	e1.3	e14	15	e52	343	39	54	17	13	2.5	2.7	7.9
24	e1.6	e12	117	e46	268	37	79	19	14	2.2	2.4	6.4
25	e2.5	e13	188	41	195	35	284	34	10	2.0	2.1	5.6
26	e5.9	20	66	e39	155	35	226	22	9.5	1.9	2.1	5.2
27	e11	40	42	e37	115	34	102	20	17	3.1	2.2	4.7
28	e7.2	21	33	e35	179	42	77	17	8.9	2.2	2.4	4.5
29	e3.5	16	26	37	---	40	62	16	6.9	1.6	2.2	4.1
30	e3.2	14	24	46	---	41	53	14	5.8	1.4	1.8	188
31	e3.0	---	22	116	---	64	---	13	---	1.5	1.4	---
TOTAL	87.4	342.2	1271	1986	2926	2191	3191	770	456.6	206.9	84.8	1019.6
MEAN	2.82	11.4	41.0	64.1	105	70.7	106	24.8	15.2	6.67	2.74	34.0
MAX	12	40	188	315	343	486	569	43	80	31	6.7	309
MIN	1.0	3.2	12	18	31	34	29	13	5.8	1.4	1.4	1.2
CFSM	.05	.21	.74	1.15	1.89	1.27	1.91	.45	.27	.12	.05	.61
IN.	.06	.23	.85	1.33	1.96	1.47	2.13	.52	.31	.14	.06	.68

CAL YR 1986 TOTAL 9344.9 MEAN 25.6 MAX 292 MIN 1.0 CFSM .46 IN. 6.25
WTR YR 1987 TOTAL 14532.5 MEAN 39.8 MAX 569 MIN 1.0 CFSM .72 IN. 9.72

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1932(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 136.56 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 17, 1931, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--59 years, 503 ft³/s, 12.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft³/s, Aug. 17, 1940, gage height, 42.0 ft, from floodmark, from rating curve extended above 13,000 ft³/s on basis of velocity-area studies and records for Nottoway River near Stony Creek; minimum, 4.2 ft³/s, Oct. 7, 8, 1954; minimum gage height, 0.72 ft, Sept. 23, 24, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	2400	5,650	17.75	Mar. 2	2400	8,460	22.24
Jan. 21	0430	7,710	21.22	Apr. 18	Unknown	*14,100	*a28.26
Feb. 25	0100	6,220	18.81				

a From high-water mark.

Minimum discharge, 33 ft³/s, Oct. 10-11, gage height, 1.58 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	68	153	432	1080	4530	832	621	246	119	55	109
2	45	67	175	3110	1050	7150	637	555	269	116	54	77
3	43	82	435	2620	1340	6680	534	547	306	328	54	59
4	48	62	761	874	2240	1290	511	519	348	421	53	54
5	37	59	425	605	1690	869	514	532	421	276	55	53
6	35	68	275	475	1160	731	509	504	502	425	72	77
7	34	68	209	417	884	646	468	465	332	281	90	84
8	35	97	187	376	802	606	449	449	254	184	75	1050
9	45	170	164	339	751	675	423	433	213	156	82	3520
10	38	213	181	319	650	2330	399	400	182	137	57	706
11	33	136	408	327	532	1490	371	377	178	124	48	331
12	34	122	1380	304	475	907	378	356	189	136	48	249
13	37	123	865	285	464	741	428	446	158	173	55	337
14	103	170	471	268	456	655	384	502	175	298	48	564
15	177	139	344	256	436	597	514	449	187	196	46	330
16	118	134	277	248	416	576	4810	409	173	137	78	204
17	98	116	248	253	406	651	e11500	359	165	115	67	152
18	72	102	227	412	495	715	e13600	341	153	106	52	135
19	60	97	214	3240	528	635	8920	316	151	103	55	115
20	54	94	207	6660	497	623	2390	728	156	96	79	114
21	51	123	192	6720	541	606	1120	414	145	80	79	140
22	49	157	177	1890	814	545	913	358	126	73	71	195
23	48	227	173	1810	3490	496	773	335	138	70	67	147
24	48	163	785	951	5790	463	769	324	162	69	56	114
25	48	140	5100	751	4810	448	2100	303	188	67	48	98
26	77	158	3590	645	1860	441	3320	284	172	66	46	90
27	155	268	835	538	1420	427	1850	307	180	65	50	86
28	193	300	559	566	1350	898	1050	292	174	62	59	83
29	124	269	441	558	---	821	841	280	137	57	77	80
30	88	190	376	553	---	625	714	269	129	57	108	81
31	75	---	335	707	---	668	---	258	---	57	72	---
TOTAL	2149	4182	20169	37509	36427	39535	62021	12732	6309	4650	1956	9434
MEAN	69.3	139	651	1210	1301	1275	2067	411	210	150	63.1	314
MAX	193	300	5100	6720	5790	7150	13600	728	502	425	108	3520
MIN	33	59	153	248	406	427	371	258	126	57	46	53
CFSM	.13	.25	1.18	2.19	2.36	2.31	3.75	.75	.38	.27	.11	.57
IN.	.14	.28	1.36	2.53	2.45	2.66	4.18	.86	.43	.31	.13	.64

CAL YR 1986 TOTAL 114495 MEAN 314 MAX 5100 MIN 26 CFSM .57 IN. 7.72
WTR YR 1987 TOTAL 237073 MEAN 650 MAX 13600 MIN 33 CFSM 1.18 IN. 15.98

e Estimated.

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 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1951 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 67.17 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for periods of doubtful gage-height record, July 24-28, 30, 31, and Aug. 3, 6, 9, 12, 15-17, which are fair. Prior to November 1965 and since April 1986, low and medium flow regulated by powerplant 0.8 mi upstream from station.

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

AVERAGE DISCHARGE.--36 years, 706 ft³/s, 12.83 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,100 ft³/s, Oct. 8, 1972, gage height, 27.38 ft; minimum, 5.0 ft³/s, Nov. 11, 1954, gage height, 1.00 ft; minimum daily, 7.1 ft³/s, July 20, 1986.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 31.5 ft, from floodmarks, discharge, about 40,000 ft³/s, from rating curve extended above 18,000 ft³/s on basis of record for station near Lawrenceville.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,600 ft³/s, Apr. 18, gage height, 25.29 ft; minimum discharge, 8.4 ft³/s, Oct. 9, gage height, 1.51 ft; minimum daily, 10 ft³/s, Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	169	199	714	1700	4520	1500	1280	518	255	81	67
2	59	82	254	3450	1870	7140	1340	1080	405	108	62	127
3	61	18	617	4930	1930	8300	1050	1040	480	363	e40	99
4	77	78	1050	2640	2660	5490	930	1100	572	461	138	64
5	43	122	1010	1350	3090	2200	946	1050	682	444	74	102
6	21	96	339	1010	2180	1460	849	1060	602	536	e50	133
7	13	46	524	603	1620	1330	905	779	517	518	120	107
8	10	90	166	730	1380	1190	775	1020	453	353	70	455
9	77	113	227	562	1270	1240	660	768	489	226	e48	3390
10	64	362	315	560	1160	2750	734	650	264	257	127	2630
11	93	209	361	377	983	4020	601	783	241	77	62	704
12	55	114	1740	696	876	2330	595	607	271	101	e38	345
13	26	127	1970	333	716	1670	781	620	223	579	55	520
14	22	136	966	330	751	1350	683	972	133	442	44	791
15	329	199	624	462	620	1200	827	850	315	234	e30	496
16	113	154	467	464	680	1060	4440	897	219	142	e80	301
17	164	180	347	378	908	1270	9660	335	304	438	e70	441
18	109	162	313	845	917	1350	15700	748	268	81	45	245
19	158	100	350	3530	1020	1240	14500	511	199	67	35	131
20	72	161	174	7800	1140	1220	7800	983	110	186	66	109
21	17	169	274	8190	1090	1160	3000	1020	201	72	140	254
22	13	164	418	6360	1260	972	2000	683	276	148	81	179
23	22	169	331	4710	4140	921	1660	352	116	76	105	265
24	73	297	770	2790	6660	793	1710	653	281	e48	31	136
25	56	246	5220	1790	7210	792	3510	729	272	e29	109	61
26	86	163	6700	1440	4780	768	5200	488	281	e18	62	62
27	238	290	3400	1160	2980	787	4250	459	93	e14	45	154
28	207	394	1380	1080	2390	1030	2430	587	301	e30	42	192
29	157	467	970	974	---	1840	1750	555	274	70	44	113
30	127	271	558	e900	---	1280	1510	210	83	e35	80	63
31	171	---	690	1250	---	1250	---	295	---	e47	163	---
TOTAL	2799	5348	32724	62408	57981	63923	92296	23164	9443	6455	2237	12736
MEAN	90.3	178	1056	2013	2071	2062	3077	747	315	208	72.2	425
MAX	329	467	6700	8190	7210	8300	15700	1280	682	579	163	3390
MIN	10	18	166	330	620	768	595	210	83	14	30	61
CFSM	.12	.24	1.41	2.70	2.77	2.76	4.12	1.00	.42	.28	.10	.57
IN.	.14	.27	1.63	3.11	2.89	3.18	4.60	1.15	.47	.32	.11	.63

CAL YR 1986 TOTAL 176944.5 MEAN 485 MAX 6700 MIN 7.1 CFSM .65 IN. 8.81
WTR YR 1987 TOTAL 371514.0 MEAN 1018 MAX 15700 MIN 10 CFSM 1.36 IN. 18.50

e Estimated.

02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to September 1971, October 1972 to September 1978.
WATER TEMPERATURE: April 1968 to September 1971, October 1972 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV												
18...	1415	180	89	90	6.70	7.30	10.5	748	5.4	--	--	120
FEB												
12...	1630	838	64	68	6.60	7.44	4.0	744	11	12.2	95	110
MAY												
05...	1600	1080	65	72	6.60	7.39	18.0	756	10	7.8	83	290
AUG												
19...	1330	19	87	91	6.40	7.30	27.0	751	3.5	1.8	23	34

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV												
18...	170	28	0	6.6	2.9	6.4	2.8	33	30	30	37	7.0
FEB												
12...	170	19	3	4.3	1.9	4.7	1.2	18	16	16	20	9.1
MAY												
05...	54	20	0	4.6	2.0	4.8	1.5	23	20	20	24	6.9
AUG												
19...	150	25	0	4.9	3.0	7.0	2.5	31	31	31	37	4.8

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF 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, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
NOV												
18...	5.8	<0.10	19	77	70	<0.010	<0.100	0.030	0.040	1.1	0.020	0.020
FEB												
12...	4.0	<0.10	16	62	52	<0.010	0.120	0.010	0.020	0.30	0.020	<0.010
MAY												
05...	3.8	<0.10	17	54	53	<0.010	<0.100	0.040	0.040	0.60	0.050	0.050
AUG												
19...	5.3	0.20	16	59	63	<0.010	<0.100	0.180	0.180	0.70	0.010	0.020

02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV												
18...	0.010	20	<1	23	<0.5	1	<1	<3	3	660	<5	4
FEB												
12...	<0.010	130	<1	20	<0.5	<1	<1	<3	2	310	<5	<4
MAY												
05...	0.020	70	<1	28	<0.5	<1	<1	<3	<1	460	<5	<4
AUG												
19...	<0.010	20	<1	29	<0.5	<1	<1	<3	1	300	<5	<4

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
18...	110	3.2	<10	4	<1	<1	48	<6	15	17	95
FEB											
12...	52	<0.1	<10	1	<1	<1	29	<6	11	11	82
MAY											
05...	86	<0.1	<10	<1	<1	<1	38	<6	15	21	97
AUG											
19...	260	<0.1	<10	<1	<1	<1	57	<6	9	8	87

02052500 FOUNTAINS CREEK NEAR BRINK, VA

LOCATION.--Lat 36°36'55", long 77°42'00", Greensville 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 southwest of Emporia.

DRAINAGE AREA.--65.2 mi².

PERIOD OF RECORD.--October 1953 to current year. Prior to October 1980, published as Fontaine Creek near Brink.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 152.59 ft above National Geodetic Vertical Datum of 1929.

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

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

AVERAGE DISCHARGE.--34 years, 69.6 ft³/s, 14.50 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s, Oct. 6, 1972, gage height, 24.14 ft, from floodmark, from rating curve extended above 3,000 ft³/s; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	1200	1,160	11.88	Feb. 23	2145	1,490	13.19
Jan. 2	1400	960	11.08	Mar. 2	0100	1,600	13.58
Jan. 20	0330	*2,870	*16.34	Apr. 17	1015	2,030	14.83
Jan. 23	0715	1,470	13.12	Apr. 25	1815	1,230	12.17

No flow many days in August and September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	3.8	7.6	126	e130	1060	141	70	12	2.0	.02	.0
2	2.5	3.2	19	873	129	1240	86	60	25	1.8	.02	.0
3	2.2	3.5	61	495	119	387	68	55	28	1.8	.02	.0
4	2.3	3.9	37	190	100	175	69	53	55	2.5	.02	.0
5	1.9	3.5	23	92	79	121	65	55	56	6.2	.02	.01
6	1.6	3.7	16	67	68	100	60	51	32	9.5	.02	.02
7	1.6	3.8	12	57	64	89	57	46	21	5.5	.01	.02
8	1.5	5.6	9.2	51	62	83	53	49	15	4.0	.01	.02
9	1.5	4.8	8.5	45	56	89	48	47	10	2.8	.01	.78
10	1.6	4.6	10	45	50	561	44	41	7.4	2.0	.01	2.5
11	1.6	4.7	50	54	48	533	41	33	5.6	1.4	.01	3.4
12	2.0	7.3	92	50	48	308	41	28	4.9	1.4	.01	6.1
13	2.6	11	62	43	48	168	50	30	4.8	2.4	.0	6.7
14	2.7	8.8	36	37	46	125	52	43	5.6	3.9	.0	5.1
15	3.1	10	23	35	47	104	100	44	6.0	10	.01	3.7
16	3.9	12	19	33	47	98	1090	35	6.2	4.4	.01	6.2
17	4.1	11	16	36	81	114	1840	28	7.0	2.6	.01	5.1
18	3.5	9.7	15	166	127	97	760	25	5.2	1.7	.01	4.1
19	4.1	8.2	15	1130	154	90	314	22	4.8	1.3	.01	3.3
20	4.5	6.7	13	2210	139	97	183	25	4.1	1.1	.01	5.4
21	4.0	15	10	683	154	83	132	27	3.7	.82	.01	6.8
22	3.9	15	8.9	590	201	72	107	28	3.4	.58	.01	5.8
23	4.0	12	8.5	1280	1160	64	86	26	3.4	.71	.01	4.5
24	3.6	10	227	537	1260	58	180	22	3.7	.64	.01	3.6
25	3.9	11	1080	208	582	55	1010	20	3.7	.36	.0	2.7
26	13	10	589	149	335	54	1030	40	6.1	.18	.0	2.3
27	16	11	180	115	250	51	416	26	7.0	.10	.0	1.8
28	12	11	83	e84	286	109	178	22	4.4	.07	.01	1.6
29	5.2	10	58	e70	---	103	116	20	3.1	.05	.01	1.4
30	3.4	9.2	49	e60	---	80	89	18	2.4	.03	.0	1.4
31	3.3	---	43	e75	---	169	---	15	---	.03	.0	---
TOTAL	123.5	244.0	2880.7	9686	5870	6537	8506	1104	356.5	71.87	.30	84.35
MEAN	3.98	8.13	92.9	312	210	211	284	35.6	11.9	2.32	.01	2.81
MAX	16	15	1080	2210	1260	1240	1840	70	56	10	.02	6.8
MIN	1.5	3.2	7.6	33	46	51	41	15	2.4	.03	.00	.00
CFSM	.06	.13	1.43	4.79	3.22	3.24	4.36	.55	.18	.04	.00	.04
IN.	.07	.14	1.64	5.53	3.35	3.73	4.85	.63	.20	.04	.00	.05

CAL YR 1986 TOTAL 15099.99 MEAN 41.4 MAX 1080 MIN .04 CFSM .64 IN. 8.62
WTR YR 1987 TOTAL 35464.22 MEAN 97.2 MAX 2210 MIN .00 CFSM 1.49 IN. 20.23

e Estimated.

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 mi².

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

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,361.87 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1974, water-stage recorder, and Aug. 26, 1974, to July 24, 1975, nonrecording gage at site 95 ft upstream at same datum.

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

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

AVERAGE DISCHARGE.--27 years, 111 ft³/s, 13.70 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft³/s, June 21, 1972, gage height, 11.12 ft, from high-water mark in well, from rating curve extended above 3,700 ft³/s on basis of slope-area measurement of peak flow; minimum, 7.5 ft³/s, July 27-29, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 30, 1959, reached a stage of 9.89 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1800	1,710	4.31	Apr. 16	0430	3,970	5.47
Mar. 1	0530	3,670	5.24	Apr. 25	1230	*4,690	*6.02
Mar. 31	0900	1,350	3.21	Sept. 7	2130	2,100	3.94

Minimum discharge, 24 ft³/s, Oct. 7-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	33	88	97	191	3160	552	303	124	69	41	45
2	26	47	243	95	190	1640	393	280	122	94	40	37
3	26	42	377	85	256	817	330	265	114	117	39	35
4	26	38	226	80	351	556	311	263	142	106	40	35
5	27	55	163	78	301	432	282	240	126	87	39	49
6	26	71	130	77	247	364	271	223	111	66	38	114
7	25	209	113	80	220	337	299	211	107	59	40	751
8	25	244	104	87	208	347	333	200	98	52	41	525
9	25	151	119	81	187	381	313	190	94	50	38	166
10	26	114	125	83	161	421	284	183	93	58	37	108
11	25	99	260	85	150	346	265	175	91	64	36	84
12	25	93	331	79	147	305	250	170	91	70	36	145
13	36	81	221	80	147	277	234	164	92	57	35	192
14	65	73	163	78	136	257	219	163	89	54	35	142
15	42	71	139	87	128	244	651	157	84	50	35	98
16	31	71	123	88	121	240	3350	149	82	48	37	77
17	29	67	113	89	124	228	1860	142	80	46	37	66
18	28	65	118	118	121	221	1000	152	79	46	36	60
19	27	63	106	433	107	291	561	152	83	44	36	69
20	27	68	97	524	101	295	419	139	87	42	36	98
21	27	89	90	321	103	280	348	134	79	41	35	66
22	27	75	83	259	117	261	303	129	77	41	34	56
23	27	72	82	201	280	243	282	127	73	65	38	51
24	27	71	614	174	297	229	2190	141	70	51	36	50
25	32	69	629	e145	227	225	3590	147	82	42	35	48
26	89	128	286	e130	220	216	1610	133	90	40	36	46
27	55	179	191	e120	213	211	741	157	90	40	37	46
28	42	140	149	e115	399	235	509	215	73	39	37	45
29	37	115	124	119	---	213	407	151	66	38	36	45
30	35	99	112	148	---	332	348	135	64	56	35	56
31	33	---	100	243	---	877	---	126	---	53	42	---
TOTAL	1025	2792	5819	4479	5450	14481	22505	5516	2753	1785	1153	3405
MEAN	33.1	93.1	188	144	195	467	750	178	91.8	57.6	37.2	114
MAX	89	244	629	524	399	3160	3590	303	142	117	42	751
MIN	25	33	82	77	101	211	219	126	64	38	34	35
CFSM	.30	.85	1.71	1.31	1.77	4.25	6.82	1.62	.84	.52	.34	1.04
IN.	.35	.94	1.97	1.51	1.84	4.90	7.61	1.87	.93	.60	.39	1.15

CAL YR 1986 TOTAL 31640 MEAN 86.7 MAX 766 MIN 20 CFSM .79 IN. 10.70
WTR YR 1987 TOTAL 71163 MEAN 195 MAX 3590 MIN 25 CFSM 1.77 IN. 24.07

e Estimated.

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 mi².

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

REVISED RECORDS.--WSP 1333: 1944-47(M), 1948-49.

GAGE.--Water-stage recorder. Datum of gage is 1,174.47 ft above National Geodetic Vertical Datum of 1929. Prior to July 30, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good. Occasional diurnal fluctuation caused by meat-processing plant upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--44 years, 242 ft³/s, 12.79 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft³/s, June 21, 1972, gage height, 15.60 ft, from flood-marks, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 10 ft³/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 ft³/s, from rating curve extended above 12,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1945	3,780	6.67	Apr. 16	1900	7,140	9.03
Mar. 1	0730	6,940	8.91	Apr. 25	1315	*8,540	*9.78

Minimum discharge, 41 ft³/s, Oct. 7-9, gage height, 0.92 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	58	170	233	432	5870	964	677	193	94	65	69
2	47	73	359	225	433	2990	691	596	190	130	61	52
3	45	80	642	199	607	1540	573	538	177	166	60	47
4	44	72	401	177	778	1080	546	520	196	125	57	46
5	45	102	294	169	634	817	495	462	194	157	57	55
6	44	167	237	157	517	666	500	419	164	113	54	145
7	42	283	201	170	452	586	575	389	153	103	55	736
8	41	409	181	192	415	569	622	362	144	93	67	953
9	43	263	208	181	374	612	570	340	139	88	58	274
10	44	196	258	183	324	712	500	322	140	91	53	176
11	43	158	594	185	303	575	450	306	132	106	51	154
12	43	148	836	167	288	501	412	295	130	110	49	323
13	50	126	494	166	282	447	378	289	131	100	47	422
14	98	109	351	156	265	406	343	280	130	98	46	270
15	79	102	292	166	252	377	1080	269	122	87	47	188
16	57	100	251	167	242	372	6130	256	119	83	51	148
17	52	94	224	166	226	348	3700	243	119	79	51	126
18	49	90	232	211	238	336	2030	240	112	76	48	110
19	48	84	213	1380	218	480	1310	251	112	74	48	120
20	45	90	191	1250	208	525	964	235	123	70	47	200
21	45	143	176	698	215	483	773	227	112	67	44	142
22	45	128	158	541	266	437	657	220	113	67	44	116
23	45	118	151	429	805	396	590	219	106	80	49	103
24	45	113	1320	340	738	365	4460	262	99	106	49	95
25	53	107	1640	e310	538	354	7480	294	107	73	47	89
26	150	297	728	e275	492	336	3340	283	128	65	48	84
27	107	498	489	e250	469	316	1750	240	126	62	48	81
28	76	316	383	e230	913	365	1270	380	104	60	52	78
29	67	245	318	e240	---	337	968	257	94	57	49	76
30	63	201	282	305	---	602	799	221	91	57	47	84
31	60	---	248	558	---	1250	---	202	---	94	46	---
TOTAL	1763	4970	12522	10076	11924	25050	44920	10094	4000	2831	1595	5562
MEAN	56.9	166	404	325	426	808	1497	326	133	91.3	51.5	185
MAX	150	498	1640	1380	913	5870	7480	677	196	166	67	953
MIN	41	58	151	156	208	316	343	202	91	57	44	46
CFSM	.22	.65	1.57	1.27	1.66	3.14	5.83	1.27	.52	.36	.20	.72
IN.	.26	.72	1.81	1.46	1.73	3.63	6.50	1.46	.58	.41	.23	.81

CAL YR 1986 TOTAL 61771 MEAN 169 MAX 1910 MIN 35 CFSM .66 IN. 8.94
WTR YR 1987 TOTAL 135307 MEAN 371 MAX 7480 MIN 41 CFSM 1.44 IN. 19.59

e Estimated.

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 mi².
PERIOD OF RECORD.--February 1899 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for July 1896 to January 1899 published in WSP 11, 15, 27, and 20th Annual Report, Part 4, are unreliable, due to doubtful gage-height record, and should not be used.
REVISED RECORDS.--WSP 972: 1928, 1930, 1933. WSP 1433: 1899-1904, 1914-17(M), 1918-24, 1925-27(M), 1929-34(M), 1935, 1936-39(M). WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1940(M). See also PERIOD OF RECORD.
GAGE.--Water-stage recorder. Datum of gage is 906.84 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 7, 1937, nonrecording gage on downstream side of highway bridge 50 ft upstream at same datum.
REMARKS.--Records good except for period with ice effect, Jan. 28, 29, which is fair. Prior to 1949, diurnal fluctuation at low flow caused by powerplants upstream from station. Appalachian Power Company gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--88 years, 373 ft³/s, 12.82 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,300 ft³/s, Nov. 4, 1985, gage height, 23.35 ft, from floodmark, from rating curve extended above 26,000 ft³/s; practically no flow Dec. 23, 1909, Dec. 19, 1963, when flow was retarded by freezing, gage height, 0.0 ft; minimum daily discharge, 19 ft³/s, Aug. 29, 1981.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0030	5,200	6.92	Apr. 25	1200	*14,900	*13.56
Jan. 19	1900	2,910	4.89	Sept. 7	1315	5,550	7.20
Mar. 1	1530	10,600	10.76	Sept. 7	2330	4,850	6.64
Apr. 16	1715	14,500	13.27				

Minimum discharge, 46 ft³/s, Oct. 8, 11, gage height, 0.42 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	82	247	382	715	8880	1590	1020	288	134	96	62
2	59	103	818	382	688	5220	1090	896	275	226	80	72
3	58	89	1230	332	902	2430	896	849	265	221	76	60
4	56	87	751	297	1180	1640	901	779	263	191	84	56
5	55	134	508	273	994	1260	784	708	281	204	72	141
6	53	170	394	257	826	1040	753	622	237	192	71	273
7	52	297	324	259	722	907	814	564	217	151	79	2040
8	50	551	286	283	663	865	880	518	203	144	75	2250
9	50	382	302	284	603	886	838	485	191	124	79	632
10	52	279	349	285	518	1000	739	459	186	128	70	389
11	51	229	608	290	485	874	655	441	180	128	63	319
12	52	204	1230	273	457	754	585	422	171	139	61	357
13	73	177	808	257	443	688	528	413	175	152	58	752
14	98	153	569	245	415	629	469	398	171	134	57	505
15	103	142	460	245	395	584	1540	383	162	119	57	343
16	81	137	394	255	377	581	12300	366	154	110	61	270
17	67	129	343	250	356	535	7550	347	153	106	61	231
18	61	123	345	298	375	513	3610	334	148	101	58	199
19	60	115	325	1650	344	642	2190	369	143	98	59	203
20	57	135	291	1970	323	748	1510	334	149	93	56	324
21	54	152	270	1090	323	713	1170	317	148	111	54	255
22	54	171	248	862	400	654	988	310	142	109	69	203
23	54	156	229	710	989	594	857	319	135	88	72	173
24	53	148	1690	558	1190	537	5650	325	129	114	59	158
25	97	143	2970	537	891	522	13800	376	125	102	58	146
26	197	278	1220	500	796	495	6520	375	186	88	62	136
27	163	713	840	433	766	475	2860	377	168	83	68	128
28	106	498	656	e360	1400	546	1970	669	145	79	59	120
29	89	371	541	e380	---	490	1490	428	126	74	62	115
30	80	295	475	441	---	866	1210	339	117	105	59	118
31	75	---	416	810	---	2050	---	302	---	98	58	---
TOTAL	2270	6643	20137	15448	18536	38618	76737	14844	5433	3946	2053	11030
MEAN	73.2	221	650	498	662	1246	2558	479	181	127	66.2	368
MAX	197	713	2970	1970	1400	8880	13800	1020	288	226	96	2250
MIN	50	82	229	245	323	475	469	302	117	74	54	56
CFSM	.19	.56	1.64	1.26	1.68	3.15	6.48	1.21	.46	.32	.17	.93
IN.	.21	.63	1.90	1.45	1.75	3.64	7.23	1.40	.51	.37	.19	1.04

CAL YR 1986 TOTAL 93547 MEAN 256 MAX 2970 MIN 39 CFSM .65 IN. 8.81
WTR YR 1987 TOTAL 215695 MEAN 591 MAX 13800 MIN 50 CFSM 1.50 IN. 20.31

e Estimated.

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 Southern 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 mi².
PERIOD OF RECORD.--April 1956 to current year.
REVISED RECORDS.--WSP 1904: 1958-60(P). WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 1,217.47 ft above National Geodetic Vertical Datum of 1929 (Norfolk Southern Railway bench mark).
REMARKS.--Records good except for period with ice effect, Jan. 25-29, which is fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--31 years, 12.1 ft³/s, 14.04 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft³/s, Nov. 4, 1985, gage height, 13.36 ft, from flood-mark, from rating curve extended above 130 ft³/s on basis of contracted-opening measurement at gage height 9.82 ft and slope-area measurements at gage heights 8.52 ft, 9.82 ft, and 13.36 ft; minimum, 0.20 ft³/s, Jan. 24, 1961, result of freezeup; minimum daily, 0.90 ft³/s, July 26, 1966; minimum gage height, 0.99 ft, June 12, 24, 1970.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1940 reached a stage of 9.0 ft, from information by local resident.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1545	400	4.49	Apr. 24	0445	331	4.17
Mar. 1	0245	380	4.40	Apr. 24	1930	1,050	6.50
Apr. 15	1515	567	5.16	Sept. 7	1430	799	5.88
Apr. 16	0230	*2,200	*8.37	Sept. 7	2230	369	4.35
Apr. 16	1445	810	5.91				

Minimum discharge, 1.4 ft³/s, part or all of each day Oct. 5-13; minimum gage height, 1.12 ft, Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	3.8	2.0	9.9	18	239	41	42	14	8.8	3.4	3.1
2	1.7	6.4	43	9.3	20	89	34	41	13	15	3.2	2.9
3	1.7	4.3	25	8.3	34	58	31	38	12	10	3.0	2.9
4	1.6	3.9	13	7.8	34	47	33	40	12	7.4	3.5	2.9
5	1.6	8.7	9.7	7.4	27	41	34	34	11	6.0	3.2	5.6
6	1.6	7.1	8.0	7.1	24	37	34	31	10	5.3	2.8	10
7	1.5	7.0	7.0	7.4	22	35	32	29	9.8	4.8	2.9	142
8	1.5	6.6	6.3	7.6	20	33	30	28	9.3	4.5	2.9	68
9	1.4	4.6	7.5	7.2	18	32	28	27	9.1	4.3	2.7	21
10	1.4	3.5	7.2	7.4	16	32	26	24	9.1	4.1	2.6	15
11	1.5	3.3	17	6.7	16	28	25	24	8.5	4.6	2.5	16
12	1.4	3.1	17	6.6	16	27	24	23	9.8	5.0	2.3	18
13	1.7	2.7	12	6.7	14	25	23	22	9.2	5.9	2.3	17
14	2.1	2.5	9.9	6.9	14	23	22	22	8.1	5.1	2.3	14
15	1.7	2.7	8.8	6.8	13	23	192	21	7.6	4.6	2.4	12
16	1.5	2.7	7.9	6.4	13	23	641	20	8.6	4.4	2.4	8.5
17	1.5	2.5	7.3	6.4	14	22	159	20	8.4	4.2	2.3	7.2
18	1.5	2.5	8.9	8.5	12	21	93	19	7.6	4.1	2.4	6.4
19	1.7	3.9	7.5	49	12	24	67	23	7.1	3.9	2.6	6.2
20	2.0	5.5	7.0	30	11	23	55	27	6.7	3.7	2.7	8.4
21	2.0	7.4	6.4	21	11	22	48	21	6.3	3.6	2.5	6.5
22	2.1	6.0	6.0	20	13	21	43	20	5.9	3.7	2.6	5.8
23	2.1	5.6	5.8	17	27	20	41	19	5.4	3.4	3.4	5.3
24	2.0	5.6	90	15	26	19	274	18	5.4	3.3	3.1	5.1
25	3.1	5.2	37	e13	25	19	256	18	5.4	3.2	3.1	4.8
26	5.8	14	25	e12	24	18	113	18	6.9	3.1	4.5	4.6
27	2.8	6.4	19	e11	24	18	76	17	6.1	3.0	3.9	4.7
28	3.0	3.5	15	e9.5	86	19	62	18	5.1	2.9	3.1	4.8
29	3.0	2.6	12	e10	---	17	53	16	5.1	2.8	2.9	4.7
30	3.2	2.2	11	14	---	44	46	15	5.0	3.3	2.9	4.7
31	3.3	---	9.7	20	---	72	---	14	---	3.3	3.1	---
TOTAL	64.8	145.8	468.9	375.9	604	1171	2636	749	247.5	151.3	89.5	438.1
MEAN	2.09	4.86	15.1	12.1	21.6	37.8	87.9	24.2	8.25	4.88	2.89	14.6
MAX	5.8	14	90	49	86	239	641	42	14	15	4.5	142
MIN	1.4	2.2	2.0	6.4	11	17	22	14	5.0	2.8	2.3	2.9
CFSM	.18	.42	1.29	1.04	1.84	3.23	7.51	2.07	.71	.42	.25	1.25
IN.	.21	.46	1.49	1.20	1.92	3.72	8.38	2.38	.79	.48	.28	1.39

CAL YR 1986 TOTAL 2580.3 MEAN 7.07 MAX 90 MIN 1.3 CFSM .60 IN. 8.20
WTR YR 1987 TOTAL 7141.8 MEAN 19.6 MAX 641 MIN 1.4 CFSM 1.67 IN. 22.71

e Estimated.

02056000 ROANOKE RIVER AT NIAGARA, VA

LOCATION.--Lat 37°15'18", long 79°52'18", Roanoke County, Hydrologic Unit 03010101, on right bank 200 ft downstream from powerplant of Appalachian Power Company at Niagara, 2 mi downstream from Tinker Creek, 2.1 mi southeast of Vinton, and at mile 355.3.

DRAINAGE AREA.--512 mi².

PERIOD OF RECORD.--July 1926 to current year.

REVISED RECORDS.--WSP 972: 1927(M), 1929(M), 1934(M), 1937(M). WSP 1303: 1928, 1930, 1933-38, 1940. WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1930(M), 1933(M), 1935-36(M), 1938(M), 1940, 1944-45(M), 1948-49(M), 1951(M), 1955(M), 1960(M), 1967(M), 1969(M).

GAGE.--Water-stage recorder. Datum of gage is 820.15 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. Records good. Flow regulated by dam and powerplant 200 ft upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 516 ft³/s, 13.69 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,300 ft³/s, Nov. 4, 1985, gage height, 25.30 ft, from floodmark, from rating curve extended above 12,000 ft³/s on basis of slope-area measurements at gage heights 18.98 ft and 25.30 ft; minimum, 1.0 ft³/s, Oct. 16, 20, 1956; minimum daily, 8 ft³/s, Oct. 9, 1954; minimum gage height, 0.17 ft, Aug. 25, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0130	6,670	10.16	Apr. 16	1815	*20,600	*16.29
Jan. 19	2000	3,970	8.13	Apr. 25	1220	19,200	15.78
Mar. 1	1450	14,700	14.15	Sept. 7	1440	13,200	13.52
Mar. 31	0830	4,340	8.44				

Minimum discharge, 29 ft³/s, Oct. 25, gage height, 0.93 ft; minimum daily, 101 ft³/s, Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	191	369	542	976	12800	2420	1440	448	232	234	171
2	134	223	1250	548	939	7410	1630	1270	416	450	195	169
3	135	210	1630	473	1270	3520	1320	1270	400	429	186	164
4	160	171	996	468	1730	2350	1390	1170	406	341	195	157
5	144	239	698	405	1460	1740	1170	1040	411	347	193	229
6	145	301	573	394	1200	1400	1120	922	365	372	181	575
7	141	495	496	379	1040	1200	1160	847	338	269	181	5980
8	140	680	381	451	905	1110	1210	783	327	323	187	4670
9	127	498	484	438	880	1120	1160	732	313	260	183	1000
10	101	389	509	388	740	1280	1020	687	306	244	179	664
11	130	386	752	446	679	1110	911	652	300	249	174	560
12	146	318	1530	391	633	972	826	628	293	259	169	578
13	214	311	1030	365	614	879	744	630	305	260	165	964
14	225	216	762	318	571	786	682	596	289	267	165	674
15	179	246	628	425	548	733	2920	575	283	236	162	482
16	149	241	548	384	539	749	18500	545	274	226	165	395
17	147	235	448	359	499	697	10900	517	275	219	167	350
18	157	202	459	436	541	650	5330	502	262	215	165	315
19	159	214	494	2160	470	788	3150	560	257	211	166	304
20	157	250	413	2710	459	922	2230	570	255	208	165	474
21	133	199	398	1520	502	875	1730	492	258	204	159	368
22	132	265	347	1180	512	806	1440	471	252	229	169	308
23	130	250	360	968	1480	738	1250	477	246	205	180	276
24	151	244	2620	760	1720	683	8430	476	239	206	168	256
25	177	276	3950	726	1280	667	17600	533	236	215	163	244
26	364	443	1620	668	1150	642	8920	535	312	201	162	232
27	295	856	1110	591	1120	607	4060	534	324	193	173	223
28	196	633	869	529	2500	714	2800	914	259	187	169	218
29	217	491	745	550	---	651	2100	607	240	183	162	213
30	173	415	634	592	---	1360	1700	497	231	188	158	217
31	136	---	570	1090	---	3260	---	445	---	218	157	---
TOTAL	5135	10088	27673	21654	26957	53219	109823	21917	9120	7846	5397	21430
MEAN	166	336	893	699	963	1717	3661	707	304	253	174	714
MAX	364	856	3950	2710	2500	12800	18500	1440	448	450	234	5980
MIN	101	171	347	318	459	607	682	445	231	183	157	157
CFSM	.32	.66	1.74	1.36	1.88	3.35	7.15	1.38	.59	.49	.34	1.40
IN.	.37	.73	2.01	1.57	1.96	3.87	7.98	1.59	.66	.57	.39	1.56

CAL YR 1986 TOTAL 136622 MEAN 374 MAX 3950 MIN 89 CFSM .73 IN. 9.93
WTR YR 1987 TOTAL 320259 MEAN 877 MAX 18500 MIN 101 CFSM 1.71 IN. 23.27

02056650 BACK CREEK NEAR DUNDEE, VA

LOCATION.--Lat 37°13'39", long 79°52'06", Roanoke County, Hydrologic Unit 03010101, on right bank 80 ft upstream from 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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 822.67 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 4, 1975, nonrecording gage, and Apr. 4, 1975, to Nov. 4, 1985, water-stage recorder, at site 80 ft downstream at same datum.

REMARKS.--Records good except for period with ice effect, Jan. 26-29, which is fair. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years, 63.4 ft³/s, 15.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s, Nov. 4, 1985, gage height, 25.1 ft, from floodmark, present site, from rating curve extended above 5,900 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 0.90 ft³/s, Aug. 30, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of May 30, 1971, and June 21, 1972, reached a stage of 17.5 ft and 20.0 ft, respectively, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1745	1,820	8.89	Apr. 16	1745	3,410	11.47
Mar. 1	0530	2,030	9.28	Apr. 24	2145	1,720	8.71
Mar. 30	1345	800	6.53	Apr. 25	1315	2,540	10.16
Mar. 31	0915	892	6.79	Sept. 7	1500	*6,440	*15.05
Apr. 16	0330	3,410	11.47	Sept. 7	2100	3,760	11.95

Minimum discharge, 8.7 ft³/s, Oct. 7, 8; minimum gage height, 2.53 ft, Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	19	39	74	105	1330	253	192	68	24	21	13
2	12	31	267	75	106	516	188	177	68	37	16	12
3	11	26	238	64	152	290	161	172	63	51	16	11
4	11	22	124	60	184	219	172	169	80	91	24	10
5	10	32	88	57	154	181	159	154	68	91	21	20
6	9.2	46	69	53	135	157	148	145	59	50	16	142
7	8.7	87	58	57	123	144	142	139	55	37	15	2040
8	8.9	104	53	69	115	139	135	134	53	32	18	744
9	9.4	64	56	62	102	142	127	129	50	31	16	137
10	10	47	59	61	93	149	118	123	48	28	14	83
11	9.9	40	122	60	86	133	110	117	46	35	12	84
12	9.5	37	139	55	84	123	105	112	46	43	12	108
13	14	33	99	52	81	112	99	110	48	35	11	73
14	27	29	78	50	75	104	93	109	44	30	11	58
15	19	28	68	52	71	100	454	106	40	26	11	46
16	13	28	59	52	67	102	2560	99	40	25	14	41
17	12	27	54	52	82	96	875	94	38	24	14	37
18	11	26	58	68	78	93	469	91	37	23	12	34
19	11	25	52	177	64	116	301	92	38	22	22	32
20	11	26	47	192	63	113	239	89	36	21	14	48
21	12	38	43	146	64	106	206	87	34	20	12	35
22	11	31	41	135	79	100	184	84	31	44	32	31
23	11	29	40	113	201	94	168	80	31	23	18	28
24	11	28	605	106	172	90	958	80	29	20	15	27
25	14	28	345	92	141	89	1650	83	30	19	12	27
26	58	72	185	e80	136	86	681	78	36	18	13	27
27	33	88	142	e72	130	83	378	85	39	19	14	26
28	24	62	119	e65	403	99	285	119	29	17	19	26
29	21	51	100	e70	---	87	240	81	27	15	15	25
30	20	44	89	81	---	331	214	72	26	15	12	27
31	19	---	78	119	---	452	---	68	---	17	12	---
TOTAL	473.6	1248	3614	2521	3346	5976	11872	3470	1337	983	484	4052
MEAN	15.3	41.6	117	81.3	119	193	396	112	44.6	31.7	15.6	135
MAX	58	104	605	192	403	1330	2560	192	80	91	32	2040
MIN	8.7	19	39	50	63	83	93	68	26	15	11	10
CFSM	.27	.73	2.05	1.43	2.10	3.39	6.97	1.97	.78	.56	.27	2.38
IN.	.31	.82	2.37	1.65	2.19	3.91	7.78	2.27	.88	.64	.32	2.65

CAL YR 1986 TOTAL 15438.6 MEAN 42.3 MAX 605 MIN 3.1 CFSM .74 IN. 10.11
WTR YR 1987 TOTAL 39376.6 MEAN 108 MAX 2560 MIN 8.7 CFSM 1.90 IN. 25.79

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of doubtful gage-height record, May 3-19, 21-24, and May 26 to July 1, which are fair. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--11 years, 140 ft³/s, 16.53 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft³/s, Nov. 5, 1985, gage height, 21.92 ft, from rating curve extended above 7,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 6.6 ft³/s, July 21, 1986, gage height, 1.13 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	0900	4,900	11.62	Apr. 24	0800	4,330	10.74
Mar. 30	1730	1,560	6.01	Apr. 25	1630	3,300	9.09
Mar. 31	1300	1,820	6.50	Sept. 8	0130	*9,140	*17.53
Apr. 16	0600	5,840	13.06				

Minimum discharge, 30 ft³/s, Oct. 7, gage height, 1.59 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	50	93	154	186	3580	593	431	e140	e90	100	51
2	40	85	314	163	184	1310	411	396	e190	98	68	46
3	39	75	437	145	242	717	338	e350	e170	97	64	39
4	38	62	251	139	325	499	351	e330	e155	136	114	38
5	37	67	183	133	258	397	317	e300	e250	359	69	49
6	35	94	151	127	223	332	276	e280	e155	136	59	262
7	33	189	135	127	205	291	256	e260	e145	110	56	4030
8	34	295	124	132	191	272	243	e240	e135	91	64	3000
9	36	150	128	125	175	269	230	e230	e125	84	60	394
10	37	110	134	123	160	271	219	e215	e120	131	53	247
11	36	95	265	123	155	242	214	e205	e118	199	49	166
12	35	94	327	115	151	230	213	e200	e117	159	47	157
13	46	83	214	106	148	217	214	e195	e120	167	46	158
14	88	75	169	103	141	203	182	e195	e120	119	45	132
15	70	73	151	106	139	196	951	e200	e119	97	45	117
16	47	73	139	104	133	198	4990	e198	e115	89	51	111
17	43	69	129	105	131	194	1900	e190	e119	84	51	103
18	41	67	135	122	161	183	1020	e180	e115	83	46	99
19	40	65	127	230	145	223	696	e160	e112	81	45	96
20	40	67	116	269	130	216	534	233	e115	76	51	131
21	39	95	109	199	130	197	453	e185	e120	73	45	106
22	40	79	103	198	145	187	396	e170	e148	70	49	91
23	39	72	98	183	331	177	354	e160	e120	67	46	85
24	38	71	361	154	355	173	2480	e155	e93	65	43	82
25	44	69	522	165	249	174	2650	287	e100	63	40	80
26	122	191	387	e135	247	172	1550	e200	e130	62	42	77
27	87	239	274	e115	236	166	874	e185	e215	60	43	77
28	61	142	225	e98	613	180	670	e180	e150	58	42	76
29	54	118	193	e110	---	166	556	e170	e115	57	38	75
30	50	104	174	e140	---	617	486	e155	e100	54	36	107
31	48	---	157	215	---	1060	---	e145	---	86	37	---
TOTAL	1480	3118	6325	4463	5889	13309	24617	6980	4046	3201	1644	10282
MEAN	47.7	104	204	144	210	429	821	225	135	103	53.0	343
MAX	122	295	522	269	613	3580	4990	431	250	359	114	4030
MIN	33	50	93	98	130	166	182	145	93	54	36	38
CFSM	.42	.90	1.77	1.25	1.83	3.73	7.14	1.96	1.17	.90	.46	2.98
IN.	.48	1.01	2.05	1.44	1.90	4.31	7.96	2.26	1.31	1.04	.53	3.33

CAL YR 1986 TOTAL 33687.6 MEAN 92.3 MAX 522 MIN 7.6 CFSM .80 IN. 10.90
WTR YR 1987 TOTAL 85354.0 MEAN 234 MAX 4990 MIN 33 CFSM 2.04 IN. 27.61

e Estimated.

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 mi².

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 were provided by the Appalachian Power Company.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,250,200 acre-ft, Apr. 27, 1978, elevation, 799.8 ft; minimum (after first filling to minimum power pool), 995,400 acre-ft, Jan. 23, 1970, elevation, 787.6 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,243,400 acre-ft, Apr. 17, elevation, 799.5 ft; minimum, 1,076,700 acre-ft, Oct. 24, elevation, 791.8 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	792.6	1,093,000	-
Oct. 31	792.2	1,084,900	-8,100
Nov. 30	794.3	1,127,700	+42,800
Dec. 31	794.7	1,135,900	+8,200
CAL YR 1986	-	-	+4,100
Jan. 31	794.0	1,121,600	-14,300
Feb. 28	794.6	1,133,800	+12,200
Mar. 31	794.1	1,123,600	-10,200
Apr. 30	794.7	1,135,900	+12,300
May 31	794.7	1,135,900	0
June 30	794.8	1,137,900	+2,000
July 31	793.7	1,115,500	-22,400
Aug. 31	793.5	1,111,400	-4,100
Sept. 30	794.6	1,133,800	+22,400
WTR YR 1987	-	-	+40,800

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 mi².

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

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 617.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 18, 1963, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, Jan. 2-13, Sept. 8-10, and period with ice effect, Jan. 25-29, which are fair. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--24 years, 376 ft³/s, 14.59 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,600 ft³/s, Sept. 8, 1987, gage height, 31.12 ft, from high-water marks, from rating curve extended above 25,460 ft³/s on basis of slope-area measurement of peak flow; minimum, 24 ft³/s, Aug. 29, 30, 1981, gage height, 1.95 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2030	6,080	11.26	Apr. 25	0130	12,800	18.77
Mar. 1	1730	13,500	19.30	Apr. 25	2130	8,880	14.98
Apr. 16	1730	22,000	23.97	Sept. 8	Unknown	*65,600	*a31.12

a From high-water marks.

Minimum discharge, 101 ft³/s, Oct. 7-8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	130	233	324	541	11600	988	773	411	277	219	136
2	122	161	558	e350	498	5490	601	727	587	382	207	142
3	119	207	1260	e315	631	1500	543	699	493	435	184	128
4	117	171	562	e290	967	974	727	661	514	355	197	118
5	113	161	377	e260	730	755	692	655	742	472	194	133
6	106	185	313	e250	577	644	566	622	465	381	212	443
7	101	375	279	e255	524	580	503	596	402	319	183	2820
8	103	1400	261	e250	545	542	462	567	378	292	180	e34900
9	105	575	284	e240	513	528	428	543	360	277	183	e7520
10	111	344	391	e235	425	527	404	527	348	273	166	e1500
11	111	277	953	e240	384	478	392	513	335	516	149	641
12	109	288	1210	e255	369	449	392	499	336	350	140	579
13	117	263	581	e250	367	439	397	502	348	483	137	563
14	180	227	408	242	346	416	371	511	348	384	134	520
15	208	215	346	243	332	404	2930	509	337	307	141	453
16	151	221	313	246	323	413	19200	490	326	267	168	413
17	127	212	294	247	290	432	8670	467	340	253	171	388
18	122	202	306	287	426	399	1920	456	322	242	152	364
19	119	195	299	558	366	479	1290	446	322	236	142	354
20	116	205	274	729	321	566	994	514	318	224	137	541
21	119	320	253	475	324	463	839	494	335	214	131	459
22	120	284	238	434	373	420	757	465	433	204	135	365
23	117	237	234	445	1350	395	703	443	321	197	129	332
24	117	223	3510	346	1440	380	4490	444	298	201	123	316
25	126	217	2590	e290	804	378	9490	867	293	197	117	308
26	276	243	787	e215	800	401	4580	553	323	193	122	300
27	283	551	529	e275	668	376	1630	504	695	188	135	295
28	179	375	427	e340	1910	376	1160	512	372	183	148	293
29	149	295	368	e375	---	366	966	461	303	180	146	290
30	139	256	336	385	---	440	858	427	286	175	131	311
31	134	---	311	575	---	1350	---	407	---	173	124	---
TOTAL	4243	9015	19085	10221	17144	32960	67943	16854	11691	8830	4837	55925
MEAN	137	300	616	330	612	1063	2265	544	390	285	156	1864
MAX	283	1400	3510	729	1910	11600	19200	867	742	516	219	34900
MIN	101	130	233	215	290	366	371	407	286	173	117	118
CFSM	.39	.86	1.76	.94	1.75	3.04	6.47	1.55	1.11	.81	.45	5.33
IN.	.45	.96	2.03	1.09	1.82	3.50	7.22	1.79	1.24	.94	.51	5.94

CAL YR 1986 TOTAL 91540 MEAN 251 MAX 3510 MIN 71 CFSM .72 IN. 9.73
WTR YR 1987 TOTAL 258748 MEAN 709 MAX 34900 MIN 101 CFSM 2.03 IN. 27.50

e Estimated.

02059400 LEESVILLE LAKE NEAR LEESVILLE, VA

LOCATION.--Lat 37°05'35", long 79°24'09", Campbell County, Hydrologic Unit 03010101, at Leesville Dam on Roanoke (Staunton) River, 2.0 mi south of Leesville, 3.5 mi upstream from Goose Creek, and at mile 296.

DRAINAGE AREA.--1,505 mi².

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 elevation; 38,200 acre-ft is normally used for power between elevations 600.0 ft, minimum power pool, and 613.0 ft. Capacity at invert of lowest penstock, elevation, 579.75 ft, is 21,010 acre-ft. Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (see station 02057400).

COOPERATION.--Records were provided by the Appalachian Power Company.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 98,180 acre-ft, Feb. 1, 1965, elevation, 614.0 ft; minimum (after first filling to minimum power pool), 39,880 acre-ft, Mar. 19, 1963, elevation, 592.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 97,540 acre-ft, Sept. 8, elevation, 613.8 ft; minimum, 57,200 acre-ft, Nov. 13, elevation, 600.0 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	610.2	85,940	-
Oct. 31	607.5	77,950	-7,990
Nov. 30	601.4	60,950	-17,000
Dec. 31	601.9	62,290	+1,340
CAL YR 1986	-	-	-5,360
Jan. 31	608.5	80,890	+18,600
Feb. 28	605.0	70,600	-10,290
Mar. 31	608.8	81,770	+11,170
Apr. 30	607.1	76,770	-5,000
May 31	605.9	73,250	-3,520
June 30	605.2	71,190	-2,060
July 31	609.5	83,830	+12,640
Aug. 31	605.7	72,660	-11,170
Sept. 30	603.8	67,380	-5,280
WTR YR 1987	-	-	-18,560

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 mi².
PERIOD OF RECORD.--March 1925 to August 1928 (gage heights only), September 1930 to current year.
REVISED RECORDS.--WSP 892: 1933, 1935(M), 1939. WSP 972: 1931-32(M), 1934(M), 1935-38, 1940, 1941(M). WSP 1082: 1940(P). WSP 1142: 1938-40(M). WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 592.91 ft above National Geodetic Vertical Datum of 1929. Mar. 15, 1925, to Aug. 4, 1928, nonrecording gage at site 1,300 ft downstream at different datum.
REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 6, 8-12, Nov. 11-17, Jan. 8-12, Apr. 2, 3, 5-12, Apr. 29 to May 19, June 19-23, and Sept. 7-30, which are fair. Prior to October 1954, diurnal fluctuation at low flow caused by mill upstream from station. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--57 years, 180 ft³/s, 13.00 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,200 ft³/s, Sept. 8, 1987, gage height, 37.49 ft, from floodmarks, from rating curve extended above 11,000 ft³/s on basis of slope-area measurements at gage heights 19.25 ft, 24.1 ft, 24.89 ft, and 37.49 ft; minimum, 3 ft³/s, Aug. 31, 1932, Jan. 30, 1934.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1830	6,820	15.18	Apr. 24	2045	10,000	18.40
Mar. 1	0615	8,120	16.52	Sept. 8	Unknown	*53,200	*a37.49
Apr. 16	0445	13,600	21.32				

a From floodmarks.

Minimum daily discharge, 26 ft³/s, Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	46	101	239	282	5060	735	e560	198	85	73	45
2	42	60	231	286	260	1460	e480	e500	312	101	62	43
3	41	61	548	226	404	741	e380	e460	207	133	74	42
4	41	51	241	197	725	500	553	e490	200	425	75	40
5	41	62	173	191	556	374	e380	e420	198	224	62	46
6	e36	108	147	172	411	337	e350	e380	170	166	57	167
7	35	160	132	164	353	303	e310	e350	157	123	55	e330
8	e31	237	120	e155	335	287	e290	e320	147	126	58	e26000
9	e28	145	133	e145	282	289	e270	e310	140	113	56	e4800
10	e26	111	160	e138	225	272	e255	e300	136	105	52	e1200
11	e27	e88	400	e142	206	238	e240	e285	131	117	48	e400
12	e28	e96	414	e123	196	225	e230	e270	131	107	46	e480
13	58	e80	228	120	194	211	214	e275	145	121	45	e455
14	116	e74	173	116	180	195	190	e285	145	88	45	e300
15	73	e70	156	122	174	190	3180	e320	131	83	46	e260
16	47	e68	142	124	161	197	8080	e300	125	81	50	e186
17	43	e66	133	122	135	208	3300	e280	129	78	50	e170
18	42	65	147	146	234	184	1560	e250	121	78	46	e160
19	41	63	146	473	173	216	897	e235	e120	75	44	e155
20	41	67	130	754	164	221	672	368	e115	71	46	e240
21	41	121	121	436	164	196	559	306	e110	69	43	e260
22	40	93	114	355	183	183	493	286	e110	67	42	e175
23	41	80	113	318	779	174	440	268	e96	67	46	e145
24	40	78	2570	233	825	168	3930	329	95	65	46	e125
25	45	75	1540	e205	590	173	5920	301	95	62	43	e115
26	115	181	670	e180	544	184	2150	263	105	60	45	e110
27	84	239	476	e160	439	163	1190	261	133	63	47	e105
28	56	162	379	e150	1730	202	947	253	97	59	48	e102
29	49	134	314	e170	---	206	e750	233	90	60	46	e100
30	47	116	276	e180	---	687	e640	213	86	57	41	e118
31	45	---	243	300	---	1140	---	200	---	57	42	---
TOTAL	1483	3057	10871	6842	10904	15184	39585	9871	4175	3186	1579	36874
MEAN	47.8	102	351	221	389	490	1320	318	139	103	50.9	1229
MAX	116	239	2570	754	1730	5060	8080	560	312	425	75	26000
MIN	26	46	101	116	135	163	190	200	86	57	41	40
CFSM	.25	.54	1.87	1.18	2.07	2.61	7.02	1.69	.74	.55	.27	6.54
IN.	.29	.60	2.15	1.35	2.16	3.00	7.83	1.95	.83	.63	.31	7.30

CAL YR 1986 TOTAL 44499 MEAN 122 MAX 2570 MIN 25 CFSM .65 IN. 8.81
WTR YR 1987 TOTAL 143611 MEAN 393 MAX 26000 MIN 26 CFSM 2.09 IN. 28.42

e Estimated.

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 mi².

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

REVISED RECORDS.--WSP 892: 1938(M). WSP 972: 1931-33. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 503.10 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1951, on left bank 50 ft downstream at same datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Sept. 16-20, 22, 23, 26, 27, which are fair. 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. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 1,800 ft³/s, 13.66 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft³/s, Aug. 15, 1940, gage height, 40.08 ft, from floodmark, from rating curve extended above 52,000 ft³/s on basis of unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers and records for other stations in Roanoke River basin; minimum, 13 ft³/s, Jan. 30, 1966; minimum daily, 39 ft³/s, July 10, 1966; minimum gage height, 1.53 ft, Jan. 2, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 62,100 ft³/s, Sept. 8, gage height, 34.45 ft; minimum, 102 ft³/s, Aug. 30; minimum daily, 155 ft³/s, Oct. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	827	227	941	474	537	22400	5890	10000	2290	1070	291	830
2	839	179	977	1920	2800	22800	3650	2870	2150	1800	214	873
3	877	913	1280	719	3270	17000	3400	1470	1430	1910	1040	832
4	233	900	1120	345	6070	10000	1930	3350	1950	605	1070	1110
5	158	902	1390	1650	4060	6520	1930	3560	2350	397	1040	249
6	837	921	357	1500	3340	3480	5220	3300	2530	2680	733	269
7	828	799	254	1440	878	4540	3200	3010	883	2470	763	5360
8	847	625	2450	1140	551	3170	2950	2880	1810	2530	266	46700
9	862	368	2530	1440	2700	3190	2730	2320	1550	2440	204	29200
10	704	538	1990	489	3040	3200	2660	1410	1470	1610	873	21100
11	251	1060	4530	336	2090	3310	1390	2360	1580	346	840	17900
12	155	960	5500	1380	2150	3110	414	1720	1810	318	844	12200
13	899	1120	3050	1330	1890	3060	2400	2750	426	1380	848	1290
14	935	856	475	1490	572	2210	3650	2710	344	1450	1200	2690
15	922	290	2240	1440	368	474	8560	2830	1330	1070	271	2200
16	1050	219	1550	1470	2270	1690	28500	1400	1440	881	178	e1600
17	544	912	1630	498	2620	1980	32800	1420	1410	934	867	e980
18	255	923	1660	336	2830	2170	25800	2200	1590	314	869	e715
19	156	1000	2600	3250	2770	2110	23200	1930	1470	229	862	e275
20	866	747	476	5660	1860	2170	19000	2220	387	903	852	e325
21	874	1050	278	3280	430	785	11000	2320	295	1290	1020	1610
22	897	280	2290	3800	392	388	9750	2180	1220	922	225	e1700
23	862	201	1490	4610	3470	1730	4130	657	1440	852	271	e1000
24	660	907	6480	621	6090	2820	10600	633	1280	767	860	1170
25	267	1070	12200	442	3720	2850	24600	747	922	288	838	1200
26	243	1080	9340	4650	5340	2880	23900	2650	483	204	833	e315
27	905	539	3130	2110	6110	2740	21000	2520	396	861	794	e280
28	892	1210	2890	1660	8030	658	18500	2370	303	869	1170	1180
29	863	355	2910	1730	---	415	14800	2290	904	779	244	1190
30	856	269	2990	1820	---	4940	10400	1110	1030	990	160	1040
31	852	---	1760	684	---	8320	---	582	---	1150	861	---
TOTAL	21216	21420	82758	53714	80248	147110	327954	73769	38473	34309	21401	157383
MEAN	684	714	2670	1733	2866	4745	10930	2380	1282	1107	690	5246
MAX	1050	1210	12200	5660	8030	22800	32800	10000	2530	2680	1200	46700
MIN	155	179	254	336	368	388	414	582	295	204	160	249
(*)	-262	+433	+155	+69	+35	+16	+123	-57	-1	-158	-249	+287
MEAN‡	422	1147	2825	1802	2901	4761	11050	2323	1281	949	441	5533
CFSM‡	.24	.64	1.58	1.01	1.62	2.66	6.18	1.30	.72	.53	.25	3.09
IN.‡	.27	.72	1.82	1.16	1.69	3.07	6.89	1.50	.80	.61	.28	3.45

CAL YR 1986	TOTAL	396608	MEAN	1087	MAX	12200	MIN	149	MEAN‡	1086	CFSM‡	.61	IN.‡	8.24
WTR YR 1987	TOTAL	1059755	MEAN	2903	MAX	46700	MIN	155	MEAN‡	2933	CFSM‡	1.64	IN.‡	22.26

* Change in contents, equivalent in cubic feet per second in Smith Mountain and Leesville Lakes; provided by Appalachian Power Company.
‡ Adjusted for change in contents.
e Estimated.

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 mi².
PERIOD OF RECORD.--October 1936 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1965, published as Otter River near Evington.
REVISED RECORDS.--WSP 852: 1937. WSP 892: 1938-39(M). WSP 972: 1937-39. WSP 1032: 1940. WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 544.02 ft above National Geodetic Vertical Datum of 1929.
REMARKS.--Records good except those for periods of doubtful gage-height record, Nov. 10-19, Jan. 3-12, Feb. 7-9, 11-16, and May 18, 19, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--51 years, 334 ft³/s, 14.17 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,900 ft³/s, Sept. 8, 1987, gage height, 24.96 ft, from rating curve extended above 24,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 7.5 ft³/s, Sept. 14, 1966.
EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in October 1937 and August 1939 reached a stage of 23.1 ft, discharge, 27,500 ft³/s, from rating curve extended above 7,000 ft³/s on basis of unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers, and records for other stations in Roanoke River basin.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2400	8,790	16.19	Apr. 25	0500	14,400	18.79
Mar. 1	0930	10,500	17.15	Sept. 8	0900	*41,900	*24.96
Apr. 16	0730	13,100	18.30				

Minimum daily discharge, 42 ft³/s, Oct. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	71	194	426	680	8640	923	850	309	138	111	67
2	54	68	242	472	590	2580	724	774	408	138	104	66
3	52	74	913	e395	725	1390	623	746	309	243	93	59
4	51	78	454	e354	1280	980	721	790	315	802	95	54
5	49	76	324	e327	940	781	626	676	315	296	92	63
6	47	98	265	e303	671	680	549	608	283	236	84	209
7	44	129	232	e293	e600	616	506	567	256	213	78	914
8	43	463	217	e279	e550	573	474	537	242	180	80	20200
9	42	288	224	e265	e500	593	446	522	234	159	78	1590
10	42	e190	299	e259	445	560	419	507	226	145	71	690
11	43	e159	595	e265	e400	502	402	494	219	164	66	551
12	43	e149	910	e191	e360	481	396	452	217	223	62	989
13	45	e140	483	233	e350	464	382	482	265	215	61	1070
14	71	e126	359	226	e335	433	357	461	238	173	61	545
15	106	e116	306	244	e320	418	3840	486	217	147	63	395
16	102	e108	276	259	e310	430	10700	471	207	136	75	343
17	86	e102	255	248	755	445	6780	384	226	128	77	298
18	75	e100	264	287	1020	392	3300	e370	205	123	69	260
19	67	e97	307	858	469	418	1860	e340	187	117	74	236
20	62	113	257	1120	325	419	1330	540	185	110	75	263
21	59	126	231	630	329	370	1050	452	185	104	71	351
22	58	153	217	565	370	349	878	443	186	101	67	247
23	57	149	217	565	1670	335	754	415	179	100	74	209
24	55	140	2980	468	1620	325	3380	440	171	145	87	186
25	56	133	3610	e430	918	329	10400	462	167	103	79	172
26	69	149	1030	e380	817	362	4230	388	164	93	82	159
27	109	478	692	e310	657	336	2100	397	168	87	93	156
28	110	292	559	e280	2250	400	1530	396	161	83	85	152
29	96	223	531	e450	---	393	1190	371	144	79	76	149
30	85	209	514	e650	---	871	1000	335	140	78	66	177
31	77	---	466	782	---	1550	---	326	---	104	64	---
TOTAL	2009	4797	18423	12814	20256	27415	61870	15482	6728	5163	2413	30820
MEAN	64.8	160	594	413	723	884	2062	499	224	167	77.8	1027
MAX	110	478	3610	1120	2250	8640	10700	850	408	802	111	20200
MIN	42	68	194	191	310	325	357	326	140	78	61	54
CFSM	.20	.50	1.86	1.29	2.26	2.76	6.44	1.56	.70	.52	.24	3.21
IN.	.23	.56	2.14	1.49	2.35	3.19	7.19	1.80	.78	.60	.28	3.58

CAL YR 1986 TOTAL 76749 MEAN 210 MAX 3610 MIN 42 CFSM .66 IN. 8.92
WTR YR 1987 TOTAL 208190 MEAN 570 MAX 20200 MIN 42 CFSM 1.78 IN. 24.20

e Estimated.

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 mi².

PERIOD OF RECORD.--April 1923 to current year.

REVISED RECORDS.--WSP 892: 1928(M). WSP 972: 1928-34. WSP 1303: 1924-27(M), 1929(M), 1941(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 351.96 ft above National Geodetic Vertical Datum of 1929. Apr. 30, 1923, to Aug. 29, 1929, nonrecording gage, Aug. 30, 1929, to Aug. 15, 1940, water-stage recorder, and Aug. 16 to Oct. 1, 1940, nonrecording gage at site 1,800 ft downstream at same datum. Oct. 2, 1940, to Sept. 30, 1941, nonrecording gage at site 1,600 ft downstream at same datum.

REMARKS.--Records good except for period of no gage-height record, June 2, 3, which is 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 U.S. Army Corps of Engineers satellite telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--64 years, 2,398 ft³/s, 13.48 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s, Aug. 15, 1940, gage height, 46.5 ft, at present site, from gage-height relation curve, from rating curve extended above 55,000 ft³/s on basis of slope-area measurement by Geological Survey, unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers, and records for other stations in Roanoke River basin; minimum daily, 140 ft³/s, July 25, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 85,800 ft³/s, Sept. 9, gage height, 39.80 ft; minimum, 207 ft³/s, Oct. 6; minimum daily, 229 ft³/s, Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	806	884	605	1830	1170	33200	6820	10400	1440	1260	1270	1120
2	840	345	1220	1170	1700	34600	5660	5740	e2600	1350	399	1130
3	839	319	2140	2390	4070	26300	3680	1920	e2900	2030	367	1190
4	860	973	1760	836	6140	12600	3130	2530	2170	2470	1180	1140
5	307	964	1470	999	7120	7720	2170	3780	2720	1160	1240	1480
6	229	1000	1510	1990	4360	5400	3360	3540	2990	1110	1210	583
7	801	1110	592	1760	3490	4910	4650	3260	2950	2900	874	978
8	810	1380	898	1650	1410	3620	3030	3440	1330	2710	922	49200
9	844	956	2740	1490	1820	3650	2770	2670	2140	3060	403	65600
10	852	691	2880	1600	3800	3680	2670	2210	2080	2200	369	31700
11	714	769	3350	673	3220	3730	2610	2350	2020	1780	1010	25200
12	316	1220	7310	834	2680	3500	857	2230	1870	574	1000	19300
13	250	1140	5300	1610	2560	3460	763	2350	2130	704	1000	5360
14	979	1190	2590	1620	2090	3130	2490	2830	1210	1720	1010	1900
15	1060	936	987	1650	818	2010	8570	3150	1250	1710	1400	3100
16	974	432	2530	1650	1420	1400	38100	2960	1600	1290	422	2380
17	1060	477	1830	1540	2440	2350	50400	1850	1640	1090	327	1890
18	603	1030	1850	635	3270	2440	39600	1730	1620	1130	1080	1200
19	340	1040	2060	1790	3230	2500	31000	2500	1730	468	1100	996
20	260	1060	2510	5160	3040	2580	25500	2430	1600	419	1090	504
21	880	996	600	5390	1820	2110	15800	2980	749	1080	1080	684
22	893	1170	828	3730	869	845	10400	2630	726	1440	1260	1910
23	910	487	2500	4950	3330	1120	5810	2540	1380	1070	421	2120
24	884	501	3980	3900	7800	2300	7930	1470	1690	1020	440	1280
25	721	1070	19400	892	6760	2990	34500	1680	1510	952	1080	1370
26	419	1210	12400	1780	5220	3030	37000	1820	1230	411	1110	1400
27	510	1280	5790	5190	7070	2860	28100	2800	909	359	1100	421
28	994	1070	3480	1680	9290	2540	24600	3120	688	1000	1080	415
29	951	1230	3340	2110	---	749	17800	2690	594	989	1490	1390
30	910	551	3400	2160	---	1900	12500	3420	1180	906	470	1650
31	901	---	2920	2120	---	9230	---	1440	---	1090	353	---
TOTAL	22717	27481	104770	66779	102007	192454	432270	90460	50646	41452	27557	228591
MEAN	733	916	3380	2154	3643	6208	14410	2918	1688	1337	889	7620
MAX	1060	1380	19400	5390	9290	34600	50400	10400	2990	3060	1490	65600
MIN	229	319	592	635	818	749	763	1440	594	359	327	415
(*)	-262	+433	+155	+69	+35	+16	+123	-57	-1	-158	-249	+287
MEAN‡	471	1349	3535	2223	3678	6224	14530	2861	1687	1179	640	7907
CFSM‡	.20	.56	1.46	.92	1.52	2.58	6.02	1.18	.70	.49	.26	3.27
IN.‡	.22	.62	1.69	1.06	1.59	2.97	6.71	1.37	.78	.56	.31	3.65

CAL YR 1986	TOTAL	501960	MEAN	1375	MAX	19400	MIN	229	MEAN‡	1374	CFSM‡	.57	IN.‡	7.73
WTR YR 1987	TOTAL	1387180	MEAN	3801	MAX	65600	MIN	229	MEAN‡	3831	CFSM‡	1.59	IN.‡	21.54

* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; provided by Appalachian Power Company.
‡ Adjusted for change in contents.
e Estimated.

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 mi².

PERIOD OF RECORD.--July 1929 to January 1935, September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1930, 1931-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 412.32 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 15, 1935, nonrecording gage at same site and datum.

REMARKS.--Records good. Small diurnal fluctuation at times during low flow, cause unknown. Prior to 1958, diurnal fluctuation caused by gristmill at Spring Mills. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--51 years (water years 1930-34, 1942-87), 149 ft³/s, 11.70 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,600 ft³/s, June 22, 1972, gage height, 29.21 ft, from rating curve extended above 7,100 ft³/s on basis of slope-area measurement of peak flow; minimum, 3.0 ft³/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 ft³/s, by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2130	2,720	10.06	Apr. 17	0830	4,590	13.76
Mar. 1	0515	4,380	13.41	Apr. 25	0030	3,350	11.44
Apr. 15	2130	3,520	11.79	Sept. 8	1600	*29,800	*28.53

Minimum discharge, 16 ft³/s, Sept. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	31	60	102	202	3350	177	153	118	38	31	23
2	25	34	91	156	201	783	143	158	198	48	30	22
3	24	35	316	136	277	371	134	184	100	75	28	18
4	24	34	155	113	421	255	149	162	122	313	26	17
5	23	38	106	102	367	209	142	147	157	392	25	24
6	20	53	85	93	265	185	130	131	105	128	24	98
7	20	84	77	91	259	171	124	118	89	89	25	449
8	20	219	72	87	316	161	118	107	80	75	26	14600
9	22	122	97	82	298	163	111	100	75	68	26	1690
10	23	80	229	87	205	152	108	96	71	62	25	645
11	23	70	413	91	176	134	104	91	69	60	22	426
12	22	81	456	82	175	129	106	88	68	61	20	251
13	26	72	206	77	200	126	104	88	82	71	19	455
14	72	62	141	76	174	119	98	92	77	68	19	425
15	58	57	117	78	157	118	1190	93	71	58	21	194
16	35	57	103	78	138	130	2960	86	68	53	27	127
17	30	56	95	77	126	149	3750	80	68	49	30	105
18	29	55	105	104	175	130	901	78	62	47	24	91
19	27	56	110	276	141	136	465	100	60	45	22	83
20	27	60	92	303	132	136	315	251	58	43	25	147
21	28	123	83	183	148	122	238	141	59	40	23	136
22	28	93	78	162	202	116	209	111	57	37	26	99
23	28	74	75	182	922	108	186	98	58	35	25	83
24	27	68	982	149	718	105	735	95	53	35	24	76
25	31	64	904	134	417	104	1900	109	51	35	22	72
26	73	70	281	e130	330	107	936	99	52	34	24	69
27	62	86	188	e120	254	103	379	99	58	31	27	69
28	41	78	148	e115	1020	124	259	104	49	31	24	68
29	34	69	124	e125	---	122	203	97	43	29	20	66
30	33	64	112	e140	---	128	175	85	40	29	18	112
31	32	---	101	214	---	211	---	81	---	30	19	---
TOTAL	994	2145	6202	3945	8416	8457	16549	3522	2318	2209	747	20740
MEAN	32.1	71.5	200	127	301	273	552	114	77.3	71.3	24.1	691
MAX	73	219	982	303	1020	3350	3750	251	198	392	31	14600
MIN	20	31	60	76	126	103	98	78	40	29	18	17
CFSM	.19	.41	1.16	.73	1.74	1.58	3.19	.66	.45	.41	.14	3.99
IN.	.21	.46	1.33	.85	1.81	1.82	3.56	.76	.50	.47	.16	4.46

CAL YR 1986 TOTAL 32319 MEAN 88.5 MAX 982 MIN 16 CFSM .51 IN. 6.95
WTR YR 1987 TOTAL 76244 MEAN 209 MAX 14600 MIN 17 CFSM 1.21 IN. 16.39

e Estimated.

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 mi².
PERIOD OF RECORD.--August 1946 to current year.
REVISED RECORDS.--WSP 1333: 1947(M), 1948, 1949(M). WSP 2104: Drainage area. WDR VA-76-1: 1975.
GAGE.--Water-stage recorder. Datum of gage is 370.19 ft above National Geodetic Vertical Datum of 1929. Prior to July 14, 1950, nonrecording gage at same site and datum.
REMARKS.--Records good except for period of no gage-height record, Jan. 24-30, which is fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
COOPERATION.--Records were provided by the Virginia Water Control Board.
AVERAGE DISCHARGE.--41 years, 98.1 ft³/s, 13.59 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft³/s, Sept. 8, 1987, gage height, 19.31 ft, from floodmark, from rating curve extended above 5,400 ft³/s on basis of contracted-opening measurement of peak flow; maximum gage height, 20.37 ft, June 22, 1972; minimum discharge, 2.6 ft³/s, Oct. 6, 1970, gage height, 0.74 ft.
EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in August 1940 and June 1972 reached stages of 17.5 ft and 20.37 ft, respectively, from floodmarks.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	1830	1,150	7.55	Apr. 17	1200	2,980	11.16
Mar. 1	2000	2,230	10.02	Sept. 8	1830	*10,600	*a19.31

a From floodmark.

Minimum discharge, 13 ft³/s, Aug. 30-31, gage height, 1.09 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	29	44	94	126	1300	115	92	46	33	21	15
2	24	30	53	173	114	1220	92	89	123	36	20	15
3	24	31	170	142	147	375	85	97	78	50	19	14
4	23	31	136	110	238	182	97	87	76	102	18	14
5	23	34	82	96	252	142	100	90	96	124	18	17
6	23	48	65	88	184	124	89	81	72	65	19	42
7	22	61	58	85	164	112	85	77	59	46	18	85
8	22	156	55	82	176	106	80	72	54	39	18	4840
9	23	110	66	76	180	111	75	68	50	36	18	2610
10	24	70	208	79	143	107	72	66	46	33	17	248
11	23	55	204	89	117	95	71	64	44	32	16	98
12	23	87	348	78	111	91	71	62	44	47	15	98
13	25	70	283	72	116	89	74	66	50	35	14	170
14	65	54	120	69	109	85	69	65	52	35	14	161
15	65	47	95	70	102	83	201	65	48	34	15	154
16	33	45	82	71	92	92	1110	61	46	31	17	87
17	28	43	73	70	77	113	2610	56	46	30	19	73
18	27	42	74	86	120	97	1520	55	45	28	17	66
19	26	42	80	216	109	95	409	54	42	27	18	60
20	26	45	69	330	104	98	220	76	42	26	22	99
21	26	72	61	174	106	87	174	68	43	24	19	103
22	26	66	57	132	140	81	156	62	43	24	17	76
23	26	51	54	150	338	78	143	58	46	23	16	64
24	26	48	172	e145	603	75	153	55	47	22	16	57
25	29	45	733	e140	404	74	228	58	42	22	15	54
26	71	48	516	e125	239	75	301	59	41	22	15	52
27	63	71	164	e100	179	74	227	59	46	21	17	51
28	39	61	123	e85	217	99	134	59	42	20	17	51
29	33	52	105	e95	---	99	114	56	37	19	15	50
30	32	47	96	e115	---	91	101	50	35	19	13	136
31	30	---	88	121	---	130	---	46	---	19	13	---
TOTAL	975	1691	4534	3558	5007	5680	8976	2073	1581	1124	526	9660
MEAN	31.5	56.4	146	115	179	183	299	66.9	52.7	36.3	17.0	322
MAX	71	156	733	330	603	1300	2610	97	123	124	22	4840
MIN	22	29	44	69	77	74	69	46	35	19	13	14
CFSM	.32	.58	1.49	1.17	1.83	1.87	3.05	.68	.54	.37	.17	3.29
IN.	.37	.64	1.72	1.35	1.90	2.16	3.41	.79	.60	.43	.20	3.67

CAL YR 1986 TOTAL 25389 MEAN 69.6 MAX 733 MIN 17 CFSM .71 IN. 9.64
WTR YR 1987 TOTAL 45385 MEAN 124 MAX 4840 MIN 13 CFSM 1.27 IN. 17.23

e Estimated.

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA

LOCATION.--Lat 36°54'54", long 78°44'28", Halifax County, Hydrologic Unit 03010102, on right bank 6 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 mi².
PERIOD OF RECORD.--August 1900 to September 1906, October 1927 to September 1930, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1902, published as Staunton River at Randolph. Gage heights collected since 1905 at this site or at former site are contained in reports of the National Weather Service.
REVISED RECORDS.--WSP 1203: 1928-30. WSP 1303: 1901-6. WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 307.59 ft above National Geodetic Vertical Datum of 1929. Aug. 27, 1900, to Oct. 13, 1902, nonrecording gage at site 3.2 mi downstream at datum about 5.9 ft lower. Oct. 14, 1902, to Aug. 11, 1906, and Oct. 1, 1927, to Mar. 31, 1930, nonrecording gage at site of original gage at datum 3.93 ft lower than present datum.
REMARKS.--Records good except those for periods of doubtful gage-height record, July 27, 28, Aug. 9-11, 16, 17, 23-25, Aug. 30 to Sept. 1, and Sept. 27-29, which are fair. Flow regulated since 1962 by Leesville Lake (station 02059400) 68.7 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 86.7 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--46 years, 3,084 ft³/s, 14.07 in/yr, unadjusted.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 97,000 ft³/s, Dec. 31, 1901, gage height, 35.0 ft, from graph based on gage readings, site and datum then in use; minimum daily, 179 ft³/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 ft³/s, from information by U.S. Army Corps of Engineers.
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 76,300 ft³/s, Sept. 10, gage height, 33.18 ft; minimum daily, 350 ft³/s, Aug. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1130	1280	774	3170	2550	21600	10400	15400	1700	1740	1680	e500
2	1110	926	1360	2510	2160	35100	8350	12700	3910	1910	1280	1160
3	1130	488	2580	3450	5110	35900	5490	6670	4300	2840	562	1210
4	1240	845	3660	2200	6780	27900	5410	5770	3440	3350	959	1160
5	898	1380	2560	1280	10200	15700	3700	6980	5320	3130	1640	1390
6	399	1390	2440	2430	6680	9300	3740	6720	4600	1830	1650	1250
7	536	1570	1390	2600	5710	6220	7090	6070	4330	3740	1320	888
8	1130	2080	890	2430	3070	6540	4860	5920	2390	3900	1150	16200
9	1120	2200	3010	2020	2670	5440	4530	5300	2870	4030	e1000	61700
10	1160	1380	4220	2340	4780	5420	4300	4640	2780	3710	e500	70000
11	1020	1120	4120	1610	4720	5350	4170	3800	2750	2810	e680	46700
12	789	1730	8670	1010	3720	5200	2850	4390	2780	1530	1220	31500
13	412	1830	8700	1870	3790	5010	1490	3790	3140	922	1210	20700
14	829	1850	4870	2210	3450	4920	3460	4810	1810	1960	1200	5520
15	1660	1530	1980	2310	1990	3800	6240	4870	1190	2540	1520	5190
16	1530	1030	3270	2300	1330	2020	21000	5000	2060	1980	e1190	4160
17	1440	628	2780	2340	3280	3330	42200	3410	2570	1620	e450	3250
18	1090	1110	2780	1630	4020	3760	56100	2990	2580	1610	656	2350
19	739	1510	2910	2290	4440	3910	48400	3940	2730	1310	1320	1900
20	445	1590	3950	7130	4240	3950	36100	3850	2620	728	1320	1790
21	686	1490	1750	8850	3340	3920	28800	4560	1730	895	1270	1530
22	1220	1880	954	5520	1920	2270	19000	4380	1160	1900	1380	2820
23	1260	1200	2870	5910	4240	1510	12800	4090	1780	1620	e1080	3230
24	1140	703	3310	6310	10500	2950	8290	2290	2500	1430	e430	2170
25	1160	1170	16000	2170	11100	4360	23200	2210	2350	1360	e620	2140
26	972	1710	20700	1360	7080	4420	37100	2320	1850	1170	1240	2130
27	688	1880	12700	6280	8360	4390	38200	4290	1650	e630	1230	e1330
28	1110	1590	5400	3460	9610	4320	31700	4430	1270	e735	1220	e600
29	1450	2060	4720	2780	---	2200	26900	4590	959	1350	1520	e1500
30	1320	1230	4630	3040	---	1570	21300	4250	1200	1230	e1150	2600
31	1270	---	4410	3490	---	7940	---	2570	---	1460	e350	---
TOTAL	32083	42380	144358	98300	140840	250220	527170	157000	76319	60970	33997	298568
MEAN	1035	1413	4657	3171	5030	8072	17570	5065	2544	1967	1097	9952
MAX	1660	2200	20700	8850	11100	35900	56100	15400	5320	4030	1680	70000
MIN	399	488	774	1010	1330	1510	1490	2210	959	630	350	500
(*)	-262	+433	+155	+69	+35	+16	+123	-57	-1	-158	-249	+287
MEAN‡	773	1846	4812	3240	5065	8088	17690	5008	2543	1809	848	10240
CFSM‡	.26	.62	1.62	1.09	1.70	2.72	5.94	1.68	.85	.61	.28	3.44
IN.‡	.30	.69	1.86	1.26	1.77	3.13	6.63	1.94	.95	.70	.33	3.84

CAL YR 1986	TOTAL	705971	MEAN	1934	MAX	20700	MIN	392	MEAN‡	1933	CFSM‡	.65	IN.‡	8.82
WTR YR 1987	TOTAL	1862205	MEAN	5102	MAX	70000	MIN	350	MEAN‡	5132	CFSM‡	1.72	IN.‡	23.41

* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; provided by Appalachian Power Company.
‡ Adjusted for change in contents.
e Estimated.

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 mi²; Townes Dam, 32.9 mi².

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 were provided by the city of Danville.

COMBINED MONTHEND CONTENTS AT 2400, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	7,980	-
Oct. 31	6,220	-1,760
Nov. 30	7,090	+870
Dec. 31	7,350	+260
CAL YR 1986	-	-40
Jan. 31	7,160	-190
Feb. 28	7,350	+190
Mar. 31	8,360	+1,010
Apr. 30	8,840	+480
May 31	7,550	-1,290
June 30	7,320	-230
July 31	6,520	-800
Aug. 31	5,900	-620
Sept. 30	7,140	+1,240
WTR YR 1987	-	-840

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 mi².
PERIOD OF RECORD.--August 1924 to September 1987 (discontinued). Monthly discharge only for some periods, published in WSP 1303.
REVISED RECORDS.--WSP 1303: 1938-50 (monthly runoff). WSP 1433: 1925-26, 1928-29, 1931, 1942, 1948. WDR NC-80-1: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 831.99 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 15, 1929, nonrecording gage at same site and datum.
REMARKS.--No estimated daily discharges. 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 upstream from station. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--63 years, 191 ft³/s, 20.11 in/yr, unadjusted.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft³/s, Aug. 17, 1985, gage height, 19.50 ft, from rating curve extended above 8,400 ft³/s on basis of slope-area measurement at gage height 18.11 ft; minimum, 7.1 ft³/s, Sept. 8, 1932, gage height, 0.43 ft; minimum daily, 27 ft³/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 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	0700	*6,840	*8.80	Apr. 24	0600	6,060	8.20
Apr. 15	2100	2,580	5.13	Sept. 7	1700	5,270	7.56

Minimum discharge, 43 ft³/s, Oct. 5, 6, gage height, 1.03 ft; minimum daily, 59 ft³/s, Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	92	123	167	184	3780	570	481	228	205	121	88
2	71	103	153	177	203	1130	475	465	256	415	170	90
3	66	94	166	161	234	739	446	438	250	527	129	82
4	65	89	149	162	234	566	437	362	488	459	165	80
5	64	110	140	162	213	453	418	353	301	344	140	99
6	59	140	133	169	209	389	402	388	256	391	143	174
7	60	145	130	160	177	362	352	398	245	317	182	2350
8	132	194	125	149	187	349	330	389	229	268	135	997
9	158	135	153	149	184	350	322	382	208	223	124	287
10	150	122	216	138	173	381	261	376	198	226	118	240
11	151	129	388	126	156	339	265	372	202	216	177	278
12	129	134	367	126	149	313	277	332	200	193	106	231
13	148	127	296	124	142	297	270	369	187	413	101	239
14	169	143	238	120	140	291	262	294	184	226	100	223
15	140	128	221	123	139	287	1010	300	157	169	100	223
16	125	127	176	121	157	288	1070	294	186	169	105	218
17	121	114	172	121	180	280	604	276	169	152	103	178
18	118	108	177	178	162	276	524	269	170	151	164	170
19	116	107	199	199	159	302	469	261	171	148	167	187
20	116	118	162	256	168	269	442	253	168	143	102	250
21	114	143	159	224	172	259	407	237	170	166	96	176
22	112	118	149	229	187	252	358	231	159	180	95	168
23	110	113	170	211	403	249	324	210	152	179	91	155
24	100	113	644	219	283	246	2800	315	166	144	88	145
25	98	111	413	184	224	296	1890	262	150	159	89	139
26	136	181	268	190	214	296	950	507	172	164	92	125
27	97	208	235	201	240	287	687	363	189	129	91	138
28	82	151	187	214	967	293	595	492	148	131	104	119
29	88	137	160	204	---	287	541	326	144	122	89	119
30	93	128	158	159	---	794	491	266	142	119	83	136
31	92	---	145	188	---	1040	---	249	---	120	84	---
TOTAL	3363	3862	6572	5311	6240	15740	18249	10510	6045	6968	3654	8104
MEAN	108	129	212	171	223	508	608	339	201	225	118	270
MAX	169	208	644	256	967	3780	2800	507	488	527	182	2350
MIN	59	89	123	120	139	246	261	210	142	119	83	80
(*)	-29	+15	+4	-3	+3	+16	+8	-21	-4	-13	-10	+21

CAL YR 1986 TOTAL 47224 MEAN 129 MAX 681 MIN 39 MEAN‡ 129 CFSM‡ 1.00 IN‡ 13.58
WTR YR 1987 TOTAL 94618 MEAN 259 MAX 3780 MIN 59 MEAN‡ 258 CFSM‡ 2.00 IN‡ 27.16

* Change in contents, equivalent in cubic feet per second, in Talbott and Townes Reservoirs; provided by city of Danville, Va.
‡ Adjusted for change in contents.

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 mi².

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-74-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 871.60 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 9, 1964, nonrecording gage and crest-stage gage at same site and datum.

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

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

AVERAGE DISCHARGE.--25 years, 127 ft³/s, 20.39 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s, Sept. 22, 1979, gage height, 22.00 ft, from rating curve extended above 2,900 ft³/s on basis of contracted-opening measurements at gage heights 18.32 ft and 22.00 ft; minimum, 20 ft³/s, Aug. 29, 30, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1830	1,440	7.41	Apr. 25	0500	2,110	8.82
Mar. 1	0700	*4,480	*12.33	July 3	2200	1,360	7.30
Apr. 16	0230	3,780	11.54	Sept. 7	2300	2,690	9.89
Apr. 24	0700	3,220	10.79				

Minimum discharge, 46 ft³/s, Oct. 7, 8, gage height, 3.23 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	54	91	128	150	2800	405	353	152	259	118	81
2	55	84	139	149	154	1020	287	325	151	463	108	75
3	52	69	168	131	177	612	259	302	141	429	110	74
4	50	62	132	122	214	445	246	289	257	537	110	72
5	49	88	115	118	190	350	220	270	203	288	107	96
6	47	104	105	113	173	295	202	254	150	279	104	204
7	46	119	98	112	166	257	189	241	139	219	295	798
8	47	196	95	111	162	240	178	228	133	227	154	890
9	49	127	102	108	151	235	170	215	129	176	121	230
10	50	100	143	107	140	222	164	207	125	203	114	262
11	48	90	291	106	136	195	160	199	122	218	106	236
12	48	94	292	102	132	186	157	196	121	209	102	172
13	60	83	193	97	128	174	156	197	120	255	98	168
14	80	76	155	95	123	166	149	185	120	247	96	141
15	61	78	138	96	121	161	751	181	114	185	96	130
16	53	82	126	94	120	163	1930	172	113	161	104	124
17	52	75	117	96	127	157	798	165	117	150	98	132
18	50	73	113	151	127	152	569	162	110	144	94	117
19	50	71	108	223	119	188	434	160	112	138	108	127
20	50	80	102	215	126	161	363	251	107	133	95	206
21	49	110	97	170	132	153	318	164	129	128	89	133
22	49	86	93	167	151	150	287	157	543	125	87	120
23	49	80	91	154	413	142	264	152	184	122	84	113
24	48	78	638	139	294	138	1760	159	144	119	81	109
25	54	76	541	133	206	144	1610	167	136	116	81	106
26	140	146	265	e125	191	144	920	310	146	113	84	103
27	77	171	197	e115	193	137	633	186	135	112	83	101
28	62	128	169	e110	639	141	507	247	119	110	79	100
29	57	110	151	e120	---	133	436	182	113	108	79	100
30	56	99	140	124	---	558	393	161	108	106	76	117
31	53	---	130	160	---	670	---	157	---	107	77	---
TOTAL	1769	2889	5335	3991	5155	10689	14915	6594	4493	6186	3238	5437
MEAN	57.1	96.3	172	129	184	345	497	213	150	200	104	181
MAX	140	196	638	223	639	2800	1930	353	543	537	295	890
MIN	46	54	91	94	119	133	149	152	107	106	76	72
CFSM	.68	1.14	2.03	1.53	2.18	4.08	5.88	2.52	1.77	2.36	1.23	2.14
IN.	.78	1.27	2.35	1.75	2.27	4.70	6.56	2.90	1.98	2.72	1.42	2.39

CAL YR 1986 TOTAL 33545 MEAN 91.9 MAX 638 MIN 32 CFSM 1.09 IN. 14.75
WTR YR 1987 TOTAL 70691 MEAN 194 MAX 2800 MIN 46 CFSM 2.29 IN. 31.08

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1303: 1929-32(M), 1934(M).

GAGE.--Water-stage recorder. Datum of gage is 730.94 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Jan. 23, 1936, nonrecording gage at site 800 ft upstream at datum 1.50 ft higher. July 25 to Sept. 27, 1936, nonrecording gage at present site and datum.

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

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

AVERAGE DISCHARGE.--59 years, 128 ft³/s, 16.09 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,200 ft³/s, Oct. 9, 1947, gage height, 15.80 ft, from rating curve extended above 7,200 ft³/s on basis of slope-area measurement at gage height 13.41 ft and velocity-area study; minimum, 14 ft³/s, Aug. 11, 1956; minimum gage height, 1.08 ft, Oct. 8, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2200	1,730	5.19	Apr. 24	1630	3,150	7.10
Mar. 1	1630	4,850	8.70	July 1	2200	2,040	5.66
Apr. 16	1200	3,680	7.66	Sept. 7	2400	*12,500	*13.39

Minimum discharge, 44 ft³/s, Oct. 6, 7, 8, gage height, 1.39 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	55	86	116	169	3900	316	252	145	454	173	68
2	55	81	213	139	180	1270	236	238	145	742	99	63
3	51	77	291	124	209	565	226	228	136	304	94	60
4	50	66	161	118	266	365	244	221	173	405	95	59
5	48	69	124	113	225	294	214	215	203	234	90	78
6	45	93	109	108	193	257	192	201	143	167	85	222
7	44	87	99	107	185	234	179	195	132	148	108	3180
8	46	267	96	107	190	220	170	186	127	251	109	6490
9	48	145	101	103	171	212	160	179	123	153	89	503
10	50	105	124	103	147	201	155	174	119	136	94	374
11	49	92	278	101	137	182	151	169	116	154	85	268
12	48	102	353	95	133	177	149	168	117	130	81	178
13	56	88	185	93	130	170	149	186	118	124	79	224
14	77	78	138	91	125	160	141	174	117	138	77	231
15	66	80	123	92	122	158	1340	169	114	118	77	149
16	53	88	113	91	119	160	2980	162	116	112	85	132
17	51	80	106	93	127	157	919	159	117	109	82	126
18	51	77	106	163	140	149	548	172	114	108	76	117
19	50	74	99	304	123	199	371	175	117	104	74	123
20	50	84	93	254	126	183	304	342	111	100	73	183
21	50	144	89	167	133	161	270	196	115	98	69	129
22	50	101	87	158	165	152	248	169	384	96	68	113
23	50	88	85	158	526	145	233	170	160	93	67	105
24	50	84	687	141	416	142	1800	167	133	92	64	102
25	55	81	740	131	249	148	1800	167	124	90	64	100
26	155	111	252	e130	238	158	812	525	143	88	67	97
27	90	183	181	e120	222	143	447	234	135	87	71	96
28	66	121	150	e110	689	146	353	187	115	86	68	95
29	60	103	132	e120	---	138	304	167	109	85	67	95
30	58	92	123	131	---	492	275	156	106	83	63	111
31	56	---	115	185	---	564	---	149	---	92	64	---
TOTAL	1787	2996	5639	4066	5855	11602	15686	6252	4127	5181	2557	13871
MEAN	57.6	99.9	182	131	209	374	523	202	138	167	82.5	462
MAX	155	267	740	304	689	3900	2980	525	384	742	173	6490
MIN	44	55	85	91	119	138	141	149	106	83	63	59
CFSM	.53	.93	1.69	1.21	1.94	3.46	4.84	1.87	1.28	1.55	.76	4.28
IN.	.62	1.03	1.94	1.40	2.02	4.00	5.40	2.15	1.42	1.78	.88	4.78

CAL YR 1986 TOTAL 34761 MEAN 95.2 MAX 740 MIN 32 CFSM .88 IN. 11.97
WTR YR 1987 TOTAL 79619 MEAN 218 MAX 6490 MIN 44 CFSM 2.02 IN. 27.42

e Estimated.

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^2.

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

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

REMARKS.--Reservoir is formed by concrete dam. Spillway, with crest at elevation 985 ft, is ungated and 120 ft long. Storage began August 1950 during construction; initial filling started in December 1951; water in reservoir first reached rule-curve elevation in July 1953. Total capacity at maximum flood-control pool elevation, 998 ft, is 247,400 acre-ft of which 47,000 acre-ft is upstream from the spillway crest; 34,200 acre-ft is controlled flood storage between elevations 974 ft, maximum power pool, and 985 ft; 57,800 acre-ft is available for power between elevations 951 ft, minimum power pool, and 974 ft; and 108,400 acre-ft is inactive and dead storage below elevation 951 ft. Usable capacity is 92,000 acre-ft between elevations 951 ft and 985 ft. Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, low-water regulation for pollution abatement and industrial water supply, and recreation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 191,700 acre-ft, June 22, 1972, elevation, 983.06 ft; minimum (after first filling to rule curve), 64,540 acre-ft, Sept. 26, 1956, elevation, 927.59 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 182,780 acre-ft, Sept. 8, elevation, 979.52 ft; minimum, 134,380 acre-ft, Oct. 31, elevation, 962.21 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	963.81	138,400	-
Oct. 31	962.22	134,400	-4,000
Nov. 30	963.70	138,120	+3,720
Dec. 31	970.23	155,480	+17,360
CAL YR 1986	-	-	-4,820
Jan. 31	971.90	160,160	+4,680
Feb. 28	973.75	165,470	+5,310
Mar. 31	975.95	171,920	+6,450
Apr. 30	975.48	170,530	-1,390
May 31	975.05	169,260	-1,270
June 30	974.01	166,220	-3,040
July 31	973.13	163,680	-2,540
Aug. 31	971.62	159,370	-4,310
Sept. 30	971.74	159,710	+340
WTR YR 1987	-	-	+21,310

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 mi².

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

REVISED RECORDS.--WSP 1553: 1953(M), 1955-56(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 804.27 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 8, 1952, at site 1.9 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 0.2 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--41 years, 280 ft³/s, 17.60 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft³/s, June 29, 1949, gage height, 20.3 ft, site and datum then in use, from rating curve extended above 9,700 ft³/s on basis of slope-area measurements at gage heights 18.2 ft and 20.3 ft; minimum observed, 2.3 ft³/s, Dec. 16, 1985 (result of repairs at dam), but may have been less during periods of estimated record; minimum daily, 20 ft³/s, Mar. 24, 1984, caused by turbines being shut down for repair at Philpott Dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,690 ft³/s, Apr. 18, gage height, 7.44 ft; minimum, 12 ft³/s, part of each day Oct. 1-3, 6-9, Aug. 11-14, 17-20; minimum daily, 42 ft³/s, Oct. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	46	201	92	46	49	1250	1330	731	345	46	245
2	200	46	197	92	284	2360	1260	1180	716	346	46	244
3	198	197	203	46	292	3580	1040	46	726	194	332	242
4	42	215	199	46	286	2730	44	748	755	46	435	241
5	42	209	199	91	288	1320	44	717	726	47	243	49
6	197	203	46	96	291	1210	729	743	49	489	241	49
7	199	202	46	94	47	758	818	753	48	482	191	76
8	201	46	196	94	49	46	1220	726	539	484	46	645
9	202	46	196	94	629	701	1230	728	533	488	47	3440
10	205	198	205	46	633	743	994	46	525	489	329	3030
11	48	197	197	46	638	732	46	756	535	47	326	1310
12	47	209	195	201	656	702	46	747	530	47	324	1230
13	209	208	46	200	654	755	541	735	46	383	229	717
14	206	204	46	199	49	675	542	756	47	397	181	741
15	203	46	197	198	48	123	482	744	439	404	45	742
16	202	46	195	174	190	733	584	45	440	390	45	732
17	202	201	198	46	195	781	2380	45	437	385	357	736
18	46	201	195	46	189	734	3540	530	434	47	358	740
19	46	206	197	187	194	737	2710	539	433	47	336	49
20	202	205	46	187	194	686	1310	551	49	387	241	49
21	203	205	46	185	47	48	1310	527	48	389	202	338
22	203	47	148	195	48	47	1330	545	236	391	52	345
23	201	47	142	193	438	284	1170	45	234	398	52	346
24	202	199	141	49	724	288	736	46	436	391	355	351
25	46	199	144	49	738	287	2070	540	436	47	341	347
26	46	209	147	568	734	280	2720	535	441	47	351	46
27	205	203	46	612	738	287	1300	527	47	345	251	46
28	204	200	46	587	47	44	1310	536	47	345	195	243
29	205	46	96	578	---	44	1330	536	289	342	50	241
30	200	46	83	585	---	530	1330	734	287	246	50	241
31	198	---	92	44	---	755	---	47	---	195	246	---
TOTAL	5007	4532	4331	5920	9366	23049	35416	17083	11239	9080	6543	17851
MEAN	162	151	140	191	334	744	1181	551	375	293	211	595
MAX	209	215	205	612	738	3580	3540	1330	755	489	435	3440
MIN	42	46	46	44	46	44	44	45	46	46	45	46
(*)	-65	+63	+282	+76	+96	+105	-23	-21	-51	-41	-70	+6
MEAN‡	97	214	422	267	430	849	1158	530	324	252	141	601
CFSM‡	.45	.99	1.95	1.24	1.99	3.93	5.36	2.45	1.50	1.17	.65	2.78
IN.‡	.52	1.11	2.25	1.43	2.07	4.53	5.98	2.83	1.67	1.35	.75	3.11

CAL YR 1986	TOTAL	72640	MEAN	199	MAX	632	MIN	42	MEAN‡	192	CFSM‡	.89	IN.‡	12.07
WTR YR 1987	TOTAL	149417	MEAN	409	MAX	3580	MIN	42	MEAN‡	438	CFSM‡	2.03	IN.‡	27.53

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.

02072500 SMITH RIVER AT BASSETT, VA

LOCATION.--Lat 36°46'12", long 80°00'04", Henry County, Hydrologic Unit 03010103, on left bank 25 ft upstream from bridge on State Highway 666 at north edge of North Bassett, 1.0 mi northwest of Bassett, 3.0 mi downstream from Town Creek, 5.6 mi upstream from Reed Creek, 6.2 mi downstream from Philpott Dam, and at mile 38.1.

DRAINAGE AREA.--259 mi².

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 753.09 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. Records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 6.2 mi upstream. Diversion upstream from station by Henry County Public Service Authority, since 1985, has averaged less than 1.0 ft³/s. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--48 years, 333 ft³/s, 17.46 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft³/s, Aug. 14, 1940, gage height, 18.28 ft; minimum, 19 ft³/s, July 19, 1956; minimum daily, 44 ft³/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 ft³/s, from rating curve extended above 23,000 ft³/s on basis of backwater studies and records for station at Martinsville.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,700 ft³/s, Sept. 7, gage height, 15.20 ft; minimum, 52 ft³/s, part of each day Oct. 4-6, Sept. 27, 28; minimum daily, 54 ft³/s, Oct. 5, Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	228	64	236	133	98	1610	1430	1500	838	414	77	285
2	229	70	336	135	375	2450	1420	1450	822	431	69	282
3	224	227	316	81	400	3800	1290	158	726	252	378	281
4	65	246	262	81	431	3080	121	871	996	86	500	281
5	54	244	249	122	400	1470	117	849	847	81	285	76
6	209	238	78	129	385	1460	834	874	104	560	282	144
7	226	300	75	125	105	944	868	882	90	554	226	5110
8	225	147	234	125	102	159	1360	849	604	558	69	1610
9	228	90	240	125	715	810	1380	856	613	565	68	3760
10	234	242	267	77	766	881	1200	137	604	570	360	3480
11	71	239	331	75	770	861	119	854	614	106	361	1570
12	59	252	312	238	792	831	89	879	607	84	359	1590
13	234	245	101	238	784	873	618	868	91	524	261	945
14	249	239	87	237	130	725	633	890	85	489	207	931
15	245	71	246	237	83	257	1220	862	494	474	65	912
16	260	70	237	211	266	809	2320	112	506	455	68	905
17	243	234	240	73	297	869	2570	98	509	445	390	947
18	65	235	246	89	294	853	3810	607	500	92	402	897
19	59	225	242	287	292	871	3050	635	496	76	371	68
20	223	242	74	269	282	806	1490	665	92	430	274	75
21	228	255	72	247	88	121	1480	625	86	444	226	417
22	226	75	130	262	88	90	1490	640	287	446	67	414
23	227	72	173	248	661	355	1420	107	280	457	65	414
24	228	231	736	86	933	370	1930	104	495	448	389	404
25	72	234	345	94	907	370	2630	671	508	86	380	392
26	102	282	236	688	907	358	3260	789	530	70	408	60
27	243	278	98	721	908	353	1540	640	97	389	302	54
28	233	250	89	686	591	98	1520	636	80	395	232	273
29	232	77	139	675	---	80	1510	630	333	394	67	271
30	229	72	125	691	---	749	1510	842	340	294	66	277
31	227	---	128	121	---	872	---	108	---	232	283	---
TOTAL	5877	5746	6680	7606	12850	28235	44229	20688	13274	10901	7557	27125
MEAN	190	192	215	245	459	911	1474	667	442	352	244	904
MAX	260	300	736	721	933	3800	3810	1500	996	570	500	5110
MIN	54	64	72	73	83	80	89	98	80	70	65	54
(*)	-65	+63	+282	+76	+96	+105	-23	-21	-51	-41	-70	+6
MEAN‡	125	255	497	321	555	1016	1451	646	391	311	174	910
CFSM‡	.48	.98	1.92	1.24	2.14	3.92	5.60	2.49	1.51	1.20	.67	3.51
IN.‡	.56	1.10	2.21	1.43	2.23	4.52	6.25	2.88	1.68	1.38	.77	3.92

CAL YR 1986 TOTAL 88303 MEAN 242 MAX 736 MIN 54 MEAN‡ 235 CFSM‡ .91 IN.‡ 12.32
WTR YR 1987 TOTAL 190768 MEAN 523 MAX 5110 MIN 54 MEAN‡ 552 CFSM‡ 2.31 IN.‡ 28.94

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.

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 mi².

PERIOD OF RECORD.--August 1929 to current year.

REVISED RECORDS.--WSP 1032: 1933-35(M), 1936-39, 1940-41(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 657.22 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 19.6 mi upstream from station. Some additional regulation by powerplant 1,000 ft upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--58 years, 462 ft³/s, 16.51 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft³/s, Oct. 19, 1937, gage height, 21.50 ft, from rating curve extended above 17,000 ft³/s on basis of computations of flow over dam at gage heights 16.76 ft and 21.50 ft; minimum, 3.8 ft³/s, Mar. 19, 1955; minimum daily, 19 ft³/s, Oct. 6, 1935; minimum gage height, 0.69 ft, Sept. 8, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 34,600 ft³/s, Sept. 8, gage height, 20.08 ft; minimum, 13 ft³/s, June 3, gage height, 0.98 ft; minimum daily, 63 ft³/s, Oct. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	294	156	385	250	279	5830	1960	1960	1020	936	201	403
2	289	148	688	377	535	2960	1910	1920	1090	936	173	393
3	331	335	648	123	626	4120	1890	606	936	570	496	382
4	162	329	489	188	744	3710	542	1060	1550	453	780	342
5	105	371	354	283	648	2010	388	1170	1170	278	499	309
6	181	333	187	194	583	1970	950	1180	428	649	427	998
7	282	470	175	234	285	1290	1160	1190	241	787	401	9530
8	262	588	380	264	286	552	1780	1140	665	771	162	11300
9	287	259	397	266	780	923	1790	1210	818	800	164	4130
10	290	427	448	107	984	1150	1580	404	807	768	433	3850
11	250	312	810	163	973	1100	485	965	816	412	492	2010
12	63	425	810	339	982	1070	243	1170	807	220	493	2020
13	215	354	228	377	984	1100	669	1150	375	716	332	1390
14	371	385	227	319	466	1050	805	1180	218	787	320	1190
15	316	84	427	336	208	511	3660	1140	568	680	237	1170
16	291	161	365	351	410	880	6890	440	731	682	169	1170
17	315	334	356	97	413	1120	3130	271	607	594	444	1170
18	194	342	372	246	401	1100	4020	717	667	385	554	1170
19	112	327	339	670	419	1260	3510	885	683	191	505	330
20	185	409	175	552	456	1130	1990	972	368	555	386	307
21	303	481	146	405	155	458	1930	866	230	546	295	556
22	282	132	305	436	308	250	1940	860	420	610	228	611
23	296	162	289	446	1400	417	1890	406	444	590	140	620
24	288	364	1990	122	1500	594	4620	371	594	652	335	642
25	272	357	1010	221	1250	534	4080	760	709	346	511	637
26	325	491	555	608	1280	521	4090	1440	771	171	599	298
27	363	409	178	870	1280	519	2210	928	390	417	596	223
28	320	478	225	884	2060	262	2070	908	210	541	423	489
29	316	118	296	826	---	215	2020	852	301	534	189	485
30	310	160	211	877	---	1250	1990	1080	533	506	146	586
31	291	---	237	546	---	1480	---	473	---	377	348	---
TOTAL	8161	9701	13702	11977	20695	41336	66192	29674	19167	17460	11478	48711
MEAN	263	323	442	386	739	1333	2206	957	639	563	370	1624
MAX	371	588	1990	884	2060	5830	6890	1960	1550	936	780	11300
MIN	63	84	146	97	155	215	243	271	210	171	140	223
(*)	-65	+63	+282	+76	+96	+105	-23	-21	-51	-41	-70	+6
MEAN‡	198	386	724	462	835	1438	2183	936	588	522	300	1630
CFSM‡	.52	1.02	1.91	1.22	2.20	3.78	5.74	2.46	1.55	1.37	.79	4.29
IN.‡	.60	1.13	2.20	1.40	2.29	4.36	6.41	2.84	1.73	1.58	.91	4.79

CAL YR 1986	TOTAL 135837	MEAN 372	MAX 1990	MIN 59	MEAN‡ 365	CFSM‡ .96	IN.‡ 13.04
WTR YR 1987	TOTAL 298254	MEAN 817	MAX 11300	MIN 63	MEAN‡ 846	CFSM‡ 2.23	IN.‡ 30.23

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

02074000 SMITH RIVER AT EDEN, NC

LOCATION.--Lat 36°31'31", long 79°45'57", Rockingham County, Hydrologic Unit 03010103, on right bank at Eden, 0.3 mi downstream from bridge on State Highway 14, 0.8 mi upstream from bridge on Secondary Road 1714, 1.2 mi south of Virginia-North Carolina State line, 1.3 mi downstream from Stuart Creek, and 3.9 mi upstream from mouth.

DRAINAGE AREA.--538 mi².

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1970, published as "at Spray".

REVISED RECORDS.--WSP 1433: 1946.

GAGE.--Water-stage recorder. Datum of gage is 539.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated since August 1950 by Philpott Lake (station 02071900) 40 mi upstream, usable capacity, 6,325,000 ft³. 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.--48 years, 627 ft³/s, 15.83 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,600 ft³/s, Aug. 15, 1940, gage height, 19.28 ft, from rating curve extended above 12,000 ft³/s on basis of computation of peak flow over dam 1.5 mi downstream; minimum, 38 ft³/s, Aug. 7, 1967; minimum daily, 46 ft³/s, Aug. 14, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,700 ft³/s, Sept. 8, gage height, 16.17 ft; minimum, 69 ft³/s, Oct. 12, 13, gage height, 1.37 ft; minimum daily, 100 ft³/s, Oct. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	291	290	341	271	433	11800	1980	2240	616	550	424	409
2	295	142	605	467	673	4710	2020	2170	1170	1590	255	401
3	289	292	1020	356	909	5210	1990	1320	1030	1020	253	393
4	270	336	603	218	1200	4780	1250	882	1510	886	706	384
5	124	390	484	339	1040	2510	629	1430	1490	445	726	403
6	143	384	312	307	891	2240	836	1360	e1400	381	459	686
7	294	401	253	306	752	1740	1310	1390	e1410	842	444	4900
8	269	840	375	303	438	1120	1710	1350	904	829	381	14300
9	281	371	416	298	718	854	1840	1290	886	810	228	4290
10	284	411	556	304	1150	1290	1820	1040	831	806	242	4470
11	308	437	931	179	1130	1280	945	745	866	815	495	2620
12	106	489	1380	338	1110	1250	347	1250	801	313	489	2150
13	178	429	593	417	1130	1210	602	1320	336	391	484	1840
14	378	389	366	386	969	1250	938	1320	323	1000	378	1300
15	399	329	463	391	270	863	3970	1310	751	756	302	1240
16	317	203	469	394	471	701	13400	1060	810	720	235	1160
17	302	325	447	328	497	1210	5810	404	764	683	245	1140
18	300	357	451	334	563	1260	5470	466	743	646	522	1130
19	100	374	452	1080	521	1370	4900	976	738	278	531	770
20	196	397	357	1040	537	1320	2600	1070	456	324	499	487
21	290	577	165	658	487	897	2330	1070	314	638	383	523
22	297	396	308	626	363	380	2270	985	382	583	311	515
23	295	185	322	648	1930	523	2180	e600	526	625	189	611
24	293	350	1910	402	2020	636	5970	e400	488	673	214	600
25	327	378	2430	349	1610	652	6780	e450	735	606	464	598
26	356	429	913	854	1570	673	6370	e1180	788	244	495	549
27	370	557	485	1140	1540	629	2940	1160	901	270	609	257
28	356	483	388	988	2680	548	2520	989	330	522	502	284
29	339	394	405	954	---	286	2400	970	325	555	390	465
30	328	165	359	997	---	870	2340	1050	516	539	200	600
31	330	---	330	1050	---	1960	---	982	---	445	188	---
TOTAL	8705	11500	18889	16722	27602	56022	90467	34229	23140	19785	12243	49475
MEAN	281	383	609	539	986	1807	3016	1104	771	638	395	1649
MAX	399	840	2430	1140	2680	11800	13400	2240	1510	1590	726	14300
MIN	100	142	165	179	270	286	347	400	314	244	188	257
(*)	-65	+62	+280	+76	+95	+104	-23	-21	-51	-41	-70	+6

CAL YR 1986	TOTAL 155757	MEAN 427	MAX 2430	MIN 83	MEAN‡ 420	CFSM‡ 0.78	IN‡ 10.60
WTR YR 1987	TOTAL 368779	MEAN 1010	MAX 14300	MIN 100	MEAN‡ 1039	CFSM‡ 1.93	IN‡ 26.22

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U. S. Army Corps of Engineers.
‡ Adjusted for change in contents.
e Estimated.

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 city limits of Danville, and 5.8 mi upstream from mouth.

DRAINAGE AREA.--112 mi².

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1930-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 460.38 ft above National Geodetic Vertical Datum of 1929. Prior to June 26, 1942, at site 1,200 ft downstream at datum 5.57 ft lower.

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

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

AVERAGE DISCHARGE.--58 years, 107 ft³/s, 12.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft³/s, Aug. 14, 1940, gage height, 14.8 ft, present datum, from floodmarks, from rating curve extended above 11,000 ft³/s; minimum, 3 ft³/s, Sept. 29, 1930, gage height, 0.40 ft, site and datum then in use; minimum daily, 8 ft³/s, Aug. 29, 31, Sept. 1, 2, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2300	1,650	4.59	Apr. 16	0100	*12,800	*10.97
Mar. 1	0630	5,910	7.56	Apr. 24	1900	3,650	6.21
Apr. 15	1430	4,050	6.46	Sept. 8	0500	7,490	8.42

Minimum discharge, 22 ft³/s, Oct. 7-8, gage height, 1.00 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	33	49	85	161	4540	115	148	92	51	35	40
2	28	37	94	99	179	885	102	151	118	129	34	38
3	27	39	182	83	238	309	100	142	82	86	33	37
4	26	36	108	75	325	212	122	132	117	86	56	35
5	25	36	79	71	231	172	109	127	199	150	46	44
6	23	39	69	68	183	151	102	120	93	72	41	87
7	22	43	64	68	172	139	96	115	78	62	38	236
8	23	86	62	65	181	131	92	109	72	59	39	2980
9	25	72	69	63	167	130	88	104	69	54	36	262
10	26	61	136	64	141	125	85	102	65	52	34	129
11	25	68	282	64	128	110	84	99	63	55	32	97
12	25	100	322	61	124	107	83	94	64	52	30	96
13	32	68	150	58	121	103	82	97	64	57	29	244
14	83	55	104	57	115	99	79	100	64	55	29	107
15	51•	54	88	59	110	97	2020	98	62	51	30	82
16	35	58	82	59	106	102	7490	92	61	49	37	74
17	32	52	78	63	107	101	929	88	61	47	36	69
18	31	49	75	132	130	93	394	86	59	46	32	66
19	31	47	70	400	116	123	285	88	61	44	30	173
20	31	56	65	292	117	117	216	137	60	42	30	320
21	32	103	62	170	131	105	184	95	63	41	27	125
22	33	72	59	155	163	98	163	90	82	39	28	89
23	33	60	58	159	543	92	149	85	63	38	29	76
24	34	57	643	138	453	90	1450	83	57	38	26	70
25	39	54	587	124	231	90	1640	87	56	43	25	67
26	85	59	191	103	196	92	617	138	64	40	29	64
27	50	71	128	e100	182	89	287	96	106	37	55	64
28	35	59	103	e95	933	100	218	89	63	36	54	62
29	33	55	88	e115	---	88	181	83	56	37	42	61
30	32	51	82	126	---	103	162	78	52	37	37	112
31	32	---	77	163	---	139	---	74	---	35	37	---
TOTAL	1068	1730	4306	3434	5984	8932	17724	3227	2266	1720	1096	6006
MEAN	34.5	57.7	139	111	214	288	591	104	75.5	55.5	35.4	200
MAX	85	103	643	400	933	4540	7490	151	199	150	56	2980
MIN	22	33	49	57	106	88	79	74	52	35	25	35
CFSM	.31	.52	1.24	.99	1.91	2.57	5.28	.93	.67	.50	.32	1.79
IN.	.35	.57	1.43	1.14	1.99	2.97	5.89	1.07	.75	.57	.36	1.99

CAL YR 1986 TOTAL 21819 MEAN 59.8 MAX 643 MIN 15 CFSM .53 IN. 7.25
WTR YR 1987 TOTAL 57493 MEAN 158 MAX 7490 MIN 22 CFSM 1.41 IN. 19.10

e Estimated.

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 Norfolk Southern Railway bridge, 1,000 ft upstream from Fall Creek, and at mile 62.7.

DRAINAGE AREA.--2,050 mi², approximately.

PERIOD OF RECORD.--August 1934 to current year. Gage-height records collected in this vicinity 1890-1934, at same site 1934-49, and at Main Street bridge, 0.25 mi upstream 1949-68, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 972: 1936.

GAGE.--Water-stage recorder. Datum of gage is 379.29 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation caused by mills upstream. Since August 1950, flow regulated by Philpott Lake (station 02071900) 74.7 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 2,313 ft³/s, 15.32 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,000 ft³/s, Aug. 15, 1940, gage height, 20.96 ft; maximum gage height, 21.34 ft, June 22, 1972, backwater from debris; minimum discharge, 11 ft³/s, Sept. 5, 1966, gage height, 1.18 ft; minimum daily, 110 ft³/s, Sept. 5, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 55,400 ft³/s, Apr. 16, gage height, 20.81 ft; minimum, 161 ft³/s, Aug. 3, result of temporary storage by Dan River Mills dam upstream; minimum daily, 409 ft³/s, Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	601	757	1020	1530	3290	33400	6550	5250	2260	1240	900	561
2	608	698	1400	1860	3240	45000	4560	4930	2640	6220	899	672
3	642	682	2580	2000	4310	37900	3820	4510	2730	9100	874	663
4	608	959	2480	1610	5470	11600	3820	3330	2450	4960	961	627
5	536	848	1850	1500	4790	7680	2660	3810	3490	6840	1260	653
6	409	861	1480	1530	3810	5960	2330	3700	3130	3310	964	905
7	424	985	1190	1410	3340	5260	2670	3500	1960	2840	935	2380
8	546	1390	1130	1400	3060	4460	2620	3310	1730	2300	1770	31500
9	529	1900	1290	1360	2850	3350	2880	2920	2000	2320	1160	30800
10	570	1390	1540	1330	2870	4230	2780	2600	1980	1910	1000	7410
11	652	1330	2640	1260	2720	4060	2490	2160	1930	1800	884	6150
12	636	1480	5300	1210	2500	3560	1810	2400	1910	1610	907	4290
13	553	1570	3850	1310	2440	3220	1730	2510	1920	1560	875	4970
14	1230	1250	2270	1320	2360	3090	1940	2660	1550	2070	753	3500
15	1330	1150	1820	1270	1770	2670	7560	2460	1420	2120	744	2690
16	1010	975	1760	1290	1620	2260	48700	2430	1590	1580	672	2280
17	794	1050	1590	1310	1860	2600	48300	2000	1700	1450	688	2120
18	727	1120	1490	1510	1910	2710	23800	1960	1710	1360	762	2060
19	663	1060	1460	4160	2300	2890	10600	2230	1670	1140	868	1970
20	530	1060	1390	6050	2150	3750	6430	2350	1670	994	928	2010
21	608	1360	1200	3850	2480	3400	4530	2470	1390	1150	800	1890
22	686	1620	1070	2940	2600	2340	4050	2130	1300	1130	686	1580
23	676	1160	1170	2680	5850	2140	3770	2050	2040	1180	607	1420
24	699	1000	3090	2620	7920	2160	8210	1770	1550	1160	516	1340
25	712	1140	10700	2450	5370	2110	31000	1820	1540	1140	560	1290
26	1010	1130	4940	2120	4050	2140	36800	5960	1620	939	701	1250
27	1410	1390	3030	2100	3630	2220	e21200	6540	1990	797	819	992
28	1190	1720	2150	2560	6110	2250	e8220	3640	1570	878	848	886
29	891	1540	1890	2680	---	1990	e6600	3270	1200	989	765	1040
30	803	1110	1740	2490	---	1900	5780	2710	1170	954	599	1230
31	760	---	1540	3080	---	5970	---	2620	---	902	529	---
TOTAL	23043	35685	72050	65790	96670	218270	318210	96000	56810	67943	26234	121129
MEAN	743	1190	2324	2122	3453	7041	10610	3097	1894	2192	846	4038
MAX	1410	1900	10700	6050	7920	45000	48700	6540	3490	9100	1770	31500
MIN	409	682	1020	1210	1620	1900	1730	1770	1170	797	516	561
(*)	-65	+63	+282	+76	+96	+105	-23	-21	-51	-41	-70	+6
MEAN‡	678	1253	2606	2198	3549	7146	10590	3076	1843	2151	776	4044
CFSM‡	.33	.61	1.27	1.07	1.73	3.49	5.17	1.50	.90	1.05	.38	1.97
IN.‡	.38	.68	1.47	1.24	1.80	4.02	5.76	1.73	1.00	1.21	.44	2.20

CAL YR 1986	TOTAL 466217	MEAN 1277	MAX 10700	MIN 277	MEAN‡ 1271	CFSM‡ .62	IN.‡ 8.42
WTR YR 1987	TOTAL 1197834	MEAN 3282	MAX 48700	MIN 409	MEAN‡ 3312	CFSM‡ 1.62	IN.‡ 21.94

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.
e Estimated.

02075500 DAN RIVER AT PACES, VA
(National stream-quality accounting network station)

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 mi², approximately.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 322.48 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for period of doubtful gage-height record, July 8-16, which is fair. Diurnal fluctuation by mills 23 mi upstream at Danville. Since August 1950, flow regulated by Philpott Lake (station 02071900) 101.4 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

AVERAGE DISCHARGE.--36 years (water years 1952-87), 2,716 ft³/s, 14.46 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64,800 ft³/s, June 23, 1972, gage height, 33.15 ft, from rating curve extended above 32,000 ft³/s; minimum, 193 ft³/s, Sept. 4, 1956, gage height, 1.71 ft; minimum daily, 244 ft³/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, 54,200 ft³/s, Apr. 17, gage height, 30.91 ft; minimum, 388 ft³/s, Aug. 4, gage height, 2.15 ft, result of temporary storage by Dan River Mills dam at Danville.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	610	891	1260	1810	4810	21400	7120	5860	2620	1400	1200	701
2	690	885	1420	2550	4750	34900	5720	5470	2530	2230	1230	832
3	701	813	2940	2620	6130	40200	4680	5370	2880	10200	1260	907
4	721	846	3650	2210	7750	30000	4710	4110	2670	5860	871	882
5	685	1100	2590	1800	7070	12900	4130	3850	3060	7780	1630	870
6	562	1010	2030	1750	5330	6580	3470	4050	3680	5200	1350	1080
7	448	1060	1680	1660	4430	5760	3420	3860	2600	3180	1370	1800
8	478	1540	1430	1580	4040	4880	3570	3770	1870	e2800	1130	17900
9	582	2210	1450	1530	3560	4180	3690	3550	1850	e2500	2210	32500
10	593	2010	1730	1480	3350	5560	3630	3420	2120	e2380	1310	30400
11	659	1580	2780	1470	3190	6140	3490	3090	2030	e2110	1200	11000
12	741	1840	6060	1290	2960	4950	2740	2820	1980	e2200	1200	5680
13	706	1990	5830	1310	2820	4090	2200	3210	2000	e2000	1200	4930
14	1050	1750	3410	1370	2710	3820	2430	3690	1910	e2200	1110	4810
15	1810	1470	2520	1350	2530	3670	4170	3470	1550	e2800	1010	3410
16	1470	1460	2220	1340	1870	3220	22700	3260	1520	e2130	966	2920
17	1090	1250	2060	1380	2030	3070	51100	2940	1790	1890	899	2670
18	919	1310	1920	1730	2160	3300	46200	2360	1850	1790	930	2550
19	856	1320	1840	5130	2460	3400	24700	2440	1840	1680	1080	2450
20	709	1290	1770	9130	2600	4060	11700	3590	1790	1350	1150	2940
21	588	1580	1640	6370	2810	3960	6870	3690	1810	1320	1280	2390
22	677	1980	1390	3870	3420	3210	6020	3160	1470	1530	1030	2190
23	775	1830	1340	3430	7630	2580	5430	2760	1800	1470	868	1880
24	771	1330	3250	3200	11500	2560	6810	2640	1960	1500	767	1770
25	793	1280	11700	3050	8960	2530	18200	2250	1650	1510	672	1650
26	1080	1370	9990	2570	6100	2510	26400	3030	1750	1420	851	1580
27	1550	1510	4490	2280	4910	2700	28700	8270	1960	1080	993	1500
28	1660	1940	2940	2980	6300	2700	17100	4510	2210	1060	1190	1190
29	1290	1980	2380	2940	---	2590	7380	3370	1550	1230	1190	1170
30	1040	1660	2100	2890	---	2230	6430	3110	1290	1300	990	1390
31	940	---	1870	3960	---	4000	---	2840	---	1250	760	---
TOTAL	27244	44085	93680	82030	128180	237650	344910	113810	61590	78350	34897	147942
MEAN	879	1469	3022	2646	4578	7666	11500	3671	2053	2527	1126	4931
MAX	1810	2210	11700	9130	11500	40200	51100	8270	3680	10200	2210	32500
MIN	448	813	1260	1290	1870	2230	2200	2250	1290	1060	672	701
(*)	-65	+63	+282	+76	+96	+105	-23	-21	-51	-41	-70	+6
MEAN‡	814	1532	3304	2722	4674	7771	11480	3650	2002	2486	1056	4937
CFSM‡	.32	.60	1.30	1.07	1.83	3.05	4.50	1.43	.78	.97	.41	1.94
IN.‡	.37	.67	1.49	1.23	1.91	3.51	5.02	1.65	.88	1.12	.48	2.16

CAL YR 1986 TOTAL 564910 MEAN 1548 MAX 11700 MIN 395 MEAN‡ 1541 CFSM‡ .60 IN.‡ 8.21
WTR YR 1987 TOTAL 1394368 MEAN 3820 MAX 51100 MIN 448 MEAN‡ 3850 CFSM‡ 1.51 IN.‡ 20.50

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.
e Estimated.

02075500 DAN RIVER AT PACES, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1954 to September 1956.
WATER TEMPERATURE: January 1954 to September 1956.
SUSPENDED-SEDIMENT DISCHARGE: January 1954 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV												
10...	1215	1990	117	139	7.20	7.50	15.0	756	27	8.5	85	4200
JAN												
29...	1345	2700	100	98	6.30	7.20	0.0	765	15	14.2	97	40
MAR												
26...	0845	2370	122	123	6.80	7.12	11.5	758	4.5	10.0	92	80
APR												
17...	1045	53000	42	45	6.20	6.90	11.5	745	260	9.4	88	K8400
JUN												
17...	1015	1920	260	158	7.20	7.70	26.0	756	10	6.6	82	52
AUG												
06...	0800	1130	215	214	7.00	7.90	28.5	744	25	5.6	74	62

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV												
10...	550	24	0	5.8	2.2	17	2.9	30	30	29	35	15
JAN												
29...	48	23	1	5.5	2.2	8.6	1.6	--	22	22	26	11
MAR												
26...	5000	24	0	5.8	2.3	14	2.0	26	25	25	31	12
APR												
17...	20000	12	6	2.9	1.1	2.8	1.8	8.0	7	6.0	7.0	13
JUN												
17...	210	23	0	5.6	2.1	19	2.0	27	26	26	31	13
AUG												
06...	400	25	0	6.3	2.3	31	2.5	29	28	27	33	25

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
NOV												
10...	12	0.10	16	90	89	<0.010	0.380	<0.010	<0.010	0.70	0.190	0.110
JAN												
29...	8.4	<0.10	15	70	65	<0.010	0.390	0.120	0.110	0.70	0.060	0.030
MAR												
26...	11	0.10	15	71	78	0.020	0.380	0.060	0.050	0.60	0.070	0.050
APR												
17...	3.4	0.20	6.8	37	37	<0.010	0.240	0.090	0.180	0.80	0.350	0.040
JUN												
17...	20	0.20	17	99	95	0.020	0.530	0.090	0.090	1.6	0.170	0.090
AUG												
06...	26	0.20	15	123	130	0.010	0.600	0.090	0.080	1.2	0.180	0.090

02075500 DAN RIVER AT PACES, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV 10...	0.110	60	1	17	<0.5	<1	<1	<3	3	210	5	4
JAN 29...	0.040	--	--	--	--	--	--	--	--	--	--	--
MAR 26...	0.050	20	<1	22	<0.5	<1	<1	<3	3	130	<5	<4
APR 17...	0.020	360	<1	110	<0.5	<1	<1	<3	<1	310	<5	<4
JUN 17...	0.080	--	--	--	--	--	--	--	--	--	--	--
AUG 06...	0.080	60	1	24	<0.5	<1	<1	<3	6	93	<5	5

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 10...	10	<0.1	<10	4	<1	<1	45	<6	21	45	90
JAN 29...	--	--	--	--	--	--	--	--	--	35	66
MAR 26...	13	0.1	<10	2	<1	<1	46	<6	15	17	90
APR 17...	61	<0.1	<10	<1	<1	<1	23	<6	34	372	100
JUN 17...	--	--	--	--	--	--	--	--	--	33	94
AUG 06...	8	0.1	<10	<1	1	<1	49	<6	6	46	94

02076500 GEORGES CREEK NEAR GRETNA, 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 mi².

PERIOD OF RECORD.--September 1949 to current year.

REVISED RECORDS.--WSP 1703: 1950-52. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 629.54 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Occasional regulation at low flow from unknown source. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

AVERAGE DISCHARGE.--38 years, 9.68 ft³/s, 14.23 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,480 ft³/s, Sept. 22, 1979, gage height, 8.50 ft, from rating curve extended above 640 ft³/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 ft³/s, Mar. 12, Apr. 5, 1956, July 28, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1700	286	3.64	Apr. 18	0530	160	2.75
Feb. 28	2100	456	4.58	Apr. 24	2000	468	4.64
Mar. 1	0530	482	4.71	Apr. 25	1630	378	4.19
Apr. 15	1730	622	5.41	Sept. 8	0430	406	4.33
Apr. 16	0500	*917	*6.59				

Minimum discharge, 2.9 ft³/s, Oct. 4-5, gage height, 0.59 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	4.0	4.9	7.8	10	251	12	19	12	6.3	5.4	5.3
2	3.3	5.8	15	8.5	11	37	11	19	13	12	5.4	4.9
3	3.4	5.3	16	7.7	17	20	11	19	18	8.7	5.6	4.8
4	3.1	4.8	9.4	7.1	19	16	12	18	21	7.8	6.2	4.7
5	2.9	4.8	7.4	7.0	16	14	11	18	14	7.4	5.7	6.2
6	3.1	4.8	6.7	6.9	13	12	11	16	11	6.8	5.4	9.3
7	3.1	17	6.4	6.9	12	12	11	16	9.6	6.8	5.2	13
8	3.0	18	6.3	6.6	13	11	10	15	9.1	6.5	5.4	103
9	3.2	7.5	7.9	6.3	11	11	10	15	8.2	6.0	5.2	13
10	3.2	6.4	11	6.5	11	10	9.7	15	8.3	5.9	5.3	8.9
11	3.0	7.3	26	6.8	9.8	10	9.6	14	7.9	5.7	4.9	7.5
12	3.0	8.1	19	6.4	9.6	10	9.4	15	7.9	9.4	4.0	7.2
13	4.1	6.7	11	6.4	8.9	9.9	9.6	14	7.9	8.6	3.6	8.0
14	7.1	5.7	8.6	6.1	8.8	9.5	9.2	13	7.9	7.9	3.6	6.5
15	4.4	5.4	7.6	6.3	8.8	9.3	201	13	8.0	7.2	4.2	6.4
16	3.7	5.4	7.2	6.4	8.4	10	393	13	7.8	6.7	4.5	6.4
17	3.6	5.3	6.8	6.6	12	11	61	12	9.0	6.3	4.4	6.4
18	3.2	5.5	7.7	9.5	9.7	9.9	59	14	7.9	6.0	3.7	6.5
19	3.2	5.5	6.8	13	9.0	12	24	14	7.9	5.7	4.8	6.3
20	3.3	7.3	6.2	11	8.6	11	19	14	7.9	5.7	4.1	9.0
21	3.4	8.6	6.2	9.1	8.9	9.8	18	13	8.5	5.4	3.7	7.4
22	3.7	6.2	5.9	11	12	9.6	16	12	8.8	5.4	3.3	6.8
23	3.5	5.7	5.9	9.8	36	9.4	16	11	8.6	5.6	3.2	6.6
24	3.6	5.7	94	8.2	25	9.3	115	12	7.1	5.4	3.1	6.4
25	4.4	5.4	32	e8.1	19	9.5	163	12	6.2	5.3	3.3	6.3
26	9.6	5.9	15	e7.8	16	9.8	49	11	8.2	5.5	3.2	6.2
27	5.0	6.5	11	e7.5	14	9.3	27	12	8.2	6.7	3.8	6.2
28	4.4	5.5	9.4	e7.1	130	9.7	23	11	6.9	9.4	4.1	6.2
29	4.1	5.1	8.5	e8.0	---	9.6	21	10	6.2	7.9	4.5	6.2
30	4.5	5.0	8.3	9.0	---	12	20	9.6	6.3	6.5	4.5	15
31	4.1	---	7.8	11	---	15	---	9.6	---	6.0	4.8	---
TOTAL	120.6	200.2	401.9	246.4	487.5	609.6	1371.5	429.2	279.3	212.5	138.1	316.6
MEAN	3.89	6.67	13.0	7.95	17.4	19.7	45.7	13.8	9.31	6.85	4.45	10.6
MAX	9.6	18	94	13	130	251	393	19	21	12	6.2	103
MIN	2.9	4.0	4.9	6.1	8.4	9.3	9.2	9.6	6.2	5.3	3.1	4.7
CFSM	.42	.72	1.41	.86	1.88	2.13	4.95	1.49	1.01	.74	.48	1.15
IN.	.49	.81	1.62	.99	1.96	2.45	5.52	1.73	1.12	.86	.56	1.27

CAL YR 1986 TOTAL 2407.1 MEAN 6.59 MAX 94 MIN 2.2 CFSM .71 IN. 9.69
WTR YR 1987 TOTAL 4813.4 MEAN 13.2 MAX 393 MIN 2.9 CFSM 1.43 IN. 19.38

e Estimated.

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 State Highway 360, 1,700 ft downstream from Terrible Creek, 1 mi northeast of Halifax, and 10 mi upstream from mouth.

DRAINAGE AREA.--547 mi².

PERIOD OF RECORD.--September 1904 to December 1905, October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 892: 1929-30, 1932-35. WSP 972: 1938(M), 1940. WSP 1112: 1943(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 318.54 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Sept. 28, 1904, to Dec. 31, 1905, nonrecording gage at site 400 ft upstream at different datum. Dec. 9, 1928, to Sept. 20, 1950, water-stage recorder at site 400 ft upstream at present datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Oct. 1-25, Dec. 21, Jan. 7, Feb. 17, and Aug. 15 to Sept. 6, and period with ice effect, Jan. 26-30, which are poor. Low and medium flow regulated at times during year by a lake 0.5 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--60 years, 507 ft³/s, 12.59 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s, Sept. 20, 1944, gage height, 40.8 ft, from floodmarks, from rating curve extended above 13,000 ft³/s on basis of slope-area measurement of peak flow and velocity-area study; minimum, 6.0 ft³/s many days in August and September 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,400 ft³/s, Sept. 9, gage height, 26.71 ft; minimum daily, 61 ft³/s, Oct. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e77	108	179	342	746	6370	530	747	265	178	112	e84
2	e76	109	200	472	793	9390	476	657	282	219	117	e85
3	e75	114	487	506	1000	6700	422	599	325	312	111	e83
4	e74	121	635	412	1400	2580	431	554	546	333	119	e77
5	e75	122	399	358	1510	977	462	510	1990	395	126	e81
6	e73	120	293	326	1160	802	443	482	1660	296	125	e85
7	e70	136	250	e174	904	684	412	446	570	247	114	113
8	e68	239	231	240	889	610	388	418	307	203	108	4960
9	e66	307	232	264	915	580	366	281	249	183	106	12100
10	e64	253	338	261	778	576	234	330	275	171	103	4560
11	e62	218	576	274	604	541	266	360	253	162	101	714
12	e62	239	1190	264	531	493	317	347	242	159	98	471
13	e61	274	1050	246	505	423	315	349	237	200	96	1190
14	e87	232	585	234	487	418	311	383	235	208	93	783
15	188	193	419	232	449	407	729	377	233	177	e88	463
16	189	178	349	234	424	407	4830	361	224	163	e89	268
17	128	176	307	238	e242	434	12200	338	226	151	e88	253
18	102	173	282	319	405	445	10400	319	223	142	e88	252
19	e87	163	285	1110	480	442	5010	329	209	136	e87	234
20	e85	169	280	1960	432	529	1970	353	205	131	e85	349
21	e82	218	e110	1250	454	537	1160	351	204	125	e82	549
22	e81	272	209	731	623	469	950	325	207	121	e87	431
23	e80	239	217	629	1780	432	793	313	217	116	e88	294
24	e79	207	553	543	2730	411	904	306	216	114	e83	244
25	e84	192	2480	522	2370	378	3830	401	198	112	e81	223
26	142	192	2870	e245	1420	365	6950	338	195	110	e79	207
27	207	222	1210	e300	1020	366	4720	313	271	110	e80	198
28	204	240	616	e345	1370	377	1820	313	293	112	e84	193
29	150	216	475	e400	---	381	1070	312	232	115	e85	189
30	125	192	407	e455	---	377	878	292	194	114	e82	245
31	113	---	351	589	---	419	---	273	---	111	e81	---
TOTAL	3116	5834	18065	14475	26421	38320	63587	12077	10983	5426	2966	29978
MEAN	101	194	583	467	944	1236	2120	390	366	175	95.7	999
MAX	207	307	2870	1960	2730	9390	12200	747	1990	395	126	12100
MIN	61	108	110	174	242	365	234	273	194	110	79	77
CFSM	.19	.36	1.07	.85	1.73	2.26	3.88	.71	.67	.32	.18	1.83
IN.	.21	.40	1.23	.98	1.80	2.61	4.32	.82	.75	.37	.20	2.04

CAL YR 1986 TOTAL 84370 MEAN 231 MAX 2870 MIN 48 CFSM .42 IN. 5.74
WTR YR 1987 TOTAL 231248 MEAN 634 MAX 12200 MIN 61 CFSM 1.16 IN. 15.73

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1928 to September 1934, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1383: Drainage area, 1930. WSP 1503: 1930(M). WDR VA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 315.24 ft above National Geodetic Vertical Datum of 1929. July 10, 1929, to Mar. 14, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good. Small diurnal fluctuation at low flow in some years caused by mill upstream from station. Since 1964, flow regulated by Hyco Lake 15.7 mi upstream, capacity 75,480 acre-ft, and since Apr. 26, 1974, by Roxboro Steam-Electric Generating Plant afterbay Reservoir, capacity 12,000 acre-ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 254 ft³/s, 11.94 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s, July 15, 1975, gage height, 24.27 ft, from rating curve extended above 8,200 ft³/s; minimum, 0.004 ft³/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, 7,960 ft³/s, Mar. 2, gage height, 21.86 ft; minimum, 12 ft³/s, Oct. 20-21, Aug. 24-25; minimum gage height, 4.33 ft, Oct. 20-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	19	18	123	e500	4110	156	143	38	18	e16	13
2	18	18	25	644	952	7650	113	97	91	31	15	14
3	18	18	119	663	1780	5720	96	145	54	48	e13	14
4	17	18	74	644	2250	2720	260	100	40	119	e15	14
5	17	20	41	504	2140	1960	186	116	52	118	15	14
6	14	20	31	198	673	856	133	144	47	45	17	16
7	15	22	26	186	405	393	111	154	43	32	15	25
8	17	62	23	181	582	343	98	232	41	26	14	769
9	17	39	26	173	957	356	116	189	40	23	13	1500
10	18	23	39	170	867	1780	147	181	26	22	13	2170
11	18	21	148	169	240	3230	156	177	27	21	14	1420
12	17	32	246	161	108	2410	159	105	27	19	15	356
13	17	36	87	65	88	1550	189	99	25	22	15	352
14	27	27	51	43	78	479	169	96	23	22	14	310
15	35	24	39	38	73	334	769	93	22	20	15	69
16	18	33	37	36	85	303	2280	89	23	20	15	43
17	16	29	33	38	200	226	3500	85	22	19	14	38
18	15	25	31	96	288	167	3520	81	22	18	14	36
19	14	24	29	974	423	235	3050	47	22	17	15	30
20	12	23	25	1910	767	419	2290	57	22	15	15	28
21	12	43	23	2590	781	539	771	48	36	16	14	28
22	14	39	21	2150	795	492	316	42	29	17	16	31
23	14	26	21	1530	1400	425	264	39	33	17	14	28
24	16	23	425	400	1730	373	290	38	32	16	12	28
25	17	23	935	311	2110	454	690	94	26	15	13	26
26	26	24	195	326	2430	892	966	110	23	15	14	26
27	47	30	138	428	2270	465	1020	165	22	14	15	24
28	21	29	621	842	1790	451	1230	160	21	15	18	22
29	19	22	231	767	---	438	1060	144	19	16	31	26
30	18	20	532	e290	---	326	232	44	18	16	18	20
31	18	---	165	e280	---	167	---	36	---	e16	13	---
TOTAL	579	812	4455	16930	26762	40263	24337	3350	966	848	470	7490
MEAN	18.7	27.1	144	546	956	1299	811	108	32.2	27.4	15.2	250
MAX	47	62	935	2590	2430	7650	3520	232	91	119	31	2170
MIN	12	18	18	36	73	167	96	36	18	14	12	13
CFSM	.07	.10	.50	1.89	3.31	4.50	2.81	.37	.11	.10	.05	.87
IN.	.07	.10	.57	2.18	3.44	5.18	3.13	.43	.12	.11	.06	.96

CAL YR 1986 TOTAL 28199 MEAN 77.3 MAX 935 MIN 12 CFSM .27 IN. 3.63
WTR YR 1987 TOTAL 127262 MEAN 349 MAX 7650 MIN 12 CFSM 1.21 IN. 16.38

e Estimated.

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 mi², approximately.

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

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

REMARKS.--Reservoir is formed by concrete dam with earth embankments. Spillway, with crest at elevation 288.0 ft, is equipped with 22 radial gates 32 ft high by 42 ft wide. Storage began in September 1950 during construction; initial filling started June 30, 1952; water in reservoir first reached rule-curve elevation in March 1953. Total capacity at top of gates, elevation, 320 ft, is 2,770,000 acre-ft of which 1,281,400 acre-ft is controlled flood storage between elevations 300 ft, top of power pool, and 320 ft; 316,900 acre-ft is available for power between elevations 293.0 ft, bottom of power pool, and 300 ft; 1,171,700 acre-ft is inactive and dead storage below elevation 293.0 ft. Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, low-water regulation for navigation and pollution abatement, release of water for downstream fish spawning, and recreation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,736,460 acre-ft, Apr. 29, 1987, elevation, 319.61 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, 2,736,460 acre-ft, Apr. 29, elevation, 319.61 ft; minimum, 1,215,340 acre-ft, Oct. 14, elevation, 294.05 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	295.38	1,272,620	-
Oct. 31	294.66	1,241,380	-31,240
Nov. 30	296.29	1,313,010	+71,630
Dec. 31	300.90	1,534,050	+221,040
CAL YR 1986	-	-	+181,490
Jan. 31	297.91	1,387,510	-146,540
Feb. 28	301.76	1,578,320	+190,810
Mar. 31	303.31	1,660,210	+81,890
Apr. 30	319.49	2,726,140	+1,065,930
May 31	302.40	1,611,820	-1,114,320
June 30	298.58	1,419,420	-192,400
July 31	297.95	1,389,370	-30,050
Aug. 31	296.43	1,319,340	-70,030
Sept. 30	300.40	1,508,800	+189,460
WTR YR 1987	-	-	+236,180

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 mi².

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 216.50 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation).

REMARKS.--Records good except those for periods of no gage-height record, Apr. 25 to June 17 and Sept. 10-22, which are fair. Several measurements of water temperature were made during the year.

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

AVERAGE DISCHARGE.--26 years, 45.6 ft³/s, 11.60 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,620 ft³/s, Oct. 23, 1971, gage height, 21.80 ft, from rating curve extended above 3,100 ft³/s; no flow many days in August, September, and October 1968, September and October 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2300	1,380	14.32	Apr. 15	2400	2,060	16.45
Jan. 19	1900	2,180	16.76	Apr. 16	2330	2,230	16.87
Feb. 23	0600	1,460	14.60	Apr. 25	Unknown	*4,080	*a19.98
Mar. 1	0830	1,900	15.99	Sept. 8	1700	1,530	a14.84

a From high-water mark.

Minimum discharge, 0.70 ft³/s, Oct. 7, gage height, 1.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	2.4	7.0	132	157	1400	66	e40	e10	4.7	1.6	3.1
2	.96	2.6	20	398	204	228	46	e36	e24	5.3	1.6	2.7
3	.97	3.1	96	91	313	104	40	e48	e17	43	1.6	2.3
4	.96	3.1	41	46	279	67	44	e40	e90	17	1.6	2.0
5	.91	3.4	20	33	156	52	40	e45	e80	31	8.3	2.3
6	.82	3.3	12	26	98	45	36	e36	e35	14	5.4	6.9
7	.78	3.9	9.3	22	80	40	33	e31	e19	9.5	4.0	60
8	.82	9.1	7.4	20	67	38	30	e38	e13	7.8	2.8	708
9	1.0	13	8.2	18	53	88	27	e26	e10	6.4	2.4	100
10	1.5	5.3	19	17	41	387	26	e23	e9.8	5.7	2.3	e30
11	1.2	3.9	220	17	37	117	24	e21	e7.5	6.4	2.0	e9.8
12	1.2	6.2	196	16	35	71	24	e18	e8.4	5.4	1.8	e7.8
13	1.5	11	74	14	33	54	25	e50	e12	4.8	1.6	e220
14	4.2	7.6	39	13	30	45	22	e40	e11	5.7	1.5	e80
15	4.6	6.0	29	13	29	41	670	e26	e10	4.7	1.7	e17
16	2.3	5.9	24	13	27	42	1880	e22	e9.4	4.3	4.1	e10
17	1.5	6.6	22	14	41	65	1600	e20	e8.8	3.9	4.9	e7.5
18	2.1	6.1	21	186	40	46	288	e18	8.2	3.6	2.8	e6.0
19	1.2	5.4	21	1230	40	46	162	e17	7.4	3.4	8.7	e5.0
20	1.0	5.2	18	417	47	52	97	e24	7.3	3.1	7.5	e33
21	1.0	17	17	122	91	40	69	e19	8.2	2.9	3.6	e16
22	1.1	17	15	114	197	35	55	e16	7.4	2.7	2.7	e12
23	1.3	12	15	e110	1010	31	45	e14	7.9	2.5	2.2	7.0
24	2.4	8.7	391	79	382	28	162	e13	11	2.4	2.0	5.8
25	1.6	9.2	421	59	215	26	e3700	e12	8.8	2.2	1.7	5.3
26	6.3	19	113	e50	173	25	e2500	e16	7.5	2.1	1.9	4.9
27	11	39	61	e40	119	43	e210	e14	10	2.0	2.3	4.7
28	6.4	22	44	e31	430	420	e80	e13	7.8	1.9	14	4.6
29	3.0	14	37	e37	---	90	e62	e12	5.9	1.8	40	4.5
30	2.4	9.5	32	50	---	69	e50	e11	5.1	1.7	8.0	5.3
31	2.3	---	27	166	---	118	---	e10	---	1.6	3.8	---
TOTAL	69.32	280.5	2076.9	3594	4424	3953	12113	769	477.4	213.5	150.4	1383.5
MEAN	2.24	9.35	67.0	116	158	128	404	24.8	15.9	6.89	4.85	46.1
MAX	11	39	421	1230	1010	1400	3700	50	90	43	40	708
MIN	.78	2.4	7.0	13	27	25	22	10	5.1	1.6	1.5	2.0
CFSM	.04	.18	1.26	2.17	2.96	2.40	7.57	.46	.30	.13	.09	.86
IN.	.05	.20	1.45	2.50	3.08	2.75	8.44	.54	.33	.15	.10	.96

CAL YR 1986 TOTAL 10518.34 MEAN 28.8 MAX 787 MIN .37 CFSM .54 IN. 7.33
WTR YR 1987 TOTAL 29504.52 MEAN 80.8 MAX 3700 MIN .78 CFSM 1.51 IN. 20.55

e Estimated.

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 mi².
PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1305.
REVISED RECORDS.--WSP 1275: 1925-26(M), 1928-30(M), 1931-32, 1933-35(M), 1941-42(m), 1944(m). WDR NC-81-1: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 2,657.04 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 14, 1934, nonrecording gage on bridge 400 ft downstream at same datum. Oct. 14, 1934, to Mar. 25, 1935, nonrecording gage at present site and datum.
REMARKS.--Records good except those for periods with ice effect, Jan. 24, 26-29, which are fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--63 years, 429 ft³/s, 28.42 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,800 ft³/s, Aug. 14, 1940, gage height, 22.50 ft, from rating curve extended above 5,100 ft³/s on basis of slope-area measurement of peak flow; minimum, 52 ft³/s, Dec. 24, 1943, result of freezeup; minimum daily, 65 ft³/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 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1900	3,600	6.15	Apr. 15	2230	3,560	6.12
Mar. 1	0630	*3,870	*6.35	Apr. 24	0400	3,160	5.81

Minimum discharge, 127 ft³/s, Oct. 8, gage height, 1.70 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	167	311	511	477	3330	937	803	472	305	213	149
2	161	200	1040	504	445	1950	742	763	507	400	209	146
3	166	213	1150	460	529	1280	710	727	451	567	255	140
4	149	185	660	455	552	1100	721	709	421	967	216	138
5	139	181	488	450	506	916	668	697	411	781	204	193
6	133	201	404	427	463	833	683	662	387	532	196	469
7	131	251	356	355	442	816	731	640	369	424	206	516
8	131	533	332	367	428	835	776	616	358	383	226	486
9	136	352	354	344	409	996	895	587	345	365	218	291
10	149	265	416	328	416	1200	836	575	334	330	192	297
11	152	236	534	328	415	995	782	564	330	334	187	360
12	149	230	655	320	382	841	752	552	326	323	187	271
13	171	223	536	308	381	756	759	548	330	293	185	298
14	241	201	452	304	370	693	683	552	340	284	182	262
15	250	198	430	311	390	651	1880	540	329	276	181	219
16	175	207	434	332	402	647	2950	522	380	271	184	202
17	153	199	415	331	426	644	2650	507	438	262	210	201
18	145	190	424	475	386	597	1620	493	502	258	194	207
19	142	182	426	821	363	671	1230	519	645	251	178	196
20	140	189	386	729	357	690	1040	539	449	245	174	213
21	138	233	365	566	393	625	922	505	404	238	162	206
22	137	216	349	535	414	588	837	483	505	236	152	191
23	136	194	342	494	557	560	867	477	424	238	148	187
24	134	211	1850	e410	563	539	2310	741	350	243	144	185
25	170	226	1910	444	467	542	1670	640	380	244	146	188
26	504	534	960	e420	470	541	1480	754	446	224	150	189
27	352	951	753	e390	510	514	1160	645	498	216	149	190
28	218	475	656	e350	995	522	1020	588	379	210	145	213
29	186	361	589	e340	---	492	922	596	334	204	151	240
30	174	309	549	420	---	630	858	541	320	209	151	205
31	165	---	516	579	---	1280	---	497	---	236	146	---
TOTAL	5474	8313	19042	13408	12908	27274	34091	18582	12164	10349	5641	7248
MEAN	177	277	614	433	461	880	1136	599	405	334	182	242
MAX	504	951	1910	821	995	3330	2950	803	645	967	255	516
MIN	131	167	311	304	357	492	668	477	320	204	144	138
CFSM	.86	1.35	3.00	2.11	2.25	4.29	5.54	2.92	1.98	1.63	.89	1.18
IN.	.99	1.51	3.46	2.43	2.34	4.95	6.19	3.37	2.21	1.88	1.02	1.32

CAL YR 1986 TOTAL 102831 MEAN 282 MAX 1910 MIN 123 CFSM 1.37 IN. 18.66
WTR YR 1987 TOTAL 174494 MEAN 478 MAX 3330 MIN 131 CFSM 2.33 IN. 31.66

e Estimated.

03164000 NEW RIVER NEAR GALAX, VA

LOCATION.--Lat 36°38'50", long 80°58'45", Grayson County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on State Highway 94, 500 ft downstream from Meadow Creek, 1.2 mi southwest of Old Town, 3.1 mi southwest of Galax, and 3.6 mi downstream from Elk Creek.

DRAINAGE AREA.--1,131 mi².

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 758: Drainage area, 1933(M). WSP 893: 1930(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 2,208.04 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods with ice effect, Jan. 24, 26-29, which are fair. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--58 years, 1,901 ft³/s, 22.83 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 141,000 ft³/s, Aug. 14, 1940, gage height, 25.7 ft, from flood-mark, from rating curve extended above 32,000 ft³/s on basis of computation of peak flow over dam at Fries 6 mi downstream and slope-area measurement of peak flow; minimum, 193 ft³/s, Jan. 9, 1956, gage height, 0.52 ft, result of freezeup; minimum daily, 265 ft³/s, Sept. 19, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0200	12,600	4.79	Apr. 17	0330	21,400	6.70
Mar. 1	1400	*24,300	*7.29	Apr. 25	1900	13,200	4.93

Minimum discharge, 375 ft³/s, Oct. 8, 9, gage height, 0.76 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	406	620	1330	1910	2730	21000	5870	3980	2200	1320	957	658
2	415	780	3470	1870	2390	14800	4220	3650	2110	1920	1000	635
3	426	864	6190	1720	2610	8740	3690	3390	2110	2290	1090	598
4	424	759	4050	1540	2970	6620	3640	3260	1870	2830	1110	575
5	426	724	2890	1510	2800	5330	3320	3130	1850	3770	1030	738
6	460	766	2290	1490	2510	4440	3310	2920	1690	2590	1010	1600
7	443	1140	1940	1570	2310	4110	3520	2760	1550	2090	1100	2190
8	385	3200	1750	1580	2200	4210	4070	2610	1570	1790	1050	2500
9	379	2350	1730	1530	2090	4940	4790	2470	1570	1690	1090	1700
10	399	1690	1950	1470	1840	6650	4860	2370	1570	1790	1090	1300
11	424	1310	2530	1450	1890	5690	4460	2280	1570	2960	955	1200
12	442	1170	3630	1380	1840	4450	4080	2330	1570	1750	869	1460
13	506	1090	3150	1320	1830	3790	4080	2590	1550	1590	846	1550
14	766	945	2460	1290	1780	3360	3640	2300	1550	1510	816	1440
15	972	877	2100	1340	1790	3080	5960	2210	1570	1510	810	1190
16	802	873	1900	1420	1830	3030	15600	2130	1570	1440	839	1020
17	627	858	1750	1460	1830	3150	18000	2010	1690	1320	894	960
18	539	815	1670	1670	1910	2930	10900	1940	1830	1230	855	936
19	495	760	1690	3410	1750	3610	7310	2020	2450	1150	929	921
20	469	755	1550	4740	1700	4230	5740	2350	2330	1150	1020	997
21	450	867	1420	3550	1850	3710	4830	2180	1790	1130	806	998
22	438	909	1320	2940	2020	3270	4260	1990	1630	1100	733	911
23	435	831	1260	2570	3040	2950	3890	2030	1570	1120	690	833
24	426	809	4500	e2000	3480	2690	10900	2500	1570	1170	649	794
25	492	861	9750	2150	2810	2570	12300	2960	1710	1190	637	780
26	1450	1440	5080	e1800	2550	2570	10400	2930	2020	1080	650	773
27	1890	3420	3560	e1600	2660	2410	7320	3110	2130	1010	656	761
28	1190	2780	2890	e1500	4110	2400	5930	2710	1750	970	642	749
29	848	1880	2480	e1600	---	2280	5040	2810	1510	924	620	748
30	716	1510	2210	1960	---	2710	4420	2500	1400	907	624	821
31	649	---	2020	2960	---	6470	---	2240	---	986	662	---
TOTAL	19189	37653	86510	60300	65120	152190	190350	80660	52850	49277	26729	32336
MEAN	619	1255	2791	1945	2326	4909	6345	2602	1762	1590	862	1078
MAX	1890	3420	9750	4740	4110	21000	18000	3980	2450	3770	1110	2500
MIN	379	620	1260	1290	1700	2280	3310	1940	1400	907	620	575
CFSM	.55	1.11	2.47	1.72	2.06	4.34	5.61	2.30	1.56	1.41	.76	.95
IN.	.63	1.24	2.85	1.98	2.14	5.01	6.26	2.65	1.74	1.62	.88	1.06

CAL YR 1986 TOTAL 480981 MEAN 1318 MAX 9750 MIN 369 CFSM 1.17 IN. 15.82
WTR YR 1987 TOTAL 853164 MEAN 2337 MAX 21000 MIN 379 CFSM 2.07 IN. 28.06

e Estimated.

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 mi².
PERIOD OF RECORD.--September 1944 to current year.
REVISED RECORDS.--WSP 1385: 1953.
GAGE.--Water-stage recorder. Concrete control since Aug. 30, 1979. Datum of gage is 2,344.17 ft above National Geodetic Vertical Datum of 1929. Prior to June 25, 1948, nonrecording gage, and June 25, 1948, to May 28, 1953, water-stage recorder, at site 200 ft upstream at datum 0.86 ft higher.
REMARKS.--Records good except those for period of no gage-height record, Jan. 12 to Feb. 5, and periods with ice effect, Feb. 10, 16, 17, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--43 years, 67.2 ft³/s, 23.16 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,980 ft³/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 ft³/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 ft³/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 ft³/s, by contracted-opening measurement.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1530	1,300	4.17	Apr. 24	0300	1,230	3.99
Mar. 1	0445	*2,080	*5.81	Apr. 25	1245	980	3.48
Apr. 16	1945	897	3.32	July 4	1430	891	3.31

Minimum discharge, 17 ft³/s, Feb. 16, gage height, 1.24 ft, result of freezeup; minimum daily, 19 ft³/s, Oct. 6-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	34	40	52	e75	1280	144	120	98	49	38	28
2	24	55	307	49	e70	326	112	116	75	79	34	26
3	20	33	129	46	e90	190	107	112	72	173	33	25
4	20	29	72	45	e140	147	110	117	68	275	30	26
5	20	36	56	44	e70	119	102	110	66	153	29	162
6	19	36	48	45	59	105	114	102	62	78	29	181
7	19	92	44	48	57	101	120	99	60	63	30	202
8	19	68	45	52	55	100	106	95	58	57	96	157
9	20	45	51	45	50	122	92	91	57	57	84	70
10	21	36	73	44	e45	126	84	89	56	105	41	109
11	21	36	115	43	48	98	80	87	55	100	37	77
12	21	39	87	e40	48	90	84	92	56	62	36	111
13	33	33	63	e35	46	84	83	108	56	58	34	112
14	41	30	52	e33	45	79	75	94	56	59	32	69
15	26	32	49	e34	45	76	239	89	67	49	33	58
16	23	32	46	e36	e35	83	417	84	77	47	38	53
17	22	30	44	e30	e30	76	284	81	64	43	36	50
18	21	29	44	e42	52	72	176	78	83	43	39	49
19	21	28	40	e90	48	124	132	114	124	41	40	50
20	21	33	38	e120	50	89	115	108	100	38	33	56
21	21	36	37	e100	54	79	104	87	69	36	30	47
22	22	30	35	e65	62	73	97	82	61	36	30	44
23	22	29	37	e55	106	69	113	132	57	35	29	42
24	22	31	561	e45	81	66	731	100	55	35	28	41
25	49	31	182	e35	69	75	704	94	65	33	28	40
26	59	122	95	e30	72	73	300	98	68	32	29	40
27	31	79	74	e29	69	70	193	81	65	31	28	39
28	27	51	63	e35	437	73	159	77	54	32	27	39
29	25	43	57	e40	---	65	140	73	51	30	27	39
30	24	38	53	e50	---	303	128	71	50	30	27	39
31	24	---	49	e80	---	379	---	91	---	31	27	---
TOTAL	779	1276	2686	1537	2108	4812	5445	2972	2005	1990	1112	2081
MEAN	25.1	42.5	86.6	49.6	75.3	155	181	95.9	66.8	64.2	35.9	69.4
MAX	59	122	561	120	437	1280	731	132	124	275	96	202
MIN	19	28	35	29	30	65	75	71	50	30	27	25
CFSM	.64	1.08	2.20	1.26	1.91	3.94	4.61	2.43	1.70	1.63	.91	1.76
IN.	.74	1.20	2.54	1.45	1.99	4.54	5.14	2.81	1.89	1.88	1.05	1.96

CAL YR 1986 TOTAL 15554 MEAN 42.6 MAX 561 MIN 16 CFSM 1.08 IN. 14.69
WTR YR 1987 TOTAL 28803 MEAN 78.9 MAX 1280 MIN 19 CFSM 2.00 IN. 27.19

e Estimated.

03166800 GLADE CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°55'51", long 80°54'02", Wythe County, Hydrologic Unit 05050001, on left bank 30 ft downstream from bridge on State Highway 629, 1.0 mi southwest of Grahams Forge, and at mile 0.4.

DRAINAGE AREA.--7.15 mi².

PERIOD OF RECORD.--May 1976 to current year.

GAGE.--Water-stage recorder. Concrete control since June 1, 1979. Elevation of gage is 1,972 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for period with ice effect, Jan. 22-28, and periods of doubtful or no gage-height record, June 9-15, 21-24, July 9-23, July 29 to Aug. 1, and Aug. 12-16, which are poor. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years, 1.12 ft³/s, 2.13 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,350 ft³/s, July 5, 1984, gage height, 5.37 ft, from rating curve extended above 30 ft³/s on basis of slope-area measurement at gage height 5.11 ft; minimum, 0.02 ft³/s, Sept. 14, 1981, and as result of temporary pumpage, Sept. 11, 1985; minimum gage height, 1.36 ft, Sept. 7, 1976, Sept. 11, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	1445	156	3.32	Apr. 25	0900	*259	*3.68

Minimum discharge, 0.03 ft³/s, Oct. 1-4, 6, 7, 10-13, 23-25, gage height, 1.40 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.06	.12	.28	1.6	87	2.5	2.3	.58	.64	e.30	.14
2	.03	.22	.87	.25	1.4	24	1.7	2.0	.58	1.4	.36	.12
3	.03	.09	.55	.18	2.6	7.2	1.7	1.8	.56	2.1	.37	.12
4	.04	.08	.35	.15	2.2	4.0	1.8	1.7	2.1	1.2	.35	.12
5	.05	.15	.27	.15	1.3	2.6	2.2	1.6	.70	.87	.32	.37
6	.03	.12	.20	.13	.93	2.0	3.6	1.4	.61	.72	.32	.58
7	.04	.94	.18	.15	.84	1.6	4.4	1.3	.56	.62	.36	2.6
8	.05	.36	.18	.16	.67	1.4	3.0	1.2	.52	.58	.35	.65
9	.04	.20	.28	.15	.49	1.5	1.9	1.2	e.48	e.52	.32	.28
10	.03	.16	.30	.15	.43	1.8	1.5	1.1	e.45	e.48	.28	.23
11	.03	.12	.99	.14	.35	1.2	1.3	1.0	e.43	e.43	.21	1.4
12	.03	.12	.65	2.5	.35	1.0	1.2	1.0	e.40	e.42	e.20	.54
13	.06	.10	.43	.12	.30	.90	1.1	.97	e.38	e.50	e.19	.62
14	.08	.10	.36	.12	.28	.79	.94	.93	e.36	e.42	e.18	.35
15	.04	.10	.25	.15	.28	.73	8.6	.93	e.35	e.41	e.17	.29
16	.04	.10	.23	.15	.18	.84	26	.90	.52	e.40	e.18	.24
17	.04	.10	.21	.15	.21	.72	12	.83	.50	e.38	.21	.24
18	.04	.10	.21	.75	.21	.66	6.1	.78	.51	e.36	.37	.24
19	.04	.08	.21	3.2	.29	3.0	3.6	.78	.50	e.35	.31	.31
20	.06	.16	.20	1.9	.57	1.7	2.7	.78	.46	e.34	.21	.27
21	.06	.09	.14	1.1	.65	1.2	2.2	.78	e.44	e.33	.16	.23
22	.05	.08	.11	e.70	1.5	.93	1.8	.75	e.42	e.32	.13	.21
23	.05	.08	.10	e.50	7.1	.78	2.2	.71	e.39	e.35	.13	.21
24	.03	.08	13	e.40	3.1	.68	39	.71	e.37	.52	.13	.21
25	.11	.08	3.3	e.32	1.9	.64	82	.71	2.1	.45	.14	.21
26	.25	.57	1.4	e.30	1.6	.60	14	.71	.81	.41	.14	.21
27	.08	.35	.95	e.29	1.2	.58	6.8	.68	.67	.38	.13	.20
28	.06	.24	.73	e.35	6.6	.60	4.8	.69	.56	.36	.15	.15
29	.06	.18	.59	.41	---	.52	3.4	.71	.52	e.32	.15	.15
30	.06	.18	.42	1.4	---	1.0	2.7	.62	.52	e.28	.14	.44
31	.06	---	.32	1.9	---	12	---	.58	---	e.25	.13	---
TOTAL	1.70	5.39	28.10	18.60	39.13	164.17	246.74	32.15	18.35	17.11	7.09	11.93
MEAN	.055	.18	.91	.60	1.40	5.30	8.22	1.04	.61	.55	.23	.40
MAX	.25	.94	13	3.2	7.1	87	82	2.3	2.1	2.1	.37	2.6
MIN	.03	.06	.10	.12	.18	.52	.94	.58	.35	.25	.13	.12
CFSM	.008	.03	.13	.08	.20	.74	1.15	.15	.09	.08	.03	.06
IN.	.01	.03	.15	.10	.20	.85	1.28	.17	.10	.09	.04	.06

CAL YR 1986 TOTAL 121.88 MEAN .33 MAX 13 MIN .03 CFSM .05 IN. .63
WTR YR 1987 TOTAL 590.46 MEAN 1.62 MAX 87 MIN .03 CFSM .23 IN. 3.07

e Estimated.

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 mi².

PERIOD OF RECORD.--July 1908 to September 1916, January 1927 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1235: 1912-13, 1915-16. WSP 1275: 1911, 1927-28(M), 1930-34(M). WSP 1705: 1913(M), 1916(M), 1957 calendar year runoff. WSP 1725: 1915 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,924.65 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1916, nonrecording gage at same site at datum 0.68 ft lower. Feb. 3, 1927, to Oct. 28, 1934, and June 11, 1974, to July 22, 1975, nonrecording gage, at present site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 26-28 and Feb. 10, 11, which are fair. Occasional diurnal fluctuation at low flow caused by mills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--68 years, 269 ft³/s, 14.79 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s, July 16, 1916, gage height, 11.4 ft, present datum, from floodmarks, from rating curve extended above 7,600 ft³/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 ft³/s, Dec. 22, 1909, gage height, 0.49 ft, present datum, result of freezeup; minimum daily, 22 ft³/s, Jan. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0430	2,390	4.13	Apr. 17	0100	4,620	5.55
Jan. 19	2030	2,980	4.53	Apr. 25	0400	*5,540	*6.08
Mar. 2	0330	3,660	4.98				

Minimum discharge, 39 ft³/s, Oct. 23, gage height, 1.27 ft; minimum daily, 58 ft³/s, Oct. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	71	139	233	609	2700	1190	664	282	158	88	73
2	62	79	196	222	584	3230	806	584	267	152	86	73
3	59	76	358	201	702	2270	685	531	253	299	87	69
4	60	74	328	184	936	1690	641	504	247	297	89	70
5	68	80	247	172	863	1210	584	465	290	241	89	77
6	69	99	201	163	704	978	584	425	316	212	90	140
7	66	174	173	163	603	940	732	396	293	193	91	130
8	62	287	157	170	559	988	1260	371	275	169	91	243
9	63	225	161	169	531	1070	1760	347	255	153	91	130
10	63	185	192	168	e400	1180	1180	330	244	148	91	102
11	63	167	420	171	e350	890	899	314	240	145	90	96
12	61	147	943	166	371	711	731	301	225	143	87	163
13	67	128	523	157	397	596	630	297	219	142	86	215
14	81	112	334	153	411	518	531	295	218	138	83	133
15	79	105	265	159	374	470	1160	290	215	135	79	107
16	75	102	224	158	340	484	3470	290	215	131	79	97
17	70	100	199	161	308	580	3470	288	205	125	79	93
18	66	95	195	228	316	540	1760	281	200	118	79	92
19	63	90	189	1570	281	1140	1210	276	200	116	81	89
20	62	93	172	1620	281	1240	997	272	196	114	84	111
21	62	109	161	801	324	840	852	264	193	111	79	112
22	65	132	150	597	390	658	722	310	176	116	76	94
23	58	132	139	483	1050	551	738	296	164	131	74	88
24	61	123	697	361	1060	486	3680	295	158	175	74	84
25	72	116	1690	366	773	447	4520	284	153	113	74	82
26	123	169	756	e250	744	413	2290	513	434	103	77	81
27	113	251	505	e240	753	375	1430	450	294	98	78	79
28	92	225	392	e230	822	376	1080	404	263	95	76	79
29	80	185	320	279	---	351	874	309	214	93	80	77
30	74	158	279	293	---	428	749	306	176	90	78	88
31	70	---	251	619	---	1590	---	298	---	89	75	---
TOTAL	2191	4089	10956	10907	15836	29940	41215	11250	7080	4543	2561	3167
MEAN	70.7	136	353	352	566	966	1374	363	236	147	82.6	106
MAX	123	287	1690	1620	1060	3230	4520	664	434	299	91	243
MIN	58	71	139	153	281	351	531	264	153	89	74	69
CFSM	.29	.55	1.43	1.42	2.29	3.91	5.56	1.47	.96	.59	.33	.43
IN.	.33	.62	1.65	1.64	2.39	4.51	6.21	1.69	1.07	.68	.39	.48

CAL YR 1986 TOTAL 78152 MEAN 214 MAX 1890 MIN 58 CFSM .87 IN. 11.77
WTR YR 1987 TOTAL 143735 MEAN 394 MAX 4520 MIN 58 CFSM 1.59 IN. 21.65

e Estimated.

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 mi².

PERIOD OF RECORD.--August 1908 to September 1916, April 1939 to current year.

REVISED RECORDS.--WSP 1033: 1939(P), 1940, 1941-43(P). WSP 1305: 1912(M). WSP 1625: 1940, 1945(M), 1947, 1951, 1952(M).

GAGE.--Water-stage recorder. Datum of gage is 1,902.74 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1916, nonrecording gage at site 4 mi downstream at different datum.

REMARKS.--Records good except for period with ice effect, Jan. 25-30, which is fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years, 399 ft³/s, 19.49 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft³/s, Sept. 30, 1959, gage height, 12.54 ft, from rating curve extended above 6,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 57 ft³/s, Jan. 28, 1986, gage height, 1.58 ft, result of freezeup; minimum daily, 75 ft³/s, Jan. 5, 1981, Jan. 28, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2000	3,660	6.02	Apr. 24	2030	6,940	8.27
Mar. 1	1030	*9,740	*9.97	Sept. 8	0130	3,970	6.24

Minimum discharge, 100 ft³/s, Oct. 10, gage height, 1.85 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	135	222	291	416	7180	1040	824	668	327	333	159
2	130	284	420	299	376	2370	749	781	592	487	341	149
3	124	280	712	268	419	1320	663	750	514	690	269	140
4	113	189	432	246	535	1040	650	747	540	978	277	136
5	118	187	322	284	474	806	600	753	631	1010	237	173
6	112	364	272	310	421	730	588	692	485	960	219	513
7	106	480	250	328	405	715	634	666	446	525	224	1030
8	104	807	235	301	405	684	661	638	414	420	235	1820
9	104	432	301	268	377	711	597	614	402	420	216	484
10	106	313	432	258	312	862	537	600	391	379	201	394
11	108	251	722	267	376	675	505	585	379	392	191	518
12	108	262	873	251	345	602	488	580	380	359	188	363
13	129	241	523	242	353	557	500	674	382	470	180	556
14	291	202	382	227	329	517	457	609	419	392	173	395
15	250	192	337	248	315	506	931	583	380	337	172	302
16	151	216	286	262	309	517	1860	566	381	322	196	266
17	132	199	269	248	238	505	1580	537	386	309	202	275
18	125	184	275	306	379	471	1110	520	370	300	186	260
19	120	175	285	696	351	651	857	603	393	291	213	248
20	117	186	254	722	312	641	727	665	394	277	192	354
21	116	257	230	480	310	544	656	547	374	263	170	285
22	115	217	193	424	345	496	607	519	627	261	162	239
23	115	191	214	372	637	465	587	545	392	255	159	222
24	115	187	1540	289	629	448	4550	788	345	309	154	214
25	133	187	1460	e270	472	445	4970	1080	489	253	150	210
26	434	369	675	e250	490	478	2450	1000	548	239	156	204
27	312	703	510	e240	494	443	1380	755	456	231	160	201
28	184	395	438	e230	1130	473	1110	848	363	227	166	198
29	156	298	372	e280	---	429	972	634	327	222	161	199
30	143	249	318	e350	---	1040	891	559	312	215	151	221
31	137	---	296	521	---	1880	---	520	---	214	149	---
TOTAL	4639	8632	14050	10028	11954	29201	33907	20782	13180	12334	6183	10728
MEAN	150	288	453	323	427	942	1130	670	439	398	199	358
MAX	434	807	1540	722	1130	7180	4970	1080	668	1010	341	1820
MIN	104	135	193	227	238	429	457	519	312	214	149	136
CFSM	.54	1.04	1.63	1.16	1.54	3.39	4.07	2.41	1.58	1.43	.72	1.29
IN.	.62	1.16	1.88	1.34	1.60	3.91	4.54	2.78	1.76	1.65	.83	1.44

CAL YR 1986 TOTAL 94903 MEAN 260 MAX 1910 MIN 75 CFSM .94 IN. 12.70
WTR YR 1987 TOTAL 175618 MEAN 481 MAX 7180 MIN 104 CFSM 1.73 IN. 23.50

e Estimated.

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 mi².

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 783: Drainage area. WSP 823: 1936. WSP 1305: 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,848.36 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Large diurnal fluctuation and some regulation by powerplant 25 mi upstream from station. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--58 years, 3,206 ft³/s, 19.77 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 185,000 ft³/s, Aug. 14, 1940, gage height, 23.42 ft, from rating curve extended above 52,000 ft³/s on basis of flood records for other stations on New River; minimum, 412 ft³/s, Sept. 7, 1930, gage height, 0.47 ft; minimum daily, 453 ft³/s, Sept. 6, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 17,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0530	21,200	6.16	Apr. 17	0530	35,200	8.28
Mar. 1	1330	*50,300	*10.32	Apr. 25	1415	37,200	8.57

Minimum discharge, 654 ft³/s, Oct. 1, gage height, 0.90 ft; minimum daily, 726 ft³/s, Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	965	753	2420	2690	4790	40300	12300	7250	4040	2150	1310	1210
2	794	1270	3780	2890	4180	31800	8230	6550	3560	2650	1620	982
3	729	1770	8870	2290	4300	17900	6610	6100	3250	3980	1770	1070
4	748	1560	6720	2350	5610	13100	6330	5880	3180	4860	1690	908
5	942	1400	4690	2240	5380	10500	5830	5660	3290	6190	1630	927
6	874	1580	2940	2090	4650	8340	5600	5230	2610	5320	1410	2760
7	975	2080	3180	2340	4130	7330	6110	4940	2790	3360	1480	3630
8	814	4230	2220	2430	3420	7340	7540	4210	3020	2770	1420	6210
9	858	3700	2540	2350	3950	8280	9090	4460	2400	2690	1710	3050
10	1060	2690	2610	2060	3200	10700	8600	4300	2570	2350	1790	2400
11	726	2180	4050	2130	3060	10200	7640	4180	2340	3310	1240	2320
12	751	1900	5580	2310	3080	7860	6740	4020	2210	2750	1490	1770
13	1020	1820	5400	2030	3060	6480	6400	4680	2030	2840	1270	2670
14	1590	1880	3850	1960	2710	5520	5830	4290	2380	2390	1070	2550
15	1450	1350	3290	2020	2860	4940	7220	3900	2800	1830	1090	1980
16	1580	1530	2690	2160	3210	4820	22600	3460	2340	2330	1180	2090
17	1280	1790	2540	1770	2360	5120	32000	3680	2060	1860	1420	1110
18	1020	1520	2450	2810	3090	4780	20100	3890	2990	1630	1430	1500
19	936	1330	2400	5370	3120	5880	13400	3520	2650	1800	1330	1210
20	858	1490	1990	8320	2890	7860	10300	4160	3230	1880	1210	1590
21	866	1390	2110	6640	2490	6580	8380	3920	2790	1960	1450	1580
22	844	1370	2110	5200	3430	5580	7130	3670	3190	1410	1040	1710
23	797	1540	1930	4010	5300	4920	6390	3060	2100	1670	961	1420
24	912	1660	5710	3270	6560	4510	22400	4260	2330	1970	1330	1260
25	1000	1590	17700	3510	5150	4190	34800	4950	3020	1440	1000	1230
26	1710	2030	9330	3050	4700	4220	24300	5520	3380	1710	1030	1070
27	2940	4410	6100	2750	4880	3980	15100	4940	2830	1830	1080	1050
28	2280	4170	4560	2720	6230	3900	11600	5190	2750	1340	830	1480
29	1570	2780	3980	2620	---	3740	9590	4350	2670	1120	967	1360
30	1350	2440	3500	3140	---	4780	8140	3720	2120	1750	994	1220
31	1340	---	2970	4700	---	12300	---	3630	---	1260	977	---
TOTAL	35579	61203	134210	96220	111790	277750	356300	141570	82920	76400	40219	55317
MEAN	1148	2040	4329	3104	3992	8960	11880	4567	2764	2465	1297	1844
MAX	2940	4410	17700	8320	6560	40300	34800	7250	4040	6190	1790	6210
MIN	726	753	1930	1770	2360	3740	5600	3060	2030	1120	830	908
CFSM	.52	.93	1.97	1.41	1.81	4.07	5.39	2.07	1.26	1.12	.59	.84
IN.	.60	1.03	2.27	1.63	1.89	4.69	6.02	2.39	1.40	1.29	.68	.93

CAL YR 1986 TOTAL 790683 MEAN 2166 MAX 17700 MIN 604 CFSM .98 IN. 13.36
WTR YR 1987 TOTAL 1469478 MEAN 4026 MAX 40300 MIN 726 CFSM 1.83 IN. 24.82

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 mi².

PERIOD OF RECORD.--May 1939 to current year (monthly figures only).

REVISED RECORDS.--WSP 2108: 1961-65 monthend contents and change in contents.

GAGE.--Water-stage recorder. Datum of gage is approximately National Geodetic Vertical Datum of 1929 (levels by Appalachian Power Company). Prior to Sept. 11, 1943, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by gravity overflow concrete dam. Spillway with crest at elevation 1,818.5 ft is equipped with 9 lift gates 30 ft high by 50 ft wide. Dam completed and storage began May 22, 1939; water in reservoir reached minimum pool elevation in January 1940. Total level-pool capacity at elevation 1,847.0 ft, 1.5 ft below top of gates, is 230,100 acre-ft of which about 100,000 acre-ft is controlled storage above minimum pool elevation of 1,820.0 ft. Reservoir is used for hydroelectric power and recreation. U.S. Army Corps of Engineers satellite elevation telemeter at station.

COOPERATION.--Records were provided by the Appalachian Power Company.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,843.93	216,600	-
Oct. 31	1,845.04	221,400	+4,800
Nov. 30	1,845.82	224,700	+3,300
Dec. 31	1,844.10	217,400	-7,300
CAL YR 1986	-	-	-1,700
Jan. 31	1,842.26	209,500	-7,900
Feb. 28	1,840.25	200,900	-8,600
Mar. 31	1,845.27	222,400	+21,500
Apr. 30	1,845.19	222,000	-400
May 31	1,845.71	224,300	+2,300
June 30	1,844.77	220,200	-4,100
July 31	1,845.06	221,500	+1,300
Aug. 31	1,845.48	223,300	+1,800
Sept. 30	1,845.33	222,600	-700
WTR YR 1987	-	-	+6,000

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 Graysonton, 7 mi south of Radford, and at mile 8.6.

DRAINAGE AREA.--300 mi².

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 823: 1929-36. WSP 1143: 1945. WSP 1305: 1929(M). WSP 1555: Drainage area (at site used 1928-41). WSP 1625: 1951(M). WSP 1725: 1936(M).

GAGE.--Water-stage recorder. Datum of gage is 1,816.04 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 20, 1931, nonrecording gage at bridge 1.0 mi downstream at datum 17.99 ft lower. Nov. 20, 1931, to Nov. 12, 1941, water-stage recorder 1.2 mi downstream at datum 20.58 ft lower.

REMARKS.--Records good except for period with ice effect, Jan. 25-30, which is fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--59 years, 363 ft³/s, 16.43 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft³/s, June 21, 1972, gage height, 13.40 ft, from rating curve extended above 16,000 ft³/s on basis of slope-area measurements at gage heights 12.76 ft and 13.40 ft; minimum, 21 ft³/s, Feb. 22, 1942, result of freezeup; minimum daily, 50 ft³/s, Sept. 21, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0130	3,270	4.26	Apr. 16	0930	5,360	5.56
Mar. 1	1530	7,310	6.65	Apr. 24	1600	*7,780	*6.90
Mar. 31	1730	3,010	4.09	Sept. 8	0730	4,930	5.31

Minimum discharge, 102 ft³/s, Oct. 7, 8, gage height, 0.80 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121	122	225	315	494	5480	1190	850	563	325	243	145
2	121	145	354	332	487	3480	797	790	514	427	224	167
3	126	212	1030	305	543	1740	696	759	477	660	228	145
4	115	167	529	262	697	1280	693	747	473	544	216	138
5	112	181	383	252	621	931	655	756	591	690	208	157
6	109	259	316	239	531	791	639	682	470	464	248	442
7	105	346	278	303	491	760	743	649	437	384	212	805
8	102	763	264	341	475	786	813	620	419	349	275	3110
9	105	398	297	313	450	834	712	594	404	349	231	632
10	110	271	365	296	351	1000	623	580	396	373	199	441
11	113	218	559	308	412	794	576	567	387	678	186	370
12	113	226	894	292	402	680	549	556	387	574	178	309
13	125	222	538	274	410	622	541	590	393	410	172	502
14	203	185	388	267	392	571	505	566	402	354	166	424
15	261	170	355	278	372	546	791	551	382	327	161	308
16	172	180	321	298	354	542	4080	530	377	305	172	266
17	136	177	302	290	251	541	3040	506	385	295	196	249
18	129	164	307	320	401	510	1800	491	372	286	178	256
19	124	157	313	703	397	666	1190	486	386	279	225	249
20	121	161	274	884	370	736	934	542	453	266	187	311
21	120	214	256	579	357	610	809	517	390	253	163	303
22	120	227	212	491	383	554	735	483	963	248	152	242
23	120	182	193	397	629	519	690	467	467	244	157	223
24	122	174	1020	315	698	495	4600	478	378	322	158	213
25	132	172	1870	e300	542	483	6300	1110	499	268	151	209
26	290	244	713	e280	553	486	3540	857	577	236	154	205
27	322	553	518	e260	540	466	1770	673	444	226	180	202
28	186	371	436	e250	658	497	1310	906	382	221	174	201
29	148	289	384	e300	---	475	1070	633	344	218	160	202
30	133	251	352	e350	---	686	944	547	326	212	148	252
31	125	---	328	576	---	1890	---	510	---	253	142	---
TOTAL	4441	7401	14574	10970	13261	30451	43335	19593	13438	11040	5844	11678
MEAN	143	247	470	354	474	982	1444	632	448	356	189	389
MAX	322	763	1870	884	698	5480	6300	1110	963	690	275	3110
MIN	102	122	193	239	251	466	505	467	326	212	142	138
CFSM	.48	.82	1.57	1.18	1.58	3.27	4.81	2.11	1.49	1.19	.63	1.30
IN.	.55	.92	1.81	1.36	1.64	3.78	5.37	2.43	1.67	1.37	.72	1.45

CAL YR 1986 TOTAL 94190 MEAN 258 MAX 1870 MIN 67 CFSM .86 IN. 11.68
WTR YR 1987 TOTAL 186026 MEAN 510 MAX 6300 MIN 102 CFSM 1.70 IN. 23.07

e Estimated.

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 mi².
PERIOD OF RECORD.--October 1907 to September 1915, August 1939 to current year. Records for August 1898 to September 1907, published in WSP 27, 36, 48, 65, 83, 98, 128, 169, 205, 243, and 536, are unreliable and should not be used. Gage-height records collected at same site since 1895 are contained in reports of the National Weather Service.
REVISED RECORDS.--WSP 873: Drainage area. WSP 953: 1940-41. WSP 1305: 1908-12. See also PERIOD OF RECORD.
GAGE.--Water-stage recorder. Datum of gage is 1,712.16 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 30, 1939, nonrecording gage at highway bridge 2,000 ft upstream at datum 0.85 ft lower.
REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1939 by Claytor Reservoir (station 03169000). Some additional regulation at low flow by dam and powerplant on Little River. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--56 years, 3,865 ft³/s, 19.10 in/yr, unadjusted.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 218,000 ft³/s, Aug. 14, 1940, gage height, 35.96 ft, from rating curve extended above 76,000 ft³/s on basis of records for other stations on New River and flow over Claytor Dam, computed by Appalachian Power Company; minimum, 165 ft³/s, Aug. 25, 27, 1944, gage height, 1.08 ft; minimum daily, 550 ft³/s, Aug. 22, 1911.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 16, 1916, reached a stage of 35.7 ft, discharge, 200,000 ft³/s, at site and datum used by Geological Survey 1907-15, from reports of the National Weather Service.
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 54,100 ft³/s, Mar. 1, gage height, 15.12 ft; minimum, 648 ft³/s, Sept. 1, gage height, 1.69 ft; minimum daily, 945 ft³/s, Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3030	1040	3790	1560	6010	33600	12900	10200	4590	3380	1200	1160
2	2520	1000	9860	5780	5410	38900	11600	6240	5970	3280	1230	1250
3	2180	1150	8460	1480	5540	21800	11100	6950	5680	4040	2190	1600
4	951	2590	5600	1110	6090	16200	11500	8350	2990	6450	2350	1320
5	945	2350	4460	3330	5940	12600	10300	7370	3790	8180	2710	1300
6	1000	2080	3620	2910	5940	11100	6670	6430	3920	5750	2380	4430
7	972	5320	2560	3380	3220	10200	7190	6510	2570	5000	2340	8000
8	975	5370	4860	3280	1510	10700	8680	6280	3520	4660	1190	13300
9	951	2440	4400	3540	5400	10700	7090	4310	3000	4310	1190	2890
10	970	2260	3880	1250	4070	11800	10300	3650	3900	3420	2310	1980
11	971	2270	5140	1240	5640	12100	4990	7250	3910	2710	2090	1990
12	971	2120	7200	2980	4840	10500	6410	4870	3750	2200	1940	3200
13	996	3360	5970	3450	4570	7630	7060	5930	1540	4260	1700	1560
14	1820	3150	2110	2800	1510	5740	10500	5960	1340	4200	1690	2830
15	1870	1020	4970	3710	1300	4830	10500	4780	3710	3800	1160	3130
16	2100	1020	3540	3350	5530	5570	22400	3280	3650	3450	1100	3010
17	1180	1940	3240	1290	5400	5760	33600	2040	3540	3390	1900	2380
18	1350	2310	4390	5690	4360	6050	21700	5830	3540	1200	1710	2630
19	1080	1750	2910	10700	4750	8530	15000	4940	3890	1250	1750	1190
20	995	2000	1130	11000	4290	9050	12700	5410	1400	2690	2060	1230
21	974	1690	1120	7050	1290	8610	12300	5800	2410	1800	1550	1840
22	991	1040	3560	7210	2610	6580	10300	5320	5410	1680	1100	1710
23	1050	1070	4420	6210	10900	5380	7910	3550	4510	1710	1090	1590
24	997	1970	10100	3360	6400	5660	25700	3470	4100	2870	1530	1640
25	1090	3230	14000	4610	6340	5850	47900	6860	4130	1240	1310	1850
26	1080	6110	11800	3770	6810	5710	31500	6390	4450	1210	1320	1140
27	1330	3970	9260	3160	10400	5300	17800	7080	3880	2330	1340	1150
28	1090	3050	4970	3460	12100	5480	13900	7030	1390	2640	1350	1240
29	1020	3230	5610	3430	---	1540	12800	6130	3660	2330	1110	1180
30	1050	1220	5660	3700	---	8380	12500	5140	3890	2130	1070	1290
31	1080	---	4870	6000	---	13300	---	1590	---	1970	1290	---
TOTAL	39579	73120	167460	125790	148170	325150	434800	174940	108030	99530	50250	75010
MEAN	1277	2437	5402	4058	5292	10490	14490	5643	3601	3211	1621	2500
MAX	3030	6110	14000	11000	12100	38900	47900	10200	5970	8180	2710	13300
MIN	945	1000	1120	1110	1290	1540	4990	1590	1340	1200	1070	1140
(*)	+78	+55	-119	-128	-155	+350	-7	+37	-69	+21	+29	-12
MEAN‡	1355	2492	5283	3930	5137	10840	14490	5680	3532	3232	1650	2488
CFSM‡	.49	.91	1.92	1.43	1.87	3.94	5.27	2.07	1.29	1.18	.60	.91
IN.‡	.57	1.01	2.22	1.65	1.95	4.55	5.88	2.38	1.43	1.36	.69	1.01

CAL YR 1986	TOTAL	990806	MEAN 2715	MAX 14000	MIN 844	MEAN‡ 2713	CFSM‡ 0.99	IN.‡ 13.40
WTR YR 1987	TOTAL	1821829	MEAN 4991	MAX 47900	MIN 945	MEAN‡ 4999	CFSM‡ 1.82	IN.‡ 24.70

* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; provided by Appalachian Power Company.
‡ Adjusted for change in contents.

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 mi².

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.--WSP 1143: 1939(M), 1940, 1944, 1946. WSP 1305: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,665.92 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, Nov. 19 to Dec. 3, and periods with ice effect, Jan. 25-29 and Feb. 10, 11, which are fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--49 years, 326 ft³/s, 14.52 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft³/s, Apr. 5, 1977, gage height, 16.69 ft, from rating curve extended above 7,200 ft³/s on basis of slope-area measurement at gage height 16.50 ft; minimum, 15 ft³/s, Dec. 21, 1958, gage height, 2.42 ft, result of freezeup; minimum daily, 24 ft³/s, Sept. 27, 28, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1878 reached a stage of about 23.5 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 25	0330	4,530	9.52	Mar. 31	1500	5,120	9.97
Jan. 19	1830	4,140	9.23	Apr. 17	0500	5,160	10.00
Mar. 2	0230	5,400	10.17	Apr. 25	1730	*9,470	*12.76

Minimum discharge, 38 ft³/s, Sept. 4, 5, gage height, 2.80 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	56	e190	290	608	3170	2070	739	176	87	53	42
2	43	63	e250	273	604	4390	1220	632	175	102	55	41
3	42	80	e580	244	875	2670	956	556	172	103	66	40
4	41	94	510	214	1090	1960	835	514	172	123	58	39
5	42	147	387	194	990	1380	716	472	183	132	59	44
6	42	188	304	181	816	1070	659	419	169	128	55	63
7	41	236	251	183	711	1060	754	386	145	101	53	88
8	40	352	219	186	670	1240	1460	357	133	89	53	121
9	41	339	212	186	631	1500	2050	330	126	83	52	119
10	41	276	234	184	e500	1810	1440	308	124	82	54	83
11	41	238	345	189	e420	1240	1090	290	121	80	50	83
12	41	209	915	182	438	908	866	278	115	77	48	94
13	44	193	653	178	494	726	721	264	112	97	47	84
14	55	178	460	166	523	606	597	256	110	102	47	91
15	61	153	372	166	477	533	777	246	106	92	46	75
16	67	115	310	177	428	501	2930	237	101	81	47	62
17	58	112	268	176	380	533	4280	222	98	73	46	56
18	50	107	252	200	392	517	2300	209	95	69	47	52
19	46	e100	239	2090	339	812	1510	201	93	66	44	50
20	45	e110	215	2140	310	1220	1100	197	125	63	42	55
21	46	e140	197	1090	321	926	879	190	128	62	41	70
22	52	e200	178	807	379	739	729	186	106	66	41	68
23	56	e180	162	646	774	612	627	180	98	88	43	57
24	58	e170	855	466	930	531	5150	189	95	76	41	52
25	65	e150	2790	e400	736	484	8270	209	118	75	43	49
26	68	e220	1110	e350	781	453	4510	336	165	65	42	46
27	70	e350	725	e300	804	408	2170	373	143	60	42	44
28	65	e300	549	e280	817	400	1500	310	112	57	45	44
29	59	e250	443	e300	---	387	1110	247	97	55	44	43
30	56	e210	380	326	---	668	896	212	89	54	45	44
31	53	---	328	579	---	3310	---	190	---	54	44	---
TOTAL	1573	5516	14883	13343	17238	36764	54172	9735	3802	2542	1493	1899
MEAN	50.7	184	480	430	616	1186	1806	314	127	82.0	48.2	63.3
MAX	70	352	2790	2140	1090	4390	8270	739	183	132	66	121
MIN	40	56	162	166	310	387	597	180	89	54	41	39
CFSM	.17	.60	1.57	1.41	2.02	3.89	5.92	1.03	.42	.27	.16	.21
IN.	.19	.67	1.82	1.63	2.10	4.48	6.61	1.19	.46	.31	.18	.23

CAL YR 1986 TOTAL 84431 MEAN 231 MAX 3230 MIN 40 CFSM .76 IN. 10.30
WTR YR 1987 TOTAL 162960 MEAN 446 MAX 8270 MIN 39 CFSM 1.46 IN. 19.88

e Estimated.

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 mi².

PERIOD OF RECORD.--July 1908 to September 1916, March 1938 to current year.

REVISED RECORDS.--WSP 973: 1940-41(M). WSP 1235: 1912-13, 1915-16. WSP 1505: 1940, monthly and yearly runoff. WSP 1725: 1913(M), 1915-16(M), 1941 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,583.83 ft above National Geodetic Vertical Datum of 1929. July 22, 1908, to Sept. 30, 1916, and Mar. 31 to Nov. 7, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Jan. 26-29, and periods of doubtful or no gage-height record, Aug. 31 to Sept. 7 and Sept. 10, 12, 15-20, 23-30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 300 ft³/s, 18.27 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,900 ft³/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 ft³/s on basis of contracted-opening measurement of peak flow; minimum, 8.8 ft³/s, Dec. 25, 1953, result of freezeup; minimum daily, 16 ft³/s, Sept. 17, 18, 26-28, 1964; minimum gage height, 2.19 ft, Dec. 24, 1943.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	2100	2,640	7.10	Apr. 17	0330	4,750	8.86
Mar. 2	0330	3,640	7.99	Apr. 24	0730	6,520	9.91
Mar. 31	1100	2,840	7.29	Apr. 25	1030	*8,630	*10.89
Apr. 9	0400	2,480	6.94				

Minimum daily discharge, 26 ft³/s, Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	50	208	270	637	1980	1420	627	141	57	32	e33
2	43	54	202	250	628	3040	994	541	171	57	34	e30
3	42	55	284	219	842	1900	819	473	157	58	42	e27
4	41	55	306	191	878	1480	722	440	164	62	44	e26
5	43	65	269	170	831	1110	615	388	232	93	43	e27
6	54	258	235	161	734	905	593	338	175	75	40	e45
7	52	305	209	163	674	925	628	305	142	67	38	e50
8	45	497	191	162	646	1080	1190	279	121	58	55	92
9	42	423	196	155	595	1430	2180	256	109	54	56	82
10	40	458	269	152	507	1630	1870	236	112	51	46	e60
11	38	382	471	155	451	1110	1470	220	101	50	41	88
12	37	425	862	141	443	837	1180	207	91	50	40	e70
13	43	368	668	145	621	676	981	196	87	53	37	79
14	74	290	500	136	599	565	777	189	84	54	34	74
15	120	242	406	141	536	494	1090	187	80	50	32	e66
16	97	214	337	152	476	545	3030	185	75	48	30	e55
17	80	185	288	161	433	707	3900	162	74	46	31	e45
18	70	163	269	210	389	644	2210	149	72	44	31	e40
19	62	145	257	1510	339	1060	1430	142	69	42	32	e35
20	57	136	221	1760	321	1250	1050	149	74	40	30	e37
21	53	189	199	1010	367	969	830	153	75	40	28	77
22	51	225	178	774	397	772	685	138	74	41	27	71
23	49	211	163	618	612	635	607	130	73	38	36	e60
24	47	196	571	471	628	543	5360	137	67	37	40	e50
25	52	183	1400	432	555	484	7910	363	74	37	34	e40
26	63	193	854	e350	618	434	3630	328	78	35	33	e36
27	72	300	637	e300	659	381	1770	302	79	33	32	e34
28	65	302	512	e280	667	380	1230	224	71	34	35	e32
29	59	272	417	e270	---	344	922	217	64	32	40	e31
30	54	240	359	329	---	505	749	183	60	32	38	e33
31	51	---	305	749	---	2020	---	153	---	32	e36	---
TOTAL	1740	7081	12243	11987	16083	30835	51842	7997	3046	1500	1147	1535
MEAN	56.1	236	395	387	574	995	1728	258	102	48.4	37.0	51.2
MAX	120	497	1400	1760	878	3040	7910	627	232	93	56	92
MIN	37	50	163	136	321	344	593	130	60	32	27	26
CFSM	.25	1.06	1.77	1.73	2.58	4.46	7.75	1.16	.46	.22	.17	.23
IN.	.29	1.18	2.04	2.00	2.68	5.14	8.65	1.33	.51	.25	.19	.26

CAL YR 1986 TOTAL 88730 MEAN 243 MAX 2710 MIN 29 CFSM 1.09 IN. 14.80
WTR YR 1987 TOTAL 147036 MEAN 403 MAX 7910 MIN 26 CFSM 1.81 IN. 24.53

e Estimated.

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 90 ft upstream from 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 mi².

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 1,490.11 ft (revised) above National Geodetic Vertical Datum of 1929. Aug. 11, 1927, to Oct. 16, 1934, on left bank opposite present site at same datum, and Oct. 17, 1934, to June 16, 1939, on left bank at site 200 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1939 by Claytor Reservoir (station 03169000) 55 mi upstream from station. U.S. Army Corps of Engineers satellite gage-height telemeter at station.

AVERAGE DISCHARGE.--60 years, 5,004 ft³/s, 18.03 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 226,000 ft³/s, Aug. 14, 1940, gage height, 27.50 ft, from rating curve extended above 89,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 717 ft³/s, Jan. 5, 1981, result of freezeup; minimum daily, 820 ft³/s, Sept. 8, 1930; minimum gage height, 2.10 ft, Sept. 8, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 85,200 ft³/s, Apr. 25, gage height, 15.97 ft; minimum, 960 ft³/s, Sept. 29, gage height, 2.44 ft; minimum daily, 1,170 ft³/s, Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3160	1200	2100	6160	8800	29500	20000	13200	2420	3940	2210	1440
2	3200	1260	7240	2580	8240	61000	15900	10100	5890	3650	1560	1350
3	2660	1280	10200	6670	7110	34400	13900	8400	6120	3560	1340	1370
4	2330	1280	7300	2280	9010	22800	13900	9170	6280	4820	2200	1710
5	1170	2810	6860	2010	9080	17800	13300	10100	3540	8740	2410	1670
6	1180	3230	5230	3990	8430	14500	10300	8380	4450	6410	2710	2260
7	1240	3190	4330	3600	8320	13100	9290	7310	4500	5430	2470	4600
8	1240	8210	3860	4090	5110	13800	12400	8240	3190	4850	2510	12600
9	1240	6020	5050	3980	3820	14700	12900	6940	4020	4460	1530	8000
10	1400	3480	5180	4230	7020	16000	15700	5510	3680	4150	1510	2610
11	1430	3290	5060	2040	5830	15500	10900	5630	4220	3760	2490	2200
12	1420	3310	8480	1940	7040	13400	9030	7850	4250	3290	2290	2220
13	1480	3010	9360	3570	6590	10800	9870	5850	4320	2110	2120	3500
14	1600	3970	6930	4050	6340	8140	11600	6810	2130	4410	1800	1780
15	2620	3790	3530	3430	3180	7350	12700	6730	1940	4110	1820	2920
16	2470	1880	6000	4390	3700	6840	24500	5540	3990	3840	1360	3210
17	2710	1650	4460	4010	7200	7840	47200	4210	3830	3460	1210	3230
18	1660	2420	4240	3100	5710	7780	34400	3800	3740	3460	1940	2650
19	1720	2670	5250	12500	5570	9560	22300	5790	3720	1580	1840	2950
20	1540	2300	3660	17600	5850	12400	16800	6120	4260	1440	1860	1590
21	1350	2570	2000	11900	5470	12200	15000	6200	1960	2690	2130	1460
22	1350	2280	1910	9640	2730	9490	13200	6850	2670	1960	1820	1930
23	1360	1800	4090	8600	8240	7750	11400	5680	5460	1800	1480	1810
24	1390	1690	9000	7130	10500	7370	30900	4400	4510	1820	1330	1670
25	1400	2580	22400	5000	8220	7440	79800	5070	4380	2810	1650	1740
26	1550	4660	15800	6860	8580	7670	57900	7540	4370	1530	1510	1910
27	1610	7620	12500	4390	11000	6830	29300	8180	4790	1400	1410	1280
28	1840	4390	8990	4290	13700	6800	20400	7880	3890	2340	1530	1280
29	1640	4270	5790	4660	---	6940	16700	7390	1860	2630	1550	1290
30	1390	4000	7230	4670	---	4610	15300	6730	3680	2370	1360	1310
31	1330	---	6450	5930	---	22300	---	5500	---	2160	1240	---
TOTAL	53680	96110	210480	169290	200390	436610	626790	217100	118060	104980	56190	79540
MEAN	1732	3204	6790	5461	7157	14080	20890	7003	3935	3386	1813	2651
MAX	3200	8210	22400	17600	13700	61000	79800	13200	6280	8740	2710	12600
MIN	1170	1200	1910	1940	2730	4610	9030	3800	1860	1400	1210	1280
(*)	+78	+55	-119	-128	-155	+350	-7	+37	-69	+21	+29	-12
MEAN‡	1810	3259	6671	5333	7002	14430	20890	7040	3866	3407	1842	2639
CFSM‡	.48	.86	1.77	1.42	1.86	3.83	5.54	1.87	1.03	.90	.49	.70
IN.‡	.55	.97	2.04	1.63	1.94	4.42	6.19	2.15	1.15	1.04	.56	.78

CAL YR 1986	TOTAL 1281855	MEAN 3512	MAX 22400	MIN 955	MEAN‡ 3510	CFSM‡ .93	IN.‡ 12.65
WTR YR 1987	TOTAL 2369220	MEAN 6491	MAX 79800	MIN 1170	MEAN‡ 6499	CFSM‡ 1.72	IN.‡ 23.42

* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; provided by Appalachian Power Company.
‡ Adjusted for change in contents.

03176500 NEW RIVER AT GLEN LYN, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1955-56, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to current year.
WATER TEMPERATURE: October 1964 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 350 microsiemens, Nov. 6, 1968; minimum, 70 microsiemens, Mar. 26, 27, 1979.
WATER TEMPERATURE: Maximum, 30.5°C, June 24, 1983; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 223 microsiemens, Oct. 28, Nov. 2; minimum daily, 115 microsiemens, Dec. 26, Mar. 10.
WATER TEMPERATURE: Maximum daily, 30.0°C, June 2; minimum, 2.0°C, Jan. 27.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
DEC												
03...	0930	10700	125	120	7.60	7.80	8.0	714	54	10.2	92	110
FEB												
11...	0930	7440	135	149	7.30	7.90	3.0	725	1.6	13.4	105	K9
MAR												
10...	1000	16200	105	113	7.25	7.45	5.0	724	22	11.9	98	300
MAY												
19...	1045	5870	138	154	7.50	8.20	19.0	724	2.3	8.2	93	270
JUN												
30...	1100	5290	160	167	8.20	8.40	24.5	725	1.3	--	--	43
JUL												
01...	1205	5170	--	--	--	--	--	--	--	--	--	--
SEP												
02...	1030	1040	200	205	8.20	8.30	21.0	727	0.70	8.5	100	120

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
DEC												
03...	140	50	7	12	4.8	4.2	1.9	44	43	43	52	12
FEB												
11...	K10	56	10	14	5.0	3.5	1.2	50	46	46	56	12
MAR												
10...	2400	47	14	12	4.0	3.0	1.6	37	33	33	40	9.5
MAY												
19...	510	65	20	16	6.1	3.1	1.3	54	45	45	55	7.0
JUN												
30...	210	65	13	15	6.6	4.4	2.1	55	53	52	63	14
JUL												
01...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
02...	220	88	26	20	9.1	5.0	1.8	67	64	62	76	24

03176500 NEW RIVER AT GLEN LYN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)
DEC 03...	4.4	<0.10	7.3	66	73	0.010	0.500	0.090	0.070	0.70	0.070	0.020
FEB 11...	5.5	<0.10	6.9	75	76	<0.010	0.860	0.020	0.030	0.30	0.010	0.010
MAR 10...	4.7	<0.10	6.2	54	61	0.010	0.920	0.100	0.120	0.50	0.080	0.010
MAY 19...	4.0	0.10	7.6	82	72	<0.010	0.930	0.020	0.020	1.7	0.030	0.030
JUN 30...	5.6	0.10	7.4	87	86	<0.010	0.650	0.110	0.120	1.1	0.060	0.050
JUL 01...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 02...	4.6	0.10	7.3	114	110	0.020	1.10	0.010	<0.010	<0.20	0.040	0.060

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
DEC 03...	0.020	<10	<1	23	<0.5	<1	<1	<3	2	45	<5	6
FEB 11...	0.010	--	--	--	--	--	--	--	--	--	--	--
MAR 10...	0.020	50	<1	24	<0.5	<1	<1	<3	6	52	<5	<4
MAY 19...	0.030	30	<1	22	<0.5	<1	<1	<3	1	15	<5	5
JUN 30...	0.030	--	--	--	--	--	--	--	--	--	--	--
JUL 01...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 02...	0.020	<10	1	27	<0.5	2	<1	3	7	16	<5	<4

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC 03...	<1	<0.1	<10	2	<1	<1	57	<6	15	22	85
FEB 11...	--	--	--	--	--	--	--	--	--	5	92
MAR 10...	9	<0.1	<10	5	<1	<1	39	<6	13	35	89
MAY 19...	2	<0.1	<10	2	<1	<1	58	<6	8	12	85
JUN 30...	--	--	--	--	--	--	--	--	--	11	80
JUL 01...	--	--	--	--	--	--	--	--	--	10	82
SEP 02...	7	<0.1	<10	2	<1	<1	98	<6	10	2	87

03176500 NEW RIVER AT GLEN LYN, VA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS/CM AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	160	212	165	158	160	163	125	140	---	170	170	210
2	153	223	168	158	155	130	125	145	178	150	170	205
3	165	220	135	160	160	137	128	155	140	150	182	220
4	180	218	138	160	160	137	133	155	149	140	182	215
5	163	200	138	170	160	130	140	150	148	142	200	200
6	188	175	140	205	155	125	138	150	---	130	170	201
7	193	175	---	168	155	123	160	150	---	145	165	179
8	185	150	162	160	158	120	160	150	150	140	160	150
9	200	150	142	158	165	125	130	150	180	140	160	159
10	200	158	130	155	188	115	130	150	180	142	190	160
11	200	160	138	163	150	120	130	160	178	150	180	160
12	200	165	138	170	160	120	130	160	160	---	180	179
13	205	168	130	190	160	---	132	150	---	164	180	179
14	218	172	128	153	158	142	140	160	---	162	178	198
15	205	160	140	---	158	---	130	142	140	145	180	180
16	185	170	155	150	165	---	120	145	140	158	181	190
17	185	180	150	160	190	150	138	---	142	158	195	170
18	178	178	148	160	145	---	119	196	140	160	200	190
19	198	205	143	163	160	140	129	162	---	180	200	180
20	193	190	163	119	170	128	125	145	---	180	---	179
21	215	180	163	123	163	---	125	150	180	182	195	199
22	218	183	170	133	180	---	125	150	---	210	199	199
23	215	183	180	130	183	145	120	160	176	198	200	200
24	208	200	138	140	150	147	120	160	148	194	200	200
25	215	198	120	148	165	147	120	145	145	220	205	185
26	218	190	115	158	158	143	120	148	---	190	220	199
27	215	148	125	150	150	140	120	140	---	190	215	195
28	223	150	130	163	160	158	140	139	150	---	210	201
29	220	155	140	163	---	150	140	148	162	210	210	---
30	220	160	158	163	---	163	140	140	158	180	200	210
31	200	---	158	170	---	155	---	---	---	170	220	---
MEAN	197	179	145	157	162	138	131	152	157	167	190	189

WTR YR 1987 MEAN 164 MAX 223 MIN 115

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	15.0	10.0	6.0	3.5	6.0	17.0	18.0	23.5	25.0	27.5	24.0
2	24.0	16.0	9.0	6.0	4.0	6.0	17.0	15.0	30.0	26.0	27.0	22.0
3	23.0	16.0	10.0	5.5	5.0	6.0	17.0	16.0	26.0	26.0	26.0	22.0
4	24.0	16.0	9.0	5.0	7.0	6.0	11.0	19.0	26.0	26.5	27.0	23.0
5	24.0	15.0	7.0	5.0	5.0	6.0	11.0	18.0	26.0	25.5	26.0	22.0
6	22.0	16.0	7.0	4.0	5.0	7.0	12.0	19.0	21.0	25.0	28.0	22.0
7	19.0	15.5	5.5	4.0	5.0	7.0	11.0	20.0	23.0	26.0	28.0	22.0
8	18.0	16.0	8.0	5.0	5.0	8.0	13.0	21.0	29.0	27.0	27.0	23.5
9	18.0	16.5	9.0	5.0	4.0	9.0	13.0	14.0	27.0	28.0	27.0	24.0
10	17.0	19.0	10.0	6.0	3.0	8.0	14.5	17.0	28.0	27.0	27.0	24.5
11	17.0	13.0	10.0	6.0	4.0	8.0	14.0	22.0	26.0	26.0	26.0	24.5
12	16.5	13.0	9.0	5.0	5.5	7.0	15.0	22.0	27.0	---	26.0	24.0
13	17.0	12.0	7.0	5.0	5.5	5.0	14.0	22.0	21.0	26.0	25.5	24.5
14	18.0	8.0	6.0	5.0	5.0	6.5	15.0	21.0	23.0	26.0	26.0	24.0
15	17.0	9.0	11.0	4.5	5.0	6.5	14.0	20.0	27.0	24.0	26.5	24.0
16	15.0	10.0	7.0	7.0	5.0	7.0	14.0	18.0	28.5	23.0	27.0	24.0
17	16.0	11.0	7.5	6.5	3.0	7.5	13.0	18.5	29.0	24.0	27.0	24.0
18	15.0	12.0	8.0	6.0	4.0	5.0	11.0	24.0	29.0	24.0	27.0	24.0
19	14.0	11.0	8.0	6.0	5.0	8.0	12.0	21.0	23.5	25.5	28.0	24.0
20	14.0	10.0	7.0	6.0	6.0	9.0	16.0	19.5	23.5	26.0	25.5	23.0
21	15.0	10.0	6.0	5.0	6.0	8.0	16.0	23.0	27.0	28.0	26.0	22.0
22	15.0	8.5	5.0	5.0	5.0	8.0	17.0	23.5	23.5	28.0	26.0	22.0
23	16.5	9.0	3.5	3.0	5.0	10.0	18.0	22.0	29.0	27.0	26.0	22.0
24	17.0	10.0	7.0	3.0	6.0	9.0	19.0	21.5	29.0	27.0	25.0	21.5
25	16.5	9.0	8.0	3.0	6.0	10.0	17.0	28.0	29.0	27.0	24.0	19.5
26	16.0	11.0	8.0	3.0	6.0	10.0	18.0	28.0	23.5	27.0	24.0	21.0
27	17.0	7.0	7.0	2.0	5.0	10.5	17.0	25.0	21.5	27.0	24.5	21.0
28	16.0	12.0	7.0	3.0	5.5	11.0	16.0	26.0	28.0	27.0	25.5	21.0
29	16.0	11.0	6.0	5.0	---	11.5	16.0	26.0	24.0	27.0	26.0	21.0
30	16.0	11.0	5.5	6.0	---	16.0	---	26.0	25.0	28.0	24.5	22.0
31	15.0	---	5.0	5.0	---	17.0	---	---	---	28.0	24.0	---
MEAN	17.5	12.5	7.5	5.0	5.0	8.5	15.0	21.0	26.0	26.5	26.0	22.5

WTR YR 1987 MEAN 16.0 MAX 30.0 MIN 2.0

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 mi².

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,310.41 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for period with ice effect, Jan. 26-28, which is fair. Some diurnal fluctuation caused by discharge from sewage treatment plant 2.3 mi upstream. About 65 percent of water discharged from the treatment plant was diverted from another drainage basin for municipal supply. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years, 60.7 ft³/s, 18.65 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,050 ft³/s, May 7, 1984, gage height, 8.37 ft, from rating curve extended above 670 ft³/s; minimum, 1.0 ft³/s, Jan. 18, 1981, gage height, 0.92 ft, result of freezeup; minimum daily, 3.9 ft³/s, Jan. 19, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 450 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	1530	727	6.18	Apr. 16	2330	721	6.14
Apr. 8	2230	626	5.50	Apr. 25	0400	*1,020	*8.21
Apr. 15	1215	568	5.11				

Minimum discharge, 7.3 ft³/s, Sept. 5, gage height, 0.98 ft; minimum daily, 9.8 ft³/s, Sept. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	16	36	42	152	629	196	131	44	24	16	11
2	15	18	36	39	145	476	159	113	45	33	18	10
3	15	16	53	34	170	303	143	100	45	30	18	9.8
4	15	16	40	30	158	230	139	112	45	55	16	9.8
5	43	42	35	28	135	176	133	87	45	37	16	18
6	24	63	34	27	111	152	131	79	45	34	15	19
7	19	75	32	26	98	150	171	73	45	28	47	23
8	17	70	30	26	90	166	370	67	45	25	27	20
9	16	103	47	24	80	220	492	63	52	23	17	16
10	15	94	68	24	67	232	413	59	57	23	16	15
11	15	97	144	25	62	171	312	55	40	22	15	13
12	13	103	148	23	76	135	260	54	39	20	14	14
13	18	74	94	22	90	110	218	52	35	20	13	15
14	68	57	71	21	82	93	180	50	33	23	12	13
15	38	49	60	27	73	84	365	56	32	21	12	13
16	27	44	52	26	68	128	577	54	32	19	12	14
17	23	37	45	26	64	123	593	48	31	17	12	13
18	19	35	50	52	60	112	401	46	30	17	12	13
19	18	34	42	284	60	224	278	49	36	17	12	18
20	17	39	38	206	70	198	217	48	31	16	12	18
21	17	48	32	133	88	163	178	45	34	16	11	14
22	15	37	28	106	113	132	150	41	35	16	11	14
23	15	34	28	84	240	110	163	43	30	17	26	14
24	15	37	149	67	170	95	729	91	34	16	12	12
25	26	38	164	61	136	85	935	74	61	17	11	12
26	25	46	102	e55	130	78	518	97	37	17	12	11
27	18	47	80	e43	140	72	307	76	31	21	13	11
28	16	45	65	e45	202	79	237	80	28	18	18	10
29	16	42	56	47	---	66	186	72	25	17	18	11
30	16	39	51	182	---	95	159	54	25	16	14	19
31	16	---	45	229	---	318	---	49	---	15	13	---
TOTAL	645	1495	1955	2064	3130	5405	9310	2118	1147	690	491	423.6
MEAN	20.8	49.8	63.1	66.6	112	174	310	68.3	38.2	22.3	15.8	14.1
MAX	68	103	164	284	240	629	935	131	61	55	47	23
MIN	13	16	28	21	60	66	131	41	25	15	11	9.8
(*)	3.62	4.46	4.61	4.56	5.21	5.30	5.40	5.12	4.68	3.84	5.18	3.61

CAL YR 1986 TOTAL 18013.0 MEAN 49.4 MAX 364 MIN 12 (*) 4.11
WTR YR 1987 TOTAL 28873.6 MEAN 79.1 MAX 935 MIN 9.8 (*) 4.63

* Discharge from sewage treatment plant, equivalent in cubic feet per second; provided by the Sanitary Board of Bluefield.
e Estimated.

03207500 LEVISA FORK NEAR GRUNDY, VA

LOCATION.--Lat 37°17'52", long 82°07'34", Buchanan County, Hydrologic Unit 05070202, on right bank 200 ft upstream from Six and Twenty Mile Creek, 2.4 mi northwest of Grundy, 2.5 mi downstream from Slate Creek, and 3.0 mi upstream from Poplar Creek.
DRAINAGE AREA.--235 mi², includes that of Six and Twenty Mile Creek.
PERIOD OF RECORD.--October 1941 to September 1974, October 1985 to September 1987 (discontinued as a continuous-record station; converted to a crest-stage partial-record station). Monthly discharge only for some periods, published in WSP 1305.
REVISED RECORDS.--WSP 1305: 1947(M), 1949(M). WSP 1505: 1944-46(M), 1950(M), 1953(M), 1955(P), 1956(M).
GAGE.--Water-stage recorder. Datum of gage is 984.47 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 20, 1949, nonrecording gage at bridge 1,000 ft downstream at datum 1.70 ft higher. Aug. 20, 1949, to July 28, 1958, water-stage recorder at site 1,050 ft downstream at datum 1.70 ft higher, July 29, 1958, to Aug. 1, 1961, at site 1,020 ft downstream at datum 0.30 ft lower, and Aug. 2, 1961, to Sept. 30, 1974, at present site at datum 4.00 ft higher.
REMARKS.--Records good except those for period with ice effect, Jan. 25-29, and periods of doubtful or no gage-height record, Feb. 2 to Mar. 30, Apr. 4 to May 11, May 27 to June 9, June 12-18, June 20 to July 6, and Aug. 5 to Sept. 30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--35 years, 288 ft³/s, 16.64 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,200 ft³/s, Jan. 29, 1957, gage height, 19.06 ft, site and datum then in use, from rating curve extended above 4,400 ft³/s on basis of slope-area and contracted-opening measurements of peak flow; minimum observed, 0.2 ft³/s, July 30, 1944; minimum gage height, 0.17 ft, Sept. 27-29, 1964.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1929 reached a stage of 16.0 ft, site and datum in use prior to July 29, 1958, discharge, 21,800 ft³/s, from information by local residents. Flood of Apr. 4, 1977, reached a stage of 28.87 ft, present datum, discharge, 52,000 ft³/s. Flood of May 7, 1984, reached a stage of 23.40 ft, present datum, discharge, 32,800 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	1555	4,430	10.16	Apr. 16	Unknown	Unknown	Unknown
Feb. 27	Unknown	5,970	11.40	Apr. 25	Unknown	Unknown	Unknown
Apr. 8	Unknown	*8,990	*13.42	July 11	1400	7,290	12.34

Minimum daily discharge, 15 ft³/s, Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	27	133	194	1040	e1500	740	e500	e130	e80	24	e21
2	47	30	121	200	e800	e1100	623	e450	e300	e90	23	e19
3	40	31	137	170	e860	e800	617	e400	e600	e110	21	e17
4	39	28	125	151	e820	e650	e620	e460	e750	e130	19	e16
5	84	58	114	140	e700	e550	e650	e380	e550	e160	e21	e15
6	68	130	107	131	e550	e450	e680	e320	e250	e210	e22	e25
7	46	155	104	130	e450	e400	e1000	e290	e150	198	e25	e55
8	36	223	103	130	e400	e360	e4500	e260	e100	145	e30	e140
9	33	1260	242	124	e350	e350	e5000	e240	e160	146	e35	e60
10	30	676	775	126	e270	e300	e3300	e210	274	358	e45	e40
11	30	403	934	129	e250	e270	e2200	e180	144	2350	e34	e32
12	31	528	1090	123	e260	e240	e1700	244	e110	1100	e30	e70
13	53	319	568	115	e240	e210	e1400	364	e90	484	e45	e65
14	442	202	358	110	e230	e200	e1100	317	e75	381	e43	e50
15	208	164	272	120	e220	e190	e1500	391	e64	243	e41	e35
16	116	140	222	126	e280	e260	e5500	291	e58	183	e38	e31
17	82	120	191	135	e400	e250	e4500	233	e70	139	e30	e28
18	63	107	250	180	e460	e240	e2000	202	e90	115	e19	e26
19	52	92	246	2330	e550	e450	e1500	191	255	97	e18	e35
20	43	86	239	1720	e700	e550	e1100	212	e100	84	e17	e60
21	39	99	216	807	e950	e500	e900	181	e130	73	e16	e45
22	38	83	187	579	e1000	e450	e700	161	e220	67	e17	e35
23	34	81	171	433	e2000	e380	e800	132	e120	63	e21	e30
24	32	102	621	335	e1600	e310	e2500	157	e80	56	e30	e28
25	41	131	1310	e300	e1100	e270	e3500	447	e150	53	e25	e26
26	48	212	708	e260	e800	e250	e2000	266	e600	50	e19	e25
27	39	242	472	e240	e2600	e230	e1300	e210	e300	52	e21	e24
28	33	219	356	e270	e2800	e210	e1000	e170	e170	49	e45	e23
29	30	185	285	e300	---	e190	e800	e120	e100	43	e80	e22
30	29	155	250	1180	---	e210	e600	e100	e70	35	e50	e40
31	27	---	211	1880	---	868	---	e170	---	24	e30	---
TOTAL	1978	6288	11118	13168	22680	13188	54330	8249	6260	7368	934	1138
MEAN	63.8	210	359	425	810	425	1811	266	209	238	30.1	37.9
MAX	442	1260	1310	2330	2800	1500	5500	500	750	2350	80	140
MIN	27	27	103	110	220	190	600	100	58	24	16	15
CFSM	.27	.89	1.53	1.81	3.45	1.81	7.71	1.13	.89	1.01	.13	.16
IN.	.31	.99	1.76	2.08	3.59	2.09	8.60	1.31	.99	1.17	.15	.18

CAL YR 1986 TOTAL 88753 MEAN 243 MAX 3530 MIN 21 CFSM 1.03 IN. 14.05
WTR YR 1987 TOTAL 146699 MEAN 402 MAX 5500 MIN 15 CFSM 1.71 IN. 23.22

e Estimated.

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 866.37 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 1-13, 17-24, Oct. 28 to Nov. 4, Nov. 16-25, July 24 to Aug. 9, Aug. 11, 12, 16-27, and Sept. 1-6, and period with ice effect, Jan. 25-28, which are fair. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--20 years, 381 ft³/s, 17.42 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,000 ft³/s, Apr. 4, 1977, gage height, 27.38 ft, from rating curve extended above 7,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 5.0 ft³/s, Oct. 1, 13, 14, 17, 18, 19, 20, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 23.0 ft, information from local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	1630	4,590	8.13	Apr. 16	1000	10,200	11.54
Feb. 27	1930	6,730	9.58	Apr. 17	0300	8,900	10.85
Apr. 8	2230	*10,300	*11.58	Apr. 25	0700	5,650	8.88
Apr. 9	2330	6,080	9.17	July 11	1600	7,410	10.06

Minimum daily discharge, 19 ft³/s, Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e60	e35	172	280	1410	2320	1130	681	167	101	e32	e32
2	e62	e40	148	286	1120	1590	931	592	409	122	e31	e25
3	e55	e42	178	235	1210	1150	920	522	821	175	e29	e23
4	e52	e38	154	199	1130	887	905	634	983	757	e26	e21
5	e110	95	129	182	894	723	890	501	722	850	e28	e19
6	e90	232	116	168	715	616	909	439	346	382	e30	e35
7	e62	244	111	167	606	532	1300	395	218	250	e35	86
8	e50	358	110	162	532	480	4440	354	154	197	e40	194
9	e44	1980	342	150	454	454	6060	314	122	188	e50	72
10	e40	1090	1120	155	352	412	4240	281	322	457	60	49
11	e40	671	1300	162	332	344	2910	253	152	2510	e45	44
12	e42	798	1530	144	343	316	2110	272	117	1550	e40	94
13	e60	467	872	127	326	283	1830	444	104	806	57	88
14	750	280	550	118	310	263	1490	404	89	727	57	62
15	365	212	409	145	304	251	1940	487	76	386	56	45
16	164	e170	320	155	360	336	7650	348	69	251	e52	40
17	e100	e150	265	169	550	332	6260	275	99	173	e45	37
18	e80	e140	351	237	641	328	2810	237	115	129	e27	35
19	e65	e120	343	2560	709	595	1940	240	334	108	e25	47
20	e58	e110	329	2190	967	751	1470	260	116	91	e24	81
21	e54	e130	292	1180	1370	701	1140	202	161	79	e23	55
22	e50	e110	248	844	1370	590	923	172	282	71	e25	42
23	e45	e105	224	645	2810	489	1080	151	150	68	e30	38
24	e43	e130	845	463	2070	421	3350	252	93	e65	e40	35
25	47	e200	1850	e400	1410	369	4680	835	221	e62	e30	33
26	66	315	1080	e350	1010	328	2520	469	782	e60	e26	32
27	47	363	729	e330	3510	296	1700	277	338	e66	e30	32
28	e43	320	544	e370	3660	286	1290	192	186	e64	75	31
29	e40	260	424	388	---	250	1020	151	119	e60	112	28
30	e38	208	363	1340	---	303	826	131	88	e50	59	74
31	e36	---	301	2270	---	1350	---	222	---	e40	43	---
TOTAL	2858	9413	15749	16571	30475	18346	70664	10987	7955	10895	1282	1529
MEAN	92.2	314	508	535	1088	592	2355	354	265	351	41.4	51.0
MAX	750	1980	1850	2560	3660	2320	7650	835	983	2510	112	194
MIN	36	35	110	118	304	250	826	131	69	40	23	19
CFSM	.31	1.06	1.71	1.80	3.66	1.99	7.93	1.19	.89	1.18	.14	.17
IN.	.36	1.18	1.97	2.08	3.82	2.30	8.85	1.38	.99	1.36	.16	.19

CAL YR 1986 TOTAL 110100 MEAN 302 MAX 3340 MIN 26 CFSM 1.02 IN. 13.79
WTR YR 1987 TOTAL 196724 MEAN 539 MAX 7650 MIN 19 CFSM 1.81 IN. 24.64

e Estimated.

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 mi².

PERIOD OF RECORD.--February 1938 to current year. Prior to April 1968, published as "Levisa Fork at Fishtrap."

REVISED RECORDS.--WSP 953. Drainage area. WSP 1335: 1938(M), 1939, 1940(M), 1942-43, 1944-45(M), 1946, 1948.

GAGE.--Water-stage recorder. Datum of gage is 600.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Apr. 19, 1968, nonrecording gage at site 3.7 mi upstream at different datum. Apr. 19, 1968, to June 18, 1973, water-stage recorder at site 1.0 mi downstream at datum 59.96 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Fishtrap Lake beginning October 1968. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--49 years, 478 ft³/s, 16.56 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft³/s, Jan. 29, 1957, gage height, 33.9 ft, from floodmark, site and datum then in use, from rating curve extended above 15,000 ft³/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 ft³/s, Nov. 8, 9, 1939, site then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,620 ft³/s, Apr. 11, gage height, 81.86 ft; minimum, 44 ft³/s, Aug. 19, gage height, 70.44 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	312	261	304	313	2170	4710	324	618	226	93	82	126
2	312	245	257	536	1670	3850	76	513	439	557	70	128
3	309	243	239	315	1250	1730	76	514	1030	390	67	105
4	282	242	195	306	1180	1200	80	892	1060	696	65	87
5	300	304	147	267	999	1720	423	521	934	1100	66	77
6	360	611	123	276	760	1570	838	381	476	678	68	72
7	282	612	153	257	677	934	848	431	205	398	68	190
8	227	640	192	241	590	796	1270	455	136	319	67	494
9	227	1820	298	208	564	722	3040	433	139	322	74	461
10	227	2220	765	269	477	639	4110	344	374	507	83	270
11	227	1460	1140	230	387	524	4620	272	349	1580	84	216
12	227	1320	1490	233	416	512	4980	274	259	2810	77	363
13	225	983	1200	216	452	383	3980	343	202	1220	80	397
14	662	616	684	189	397	317	1870	655	126	1100	101	211
15	734	414	549	190	356	305	1360	425	62	549	118	178
16	500	483	456	229	271	409	2690	370	80	365	87	182
17	379	408	426	245	660	464	3530	369	101	274	72	185
18	339	422	370	279	965	458	4450	337	124	169	72	190
19	215	356	360	237	978	593	4480	265	259	167	65	227
20	227	346	337	1780	1150	832	4480	255	324	166	59	287
21	245	362	359	2990	1370	839	4390	261	277	130	64	286
22	267	318	282	2010	1500	758	2640	180	272	78	66	219
23	313	293	264	981	2500	600	1290	183	325	76	71	180
24	314	307	275	609	2990	533	3000	191	232	76	71	176
25	316	309	291	610	1910	492	4430	214	132	77	67	170
26	282	336	506	603	1350	489	2840	768	617	77	69	188
27	224	330	1430	533	2340	399	1630	691	640	113	74	196
28	328	529	1870	438	4070	399	1280	434	335	117	82	168
29	278	350	1580	507	---	353	1140	218	201	81	77	184
30	285	409	687	802	---	327	805	219	146	83	75	178
31	280	---	383	2000	---	578	---	224	---	85	88	---
TOTAL	9705	17549	17612	18899	34399	28435	70970	12250	10082	14453	2329	6391
MEAN	313	585	568	610	1229	917	2366	395	336	466	75.1	213
MAX	734	2220	1870	2990	4070	4710	4980	892	1060	2810	118	494
MIN	215	242	123	189	271	305	76	180	62	76	59	72

CAL YR 1986	TOTAL	146980	MEAN	403	MAX	3930	MIN	29
WTR YR 1987	TOTAL	243074	MEAN	666	MAX	4980	MIN	59

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 mi².

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1003: 1926-43. WSP 1385: 1928(M), 1929, 1933(M), 1935(M), 1937-38(M).

GAGE.--Water-stage recorder. Datum of gage is 1,237.61 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 21, 1939, nonrecording gage at highway bridge 180 ft upstream at same datum.

REMARKS.--Records good except those for period with ice effect, Jan. 26, 27, and period of no gage-height record, Sept. 6-30, which are fair. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 330 ft³/s, 15.67 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,000 ft³/s, Apr. 4, 1977, gage height, 28.24 ft, from rating curve extended above 32,000 ft³/s on basis of slope-area measurement of peak flow; minimum observed, 0.2 ft³/s, June 27, 28, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	1530	5,870	7.65	Apr. 16	0700	9,650	9.94
Feb. 27	1900	7,100	8.42	Apr. 17	0330	9,280	9.72
Apr. 8	2215	11,800	11.18	July 11	1500	*13,800	*12.28

Minimum discharge, 20 ft³/s, Sept. 4, 5, gage height, 1.83 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	29	165	225	1140	1970	1350	432	296	69	60	24
2	52	31	151	230	925	1310	993	368	338	94	57	22
3	41	33	151	192	1000	967	889	326	590	101	45	21
4	41	33	128	173	901	730	832	411	395	675	35	21
5	135	46	111	173	691	586	821	347	299	1100	33	22
6	103	136	99	173	556	497	823	317	196	367	36	e25
7	68	181	96	173	465	424	1060	292	153	215	38	e40
8	51	300	101	156	408	386	4660	263	147	154	48	e110
9	42	1890	262	131	339	379	5740	230	142	249	41	e35
10	36	1000	1060	138	260	339	3150	208	167	422	47	e29
11	36	611	1230	141	256	278	1680	191	141	4340	40	e26
12	38	789	1430	125	258	262	1160	201	129	1390	34	e55
13	66	465	769	114	234	234	988	255	127	641	31	e120
14	940	280	471	110	221	220	848	426	113	605	30	e90
15	361	217	345	124	219	215	1920	284	104	394	27	e45
16	167	181	273	128	271	279	7370	225	99	258	27	e33
17	126	169	228	131	583	279	6360	186	94	184	26	e28
18	88	142	291	167	833	290	2310	165	106	150	25	e27
19	67	110	298	3110	988	631	1360	159	195	146	23	e32
20	55	100	277	1970	1170	794	960	198	138	135	22	e65
21	46	105	245	1040	1260	668	742	170	118	117	21	e45
22	41	89	206	756	1150	538	599	243	163	103	21	e32
23	38	84	190	557	2550	442	699	172	132	97	27	e30
24	36	102	1050	386	1730	377	1800	192	105	93	27	e28
25	38	130	1830	360	1160	333	2760	426	97	88	23	e27
26	45	211	965	e330	843	292	1730	407	439	82	23	e26
27	48	284	631	e280	3640	266	1080	226	244	77	26	e25
28	44	265	464	362	3340	257	809	165	147	74	37	e24
29	39	225	353	314	---	224	619	150	112	71	49	e24
30	34	188	301	977	---	271	518	147	77	68	34	e35
31	32	---	246	1830	---	2040	---	145	---	65	27	---
TOTAL	3003	8426	14417	15076	27391	16778	56630	7927	5603	12624	1040	1166
MEAN	96.9	281	465	486	978	541	1888	256	187	407	33.5	38.9
MAX	940	1890	1830	3110	3640	2040	7370	432	590	4340	60	120
MIN	32	29	96	110	219	215	518	145	77	65	21	21
CFSM	.34	.98	1.63	1.70	3.42	1.89	6.60	.89	.65	1.42	.12	.14
IN.	.39	1.10	1.88	1.96	3.56	2.18	7.37	1.03	.73	1.64	.14	.15

CAL YR 1986 TOTAL 88516 MEAN 243 MAX 4310 MIN 14 CFSM .85 IN. 11.51
WTR YR 1987 TOTAL 170081 MEAN 466 MAX 7370 MIN 21 CFSM 1.63 IN. 22.12

e Estimated.

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 mi².

PERIOD OF RECORD.--July 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Aug. 29, 1966, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by rockfill dam. Spillway with crest at elevation 1,644.0 ft is in a saddle 350 ft southeast of dam. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,556.5 ft. Storage began in September 1964 during construction with peak discharge affected thereafter; initial filling for regular operation started July 13, 1966. Total capacity at elevation 1,644.0 ft, top of spillway, is 11,290 acre-ft of which 8,110 acre-ft is flood-control storage for summer operations between elevations 1,611.0 ft, top of summer conservation pool, and 1,644.0 ft; an additional 1,290 acre-ft is available for flood control during the period December to March between elevations 1,601.0 ft, top of winter conservation pool, and 1,611.0 ft; contents at established minimum pool, 1,601.0 ft, is 1,900 acre-ft; dead storage is 7 acre-ft below elevation 1,556.5 ft. Figures given herein represent total contents. Lake is used for flood control, low-water augmentation for water-quality control, and recreation. U.S. Army Corps of Engineers satellite elevation telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 6,920 acre-ft, Apr. 8, 1977, elevation, 1,629.41 ft; minimum (after initial filling for regular operation), 1,660 acre-ft, Jan. 23, 1969, elevation, 1,598.62 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,670 acre-ft, Apr. 9, elevation, 1,614.03 ft; minimum, 1,960 acre-ft, Feb. 15, elevation, 1,601.63 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,609.85	3,011	-
Oct. 31	1,606.60	2,557	-454
Nov. 30	1,602.56	2,065	-492
Dec. 31	1,601.92	1,993	-72
CAL YR 1986	-	-	+1
Jan. 31	1,603.16	2,133	+140
Feb. 28	1,605.36	2,398	+265
Mar. 31	1,602.97	2,112	-286
Apr. 30	1,611.41	3,248	+1,136
May 31	1,611.33	3,235	-13
June 30	1,611.31	3,232	-3
July 31	1,611.21	3,217	-15
Aug. 31	1,610.42	3,096	-121
Sept. 30	1,610.10	3,048	-48
WTR YR 1987	-	-	+37

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 mi².

PERIOD OF RECORD.--October 1961 to September 1987 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

GAGE.--Water-stage recorder. Datum of gage is 1,500.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1965, on left bank at datum 44.88 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since August 1966 by North Fork Pound River Lake (station 03208680). U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--26 years, 28.0 ft³/s, 20.55 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,480 ft³/s, Mar. 12, 1963, gage height, 61.58 ft, present datum, from rating curve extended above 650 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.02 ft³/s, Sept. 16, 1964, Aug. 11, 12, Oct. 28, Nov. 10, 1969; minimum daily, 0.04 ft³/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 ft³/s, Sept. 14, 1982, gage height, 55.79 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 63.9 ft, present datum, from U.S. Army Corps of Engineers floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 320 ft³/s, Apr. 10, gage height, 51.35 ft; minimum, 1.7 ft³/s, July 26, gage height, 48.28 ft; minimum daily, 1.8 ft³/s, July 20-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	17	44	22	82	231	10	21	29	2.6	1.9	2.3
2	3.1	17	34	15	81	170	7.8	15	77	2.8	1.9	2.3
3	3.1	17	23	11	81	57	8.0	16	83	2.7	1.9	2.3
4	3.2	17	14	11	59	30	7.8	27	65	4.3	1.9	2.4
5	3.1	18	9.1	11	29	30	7.6	32	34	27	2.0	2.5
6	3.1	18	9.1	11	23	25	7.5	32	25	17	2.1	2.5
7	2.9	22	9.1	11	15	19	9.5	32	17	13	2.1	2.6
8	2.9	26	9.1	11	14	19	33	20	7.0	6.5	2.0	2.4
9	2.9	39	28	11	24	22	171	15	6.8	6.4	2.2	2.3
10	2.9	67	79	11	28	27	231	15	8.8	5.5	2.1	2.3
11	2.9	87	96	11	23	20	166	15	11	3.1	2.0	2.3
12	2.9	112	86	14	14	11	154	11	10	3.1	2.2	3.1
13	4.0	110	69	17	12	11	126	7.3	8.7	37	2.1	2.5
14	32	49	36	15	12	9.5	79	5.9	8.6	41	2.0	2.2
15	39	19	20	12	12	9.1	90	4.8	5.5	18	2.0	2.2
16	25	19	22	12	12	18	170	4.7	3.9	8.5	2.0	2.2
17	18	19	22	12	16	22	219	4.6	3.2	5.8	2.1	2.3
18	15	22	23	13	37	15	178	4.5	3.2	2.0	2.1	2.5
19	15	24	23	32	71	36	120	5.6	3.1	1.9	2.1	2.7
20	12	24	23	126	52	40	76	8.7	3.1	1.8	2.1	2.5
21	11	21	22	173	32	31	45	9.8	3.2	1.8	2.1	2.4
22	11	16	17	129	34	30	32	9.8	2.9	1.8	2.1	2.3
23	11	16	14	48	130	39	32	12	2.6	1.8	2.4	2.4
24	11	16	21	28	137	43	27	11	2.6	1.8	2.2	2.5
25	12	16	28	28	80	31	19	13	2.7	1.8	2.2	2.5
26	12	25	45	28	54	17	19	86	8.1	1.8	2.2	2.5
27	15	32	60	24	126	15	55	98	7.7	2.2	2.3	2.5
28	17	41	59	19	122	11	52	58	3.3	2.2	2.4	2.6
29	17	45	43	19	---	11	25	32	2.9	1.9	2.3	2.7
30	17	44	23	55	---	12	25	22	2.6	1.9	2.3	3.0
31	17	---	22	84	---	15	---	14	---	1.9	2.3	---
TOTAL	347.1	1015	1032.4	1024	1412	1076.6	2202.2	662.7	451.5	230.9	65.6	73.8
MEAN	11.2	33.8	33.3	33.0	50.4	34.7	73.4	21.4	15.0	7.45	2.12	2.46
MAX	39	112	96	173	137	231	231	98	83	41	2.4	3.1
MIN	2.9	16	9.1	11	12	9.1	7.5	4.5	2.6	1.8	1.9	2.2
(*)	-7	-8	-1	+2	+5	-5	+19	.00	.00	.00	-2	-1
MEAN‡	4.20	25.8	32.3	35.0	55.4	29.7	92.4	21.4	15.0	7.45	.12	1.46
CFSM‡	.23	1.39	1.75	1.89	2.99	1.61	4.99	1.16	.81	.40	.01	.08
IN.‡	.26	1.56	2.01	2.18	3.12	1.85	5.57	1.33	.91	.46	.01	.09

CAL YR 1986	TOTAL 6989.8	MEAN 19.2	MAX 220	MIN 2.6	MEAN‡ 19.2	CFSM‡ 1.04	IN.‡ 14.06	
WTR YR 1987	TOTAL 9593.8	MEAN 26.3	MAX 231	MIN 1.8	MEAN‡ 26.3	CFSM‡ 1.42	IN.‡ 19.29	

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.

03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA

LOCATION.--Lat 37°07'26", long 82°26'20", Dickenson County, Hydrologic Unit 05070202, on left bank on State Highway 649, 500 ft downstream from Clinchfield Railway bridge, 1,000 ft downstream from Rush Creek, and 2.1 mi southeast of Clintwood.

DRAINAGE AREA.--66.5 mi².

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

REVISED RECORDS.--WDR VA-77-1: 1967(M).

GAGE.--Water-stage recorder. Datum of gage is 1,440.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period with ice effect, Jan. 25-28, and periods of doubtful or no gage-height record, Aug. 2, 12, 15-21, 26, which are fair. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--24 years, 79.3 ft³/s, 16.19 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s, Apr. 4, 1977, gage height, 26.09 ft, from floodmark, from rating curve extended above 3,100 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.48 ft³/s, Sept. 28, 1964, gage height, 0.91 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 20.0 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	1400	1,370	7.92	Apr. 16	0730	1,270	7.58
Feb. 27	1600	1,310	7.73	Apr. 17	0430	1,210	7.41
Apr. 8	2030	*1,870	*9.35				

Minimum discharge, 4.5 ft³/s, Oct. 10, 11; minimum gage height, 1.25 ft, Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	16	35	52	197	442	224	84	63	18	12	9.2
2	7.4	39	36	53	165	266	179	75	54	26	e14	9.3
3	5.3	22	38	45	160	190	169	70	51	24	12	9.5
4	6.4	18	34	42	137	147	163	110	51	105	11	8.3
5	12	27	31	40	108	121	160	89	41	91	13	5.3
6	8.8	38	28	38	93	102	160	79	36	48	16	7.0
7	5.5	58	27	39	82	88	222	72	33	35	14	59
8	7.4	64	29	37	73	80	917	66	29	31	10	59
9	5.4	343	107	36	66	80	895	58	29	38	20	20
10	4.6	140	239	35	59	73	487	53	44	60	15	17
11	8.2	100	215	31	56	64	296	50	31	73	11	16
12	8.6	100	225	28	55	62	235	48	34	80	e15	79
13	12	64	127	28	51	57	203	86	29	73	13	64
14	145	44	82	28	49	54	175	142	27	85	11	46
15	48	38	65	29	48	53	329	84	25	52	e10	25
16	29	33	53	29	67	69	979	67	24	38	e9.8	21
17	22	28	49	32	129	63	912	56	30	27	e9.5	18
18	18	26	58	37	187	62	446	52	25	21	e9.2	16
19	16	26	49	714	193	150	286	51	23	22	e8.5	18
20	15	27	44	360	170	142	213	53	23	20	e8.0	34
21	13	26	39	192	155	120	172	56	24	18	e7.5	16
22	9.9	22	36	144	160	99	144	56	24	15	7.7	13
23	8.7	19	37	111	425	85	125	58	21	13	18	15
24	8.5	23	245	81	275	75	116	141	17	15	12	12
25	13	34	305	e70	192	70	186	228	14	15	10	14
26	18	59	156	e60	145	63	165	168	85	14	e9.0	13
27	14	73	105	e55	758	57	144	105	39	15	10	8.9
28	12	54	80	e64	595	56	128	73	26	19	24	8.2
29	11	43	65	71	---	52	108	57	21	11	20	8.1
30	15	36	59	236	---	56	96	52	19	10	10	36
31	11	---	53	309	---	344	---	47	---	9.7	9.8	---
TOTAL	526.4	1640	2751	3126	4850	3442	9034	2486	992	1121.7	380.0	684.8
MEAN	17.0	54.7	88.7	101	173	111	301	80.2	33.1	36.2	12.3	22.8
MAX	145	343	305	714	758	442	979	228	85	105	24	79
MIN	4.6	16	27	28	48	52	96	47	14	9.7	7.5	5.3
CFSM	.26	.82	1.33	1.52	2.60	1.67	4.53	1.21	.50	.54	.18	.34
IN.	.29	.92	1.54	1.75	2.71	1.93	5.05	1.39	.55	.63	.21	.38

CAL YR 1986 TOTAL 18091.4 MEAN 49.6 MAX 918 MIN 3.9 CFSM .75 IN. 10.12
WTR YR 1987 TOTAL 31033.9 MEAN 85.0 MAX 979 MIN 4.6 CFSM 1.28 IN. 17.36

e Estimated.

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 mi².

PERIOD OF RECORD.--September 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Mar. 31, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by rockfill dam. Spillway with crest at elevation 1,410.0 ft is in a saddle 0.3 mi upstream from dam and is equipped with 6 radial gates 36 ft high by 42 ft wide. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,230.0 ft. Storage began in September 1961 during construction with peak discharge affected thereafter; initial filling for regular operations started in March 1965. Total capacity at elevation 1,446.0 ft, top of gates, is 145,700 acre-ft of which 78,600 acre-ft is controlled flood storage for summer operations between elevations 1,396.0 ft, top of summer conservation pool, and 1,446.0 ft; an additional 16,500 acre-ft is available for flood control during the period December to March between elevations 1,380.0 ft, top of winter conservation pool, and 1,396.0 ft; contents at established minimum pool, 1,314.0 ft, is 12,000 acre-ft; dead storage is 300 acre-ft below elevation 1,230.0 ft. Figures given herein represent total contents. Reservoir is used for flood control, low-water augmentation for water-quality control, and recreation. U.S. Army Corps of Engineers satellite elevation telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 116,500 acre-ft, Apr. 7, 1977, elevation, 1,430.80 ft; minimum (after initial filling for regular operation), 11,800 acre-ft, Apr. 1, 1965, elevation, 1,313.42 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 75,800 acre-ft, Apr. 17, elevation, 1,403.31 ft; minimum, 50,800 acre-ft, Feb. 25, elevation, 1,380.25 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,387.80	58,200	-
Oct. 31	1,388.79	59,200	+1,000
Nov. 30	1,380.50	51,000	-8,200
Dec. 31	1,380.45	51,000	0
CAL YR 1986	-	-	-200
Jan. 31	1,382.23	52,700	+1,700
Feb. 28	1,388.13	58,500	+5,800
Mar. 31	1,388.01	58,400	-100
Apr. 30	1,395.24	66,200	+7,800
May 31	1,396.19	67,300	+1,100
June 30	1,396.43	67,600	+300
July 31	1,395.95	67,000	-600
Aug. 31	1,392.67	63,400	-3,600
Sept. 30	1,392.20	62,800	-600
WTR YR 1987	-	-	+4,600

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 mi².

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1963, published as Pound River near Haysi.

REVISED RECORDS.--WSP 953: 1940-41. WSP 1003: 1942, 1943(P). WSP 1275: 1927-30, 1931(M), 1932-39.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Dec. 20, 1939, nonrecording gage at site 3.8 mi upstream at different datum. Dec. 20, 1939, to Sept. 30, 1963, water-stage recorder at site 4.6 mi upstream at datum 79.91 ft higher.

REMARKS.--No estimated daily discharges. Records 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. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--61 years, 274 ft³/s, 16.84 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 30,000 ft³/s, Mar. 23, 1929, gage height, 16.5 ft, from floodmarks, site and datum then in use; minimum, less than 0.1 ft³/s on several days in September 1932. Maximum discharge since construction of John W. Flannagan Dam in 1965, 4,540 ft³/s, Apr. 8, 1977, gage height, 8.20 ft; minimum, 1.2 ft³/s, Feb. 16, 1968, Aug. 26, 1986; minimum daily, 2.3 ft³/s, June 26-29, 1965; minimum gage height, 1.42 ft, Feb. 16, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,990 ft³/s, Apr. 18, gage height, 7.75 ft; minimum, 1.9 ft³/s, Mar. 10, May 5, gage height, 1.59 ft; minimum daily, 33 ft³/s, Oct. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	288	245	148	635	2820	53	167	167	70	87	53
2	50	351	182	192	709	2940	53	276	402	69	87	53
3	50	237	182	209	742	1490	53	392	388	67	87	86
4	50	237	155	209	896	487	53	94	307	335	93	117
5	50	237	102	131	754	376	266	43	271	578	93	117
6	50	414	81	94	302	339	481	54	161	168	87	117
7	50	405	81	94	212	289	481	48	163	115	87	89
8	50	268	113	97	212	289	700	173	105	76	87	54
9	50	660	203	123	191	289	1760	422	83	59	87	54
10	50	1200	829	136	158	225	2330	421	171	151	87	53
11	50	995	1050	136	250	271	1340	421	134	273	87	53
12	50	1570	904	136	293	223	1550	175	85	567	74	54
13	50	959	542	136	205	169	1260	52	86	287	58	227
14	50	434	542	136	100	139	755	57	87	295	58	60
15	49	382	318	136	100	140	988	49	87	220	96	60
16	48	382	206	116	100	188	624	107	87	131	115	60
17	48	224	188	88	329	212	1540	126	87	77	115	60
18	48	167	204	88	725	233	3620	81	87	56	115	56
19	48	177	195	91	885	582	2260	62	86	56	115	54
20	48	274	136	1460	731	289	1450	83	85	56	115	54
21	48	242	136	2330	537	49	1060	105	85	56	115	54
22	48	203	200	1420	538	50	527	209	84	56	115	54
23	48	203	231	543	1170	50	411	254	83	56	115	54
24	48	226	231	244	1560	49	317	350	65	56	115	54
25	48	258	527	244	1030	48	304	540	56	56	117	54
26	46	338	667	298	550	50	304	838	99	56	117	54
27	33	376	666	359	568	51	563	481	213	56	117	54
28	240	376	664	279	1230	51	742	305	121	57	81	54
29	169	376	664	223	---	51	560	191	73	57	60	55
30	98	376	418	447	---	51	315	161	71	57	60	55
31	98	---	168	633	---	53	---	157	---	72	55	---
TOTAL	1913	12835	11030	10976	15712	12543	26720	6894	4079	4341	2897	2073
MEAN	61.7	428	356	354	561	405	891	222	136	140	93.5	69.1
MAX	240	1570	1050	2330	1560	2940	3620	838	402	578	117	227
MIN	33	167	81	88	100	48	53	43	56	56	55	53
(*)	+9	-146	-1	+30	+109	-7	+150	+18	+5	-10	-61	-11
MEAN‡	70.7	282	355	384	670	398	1041	240	141	130	32.5	58.1
CFSM‡	.32	1.28	1.61	1.74	3.03	1.80	4.71	1.09	.64	.59	.15	.26
IN.‡	.37	1.42	1.85	2.00	3.16	2.07	5.26	1.25	.71	.68	.17	.29

CAL YR 1986	TOTAL	75522	MEAN 207	MAX 3360	MIN 23	MEAN‡ 207	CFSM‡ .94	IN.‡ 12.71		
WTR YR 1987	TOTAL	112013	MEAN 307	MAX 3620	MIN 33	MEAN‡ 313	CFSM‡ 1.42	IN.‡ 19.22		

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake and John W. Flannagan Reservoir; provided by U.S. Army Corps of Engineers.
‡ Adjusted for change in contents.

03209300 RUSSELL FORK AT ELKHORN CITY, KY

LOCATION.--Lat 37°18'14", long 82°20'35", Pike County, Hydrologic Unit 05070202, on left bank 10 ft downstream from steel highway bridge on abandoned section of State Highway 80, at Elkhorn City, 0.9 mi upstream from Elkhorn Creek, and at mile 13.2.

DRAINAGE AREA.--554 mi^2.

PERIOD OF RECORD.--Annual maximum, water years 1957-60 and occasional low-flow measurements, 1958-60. October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 773.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Mar. 12, 1957, to Jan. 4, 1961, nonrecording gage at site 10 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 25-29, Jan. 31 to Feb. 2, and Feb. 9, 10, 16, 17. Records good except those for estimated daily discharges, which are fair. Flow regulated since August 1966 by North Fork Pound River Lake (station 03208680) and since March 1965 by John W. Flannagan Lake (station 03208990). Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVRAGE DISCHARGE.--27 years, 718 ft^3/s, 17.60 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 54,200 ft^3/s, Apr. 4, 1977, gage height, 24.80 ft; minimum, 4.2 ft^3/s, Sept. 20, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 2.4 ft^3/s was measured on Oct. 18, 1930 (exact location unknown).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,100 ft^3/s, July 11, gage height, 13.36 ft; minimum daily, 82 ft^3/s, Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	324	489	405	1800	5340	1470	770	434	189	165	86
2	111	364	375	445	1500	4660	1020	753	790	210	163	83
3	104	302	375	441	1580	2620	899	837	1040	244	161	89
4	98	300	346	413	1620	1170	860	723	763	788	161	143
5	170	370	257	350	1370	924	949	589	730	1840	172	172
6	187	598	210	272	856	823	1200	567	520	706	155	160
7	140	644	203	270	677	707	1410	538	448	501	160	220
8	115	650	219	267	631	673	4640	542	360	443	169	291
9	104	3300	452	274	601	662	8860	774	272	572	181	157
10	96	2190	1650	299	552	578	6750	754	440	732	176	118
11	93	1590	2040	305	505	561	3370	737	390	4200	171	103
12	93	2250	2440	293	566	512	2800	559	270	2240	156	139
13	126	1400	1300	277	492	437	2410	471	259	1150	113	454
14	1030	744	998	269	344	377	1630	594	238	945	106	252
15	555	631	744	283	344	370	2550	522	228	780	124	220
16	294	595	518	285	407	448	8320	481	219	577	179	144
17	206	473	465	243	829	507	8290	486	215	425	175	121
18	164	321	484	269	1380	502	6820	400	203	300	172	111
19	136	316	532	3250	1730	1050	4370	342	355	260	171	109
20	122	368	437	3690	1770	1120	2430	395	287	231	169	171
21	112	407	413	3470	1730	727	1930	408	311	210	166	168
22	106	329	416	2140	1600	603	1180	565	361	195	167	125
23	102	240	448	1130	4080	513	1010	585	285	182	179	108
24	98	296	1010	640	3460	455	2020	633	223	172	177	98
25	112	410	2600	520	2130	416	2990	937	187	164	169	93
26	123	531	1570	470	1330	374	2200	1230	538	154	166	88
27	118	681	1240	430	4250	343	1640	836	665	149	173	86
28	289	669	1080	400	5410	333	1540	630	395	146	177	84
29	256	629	985	380	---	308	1270	494	233	141	138	82
30	146	589	792	1130	---	299	926	406	198	135	120	115
31	142	---	461	2400	---	1930	---	399	---	132	101	---
TOTAL	5664	22511	25549	25710	43544	30342	87754	18957	11857	19113	4932	4390
MEAN	183	750	824	829	1555	979	2925	612	395	617	159	146
MAX	1030	3300	2600	3690	5410	5340	8860	1230	1040	4200	181	454
MIN	93	240	203	243	344	299	860	342	187	132	101	82

CAL YR 1986	TOTAL	183162	MEAN	502	MAX	6750	MIN	73
WTR YR 1987	TOTAL	300323	MEAN	823	MAX	8860	MIN	82

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 mi².

PERIOD OF RECORD.--October 1920 to December 1931, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1306. Prior to October 1924, published as "near Chilhowie." June 1907 to December 1909, at site 4.5 mi downstream also published as "near Chilhowie"; records not equivalent.

REVISED RECORDS.--WSP 1033: 1943-44(m). WSP 1306: Drainage area, 1921-31(M).

GAGE.--Water-stage recorder. Datum of gage is 2,106.77 ft above National Geodetic Vertical Datum of 1929. Nov. 1, 1920, to Nov. 14, 1931, nonrecording gage at site 400 ft downstream at same datum.

REMARKS.--Records good except those for period with ice effect, Jan. 25-27, and period of no gage-height record, Aug. 31 to Sept. 30, which are fair. Prior to August 1951, diurnal fluctuation at low flow caused by mill 500 ft upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years, 112 ft³/s, 19.99 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,600 ft³/s, Nov. 6, 1977, gage height, 10.20 ft, from ratirg curve extended above 3,700 ft³/s on basis of slope-area measurement of peak flow; minimum recorded, 2 ft³/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 ft³/s, July 19, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 650 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	1730	1,290	4.54	Apr. 10	0200	965	4.00
Mar. 10	0500	806	3.70	Apr. 16	2230	*2,760	*6.35
Mar. 31	1030	790	3.67	Apr. 25	1230	1,410	4.72

Minimum daily discharge, 19 ft³/s, Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	35	83	107	236	1160	439	217	58	44	27	e22
2	38	36	116	102	222	948	283	188	57	49	28	e21
3	35	36	232	91	263	661	230	168	59	57	30	e20
4	34	35	202	82	300	547	201	167	59	58	36	e19
5	57	36	158	75	276	405	171	144	58	63	30	e23
6	57	37	126	72	241	326	158	131	53	55	30	e30
7	49	59	107	71	219	339	159	122	50	49	30	e45
8	44	125	95	72	207	394	268	113	49	46	31	e48
9	39	108	93	68	186	549	681	105	48	50	29	e35
10	36	90	123	69	157	715	840	99	50	46	28	e28
11	34	82	186	69	143	453	697	95	47	45	27	e26
12	33	78	394	64	136	302	548	92	47	43	27	e35
13	35	72	324	63	143	228	427	88	46	41	26	e55
14	42	68	220	61	144	187	322	85	45	43	26	e45
15	41	67	166	64	138	160	645	82	44	41	25	e32
16	37	65	138	66	134	191	1690	80	45	40	25	e28
17	36	61	119	68	122	227	1830	76	44	38	25	e26
18	34	58	115	85	120	213	927	73	45	36	25	e25
19	32	55	106	362	114	362	632	72	70	35	27	e26
20	31	56	96	493	110	434	463	73	50	34	25	e35
21	31	60	89	321	120	325	348	83	53	33	24	e30
22	31	56	82	250	133	242	279	72	48	32	23	e25
23	30	56	78	190	258	193	304	69	45	31	23	e24
24	30	58	121	146	260	164	795	67	43	32	23	e23
25	31	60	520	e110	215	147	1290	66	61	31	23	e22
26	43	68	336	e100	214	133	888	70	76	30	23	e22
27	42	143	241	e90	248	120	576	76	67	30	23	e21
28	40	132	189	103	386	116	425	68	54	29	24	e20
29	38	110	156	99	---	101	319	65	49	28	25	e21
30	37	94	136	155	---	117	259	64	45	28	24	e23
31	36	---	120	292	---	602	---	61	---	27	e23	---
TOTAL	1175	2096	5267	4060	5445	11061	17094	3031	1565	1244	815	855
MEAN	37.9	69.9	170	131	194	357	570	97.8	52.2	40.1	26.3	28.5
MAX	57	143	520	493	386	1160	1830	217	76	63	36	55
MIN	30	35	78	61	110	101	158	61	43	27	23	19
CFSM	.50	.92	2.23	1.72	2.56	4.69	7.49	1.28	.69	.53	.35	.37
IN.	.57	1.02	2.57	1.98	2.66	5.41	8.36	1.48	.77	.61	.40	.42

CAL YR 1986 TOTAL 33125 MEAN 90.8 MAX 807 MIN 23 CFSM 1.19 IN. 16.19
WTR YR 1987 TOTAL 53708 MEAN 147 MAX 1830 MIN 19 CFSM 1.93 IN. 26.25

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306. Published as "at Vestal" prior to October 1978.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1932-33(M).

GAGE.--Water-stage recorder. Datum of gage is 1,792.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period with ice effect, Jan. 25-27, and periods of doubtful or no gage-height record, Apr. 16, 17, 23, 24, which are fair. Some diurnal fluctuation caused by powerplant upstream from station. Tennessee Valley Authority gage-height radio transmitter at station, receiver and recorder at Kingsport, TN. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years, 477 ft³/s, 21.52 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft³/s, Apr. 5, 1977, gage height, 17.11 ft, from rating curve extended above 10,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 30 ft³/s, Oct. 14, 1941, Dec. 24, 1943, gage height, 2.16 ft; minimum daily, 40 ft³/s, Dec. 27, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	0530	4,440	8.54	Apr. 24	Unknown	Unknown	Unknown
Apr. 10	0400	3,000	7.19	Apr. 25	1430	3,680	7.86
Apr. 16	2400	*8,840	*11.67				

Minimum discharge, 73 ft³/s, Sept. 4, 5, 29; minimum daily, 74 ft³/s, Sept. 4; minimum gage height, 2.17 ft, Sept. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	151	314	404	963	4020	1030	804	291	185	93	83
2	142	153	335	383	855	2500	861	715	294	197	102	79
3	128	152	476	345	933	1650	810	648	261	285	120	76
4	135	144	452	314	1000	1300	781	654	291	328	163	74
5	271	151	393	302	910	1050	712	580	307	342	128	88
6	221	163	345	287	805	894	670	527	250	286	134	125
7	185	294	311	280	728	834	679	494	228	279	117	175
8	165	463	294	279	673	854	1070	464	215	234	140	185
9	153	417	354	265	611	1010	2180	435	204	211	145	122
10	144	372	676	268	533	1300	2680	414	204	195	129	108
11	136	347	1120	269	495	1010	2380	398	195	225	112	100
12	132	351	1450	252	476	820	1960	383	189	217	103	140
13	154	314	998	244	462	698	1610	367	191	190	99	212
14	231	283	722	237	453	615	1270	354	193	222	95	157
15	231	279	583	257	464	559	1770	360	182	190	92	118
16	196	274	493	269	493	593	e6500	336	214	173	92	103
17	182	258	433	280	578	600	e7000	316	207	160	91	99
18	169	245	475	355	554	583	2810	303	194	148	89	96
19	156	232	457	1370	518	1040	1880	319	269	140	101	104
20	148	238	424	1670	510	1170	1420	328	212	133	98	140
21	141	277	390	1090	554	992	1150	342	219	127	87	109
22	137	254	358	870	585	820	969	296	209	121	82	95
23	133	250	337	698	1220	693	e1500	284	193	119	82	91
24	127	270	716	566	1110	610	e5000	278	196	118	82	87
25	142	293	1400	e500	895	560	3440	324	317	114	81	84
26	247	335	1050	e450	768	516	2620	363	430	108	81	83
27	224	431	810	e400	1270	479	1740	363	336	105	81	81
28	212	438	657	480	2380	481	1350	388	261	103	84	80
29	182	391	554	448	---	430	1080	432	220	99	109	81
30	168	347	494	737	---	448	923	397	196	97	97	89
31	158	---	435	1210	---	1120	---	318	---	95	87	---
TOTAL	5289	8567	18306	15779	21796	30249	59845	12984	7168	5546	3196	3264
MEAN	171	286	591	509	778	976	1995	419	239	179	103	109
MAX	271	463	1450	1670	2380	4020	7000	804	430	342	163	212
MIN	127	144	294	237	453	430	670	278	182	95	81	74
CFSM	.57	.95	1.96	1.69	2.59	3.24	6.63	1.39	.79	.59	.34	.36
IN.	.65	1.06	2.26	1.95	2.69	3.74	7.40	1.60	.89	.69	.39	.40

CAL YR 1986 TOTAL 135296 MEAN 371 MAX 2900 MIN 83 CFSM 1.23 IN. 16.72
WTR YR 1987 TOTAL 191989 MEAN 526 MAX 7000 MIN 74 CFSM 1.75 IN. 23.73

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1931 to September 1953, May 1976 to current year. Monthly discharge only for October 1931, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1276: 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,820.22 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for period with ice effect, Jan. 25-27, which is fair. Prior to 1954, flow regulated by powerplant 0.9 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--33 years, 242 ft³/s, 15.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft³/s, Nov. 7, 1977, gage height, 13.41 ft; minimum, 6 ft³/s, Nov. 10, 1933, Dec. 4, 1936, Jan. 21, 22, Feb. 1, 1940, Jan. 8, 1942, Oct. 15, 16, 31, 1943; minimum daily, 7 ft³/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 ft³/s, and flood of Dec. 10, 1972, reached a stage of 11.0 ft, from floodmark, discharge, 8,540 ft³/s, from information by Tennessee Valley Authority. Flood of Mar. 30, 1975, reached a stage of 10.37 ft, discharge, 7,410 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	1930	2,050	5.70	Apr. 17	0630	*4,990	*8.72
Mar. 1	1200	2,150	5.84	Apr. 24	0930	3,200	7.14

Minimum discharge, 55 ft³/s, Sept. 1, 3, 4, gage height, 1.89 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	62	109	216	635	2040	772	540	175	108	64	59
2	76	61	106	209	591	1840	549	486	170	111	70	58
3	74	61	139	192	690	1290	506	449	182	169	73	57
4	75	60	168	179	835	962	487	454	197	281	94	56
5	114	64	152	174	691	740	466	409	234	257	86	67
6	95	75	134	166	562	612	460	372	198	173	81	89
7	83	105	123	165	486	563	512	349	171	142	86	92
8	73	222	118	162	441	571	846	329	155	123	78	92
9	72	165	186	144	409	618	1670	309	146	109	76	77
10	71	155	395	130	351	690	1610	289	154	104	75	70
11	69	141	513	130	325	567	1100	276	144	110	73	68
12	66	139	744	124	303	473	843	264	136	102	70	87
13	74	123	472	122	294	419	721	253	135	96	68	96
14	95	108	346	117	291	381	603	244	133	97	67	84
15	100	104	289	119	282	355	829	236	128	93	65	74
16	86	103	254	119	271	411	3040	234	142	88	66	68
17	77	95	233	118	266	535	3700	222	142	85	65	66
18	71	91	259	144	262	469	1670	213	126	83	64	66
19	67	87	281	1100	254	1100	1120	211	126	81	74	75
20	65	88	235	1110	293	1000	872	208	124	78	77	108
21	63	105	215	625	416	684	722	218	122	76	64	83
22	63	106	198	482	429	554	626	207	121	74	61	70
23	62	103	186	405	1020	480	622	197	121	74	63	68
24	61	105	329	324	867	433	2630	199	118	73	63	64
25	66	114	755	e300	624	402	2580	211	135	71	60	63
26	85	119	482	e270	527	377	1850	225	199	70	61	61
27	90	142	371	e240	667	311	1140	225	160	69	62	60
28	75	149	305	285	955	324	875	215	128	68	66	59
29	69	135	261	273	---	289	704	207	117	67	70	58
30	65	122	241	383	---	302	612	195	111	66	65	74
31	63	---	230	872	---	886	---	184	---	65	63	---
TOTAL	2344	3309	8829	9399	14037	20678	34737	8630	4450	3263	2170	2169
MEAN	75.6	110	285	303	501	667	1158	278	148	105	70.0	72.3
MAX	114	222	755	1110	1020	2040	3700	540	234	281	94	108
MIN	61	60	106	117	254	289	460	184	111	65	60	56
CFSM	.36	.52	1.35	1.44	2.38	3.16	5.49	1.32	.70	.50	.33	.34
IN.	.41	.58	1.56	1.66	2.47	3.65	6.12	1.52	.78	.58	.38	.38

CAL YR 1986 TOTAL 72564 MEAN 199 MAX 1550 MIN 60 CFSM .94 IN. 12.79
WTR YR 1987 TOTAL 114015 MEAN 312 MAX 3700 MIN 56 CFSM 1.48 IN. 20.10

e Estimated.

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^2.

PERIOD OF RECORD.--July 1957 to current year. Published as "near Bristol" prior to October 1974.

GAGE.--Water-stage recorder. Datum of gage is 1,780.98 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period with ice effect, Jan. 25-28, and period of no gage-height record, Sept. 1-22, which are fair. Small diurnal fluctuation at low flow caused by withdrawal of water, which is returned to stream 600 ft upstream from station, for car-washing operation. Since September 1965, some regulation at high flow by flood-control reservoirs, capacity, 7,600 acre-ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--30 years, 35.0 ft^3/s, 17.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,600 ft^3/s, Oct. 2, 1977, gage height, 9.94 ft, from rating curve extended above 390 ft^3/s on basis of slope-area measurement of peak flow; minimum, 3.4 ft^3/s, Dec. 30, 1963; minimum daily, 7.4 ft^3/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, 372 ft^3/s, Apr. 15, gage height, 6.09 ft; minimum daily, 11 ft^3/s, Sept. 4, 27-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	13	19	35	58	143	50	67	31	23	15	e12
2	13	13	19	34	55	104	47	63	30	26	19	e12
3	13	13	19	32	52	87	50	60	29	27	20	e12
4	16	13	18	31	48	77	51	65	30	39	19	e11
5	22	13	17	30	45	70	52	56	28	27	19	e13
6	16	13	16	30	43	65	55	52	26	25	22	e20
7	14	21	16	29	41	61	67	50	26	24	19	e26
8	14	24	17	28	40	57	94	49	25	23	16	e29
9	13	20	31	27	38	58	102	47	25	23	16	e19
10	13	18	46	27	37	54	85	45	25	22	15	e16
11	13	19	62	27	36	50	76	44	24	24	15	e15
12	12	20	56	27	35	49	73	42	24	24	14	e22
13	17	18	45	26	34	46	66	42	24	24	14	e32
14	21	17	40	26	33	45	61	40	23	24	14	e25
15	18	17	37	27	32	43	123	40	23	23	14	e18
16	16	17	35	26	42	45	240	40	24	21	14	e16
17	15	17	34	26	43	41	280	38	23	20	14	e15
18	14	16	42	30	41	41	180	37	31	19	13	e14
19	14	16	37	123	41	59	134	37	26	20	13	e16
20	13	17	34	71	44	48	113	37	26	20	13	e21
21	13	17	33	55	46	45	98	35	25	19	13	e17
22	13	16	31	52	57	43	87	34	25	17	13	e14
23	13	15	31	47	81	42	99	42	25	17	13	12
24	13	18	69	43	65	41	106	49	25	17	13	12
25	16	17	58	e40	58	40	120	35	27	16	13	12
26	17	27	48	e38	53	37	103	34	27	16	12	12
27	15	26	43	e35	100	37	92	32	25	16	12	11
28	14	23	40	e40	126	39	88	31	24	16	15	11
29	13	21	39	44	---	36	77	30	23	16	15	11
30	13	20	37	59	---	43	72	32	23	16	13	13
31	13	---	36	65	---	63	---	37	---	16	12	---
TOTAL	454	535	1105	1230	1424	1709	2941	1342	772	660	462	489
MEAN	14.6	17.8	35.6	39.7	50.9	55.1	98.0	43.3	25.7	21.3	14.9	16.3
MAX	22	27	69	123	126	143	280	67	31	39	22	32
MIN	12	13	16	26	32	36	47	30	23	16	12	11
CFSM	.53	.64	1.29	1.43	1.84	1.99	3.54	1.56	.93	.77	.54	.59
IN.	.61	.72	1.48	1.65	1.91	2.30	3.95	1.80	1.04	.89	.62	.66

CAL YR 1986 TOTAL 9379 MEAN 25.7 MAX 111 MIN 10 CFSM .93 IN. 12.60
WTR YR 1987 TOTAL 13123 MEAN 36.0 MAX 280 MIN 11 CFSM 1.30 IN. 17.62

e Estimated.

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 mi².

PERIOD OF RECORD.--June 1907 to December 1908 (published as "at Saltville"), October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1113: 1944-47. WSP 1306: 1907(M), 1921-22(M), 1924-30(M), 1932-34(M), drainage area at site used 1907-8. WSP 1726: 1947, monthly and yearly runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,703.53 ft above National Geodetic Vertical Datum of 1929. June 11, 1907, to Nov. 12, 1908, nonrecording gage on highway bridge 2.1 mi downstream at different datum. Nov. 2, 1920, to May 23, 1934, nonrecording gage on highway bridge 0.5 mi downstream at datum 7.74 ft lower.

REMARKS.--Records good except for period with ice effect, Jan. 25-28, which is fair. Several measurements of temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--68 years, 300 ft³/s, 18.35 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft³/s, Jan. 29, 1957, gage height, 13.20 ft; maximum gage height, 13.57 ft, Nov. 6, 1977; minimum discharge, 1.0 ft³/s, Oct. 15, 16, 1947, gage height, 0.13 ft, flow retarded by mine cave-in; minimum daily, 2.0 ft³/s, Oct. 15, 1947.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	1930	3,720	6.05	Apr. 17	0430	*5,790	*7.74
Mar. 1	2200	3,440	5.80	Apr. 25	0700	3,840	6.16
Apr. 9	0500	3,040	5.41				

Minimum discharge, 24 ft³/s, Sept. 4, gage height, 0.39 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	49	177	220	660	3180	1050	440	176	62	33	28
2	38	49	156	208	599	2610	708	383	156	68	35	27
3	36	50	154	186	680	1510	590	342	195	69	54	26
4	36	51	152	163	858	1070	531	323	184	148	46	24
5	46	60	137	151	756	795	492	297	271	324	41	29
6	70	137	126	142	620	631	469	263	188	183	42	39
7	56	254	117	140	530	584	564	245	149	127	44	48
8	45	452	113	140	479	630	1250	228	127	97	44	53
9	40	399	159	134	433	751	2480	213	115	82	40	42
10	38	447	473	132	350	805	1850	201	117	74	43	38
11	36	349	686	135	325	585	1270	191	105	75	38	34
12	35	377	989	128	307	461	964	182	95	68	36	38
13	44	306	611	123	342	385	765	177	92	67	33	42
14	86	236	409	118	364	335	601	169	90	70	31	43
15	144	195	320	121	342	304	844	172	89	66	30	40
16	115	173	264	130	318	373	3630	196	85	60	29	34
17	90	152	228	138	305	580	4240	173	85	54	29	32
18	75	134	241	175	283	519	1690	160	78	50	30	30
19	65	119	257	2050	259	1350	1040	151	76	48	29	33
20	58	117	231	1820	304	1250	768	160	75	45	32	45
21	54	153	208	838	469	810	607	218	74	43	29	49
22	50	173	185	600	490	597	503	195	76	42	27	43
23	48	171	168	467	1190	473	455	168	76	41	26	34
24	46	166	542	348	932	399	2720	162	70	41	27	31
25	49	161	1210	e300	665	354	3710	393	80	39	27	29
26	55	184	716	e280	568	321	2340	352	139	37	27	28
27	63	316	516	e240	627	286	1200	308	130	36	27	27
28	64	295	402	e300	970	286	844	233	95	36	28	27
29	56	249	328	277	---	262	639	203	76	36	32	27
30	52	209	284	409	---	274	525	178	67	35	31	40
31	49	---	247	932	---	1210	---	171	---	33	30	---
TOTAL	1781	6183	10806	11545	15025	23980	39339	7247	3431	2256	1050	1060
MEAN	57.5	206	349	372	537	774	1311	234	114	72.8	33.9	35.3
MAX	144	452	1210	2050	1190	3180	4240	440	271	324	54	53
MIN	35	49	113	118	259	262	455	151	67	33	26	24
CFSM	.26	.93	1.57	1.68	2.42	3.48	5.91	1.05	.52	.33	.15	.16
IN.	.30	1.04	1.81	1.93	2.52	4.02	6.59	1.21	.57	.38	.18	.18

CAL YR 1986 TOTAL 86564 MEAN 237 MAX 2310 MIN 33 CFSM 1.07 IN. 14.50
WTR YR 1987 TOTAL 123703 MEAN 339 MAX 4240 MIN 24 CFSM 1.53 IN. 20.73

e Estimated.

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 mi².
PERIOD OF RECORD.--October 1945 to September 1987 (discontinued as a continuous-record station; converted to a crest-stage partial-record station). Monthly discharge only for some periods, published in WSP 1306.
REVISED RECORDS.--WSP 1306: 1946(M), 1948-50(M).
GAGE.--Water-stage recorder. Datum of gage is 1,924.08 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1950, nonrecording gage at bridge 1.1 mi downstream at datum 6.53 ft lower.
REMARKS.--Records good except those for period of no gage-height record, Jan. 10-20, and period with ice effect, Jan. 26, 27, which are fair. Prior to October 1970, diurnal fluctuation at low flow caused by mill 1.7 mi upstream from station. Town of Richlands Office of Emergency Services gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.
AVERAGE DISCHARGE.--42 years, 192 ft³/s, 19.03 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft³/s, Jan. 29, 1957, gage height, 19.3 ft, from floodmark, from rating curve extended above 4,900 ft³/s on basis of contracted-opening measurement of peak flow; minimum, 3.2 ft³/s, Sept. 8, 1955; minimum daily, 8.8 ft³/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 ft³/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 ft³/s, from report by Tennessee Valley Authority.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 27	2100	2,270	7.25	Apr. 17	0430	3,250	9.24
Mar. 1	0230	2,220	7.15	Apr. 25	1200	*3,620	*9.94
Apr. 9	0300	3,120	9.00				

Minimum discharge, 16 ft³/s, Aug. 22, gage height, 0.72 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	23	104	136	610	1990	498	313	87	39	23	20
2	33	26	94	133	513	1170	391	268	110	49	27	19
3	28	28	99	119	582	681	373	238	133	54	31	19
4	63	27	93	107	558	474	365	259	223	101	28	18
5	107	32	79	100	461	364	367	220	176	145	27	22
6	73	111	71	96	368	294	365	194	112	80	25	31
7	49	158	68	98	307	252	481	179	89	60	24	38
8	36	236	68	92	269	235	1500	163	76	52	24	38
9	30	277	126	87	239	257	2700	149	73	46	28	31
10	27	331	371	e85	201	312	2290	138	89	48	28	26
11	24	291	518	e88	186	262	1660	130	69	47	27	25
12	23	414	670	e84	195	227	1130	122	62	43	23	28
13	27	243	353	e80	225	201	825	123	60	48	21	32
14	112	170	236	e76	224	182	589	119	58	62	20	29
15	126	135	189	e78	209	172	762	127	54	44	19	25
16	74	117	161	e84	198	228	2640	118	68	38	21	22
17	55	98	143	e90	199	278	2660	104	80	35	20	21
18	45	86	155	e100	192	259	1530	97	57	33	19	21
19	39	77	156	e1000	194	583	947	97	60	31	19	26
20	34	76	139	e1200	258	593	648	117	52	30	18	39
21	30	96	128	505	361	433	482	102	52	29	17	34
22	29	90	116	365	418	331	380	90	57	28	17	26
23	28	83	108	282	1270	267	358	101	52	27	22	23
24	27	88	287	221	822	230	1300	146	47	27	22	22
25	27	101	713	210	540	204	3150	200	68	26	20	21
26	34	124	372	e190	413	185	1930	262	91	25	19	20
27	35	216	266	e160	1270	170	1010	141	64	25	20	20
28	29	176	217	201	1860	179	682	107	52	25	26	19
29	27	145	183	187	---	156	488	92	45	25	29	19
30	24	122	166	650	---	167	386	91	41	24	25	32
31	23	---	146	1150	---	570	---	89	---	23	22	---
TOTAL	1350	4197	6595	8054	13142	11906	32887	4696	2357	1369	711	766
MEAN	43.5	140	213	260	469	384	1096	151	78.6	44.2	22.9	25.5
MAX	126	414	713	1200	1860	1990	3150	313	223	145	31	39
MIN	23	23	68	76	186	156	358	89	41	23	17	18
CFSM	.32	1.02	1.55	1.90	3.43	2.80	8.00	1.11	.57	.32	.17	.19
IN.	.37	1.14	1.79	2.19	3.57	3.23	8.93	1.28	.64	.37	.19	.21

CAL YR 1986 TOTAL 58395 MEAN 160 MAX 1440 MIN 23 CFSM 1.17 IN. 15.86
WTR YR 1987 TOTAL 88030 MEAN 241 MAX 3150 MIN 17 CFSM 1.76 IN. 23.90

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1921-23(M), 1926(M), 1929-31(M). WSP 1706: 1927(M).

GAGE.--Water-stage recorder. Datum of gage is 1,500.24 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1931, nonrecording gage on highway bridge 500 ft downstream at datum 1.0 ft lower.

REMARKS.--Records good except for period with ice effect, Jan. 26-28, which is fair. Tennessee Valley Authority gage-height Automatic Data Acquisition System at station, called at 6-hour intervals by computer at Knoxville, TN. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--67 years, 709 ft³/s, 18.24 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,500 ft³/s, Apr. 5, 1977, gage height, 26.40 ft; minimum, 35 ft³/s, Sept. 28, 1964; minimum gage height, 0.96 ft, Feb. 10, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	2230	5,320	9.02	Apr. 17	0230	*13,300	*16.10
Feb. 28	0430	5,830	9.57	Apr. 25	2400	7,390	11.20
Apr. 9	0900	8,390	12.18				

Minimum discharge, 51 ft³/s, Sept. 4, 5; minimum gage height, 1.26 ft, Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	88	355	463	2260	5290	1680	1170	288	160	84	64
2	114	89	312	445	1690	4220	1330	1010	309	165	79	58
3	113	92	284	406	1630	2560	1260	903	451	191	79	54
4	107	94	281	357	1650	1810	1290	916	810	251	98	51
5	207	99	255	328	1430	1430	1330	849	1050	581	93	55
6	301	119	226	309	1200	1180	1350	724	573	522	95	66
7	211	249	208	299	1020	1000	1560	659	402	332	117	105
8	158	528	201	297	894	912	3700	608	321	256	102	170
9	128	741	302	292	807	910	7900	558	274	218	113	160
10	112	1180	1270	283	676	1020	6760	517	340	215	125	114
11	106	860	1710	284	613	962	4840	487	332	345	118	95
12	101	1270	2230	281	576	790	3600	460	268	367	104	95
13	97	929	1480	260	596	691	2820	449	240	261	94	108
14	150	618	963	250	624	617	2090	453	229	319	87	148
15	334	465	718	257	614	567	2130	430	214	311	79	117
16	314	389	583	281	608	584	8970	418	199	229	73	94
17	222	336	494	303	815	798	10900	388	203	197	74	82
18	177	291	477	341	877	792	5500	356	242	176	74	76
19	151	254	548	3050	909	1170	3390	333	199	159	75	82
20	132	233	498	4190	1130	1790	2360	372	196	148	69	126
21	120	245	439	2070	1370	1430	1820	415	198	138	65	142
22	110	268	389	1450	1470	1140	1480	352	209	127	63	113
23	105	262	352	1150	3670	941	1360	316	200	119	64	98
24	101	255	627	858	3040	801	2850	394	186	115	64	83
25	101	289	2130	807	2030	704	5590	428	183	108	61	76
26	103	325	1560	e750	1540	636	5920	531	414	102	59	70
27	107	516	1100	e650	2850	579	3290	503	362	96	57	68
28	109	611	858	e760	5370	563	2250	362	258	95	60	65
29	104	496	694	784	---	534	1710	306	204	93	73	63
30	96	413	596	1490	---	508	1390	279	175	89	78	108
31	91	---	523	3420	---	1180	---	308	---	86	71	---
TOTAL	4513	12604	22663	27165	41959	38109	102420	16254	9529	6571	2547	2806
MEAN	146	420	731	876	1499	1229	3414	524	318	212	82.2	93.5
MAX	334	1270	2230	4190	5370	5290	10900	1170	1050	581	125	170
MIN	91	88	201	250	576	508	1260	279	175	86	57	51
CFSM	.28	.80	1.38	1.66	2.84	2.33	6.47	.99	.60	.40	.16	.18
IN.	.32	.89	1.60	1.91	2.96	2.68	7.22	1.15	.67	.46	.18	.20

CAL YR 1986 TOTAL 187883 MEAN 515 MAX 4490 MIN 82 CFSM .97 IN. 13.24
WTR YR 1987 TOTAL 287140 MEAN 787 MAX 10900 MIN 51 CFSM 1.49 IN. 20.23

e Estimated.

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 mi².
PERIOD OF RECORD.--October 1918 to current year. Published as "near Lone Mountain" October 1918 to September 1927; as "near Tazewell" August 1927 to December 1936; and as "above Tazewell" July 1935 to current year. Prior to April 1919 monthly discharge only, published in WSP 1306. Gage-height record "near Tazewell" January 1937 to July 1941.
REVISED RECORDS.--WSP 803: Drainage area at site "near Tazewell". WSP 1306: Drainage area at site "near Lone Mountain". WSP 1336: 1928.
GAGE.--Water-stage recorder. Datum of gage is 1,060.7 ft above National Geodetic Vertical Datum of 1929. Apr. 1, 1919, to Sept. 30, 1927, nonrecording gage on railroad bridge 23.3 mi downstream at datum 102.7 ft lower. Aug. 8, 1927, to July 16, 1941, water-stage recorder at site 8.0 mi downstream at datum 47.2 ft lower. Water-stage recorder at present site and datum since July 29, 1935.
REMARKS.--Estimated daily discharges, Feb. 26 to Mar. 5 and July 24 to Aug. 1. Records good. Several measurements of water temperatuere were made during the year.
AVERAGE DISCHARGE.--69 years, 2,080 ft³/s, 19.16 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,100 ft³/s, Apr. 5, 1977, gage height, 29.32 ft, from floodmarks; minimum, 108 ft³/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 ft³/s.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 14,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage Height (ft)	Date	Time	Discharge (ft³/s)	Gage Height (ft)
Jan. 20	1200	15,900	10.29	Apr. 10	0930	16,000	10.30
Mar. 1	Unknown	*24,800	*13.41	Apr. 18	1130	23,000	12.82

Minimum discharge, 168 ft³/s, Aug. 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	402	354	1410	1550	6710	23000	3710	2820	870	499	300	248
2	365	385	1220	1440	5400	17000	4040	2440	946	497	285	223
3	346	414	1100	1350	4170	12000	3480	2160	985	510	273	210
4	308	403	1010	1230	3730	8000	3260	2270	859	1060	262	193
5	287	411	915	1120	3560	5000	3260	2240	997	3880	250	181
6	371	466	854	1030	3160	3530	3540	2070	1500	2670	251	180
7	497	792	793	965	2750	2980	5300	1810	1320	2110	310	193
8	518	1870	756	924	2410	2600	7130	1640	945	1590	293	213
9	474	2370	2810	885	2150	2400	10500	1500	761	1270	294	393
10	394	4880	10300	871	1910	2310	15500	1380	661	1110	290	538
11	344	4040	8950	857	1700	2180	13000	1270	600	1090	276	415
12	321	3770	7760	831	1540	2140	9230	1190	601	2090	285	410
13	335	3430	6610	804	1470	1910	7230	1180	668	2490	276	513
14	460	2590	4350	773	1410	1710	6020	1200	579	2420	258	482
15	1110	1860	3010	765	1420	1580	5730	1220	588	2390	242	494
16	1120	1460	2310	776	1600	1550	7350	1150	534	1740	229	488
17	864	1210	1890	780	3760	1600	15800	1080	500	1320	217	414
18	751	1040	1730	872	3820	1670	21900	987	473	1020	207	325
19	593	911	1800	6470	3620	2670	13500	950	531	860	198	305
20	492	825	1720	15000	3390	4020	7570	985	685	760	197	339
21	429	833	1630	10800	3410	4290	5420	1020	660	692	192	352
22	384	902	1460	5860	3650	3590	4220	1890	605	635	183	389
23	351	886	1300	4060	6360	2930	3510	1470	610	594	179	354
24	328	929	1310	3140	9510	2490	3270	1260	606	520	174	322
25	350	1120	3800	2690	7470	2190	5120	1420	541	480	169	283
26	461	1530	5450	4360	5000	1950	7930	1200	496	440	170	259
27	542	2620	4160	4220	7000	1740	9200	1100	665	410	180	238
28	510	2440	3030	3440	12000	1600	5730	1170	864	380	194	222
29	455	2050	2410	2880	---	1490	4150	1040	752	350	216	214
30	408	1690	2010	2650	---	1430	3340	909	587	330	218	297
31	374	---	1740	3910	---	2020	---	911	---	310	228	---
TOTAL	14944	48481	89598	87303	114080	125570	218940	44932	21989	36517	7296	9687
MEAN	482	1616	2890	2816	4074	4051	7298	1449	733	1178	235	323
MAX	1120	4880	10300	15000	12000	23000	21900	2820	1500	3880	310	538
MIN	287	354	756	765	1410	1430	3260	909	473	310	169	180
CFSM	.33	1.10	1.96	1.91	2.76	2.75	4.95	.98	.50	.80	.16	.22
IN.	.38	1.22	2.26	2.20	2.88	3.17	5.53	1.13	.55	.92	.18	.24

CAL YR 1986 TOTAL 525439 MEAN 1440 MAX 17000 MIN 185 CFSM .98 IN. 13.26
WTR YR 1987 TOTAL 819337 MEAN 2245 MAX 23000 MIN 169 CFSM 1.52 IN. 20.68

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 mi².

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1033: 1932-44. WSP 1436: 1946(M), 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 1,259.08 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Oct. 1-9, and period with ice effect, Jan. 26-28, which are fair. Tennessee Valley Authority gage-height Automatic Data Acquisition System at station, called at 6-hour intervals by computer at Knoxville, TN. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years, 534 ft³/s, 22.73 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft³/s, Apr. 5, 1977, gage height, 44.32 ft, from flood-mark, from rating curve extended above 20,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 17 ft³/s, Sept. 19, 20, 1954, and as result of storage behind temporary dam Oct. 18, 1961; minimum gage height, 0.68 ft, Oct. 18, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 9	2100	*8,270	*15.10	Jan. 19	2030	7,330	13.71
Dec. 10	0400	5,980	11.67				

Minimum discharge, 43 ft³/s, Aug. 27, gage height, 1.15 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e120	129	474	408	1060	3780	1170	376	217	85	76	65
2	e110	284	437	404	927	2150	924	343	305	94	75	56
3	e100	275	402	356	831	1420	850	326	232	168	74	51
4	e95	221	361	319	765	1090	834	399	201	652	73	48
5	e160	218	319	300	681	885	814	397	184	1090	72	47
6	e300	578	291	284	601	749	888	340	162	635	73	51
7	e200	833	275	269	543	642	1350	315	142	379	74	57
8	e120	1220	279	258	495	572	2120	294	131	254	118	63
9	e100	4200	1830	244	457	551	3690	272	123	197	92	84
10	89	3720	4900	251	391	502	2590	252	119	176	114	70
11	86	1460	2500	258	364	429	1890	235	126	316	99	61
12	99	1290	2110	238	348	400	1590	227	117	1100	84	108
13	195	988	1480	221	334	374	1590	251	107	793	73	458
14	1480	738	1060	211	315	341	1310	428	103	741	66	232
15	995	594	848	232	312	327	1680	346	166	578	63	180
16	470	514	694	259	393	368	2500	292	133	395	59	105
17	309	436	583	256	1190	425	2810	250	183	289	59	81
18	228	380	667	310	943	389	2290	221	146	221	58	72
19	179	339	676	4010	800	975	1540	215	156	184	56	71
20	150	317	589	3830	687	1140	1180	227	190	158	54	137
21	133	359	524	1660	632	910	959	221	168	138	53	163
22	123	328	461	1190	637	733	812	314	180	124	49	100
23	111	315	422	951	1610	600	701	300	262	112	46	79
24	106	349	562	728	1430	516	621	310	310	105	44	72
25	130	450	1440	695	1080	487	641	263	212	97	48	66
26	295	969	1130	e650	864	446	620	226	153	90	48	60
27	254	1440	872	e550	1830	389	550	220	129	88	44	55
28	192	993	711	e600	3760	374	499	206	124	95	46	52
29	159	733	585	684	---	347	442	230	105	96	296	48
30	137	566	513	699	---	332	409	254	92	89	164	153
31	126	---	451	1140	---	1040	---	255	---	80	85	---
TOTAL	7351	25236	28446	22465	24280	23683	39864	8805	4978	9619	2435	2945
MEAN	237	841	918	725	867	764	1329	284	166	310	78.5	98.2
MAX	1480	4200	4900	4010	3760	3780	3690	428	310	1100	296	458
MIN	86	129	275	211	312	327	409	206	92	80	44	47
CFSM	.74	2.64	2.88	2.27	2.72	2.39	4.17	.89	.52	.97	.25	.31
IN.	.86	2.94	3.32	2.62	2.83	2.76	4.65	1.03	.58	1.12	.28	.34

CAL YR 1986 TOTAL 158820 MEAN 435 MAX 7210 MIN 34 CFSM 1.36 IN. 18.52
WTR YR 1987 TOTAL 200107 MEAN 548 MAX 4900 MIN 44 CFSM 1.72 IN. 23.34

e Estimated.

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to these events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at low-flow partial-record sites and at miscellaneous sites and for special studies are given in separate tables.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1987

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		POTOMAC RIVER BASIN					
01613900	Hogue Creek near Hayfield, Va.	Lat 39°12'52", long 78°17'18", Frederick County, on right bank 15 ft upstream from bridge on State Highway 614, 0.8 mi upstream from Gap Run, 1.3 mi south-southeast of Hayfield, and opposite mouth of small unnamed branch from southwest. Datum of gage is 668.60 ft above National Geodetic Vertical Datum of 1929.	15.0	1961-86‡, 1987	4-17-87	5.43	896
01622400	Buffalo Branch tributary near Christian, Va.	Lat 38°11'55", long 79°13'10", Augusta County, on left upstream wingwall of culvert on State Highway 42, 0.8 mi upstream from mouth, and 1.3 mi north of Christian. Datum of gage is 1,622.53 ft above National Geodetic Vertical Datum of 1929.	.49	1967-87	4-16-87	3.94	(*)
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, and 3.1 mi upstream from mouth. Datum of gage is 1,023.05 ft above National Geodetic Vertical Datum of 1929.	3.16	1959-69a, 1970-87	4-16-87	2.65	238
01632970	Crooked Run near Mt. Jackson, Va.	Lat 38°45'44", long 78°41'06", Shenandoah County, on right upstream wingwall of culvert on State Highway 263, 0.4 mi upstream from mouth, and 2.3 mi west of Mt. Jackson. Datum of gage is 962.84 ft above National Geodetic Vertical Datum of 1929.	6.49	1972-87	9- 8-87	3.53	333
01633650	Pughs Run near Woodstock, Va.	Lat 38°55'48", long 78°32'43", Shenandoah County, on left upstream wingwall of culvert on State Highway 623, 4.0 mi northwest of Woodstock, and 5.4 mi upstream from mouth. Datum of gage is 1,027.27 ft above National Geodetic Vertical Datum of 1929.	3.66	1972-87	9- 8-87	4.11	67

* Discharge not determined.
‡ Operated as a continuous-record gaging station.
a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		POTOMAC RIVER BASIN--Continued					
01652500	Fourmile Run at Alexandria, Va.	Lat 38°50'35", long 77°05'09", Arlington County, on left upstream wingwall of bridge on Shirlington Road, at Arlington County-Alexandria City line, 0.1 mi upstream from Interstate Highway 395, and 2.5 mi upstream from mouth. Datum of gage is 28.57 ft above National Geodetic Vertical Datum of 1929.	13.8	1951-69‡, 1970-73, 1974-75‡, 1976-77b, 1979-82‡, 1983-87	6-26-87	10.12	4,310
01655500	Cedar Run near Warrenton, Va.	Lat 38°44'25", long 77°47'16", Fauquier County, on right bank at bridge on State Highway 672, 1.9 mi north of Warrenton. Datum of gage is 419.40 ft above National Geodetic Vertical Datum of 1929.	12.3	1951-86‡, 1987	9- 8-87	6.62	576
01656000	Cedar Run near Catlett, Va.	Lat 38°38'12", long 77°37'31", Fauquier County, 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. Datum of gage is 199.15 ft above National Geodetic Vertical Datum of 1929.	93.4	1951-86‡, 1987	9- 8-87	11.79	3,990
01656200	Broad Run near Warrenton, Va.	Lat 38°48'25", long 77°48'47", Fauquier County, on left downstream wingwall of culvert on State Highway 17, 7 mi north of Warrenton, and 8.6 mi upstream from Mill Run.	2.94	1950-78, 1983-87	4-17-87	3.54	(*)
		GREAT WICOMICO RIVER BASIN					
01661600	Great Wicomico River near Horse Head, Va.	Lat 37°53'15", long 76°27'00", Northumberland County, on right upstream wingwall of culvert on State Highway 604, 1.5 mi upstream from Bush Mill Stream, and 1.7 mi west of Horse Head.	6.98	1969-87	2-23-87	5.12	730
01661800	Bush Mill Stream near Heathsville, Va.	Lat 37°52'36", long 76°29'42", Northumberland County, on right bank 12 ft upstream from bridge on State Highway 601, 2.2 mi northwest of Howland, and 3.0 mi southwest of Heathsville. Datum of gage is 22.22 ft above National Geodetic Vertical Datum of 1929.	6.82	1964-69‡, 1970-86‡, 1987	2-23-87	5.29	107
		RAPPAHANNOCK RIVER BASIN					
01661900	Carter Run near Marshall, Va.	Lat 38°47'57", long 77°52'09", Fauquier County, on left bank 50 ft upstream from farm road, 1.2 mi downstream from Horner Run, 4.7 mi south of Marshall, 6.7 mi southwest of The Plains, and 9 mi upstream from mouth. Datum of gage is 388.39 ft above National Geodetic Vertical Datum of 1929.	19.5	1976-82‡, 1983-87	9- 8-87	6.29	1,020

* Discharge not determined.
‡ Operated as a continuous-record gaging station.
b Prior to Sept. 28, 1973, at site 0.4 mi downstream at datum 6.02 ft lower.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		RAPPAHANNOCK RIVER BASIN--Continued					
01662000	Rappahannock River near Warrenton, Va.	Lat 38°41'05", long 77°54'15", Fauquier County, on left bank 50 ft downstream from westbound bridge on U.S. Highway 211, 0.9 mi downstream from Carter Run, 6.2 mi southwest of Warrenton, and 15 mi upstream from Hazel River. Datum of gage is 312.57 ft above National Geodetic Vertical Datum of 1929.	195	1942-86‡, 1987	9- 8-87	10.12	3,110
01663050	Pony Mountain Branch near Culpeper, Va.	Lat 38°27'04", long 77°57'24", Culpeper County, at culvert on State Highway 3, 0.3 mi upstream from mouth, and 2.7 mi southeast of Culpeper.	.30	1958-69a, 1970-87	9- 8-87	6.62	(*)
01668300	Farmers Hall Creek near Champlain, Va.	Lat 38°00'05", long 76°58'40", Essex County, on left upstream wingwall of culvert on U.S. Highway 17, 1.0 mi upstream from Rouzie Swamp, and 1.2 mi southeast of Champlain. Datum of gage is 42.10 ft above National Geodetic Vertical Datum of 1929.	2.18	1966-87	12-24-86	6.61	146
01668800	Hoskins Creek near Tappahannock, Va.	Lat 37°55'38", long 76°57'16", Essex County, at bridge on State Highway 717, 0.4 mi upstream from Criddlin Swamp, and 5.0 mi west of Tappahannock. Datum of gage is 36.28 ft above National Geodetic Vertical Datum of 1929.	15.5	1965-69‡, 1971-86‡, 1987	9-13-87	5.58	415
		PIANKATANK RIVER BASIN					
01669800	My Ladys Swamp near Saluda, Va.	Lat 37°34'34", long 76°31'30", Middlesex County, on left upstream wingwall of culvert on State Highway 629, 1.45 mi upstream from mouth, and 4.4 mi southeast of Saluda. Datum of gage is 4.16 ft above National Geodetic Vertical Datum of 1929.	4.81	1969-87	1-19-87	5.53	183
		YORK RIVER BASIN					
01670300	Contrary Creek near Mineral, Va.	Lat 38°03'53", long 77°52'45", Louisa County, on left bank 400 ft downstream from bridge on U.S. Highway 522, 4.0 mi northeast of Mineral.	5.53	1976-86‡, 1987	9- 8-87	4.06	1,400
01671615	Foster Creek near Ferncliff, Va.	Lat 37°57'35", long 78°11'20", Louisa County, at culvert on U.S. Highway 250, 1.9 mi southeast of Zion Crossroads, 4.6 mi northwest of Ferncliff, and 5.0 mi upstream from mouth. Datum of gage is 424.22 ft above National Geodetic Vertical Datum of 1929.	.61	1960-68a, 1969-87	9- 8-87	9.36	(*)

* Discharge not determined.
‡ Operated as a continuous-record gaging station.
a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		YORK RIVER BASIN--Continued					
01671650	Waldrop Creek near Louisa, Va.	Lat 38°00'08", long 78°04'22", Louisa County, on left upstream wingwall of culvert on State Highway 632, 2.3 mi upstream from mouth, and 4.2 mi southwest of Louisa. Datum of gage is 361.41 ft above National Geodetic Vertical Datum of 1929.	2.85	1969-87	9- 8-87	7.14	374
01671750	Harris Creek near Trevilians, Va.	Lat 38°01'02", long 78°03'06", Louisa County, on right upstream wingwall of culvert on State Highway 632, 2.7 mi southeast of Trevilians, and 6 mi upstream from mouth.	3.31	1969-87	9- 8-87	5.85	528
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, and 11 mi south of Bowling Green.	16.8	1950-69, 1972-87	4-16-87	4.69	175
01674700	Aylett Creek at Aylett, Va.	Lat 37°47'05", long 77°06'23", King William County, on right upstream wingwall of culvert on U.S. Highway 360 at Aylett and 2.8 mi upstream from mouth. Datum of gage is 26.72 ft above National Geodetic Vertical Datum of 1929.	6.17	1969-87	9-13-87	4.76	(*)
		JAMES RIVER BASIN					
02012500	Jackson River at Falling Spring, Va.	Lat 37°52'36", long 79°58'39", Alleghany County, on right bank 20 ft upstream from Smith Bridge, 0.8 mi south of Falling Spring, and 5.5 mi north of Covington. Datum of gage is 1,333.49 ft above National Geodetic Vertical Datum of 1929.	411	1925-84‡, 1987	4-19-87	10.43	8,490
02012950	Sweet Springs Creek tributary at Sweet Chalybeate, Va.	Lat 37°39'25", long 80°14'10", Alleghany County, on left bank 20 ft upstream from culvert on State Highway 311, 0.1 mi upstream from mouth, and 0.9 mi north of Sweet Chalybeate. Datum of gage is 1,926.94 ft above National Geodetic Vertical Datum of 1929.	.66	1966-75, 1978-87	-	<4.14	<36
02015600	Cowpasture River near Head Waters, Va.	Lat 38°19'30", long 79°26'14", Highland County, on left downstream wingwall of bridge on U.S. Highway 250, 1.2 mi west of Head Waters, and 3 mi upstream from Shaw Fork. Datum of gage is 1,985.65 ft above National Geodetic Vertical Datum of 1929.	11.3	1949-87	4-16-87	3.88	264

* Discharge not determined.
‡ Operated as a continuous-record gaging station.
< Less than.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi²)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft³/s)
		JAMES RIVER BASIN--Continued					
02017300	Craig Creek at New Castle, Va.	Lat 37°30'06", long 80°06'18", Craig County, on left upstream pier of old bridge, about 20 ft downstream from new bridge on State Highway 616, 800 ft upstream from Johns Creek, and 0.3 mi southeast of New Castle. Datum of gage is 1,245.69 ft above National Geodetic Vertical Datum of 1929.	112	1967-87	4-16-87	12.04	5,660
02017700	Craig Creek tributary near New Castle, Va.	Lat 37°33'21", long 79°59'52", Craig County, on right upstream wingwall of culvert on State Highway 606, 0.4 mi upstream from mouth, and 7.1 mi northeast of New Castle.	2.05	1968-87	4-16-87	8.11	395
02018800	North Fork near Fincastle, Va.	Lat 37°32'07", long 79°56'03", Botetourt County, on left upstream wingwall of culvert on State Highway 606, 3.5 mi upstream from mouth, and 3.9 mi northwest of Fincastle. Datum of gage is 1,248.65 ft above National Geodetic Vertical Datum of 1929.	4.17	1968-87	4-16-87	10.76	3,870
02020100	Renick Run near Buchanan, Va.	Lat 37°35'27", long 79°38'04", Botetourt County, on left upstream wingwall of culvert on Frontage Road of Interstate Highway 81 between exits 48 and 49, 2.2 mi upstream from mouth, and 4.8 mi northeast of Buchanan. Datum of gage is 1,261.85 ft above National Geodetic Vertical Datum of 1929.	2.06	1967-87	9- 7-87	9.74	1,190
02021700	Cedar Grove Branch near Rockbridge Baths, Va.	Lat 37°53'00", long 79°23'10", Rockbridge County, on right upstream wingwall of culvert on State Highway 39, 0.1 mi upstream from mouth, and 1.8 mi southeast of Rockbridge Baths. Datum of gage is 1,041.22 ft above National Geodetic Vertical Datum of 1929.	12.3	1967-87	4-16-87	6.39	299
02023300	South River near Steeles Tavern, Va.	Lat 37°55'50", long 79°09'55", Augusta County, at bridge on State Highway 608, 2.5 mi northeast of Vesuvius, 3 mi east of Steeles Tavern, and 5 mi south of Greenville.	15.7	1951-87	4-16-87	3.84	770
02027700	Buffalo River tributary near Amherst, Va.	Lat 37°33'45", long 78°57'35", Amherst County, on left bank just upstream from culvert on U.S. Highway 60, 0.8 mi upstream from mouth, and 5.2 mi southeast of Amherst. Datum of gage is 583.66 ft above National Geodetic Vertical Datum of 1929.	.46	1966-87	9- 8-87	6.24	(*)
02030800	Stockton Creek near Afton, Va.	Lat 38°01'48", long 78°48'30", Albemarle County, on left upstream wingwall of culvert on State Highway 6, 1.7 mi east of Afton, and 4.3 mi upstream from Stony Run. Datum of gage is 835.27 ft above National Geodetic Vertical Datum of 1929.	2.80	1967-87	4-17-87	4.86	101

* Discharge not determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued					
02032200	Doyles River near White Hall, Va.	Lat 38°12'10", long 78°40'17", Albemarle County, on right downstream abutment of bridge on State Highway 810, 5.5 mi upstream from mouth, and 5.9 mi north of White Hall. Datum of gage is 928.08 ft above National Geodetic Vertical Datum of 1929.	6.70	1967-87	9- 8-87	f10.16	232
02032300	Muddy Run near Stanardsville, Va.	Lat 38°14'05", long 78°37'02", Albemarle County, on right downstream abutment of bridge on State Highway 810, 0.7 mi upstream from mouth, and 11 mi southwest of Stanardsville. Datum of gage is 756.79 ft above National Geodetic Vertical Datum of 1929.	3.36	1967-87	9- 8-87	6.72	(*)
02032540	Haneytown Creek near Stanardsville, Va.	Lat 38°16'48", long 78°30'50", Greene County, on left downstream wingwall of bridge on State Highway 810, 0.2 mi upstream from mouth, and 4.5 mi west of Stanardsville. Datum of gage is 616.34 ft above National Geodetic Vertical Datum of 1929.	4.45	1967-87	9- 8-87	12.58	472
02032550	Lynch River at Nortonsville, Va.	Lat 38°14'16", long 78°32'32", Albemarle County, on right downstream abutment of bridge on State Highway 810, 4 mi upstream from mouth, and 7 mi southwest of Stanardsville. Datum of gage is 591.70 ft above National Geodetic Vertical Datum of 1929.	13.6	1967-87	9- 8-87	14.96	9,840
02032700	Schenks Branch at Charlottesville, Va.	Lat 38°02'32", long 78°28'30", Charlottesville City, on right downstream retaining wall of small road culvert, 25 ft upstream from U.S. Highway 250 bypass culvert, 200 ft southeast of intersection of U.S. Highway 250 bypass and McIntire Road, and 1.2 mi upstream from mouth. Datum of gage is 371.63 ft above National Geodetic Vertical Datum of 1929.	1.34	1950-77, 1979-87	9- 8-87	f12.54	(*)
02033300	Moores Creek near Charlottesville, Va.	Lat 38°00'25", long 78°34'25", Albemarle County, on right downstream wingwall of culvert on access road, 30 ft north of U.S. Highway 29, 2.8 mi upstream from Morey Creek, and 4 mi southwest of Charlottesville.	3.52	1967-77, 1979-87	9- 8-87	18.05	223
02034500	Willis River at Lakeside Village, Va.	Lat 37°40'00", long 78°10'00", Cumberland County, 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. Datum of gage is 178.98 ft above National Geodetic Vertical Datum of 1929.	262	1927-86‡, 1987	4-16-87	20.35	7,250

* Discharge not determined.
‡ Operated as a continuous-record gaging station.
f From floodmarks.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued					
02037800	Falling Creek near Midlothian, Va.	Lat 37°27'15", long 77°35'20", Chesterfield County, at bridge on State Highway 653, 2.25 mi upstream from Horners Run, and 4 mi southeast of Midlothian. Datum of gage is 170.06 ft above National Geodetic Vertical Datum of 1929.	18.1	1951-87	4-16-87	6.35	670
02040500	Flat Creek near Amelia, Va.	Lat 37°23'27", long 78°03'45", Amelia County, at bridge on State Highway 681, 0.5 mi downstream from Horsepen Creek, and 6.0 mi northwest of Amelia.	73.0	1946-70, 1972-87	4-16-87	12.38	5,260
02042250	Bailey Branch tributary at Spring Grove, Va.	Lat 37°10'29", long 76°59'13", Surry County, on right upstream wingwall of culvert on State Highway 10, 1.0 mi northwest of Spring Grove. Datum of gage is 61.39 ft above National Geodetic Vertical Datum of 1929.	.71	1967-87	4-16-87	3.49	46
02042300	Horsepen Branch at Richmond, Va.	Lat 37°35'45", long 77°30'40", Henrico County, on left downstream retaining wall at culverts on U.S. Highway 250 (Broad Street), at Richmond, and 0.9 mi upstream from mouth.	1.35	1965-87	4-16-87	3.81	740
02042400	Jordans Branch at Richmond, Va.	Lat 37°35'10", long 77°29'55", Henrico County, on left downstream wall of bridge on U.S. Highway 250 (Broad Street), at Richmond, and 2.0 mi upstream from mouth.	2.41	1965-87	9-11-87	8.93	(*)
02042780	West Branch Long Hill Swamp near Lightfoot, Va.	Lat 37°18'50", long 77°46'01", James City County, on left upstream wingwall of culvert on State Highway 612, 1.1 mi upstream from mouth, and 2.0 mi south of Lightfoot.	2.47	1970-76, 1978-87	1-19-87	3.81	105
		CHOWAN RIVER BASIN					
02044000	Nottoway River near Burkeville, Va.	Lat 37°04'40", long 78°11'52", Lunenburg County, 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. Datum of gage is 354.58 ft above National Geodetic Vertical Datum of 1929.	38.7	1947-86‡, 1987	4-17-87	16.84	2,980
02044200	Falls Creek tributary near Victoria, Va.	Lat 37°02'04", long 78°10'26", Lunenburg County, at upstream end of culvert on State Highway 49, 3.6 mi northeast of Victoria.	.34	1962-87	4-16-87	4.23	65

* Discharge not determined.
‡ Operated as a continous-record gaging station.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		CHOWAN RIVER BASIN--Continued					
02047500	Blackwater River near Dendron, Va.	Lat 37°01'30", long 76°52'30", Surry County, on left bank 10 ft upstream from Walls Bridge on State Highway 617, 3.5 mi southeast of Dendron. Datum of gage is 30.99 ft above National Geodetic Vertical Datum of 1929.	294	1942-86‡, 1987	4-20-87	7.63	3,820
02050050	Blackwater River tributary near Holland, Va.	Lat 36°38'44", long 76°51'29", Suffolk City, on left upstream wingwall of culvert on State Highway 189, 3.0 mi upstream from mouth, and 4.9 mi southwest of Holland. Datum of gage is 29.25 ft above National Geodetic Vertical Datum of 1929.	2.76	1967-87	1-18-87	5.90	181
02051600	Great Creek near Cochran, Va.	Lat 36°48'46", long 77°55'19", Brunswick County, on left bank at upstream side of bridge on State Highway 763, 1.4 mi southwest of Cochran. Datum of gage is 215.72 ft above National Geodetic Vertical Datum of 1929.	30.7	1958-86‡, 1987	4-16-87	11.71	2,110
		ROANOKE RIVER BASIN					
02057700	Powder Mill Creek at Rocky Mount, Va.	Lat 37°00'26", long 79°52'25", Franklin County, on right upstream wingwall of westernmost culvert in the interchange between U.S. Highway 220 bypass and State Highways 40 and 122 at Rocky Mount, 3.5 mi upstream from mouth.	.64	1967-87	9- 8-87	16.26	(*)
02065100	Snake Creek near Brookneal, Va.	Lat 37°00'42", long 78°57'52", Halifax County, on left upstream wingwall of culvert on U.S. Highway 501, 0.5 mi upstream from mouth, and 2.1 mi south of Brookneal.	1.68	1967-87	9- 8-87	f15.9	(*)
02065300	Right Hand Fork near Appomattox, Va.	Lat 37°16'12", long 78°49'14", Appomattox County, on right upstream wingwall of culvert on State Highway 727, 0.5 mi upstream from Maple Spring Branch, and 5.2 mi south of Appomattox.	2.08	1967-87	9- 8-87	f16.8	962
02075350	Powells Creek near Turbeville, Va.	Lat 36°34'50", long 79°11'20", Halifax County, at culvert on U.S. Highway 58, 0.8 mi upstream from mouth, 1.1 mi east of Halifax-Pittsylvania County line, and 8.8 mi southwest of Turbeville. Datum of gage is 383.95 ft above National Geodetic Vertical Datum of 1929.	.28	1958-69a, 1970-87	9- 8-87	6.42	815
02076000	Dan River at South Boston, Va.	Lat 36°41'37", long 78°54'09", South Boston City, on left bank 100 ft upstream from Norfolk and Western Railroad bridge at South Boston.	2,730	1900-07‡, 1923-52‡, 1953-62d, 1980-87d	4-18-87	32.57	(*)

* Discharge not determined.
‡ Operated as a continuous-record gaging station.
a Records provided by U.S. Department of Agriculture, Soil Conservation Service.
d Operated as a stage-only station.
f From floodmarks.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		ROANOKE RIVER BASIN--Continued					
02076200	Bearskin Creek near Chatham, Va.	Lat 36°50'30", long 79°29'05", Pittsylvania County, on left upstream wingwall of culvert on State Highway 57, 4.5 mi west of Chatham, and 6 mi upstream from mouth.	4.06	1967-87	4-16-87	10.65	1,350
02076700	Blacks Creek near Mt. Airy, Va.	Lat 36°56'40", long 79°09'56", Pittsylvania County, on left upstream wingwall of culvert on State Highway 40, 1.5 mi east of Mt. Airy, and 3.5 mi upstream from mouth.	3.44	1966-87	9- 8-87	f19.5	2,200
		KANAWHA RIVER BASIN					
03165700	Cripple Creek at Cedar Springs, Va.	Lat 36°49'31", long 81°16'45", Wythe County, on right downstream wingwall of bridge on State Highway 749, 0.6 mi southeast of Cedar Springs.	11.3	1967-87	-	<13.88	<357
03167300	Mira Fork tributary near Dugspur, Va.	Lat 36°50'16", long 80°35'47", Carroll County, on left upstream wingwall of culvert on U.S. Highway 221, 1.3 mi upstream from mouth, and 2.2 mi northeast of Dugspur. Datum of gage is 2,602.96 ft above National Geodetic Vertical Datum of 1929.	.62	1967-87	-	<2.79	<44
03167700	Beaverdam Creek at Hillsville, Va.	Lat 36°46'05", long 80°43'33", Carroll County, at bridge on private road to Burlington Industries, 0.2 mi east of Hillsville corporate limits, and 3.0 mi upstream from mouth. Datum of gage is 2,373.04 ft above National Geodetic Vertical Datum of 1929.	4.75	1968-87	3- 1-87	4.35	299
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, and 4.3 mi upstream from mouth.	4.77	1957-69a, 1970-87	4-25-87	2.39	165
		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‡, 1984-87	4- 8-87	3.87	628
03208100	Russell Fork near 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, 1.3 mi southeast of Birchleaf, and 3.5 mi southeast of Haysi.	87.4	1981-83‡, 1984-87	7-11-87	17.92	15,800

‡ Operated as a continuous-record gaging station.
< Less than.
a Records provided by U.S. Department of Agriculture, Soil Conservation Service.
f From floodmarks.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		BIG SANDY RIVER BASIN--Continued					
03208800	Pound River above Indian Creek, at Pound, Va.	Lat 37°07'26", long 82°36'29", Wise County, on left bank at Pound, 1,600 ft downstream from confluence of North and South Forks, 0.5 mi upstream from bridge on U.S. Highway 23, and 0.7 mi upstream from Indian Creek. Datum of gage is 1,535.64 ft above National Geodetic Vertical Datum of 1929.	36.7	1966-78‡, 1979-87	4- 8-87	8.91	981
03208850	Pound River below Bold Camp Creek, at Pound, Va.	Lat 37°07'19", long 82°35'55", Wise County, at Pound, on left bank 1,000 ft upstream from bridge on State Highway 83, 0.3 mi downstream from Bold Camp Creek, and 0.5 mi downstream from Indian Creek. Datum of gage is 1,527.36 ft above National Geodetic Vertical Datum of 1929.	61.2	1966-78‡, 1979-87	4- 8-87	12.63	1,550
03208900	Pound River near Georges Fork, Va.	Lat 37°09'51", long 82°31'30", Dickenson County, on right bank 50 ft upstream from bridge on State Highway 624, 150 ft upstream from Camp Creek, and 2.6 mi northwest of Georges Fork. Datum of gage is 1,470.39 ft above National Geodetic Vertical Datum of 1929.	82.5	1964-82‡, 1983-87	4- 8-87	7.62	2,000
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, 0.2 mi downstream from Pound River, and 1.1 mi upstream from Fall Branch. Datum of gage is 1,165.00 ft above National Geodetic Vertical Datum of 1929.	526	1963-82‡, 1983-87	7-11-87	15.64	10,100
03213590	Knox Creek at Kelsa, Va.	Lat 37°27'02", long 82°03'34", Buchanan County, on downstream end of center bridge pier on State Highway 697, 0.3 mi downstream from Pawpaw Creek, 0.8 mi northeast of Kelsa, and 10.0 mi upstream from mouth.	84.3	1980-81‡, 1982-87	6- 2-87	11.18	4,220
		TENNESSEE RIVER BASIN					
03471200	South Fork Holston River at Teas, Va.	Lat 36°46'22", long 81°27'08", Smyth County, at Teas, on right downstream pier of bridge on State Highway 601, and 0.1 mi downstream from Mullins Branch. Datum of gage is 2,496.98 ft above National Geodetic Vertical Datum of 1929.	31.1	1967-87	4-16-87	12.00	650
03472500	Beaverdam Creek at Damascus, Va.	Lat 36°37'40", long 81°47'28", Washington County, at Damascus, on right bank 350 ft west of State Highway 716, in old plant area of Mobay Chemical Corporation, and 0.6 mi upstream from mouth. Datum of gage is 1,946.66 ft above National Geodetic Vertical Datum of 1929.	56.0	1948-59‡, 1960-87	4-23-87	5.33	2,830

‡ Operated as a continuous-record gaging station.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		TENNESSEE RIVER BASIN--Continued					
03473500	Middle Fork Holston River at Groseclose, Va.	Lat 36°53'19", long 81°20'51", Smyth County, 10 ft downstream from culverts on State Highway 679 at Groseclose, 0.2 mi upstream from Rocky Spring Branch, and 10 mi northeast of Marion. Datum of gage is 2,442.86 ft above National Geodetic Vertical Datum of 1929.	7.39	1948-57‡, 1958-87	4-16-87	4.27	216
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, 0.3 mi upstream from Meade Creek, 3.3 mi downstream from Walker Creek, and 32.1 mi upstream from mouth. Datum of gage is 1,960.00 ft above National Geodetic Vertical Datum of 1929.	132	1942-81‡, 1982-87e	4-16-87	4.20	3,260
03474700	Hutton Creek near Chilhowie, Va.	Lat 36°47'00", long 81°44'05", Washington County, on left downstream wingwall of bridge on U.S. Highway 11, 3.3 mi southwest of Chilhowie, and 1.4 mi upstream from mouth.	8.32	1967-87	4-16-87	11.24	362
03474800	Hall Creek near Glade Spring, Va.	Lat 36°45'47", long 81°48'15", Washington County, on right downstream wingwall of bridge on U.S. Highway 11, 2.0 mi upstream from Tattle Branch, and 2.5 mi southwest of Glade Spring.	7.90	1967-87	4-16-87	10.74	704
03475600	Cedar Creek near Meadowview, Va.	Lat 36°44'50", long 81°51'20", Washington County, on left downstream wingwall of culvert on U.S. Highway 11, 1.2 mi south of Meadowview, and 2.5 mi upstream from mouth. Datum of gage is 2,034.66 ft above National Geodetic Vertical Datum of 1929.	3.38	1967-87	4-16-87	6.49	50
03475700	Spring Creek near Abingdon, Va.	Lat 36°40'43", long 82°02'29", Washington County, on right upstream and left downstream wingwall of culvert on U.S. Highway 11, 1.5 mi upstream from Sinking Creek, and 3.8 mi southwest of Abingdon. Datum of gage is 1,977.54 ft above National Geodetic Vertical Datum of 1929.	2.99	1967-87	4-23-87	4.15	145
03487800	Lick Creek near Chatham Hill, Va.	Lat 36°57'44", long 81°28'21", Smyth County, on left bank 270 ft upstream from bridge on State Highway 42, 2.9 mi northeast of Chatham Hill, and 1.6 mi upstream from mouth. Datum of gage is 2,076.97 ft above National Geodetic Vertical Datum of 1929.	25.5	1966-68‡, 1969-87	4-25-87	5.15	985

‡ Operated as a continuous-record gaging station.
e Records provided by Tennessee Valley Authority since Jan. 1, 1982.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		TENNESSEE RIVER BASIN--Continued					
03488450	Brumley Creek at Brumley Gap, Va.	Lat 36°47'30", long 82°01'10", Washington County, on left downstream wingwall of bridge on State Highway 611, 0.2 mi upstream from mouth, 0.8 mi southeast of Brumley Gap, and 2.7 mi downstream from Lee Creek. Datum of gage is 1,489.16 ft above National Geodetic Vertical Datum of 1929.	21.1	1979-81‡, 1982-87	4-16-87	4.92	685
03489800	Cove Creek near Shelleys, Va.	Lat 36°39'13", long 82°21'16", Scott County, on right downstream wingwall of bridge on U.S. Highways 58 and 421, 1.5 mi northwest of Shelleys. Datum of gage is 1,381.53 ft above National Geodetic Vertical Datum of 1929.	17.3	1951-87	1-19-87	6.17	1,000
03489870	Big Moccasin Creek at Collinwood, near Hansonville, Va.	Lat 36°44'16", long 82°19'25", Russell County, at Collinwood, on left downstream wingwall of bridge on State Highway 612, and 50 ft downstream from Meade Branch. Datum of gage is 1,796.34 ft above National Geodetic Vertical Datum of 1929.	41.9	1967-68‡, 1969-87	4-16-87	4.34	1,590
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, 2.1 mi southeast of Gate City, and 8.8 mi upstream from mouth. Datum of gage is 1,197.56 ft above National Geodetic Vertical Datum of 1929.	672	1931-81‡, 1982-87e	4-17-87	12.28	17,600
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, 1.4 mi upstream from Jaybird Branch, 1.8 mi downstream from Pine Camp Creek, and 6.3 mi upstream from mouth. Datum of gage is 1,925.80 ft above National Geodetic Vertical Datum of 1929.	87.3	1949-59‡, 1960-78, 1979-81‡, 1982-87	1-19-87	7.16	1,810
03524900	Stony Creek at Ka, Va.	Lat 36°48'57", long 82°37'02", Scott County, at Ka, on left bank 300 ft upstream from bridge on State Highway 619, 600 ft downstream from Straight Fork, and 4.2 mi upstream from mouth.	30.9	1980-81‡, 1982-87	1-19-87	5.94	3,060
03526000	Copper Creek near Gate City, Va.	Lat 36°40'26", long 82°33'57", Scott County, on right bank 50 ft upstream from bridge on State Highway 619, 0.2 mi upstream from Plank Camp Creek, 1.1 mi downstream from Obeys Creek, and 2.6 mi northeast of Gate City. Datum of gage is 1,301.95 ft above National Geodetic Vertical Datum of 1929.	106	1948-72‡, 1973-87	4-16-87	8.61	2,170

‡ Operated as a continuous-record gaging station.
e Records provided by Tennessee Valley Authority since Jan. 1, 1982.

Annual maximum discharge at crest-stage partial-record stations during water year 1987--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		TENNESSEE RIVER BASIN--Continued					
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, 0.8 mi northwest of Speers Ferry, 1.8 mi south of Clinchport, and 211.0 mi upstream from mouth. Datum of gage is 1,196.54 ft above National Geodetic Vertical Datum of 1929.	1,126	1920-76‡, 1977-78, 1979-81‡, 1982-87	4-17-87	20.55	23,700
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, 1.0 mi upstream from South Fork Powell River, 2.5 mi downstream from Pigeon Creek, and 179.2 mi upstream from mouth. Datum of gage is 1,459.07 ft above National Geodetic Vertical Datum of 1929.	112	1945-59‡, 1960-77, 1979-81‡, 1982-87	11- 9-86	5.93	3,530
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, 1.3 mi downstream from Straight Creek, and 4.7 mi upstream from mouth. Datum of gage is 1,363.02 ft above National Geodetic Vertical Datum of 1929.	71.4	1945-51‡, 1952-77, 1979-81‡, 1982-87	11- 9-86	7.53	3,360

‡ Operated as a continuous-record gaging station.

Special study and miscellaneous sites

Discharge measurements in the following table were made at special study and miscellaneous sites throughout the State. Data for miscellaneous sites provided by the Virginia Water Control Board are noted by an "[a]".

Discharge measurements made at special study and miscellaneous sites during water year 1987

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		NASSAWADOX CREEK BASIN				
Nassawadox Creek [a]	Chesapeake Bay	Lat 37°31'31", long 75°52'37", Northampton County, at culvert on State Highway 606, 2.7 mi upstream from Kelly Cove, and 3.5 mi north of Nassawadox.	b4.2	1968-86	1- 6-87 4-28-87 6-16-87 9-15-87	2.84 9.94 *.311 *.037
		POTOMAC RIVER BASIN				
01613900 Hogue Creek [a]	Back Creek	Lat 39°12'52", long 78°17'18", Frederick County, at bridge on State Highway 614, 0.8 mi upstream from Gap Run, and 1.3 mi southeast of Hayfield.	15.0	1960-86‡	1- 8-87	6.68
01624300 Middle River [a]	North River	Lat 38°14'36", long 79°02'08", Augusta County, at bridge on State Highway 742, 2.7 mi downstream from Moffett Creek, and 3.2 mi northwest of Verona.	178	1968-86‡	1- 9-87	99.5
Accotink Creek	Accotink Bay	Lat 38°43'07", long 77°10'40", Fairfax County, on Elhers Road at Davison Airfield, at Fort Belvoir, and 2.5 mi upstream from mouth.	-	1984-86	3-25-87 7-22-87	19.7 4.95
01655500 Cedar Run [a]	Occoquan River	Lat 38°44'25", long 77°47'16", Fauquier County, at bridge on State Highway 672, 1.9 mi north of Warrenton, and 14.5 mi upstream from Licking Run.	12.3	1950-86‡	1- 6-87	4.02
01656000 Cedar Run [a]	Occoquan River	Lat 38°38'12", long 77°37'31", Fauquier County, at bridge on State Highway 806, 0.9 mi downstream from Licking Run, and 1.4 mi southeast of Catlett.	93.4	1950-86‡	1- 7-87	51.1
01656500 Broad Run [a]	Occoquan River	Lat 38°46'50", long 77°40'22", Prince William County, at bridge on U.S. Highway 29 at Buckland and 1.1 mi upstream from South Run.	50.5	1950-86‡	1- 6-87 3- 2-87 4-23-87	23.0 221 83.3
01656650 Broad Run [a]	Occoquan River	Lat 38°44'56", long 77°33'50", Prince William County, at 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.	89.6	1975-86‡	1- 7-87 3- 4-87 4-24-87	45.7 191 108
01656725 Bull Run [a]	Occoquan River	Lat 38°53'21", long 77°34'14", Prince William County, at 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.	25.8	1969-86‡	1- 8-87 3- 2-87 4-23-87	15.4 115 30.4
01656960 Cub Run [a]	Bull Run	Lat 38°49'16", long 77°27'57", Fairfax County, at 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.	49.9	1973-86‡	1- 8-87 3- 3-87 4-24-87	30.7 132 31.0

* Base flow.
‡ Operated as a continuous-record gaging station.
a Provided by the Virginia Water Control Board.
b Approximately.

Discharge measurements made at special study and miscellaneous sites during water year 1987--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		POTOMAC RIVER BASIN--Continued				
01657415 Bull Run [a]	Occoquan River	Lat 38°45'59", long 77°24'52", Fairfax County, at discontinued gage site, 0.6 mi downstream from Popes Head Creek, 1.6 mi upstream from Buckhall Branch, and 1.8 mi southwest of Clifton.	185	1972-84‡	1-15-87	80.2
		GREAT WICOMICO RIVER BASIN				
01661800 Bush Mill Stream [a]	Great Wicomico River	Lat 37°52'36", long 76°29'42", Northumberland County, at bridge on State Highway 601, 2.2 mi northwest of Howland, 3.0 mi southwest of Heathsville, and 3.5 mi upstream from mouth.	6.82	1964-69‡, 1970-86‡	1-13-87	4.83
		RAPPAHANNOCK RIVER BASIN				
01668800 Hoskins Creek [a]	Rappahannock River	Lat 37°55'38", long 76°57'16", Essex County, at bridge on State Highway 717, 0.4 mi upstream from Criddlin Swamp, 2.9 mi downstream from old site of Hutchinson Mill Pond, and 5.0 mi west of Tappahannock.	15.5	1965-69‡, 1970-86‡	1-13-87	12.7
		YORK RIVER BASIN				
01670300 Contrary Creek [a]	North Anna River	Lat 38°03'53", long 77°52'45", Louisa County, 400 ft downstream from bridge on U.S. Highway 522 and 4.0 mi northeast of Mineral.	5.53	1976-86‡	1- 9-87	3.05
01671000 North Anna River [a]	Pamunkey River	Lat 37°53'15", long 77°29'15", Caroline County, at discontinued gage site, 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.	441	1926-86‡	1-12-87	349
South Anna River [a]	Pamunkey River	Lat 38°04'57", long 78°10'59", Louisa County, at bridge on U.S. Highway 15, just downstream from Dove Fork, and 0.8 mi north of Boswells Tavern.	-	-	11-24-86	9.88
		JAMES RIVER BASIN				
02034500 Willis River [a]	James River	Lat 37°40'00", long 78°10'00", Cumberland County, at 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.	262	1926-86‡	1- 6-87	196
02042270 Chickahominy River	James River	Lat 37°41'10", long 77°32'35", Hanover County, at bridge on U.S. Highway 33, 2.7 mi northwest of Glen Allen.	-	1976, 1985	4- 8-87 9-14-87	16 2.6

‡ Operated as a continuous-record gaging station.
a Provided by the Virginia Water Control Board.

Discharge measurements made at special study and miscellaneous sites during water year 1987--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued				
02042275 Chickahominy River	James River	Lat 37°42'02", long 77°30'49", Hanover-Henrico County line, at bridge on State Highway 625, 2.1 mi north of Glen Allen.	-	1984-85	4- 8-87 9-14-87	37 3.1
02042284 Stony Run	Chickahominy River	Lat 37°41'05", long 77°26'58", Hanover County, 50 ft upstream from culvert on State Highway 656, 3.0 mi northwest of Atlee.	17.9	1984-85	4- 8-87 9-14-87	17 .53
02042288 Chickahominy River	James River	Lat 37°36'41", long 77°22'18", Hanover-Henrico County line, at bridge on State Highway 627, 2.2 mi northeast of Richmond.	-	1984-85	4- 8-87 9-14-87	59 9.4
02042226 Upham Brook	Chickahominy River	Lat 37°36'47", long 77°25'28", Henrico County, at bridge on Wilkinson Road, 1.2 mi north of Richmond.	-	-	4- 8-87 9-14-87	19 8.5
02042433 Beaverdam Creek	Chickahominy River	Lat 37°35'45", long 77°21'32", Hanover County, at bridge on State Highway 156, 0.7 mi southeast of Mechanicsville.	-	1984-85	4- 8-87 9-14-87	10 8.7
02042435 Chickahominy River	James River	Lat 37°34'36", long 77°20'03", Hanover-Henrico County line, at bridge on State Highway 615, 1.5 mi north of Highland Springs.	-	1976, 1984-85	4- 8-87 9-14-87	148 83
02042440 Chickahominy River	James River	Lat 37°33'07", long 77°16'17", Hanover-Henrico County line, at bridge on State Highway 156, 2.7 mi northeast of Seven Pines.	-	1953-54, 1984-85	4- 8-87 9-14-87	159 51
02042443 Chickahominy River	James River	Lat 37°31'03", long 77°12'34", New Kent-Henrico County line, at bridge on Interstate Highway 64, 2.2 mi northwest of White Oak Swamp.	164	1985	4- 8-87 9-14-87	226 53
02042455 White Oak Swamp	Chickahominy River	Lat 37°28'05", long 77°12'32", Henrico County, at bridge on State Highway 156, at Elko.	-	1984-85	4- 8-87 9-14-87	16 7.2
02042465 Toe Ink Swamp	Chickahominy River	Lat 37°29'03", long 77°07'56", New Kent County, at outfall downstream from Kent Lake dam, and 1.5 mi north of Roxbury.	-	1984-85	4- 8-87 9-14-87	9.7 .15
02042470 Chickahominy River	James River	Lat 37°28'11", long 77°08'17", New Kent-Charles City County line, 600 ft upstream from bridge on State Highway 609, 0.4 mi north of Roxbury.	-	1942, 1984-85	4- 9-87 9-14-87	240 32
02042610 Jones Run	Chickahominy River	Lat 37°26'28", long 77°02'48", New Kent County, at Chesapeake and Ohio railroad bridge, at Providence Forge.	-	1985	4- 9-87 9-14-87	12 19
02042726 Diascund Creek	Chickahominy River	Lat 37°28'52", long 76°58'21", New Kent County, at bridge on State Highway 628, 2.4 mi south of New Kent, and 6.0 mi upstream from Timber Swamp.	9.25	1985	10-17-86 12-16-86 2-18-87 3-25-87 5-13-87 6-24-87 8- 5-87 9-15-87	3.4 4.4 11 7.1 9.2 7.9 4.4 6.5

Discharge measurements made at special study and miscellaneous sites during water year 1987--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued				
02042736 Beaverdam Creek	Diascund Reservoir	Lat 37°28'53", long 76°54'23", New Kent County, at bridge on State Highway 632, 4.0 mi northwest of Barhamsville, and 4.1 mi upstream from mouth.	4.82	1985	10-17-86	1.3
					12-16-86	2.5
					2-18-87	4.7
					3-25-87	4.4
					5-13-87	3.6
					6-24-87	1.6
					8- 5-87	(c)
					9-15-87	1.0
02042742 Wahrani Swamp	Diascund Reservoir	Lat 37°27'30", long 76°51'57", New Kent County, at culvert on State Highway 632, 1.3 mi west of Barhamsville, and 1.8 mi upstream from Barnes Swamp.	4.02	1985	10-17-86	1.2
					12-16-86	2.7
					2-18-87	3.0
					3-25-87	3.0
					5-13-87	2.7
					6-24-87	1.4
					8- 5-87	(c)
					9-15-87	1.1
		CHOWAN RIVER BASIN				
02044000 Nottoway River [a]	Chowan River	Lat 37°04'40", long 78°11'52", Lunenburg County, at 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.	38.7	1946-86‡	1-14-87	17.5
02047500 Blackwater River [a]	Chowan River	Lat 37°01'30", long 76°52'30", Surry County, at Walls Bridge on State Highway 617, 1.2 mi downstream from Cypress Swamp, and 3.5 mi southeast of Dendron.	294	1942-86‡	1- 8-87	593
02051600 Great Creek [a]	Meherrin River	Lat 36°48'46", long 77°55'19", Brunswick County, at bridge on State Highway 763, 1.4 mi southwest of Cochran, and 9.5 mi upstream from Roses Creek.	30.7	1958-86‡	1- 7-87	30.4
		ROANOKE RIVER BASIN				
02079880 Pea Hill Creek	Lake Gaston	Lat 36°34'57", long 77°53'20", Brunswick County, at bridge on State Highway 665, 1.1 mi north of Gasburg.	-	-	8-11-87	.07
					9- 1-87	.48
		KANAWHA RIVER BASIN				
Reed Creek [a]	New River	Lat 36°56'16", long 81°03'42", Wythe County, 0.2 mi downstream from bridge on State Highway 649, 1.5 mi southeast of Wytheville.	-	-	7-29-87	*50.1
Reed Creek [a]	New River	Lat 36°56'20", long 81°03'18", Wythe County, 0.7 mi downstream from bridge on State Highway 649, 1.8 mi southeast of Wytheville.	-	-	7-29-87	*54.3
Reed Creek [a]	New River	Lat 36°56'20", long 81°03'01", Wythe County, 1.2 mi downstream from bridge on State Highway 649, 2.0 mi southeast of Wytheville.	-	-	7-29-87	*54.3

* Base flow.
‡ Operated as a continuous-record gaging station.
a Provided by the Virginia Water Control Board.
c No apparent flow.

Discharge measurements made at special study and miscellaneous sites during water year 1987--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		TENNESSEE RIVER BASIN				
Clinch River [a]	Tennessee River	Lat 37°07'30", long 81°33'28", Tazewell County, 0.1 mi west of Tazewell town limits, 0.8 mi downstream from bridge on State Highway Alternate 16.	-	1980	7-27-87 7-28-87	*14.6 *14.0
Clinch River [a]	Tennessee River	Lat 37°07'34", long 81°33'52", Tazewell County, 0.4 mi west of Tazewell town limits, 1.3 mi downstream from bridge on State Highway Alternate 16.	-	-	7-28-87	*16.7
Clinch River [a]	Tennessee River	Lat 37°07'25", long 81°34'04", Tazewell County, 200 ft downstream from Plum Creek, 0.75 mi upstream from bridge on State Highway 632, and 0.9 mi west of Tazewell town limits.	-	-	7-28-87	*17.2
Clinch River [a]	Tennessee River	Lat 37°07'20", long 81°34'42", Tazewell County, at bridge on State Highway 632, 1.4 mi west of Tazewell town limits.	-	-	7-28-87	*19.0

* Base flow.
a Provided by the Virginia Water Control Board.

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 1986 TO SEPTEMBER 1987

DATE	TIME	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	STREAMFLOW, INSTANTANEOUS (CFS)	COLOR (PLATINUM-COBALT UNITS)	SPECIFIC CONDUCTANCE (US/CM)	SPECIFIC CONDUCTANCE LAB (US/CM)	OXYGEN, DISSOLVED (MG/L)	PH (STANDARD UNITS)	PH LAB (STANDARD UNITS)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)
JAMES RIVER BASIN												
02042270	CHICKAHOMINY RIVER AT RT 33 NR GLEN ALLEN, VA (LAT 37 41 10N LONG 077 32 35W)											
APR 1987												
08...	0720	9.0	755	16	95	93	95	9.8	6.30	7.40	0.050	0.50
SEP												
14...	0830	22.0	753	2.6	56	178	172	5.4	6.90	7.50	0.070	<0.20
02042275	CHICKAHOMINY RIVER AT RT 625 NEAR GLEN ALLEN, VA (LAT 37 42 02N LONG 077 30 49W)											
APR 1987												
08...	0830	10.0	755	37	100	104	105	9.2	6.50	8.80	0.210	0.70
SEP												
14...	0930	23.0	753	3.1	36	342	342	3.1	6.80	7.40	0.070	1.2
02042284	STONY RUN AT RT 656 NEAR GREENWOOD, VA (LAT 37 41 05N LONG 077 26 58W)											
APR 1987												
08...	1000	11.0	755	17	75	95	95	9.8	6.50	7.40	0.050	0.60
SEP												
14...	1100	22.5	753	0.53	58	207	200	6.7	6.90	7.30	0.120	<0.20
02042288	CHICKAHOMINY RIVER AT RT 627 NEAR RICHMOND, VA (LAT 37 36 41N LONG 077 24 24W)											
APR 1987												
08...	1230	14.0	755	59	55	132	132	9.4	6.70	7.60	0.030	0.50
SEP												
14...	1330	23.5	753	9.4	140	182	178	1.5	6.20	6.60	0.050	0.80
02042426	UPHAM BROOK AT WILKINSON ROAD NR RICHMOND, VA (LAT 37 36 47N LONG 077 25 28W)											
APR 1987												
08...	1100	12.0	755	19	65	225	226	8.7	6.80	7.80	0.100	0.50
SEP												
14...	1230	23.5	753	8.5	55	153	146	4.0	6.60	7.30	0.130	0.50
02042433	BEAVERDAM CREEK AT RT 156 AT MECHANICSVILLE, VA (LAT 37 35 45N LONG 077 21 32W)											
APR 1987												
08...	1400	16.0	755	10	47	103	103	10.6	6.80	7.60	0.030	0.60
SEP												
14...	1530	25.0	753	8.7	57	93	95	5.2	6.50	6.90	0.020	0.30
02042435	CHICKAHOMINY RIV AT RT 615 NR HIGHLAND SPGS, VA (LAT 37 34 36N LONG 077 20 03W)											
APR 1987												
08...	0815	12.0	746	148	60	142	149	6.7	6.30	7.70	0.010	1.3
SEP												
14...	1630	24.5	753	83	56	162	158	3.9	6.00	6.50	0.010	0.60

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ALKALINITY LAB (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	CHLORIDE, DISSOLVED (MG/L AS CL)	SULFATE DISSOLVED (MG/L AS SO4)
					JAMES RIVER BASIN--Continued							
02042270	CHICKAHOMINY RIVER AT RT 33 NR GLEN ALLEN, VA (LAT 37 41 10N LONG 077 32 35W)											
APR 1987												
08...	0.123	0.035	0.015	0.005	13	11	3.9	1.3	11	1.7	14	11
SEP												
14...	0.366	0.033	0.010	0.005	8.9	32	14	2.9	12	3.9	13	29
02042275	CHICKAHOMINY RIVER AT RT 625 NEAR GLEN ALLEN, VA (LAT 37 42 02N LONG 077 30 49W)											
APR 1987												
08...	0.420	0.051	0.025	0.004	13	14	5.5	1.4	11	2.4	13	12
SEP												
14...	0.517	0.052	0.030	0.016	8.7	49	28	4.4	23	14	28	61
02042284	STONY RUN AT RT 656 NEAR GREENWOOD, VA (LAT 37 41 05N LONG 077 26 58W)											
APR 1987												
08...	0.170	0.046	0.021	0.007	13	9.0	4.3	1.5	10	1.6	15	11
SEP												
14...	0.209	0.071	0.040	0.024	6.8	32	14	3.4	17	3.5	22	21
02042288	CHICKAHOMINY RIVER AT RT 627 NEAR RICHMOND, VA (LAT 37 36 41N LONG 077 24 24W)											
APR 1987												
08...	0.077	0.043	0.027	0.011	10	15	6.3	1.7	15	2.2	19	11
SEP												
14...	0.023	0.110	0.050	0.030	17	26	12	2.5	15	3.4	20	20
02042426	UPHAM BROOK AT WILKINSON ROAD NR RICHMOND, VA (LAT 37 36 47N LONG 077 25 28W)											
APR 1987												
08...	0.670	0.055	0.027	0.014	9.4	25	12	2.5	25	2.6	36	17
SEP												
14...	0.476	0.076	0.050	0.031	8.1	21	10	1.9	12	2.8	14	18
02042433	BEAVERDAM CREEK AT RT 156 AT MECHANICSVILLE, VA (LAT 37 35 45N LONG 077 21 32W)											
APR 1987												
08...	1.10	0.028	0.010	0.004	5.1	13	3.7	2.6	9.9	2.2	12	9.7
SEP												
14...	0.427	0.025	0.005	0.002	6.0	18	3.8	2.4	8.6	2.0	12	9.2
02042435	CHICKAHOMINY RIV AT RT 615 NR HIGHLAND SPGS, VA (LAT 37 34 36N LONG 077 20 03W)											
APR 1987												
08...	0.130	0.053	0.025	0.015	9.5	19	7.2	2.0	17	2.3	24	11
SEP												
14...	0.013	0.082	0.010	0.006	10	6.0	10	2.1	13	0.80	13	37

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	CADMIUM DISSOLVED (UG/L AS CD)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, DISSOLVED (UG/L AS ZN)	MERCURY DISSOLVED (UG/L AS HG)
JAMES RIVER BASIN--Continued												
02042270 CHICKAHOMINY RIVER AT RT 33 NR GLEN ALLEN, VA (LAT 37 41 10N LONG 077 32 35W)												
APR 1987												
08...	<0.10	14	64	<1	7	1200	600	<5	100	100	20	<0.1
SEP												
14...	0.30	8.9	100	<1	1	1200	150	<5	110	100	5	<0.1
02042275 CHICKAHOMINY RIVER AT RT 625 NEAR GLEN ALLEN, VA (LAT 37 42 02N LONG 077 30 49W)												
APR 1987												
08...	0.10	13	68	1	<1	1300	540	<5	100	89	12	<0.1
SEP												
14...	0.30	6.8	200	<1	1	690	160	<5	250	230	<3	<0.1
02042284 STONY RUN AT RT 656 NEAR GREENWOOD, VA (LAT 37 41 05N LONG 077 26 58W)												
APR 1987												
08...	<0.10	7.2	57	<1	<1	1200	490	<5	90	84	95	<0.1
SEP												
14...	0.20	10	110	<1	1	1900	210	<5	240	230	15	<0.1
02042288 CHICKAHOMINY RIVER AT RT 627 NEAR RICHMOND, VA (LAT 37 36 41N LONG 077 24 24W)												
APR 1987												
08...	0.10	2.6	68	<1	1	890	470	<5	60	52	62	<0.1
SEP												
14...	0.20	14	110	<1	1	4000	1100	<5	1500	1500	34	<0.1
02042426 UPHAM BROOK AT WILKINSON ROAD NR RICHMOND, VA (LAT 37 36 47N LONG 077 25 28W)												
APR 1987												
08...	0.20	11	120	<1	4	1300	680	<5	100	93	28	<0.1
SEP												
14...	0.20	7.5	80	<1	4	1100	350	<5	100	98	17	<0.1
02042433 BEAVERDAM CREEK AT RT 156 AT MECHANICSVILLE, VA (LAT 37 35 45N LONG 077 21 32W)												
APR 1987												
08...	<0.10	2.6	51	<1	1	1400	320	<5	80	69	10	<0.1
SEP												
14...	0.10	6.0	55	2	<1	1600	150	<5	90	75	6	<0.1
02042435 CHICKAHOMINY RIV AT RT 615 NR HIGHLAND SPGS, VA (LAT 37 34 36N LONG 077 20 03W)												
APR 1987												
08...	0.10	2.9	79	<1	<1	1300	550	<5	100	84	29	<0.1
SEP												
14...	0.10	13	94	2	1	2400	280	<5	1200	1100	260	<0.1

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	STREAMFLOW, INSTANTANEOUS (CFS)	COLOR (PLATINUM-COBALT UNITS)	SPECIFIC CONDUCTANCE (US/CM)	SPECIFIC CONDUCTANCE LAB (US/CM)	OXYGEN, DISSOLVED (MG/L)	PH (STANDARD UNITS)	PH LAB (STANDARD UNITS)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)
JAMES RIVER BASIN--Continued												
02042440	CHICKAHOMINY RIVER AT RT 156 NR SEVEN PINES, VA (LAT 37 33 07N LONG 077 16 17W)											
APR 1987												
08...	1045	14.0	747	159	55	144	146	8.6	6.20	6.90	0.010	0.80
SEP												
14...	0830	23.0	753	51	55	188	197	3.8	5.80	6.20	0.040	0.70
02042443	CHICKAHOMINY RIV AT I64 NR WHITE OAK SWAMP, VA (LAT 37 31 03N LONG 077 12 34W)											
APR 1987												
08...	1230	14.0	746	226	60	132	136	9.1	6.10	7.50	0.020	0.80
SEP												
14...	1100	23.5	753	53	46	190	200	4.3	6.00	6.50	0.040	0.40
02042455	WHITE OAK SWAMP AT RT 156 AT ELKO, VA (LAT 37 28 05N LONG 077 12 32W)											
APR 1987												
08...	1400	16.5	746	16	100	60	61	8.0	5.70	6.80	0.010	0.90
SEP												
14...	1230	22.5	754	7.2	74	79	81	4.5	5.50	6.60	0.020	0.80
02042465	TOE INK SWAMP BELOW KENT LAKE DAM NR ROXBURY, VA (LAT 37 29 03N LONG 077 07 56W)											
APR 1987												
08...	1530	13.5	744	9.7	28	85	87	10.0	6.50	7.70	<0.010	0.90
SEP												
14...	1445	23.0	753	0.15	280	130	138	2.7	6.30	6.60	4.40	10
02042470	CHICKAHOMINY RIVER AT RT 609 AT ROXBURY, VA (LAT 37 28 11N LONG 077 08 17W)											
APR 1987												
09...	0815	13.5	749	240	70	120	125	7.7	6.20	7.60	0.020	0.60
SEP												
14...	1545	24.0	753	32	27	204	205	4.9	6.20	7.60	0.040	0.20
02042610	JONES RUN ABOVE C&O RR AT PROVIDENCE FORGE, VA (LAT 37 26 28N LONG 077 02 48W)											
APR 1987												
09...	1030	14.0	750	12	35	71	73	10.1	6.20	6.90	0.010	1.5
SEP												
14...	1345	26.5	754	19	37	70	67	6.9	6.40	7.50	0.030	0.20

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ALKALINITY LAB (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	CHLORIDE, DISSOLVED (MG/L AS CL)	SULFATE DISSOLVED (MG/L AS SO4)
					JAMES RIVER BASIN--Continued							
02042440	CHICKAHOMINY RIVER AT RT 156 NR SEVEN PINES, VA (LAT 37 33 07N LONG 077 16 17W)											
APR 1987												
08...	0.097	0.059	0.029	0.015	9.6	18	6.8	1.9	17	2.1	24	10
SEP												
14...	0.018	0.069	0.010	0.006	8.2	10	15	2.8	14	1.0	12	57
02042443	CHICKAHOMINY RIV AT I64 NR WHITE OAK SWAMP, VA (LAT 37 31 03N LONG 077 12 34W)											
APR 1987												
08...	0.093	0.057	0.028	0.014	9.7	15	6.0	1.7	16	2.0	23	15
SEP												
14...	0.050	0.067	0.020	0.012	7.2	6.0	15	3.1	14	0.90	13	52
02042455	WHITE OAK SWAMP AT RT 156 AT ELKO, VA (LAT 37 28 05N LONG 077 12 32W)											
APR 1987												
08...	0.151	0.037	0.018	0.010	14	8.0	3.6	0.70	5.9	1.2	8.2	11
SEP												
14...	0.023	0.041	0.020	0.007	15	8.0	6.8	0.88	6.3	0.40	10	13
02042465	TOE INK SWAMP BELOW KENT LAKE DAM NR ROXBURY, VA (LAT 37 29 03N LONG 077 07 56W)											
APR 1987												
08...	0.167	0.036	0.012	0.003	8.7	22	9.3	1.1	4.7	1.4	8.6	8.2
SEP												
14...	<0.010	0.143	0.090	0.082	17	24	13	1.3	3.8	1.7	6.7	5.5
02042470	CHICKAHOMINY RIVER AT RT 609 AT ROXBURY, VA (LAT 37 28 11N LONG 077 08 17W)											
APR 1987												
09...	0.099	0.065	0.033	0.018	10	16	6.3	1.6	14	1.9	22	11
SEP												
14...	0.046	0.032	0.010	0.008	5.8	7.0	17	3.4	13	0.80	11	62
02042610	JONES RUN ABOVE C&O RR AT PROVIDENCE FORGE, VA (LAT 37 26 28N LONG 077 02 48W)											
APR 1987												
09...	0.100	0.043	0.018	0.007	6.2	22	7.7	1.1	4.1	1.2	7.1	6.4
SEP												
14...	0.012	0.030	0.020	0.007	6.3	23	7.7	0.99	3.1	0.90	5.0	5.3

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	CADMIUM DISSOLVED (UG/L AS CD)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, DISSOLVED (UG/L AS ZN)	MERCURY DISSOLVED (UG/L AS HG)
JAMES RIVER BASIN--Continued												
02042440 CHICKAHOMINY RIVER AT RT 156 NR SEVEN PINES, VA (LAT 37 33 07N LONG 077 16 17W)												
APR 1987 08...	0.10	2.9	76	<1	<1	1100	580	<5	70	66	28	<0.1
SEP 14...	0.10	15	130	<1	1	2100	280	<5	2800	2800	340	<0.1
02042443 CHICKAHOMINY RIV AT I64 NR WHITE OAK SWAMP, VA (LAT 37 31 03N LONG 077 12 34W)												
APR 1987 08...	0.10	2.8	76	<1	<1	1200	550	<5	70	57	39	<0.1
SEP 14...	0.10	14	120	3	1	370	280	<5	2900	3200	97	<0.1
02042455 WHITE OAK SWAMP AT RT 156 AT ELKO, VA (LAT 37 28 05N LONG 077 12 32W)												
APR 1987 08...	<0.10	4.0	40	<1	1	1900	830	<5	30	23	18	<0.1
SEP 14...	0.10	9.0	52	3	9	1600	890	<5	70	65	39	<0.1
02042465 TOE INK SWAMP BELOW KENT LAKE DAM NR ROXBURY, VA (LAT 37 29 03N LONG 077 07 56W)												
APR 1987 08...	<0.10	0.1	47	<1	<1	700	240	<5	40	<1	9	<0.1
SEP 14...	0.10	9.5	79	<1	<1	16000	16000	<5	870	890	16	<0.1
02042470 CHICKAHOMINY RIVER AT RT 609 AT ROXBURY, VA (LAT 37 28 11N LONG 077 08 17W)												
APR 1987 09...	0.10	2.5	70	<1	<1	1600	850	<5	170	140	20	<0.1
SEP 14...	0.10	13	130	<1	2	720	230	<5	1100	1100	68	<0.1
02042610 JONES RUN ABOVE C&O RR AT PROVIDENCE FORGE, VA (LAT 37 26 28N LONG 077 02 48W)												
APR 1987 09...	<0.10	2.0	43	<1	<1	870	350	<5	40	35	21	<0.1
SEP 14...	0.10	9.9	48	<1	1	1400	640	<5	100	40	5	<0.1

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	STREAMFLOW, INSTANTANEOUS (CFS)	TURBIDITY (NTU)	SPECIFIC CONDUCTANCE (US/CM)	SPECIFIC CONDUCTANCE LAB (US/CM)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
ROANOKE RIVER BASIN										
02079000	ROANOKE (STAUNTON) RIVER AT CLARKSVILLE, VA (LAT 36 37 40N LONG 078 33 04W)									
AUG 1987										
12...	0900	--	--	--	--	--	--	--	--	--
SEP										
02...	0900	--	--	--	--	--	--	--	--	--
0207987950	LAKE GASTON (LITTLE RIVER CHANNEL) NR HENRICO, N(LAT 36 30 34N LONG 077 51 49W)									
AUG 1987										
11...	1115	2.00	28.0	752	--	0.60	95	100	7.0	91
11...	1130	12.0	28.0	752	--	1.0	88	102	6.0	78
11...	1145	21.0	24.0	752	--	1.5	100	105	0	0
11...	1200	39.0	21.5	752	--	2.5	111	112	0	0
11...	1215	55.0	18.0	752	--	3.7	120	114	0	0
SEP										
01...	1030	2.00	26.0	752	--	0.50	99	104	6.6	83
01...	1045	12.0	26.0	752	--	1.2	98	105	6.4	80
01...	1100	21.0	26.0	752	--	0.70	98	106	6.2	78
01...	1115	39.0	23.0	752	--	1.7	110	116	0	0
01...	1130	55.0	18.5	752	--	1.9	121	121	0	0
02079880	PEA HILL CREEK AT RT 665 NR GASBURG, VA (LAT 36 34 57N LONG 077 53 20W)									
AUG 1987										
11...	1515	--	23.5	751	0.07	4.8	93	91	5.8	69
SEP										
01...	1415	--	22.5	752	0.48	4.3	90	89	5.5	64
0207988450	PEA HILL CREEK ABOVE NC STATELINE NR GASBURG, VA (LAT 36 32 43N LONG 077 51 52W)									
AUG 1987										
11...	1315	2.00	29.0	752	--	1.7	85	84	6.4	84
11...	1330	12.0	28.0	752	--	1.7	86	90	5.0	65
11...	1345	21.0	24.5	752	--	2.8	100	102	0	0
11...	1400	28.0	20.5	752	--	2.8	115	102	0	0
SEP										
01...	1200	2.00	2.5	752	--	1.5	85	91	6.2	46
01...	1215	12.0	26.0	752	--	1.3	86	92	5.8	73
01...	1230	21.0	26.0	752	--	0.60	87	92	4.3	54
01...	1245	27.0	23.0	752	--	4.3	119	118	0	0

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	HARD-NESS (MG/L AS CACO3)	
ROANOKE RIVER BASIN--Continued											
02079000	ROANOKE (STAUNTON) RIVER AT CLARKSVILLE, VA (LAT 36 37 40N LONG 078 33 04W)										
AUG 1987											
12...	--	--	--	--	--	--	--	--	4.8	--	
SEP											
02...	--	--	--	--	--	--	--	--	3.3	--	
0207987950	LAKE GASTON (LITTLE RIVER CHANNEL) NR HENRICO, N(LAT 36 30 34N LONG 077 51 49W)										
AUG 1987											
11...	1.0	7.30	8.00	<0.010	0.70	<0.010	0.010	<0.010	--	30	
11...	1.0	7.30	7.40	0.020	0.70	<0.010	0.010	<0.010	4.8	31	
11...	2.0	6.80	7.10	0.100	0.70	0.013	0.010	0.010	--	33	
11...	2.0	6.80	7.10	0.150	0.90	<0.010	0.010	<0.010	--	33	
11...	3.0	6.90	6.90	0.310	1.0	<0.010	0.020	0.010	6.0	34	
SEP											
01...	1.0	7.30	7.50	0.040	0.40	0.013	0.020	<0.010	--	33	
01...	1.0	7.30	7.50	0.050	0.70	0.016	0.010	<0.010	3.6	32	
01...	1.0	7.30	8.20	0.040	0.50	0.018	0.010	<0.010	--	31	
01...	<1.0	6.90	7.00	0.190	<0.20	<0.010	0.020	<0.010	--	33	
01...	7.0	7.00	7.00	0.380	0.90	<0.010	0.030	<0.010	4.7	37	
02079880	PEA HILL CREEK AT RT 665 NR GASBURG, VA (LAT 36 34 57N LONG 077 53 20W)										
AUG 1987											
11...	1.0	6.70	7.70	0.030	0.50	0.084	0.050	0.020	4.5	26	
SEP											
01...	<1.0	7.10	7.80	<0.010	0.60	0.050	0.070	<0.010	3.2	28	
0207988450	PEA HILL CREEK ABOVE NC STATELINE NR GASBURG, VA (LAT 36 32 43N LONG 077 51 52W)										
AUG 1987											
11...	1.0	7.30	7.40	<0.010	1.1	<0.010	0.010	<0.010	--	27	
11...	1.0	7.10	7.60	<0.010	0.90	<0.010	0.010	<0.010	6.2	26	
11...	2.0	6.80	6.90	0.120	1.5	<0.010	0.020	<0.010	--	32	
11...	7.0	6.90	6.80	0.540	1.2	<0.010	0.020	<0.010	7.1	31	
SEP											
01...	<1.0	7.10	7.50	0.010	<0.20	<0.010	0.020	<0.010	--	27	
01...	1.0	7.10	7.30	0.020	<0.20	<0.010	0.010	<0.010	4.6	28	
01...	<1.0	7.10	7.30	0.030	0.70	0.010	0.010	<0.010	--	28	
01...	3.0	6.90	7.10	0.390	1.0	<0.010	0.040	<0.010	5.7	36	

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SULFATE DIS-SOLVED (MG/L AS SO4)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)
ROANOKE RIVER BASIN--Continued										
02079000 ROANOKE (STAUNTON) RIVER AT CLARKSVILLE, VA (LAT 36 37 40N LONG 078 33 04W)										
AUG 1987										
12...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	--	--	--	--	--	--	--	--	--	--
0207987950 LAKE GASTON (LITTLE RIVER CHANNEL) NR HENRICO, N(LAT 36 30 34N LONG 077 51 49W)										
AUG 1987										
11...	7.1	3.1	5.9	2.0	31	5.9	10	0.10	7.3	80
11...	7.3	3.1	5.9	2.0	30	6.1	10	0.10	7.4	100
11...	7.8	3.2	6.1	2.1	32	6.2	11	0.10	8.4	180
11...	8.1	3.1	5.8	2.1	34	5.9	12	0.10	9.0	440
11...	8.3	3.3	5.3	2.0	35	5.5	13	0.10	10	2400
SEP										
01...	7.7	3.3	6.6	2.1	31	6.4	11	0.10	8.3	100
01...	7.8	3.1	6.3	2.0	31	6.4	11	0.10	8.1	70
01...	7.5	3.1	6.5	2.2	32	6.3	11	0.10	8.1	90
01...	8.0	3.1	6.1	2.2	33	6.3	12	0.10	9.2	420
01...	9.1	3.4	5.8	2.1	36	5.8	13	0.10	11	2400
02079880 PEA HILL CREEK AT RT 665 NR GASBURG, VA (LAT 36 34 57N LONG 077 53 20W)										
AUG 1987										
11...	6.1	2.6	7.1	2.1	37	4.1	4.2	0.20	22	1700
SEP										
01...	6.6	2.7	6.6	2.0	36	3.2	6.8	0.20	22	1300
0207988450 PEA HILL CREEK ABOVE NC STATELINE NR GASBURG, VA (LAT 36 32 43N LONG 077 51 52W)										
AUG 1987										
11...	6.1	2.8	5.2	2.0	27	5.3	9.7	0.10	6.0	160
11...	5.9	2.8	5.2	2.0	26	5.4	9.6	0.10	6.2	220
11...	8.2	2.9	5.1	2.0	32	5.2	12	0.10	7.7	730
11...	7.8	2.8	5.1	2.1	37	5.4	14	0.10	9.6	6200
SEP										
01...	6.2	2.9	5.7	2.1	27	5.4	10	0.10	6.3	140
01...	6.3	2.9	5.8	2.1	26	5.4	10	0.10	6.5	180
01...	6.1	3.0	5.6	2.1	26	5.6	11	0.10	6.4	180
01...	9.8	2.9	5.6	2.3	39	5.6	10	0.20	8.6	2800

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	CHLORO-PHYLL A FLUORO-METRIC METHOD CORR. (UG/L)	PHEOPHY-TIN A FLUORO-METRIC METHOD (UG/L)	PHENOLS TOTAL (UG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SEDI-MENT, SUS-PENDED (MG/L)
ROANOKE RIVER BASIN--Continued										
02079000 ROANOKE (STAUNTON) RIVER AT CLARKSVILLE, VA (LAT 36 37 40N LONG 078 33 04W)										
AUG 1987										
12...	--	--	--	--	--	--	--	2	--	--
SEP										
02...	--	--	--	--	--	--	--	2	--	--
0207987950 LAKE GASTON (LITTLE RIVER CHANNEL) NR HENRICO, N(LAT 36 30 34N LONG 077 51 49W)										
AUG 1987										
11...	24	60	4	K2	<1	8.40	2.20	--	60	2
11...	16	80	4	K6	K3	6.60	2.30	1	60	2
11...	46	610	600	K3	<1	3.00	2.90	--	65	3
11...	430	2000	2100	K6	K4	1.20	1.60	--	69	7
11...	2400	3000	2900	K8	K2	0.900	2.20	<1	74	12
SEP										
01...	28	100	13	K4	K2	3.20	1.80	--	64	1
01...	13	100	10	K4	K2	3.20	1.80	<1	63	1
01...	11	100	7	K4	<1	3.80	2.10	--	64	1
01...	20	2400	2000	K6	<1	1.50	0.600	--	69	7
01...	2400	3600	3800	K7	<1	1.30	1.60	<1	79	12
02079880 PEA HILL CREEK AT RT 665 NR GASBURG, VA (LAT 36 34 57N LONG 077 53 20W)										
AUG 1987										
11...	58	350	340	740	110	0.700	0.400	3	71	--
SEP										
01...	280	90	92	7600	1300	0.900	0.400	2	72	7
0207988450 PEA HILL CREEK ABOVE NC STATELINE NR GASBURG, VA (LAT 36 32 43N LONG 077 51 52W)										
AUG 1987										
11...	16	90	6	K10	K4	17.3	0.800	--	53	4
11...	21	110	8	K6	K2	16.8	3.40	4	53	4
11...	800	1100	1300	K8	K2	3.30	3.50	--	65	8
11...	6100	1500	1500	K3	<1	3.20	3.30	1	77	15
SEP										
01...	9	50	4	K2	K1	6.70	2.70	--	55	3
01...	14	90	8	K2	<1	6.90	3.00	<1	55	4
01...	29	140	62	K5	K2	12.6	6.20	--	56	5
01...	2300	2100	2000	K16	K2	4.50	5.00	2	73	18

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GROUND-WATER-QUALITY RECORDS

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

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

ACCOMACK COUNTY

375622075280101 Local number, 67M 2.
LOCATION.--Lat 37°56'23", long 75°28'02", Hydrologic Unit 02060010, well B31 Wallops Flight Center, 5.0 mi west of Chincoteague. Owner: National Aeronautics and Space Administration (formerly U.S. Naval Air Station, Wallops Island).
AQUIFER.--Columbia Group sand of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in., depth 60 ft, screen depth unknown.
INSTRUMENTATION.--Monthly measurement with chalked tape by NASA personnel.
DATUM.--Elevation of land-surface datum is 35 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.38 ft above land-surface datum.
REMARKS.--Records provided by the National Aeronautics and Space Administration.
PERIOD OF RECORD.--May 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.82 ft below land-surface datum, May 9, 1963; lowest measured, 25.22 ft below land-surface datum, Dec. 1, 1981, Aug. 6, 1985.

WATER LEVELS, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	23.79	DEC 29	24.42	FEB 27	23.62	APR 30	23.39	JUN 30	23.21	AUG 28	23.30
NOV 28	24.88	JAN 30	24.52	MAR 31	23.15	MAY 29	23.29	JUL 31	23.02	SEP 30	23.36

WATER YEAR 1987 HIGHEST 23.02 JUL 31, 1987 LOWEST 24.88 NOV 28, 1986

ALBEMARLE COUNTY

380333078264801 Local number, 43N 1 SOW 028.
LOCATION.--Lat 38°03'33", long 78°26'48", Hydrologic Unit 02080204, at Key West Subdivision, 1.1 mi east of Charlottesville. Owner: Key West Development Corporation.
AQUIFER.--Lynchburg Formation of Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 409 ft, cased to 52 ft, open hole 52 to 409 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 345 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
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 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	18.80	18.70	17.70	16.90	15.99	13.76	14.78	12.43	14.70	15.67	17.43	19.23
10	19.06	18.49	17.58	16.91	15.38	14.21	14.70	13.00	14.78	15.78	17.88	17.11
15	19.12	18.36	17.41	16.92	15.53	14.50	14.70	13.64	14.87	15.90	18.34	15.09
20	19.19	18.30	17.31	16.80	15.99	14.61	10.56	14.14	15.05	16.10	18.68	15.18
25	19.11	18.18	17.27	16.31	15.77	14.72	11.49	14.33	15.32	16.43	18.83	14.64
EOM	18.87	17.99	16.80	16.31	15.31	14.80	11.41	14.49	15.50	17.14	18.82	15.22

WATER YEAR 1987 HIGHEST 10.56 APR 20, 1987 LOWEST 19.24 SEP 06, 07, 1987

APPOMATTOX COUNTY

372133078493701 Local number, 40G 1 SOW 012.
LOCATION.--Lat 37°21'33", long 78°49'37", Hydrologic Unit 02080207, 0.45 mi east of State Highway 131, 300 ft north of U.S. Highway 460 in the town of Appomattox. Owner: Town of Appomattox.
AQUIFER.--Metamorphic rock of uncertain age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in., depth 288 ft, cased to 40 ft, open hole 40 to 288 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 860 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--May 1949, October 1967 to current year. Unpublished record available in May 1949 in files of the Virginia Water Control Board.
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 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	50.45	51.13	51.79	52.27	52.70	52.76	51.72	50.79	49.99	49.64	49.69	50.08
10	50.70	51.28	51.83	52.26	53.23	52.50	51.66	50.60	49.83	49.49	49.76	50.00
15	50.75	51.29	51.88	52.49	53.15	52.29	51.37	50.46	49.70	49.51	49.88	50.08
20	50.80	51.51	52.13	52.57	53.09	52.11	51.22	50.30	49.72	49.55	49.99	50.12
25	50.90	51.57	52.20	52.57	53.00	52.10	51.12	50.10	49.76	49.62	49.82	50.33
EOM	51.17	51.60	52.24	52.62	52.88	52.00	50.90	49.92	49.74	49.61	49.86	50.22

WATER YEAR 1987 HIGHEST 49.28 JUL 12, 1987 LOWEST 53.23 FEB 09, 10, 1987

APPOMATTOX COUNTY--Continued

372514078394301 Local number, 41H 2.
LOCATION.--Lat 37°25'14", long 78°39'43", Hydrologic Unit 02080207, 1.0 mi south of intersection of State Highway 636 on the east side of State Highway 640, 2.8 mi southeast of Sliders. Owner: U.S. Geological Survey.
AQUIFER.--Candler Formation of Paleozoic age.
WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in. to 68 ft, 1.25 in. 68 to 73 ft, depth 73 ft, screened 68 to 73 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 640 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
PERIOD OF RECORD.--March 1971 to current year. Unpublished records available prior to October 1977 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	46.78	DEC 03	47.84	JAN 08	48.20	MAR 12	47.63	JUN 24	44.88	SEP 03	44.90

WATER YEAR 1987 HIGHEST 44.88 JUN 24, 1987 LOWEST 48.20 JAN 08, 1987

ARLINGTON COUNTY

385346077073701 Local number, 53V 1.
LOCATION.--Lat 38°53'46", long 77°07'37", Hydrologic Unit 02070010, at Langston School, 4854 Lee Highway in Arlington. Owner: Arlington County School Board.
AQUIFER.--Brandywine Formation of Pleistocene age and Bryn Mawr (?) gravel of Pliocene (?) age, overlying the Sykesville Formation of Precambrian age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in., depth 35 ft, terracotta casing.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 410 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Inner flange of manhole, at land-surface datum.
PERIOD OF RECORD.--October 1931 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.74 ft below land-surface datum, Apr. 20, 1935; lowest measured, 34.81 ft below land-surface datum, Dec. 5, 1931.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 29	27.83	MAR 31	24.20	MAY 28	23.36	JUL 30	24.84

WATER YEAR 1987 HIGHEST 23.36 MAY 28, 1987 LOWEST 27.83 DEC 29, 1986

385253077042301 Local number, 54V 3.
LOCATION.--Lat 38°52'53", long 77°04'23", Hydrologic Unit 02070010, at Arlington National Cemetery in Arlington. Owner: NPS National Capitol Parks.
AQUIFER.--Terrace gravels of Holocene age and sand of early Cretaceous age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 48 in., depth 50 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 205 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of brick and stone casing, 3.0 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, May 4, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	44.40	FEB 27	44.03	MAR 31	43.57	APR 30	43.28	JUN 30	43.28	AUG 26	43.79
DEC 29	44.65										

WATER YEAR 1987 HIGHEST 43.28 APR 30, JUN 30, 1987 LOWEST 44.65 DEC 29, 1986

BUCKINGHAM COUNTY

372541078392101 Local number, 41H 1.
LOCATION.--Lat 37°25'41", long 78°39'21", Hydrologic Unit 02080207, 200 ft east of State Highway 640, 2.6 mi southeast of Sliders. 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.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 660 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.
PERIOD OF RECORD.--March 1971 to current year. Unpublished records available prior to October 1977 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	48.25	DEC 03	49.70	JAN 08	50.23	MAR 12	49.55	JUN 24	46.26	SEP 03	47.44

WATER YEAR 1987 HIGHEST 46.26 JUN 24, 1987 LOWEST 50.23 JAN 08, 1987

372608078404601 Local number, 41H 3.
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 State Highway 636, 1.5 mi south of Sliders. 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.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 683.8 ft above 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.--March 1971 to current year. Unpublished records available prior to October 1977 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	26.77	DEC 03	27.86	FEB 26	23.29	APR 27	21.37	JUL 29	22.93	SEP 03	25.00
29	27.55	29	26.73	MAR 12	21.86	MAY 28	20.00	AUG 27	24.58	24	25.17
NOV 25	28.00	JAN 08	26.08	30	21.37	JUN 24	20.85				

WATER YEAR 1987 HIGHEST 20.00 MAY 28, 1987 LOWEST 28.00 NOV 25, 1986

372519078374001 Local number, 41H 4.
LOCATION.--Lat 37°25'19", long 78°37'40", Hydrologic Unit 02080207, 0.65 mi northeast of Holiday Creek, 0.85 mi southeast of State Highway 636 off State Highway 614, and 4.0 mi southeast of Sliders. 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.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 647 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.
PERIOD OF RECORD.--March 1971 to current year. Unpublished records available prior to October 1977 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.45 ft below land-surface datum, May 1, 1980; lowest measured, 48.13 ft below land-surface datum, Mar. 30, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	41.80	JAN 08	42.96	JUN 24	38.03	SEP 03	42.30
DEC 03	43.06						

WATER YEAR 1987 HIGHEST 38.03 JUN 24, 1987 LOWEST 43.06 DEC 03, 1986

CHARLES CITY COUNTY

371956077055203 Local number, 54G 11 SOW 066.
LOCATION.--Lat 37°19'56", long 77°05'52", Hydrologic Unit 02080206, 0.6 mi east of Bowens Store on State Highway 5, 1.6 mi west of Charles City. Owner: Virginia Water Control Board.
AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 540 ft, screened 290 to 310 ft, 404 to 424 ft, 486 to 496 ft, 510 to 530 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 54 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--May 1973 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.07 ft below land-surface datum, May 1, 1973; lowest measured, 64.69 ft below land-surface datum, Sept. 24, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	62.36	JAN 07	62.65	FEB 25	62.40	MAR 20	62.66	JUL 17	63.36	AUG 11	62.62

WATER YEAR 1986 HIGHEST 62.36 NOV 18, 1985 LOWEST 63.36 JULY 17, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	63.70	JAN 13	63.79	APR 30	63.59	JUN 18	64.04	AUG 05	64.39	SEP 24	64.69
NOV 19	63.72	FEB 27	63.72								

WATER YEAR 1987 HIGHEST 63.59 APR 30, 1987 LOWEST 64.69 SEP 24, 1987

371956076055101 Local number, 54G 13 SOW 067.
LOCATION.--Lat 37°19'56", long 77°05'51", Hydrologic Unit 02080206, 0.6 mi east of Bowens Store on State Highway 5, 1.6 mi southwest of Charles City. Owner: Virginia Water Control Board.
AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 2 in., depth 227 ft, screened 222 to 227 ft.
DATUM.--Elevation of land-surface datum is 35 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.4 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--June 1973 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 44.63 ft below land-surface datum, June 7, 1973; lowest measured, 58.50 ft below land-surface datum, Sept. 24, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	56.27	JAN 07	56.58	FEB 25	56.29	MAR 20	56.65	JUL 17	57.35	AUG 11	57.57

WATER YEAR 1986 HIGHEST 56.27 NOV 18, 1985 LOWEST 57.57 AUG 11, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	57.62	JAN 13	57.67	APR 30	57.39	JUN 18	57.95	AUG 05	58.29	SEP 24	58.50
NOV 19	57.62	FEB 27	57.59								

WATER YEAR 1987 HIGHEST 57.39 APR 30, 1987 LOWEST 58.50 SEP 24, 1987

CITY OF CHESAPEAKE

364852076252201 Local number, 59C 29 SOW 163A.
LOCATION.--Lat 36°48'52", long 76°25'22", Hydrologic Unit 02080208, 0.7 mi southeast of intersection of State Highways 191 and 337 in Chesapeake. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 35 ft, screened 25 to 35 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.9 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--November 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.97 ft below land-surface datum, Dec. 30, 1982; lowest measured, 10.00 ft below land-surface datum, Nov. 18, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	6.12	JAN 07	4.54	FEB 25	3.67	JUL 23	8.62	AUG 07	8.85	SEP 30	9.38
NOV 20	4.99										

WATER YEAR 1986 HIGHEST 3.67 FEB 25, 1986 LOWEST 9.38 SEP 30, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	10.00	FEB 25	3.38	MAY 05	4.05	JUN 23	6.50	AUG 05	8.08	SEP 22	5.23
JAN 07	8.02										

WATER YEAR 1987 HIGHEST 3.38 FEB 25, 1987 LOWEST 10.00 NOV 18, 1986

364852076252202 Local number, 59C 30 SOW 163B.
LOCATION.--Lat 36°48'52", long 76°25'22", Hydrologic Unit 02080208, 0.7 mi southeast of intersection of State Highways 191 and 337 in Chesapeake. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 948 ft, screened 938 to 948 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--November 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 67.06 ft below land-surface datum, May 25, 1983; lowest measured, 77.44 ft below land-surface datum, Feb. 25, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	73.06	JAN 07	71.73	FEB 25	71.13	JUL 23	72.58	AUG 07	73.40	SEP 30	75.25
NOV 20	72.26										

WATER YEAR 1986 HIGHEST 71.13 FEB 25, 1986 LOWEST 75.25 SEP 30, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	76.50	FEB 25	77.44	MAY 05	76.07	JUN 23	76.12	AUG 05	77.33	SEP 22	76.51
JAN 07	77.33										

WATER YEAR 1987 HIGHEST 76.07 MAY 05, 1987 LOWEST 77.44 FEB 25, 1987

CITY OF CHESAPEAKE--Continued

364852076252203 Local number, 59C 31 SOW 163C.
LOCATION.--Lat 36°48'52', long 76°25'22", Hydrologic Unit 02080208, 0.7 mi southeast of intersection of State Highways 191 and 337 in Chesapeake. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 631 ft, screened 621 to 631 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--November 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 67.13 ft below land-surface datum, Feb. 23, 1983; lowest measured, 78.72 ft below land-surface datum, Aug. 5, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	73.09	JAN 07	71.90	FEB 25	71.38	JUL 23	73.11	AUG 07	73.81	SEP 30	75.42
NOV 20	72.20										

WATER YEAR 1986 HIGHEST 71.38 FEB 25, 1986 LOWEST 75.42 SEP 30, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	76.62	FEB 25	77.63	MAY 05	75.32	JUN 23	77.02	AUG 05	78.72	SEP 22	76.99
JAN 07	77.59										

WATER YEAR 1987 HIGHEST 75.32 MAY 05, 1987 LOWEST 78.72 AUG 05, 1987

363836076201701 Local number, 60B 3 SOW 090A.
LOCATION.--Lat 36°38'36", long 76°20'17", Hydrologic Unit 03010205, 0.15 mi north of intersection of Benefit and West Roads, 1.5 mi north of Cornland. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 855 ft, screened 824 to 834 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 16 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.05 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.61 ft below land-surface datum, Sept. 19, 1979; lowest recorded, 68.69 ft below land-surface datum, Sept. 2, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	65.31	64.93	64.60	64.54	64.55	64.44	64.57	64.62	64.84	65.04	65.42	65.57
10	65.32	65.11	64.63	64.70	64.57	64.53	64.42	64.64	64.86	65.05	65.47	65.74
15	---	---	64.60	64.70	64.53	64.44	64.54	64.69	64.82	65.16	65.33	65.85
20	---	64.77	64.64	64.55	64.48	64.48	64.57	64.66	64.90	65.16	65.35	65.92
25	65.18	64.67	64.55	64.71	64.45	64.64	64.51	64.68	64.97	65.28	65.50	65.95
EOM	---	64.62	64.59	64.62	64.41	64.55	64.55	64.70	64.91	65.30	65.54	66.09

WATER YEAR 1986 HIGHEST 64.32 MAR 27, 1986 LOWEST 66.09 SEP 29, 30, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	66.11	66.63	67.19	67.50	67.85	68.00	67.94	68.02	68.10	68.20	68.23	68.65
10	66.32	66.79	67.19	67.56	67.84	67.97	67.97	68.05	68.15	68.26	68.30	68.52
15	66.35	66.97	67.33	67.64	67.91	67.98	68.10	68.10	68.13	68.27	68.45	68.38
20	66.48	66.95	67.34	67.50	67.94	67.95	67.97	68.12	68.13	68.37	68.39	68.37
25	66.53	67.05	67.34	67.59	67.96	68.01	67.96	68.07	68.09	68.42	68.53	68.44
EOM	66.73	67.10	67.55	67.64	68.00	67.95	---	68.10	68.20	68.45	68.59	68.46

WATER YEAR 1987 HIGHEST 66.08 OCT 01, 02, 1986 LOWEST 68.69 SEP 02, 1987

CITY OF CHESAPEAKE--Continued

363836076201702 Local number, 60B 4 SOW 090B.
LOCATION.--Lat 36°38'36", long 76°20'17", Hydrologic Unit 03010205, 0.15 mi north of intersection of Benefit and West Roads, 1.5 mi north of Cornland. Owner: Virginia Water Control Board.
AQUIFER.--Sand of late Cretaceous-early Paleocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 556 ft, screened 525 to 535 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 16 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--February 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.64 ft above land-surface datum, Mar. 18, 1986; lowest measured, 3.10 ft below land-surface datum, Sept. 22, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	2.20	JAN 07	2.04	MAR 18	1.64	JUN 19	2.00	AUG 06	2.83	SEP 24	2.67
NOV 20	1.81	FEB 25	1.93	JUN 18	2.47	JUL 17	2.65				

WATER YEAR 1986 HIGHEST 1.64 MAR 18, 1986 LOWEST 2.83 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	2.81	JAN 07	2.63	MAR 20	2.06	JUN 12	2.35	AUG 13	2.98	SEP 22	3.10
DEC 23	2.33	FEB 26	2.35	APR 29	2.58	17	2.73	SEP 02	2.51		

WATER YEAR 1987 HIGHEST 2.06 MAR 20, 1987 LOWEST 3.10 SEP 22, 1987

CITY OF COLONIAL HEIGHTS

371644077244601 Local number, 51G 1.
LOCATION.--Lat 37°16'44", long 77°24'46", Hydrologic Unit 02080207, 200 ft west of U.S. Highways 1 and 301, 0.25 mi south of Colonial Heights. Owner: Dean Whittington.
AQUIFER.--Petersburg granite of late Paleozoic age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 100 ft, cased to 50 ft, open hole 50 to 100 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 57.30 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.0 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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	16.51	DEC 22	16.67	FEB 27	12.69	APR 28	12.47	JUN 30	14.89	AUG 28	16.50
NOV 25	16.83	JAN 28	13.20	MAR 30	13.10	MAY 28	13.63	JUL 28	15.70	SEP 25	16.67

WATER YEAR 1987 HIGHEST 12.47 APR 28, 1987 LOWEST 16.83 NOV 25, 1986

FAIRFAX COUNTY

384518077163501 Local number, 52U 4.
LOCATION.--Lat 38°45'18", long 77°16'35", Hydrologic Unit 02070010, 200 ft east of intersection of State Highways 641 and 643 in Springfield. Owner: Sydenstricker Church.
AQUIFER.--Granite of undetermined age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in., depth 28 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 340 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Hole in cement platform, 0.67 ft above land-surface datum.
PERIOD OF RECORD.--May 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.54 ft below land-surface datum, Apr. 30, 1973; lowest measured, 27.57 ft below land-surface datum, Nov. 30, 1964.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	25.62	DEC 29	25.76	FEB 26	24.95	APR 29	23.01	JUN 29	22.23	AUG 27	24.03
NOV 25	25.90	FEB 03	25.52	MAR 30	23.99	MAY 28	22.46	JUL 30	22.93	SEP 29	24.92

WATER YEAR 1987 HIGHEST 22.23 JUN 29, 1987 LOWEST 25.90 NOV 25, 1986

FAIRFAX COUNTY--Continued

385638077220101 Local number, 52V 2.
LOCATION.--Lat 38°56'58", long 77°22'01", Hydrologic Unit 02070008, at U.S. Geological Survey National Center in Reston. Owner: U.S. Geological Survey.
AQUIFER.--Manassas sandtone of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 8 in., depth 205 ft, cased to 35 ft, open hole 35 to 205 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 390 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
PERIOD OF RECORD.--October 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.47 ft below land-surface datum, Mar. 30, 1984; lowest recorded, 18.19 ft below land-surface datum, Oct. 25, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	17.83	17.90	---	15.37	13.91	---	10.33	10.43	12.71	---	15.35	16.81
10	18.09	17.90	---	15.30	13.16	11.75	10.02	10.32	13.05	---	15.59	16.28
15	18.05	17.41	16.35	---	12.84	11.93	10.49	11.06	13.14	---	15.84	15.89
20	18.15	17.35	16.21	---	12.85	11.88	9.73	11.20	13.41	---	16.03	15.83
25	18.19	17.07	15.78	---	12.93	12.12	10.04	12.08	14.75	---	16.28	15.81
EOM	18.09	---	15.57	14.24	12.66	12.18	10.18	12.51	15.02	---	---	15.83

WATER YEAR 1987 HIGHEST 9.73 APR 20, 1987 LOWEST 18.19 OCT 25, 1986

CITY OF FRANKLIN

364047076552401 Local number, 55B 22.
LOCATION.--Lat 36°40'47", long 76°55'24", Hydrologic Unit 03010202, at 5th Avenue and Middle Street in Franklin. Owner: City of Franklin.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Jetted observation water well, diameter 4 in., depth 354 ft, screened 335 to 354 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 21.24 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of manhole, at land-surface datum.
REMARKS.--Water level affected by local pumpage.
PERIOD OF RECORD.--June 1942 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.50 ft below land-surface datum, June 25, 1942; lowest measured, 192.69 ft below land-surface datum, Aug. 2, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	180.46	FEB 26	184.30	MAR 17	183.80	MAY 26	182.09	JUN 12	187.39	SEP 01	191.80
DEC 23	180.50										

WATER YEAR 1987 HIGHEST 180.46 OCT 03, 1986 LOWEST 191.80 SEP 01, 1987

364033076562603 Local number, 55B 66.
LOCATION.--Lat 36°40'33", long 76°56'26", Hydrologic Unit 03010202, at P. D. Camp Community College in Franklin. Owner: U.S. Geological Survey.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 360 ft, screened 350 to 360 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 34 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.58 ft above land-surface datum.
REMARKS.--Water levels affected by local pumpage.
PERIOD OF RECORD.--November 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 175.39 ft below land-surface datum, Dec. 27, 1984; lowest measured, 190.32 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	179.39	FEB 26	185.55	MAR 17	184.81	MAY 26	184.47	JUNE 11	187.77	SEP 01	190.32
DEC 22	182.73										

WATER YEAR 1987 HIGHEST 179.39 OCT 03, 1986 LOWEST 190.32 SEP 01, 1987

CITY OF FRANKLIN--Continued

364033076562604 Local number, 55B 67.
LOCATION.--Lat 36°40'33", long 76°56'26", Hydrologic Unit 03010202, at P. D. Camp Community College in Franklin. Owner: U.S. Geological Survey.
AQUIFER.--Sand of Paleocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 140 ft, screened 130 to 140 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 34 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.15 ft above land-surface datum.
REMARKS.--Water level affected by local pumpage.
PERIOD OF RECORD.--November 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.51 ft below land-surface datum, Mar. 19, 1985; lowest measured, 31.63 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	31.08	FEB 26	30.45	MAR 17	30.30	MAY 26	30.51	JUN 11	30.60	SEP 01	31.63
DEC 22	30.95										

WATER YEAR 1987 HIGHEST 30.30 MAR 17, 1987 LOWEST 31.63 SEP 01, 1987

364033076562605 Local number, 55B 68 SOW 145E.
LOCATION.--Lat 36°40'33", long 76°56'26", Hydrologic Unit 03010202, at P. D. Camp Community College in Franklin. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 98 ft, screen depth unknown.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 34 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.8 ft above land-surface datum.
PERIOD OF RECORD.--November 1984 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.10 ft below land-surface datum, Nov. 1, 1984; lowest measured, 28.00 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 15	25.10	DEC 10	25.23	FEB 06	25.57	MAR 17	25.78	JUN 18	26.24	AUG 04	26.48

WATER YEAR 1986 HIGHEST 25.10 NOV 15, 1985 LOWEST 26.48 AUG 04, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	26.80	FEB 26	27.43	MAR 17	27.45	MAY 26	27.67	JUN 11	27.78	SEP 01	28.00
DEC 22	27.19										

WATER YEAR 1987 HIGHEST 26.80 OCT 03, 1986 LOWEST 28.00 SEP 01, 1987

HALIFAX COUNTY

364550078562301 Local number, 39C 1 SOW 011.
LOCATION.--Lat 36°45'50", long 78°56'23", Hydrologic Unit 03010105, 0.6 mi west of intersection of U.S. Highways 501 and 360, in the town of Halifax. Owner: Town of Halifax.
AQUIFER.--Granite and gneiss of uncertain age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in., depth 302 ft, cased to 52 ft, open hole 52 to 302 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 380 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
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 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	40.27	40.55	40.95	41.12	---	---	40.59	---	---	39.53	39.51	39.70
10	40.42	40.74	40.90	41.06	---	41.03	40.55	---	---	39.50	39.50	39.69
15	40.44	---	40.92	41.20	---	40.85	40.53	---	---	39.52	39.55	39.74
20	40.46	---	41.00	---	---	40.77	40.50	---	39.60	39.51	39.61	39.74
25	40.52	---	41.00	---	---	40.74	---	---	39.59	39.48	39.63	39.76
EOM	40.65	---	41.08	---	---	40.74	---	---	39.59	39.46	39.66	39.65

WATER YEAR 1987 HIGHEST 39.41 AUG 04, 1987 LOWEST 41.20 JAN 14, 15, 1987

CITY OF HOPEWELL

371801077164201 Local number, 52G 1.
LOCATION.--Lat 37°18'01", long 77°16'42", Hydrologic Unit 02080206, 0.2 mi north of intersection of State Highways 156 and 10 in Hopewell. Owner: Virginia American Water Corporation.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 300 ft, screen depth unknown.
INSTRUMENTATION.--Weekly measurement with chalked tape by observer.
DATUM.--Elevation of land-surface datum is 50.26 ft above National Gecdetic 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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	35.08	DEC 05	34.78	FEB 06	34.53	APR 04	34.98	JUN 05	34.94	AUG 07	35.07
10	35.16	13	34.06	13	35.05	10	34.91	12	34.98	14	35.06
17	35.15	19	32.29	20	35.26	17	32.47	19	35.00	21	35.13
24	35.15	26	27.97	27	33.76	24	34.47	26	35.15	28	35.17
31	35.20	JAN 02	33.47	MAR 06	34.28	MAY 01	32.83	JUL 02	35.08	SEP 04	35.20
NOV 07	35.25	09	34.73	13	34.98	08	34.48	10	35.01	12	35.00
14	35.31	16	35.06	20	34.88	15	34.91	17	35.05	18	35.03
21	34.91	23	34.72	27	34.91	22	35.00	25	35.13	25	35.05
29	35.12	30	34.14	APR 03	34.98	29	34.95	31	35.08		

WATER YEAR 1987 HIGHEST 27.97 DEC 26, 1986 LOWEST 35.31 NOV 14, 1986

371727077160401 Local number, 52G 15 SOW 142A.
LOCATION.--Lat 37°17'27", long 77°16'04", Hydrologic Unit 02080206, 0.2 mi south of State Highway 10, 0.8 mi east of State Highway 156 in Hopewell. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 100 ft, screened 84 to 94 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.7 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--March 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.67 ft below land-surface datum, Feb. 24, 1986; lowest measured, 35.28 ft below land-surface datum, Nov. 17, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	35.00	JAN 09	34.97	FEB 24	34.67	JUL 22	35.02	AUG 11	35.03	SEP 29	35.09
NOV 19	34.87										

WATER YEAR 1986 HIGHEST 34.67 FEB 24, 1986 LOWEST 35.09 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	35.28	FEB 23	34.95	MAY 07	34.75	JUN 22	34.88	AUG 04	35.07	SEP 21	35.02
JAN 12	34.96										

WATER YEAR 1987 HIGHEST 34.75 MAY 07, 1987 LOWEST 35.28 NOV 17, 1986

CITY OF HOPEWELL--Continued

371727077160402 Local number, 52G 16 SOW 142B.
LOCATION.--Lat 37°17'27", long 77°16'04", Hydrologic Unit 02080206, 0.2 mi south of State Highway 10, 0.8 mi east of State Highway 156 in Hopewell. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 164 ft, screened 154 to 164 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--March 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.93 ft below land-surface datum, Feb. 24, 1986; lowest measured, 35.82 ft below land-surface datum, Aug. 4, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	35.23	JAN 09	35.43	FEB 24	34.93	JUL 22	35.50	AUG 11	35.56	SEP 29	35.52
NOV 19	34.95										

WATER YEAR 1986 HIGHEST 34.93 FEB 24, 1986 LOWEST 35.56 AUG 11, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	35.47	FEB 23	35.43	MAY 07	35.24	JUN 22	35.64	AUG 04	35.82	SEP 21	35.54
JAN 12	35.29										

WATER YEAR 1987 HIGHEST 35.24 MAY 07, 1987 LOWEST 35.82 AUG 04, 1987

ISLE OF WIGHT COUNTY

364059076544901 Local number, 55B 16.
LOCATION.--Lat 36°40'59", long 76°54'49", Hydrologic Unit 03010202, off U.S. Highways 258 and 58, 0.3 mi east of Franklin. Owner: Union Camp Corporation.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 305 ft, screened 285 to 305 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.45 ft above land-surface datum.
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, 199.86 ft below land-surface datum, Aug. 25, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	188.93	189.75	191.17	189.73	190.07	192.76	192.72	191.99	196.82	193.92	194.46	---
10	190.24	189.97	---	189.68	191.53	193.00	193.04	191.18	196.88	193.10	196.38	---
15	189.65	190.13	189.75	189.38	192.10	193.44	192.35	190.94	195.22	194.22	197.78	193.82
20	189.18	190.31	---	189.27	195.09	193.75	193.22	192.95	195.77	195.19	198.60	195.00
25	188.55	189.67	189.51	188.90	---	194.07	194.19	191.80	195.98	197.21	199.86	194.52
EOM	189.33	188.98	189.36	190.23	193.17	193.09	194.44	195.07	194.65	194.95	---	195.36

WATER YEAR 1987 HIGHEST 187.71 OCT 03, 1986 LOWEST 199.86 AUG 25, 1987

ISLE OF WIGHT COUNTY--Continued

364143076535701 Local number, 55B 25.
LOCATION.--Lat 36°41'43", long 76°53'57", Hydrologic Unit 03010202, at Rose Municipal Airport, 0.3 mi west of U.S. Highway 258, and 1.5 mi northeast of Franklin. Owner: City of Franklin.
AQUIFER.--Sand of Paleocene age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 8 in., depth 167.8 ft, screened 155 to 161 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 36 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.
PERIOD OF RECORD.--November 1942, August 1968, November 1972 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.00 ft below land-surface datum, Nov. 27, 1942; lowest measured, 47.38 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	45.45	MAR 17	45.62	JUN 18	46.17

WATER YEAR 1986 HIGHEST 45.45 DEC 16, 1985 LOWEST 46.17 JUN 18, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 22	46.45	MAR 17	46.30	JUN 12	46.65	SEP 01	47.38

WATER YEAR 1987 HIGHEST 46.30 MAR 17, 1987 LOWEST 47.38 SEP 01, 1987

364125076544801 Local number, 55B 36.
LOCATION.--Lat 36°41'25", long 76°54'48", Hydrologic Unit 03010202, on Lynn Road, 0.45 mi north of intersection with U.S. Highways 258/58, and 0.7 mi northeast of Franklin. Owner: Union Camp Corporation.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 860 ft, screened 720 to 725 ft, 800 to 805 ft, 855 to 860 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 37 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 4.56 ft above land-surface datum.
REMARKS.--Water level affected by local pumpage.
PERIOD OF RECORD.--March 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 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 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	182.70	188.09	186.76	186.48	187.04	189.86	188.25	187.97	188.80	189.80	190.90	192.61
10	182.04	187.64	187.12	186.49	187.26	190.09	188.00	187.96	189.28	189.92	191.09	192.43
15	181.82	187.63	186.82	186.54	188.04	189.75	187.69	187.96	189.28	189.97	191.67	191.30
20	182.24	187.69	186.99	186.95	188.72	189.29	187.41	187.98	189.42	194.80	191.95	190.73
25	183.12	187.21	186.77	186.91	189.36	189.17	187.67	188.07	189.55	191.95	192.22	190.61
EOM	185.21	186.55	186.58	186.90	189.60	188.65	187.97	188.35	189.67	191.42	192.51	190.78

WATER YEAR 1987 HIGHEST 181.82 OCT 15-17, 1986 LOWEST 194.80 JUL 20, 1987

ISLE OF WIGHT COUNTY--Continued

364141076530701 Local number, 55B 43.
LOCATION.--Lat 36°41'46", long 76°53'07", Hydrologic Unit 03010202, off U.S. Highway 58, 2.1 mi east of Franklin. Owner: Ray A. Tillet.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 315 ft, screened 305 to 315 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 30 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of well housing, 3.9 ft above land-surface datum.
PERIOD OF RECORD.--August 1970 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.47 ft below land-surface datum, Aug. 12, 1974; lowest measured, 183.56 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	174.35	JUL 01	175.05

WATER YEAR 1986 HIGHEST 174.35 DEC 16, 1985 LOWEST 175.05 JUL 01, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 23	176.90	MAR 17	179.10	JUN 17	180.80	SEP 01	183.56

WATER YEAR 1987 HIGHEST 176.90 DEC 23, 1986 LOWEST 183.56 SEP 01, 1987

364425076532701 Local number, 55B 45 SOW 033.
LOCATION.--Lat 36°44'25", long 76°53'27", Hydrologic Unit 03010202, 0.8 mi west of intersection of State Highway 611 and U.S. Highway 258, 4.2 mi northeast of Franklin. Owner: R. J. Goodrich.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 348 ft, screened 338 to 348 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 37 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board. Water level affected by local pumpage.
PERIOD OF RECORD.--December 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 130.06 ft below land-surface datum, Aug. 15, 1974; lowest measured, 170.96 ft below land-surface datum, May 7, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	166.00	JAN 12	163.87	MAR 17	165.79	JUN 17	165.95	AUG 04	168.70	SEP 21	164.92
DEC 17	164.79	FEB 23	165.09	MAY 07	170.96	22	166.00	SEP 01	166.33		

WATER YEAR 1987 HIGHEST 163.87 JAN 12, 1987 LOWEST 170.96 MAY 07, 1987

364101076544802 Local number, 55B 60.
LOCATION.--Lat 36°41'01", long 76°54'48", Hydrologic Unit 03010202, 200 ft northwest of intersection of U.S. Highways 58/258 and Lynn Road, 0.3 mi east of Franklin. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 830 ft, diameter 3 in. from 830 to 860 ft, depth 860 ft, screened 830 to 840 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
PERIOD OF RECORD.--May 1979 to September 1983, October 1986 to September 1987. Unpublished records available prior to October 1986 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 168.90 ft below land-surface datum, Sept. 19, 1979; lowest measured, 181.04 ft below land-surface datum, Sept. 25, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	171.57	DEC 23	174.78	FEB 26	177.28	APR 28	179.39	JUN 26	180.48	AUG 26	181.03
29	171.33	JAN 28	175.38	MAR 27	178.38	MAY 26	178.61	JUL 28	179.86	SEP 25	181.04
NOV 25	173.78										

WATER YEAR 1987 HIGHEST 171.33 OCT 29, 1986 LOWEST 181.04 SEP 25, 1987

ISLE OF WIGHT COUNTY--Continued

364101076544803 Local number, 55B 62 SOW 96B.
LOCATION.--Lat 36°41'01", long 76°54'48", Hydrologic Unit 03010202, 200 ft northwest of intersection of U.S. Highways 58/258 and Lynn Road, 0.3 mi east of Franklin. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 30.77 ft, screened 25 to 30 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 27 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.15 ft above land-surface datum.
PERIOD OF RECORD.--May 1979, October 1980 to September 1981, October 1982 to September 1983, October 1984 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.00 ft below land-surface datum, Feb. 26, 1987; lowest measured, 15.38 ft below land-surface datum, Oct. 17, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	10.84	DEC 04	10.28	FEB 06	10.90	APR 10	11.04	JUN 03	11.39	AUG 01	11.43
NOV 14	10.76	JAN 06	10.70	MAR 10	10.97	MAY 02	11.12	JUL 01	11.30	SEP 02	10.88

WATER YEAR 1986 HIGHEST 10.28 DEC 04, 1985 LOWEST 11.43 AUG 01, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	11.30	DEC 23	11.09	MAR 27	10.26	JUN 26	10.76	AUG 26	11.18	SEP 15	11.40
29	10.99	JAN 28	10.03	APR 28	10.13	JUL 28	11.01	SEP 01	11.39	25	11.57
NOV 25	11.11	FEB 26	10.00	MAY 26	10.57						

WATER YEAR 1987 HIGHEST 10.00 FEB 26, 1987 LOWEST 11.57 SEP 25, 1987

365300076380001 Local number, 56B 5.
LOCATION.--Lat 36°42'41", long 76°49'33", Hydrologic Unit 03010202, 0.05 mi south of U.S. Highway 58 in Carrsville. Owner: John Rose.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 6 in., depth 372 ft, screened 352 to 372 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 72 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.
PERIOD OF RECORD.--August 1970 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 163.00 ft below land-surface datum, Aug. 26, 1970; lowest measured, 191.58 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	185.25	MAR 17	185.18	JUN 19	185.05

WATER YEAR 1986 HIGHEST 185.05 JUN 19, 1986 LOWEST 185.25 DEC 16, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 23	189.10	MAR 17	190.26	JUN 12	190.28	SEP 01	191.58

WATER YEAR 1987 HIGHEST 189.10 DEC 23, 1986 LOWEST 191.58 SEP 01, 1987

ISLE OF WIGHT COUNTY--Continued

365305076380001 Local number, 56C 1.
LOCATION.--Lat 36°50'06", long 76°50'03", Hydrologic Unit 03010202, 0.13 mi west of State Highway 614, 2.2 mi south of Zuni. Owner: Zuni Presbyterian Home.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 8 in., depth 434 ft, screened 418 to 434 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 75 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of pump base, 1.7 ft above land-surface datum.
REMARKS.--Water levels affected by pumpage.
PERIOD OF RECORD.--August 1970 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 125.02 ft below land-surface datum, Aug. 27, 1970; lowest measured, 161.99 ft below land-surface datum, June 16, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 17	152.65	MAR 18	151.97	JUN 24	150.77
WATER YEAR 1986	HIGHEST	150.77	JUN 24, 1986	LOWEST	152.65	DEC 17, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 17	158.42	MAR 18	158.35	JUN 16	161.99	SEP 01	156.64
WATER YEAR 1987	HIGHEST	156.64	SEP 01, 1987	LOWEST	161.99	JUN 16, 1987		

364825076441701 Local number, 57C 8.
LOCATION.--Lat 36°48'25", long 76°44'17", Hydrologic Unit 02080208, off U.S. Highway 460, 0.3 mi east-southeast of Windsor. Owner: C. A. Bracey.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 3 in., depth 436 ft, screened 426 to 436 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 81 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.
PERIOD OF RECORD.--October 1968 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 121.75 ft below land-surface datum, Oct. 24, 1968; lowest measured, 166.31 ft below land-surface datum, Feb. 2, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 17	158.06	MAR 18	157.31	JUN 26	158.12
WATER YEAR 1986	HIGHEST	157.31	MAR 18, 1986	LOWEST	158.12	JUN 26, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	MAR 18	165.25	JUN 16	162.88	SEP 01	161.12
WATER YEAR 1987	HIGHEST	161.12	SEP 01, 1987	LOWEST	165.25	MAR 18, 1987

ISLE OF WIGHT COUNTY--Continued

364814076440701 Local number, 57C 25 SOW 149A.
LOCATION.--Lat 36°48'14", long 76°44'07", Hydrologic Unit 02080208, at Windsor Community Center in Windsor.
Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 26 ft, screened 16 to 26 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 70 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--March 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.27 ft above land-surface datum, Feb. 23, 1987; lowest measured, 3.29 ft below land-surface datum, July 22, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	0.85	JAN 08	1.10	FEB 25	0.52	JUL 22	3.29	AUG 12	2.43	SEP 29	2.44
NOV 20	1.00										

WATER YEAR 1986 HIGHEST 0.52 FEB 25, 1986 LOWEST 3.29 JUL 22, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	1.83	FEB 23	+0.27	MAY 07	0.77	JUN 22	2.14	AUG 04	2.30	SEP 21	1.84
JAN 12	.55										

+ Reading above land-surface datum.

WATER YEAR 1987 HIGHEST +0.27 FEB 23, 1987 LOWEST 2.30 AUG 04, 1987

364814076440702 Local number, 57C 26 SOW 149B.
LOCATION.--Lat 36°48'14", long 76°44'07", Hydrologic Unit 02080208, at Windsor Community Center in Windsor.
Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 380 ft, screened 370 to 380 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 70 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--March 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.42 ft below land-surface datum, Feb. 25, 1986; lowest measured, 158.10 ft below land-surface datum, Jan. 12, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	146.84	JAN 08	145.03	FEB 25	144.42	JUL 22	148.38	AUG 12	150.96	SEP 29	153.65
NOV 20	145.70										

WATER YEAR 1986 HIGHEST 144.42 FEB 25, 1986 LOWEST 153.65 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	155.98	FEB 23	154.18	MAY 07	150.60	JUN 22	150.20	AUG 04	150.28	SEP 21	150.04
JAN 12	158.10										

WATER YEAR 1987 HIGHEST 150.04 SEP 21, 1987 LOWEST 158.10 JAN 12, 1987

ISLE OF WIGHT COUNTY--Continued

364814076440704 Local number, 57C 28 SOW 149D.
LOCATION.--Lat 36°48'14", long 76°44'07", Hydrologic Unit 02080208, at Windsor Community Center in Windsor. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 807 ft, screened 797 to 807 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 70 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--March 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 142.80 ft below land-surface datum, Feb. 25, 1986; lowest measured, 155.67 ft below land-surface datum, Jan. 12, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	145.03	JAN 08	143.47	FEB 25	142.80	JUL 22	145.96	AUG 12	148.52	SEP 29	151.25
NOV 20	144.00										

WATER YEAR 1986 HIGHEST 142.80 FEB 25, 1986 LOWEST 151.25 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	153.79	FEB 23	152.05	MAY 07	148.90	JUN 22	148.26	AUG 04	148.20	SEP 21	148.02
JAN 12	155.67										

WATER YEAR 1987 HIGHEST 148.02 SEP 21, 1987 LOWEST 155.67 JAN 12, 1987

365751076433501 Local number, 57D 21 SOW 143A.
LOCATION.--Lat 36°57'51", long 76°43'35", Hydrologic Unit 03010202, 50 ft west of State Highway 652, 0.5 mi south of State Highway 682, and 1.8 mi southwest of Magnet. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 650 ft, screened 640 to 650 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 73 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 122.60 ft below land-surface datum, Aug. 27, 1980; lowest measured, 138.77 ft below land-surface datum, Feb. 23, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	135.04	JAN 09	134.09	FEB 24	133.54	JUL 22	134.35	AUG 11	135.02	SEP 29	136.73
NOV 19	134.49										

WATER YEAR 1986 HIGHEST 133.54 FEB 24, 1986 LOWEST 136.73 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	137.83	FEB 23	138.77	MAY 07	137.49	JUN 22	138.75	AUG 04	138.55	SEP 21	137.82
JAN 12	138.65										

WATER YEAR 1987 HIGHEST 137.49 MAY 07, 1987 LOWEST 138.77 FEB 23, 1987

ISLE OF WIGHT COUNTY--Continued

365751076433502 Local number, 57D 22 SOW 143B.
LOCATION.--Lat 36°57'51", long 76°43'35", Hydrologic Unit 03010202, 50 ft west of State Highway 652, 0.5 mi south of State Highway 682, and 1.8 mi southwest of Magnet. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 350 ft, screened 340 to 350 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 73 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 125.10 ft below land-surface datum, Apr. 24, May 29, 1980; lowest measured, 139.30 ft below land-surface datum, June 22, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	135.32	JAN 09	134.39	FEB 24	133.78	JUL 22	134.57	AUG 11	135.22	SEP 29	136.98
NOV 19	135.72										

WATER YEAR 1986 HIGHEST 133.78 FEB 24, 1986 LOWEST 136.98 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	138.18	FEB 23	139.13	MAY 07	137.77	JUN 22	139.30	AUG 04	137.79	SEP 21	138.02
JAN 12	138.97										

WATER YEAR 1987 HIGHEST 137.77 MAY 07, 1987 LOWEST 139.30 JUN 22, 1987

365751076433503 Local number, 57D 23 SOW 143C.
LOCATION.--Lat 36°57'51", long 76°43'35", Hydrologic Unit 03010202, 50 ft west of State Highway 652, 0.5 mi south of State Highway 682, and 1.8 mi southwest of Magnet. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 18 ft, screened 8 to 18 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 73 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.29 ft below land-surface datum, Feb. 23, 1987; lowest measured, 8.70 ft below land-surface datum, Aug. 11, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	4.56	JAN 09	4.48	FEB 24	3.74	JUL 22	8.55	AUG 11	8.70	SEP 29	8.13
NOV 19	4.60										

WATER YEAR 1986 HIGHEST 3.74 FEB 24, 1986 LOWEST 8.70 AUG 11, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	7.81	FEB 23	2.29	MAY 07	4.44	JUN 22	7.55	AUG 04	6.50	SEP 21	8.03
JAN 12	5.34										

WATER YEAR 1987 HIGHEST 2.29 FEB 23, 1987 LOWEST 8.03 SEP 21, 1987

ISLE OF WIGHT COUNTY--Continued

370236076425901 Local number, 57E 10 SOW 144B.
LOCATION.--Lat 37°02'36", long 76°42'59", Hydrologic Unit 02080206, 0.5 mi east of State Highway 627, 1.0 mi north of State Highway 621, and 2.5 mi southwest of Rushmere. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 440 ft, screened 430 to 440 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 85 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 139.90 ft below land-surface datum, Apr. 24, July 24, 1980; lowest measured, 153.15 ft below land-surface datum, Sept. 21, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	150.68	JAN 09	150.04	FEB 24	149.29	JUL 22	150.27	AUG 11	150.63	SEP 29	151.53
NOV 19	150.41										

WATER YEAR 1986 HIGHEST 149.29 FEB 24, 1986 LOWEST 151.53 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	152.04	FEB 25	152.47	MAY 07	151.95	JUN 20	152.35	AUG 04	152.95	SEP 21	153.15
JAN 12	152.07										

WATER YEAR 1987 HIGHEST 151.95 MAY 07, 1987 LOWEST 153.15 SEP 21, 1987

370253076431201 Local number, 57E 14 SOW 144A.
LOCATION.--Lat 37°02'53", long 76°43'12", Hydrologic Unit 02080208, 0.5 mi east of State Highway 627, 1.0 mi north of State Highway 621, and 2.5 mi southwest of Rushmere. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 590 ft, diameter 3 in. from 590 to 600 ft, depth 600 ft, screened 590 to 600 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 86 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 139.49 ft below land-surface datum, Apr. 24, 1980; lowest measured, 152.69 ft below land-surface datum, Sept. 21, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	150.25	JAN 09	149.64	FEB 24	148.88	JUL 22	149.87	AUG 11	150.23	SEP 29	151.10
NOV 19	150.02										

WATER YEAR 1986 HIGHEST 148.88 FEB 24, 1986 LOWEST 151.10 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	151.60	FEB 25	151.90	MAY 07	151.52	JUN 22	151.90	AUG 04	152.52	SEP 21	152.69
JAN 12	151.62										

WATER YEAR 1987 HIGHEST 151.52 MAY 07, 1987 LOWEST 152.69 SEP 21, 1987

ISLE OF WIGHT COUNTY--Continued

370253076431202 Local number, 57E 15 SOW 144C.
LOCATION.--Lat 37°02'53", long 76°43'12", Hydrologic Unit 02080208, 0.5 mi east of State Highway 627, 1.0 mi north of State Highway 621, and 2.5 mi southwest of Rushmere. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 20 ft, screened 10 to 20 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 86 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.90 ft below land-surface datum, Feb. 25, 1987; lowest measured, 13.29 ft below land-surface datum, Sept. 21, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	2.54	JAN 09	3.43	FEB 24	1.27	JUL 22	13.21	AUG 11	6.13	SEP 29	5.83
NOV 19	3.17										

WATER YEAR 1986 HIGHEST 1.27 FEB 24, 1986 LOWEST 13.21 JUL 22, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	11.67	FEB 25	0.90	MAY 07	2.79	JUN 22	6.20	AUG 04	11.73	SEP 21	13.29
JAN 12	1.72										

WATER YEAR 1987 HIGHEST 0.90 FEB 25, 1987 LOWEST 13.29 SEP 21, 1987

JAMES CITY COUNTY

371311076463601 Local number, 56F 1 SOW 018.
LOCATION.--Lat 37°13'11", long 76°46'36", Hydrologic Unit 02080206, 1,100 ft southwest of Colonial Parkway, 0.5 mi west of State Highway 682, and 0.6 mi north of Jamestown. Owner: U.S. Department of Interior, Colonial National Historical Park.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 346 ft, screened 336 to 346 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top edge of recorder shelf, 3.15 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--May 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.29 ft below land-surface datum, May 8, 1969; lowest measured, 80.09 ft below land-surface datum, Sept. 17, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	78.53	MAR 18	77.90	MAY 04	76.24	JUN 17	78.17	AUG 06	79.75	SEP 17	80.09
JAN 13	78.18										

WATER YEAR 1987 HIGHEST 76.24 MAY 04, 1987 LOWEST 80.09 SEP 17, 1987

KING AND QUEEN COUNTY

373126076454101 Local number, 56J 11 SOW 073.
LOCATION.--Lat 37°31'26", long 76°45'41", Hydrologic Unit 02080105, at West Point Airport, 1.7 mi southeast of West Point. Owner: Chesapeake Corporation.
AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 1,254 ft, screened 1,233 to 1,248 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS.
DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum.
PERIOD OF RECORD.--November 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 73.08 ft below land-surface datum, Apr. 25, 1975; lowest measured, 100.68 ft below land-surface datum, July 23, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 06	92.74	DEC 17	93.39	FEB 03	95.58	MAR 16	98.24	MAY 28	99.72	JUL 23	100.68

WATER YEAR 1987 HIGHEST 92.74 OCT 06, 1986 LOWEST 100.68 JUL 23, 1987

KING AND QUEEN COUNTY--Continued

373008076425601 Local number, 57J 3 SOW 074.
LOCATION.--Lat 37°30'08", long 76°42'56", Hydrologic Unit 02080107, off State Highway 606, 0.4 mi northeast of intersection of State Highways 606 and 605, and 2.8 mi south of Shacklefords. Owner: Chesapeake Corporation.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in. to 200 ft, diameter 4 in. from 200 to 760 ft, depth 760 ft, screened 741 to 756 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS and Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 51 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.20 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--November 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.90 ft below land-surface datum, Jan. 26, 1975; lowest measured, 129.58 ft below land-surface datum, July 23, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 06	127.82	DEC 17	128.08	FEB 03	127.94	MAR 16	128.20	MAY 28	128.76	JUL 23	129.58

WATER YEAR 1987 HIGHEST 127.82 OCT 06, 1986 LOWEST 129.58 JUL 23, 1987

KING WILLIAM COUNTY

373226076481201 Local number, 56J 2.
LOCATION.--Lat 37°32'26", long 76°48'12", State Hydrologic Unit 02080106, 0.1 mi west of State Highway 30, 0.3 mi north of State Highway 33, and in West Point. Owner: Chesapeake Corporation.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused withdrawal water well, diameter 18 in. to 300 ft, diameter 8 in. from 300 to 600 ft, depth 600 ft, screened 390 to 400 ft, 550 to 570 ft, 580 to 600 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
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, 168.01 ft below land-surface datum, Oct. 17, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 03	162.86	MAR 16	165.89	MAY 28	165.95	JUL 23	165.22

WATER YEAR 1987 HIGHEST 162.86 FEB 03, 1987 LOWEST 165.95 MAY 28, 1987

373206076481201 Local number, 56J 18.
LOCATION.--Lat 37°32'06", long 76°48'12", Hydrologic Unit 02080106, near State Highway 33 at Chesapeake Corporation, in brick pump house at northeast corner of 13th and A Streets in West Point. Owner: Chesapeake Corporation.
AQUIFER.--Sand and clay of Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused withdrawal water well, diameter 18 in. to 180 ft, diameter 8 in. from 165 to 446 ft, depth 446 ft, screened 210 to 240 ft, 380 to 390 ft, 405 to 445 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.45 ft above land-surface datum.
REMARKS.--Water levels affected by local pumpage.
PERIOD OF RECORD.--March 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 111.68 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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	161.63	MAR 16	161.57	MAY 28	163.99	JUL 23	161.21
FEB 03	162.33						

WATER YEAR 1987 HIGHEST 161.21 JUL 23, 1987 LOWEST 163.99 MAY 28, 1987

LANCASTER COUNTY

374249076230101 Local number, 59K 1 SOW 015.
LOCATION.--Lat 37°42'49", long 76°23'01", Hydrologic Unit 02080104, at Lancaster County High School in Kilmarnock. Owner: Lancaster County Public Schools.
AQUIFER.--Sand of early Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in. to 163 ft., diameter 2 in. from 163 to 716 ft, depth 716 ft, screened 706 to 716 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 85 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--October 1967 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 95.89 ft below land-surface datum, Feb. 20, 1968; lowest measured, 122.02 ft below land-surface datum, July 16, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	119.72	JAN 08	118.90	MAR 18	118.38	APR 22	118.05	JUL 16	122.02	AUG 06	121.51
NOV 20	118.78	FEB 20	118.16								

WATER YEAR 1986 HIGHEST 118.05 APR 22, 1986 LOWEST 122.02 JUL 16, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	121.74	JAN 13	119.85	MAY 04	118.59	JUN 23	120.15	AUG 05	121.80	SEP 23	122.00
NOV 18	120.67	MAR 18	119.10								

WATER YEAR 1987 HIGHEST 118.59 MAY 04, 1987 LOWEST 122.00 SEP 23, 1987

LOUDOUN COUNTY

391542077423801 Local number, 49Y 1 SOW 022.
LOCATION.--Lat 39°15'42", long 77°42'38", Hydrologic Unit 02070008, 4.2 mi southeast of 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., depth 516 ft, cased to 45 ft, open hole 45 to 516 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 1,100 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	60.73	JAN 06	59.92	MAR 10	57.65	APR 28	56.87	JUN 24	61.10	AUG 04	59.65

WATER YEAR 1987 HIGHEST 56.87 APR 28, 1987 LOWEST 61.10 JUN 24, 1987

LOUDOUN COUNTY-Continued

390623077314201 Local number, 50W 4C.
LOCATION.--Lat 39°06'23", long 77°31'42", Hydrologic Unit 02070008, under water tower 500 ft east of State Highway 7, 0.75 mi east of Leesburg. Owner: Town of Leesburg.
AQUIFER.--Slightly metamorphosed Balls Bluff Formation of Triassic age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 535 ft, cased to 6 ft, open hole 6 to 535 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 400 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
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, 49.06 ft below land-surface datum, Nov. 27, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	48.44	DEC 29	48.02	FEB 04	46.65	FEB 27	41.12	MAR 30	39.56	SEP 30	42.85
NOV 26	48.76										

WATER YEAR 1987 HIGHEST 39.56 MAR 30, 1987 LOWEST 48.76 NOV 26, 1986

LOUISA COUNTY

380217078133701 Local number, 45N 1.
LOCATION.--Lat 38°02'17", long 78°13'43", Hydrologic Unit 02080106, off State Highway 640 on Tyler property, 0.9 mi southeast of Thelma, and 3 mi southwest of Boswells Tavern. Owner: Tyler.
AQUIFER.--Wissahickon Formation of late Precambrian (?) age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 56 ft, length of casing unknown.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 500 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.95 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1952 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.97 ft below land-surface datum, Apr. 30, 1973; lowest measured, 35.17 ft below land-surface datum, Dec. 2, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	26.99	27.80	27.80	25.05	23.53	21.20	20.50	17.41	19.19	22.57	24.20	26.42
10	27.20	28.00	27.30	24.60	23.18	20.70	20.47	17.25	19.51	22.96	24.60	26.27
15	27.30	28.08	26.88	24.38	22.72	20.33	20.42	17.40	19.79	22.45	24.99	26.10
20	27.40	28.13	26.45	24.21	22.50	20.20	18.60	17.83	21.13	22.83	25.41	25.72
25	27.53	28.15	25.79	24.01	22.09	20.30	18.30	18.26	21.59	23.22	25.72	24.80
EOM	27.79	28.10	25.36	23.68	21.81	20.51	17.42	18.59	22.10	23.80	26.10	24.26

WATFR YEAR 1987 HIGHEST 17.18 MAY 07, 1987 LOWEST 28.15 NOV 25, 1986

380043078111301 Local number, 45N 4.
LOCATION.--Lat 38°00'45", long 78°11'14", Hydrologic Unit 02080106, 0.25 mi east of U.S. Highway 15, 4.1 mi south of Boswells Tavern. Owner: Virginia Department of Correction.
AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 200 ft, cased to 42 ft, open hole 42 to 200 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 415 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.3 ft above land-surface datum.
PERIOD OF RECORD.--February 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.40 ft below land-surface datum, Apr. 28, 1980; lowest measured, 14.43 ft below land-surface datum, Aug. 26, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 25	11.85	APR 27	9.97	JUN 29	11.24	AUG 27	12.59
FEB 26	10.41						

WATER YEAR 1987 HIGHEST 9.97 APR 27, 1987 LOWEST 12.59 AUG 27, 1987

LOUISA COUNTY--Continued

380131078001001 Local number, 46N 1 SOW 056.
LOCATION.--Lat 38°01'31", long 78°00'10", Hydrologic Unit 02080106, 200 ft northeast of intersection of State Highway 208 and U.S. Highway 33 in Louisa. Owner: Town of Louisa.
AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 132 ft, length of casing unknown.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 455 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	32.46	JAN 09	32.19	MAR 11	30.90	APR 22	29.32	JUN 29	28.58	AUG 10	28.82

WATER YEAR 1987 HIGHEST 28.58 JUN 29, 1987 LOWEST 32.46 NOV 20, 1986

MIDDLESEX COUNTY

373809076342501 Local number, 58K 1 SOW 031.
LOCATION.--Lat 37°38'09", long 76°34'25", Hydrologic Unit 02080104, 500 ft southeast of intersection of State Highways 227 and 602 in Urbanna. Owner: Town of Urbanna.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 552 ft, screen depth unknown.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 20 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.55 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--May 1970 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 44.33 ft below land-surface datum, May 16, 1970; lowest measured, 63.12 ft below land-surface datum, July 16, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	61.77	JAN 08	62.07	FEB 20	60.72	MAR 18	61.33	JUL 16	63.12	AUG 06	62.91
NOV 20	61.69										

WATER YEAR 1986 HIGHEST 60.72 FEB 20, 1986 LOWEST 63.12 JUL 16, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	61.73	JAN 14	61.12	APR 20	60.67	JUN 23	60.87	AUG 05	61.84	SEP 23	61.77
NOV 19	61.45	MAR 18	60.72								

WATER YEAR 1987 HIGHEST 60.67 APR 20, 1987 LOWEST 61.84 AUG 05, 1987

MONTGOMERY COUNTY

370812080261901 Local number, 27F 2 SOW 019.
LOCATION.--Lat 37°08'12", long 80°26'19", Hydrologic Unit 05050001, off entrance road to Round Meadow Country Club, 400 ft north of State Highway 661, and 0.5 mi west of Christiansburg. Owner: Town of Christiansburg.
AQUIFER.--Beekmantown Formation of early Ordovician age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in., depth 450 ft, length of casing unknown.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,970 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft below land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board. Lowest recorded water level, 7.39 ft, is a result of the Mexico earthquake of Sept. 19, 1985, but is not shown as the minimum of record since it is an earthquake-induced measurement.
PERIOD OF RECORD.--July 1953, April 1969 to current year. Unpublished record available July 1953 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.50 ft below land-surface datum, several days in 1983, 1984, 1987, water flowing over top of casing; lowest recorded, 7.30 ft below land-surface datum, Dec. 5, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.02	4.92	3.45	2.56	1.87	2.22	1.76	1.50	2.40	2.90	4.26	4.63
10	5.13	3.86	3.27	2.57	2.02	1.50	1.86	1.50	2.70	3.41	4.36	3.85
15	4.98	4.03	3.01	2.80	2.14	1.50	2.03	1.51	2.94	3.49	4.55	3.78
20	5.23	4.02	3.02	2.07	2.21	1.50	1.50	1.64	3.08	3.76	4.53	3.92
25	5.20	4.02	2.22	2.18	1.84	1.68	1.50	1.95	3.29	3.93	4.60	---
EOM	5.19	3.69	2.56	2.05	1.80	1.78	1.50	2.17	3.50	4.09	4.49	4.28

WATER YEAR 1987 HIGHEST 1.50 MAR 10, 15, 20, APR 20, 21, 25, 30, MAY 05, 10, 1987
LOWEST 5.25 OCT 18, 1986

NELSON COUNTY

374224078555601 Local number, 39K 1 SOW 006.
LOCATION.--Lat 37°42'24", long 78°55'56", Hydrologic Unit 02080203, 700 ft southeast of intersection of State Highway 655 and U.S. Highway 29 in Colleen. Owner: P. D. Payne.
AQUIFER.--Lovingston (or Marshall?) Formation of Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 275 ft, length of casing unknown.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 770 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	34.21	MAR 02	31.66	APR 27	32.76	JUN 22	31.79	AUG 06	32.31	SEP 18	32.74
JAN 12	34.54										

WATER YEAR 1987 HIGHEST 31.66 MAR 02, 1987 LOWEST 34.54 JAN 12, 1987

NEW KENT COUNTY

372428076561501 Local number, 55H 1 SOW 017.
LOCATION.--Lat 37°24'28", long 76°56'15", Hydrologic Unit 02080206, at city of Newport News pump station, 500 ft upstream from Walkers Dam, and 0.6 mi southeast of 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, screened (slotted casing) 252 to 257 ft, 339 to 344 ft, 439 to 444 ft, 615 to 625 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
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, 59.20 ft below land-surface datum, Sept. 17, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 10	57.89	FEB 27	57.95	APR 30	58.24	JUN 18	58.20	AUG 05	59.03	SEP 17	59.20
JAN 13	57.91										

WATER YEAR 1987 HIGHEST 57.89 NOV 10, 1986 LOWEST 59.20 SEP 17, 1987

CITY OF NEWPORT NEWS

371027076335601 Local number, 58F 1 SOW 002.
LOCATION.--Lat 37°10'27", long 76°33'56", Hydrologic Unit 02080206, on shore of Lee Hall Reservoir, 0.15 mi north of intersection of State Highway 105 and U.S. Highway 60, and 0.65 mi northeast of Fort Eustis in Newport News. Owner: City of Newport News.
AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in. to 431.3 ft, diameter 8 in. to 443.0 ft, diameter 6 in. to 497 ft, depth 443 ft, screen depth unknown.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 20 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.1 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--January 1968 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.76 ft below land-surface datum, May 10, 1969; lowest measured, 94.98 ft below land-surface datum, Sept. 17, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	94.03	JAN 07	90.80	MAR 20	88.75	JUL 16	93.33	AUG 12	94.26	SEP 30	94.86
NOV 19	92.80	FEB 24	89.84								

WATER YEAR 1986 HIGHEST 88.75 MAR 20, 1986 LOWEST 94.86 SEP 30, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	94.13	MAR 17	91.80	MAY 04	91.80	JUN 17	93.52	AUG 06	94.92	SEP 17	94.98
JAN 13	92.68										

WATER YEAR 1987 HIGHEST 91.80 MAR 17, MAY 04, 1987 LOWEST 94.98 SEP 17, 1987

CITY OF NORFOLK

365223076122101 Local number, 61C 1.
LOCATION.--Lat 36°52'23", long 76°12'21", Hydrologic Unit 02080108, at Moores Bridge Filter Plant, 0.3 mi east of intersection of State Highway 165 and U.S. Highway 13 in Norfolk. Owner: City of Norfolk.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 970 ft, screened 900 to 960 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 10.80 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.15 ft above land-surface datum.
REMARKS.--Water level affected by pumping and recharge operations in nearby wells May 18, 1971, to Nov. 5, 1973.
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, 56.70 ft below land-surface datum, Sept. 2, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	54.01	DEC 24	55.20	FEB 19	55.58	MAR 20	55.74	JUN 12	56.23	SEP 02	56.70

WATER YEAR 1987 HIGHEST 54.01 OCT 03, 1986 LOWEST 56.70 SEP 02, 1987

CITY OF NORFOLK--Continued

365221076121302 Local number, 61C 2.
LOCATION.--Lat 36°52'21", long 76°12'15", Hydrologic Unit 02080108, at Moores Bridge Filter Plant, 0.3 mi east of intersection of State Highway 165 and U.S. Highway 13 in Norfolk. Owner: U.S. Geological Survey.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 1,000 ft, screened 900 to 990 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 13.47 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 4.3 ft above land-surface datum.
PERIOD OF RECORD.--October 1968 to February 1984, October 1985 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.8 ft below land-surface datum, Oct. 8, 1968; lowest measured, 58.83 ft below land-surface datum, Sept. 2, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 15	55.60	FEB 07	55.54	MAR 18	55.77	MAY 01	55.66	JUN 19	55.97	AUG 22	56.17
DEC 17	55.47										

WATER YEAR 1986 HIGHEST 55.47 DEC 17, 1985 LOWEST 56.17 AUG 22, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	56.58	DEC 24	57.32	FEB 19	57.74	MAR 20	57.90	JUN 12	58.40	SEP 02	58.83
DEC 21	57.32										

WATER YEAR 1987 HIGHEST 56.58 OCT 03, 1986 LOWEST 58.83 SEP 02, 1987

365221076121303 Local number, 61C 3.
LOCATION.--Lat 36°52'21", long 76°12'15", Hydrologic Unit 02080108, at Moores Bridge Filter Plant, 0.3 mi east of intersection of State Highway 165 and U.S. Highway 13 in Norfolk. Owner: U.S. Geological Survey.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 991 ft, screened 900 to 980.7 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 7 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.22 ft above land-surface datum.
PERIOD OF RECORD.--February 1969 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.30 ft below land-surface datum, Feb. 19, 1969; lowest measured, 54.47 ft below land-surface datum, Sept. 2, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 15	51.12	FEB 07	51.06	MAR 18	51.30	MAY 01	51.17	JUN 19	51.52	AUG 22	51.72
DEC 17	50.97										

WATER YEAR 1986 HIGHEST 50.97 DEC 17, 1985 LOWEST 51.72 AUG 22, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	52.14	MAR 20	53.50	JUN 12	54.01	SEP 02	54.47
FEB 19	53.33						

WATER YEAR 1987 HIGHEST 52.14 OCT 03, 1986 LOWEST 54.47 SEP 02, 1987

ORANGE COUNTY

381002078094201. Local number, 45P 1 SOW 030.
LOCATION.--Lat 38°10'02", long 78°09'42", Hydrologic Unit 02080106, off U.S. Highway 15, 2.3 mi north of Gordonsville. Owner: M. L. Johnson.
AQUIFER.--Phyllite of Evington Group of Cambrian or Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 98 ft, length of casing unknown.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 480 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
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 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	32.27	33.40	30.56	25.73	22.80	19.99	19.67	---	---	23.40	26.40	29.38
10	32.50	33.52	28.90	25.23	21.50	20.20	18.37	---	---	23.91	26.93	28.32
15	32.69	33.47	27.78	24.78	21.89	20.08	18.98	---	---	24.40	27.42	27.69
20	32.83	33.66	27.21	24.70	22.20	20.15	16.82	---	21.50	24.95	27.96	27.37
25	32.99	33.06	26.43	24.08	21.75	20.76	16.68	---	22.20	25.43	28.41	25.70
EOM	33.31	32.48	26.07	23.52	20.89	20.91	---	---	22.90	25.95	28.86	25.52

WATER YEAR 1987 HIGHEST 15.30 APR 29, 1987 LOWEST 33.66 NOV 20, 1986

PRINCE GEORGE COUNTY

371315077171901 Local number, 52F 1 SOW 038.
LOCATION.--Lat 37°13'15", long 77°17'19", Hydrologic Unit 03010202, 0.1 mi north of State Highway 106 in Prince George. Owner: Prince George County.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 180 ft, cased to 170 ft, open hole 170 to 180 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 132 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.4 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--December 1970 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 69.32 ft below land-surface datum, Feb. 4, 1980; lowest measured, 76.62 ft below land-surface datum, Aug. 7, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	75.75	NOV 21	75.00	JAN 09	74.70	FEB 27	73.95	JUL 24	76.48	AUG 07	76.62

WATER YEAR 1986 HIGHEST 73.95 FEB 27, 1986 LOWEST 76.62 AUG 07, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	76.38	JAN 08	75.65	APR 21	74.50	JUN 16	75.35	JUL 28	76.32	SEP 22	76.10
NOV 12	76.20	MAR 03	75.00								

WATER YEAR 1987 HIGHEST 74.50 APR 21, 1987 LOWEST 76.38 OCT 02, 1986

PRINCE WILLIAM COUNTY

384931077420301 Local number, 49U 1.
LOCATION.--Lat 38°49'30", long 77°42'08", Hydrologic Unit 02070010, 500 ft north of State Highway 55, 0.8 mi east of Thoroughfare Gap, and 3.7 mi west of Haymarket. Owner: Virginia Department of Highways and Transportation.
AQUIFER.--Shale and sandtone of Newark Group of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in., depth 345 ft, cased to 20 ft, open hole 20 to 345 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 383 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
PERIOD OF RECORD.--October 1968 to current year. Unpublished records available prior to May 1969 in files of of the Geological Survey.
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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	8.96	JAN 09	5.46	FEB 20	5.02	APR 15	4.30	JUL 09	7.70	AUG 13	8.25
NOV 19	8.39										

WATER YEAR 1987 HIGHEST 4.30 APR 15, 1987 LOWEST 8.96 OCT 08, 1986

385607077381101 Local number, 49V 1.
LOCATION.--Lat 38°56'07", long 77°38'11", Hydrologic Unit 02070010, near intersection of State Highways 600 and 615, 2.8 mi south of Aldie. Owner: J. H. Hutchison.
AQUIFER.--Shale and sandtone 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.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 420 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 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 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.39	11.51	9.18	8.59	8.40	8.11	8.44	9.01	---	---	11.50	11.98
10	11.66	11.14	9.01	8.73	8.19	8.59	7.90	9.05	---	10.70	11.58	---
15	11.55	10.88	8.94	9.05	8.41	8.93	9.30	---	---	10.37	11.75	---
20	11.68	10.98	8.91	8.59	8.91	8.87	7.79	---	---	10.62	11.80	---
25	11.78	10.66	8.58	8.40	8.40	9.26	8.19	---	---	11.01	11.87	---
EOM	11.76	10.39	8.55	8.58	8.74	9.28	8.52	---	---	11.34	11.85	---

WATER YEAR 1987 HIGHEST 7.62 APR 08, 1987 LOWEST 12.02 SEP 04, 1987

383423077245901 Local number, 51S 7.
LOCATION.--Lat 38°34'23", long 77°24'59", Hydrologic Unit 02070011, in Prince William Forest Park, 700 ft north of State Highway 619, 0.7 mi southeast of Belfair Crossroads, and 4.6 mi south of Independent Hill. Owner: National Park Service.
AQUIFER.--Wissahickon Formation of Paleozoic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 490 ft, cased to 50 ft, open hole 50 to 490 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 295 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
PERIOD OF RECORD.--September 1973 to November 1975, December 1977 to current year. Unpublished records available prior to December 1975 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.14 ft below land-surface datum, Apr. 20, 1983; lowest measured, 12.69 ft below land-surface datum, Nov. 7, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.08	12.68	10.37	---	5.74	3.55	2.93	1.32	3.59	6.28	9.18	11.51
10	12.23	12.67	9.95	7.00	5.18	3.85	3.02	2.15	4.24	6.70	9.57	11.18
15	12.38	12.43	9.55	7.11	5.04	3.95	3.29	2.62	4.59	7.19	9.97	10.13
20	12.46	12.38	9.40	6.60	5.07	3.79	1.57	2.97	5.07	7.70	10.36	9.88
25	12.56	11.92	8.21	6.47	4.94	4.01	1.92	3.24	5.49	8.21	10.74	9.64
EOM	12.63	11.60	7.70	6.34	4.69	4.04	2.10	3.63	5.88	8.76	11.13	9.62

WATER YEAR 1987 HIGHEST 0.93 APR 17, 1987 LOWEST 12.69 NOV 07, 1986

PULASKI COUNTY

370516080411501 Local number, 25E 2 SOW 059.
LOCATION.--Lat 37°05'16", long 80°41'15", Hydrologic Unit 05050001, 400 ft east of State Highway 100, 0.5 mi south of Dublin. Owner: Town of Dublin.
AQUIFER.--Conococheague Formation of late Cambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 370 ft, length of casing unknown.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 2,170 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 11	77.14	MAR 11	69.80	APR 21	66.44	JUN 24	79.18	JUL 27	77.20	SEP 15	77.70
JAN 13	77.60										

WATER YEAR 1987 HIGHEST 66.44 APR 21, 1987 LOWEST 79.18 JUN 24, 1987

CITY OF ROANOKE

371653079552101 Local number, 31G 1 SOW 008.
LOCATION.--Lat 37°16'53", long 79°55'21", Hydrologic Unit 03010101, 700 ft south of intersection of 10th Street and Orange Avenue in Roanoke. Owner: Nelson-Roanoke Corporation.
AQUIFER.--Rome Formation of Cambrian age. Prior to 1974, reported as Elbrook Formation.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 48 ft, length of casing unknown.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 930 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.9 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--August 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.21 ft below land-surface datum, Nov. 8, 1985; lowest measured, 23.15 ft below land-surface datum, May 23, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 10	17.59	MAR 10	17.16	APR 20	14.69	JUN 23	19.29	AUG 03	19.21	SEP 16	18.54
JAN 12	17.76										

WATER YEAR 1987 HIGHEST 14.69 APR 20, 1987 LOWEST 19.29 JUN 23, 1987

ROCKBRIDGE COUNTY

373758079271601 Local number, 35K 1 SOW 063.
LOCATION.--Lat 37°37'58", long 79°27'16", Hydrologic Unit 02080202, 0.35 mi northwest of intersection of State Highways 684 and 130 in Glasgow. Owner: Town of Glasgow.
AQUIFER.--Rome Formation of Cambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 695 ft, cased to 101 ft, open hole from 101 to 695 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 745 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--June 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.27 ft below land-surface datum, Apr. 29, 1987; lowest recorded, 29.13 ft below land-surface datum, Dec. 13, 14, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	28.50	29.00	28.29	25.40	23.63	20.78	---	---	---	23.80	25.25	26.40
10	28.63	29.00	28.03	25.30	23.17	20.59	---	---	22.38	24.09	25.50	23.70
15	28.73	29.02	27.61	25.41	23.32	20.59	---	---	22.70	24.28	25.74	23.10
20	28.83	29.10	27.50	25.01	23.63	20.60	16.47	---	23.03	24.58	25.92	23.20
25	28.90	29.10	26.58	24.49	23.18	---	15.80	---	23.35	24.80	26.05	23.35
EOM	29.01	29.07	25.48	24.19	22.81	---	---	---	23.61	25.06	26.20	23.59

WATER YEAR 1987 HIGHEST 14.27 APR 29, 1987 LOWEST 29.10 NOV 19, 20, 25, 26, 1986

ROCKINGHAM COUNTY

382150078424001 Local number, 41Q 1.
LOCATION.--Lat 38°21'50", long 78°42'40", Hydrologic Unit 02070005, at Virginia Department of Highways and Transportation garage, 1.3 mi southeast of McGaheysville. Owner: U.S. Geological Survey.
AQUIFER.--Conococheague Formation of late Cambrian age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6.25 in., depth 310 ft, cased to 131 ft, open hole 131 to 310 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 1,105 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top edge of recorder shelf, 3.5 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 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	80.85	84.66	84.19	78.17	71.59	68.35	67.63	64.03	65.40	66.79	69.29	73.53
10	81.55	84.82	83.69	77.44	70.40	68.04	67.19	64.32	65.58	67.10	69.91	72.48
15	82.16	84.84	82.88	77.01	69.81	67.87	67.14	64.64	65.83	67.46	70.58	70.23
20	82.79	85.03	82.30	76.48	69.65	67.80	62.76	64.89	66.03	67.84	71.30	69.29
25	83.37	85.11	81.56	74.67	69.43	67.87	63.30	65.07	66.20	68.22	71.97	68.43
EOM	84.19	84.97	79.26	73.01	69.21	67.89	63.72	65.37	66.49	68.76	72.80	68.21

WATER YEAR 1987 HIGHEST 62.66 APR 19, 1987 LOWEST 85.12 NOV 26, 1986

SOUTHAMPTON COUNTY

364109077230701 Local number, 51B 3.
LOCATION.--Lat 36°41'09", long 77°23'07", Hydrologic Unit 03010201, 150 ft west (corrected) of the intersection of State Highway 615 and U.S. Highway 58, 0.5 mi south of Adams Grove. Owner: U.S. Geological Survey.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 253 ft, screened 165 to 175 ft, open hole 175 to 253 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 126 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.2 ft above land-surface datum.
PERIOD OF RECORD.--October 1974 to current year. Unpublished records available prior to July 1975 in files of the Geological Survey.
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 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	58.08	58.07	57.59	56.64	55.89	55.35	55.39	55.16	55.94	57.04	58.54	59.63
10	58.20	58.05	57.50	56.57	55.93	55.33	55.47	55.31	56.01	57.41	58.80	59.10
15	58.11	58.00	57.41	56.54	55.92	55.33	55.52	55.53	56.16	57.56	59.03	58.99
20	58.19	57.89	57.36	56.28	55.72	55.36	55.11	55.65	56.49	57.81	59.01	58.90
25	58.21	57.81	57.18	55.81	55.63	55.39	55.07	55.72	56.69	58.17	59.16	58.75
EOM	58.15	57.73	56.89	55.81	55.53	55.40	55.03	55.90	56.86	58.38	59.52	58.70

WATER YEAR 1987 HIGHEST 55.03 APR 30, 1987 LOWEST 59.63 SEP 05, 1987

SOUTHAMPTON COUNTY--Continued

363410077150801 Local number, 52A 1.
LOCATION.--Lat 36°34'10", long 77°15'08", Hydrologic Unit 03010204, along Seaboard Coastline railroad, 0.15 mi northwest of intersection of State Highways 195 and 701 in Branchville. Owner: L. W. Grizzard.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 217 ft, screened 204 to 217 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 44 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
PERIOD OF RECORD.--September 1970 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.85 ft below land-surface datum, Sept. 9, 1970; lowest measured, 48.19 ft below land-surface datum, Aug. 31, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	45.49	MAR 17	45.40	JUN 18	46.32

WATER YEAR 1986 HIGHEST 45.40 MAR 17, 1986 LOWEST 46.32 JUN 18, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 22	47.06	MAR 16	46.32	JUN 11	46.72	AUG 31	48.19

WATER YEAR 1987 HIGHEST 46.32 MAR 16, 1987 LOWEST 48.19 AUG 31, 1987

363916077201002 Local number, 52B 9 SOW 178B.
LOCATION.--Lat 36°39'16", long 77°20'10", Hydrologic Unit 03010204, 0.25 mi northeast of State Highway 661, 0.6 mi south of intersection of State Highways 652 and 661, and 4.5 mi southeast of Drewryville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 329 ft, screened 298 to 308 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 120 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
PERIOD OF RECORD.--December 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 69.23 ft below land-surface datum, May 1-5, 1987; lowest recorded, 69.92 ft below land-surface datum, Dec. 18, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1985 TO SEPTEMBER 1986
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	69.87	---	---	69.47	---	69.78	69.94	---
10	---	---	70.44	---	69.82	---	---	---	---	---	---	---
15	---	---	70.38	---	---	---	---	---	---	---	---	---
20	---	---	70.34	---	---	---	---	---	---	---	---	---
25	---	---	70.24	---	---	---	---	---	---	---	---	---
EOM	---	---	---	---	---	---	---	---	69.76	---	---	---

WATER YEAR 1986 HIGHEST 69.47 MAY 05, 1986 LOWEST 70.44 DEC 10, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	69.79	69.55	69.45	69.35	69.24	69.41	69.59	---	---
10	---	---	---	69.77	69.54	69.42	69.32	69.26	69.41	69.64	---	---
15	---	---	---	69.72	69.52	---	69.33	69.30	69.46	69.66	---	---
20	---	---	69.90	69.72	69.49	69.40	69.29	69.32	69.48	69.67	---	---
25	---	---	69.89	69.72	69.48	69.38	69.27	69.37	69.50	---	---	---
EOM	---	---	69.84	69.56	69.45	69.37	69.24	69.40	69.54	---	---	---

WATER YEAR 1987 HIGHEST 69.23 MAY 01-05, 1987 LOWEST 69.92 DEC 18, 1986

SOUTHAMPTON COUNTY--Continued

363916077201003 Local number, 52B 10, SOW 178C.
LOCATION.--Lat 36°39'16", long 77°20'10", Hydrologic Unit 03010204, 0.25 mi northeast of State Highway 661, 0.6 mi south of intersection of State Highways 652 and 661, and 4.5 mi southeast of Drewryville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 233 ft, screened 218 to 228 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 120 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.9 ft above land-surface datum.
PERIOD OF RECORD.--December 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 69.75 ft below land-surface datum, Apr. 16, 1987; lowest recorded, 72.94 ft below land-surface datum, Sept. 6, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1985 TO SEPTEMBER 1986
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	70.37	70.34	70.27	70.26	70.48	70.96	71.71	72.61	72.30
10	---	---	70.70	70.42	70.38	70.29	70.17	70.54	71.06	71.84	72.70	72.28
15	---	---	70.58	70.45	70.31	70.17	70.23	70.62	71.19	72.02	72.45	72.28
20	---	---	70.51	70.34	70.28	70.21	70.27	70.66	71.33	72.10	72.27	72.27
25	---	---	70.40	70.42	70.29	70.31	70.32	70.72	71.43	72.26	72.45	72.25
EOM	---	---	70.42	70.44	70.23	70.24	70.38	70.80	71.55	72.42	72.40	72.32

WATER YEAR 1986 HIGHEST 70.17 MAR 15, APR 10, 1986 LOWEST 72.75 AUG 11, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	72.34	72.49	72.44	71.99	71.21	70.67	70.10	69.92	70.21	71.00	72.01	72.93
10	72.44	72.55	72.37	71.87	71.08	70.42	70.14	69.91	70.38	71.16	72.21	72.75
15	72.38	72.54	72.35	71.78	70.99	70.39	70.19	69.96	70.41	71.27	72.41	72.76
20	72.46	72.50	72.30	71.55	70.82	70.21	70.07	70.02	70.58	71.50	72.50	72.79
25	72.51	72.46	72.15	71.48	70.79	70.23	69.91	70.09	70.69	71.69	72.63	72.77
EOM	72.53	72.46	72.15	71.22	70.79	70.12	69.91	70.20	70.85	71.86	72.77	72.84

WATER YEAR 1987 HIGHEST 69.75 APR 16, 1987 LOWEST 72.94 SEP 06, 1987

363916077201004 Local number, 52B 11 SOW 178D.
LOCATION.--Lat 36°39'16", long 77°20'10", Hydrologic Unit 03010204, 0.25 mi northeast of State Highway 661, 0.6 mi south of intersection of State Highways 652 and 661, and 4.5 mi southeast of Drewryville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 190 ft, screened 160 to 170 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 120 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.1 ft above land-surface datum.
PERIOD OF RECORD.--December 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 69.81 ft below land-surface datum, Apr. 16, 1987; lowest recorded, 72.99 ft below land-surface datum, Sept. 5, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1985 TO SEPTEMBER 1986
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	70.50	---	70.37	70.38	70.51	71.02	71.74	72.62	72.35
10	---	---	70.79	70.55	70.44	70.42	70.31	70.57	71.12	71.88	72.71	72.33
15	---	---	70.69	70.51	70.39	70.36	70.33	70.65	71.24	72.06	72.48	72.32
20	---	---	70.64	70.45	70.38	70.39	---	70.69	71.36	72.16	72.33	72.32
25	---	---	70.55	70.53	70.39	70.41	---	70.75	71.46	72.28	72.46	72.30
EOM	---	---	70.55	70.49	70.36	70.39	---	70.85	71.58	72.43	72.43	72.36

WATER YEAR 1986 HIGHEST 70.31 APR 10, 1986 LOWEST 72.77 AUG 11, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	72.36	72.49	72.45	72.06	71.26	70.70	70.17	69.97	70.27	71.11	72.11	72.99
10	72.46	72.55	72.39	71.95	71.14	70.46	70.20	69.96	70.42	71.27	72.28	72.79
15	72.39	72.56	72.38	71.84	71.06	---	70.26	70.03	70.49	71.39	72.45	72.79
20	72.47	72.50	72.33	71.57	70.88	70.28	70.13	70.07	70.63	71.58	72.48	72.80
25	72.51	72.47	72.20	71.50	70.85	70.28	69.96	70.16	70.81	71.77	72.68	72.84
EOM	72.53	72.48	72.20	71.27	70.84	70.18	69.96	70.27	70.97	71.95	72.81	72.87

WATER YEAR 1987 HIGHEST 69.81 APR 16, 1987 LOWEST 72.99 SEP 05, 1987

SOUTHAMPTON COUNTY--Continued

363916077201005 Local number, 52B 12 SOW 178E.
LOCATION.--Lat 36°39'16", long 77°20'10", Hydrologic Unit 03010204, 0.25 mi northeast of State Highway 661, 0.6 mi south of intersection of State Highways 652 and 661, and 4.5 mi southeast of Drewryville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 135 ft, screened 120 to 130 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 120 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.2 ft above land-surface datum.
PERIOD OF RECORD.--December 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 68.75 ft below land-surface datum, Apr. 16, 1987; lowest recorded, 71.86 ft below land-surface datum, Sept. 4, 5, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1985 TO SEPTEMBER 1986
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	69.23	69.21	68.97	68.98	69.36	69.91	70.69	71.54	71.21
10	---	---	---	69.27	69.05	68.99	68.96	69.46	70.00	70.83	71.67	71.19
15	---	---	69.48	69.27	68.97	68.97	68.99	69.55	70.13	70.98	71.35	71.18
20	---	---	69.38	69.22	68.97	68.96	69.00	69.62	70.24	71.04	71.15	71.19
25	---	---	69.26	69.33	---	68.99	69.01	69.68	70.35	71.18	71.33	71.17
EOM	---	---	69.27	69.77	68.97	68.97	69.02	69.79	70.49	71.33	71.27	71.22

WATER YEAR 1986 HIGHEST 68.96 MAR 20, APR 10, 1986 LOWEST 71.67 AUG 10, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	71.24	71.39	71.35	70.97	70.12	69.73	69.03	68.86	69.12	69.99	70.98	71.86
10	71.34	71.45	71.28	70.91	70.01	69.26	69.05	68.86	69.27	70.13	71.14	71.69
15	71.27	71.45	71.26	70.83	69.94	---	69.09	68.90	69.35	70.25	71.13	71.69
20	71.35	71.41	71.20	70.46	69.80	69.13	68.99	68.96	69.53	70.46	71.32	71.67
25	71.41	71.39	71.17	70.37	69.76	69.13	68.86	69.01	69.72	70.71	71.56	71.72
EOM	71.42	71.39	71.07	70.14	69.76	69.04	68.87	69.12	69.88	70.86	71.72	71.74

WATER YEAR 1987 HIGHEST 68.75 APR 16, 1987 LOWEST 71.86 SEP 05, 1987

363916077201006 Local number, 52B 13 SOW 178F.
LOCATION.--Lat 36°39'16", long 77°20'10", Hydrologic Unit 03010204, 0.25 mi northeast of State Highway 661, 0.6 mi south of intersection of State Highways 652 and 661, and 4.5 mi southeast of Drewryville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 65 ft, screened 40 to 50 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 120 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.9 ft above land-surface datum.
PERIOD OF RECORD.--December 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 37.90 ft below land-surface datum, Apr. 29, 1987; lowest recorded, 43.49 ft below land-surface datum, Sept. 30, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1985 TO SEPTEMBER 1986
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	39.57	39.27	39.08	39.07	39.13	39.22	39.28	39.53	39.08
10	---	---	39.41	39.63	39.27	39.12	39.05	39.14	39.23	39.34	39.53	39.15
15	---	---	39.51	39.61	39.24	---	39.10	39.12	39.26	39.38	39.35	39.26
20	---	---	39.55	39.59	39.17	---	39.11	39.04	39.29	39.39	39.35	39.37
25	---	---	39.49	39.62	39.13	38.99	39.08	39.11	39.28	39.42	39.21	39.41
EOM	---	---	39.52	39.37	39.09	38.98	39.09	39.15	39.29	39.48	39.08	39.47

WATER YEAR 1986 HIGHEST 38.98 MAR 31, 1986 LOWEST 39.63 JAN 10, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	39.49	39.45	39.47	38.93	38.71	38.49	38.30	38.06	38.35	39.99	40.52	42.20
10	39.54	39.47	39.49	38.93	38.75	38.59	38.27	38.11	38.37	39.95	40.59	42.40
15	39.48	39.47	39.46	38.99	38.81	38.43	38.35	38.19	39.76	39.90	41.26	42.51
20	39.49	39.42	39.33	38.86	38.70	38.37	38.06	38.24	39.98	40.09	41.42	42.64
25	39.51	39.43	39.30	38.57	38.44	38.38	37.97	38.28	39.91	40.24	41.62	43.04
EOM	39.44	39.45	39.11	38.63	38.59	38.35	37.91	38.34	39.93	40.38	41.78	43.49

WATER YEAR 1987 HIGHEST 37.90 APR 29, 1987 LOWEST 43.49 SEP 30, 1987

SOUTHAMPTON COUNTY--Continued

364239077115801 Local number, 53B 1.
LOCATION.--Lat 36°42'39", long 77°11'58", Hydrologic Unit 03010201, 200 ft east of intersection of State Highways 654 and 655 in Capron. Owner: Town of Capron.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled public supply water well, diameter 8 in., depth 221 ft, screened 200 to 221 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 115 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum.
PERIOD OF RECORD.--June 1952, August 1970, November 1972 to December 1975, February 1979 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 74.5 ft below land-surface datum, June 9, 1952; lowest measured, 117.12 ft below land-surface datum, June 11, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

	DATE	WATER LEVEL		DATE	WATER LEVEL
	DEC 16	106.02		MAR 17	105.64
WATER YEAR 1986	HIGHEST	105.64	MAR 17, 1986	LOWEST	106.02 DEC 16, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

	DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL
	DEC 22	109.18		MAR 16	105.60		JUN 11	117.12
WATER YEAR 1987	HIGHEST	105.60	MAR 16, 1987		LOWEST	117.12	JUN 11, 1987	

363722077014601 Local number, 54A 1.
LOCATION.--Lat 36°37'22", long 77°01'46", Hydrologic Unit 03010201, 100 ft west of State Highway 681, 0.5 mi north of intersection of State Highways 681 and 672, and 2.4 mi north of Sunbeam. Owner: William Britt.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 254 ft, screened 244 to 254 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 35 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.03 ft above land-surface datum.
PERIOD OF RECORD.--August 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 113.4 ft below land-surface datum, Aug. 17, 1970; lowest measured, 142.42 ft below land-surface datum, Aug. 31, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

	DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL
	DEC 16	137.60		MAR 17	138.08		JUN 18	137.39
WATER YEAR 1986	HIGHEST	137.39	JUN 18, 1986		LOWEST	138.08	MAR 17, 1986	

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

	DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL		DATE	WATER LEVEL
	DEC 22	138.50		MAR 16	139.72		JUN 11	141.23		AUG 31	142.42
WATER YEAR 1987	HIGHEST	138.50	DEC 22, 1986			LOWEST	142.42	AUG 31, 1987			

SOUTHAMPTON COUNTY--Continued

363915077001101 Local number, 54B 1 SOW 046.
LOCATION.--Lat 36°39'15", long 77°00'11", Hydrologic Unit 03010201, at the Hercules plant on State Highway 650, 0.1 mi north of intersection of State Highways 671 and 650, 0.3 mi northwest of Delaware, and 1.7 mi northeast of Handsom. Owner: Hercules Incorporated.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 20 in. to 200 ft, diameter 10 in. from 200 to 610 ft, depth 610 ft, screened 358 to 368 ft, 390 to 410 ft, 510 to 520 ft, 524 to 534 ft, 590 to 600 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 19.4 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--December 1971 to August 1974, November 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 133.37 ft below land-surface datum, Dec. 1, 1971; lowest measured, 286.00 ft below land-surface datum, May 6, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	273.35	DEC 16	154.42	FEB 24	155.72	JUL 01	172.43	AUG 11	151.52	SEP 29	154.45
NOV 19	152.10	JAN 08	154.18	MAR 17	155.80	23	144.84				

WATER YEAR 1986 HIGHEST 144.84 JUL 23, 1986 LOWEST 273.35 OCT 08, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	153.23	JAN 12	154.94	MAR 16	158.07	JUN 12	172.46	AUG 04	240.00	SEP 21	261.70
DEC 22	153.23	FEB 24	160.67	MAY 06	286.00	22	281.40	31	152.95		

WATER YEAR 1987 HIGHEST 152.95 AUG 31, 1987 LOWEST 286.00 MAY 06, 1987

364307077041002 Local number, 54B 5.
LOCATION.--Lat 36°43'04", long 77°04'16", Hydrologic Unit 03010201, at water tank near the intersection of U.S. Highway 58 and State Highway 35 in the town of Courtland. Owner: Town of Courtland.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 228 ft, screened 200 to 220 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 18 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
PERIOD OF RECORD.--December 1963, September 1968, August 1970, November 1971 to December 1975, February 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 57.00 ft below land-surface datum, December 1963; lowest measured, 131.98 ft below land-surface datum, Mar. 18, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	112.25	MAR 17	90.60	JUN 18	91.64

WATER YEAR 1986 HIGHEST 90.60 MAR 17, 1986 LOWEST 112.25 DEC 16, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 22	92.30	MAR 16	92.70	JUN 11	115.78	AUG 31	97.34

WATER YEAR 1987 HIGHEST 92.30 DEC 22, 1986 LOWEST 115.78 JUN 11, 1987

SOUTHAMPTON COUNTY--Continued

363942077002701 Local number, 54B 12.
LOCATION.--Lat 36°39'42", long 77°00'27", Hydrologic Unit 03010201, off State Highway 650, 0.9 mi north of town of Delaware, and 1.8 mi northeast of Handsom. Owner: L. W. Overby.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 236 ft, screened 226 to 236 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 23 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.8 ft above land-surface datum.
PERIOD OF RECORD.--September 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 122.17 ft below land-surface datum, Dec. 29, 1970; lowest measured, 153.26 ft below land-surface datum, Aug. 31, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 16	145.38	MAR 17	146.02	JUN 18	145.70

WATER YEAR 1986 HIGHEST 145.38 DEC 16, 1985 LOWEST 146.02 MAR 17, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 22	146.60	MAR 16	148.35	JUN 11	151.26	AUG 31	153.26

WATER YEAR 1987 HIGHEST 146.60 DEC 22, 1986 LOWEST 153.26 AUG 31, 1987

364211077054301 Local number, 54B 18.
LOCATION.--Lat 36°42'11", long 77°05'43", Hydrologic Unit 03010201, 600 ft southwest of intersection of State Highway 675 and U.S. Highway 58, 1.75 mi southwest of Courtland. Owner: F. E. Nottingham.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 234 ft, screened 224 to 234 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 50 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.7 ft above land-surface datum.
PERIOD OF RECORD.--September 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 94.75 ft below land-surface datum, Sept. 16, 1970; lowest measured, 114.06 ft below land-surface datum, Aug. 31, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 16	110.19	MAR 17	109.81	JUN 18	110.40

WATER YEAR 1986 HIGHEST 109.81 MAR 17, 1986 LOWEST 110.40 JUN 18, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 22	111.27	MAR 17	111.17	JUN 11	112.35	AUG 31	114.06

WATER YEAR 1987 HIGHEST 111.17 MAR 17, 1987 LOWEST 114.06 AUG 31, 1987

SOUTHAMPTON COUNTY--Continued

364050077011701 Local number, 54B 20.
LOCATION.--Lat 36°40'50", long 77°01'17", Hydrologic Unit 03010201, off unpaved road near Nottoway Swamp, 0.2 mi southwest of U.S. Highway 58, and 2.3 mi southeast of Courtland. Owner: D. R. Bess.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 316 ft, screened 297 to 316 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 22 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of sanitary seal, 1.7 ft above land-surface datum.
PERIOD OF RECORD.--August 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 112.45 ft below land-surface datum, Dec. 29, 1970; lowest measured, 138.54 ft below land-surface datum, June 11, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

		DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
		DEC 16	133.68	MAR 17	134.10	JUN 18	134.04
WATER YEAR 1986	HIGHEST	133.68	DEC 16, 1985	LOWEST	134.10	MAR 17, 1986	

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

		DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
		DEC 22	135.20	MAR 16	136.40	JUN 11	138.54	AUG 31	137.10
WATER YEAR 1987	HIGHEST	135.20	DEC 22, 1986	LOWEST	138.54	JUN 11, 1987			

364121077013701 Local number, 54B 24 SOW 034.
LOCATION.--Lat 36°41'21", long 77°01'37", Hydrologic Unit 03010201, off U.S. Highway 58, 1.7 mi southeast of Courtland. Owner: Clarence Pittman.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 71 ft, diameter 2 in. from 71 to 224 ft, depth 224 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 29 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.2 ft above land-surface datum.
PERIOD OF RECORD.--September 1970 to August 1974, December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 111.82 ft below land-surface datum, Dec. 29, 1970; lowest measured, 133.95 ft below land-surface datum, Aug. 31, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

		DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
		DEC 16	129.57	MAR 17	129.74	JUN 18	129.77
WATER YEAR 1986	HIGHEST	129.57	DEC 16, 1985	LOWEST	129.77	JUN 18, 1986	

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

		DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
		DEC 22	130.85	MAR 16	132.00	JUN 11	133.80	AUG 31	133.95
WATER YEAR 1987	HIGHEST	130.85	DEC 22, 1986	LOWEST	133.95	AUG 31, 1987			

SOUTHAMPTON COUNTY--Continued

364110077011301 Local number, 54B 25.
LOCATION.--Lat 36°41'10", long 77°01'13", Hydrologic Unit 03010201, at the end of State Highway 739, 1.5 mi south of Story. Owner: J. W. Coggsdale.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 245 ft, screened 225 to 245 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
PERIOD OF RECORD.--August 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 110.72 ft below land-surface datum, Dec. 29, 1970; lowest measured, 134.88 ft below land-surface datum, June 11, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 16	130.15	MAR 17	130.35	JUN 18	130.20

WATER YEAR 1986 HIGHEST 130.15 DEC 16, 1985 LOWEST 130.35 MAR 17, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 22	131.35	MAR 16	132.65	JUN 11	134.88	AUG 31	134.70

WATER YEAR 1987 HIGHEST 131.35 DEC 22, 1986 LOWEST 134.88 JUN 11, 1987

364251077004401 Local number, 54B 26.
LOCATION.--Lat 36°42'51", long 77°00'45", Hydrologic Unit 03010201, at Federal Aviation Administration beacon site, 3.3 mi east of Courtland off State Highway 611. Owner: Federal Aviation Administration.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 324 ft, screened 314 to 324 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 81 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
PERIOD OF RECORD.--August 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 167.15 ft below land-surface datum, Aug. 19, 1970; lowest measured, 190.64 ft below land-surface datum, Aug. 31, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 16	184.44	MAR 17	184.52	JUN 18	185.11

WATER YEAR 1986 HIGHEST 184.44 DEC 16, 1985 LOWEST 185.11 JUN 18, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 22	186.16	MAR 17	187.25	JUN 12	189.02	AUG 31	190.64

WATER YEAR 1987 HIGHEST 186.16 DEC 22, 1986 LOWEST 190.64 AUG 31, 1987

SOUTHAMPTON COUNTY--Continued

364706077072301 Local number, 54C 1.
LOCATION.--Lat 36°47'06", long 77°07'23", Hydrologic Unit 03010201, 0.25 mi northwest of intersection of State Highways 35 and 713 in Sebreil. Owner: Norfolk and Western Railway.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in., depth 344 ft, screen depth unknown.
INSTRUMENTATION.--Bimonthly measurement with chaiked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 58.4 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, at land-surface datum.
PERIOD OF RECORD.--1907, July 1938, April 1940 to December 1946, October 1948 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.00 ft below land-surface datum, 1907; lowest measured, 99.22 ft below land-surface datum, Aug. 31, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	97.24	DEC 22	97.58	MAR 16	97.05	MAY 06	97.07	JUN 11	97.63	AUG 31	99.22
NOV 19	97.43	FEB 13	97.16								

WATER YEAR 1987 HIGHEST 97.05 MAR 16, 1987 LOWEST 99.22 AUG 31, 1987

365009077035401 Local number, 54C 4.
LOCATION.--Lat 36°50'11", long 77°03'55", Hydrologic Unit 03010201, 0.25 mi west of State Highway 628, 2.0 mi southwest of Dory, and 5.0 mi northeast of Sebrell. Owner: Al Williams.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 360 ft, screened 343 to 356 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 115 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum.
PERIOD OF RECORD.--February 1968, August 1969 to December 1975, January 1978 to February 1980, February 1983 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 128.00 ft below land-surface datum, Feb. 5, 1968; lowest measured, 152.95 ft below land-surface datum, June 17, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	151.08	MAR 17	150.82	JUN 26	151.67

WATER YEAR 1986 HIGHEST 150.82 MAR 17, 1986 LOWEST 151.67 JUN 26, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	152.90	MAR 17	152.53	JUN 17	152.95

WATER YEAR 1987 HIGHEST 152.53 MAR 17, 1987 LOWEST 152.95 JUN 17, 1987

363632076580101 Local number, 55A 3 SOW 086.
LOCATION.--Lat 36°36'32", long 76°58'01", Hydrologic Unit 03010201, 0.1 mi southeast of intersection of State Highways 689 and 687, 4.0 mi southwest of Franklin. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 745 ft, screened 714 to 724 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 18 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--March 1977, October 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 125.00 ft below land-surface datum, Mar. 18, 1977; lowest measured, 146.65 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	142.50	DEC 16	142.80	FEB 24	143.02	JUN 24	143.66	AUG 11	143.84	SEP 29	143.64
NOV 19	142.69	JAN 08	142.98	MAR 18	143.27	JUL 23	143.78				

WATER YEAR 1986 HIGHEST 142.50 OCT 08, 1985 LOWEST 143.84 AUG 11, 1986

SOUTHAMPTON COUNTY--Continued

363632076580101 55A 3 SOW 086--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	143.49	JAN 12	143.45	MAR 17	143.90	JUN 17	145.20	AUG 04	146.08	SEP 21	146.55
DEC 18	143.71	FEB 24	143.67	MAY 06	144.49	22	145.30	SEP 01	146.65		

WATER YEAR 1987 HIGHEST 143.45 JAN 12, 1987 LOWEST 146.65 SEP 01, 1987

364001076584701 Local number, 55B 40.
LOCATION.--Lat 36°40'01", long 76°58'47", Hydrologic Unit 03010201, 400 ft east of intersection of State Highways 687 and 688, just east of Watkins Corner, and 1.5 mi southwest of Franklin. Owner: Walter D. Young.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 370 ft, screened 353 to 362 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 32 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
PERIOD OF RECORD.--September 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 141.48 ft below land-surface datum, Dec. 29, 1970; lowest measured, 170.23 ft below land-surface datum, June 11, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	163.80	MAR 17	164.55	JUN 18	164.13

WATER YEAR 1986 HIGHEST 163.80 DEC 16, 1985 LOWEST 164.55 MAR 17, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 22	165.44	MAR 17	167.73	JUN 11	170.23	AUG 31	168.60

WATER YEAR 1987 HIGHEST 165.44 DEC 22, 1986 LOWEST 170.23 JUN 11, 1987

364336076575601 Local number, 55B 49.
LOCATION.--Lat 36°43'36", long 76°57'56", Hydrologic Unit 03010202, 0.3 mi northeast of intersection of State Highways 641 and 635, 1.75 mi north of Hunterdale. Owner: Lankford Nursery.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 390 ft, screened 372 to 384 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 96 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
PERIOD OF RECORD.--March 1968, August 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 141.33 ft below land-surface datum, Mar. 22, 1968; lowest measured, 221.03 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	212.40	MAR 17	214.08	JUN 18	215.68

WATER YEAR 1986 HIGHEST 212.40 DEC 16, 1985 LOWEST 215.68 JUN 18, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 22	215.33	MAR 17	216.69	JUN 12	217.85	SEP 01	221.03

WATER YEAR 1987 HIGHEST 215.33 DEC 22, 1986 LOWEST 221.03 SEP 01, 1987

SOUTHAMPTON COUNTY--Continued

364321076595401 Local number, 55B 51.
LOCATION.--Lat 36°43'22", long 76°59'55", Hydrologic Unit 03010201, off State Highway 611, 2.2 mi northwest of Hunterdale. Owner: Owen Wade.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 332 ft, screened 322 to 327 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 66 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of sanitary seal, 1.0 ft above land-surface datum.
PERIOD OF RECORD.--August to December 1970, November 1972 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 154.15 ft below land-surface datum, Dec. 29, 1970; lowest measured, 177.87 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

		DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
		DEC 17	171.89	MAR 17	171.80	JUN 18	172.61
WATER YEAR 1986	HIGHEST	171.80	MAR 17, 1986	LOWEST	172.61	JUN 18, 1986	

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

		DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
		DEC 22	173.63	MAR 17	174.76	JUN 12	176.20	SEP 01	177.87
WATER YEAR 1987	HIGHEST	173.63	DEC 22, 1986	LOWEST	177.87	SEP 01, 1987			

364628076552701 Local number, 55C 3.
LOCATION.--Lat 36°46'28", long 76°55'27", Hydrologic Unit 03010202, off State Highway 635 at Black Creek Baptist Church, 0.2 mi north of Black Creek, and 1.5 mi west of Burdette. Owner: Black Creek Baptist Church.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 312 ft, screened 300 to 312 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 57 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of coupling breather pipe, 1.6 ft above land-surface datum.
PERIOD OF RECORD.--August 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.80 ft below land-surface datum, Dec. 29, 1970; lowest measured, 158.34 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

		DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
		DEC 17	153.04	MAR 17	152.99	JUN 24	154.57
WATER YEAR 1986	HIGHEST	152.99	MAR 17, 1986	LOWEST	154.57	JUN 24, 1986	

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

		DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
		DEC 17	156.16	MAR 17	157.15	JUN 17	157.44	SEP 01	158.34
WATER YEAR 1987	HIGHEST	156.16	DEC 17, 1986	LOWEST	158.34	SEP 01, 1987			

SOUTHAMPTON COUNTY--Continued

365120076585101 Local number, 55C 10.
LOCATION.--Lat 36°51'20", long 76°58'51", Hydrologic Unit 03010202, 100 ft west of State Highway 616, 0.3 mi south of Berlin. Owner: R. L. Hurrup.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 326 ft, screened 316 to 326 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 65 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
PERIOD OF RECORD.--August 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 94.62 ft below land-surface datum, Aug. 21, 1970; lowest measured, 122.49 ft below land-surface datum, Aug. 31, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 17	117.66	MAR 17	117.57	JUN 26	119.63
WATER YEAR 1986	HIGHEST	117.57	MAR 17, 1986	LOWEST	119.63	JUN 26, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 17	119.86	MAR 17	120.40	JUN 17	120.53	AUG 31	122.49
WATER YEAR 1987	HIGHEST	119.86	DEC 17, 1986	LOWEST	122.49	AUG 31, 1987		

365415076535201 Local number, 55D 5.
LOCATION.--Lat 36°54'15", long 76°53'20", Hydrologic Unit 03010202, off State Highway 616, 0.25 mi southwest of intersection of State Highway 616 and U.S. Highway 460 in Ivor. Owner: Town of Ivor.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 8 in., depth 450 ft, screened 384 to 394 ft, 425 to 440 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of water-level access line, 1.75 ft above land-surface datum.
PERIOD OF RECORD.--October 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 120.47 ft below land-surface datum, Nov. 2, 1970; lowest measured, 155.05 ft below land-surface datum, Mar. 16, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	DEC 17	146.22	MAR 18	145.16	JUN 26	146.89
WATER YEAR 1986	HIGHEST	145.16	MAR 18, 1986	LOWEST	146.89	JUN 26, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
	MAR 16	155.05	JUN 16	149.80	AUG 31	150.20
WATER YEAR 1987	HIGHEST	149.80	JUN 16, 1987	LOWEST	155.05	MAR 16, 1987

CITY OF SUFFOLK

363511076492901 Local number, 56A 1 SOW 047.
LOCATION.--Lat 36°35'11", long 76°49'29", Hydrologic Unit 03010203, at intersection of State Highways 666 and 667, 0.5 mi southeast of Cleopus. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower and middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1,149.5 ft, screened 401 to 406 ft, 495 to 500 ft, 628 to 633 ft, 727 to 732 ft, 989 to 999 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 37 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--June 1971 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 101.00 ft below land-surface datum, Nov. 15, 1973; lowest measured, 127.64 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	123.62	DEC 16	123.52	FEB 24	123.53	JUN 24	122.48	AUG 11	123.20	SEP 29	123.66
NOV 19	123.69	JAN 08	123.56	MAR 18	123.58	JUL 23	122.87				

WATER YEAR 1986 HIGHEST 122.48 JUN 24, 1986 LOWEST 123.69 NOV 19, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	124.43	JAN 12	125.05	MAR 17	126.00	JUN 17	126.45	AUG 04	127.30	SEP 21	127.25
DEC 18	124.57	FEB 24	125.63	MAY 06	126.13	22	126.50	SEP 01	127.64		

WATER YEAR 1987 HIGHEST 124.43 NOV 17, 1986 LOWEST 127.64 SEP 01, 1987

363625076522601 Local number, 56A 9 SOW 076A.
LOCATION.--Lat 36°36'25", long 76°52'26", Hydrologic Unit 03010203, 700 ft west of State Highway 615, 8.1 mi south of Holland. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower, middle, and upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 519 ft, screened 452 to 457 ft, 500 to 505 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 80 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 81.99 ft below land-surface datum, Jan. 8, 1979; lowest measured, 89.92 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	87.67	DEC 16	87.89	FEB 24	88.17	JUN 24	88.53	AUG 11	88.69	SEP 29	88.95
NOV 19	87.72	JAN 08	88.14	MAR 18	88.24	JUL 23	87.63				

WATER YEAR 1986 HIGHEST 87.63 JUL 23, 1986 LOWEST 88.95 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	DATE
NOV 17	88.80	JAN 12	88.80	MAR 17	89.05	JUN 17	89.16	AUG 04	SEP 21
DEC 18	88.82	FEB 24	89.09	MAY 06	88.79	22	89.20	SEP 01	

WATER YEAR 1987 HIGHEST 88.79 MAY 06, 1987 LOWEST 89.92 SEP 01, 1987

CITY OF SUFFOLK--Continued

363345076470201 Local number, 56A 10 SOW 088A.
LOCATION.--Lat 36°33'45", long 76°47'02", Hydrologic Unit 03010203, 0.1 mi north of intersection of State Highways 668 and 669, 1.9 mi west of Somerton. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1,060 ft, screened 1,050 to 1,060 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--June 1977 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.70 ft below land-surface datum, June 30, 1980; lowest measured, 124.19 ft below land-surface datum, Mar. 19, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	118.26	DEC 16	118.38	FEB 24	118.49	JUN 24	119.17	AUG 11	119.12	SEP 29	118.65
NOV 19	117.69	JAN 08	118.65	MAR 18	118.82	JUL 23	119.22				

WATER YEAR 1986 HIGHEST 117.69 NOV 19, 1985 LOWEST 119.22 JUL 23, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	119.47	JAN 12	119.64	MAR 17	120.42	JUN 17	121.41	AUG 04	121.80	SEP 21	121.88
DEC 18	119.65	FEB 24	120.04	MAY 06	120.79	22	121.45	SEP 01	122.27		

WATER YEAR 1987 HIGHEST 119.47 NOV 17, 1986 LOWEST 122.27 SEP 01, 1987

363653076455401 Local number, 56A 11 SOW 089.
LOCATION.--Lat 36°36'53", long 76°45'54", Hydrologic Unit 03010203, off State Highway 616, 1.1 mi east of Holy Neck Church, and 3.4 mi north of Somerton. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 861 ft, screened 830 to 840 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 79 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--August 1977 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 154.00 ft below land-surface datum, Aug. 9, 1977; lowest measured, 175.25 ft below land-surface datum, Aug. 4, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	171.16	DEC 16	170.98	FEB 24	170.81	JUN 24	170.42	AUG 11	170.73	SEP 29	171.60
NOV 19	171.00	JAN 08	170.82	MAR 18	171.13	JUL 23	170.37				

WATER YEAR 1986 HIGHEST 170.37 JUL 23, 1986 LOWEST 171.60 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	172.62	JAN 12	173.60	MAR 17	174.70	JUN 17	174.87	AUG 04	175.25	SEP 21	175.16
DEC 18	173.27	FEB 24	174.13	MAY 06	174.49	22	174.70				

WATER YEAR 1987 HIGHEST 172.62 NOV 17, 1986 LOWEST 175.25 AUG 04, 1987

CITY OF SUFFOLK--Continued

363345076470202 Local number, 56A 12 SOW 088B.
LOCATION.--Lat 36°33'45", long 76°47'02", Hydrologic Unit 03010203, 0.1 mi north of intersection of State Highways 668 and 669, 1.9 mi west of Somerton. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 580 ft, screened 570 to 580 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--June 1977 to November 1982, June 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 103.00 ft below land-surface datum, June 30, 1977; lowest measured, 130.35 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	126.22	DEC 16	126.02	FEB 24	125.99	JUN 24	125.77	AUG 11	126.14	SEP 29	126.78
NOV 19	126.23	JAN 08	126.21	MAR 18	126.17	JUL 23	125.74				

WATER YEAR 1986 HIGHEST 125.74 JUL 23, 1986 LOWEST 126.78 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	127.45	JAN 12	128.23	MAR 17	129.13	JUN 17	129.47	AUG 04	130.07	SEP 21	130.18
DEC 18	127.93	FEB 24	128.79	MAY 06	129.18	22	129.55	SEP 01	130.35		

WATER YEAR 1987 HIGHEST 127.45 NOV 17, 1986 LOWEST 130.35 SEP 01, 1987

363625076522602 Local number, 56A 13 SOW 076B.
LOCATION.--Lat 36°36'25", long 76°52'26", Hydrologic Unit 03010203, 700 ft west of State Highway 615, 0.5 mi southwest of Olive Branch Church, and 8.1 mi south of Holland. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 807 ft, screened 797 to 802 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 75 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-suface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--May 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 204.34 ft below land-surface datum, Oct. 26, 1982; lowest measured, 219.46 ft below land-surface datum, Sept. 21, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	209.19	DEC 16	211.71	FEB 24	212.25	JUN 24	210.10	AUG 11	209.74	SEP 29	210.50
NOV 19	210.34	JAN 08	212.59	MAR 18	213.02	JUL 23	210.48				

WATER YEAR 1986 HIGHEST 209.19 OCT 08, 1985 LOWEST 213.02 MAR 18, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	211.47	JAN 12	212.31	MAR 17	214.19	JUN 17	216.33	AUG 04	216.90	SEP 21	219.46
DEC 18	211.42	FEB 24	214.09	MAY 06	213.95	22	212.10	SEP 01	216.97		

WATER YEAR 1987 HIGHEST 211.42 DEC 18, 1986 LOWEST 219.46 SEP 21, 1987

CITY OF SUFFOLK--Continued

363625076522603 Local number, 56A 14 SOW 076C.
LOCATION.--Lat 36°36'25", long 76°52'26", Hydrologic Unit 03010203, 700 ft west of State Highway 615, 0.5 mi southwest of Olive Branch Church, and 8.1 mi south of Holland. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 735 ft, screened 730 to 735 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 75 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--March 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 205.62 ft below land-surface datum, Mar. 7, 1979; lowest measured, 209.40 ft below land-surface datum, Sept. 21, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	207.38	DEC 16	206.51	FEB 24	206.84	JUN 24	207.10	AUG 11	207.15	SEP 29	206.92
NOV 19	206.54	JAN 08	206.63	MAR 18	206.99	JUL 23	207.13				

WATER YEAR 1986 HIGHEST 206.51 DEC 16, 1985 LOWEST 207.38 OCT. 08, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	207.05	JAN 12	207.28	MAR 17	207.87	JUN 17	208.85	AUG 04	207.95	SEP 21	209.40
DEC 18	207.19	FEB 24	207.61	MAY 06	208.20	22	208.50	SEP 01	208.20		

WATER YEAR 1987 HIGHEST 207.05 NOV 17, 1986 LOWEST 209.40 SEP 21, 1987

364051076455601 Local number, 56B 7.
LOCATION.--Lat 36°40'51", long 76°45'56", Hydrologic Unit 03010202, at Virginia Polytechnic Institute and State University Research Station, 0.4 mi south of U.S. Highway 58, and 0.7 mi east of Holland. Owner: Virginia Polytechnic Institute and State University Extension Service.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 6 in., depth 511 ft, screened 490 to 510 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 80 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.
PERIOD OF RECORD.--December 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 154.10 ft below land-surface datum, Dec. 30, 1970; lowest measured, 182.73 ft below land-surface datum, Sept. 1, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	177.05	MAR 18	176.95	JUL 01	176.34

WATER YEAR 1986 HIGHEST 176.34 JUL 01, 1986 LOWEST 177.05 DEC 16, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 23	182.10	MAR 17	182.12	JUN 12	181.80	SEP 01	182.73

WATER YEAR 1987 HIGHEST 181.80 JUN 12, 1987 LOWEST 182.73 SEP 01, 1987

CITY OF SUFFOLK--Continued

363611076400901 Local number, 57A 6 SOW 085.
LOCATION.--Lat 36°36'11", long 76°40'09", Hydrologic Unit 03010203, at Virginia Department of Highways and Transportation shop off U.S. Highway 13, 0.3 mi northeast of Whaleyville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower and middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1,095 ft, screened 660 to 665 ft, 833 to 838 ft, 988 to 993 ft, 1,069 to 1,074 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 73 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.25 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--February 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 137.54 ft below land-surface datum, Mar. 22, 1978; lowest measured, 150.53 ft below land-surface datum, Sept. 2, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	146.73	DEC 17	145.85	FEB 24	146.00	JUN 19	145.79	AUG 11	146.34	SEP 29	147.60
NOV 19	146.68	JAN 08	145.15	MAR 18	145.31	JUL 23	146.05				

WATER YEAR 1986 HIGHEST 145.15 JAN 08, 1986 LOWEST 147.60 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	148.53	JAN 12	150.30	MAR 17	149.84	JUN 22	149.89	AUG 04	150.05	SEP 21	149.93
DEC 23	148.30	FEB 24	149.95	MAY 06	149.89	26	150.20	SEP 02	150.53		

WATER YEAR 1987 HIGHEST 148.30 DEC 23, 1986 LOWEST 150.53 SEP 02, 1987

364013076434601 Local number, 57B 1.
LOCATION.--Lat 36°40'13", long 76°43'46", Hydrologic Unit 03010202, at the Virginia Swine Evaluation Station, 0.2 mi east of State Highway 610, and 2.3 mi southwest of Lummis. Owner: Virginia Cooperative Extension Service.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 496 ft, screened 472 to 496 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 65 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.7 ft above land-surface datum.
PERIOD OF RECORD.--August 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 127.09 ft below land-surface datum, Aug. 26, 1970; lowest measured, 160.65 ft below land-surface datum, Mar. 17, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	155.10	MAR 18	154.75	JUL 01	154.43

WATER YEAR 1986 HIGHEST 154.43 JUL 01, 1986 LOWEST 155.10 DEC 17, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 23	160.05	MAR 17	160.65	JUN 26	160.04	SEP 01	160.50

WATER YEAR 1987 HIGHEST 160.04 JUN 26, 1987 LOWEST 160.65 MAR 17, 1987

CITY OF SUFFOLK--Continued

363834076382301 Local number, 57B 8.
LOCATION.--Lat 36°38'27", long 76°38'05", Hydrologic Unit 03010205, 0.3 mi southwest of State Highway 664, 0.8 mi southeast of U.S. Highway 13, and 1.1 mi south of Nurneysville. Owner: Soren F. Andresen.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled flowing water well, diameter 2 in., depth 65 ft, screened 50 to 65 ft.
INSTRUMENTATION.--Bimonthly measurement with a manometer by USGS personnel.
DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.
PERIOD OF RECORD.--March 1975, November 1977 to current year. Unpublished records available March 1975 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.51 ft above land-surface datum, May 9, 1979; lowest measured, at land-surface datum, Sept. 26, 1980.

WATER LEVEL, IN FEET ABOVE LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	2.05	DEC 23	3.05	FEB 19	6.20	MAR 17	6.40	JUN 26	3.80	SEP 01	2.85

NOTE.--Flowing well, readings given are above land-surface datum.

WATER YEAR 1987 HIGHEST 6.40 MAR 17, 1987 LOWEST 2.05 OCT 29, 1986

363810076381001 Local number, 57B 9.
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 0.9 mi south of Nurneysville. Owner: Soren F. Andresen.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled flowing unused water well, diameter 1.25 in., depth 85 ft, screened 70 to 85 ft.
INSTRUMENTATION.--Bimonthly measurement with a manometer by USGS personnel.
DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.
PERIOD OF RECORD.--August 1975, November 1977 to current year. Unpublished records available August 1975 in files of the Geological Survey.
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 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	0.60	DEC 23	1.90	FEB 19	5.02	MAR 17	5.40	JUN 26	2.38	SEP 01	0.80

NOTE.--Flowing well, readings given are above land-surface datum.

WATER YEAR 1987 HIGHEST 5.40 MAR 17, 1987 LOWEST 0.60 OCT 29, 1986

364655076381101 Local number, 57C 12.
LOCATION.--Lat 36°46'55", long 76°38'11", Hydrologic Unit 02080208, in Idlewood Homes Subdivision near U.S. Highway 460 and State Highway 604, at Providence Church, and 0.6 mi northwest of Kings Fork. Owner: P. D. Pruden.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 6 in., depth 535 ft, screened 515 to 535 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 78 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.
PERIOD OF RECORD.--September 1962, May 1965, September 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 90.00 ft below land-surface datum, Sept. 23, 1962; lowest measured, 172.30 ft below land-surface datum, Feb. 2, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 18	151.95	MAR 17	161.29	JUN 23	158.39

WATER YEAR 1986 HIGHEST 151.95 DEC 18, 1985 LOWEST 161.29 MAR 17, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 18	165.20	JUN 16	159.04	SEP 01	159.79

WATER YEAR 1987 HIGHEST 159.04 JUN 16, 1987 LOWEST 165.20 MAR 18, 1987

CITY OF SUFFOLK--Continued

364703076383701 Local number, 57C 21 SOW 099A.
LOCATION.--Lat 36°47'03", long 76°38'37", Hydrologic Unit 02080208, 700 ft south of U.S. Highway 460, 0.5 mi west of Providence Church, and 1.0 mi west of Kings Fork. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Eocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 248 ft, screened 238 to 248 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 72 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--September 1983 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.32 ft below land-surface datum, Apr. 19, 1984; lowest measured, 48.45 ft below land-surface datum, Aug 5, Sept. 22, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	47.27	JAN 08	47.19	APR 23	47.23	JUL 24	47.68	AUG 12	47.75	SEP 30	48.09
NOV 20	47.19	FEB 25	47.11	JUN 19	47.67						

WATER YEAR 1986 HIGHEST 47.11 FEB 25, 1986 LOWEST 48.09 SEP 30, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	48.17	FEB 23	48.20	MAY 06	47.94	JUL 14	48.31	AUG 05	48.45	SEP 22	48.45
JAN 13	48.20	MAR 25	47.94	JUN 23	48.00						

WATER YEAR 1987 HIGHEST 47.94 MAR 25, MAY 06, 1987 LOWEST 48.45 AUG 05, SEP 22, 1987

364703076383702 Local number, 57C 22 SOW 099B.
LOCATION.--Lat 36°47'03", long 76°38'37", Hydrologic Unit 02080208, 700 ft south of U.S. Highway 460, 0.5 mi west of Providence Church, and 1.0 mi west of Kings Fork. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 694 ft, screened 684 to 694 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 72 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.7 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--February 1980 to current year. Unpublished records available prior to August 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 128.24 ft below land-surface datum, Feb. 18, 1980; lowest recorded, 176.13 ft below land-surface datum, Jan. 13, 14, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	150.42	149.79	149.50	149.22	149.15	149.30	149.82	157.82	165.10	170.33
10	---	---	150.35	149.93	149.44	149.25	149.10	149.33	150.02	159.18	167.10	---
15	---	---	150.17	149.93	149.32	149.13	149.30	149.48	150.18	161.48	168.17	---
20	---	150.93	150.21	149.67	149.27	149.19	149.30	149.48	153.65	162.60	168.97	---
25	---	150.71	150.13	149.79	149.25	149.30	149.27	149.43	155.50	164.07	169.50	---
EOM	---	150.54	150.00	149.55	149.18	149.17	149.28	149.57	156.85	164.51	170.08	164.82

WATER YEAR 1986 HIGHEST 149.10 MAR 14, 15, 31, APR 09, 10, 11, 1986 LOWEST 170.56 SEP 07, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	164.83	172.93	175.32	---	165.19	160.55	158.15	157.31	156.60	156.46	157.05	157.38
10	168.58	173.42	175.76	---	163.91	159.93	157.98	157.18	156.58	156.46	157.00	157.20
15	170.19	173.68	---	176.11	162.88	159.59	158.02	157.10	156.50	156.80	157.10	157.11
20	171.20	174.13	---	175.64	162.07	159.60	157.60	156.90	156.51	156.89	157.16	157.12
25	171.93	174.41	---	169.25	161.40	158.94	157.60	156.80	156.43	156.93	157.35	157.11
EOM	172.54	175.10	---	166.69	161.08	158.48	157.48	156.70	156.44	156.99	157.36	157.10

WATER YEAR 1987 HIGHEST 156.30 JUN 27, 28, 1987 LOWEST 176.13 JAN 13, 14, 1987

CITY OF SUFFOLK--Continued

364703076383703 Local number, 57C 23 SOW 099C.
LOCATION.--Lat 36°47'03", long 76°38'37", Hydrologic Unit 02080208, 700 ft south of U.S. Highway 460, 0.5 mi west of Providence Church, and 1.0 mi west of Kings Fork. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 478 ft, screened 468 to 478 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 72 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--February 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 147.67 ft below land-surface datum, Nov. 5, 1984; lowest measured, 179.35 ft below land-surface datum, Jan. 13, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	154.14	JAN 08	151.70	APR 23	150.48	JUL 24	165.20	AUG 12	170.38	SEP 30	168.34
NOV 20	152.53	FEB 25	150.83	JUN 19	154.41						

WATER YEAR 1986 HIGHEST 150.48 APR 23, 1986 LOWEST 170.38 AUG 12, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	177.63	FEB 23	163.80	MAY 06	160.63	JUL 14	160.07	AUG 05	158.66	SEP 22	159.45
JAN 13	179.35	MAR 25	161.62	JUN 23	160.40						

WATER YEAR 1987 HIGHEST 158.66 AUG 05, 1987 LOWEST 179.35 JAN 13, 1987

364703076383704 Local number, 57C 24 SOW 099D.
LOCATION.--Lat 36°47'03", long 76°38'37", Hydrologic Unit 02080208, 700 ft south of U.S. Highway 460, 0.5 mi west of Providence Church, and 1.0 mi west of Kings Fork. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 25 ft, screened 20 to 25 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 72 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--September 1983 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.60 ft below land-surface datum, Feb. 23, 1987; lowest measured, 15.20 ft below land-surface datum, Nov. 18, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	6.18	JAN 08	7.34	APR 23	9.17	JUL 23	13.89	AUG 12	14.22	SEP 30	13.70
NOV 20	6.39	FEB 25	5.44	JUN 19	13.72						

WATER YEAR 1986 HIGHEST 5.44 FEB 25, 1986 LOWEST 14.22 AUG 12, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	15.20	FEB 23	3.60	MAY 06	5.93	JUL 14	12.50	AUG 05	14.25	SEP 22	9.00
JAN 13	7.32	MAR 25	5.61	JUN 23	10.26						

WATER YEAR 1987 HIGHEST 3.60 FEB 23, 1987 LOWEST 15.20 NOV 18, 1986

CITY OF SUFFOLK--Continued

363704076334501 Local number, 58A 1 SOW 036.
LOCATION.--Lat 36°37'02", long 76°33'45", Hydrologic Unit 03010205, 200 ft west of State Highway 604, 1.9 mi east of Cypress Chapel. Owner: Union Camp Corporation.
AQUIFER.--Sand of Eocene age.
WELL CHARACTERISTICS.--Jetted unused water well, diameter 3 in., depth 420 ft, screened 410 to 420 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 32 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--January 1938, February 1960, September 1970 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.05 ft below land-surface datum, Jan. 1, 1938; lowest measured, 18.11 ft below land-surface datum, Sept. 2, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	16.18	DEC 17	16.10	FEB 24	16.04	JUN 19	16.90	AUG 12	17.16	SEP 29	17.23
NOV 21	16.09	JAN 08	16.24	MAR 18	16.29	JUL 23	17.08				

WATER YEAR 1986 HIGHEST 16.04 FEB 24, 1986 LOWEST 17.23 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	17.33	JAN 12	17.11	MAR 16	17.10	JUN 17	17.50	SEP 02	18.11	SEP 21	17.75
DEC 23	17.40	FEB 24	16.95	MAY 06	17.12	AUG 04	17.95				

WATER YEAR 1987 HIGHEST 16.95 FEB 24, 1987 LOWEST 18.11 SEP 02, 1987

363408076350001 Local number, 58A 2 SOW 042.
LOCATION.--Lat 36°34'08", long 76°35'00", Hydrologic Unit 03010205, 200 ft southwest of intersection of State Highways 32 and 678, 1.3 mi north of North Carolina State line, and 3.4 mi south of Cypress Chapel. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower, middle, and upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 1,920 ft, screened 481 to 486 ft, 730 to 735 ft, 947 to 952 ft, 1,115 to 1,120 ft, 1,222 to 1,227 ft, 1,427 to 1,432 ft, 1,537 to 1,542 ft, 1,874 to 1,879 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 58 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--December 1971 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 72.52 ft below land-surface datum, Dec. 1, 1971; lowest measured, 95.64 ft below land-surface datum, Sept. 2, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	92.55	DEC 17	91.89	FEB 24	91.68	JUN 19	92.35	AUG 12	92.70	SEP 29	93.02
NOV 21	92.12	JAN 08	92.05	MAR 18	91.92	JUL 23	92.47				

WATER YEAR 1986 HIGHEST 91.68 FEB 24, 1986 LOWEST 93.02 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	93.74	JAN 12	93.90	MAR 16	93.84	JUN 17	94.16	AUG 04	94.60	SEP 21	94.88
DEC 23	94.23	FEB 24	94.55	MAY 06	94.77	22	94.20	SEP 02	95.64		

WATER YEAR 1987 HIGHEST 93.74 NOV 18, 1986 LOWEST 95.64 SEP 02, 1987

CITY OF SUFFOLK--Continued

363353076331701 Local number, 58A 23.
LOCATION.--Lat 36°33'53", long 76°33'17", Hydrologic Unit 03010205, 200 ft north of State Highway 678, 400 ft west of State Highway 604, and 12.1 mi south of Suffolk. Owner: Raymond R. Brinkley.
AQUIFER.--Sand of Eocene age.
WELL CHARACTERISTICS.--Drilled used water well, diameter 4 in. to 80 ft, 2 in. from 80 to 420 ft, depth 420 ft, screened 410 to 420 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 60 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.67 ft above land-surface datum.
REMARKS.--Water level affected by pumpage.
PERIOD OF RECORD.--November 1977 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.46 ft below land-surface datum, Apr. 22, 1980; lowest measured, 40.85 ft below land-surface datum, Dec. 23, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	39.41	MAR 18	39.55	JUN 19	40.06

WATER YEAR 1986 HIGHEST 39.41 DEC 17, 1985 LOWEST 40.06 JUN 19, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 23	40.85	MAR 16	40.11	JUN 17	39.62

WATER YEAR 1987 HIGHEST 39.62 JUN 17, 1987 LOWEST 40.85 DEC 23, 1986

363303076330201 Local number, 58A 75 SOW 170.
LOCATION.--Lat 36°33'03", long 76°33'02", Hydrologic Unit 03010205, 100 ft north of North Carolina State line, 0.4 mi east of Desert Road, and 5.0 mi southeast of Cypress Chapel. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 535 ft, screened 525 to 535 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 40 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.52 ft below land-surface datum, July 11, 1985; lowest measured, 27.60 ft below land-surface datum, Aug. 4, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	25.90	JAN 08	25.92	FEB 24	25.73	JUL 23	26.74	AUG 12	26.77	SEP 29	27.04
NOV 21	25.74										

WATER YEAR 1986 HIGHEST 25.73 FEB 24, 1986 LOWEST 27.04 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	27.02	FEB 24	26.63	MAY 06	26.61	JUN 22	26.70	AUG 04	27.60	SEP 21	27.45
JAN 12	26.77										

WATER YEAR 1987 HIGHEST 26.61 MAY 06, 1987 LOWEST 27.60 AUG 04, 1987

CITY OF SUFFOLK--Continued

363655076332002 Local number, 58A 77 SOW 180A.
LOCATION.--Lat 36°36'55", long 76°33'20", Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 1,158 ft, diameter 3 in. from 1,136 to 1,209 ft, depth 1,209 ft, screened 1,199 to 1,209 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 34.02 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.
PERIOD OF RECORD.--February to September 1987.
EXTREMES FOR PERIOD FEBRUARY TO SEPTEMBER 1987.--Highest water level recorded, 96.84 ft below land-surface datum, Sept. 17, 1987; lowest recorded, 97.85 ft below land-surface datum, Feb. 16, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, FEBRUARY TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	97.73	97.34	97.19	97.07	97.45	97.54	97.25
10	---	---	---	---	97.81	97.64	97.35	97.20	97.17	97.48	97.46	97.09
15	---	---	---	---	97.84	97.59	97.40	97.22	97.07	97.46	97.56	96.92
20	---	---	---	---	97.78	97.50	97.25	97.22	97.47	97.55	97.47	96.91
25	---	---	---	---	97.74	97.50	97.22	97.23	97.43	97.59	97.54	96.94
EOM	---	---	---	---	97.76	97.39	97.19	97.19	97.50	97.58	97.51	96.92

PERIOD FEBRUARY TO SEPTEMBER 1987 HIGHEST 96.84 SEP 17, 1987 LOWEST 97.85 FEB 16, 1987

363655076332003 Local number, 58A 78 SOW 180B.
LOCATION.--Lat 36°36'55", long 76°33'20", Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 811 ft, diameter 2 in. from 766 to 850 ft, 860 to 880 ft, depth 880 ft, screened 850 to 860 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 34.02 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.
PERIOD OF RECORD.--February to September 1987.
EXTREMES FOR PERIOD FEBRUARY TO SEPTEMBER 1987.--Highest water level recorded, 102.14 ft below land-surface datum, June 5, 27, 1987; lowest recorded, 103.22 ft below land-surface datum, Feb. 6, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, FEBRUARY TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	102.98	102.50	102.27	102.17	102.26	102.51	102.70
10	---	---	---	---	103.19	102.87	102.50	102.27	102.24	102.30	102.49	102.52
15	---	---	---	---	103.19	102.82	102.53	102.29	102.18	102.30	102.62	102.34
20	---	---	---	---	103.10	102.73	102.38	102.29	102.28	102.40	102.64	102.33
25	---	---	---	---	103.03	102.68	102.32	102.29	102.19	102.48	102.67	102.37
EOM	---	---	---	---	103.03	102.56	102.29	102.27	102.28	102.52	102.66	102.34

PERIOD FEBRUARY TO SEPTEMBER 1987 HIGHEST 102.14 JUN 05, 27, 1987 LOWEST 103.22 FEB 06, 1987

363655076332004 Local number, 58A 79 SOW 180C.
LOCATION.--Lat 36°36'55", long 76°33'20", Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 670 ft, diameter 2 in. from 657 to 710 ft, depth 710 ft, screened 700 to 710 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 33.97 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.4 ft above land-surface datum.
PERIOD OF RECORD.--February to September 1987.
EXTREMES FOR PERIOD FEBRUARY TO SEPTEMBER 1987.--Highest water level recorded, 102.72 ft below land-surface datum, May 11, 1987; lowest recorded, 104.18 ft below land-surface datum, Feb. 6, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, FEBRUARY TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	103.92	103.41	103.15	103.03	103.08	103.36	103.54
10	---	---	---	---	104.16	103.80	103.41	103.15	103.09	103.08	103.31	103.35
15	---	---	---	---	104.14	103.74	103.44	103.16	103.04	103.10	103.45	103.15
20	---	---	---	---	104.05	103.64	103.28	103.15	103.08	103.26	103.36	103.15
25	---	---	---	---	103.97	103.60	103.22	103.16	103.05	103.32	103.47	103.19
EOM	---	---	---	---	103.98	103.48	103.18	103.14	103.08	103.35	103.45	103.18

PERIOD FEBRUARY TO SEPTEMBER 1987 HIGHEST 102.72 MAY 11, 1987 LOWEST 104.18 FEB 06, 1987

CITY OF SUFFOLK--Continued

363655076332006 Local number, 58A 81 SOW 180E.
LOCATION.--Lat 36°36'55", long 76°33'20", Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Paleocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 309 ft, diameter 2 in. from 298 to 329 ft, depth 329 ft, screened 319 to 329 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 34.00 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.4 ft above land-surface datum.
PERIOD OF RECORD.--February to September 1987.
EXTREMES FOR PERIOD FEBRUARY TO SEPTEMBER 1987.--Highest water level recorded, 15.07 ft below land-surface datum, Feb. 23, 1987; lowest recorded, 16.21 ft below land-surface datum, Sept. 4, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, FEBRUARY TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	15.42	15.31	15.39	15.56	15.85	16.15	16.19
10	---	---	---	---	15.41	15.37	15.34	15.43	15.67	15.90	16.07	16.07
15	---	---	---	---	15.43	15.35	15.42	15.51	15.66	15.94	16.15	15.94
20	---	---	---	---	15.40	15.31	15.34	15.56	15.73	16.10	16.07	15.94
25	---	---	---	---	15.39	15.35	15.34	15.61	15.75	16.10	16.15	15.98
EOM	---	---	---	---	15.40	15.31	15.38	15.65	15.85	16.14	16.13	15.96

PERIOD FEBRUARY TO SEPTEMBER 1987 HIGHEST 15.07 FEB 23, 1987 LOWEST 16.21 SEP 04, 1987

363655076332007 Local number, 58A 82 SOW 180F.
LOCATION.--Lat 36°36'55", long 76°33'20", Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Eocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 274 ft, diameter 2 in. from 262 to 306 ft, depth 306 ft, screened 286 to 306 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 33.87 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.
PERIOD OF RECORD.--February to September 1987.
EXTREMES FOR PERIOD FEBRUARY TO SEPTEMBER 1987.--Highest water level recorded, 6.12 ft below land-surface datum, Apr. 13, 1987; lowest recorded, 12.33 ft below land-surface datum, Sept. 4, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, FEBRUARY TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	11.66	11.61	11.49	11.34	11.60	11.93	12.24	12.32
10	---	---	---	---	11.63	11.56	10.84	11.43	11.71	11.97	12.14	12.21
15	---	---	---	---	11.64	11.56	10.72	11.50	11.71	12.02	12.23	12.05
20	---	---	---	---	11.60	11.51	11.15	11.58	11.80	12.11	12.13	12.07
25	---	---	---	---	11.59	11.52	11.16	11.63	11.82	12.17	12.21	12.10
EOM	---	---	---	---	11.60	11.47	11.30	11.70	11.93	12.22	12.19	12.10

PERIOD FEBRUARY TO SEPTEMBER 1987 HIGHEST 6.12 APR 13, 1987 LOWEST 12.33 SEP 04, 1987

363655076332008 Local number, 58A 83 SOW 180G.
LOCATION.--Lat 36°36'55", long 76°33'20", Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 145 ft, diameter 2 in. from 135 to 165 ft, depth 165 ft, screened 155 to 165 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 33.84 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.
PERIOD OF RECORD.--February to September 1987.
EXTREMES FOR PERIOD FEBRUARY TO SEPTEMBER 1987.--Highest water level recorded, 6.46 ft below land-surface datum, Apr. 20, 1987; lowest recorded, 8.68 ft below land-surface datum, Apr. 15, 1987, due to pumpage at unknown location.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, FEBRUARY TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	8.42	8.16	7.79	7.46	7.36	7.57	7.94	8.11
10	---	---	---	---	8.39	8.07	7.75	7.47	7.44	7.60	7.85	8.04
15	---	---	---	---	8.39	8.03	*8.68	7.50	7.43	7.65	7.96	7.90
20	---	---	---	---	8.30	7.96	7.68	7.50	7.48	7.74	7.87	7.95
25	---	---	---	---	8.24	7.95	7.54	7.50	7.48	7.82	7.99	8.02
EOM	---	---	---	---	8.23	7.84	7.53	7.50	7.57	7.90	8.02	8.05

PERIOD FEBRUARY TO SEPTEMBER 1987 HIGHEST 6.46 APR 20, 1987 LOWEST *8.68 APR 15, 1987

* Due to pumpage at unknown location.

CITY OF SUFFOLK--Continued

363655076332009 Local number, 58A 84 SOW 180H.
LOCATION.--Lat 36°36'55", long 76°33'20", Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 20 ft, screened 10 to 20 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 33.87 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.
PERIOD OF RECORD.--February to September 1987.
EXTREMES FOR PERIOD FEBRUARY TO SEPTEMBER 1987.--Highest water level recorded, 2.73 ft below land-surface datum, Mar. 1, 1987; lowest recorded, 8.03 ft below land-surface datum, Sept. 12, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, FEBRUARY TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	4.78	3.66	4.26	4.04	4.89	5.98	7.17	7.96
10	---	---	---	---	4.85	3.83	4.35	4.23	5.08	6.16	7.30	7.98
15	---	---	---	---	4.86	3.76	4.44	4.40	5.21	6.37	7.46	7.88
20	---	---	---	---	4.03	3.88	4.08	4.63	5.40	6.57	7.49	7.30
25	---	---	---	---	3.64	4.10	4.02	4.79	5.60	6.77	7.66	7.31
EOM	---	---	---	---	3.76	4.26	4.22	4.99	5.81	7.00	7.81	7.44

PERIOD FEBRUARY TO SEPTEMBER 1987 HIGHEST 2.73 MAR 01, 1987 LOWEST 8.03 SEP 12, 1987

363928076332901 Local number, 58B 13.
LOCATION.--Lat 36°39'28", long 76°33'29", Hydrologic Unit 03010205, 700 ft east of State Highway 642, 4.0 mi south of Suffolk. Owner: Melvin Brinkley.
AQUIFER.--Sand of Pleistocene age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 22 in., depth 15 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 40 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.9 ft above land-surface datum.
PERIOD OF RECORD.--March 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 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.18	12.85	13.18	12.04	8.06	5.65	6.82	7.04	8.40	9.68	10.86	11.15
10	12.33	12.90	13.22	12.14	7.96	5.71	7.06	6.95	8.53	9.86	10.92	11.18
15	12.49	12.96	13.25	12.17	8.11	5.61	7.34	7.29	8.67	10.05	10.99	9.60
20	12.60	13.01	13.26	10.50	7.10	6.03	6.60	7.54	8.94	10.25	11.04	9.10
25	12.69	13.08	12.76	9.50	5.90	6.54	6.73	7.84	9.19	10.46	11.06	8.89
EOM	12.77	13.13	12.82	7.81	5.91	6.64	6.64	8.23	9.46	10.75	11.10	9.16

WATER YEAR 1987 HIGHEST 5.61 MAR 15, 1987 LOWEST 13.33 DEC 23, 1986

364328076345201 Local number, 58B235.
LOCATION.--Lat 36°43'30", long 76°34'51", Hydrologic Unit 02080208, in the Planters Peanut Plant, 0.3 mi southeast of intersection of State Highway 337 and U.S. Highway 13 in Suffolk. Owner: Planters Peanut Company.
AQUIFER.--Sand of upper 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 ft, depth 570 ft, screened 530 to 561.6 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 53 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.5 ft above land-surface datum.
PERIOD OF RECORD.--August 1919, November 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.0 ft below land-surface datum, Aug. 4, 1919; lowest measured, 153.21 ft below land-surface datum, Dec. 23, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	144.48	DEC 23	153.21	FEB 19	143.53	MAR 20	141.58	JUN 26	139.44	SEP 02	140.02

WATER YEAR 1987 HIGHEST 139.44 JUN 26, 1987 LOWEST 153.21 DEC 23, 1986

CITY OF SUFFOLK--Continued

364318076365501 Local number, 58B268 SOW 169A.
LOCATION.--Lat 36°43'18", long 76°36'55", Hydrologic Unit 02080208, 500 ft north of Norfolk and Western Railroad near Lake Kilby, 0.5 mi west of Suffolk. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 20 ft, screened 12 to 20 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 35 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--February to September 1987.
EXTREMES FOR PERIOD FEBRUARY TO SEPTEMBER 1987.--Highest water level measured, 6.44 ft below land-surface datum, Feb. 24, 1987; lowest measured, 9.38 ft below land-surface datum, June 22, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, FEBRUARY TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 24	6.44	JUN 22	9.38	AUG 04	9.30	SEP 21	8.08
MAY 06	7.71						

PERIOD FEBRUARY TO SEPTEMBER 1987 HIGHEST 6.44 FEB 24, 1987 LOWEST 9.38 JUN 22, 1987

364318076365502 Local number, 58B269 SOW 169B.
LOCATION.--Lat 36°43'18", long 76°36'55", Hydrologic Unit 02080202, 500 ft north of Norfolk and Western Railroad near Lake Kilby, 0.5 mi west of Suffolk. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Paleocene age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 360 ft, screened 350 to 360 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 35 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.06 ft below land-surface datum, July 8, 1985; lowest measured, 46.96 ft below land-surface datum, Aug. 4, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	43.30	JAN 08	43.45	FEB 25	43.50	JUL 23	44.72	AUG 12	44.78	SEP 30	45.11
NOV 19	43.41										

WATER YEAR 1986 HIGHEST 43.30 OCT 08, 1985 LOWEST 45.11 SEP 30, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	44.62	JAN 12	46.05	MAY 06	45.76	JUN 22	46.12	AUG 04	46.96	SEP 22	46.44
NOV 17	45.57	FEB 24	45.52								

WATER YEAR 1987 HIGHEST 44.62 OCT 27, 1986 LOWEST 46.96 AUG 04, 1987

364318076365503 Local number, 58B270 SOW 169C.
LOCATION.--Lat 36°43'18", long 76°36'55", Hydrologic Unit 02080208, 500 ft north of Norfolk and Western Railroad near Lake Kilby, 0.5 mi west of Suffolk. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 500 ft, screened 490 to 500 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 35 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 112.59 ft below land-surface datum, Feb. 25, 1986; lowest measured, 131.90 ft below land-surface datum, Jan. 12, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	113.57	JAN 08	113.35	FEB 25	112.59	JUL 23	116.12	AUG 12	125.98	SEP 30	128.40
NOV 19	113.93										

WATER YEAR 1986 HIGHEST 112.59 FEB 25, 1986 LOWEST 128.40 SEP 30, 1986

CITY OF SUFFOLK--Continued

364318076365503 58B270--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	129.58	JAN 12	131.90	MAY 06	124.61	JUN 22	124.47	AUG 04	124.62	SEP 22	123.98
NOV 17	130.10	FEB 24	127.64								

WATER YEAR 1987 HIGHEST 123.98 SEP 22, 1987 LOWEST 131.90 JAN 12, 1987

364317076363501 Local number, 58B271 SOW 169D.
LOCATION.--Lat 36°43'17", long 76°36'35", Hydrologic Unit 02080208, 200 ft south of Norfolk and Western Railroad near Lake Kilby, 0.5 mi west of Suffolk. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 710 ft, screened 501 to 506 ft, 632 to 637 ft, 700 to 710 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 29 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.70 ft below land-surface datum, Feb. 25, 1986; lowest recorded, 147.30 ft below land-surface datum, Dec. 23, 24, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	111.06	JAN 08	108.65	FEB 25	107.70	JUL 23	117.63	AUG 12	120.33	SEP 30	122.54
NOV 19	109.39										

WATER YEAR 1986 HIGHEST 107.70 FEB 25, 1986 LOWEST 122.54 SEP 30, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	124.55	145.09	127.08	123.72	120.95	119.30	118.64	117.88	117.86	118.14	118.20
10	---	124.98	145.89	126.36	123.00	120.42	119.20	118.31	117.88	117.90	118.30	117.91
15	---	125.18	146.59	126.12	122.38	120.23	119.21	118.27	118.18	117.81	118.36	117.72
20	---	125.23	147.06	125.40	122.01	119.98	118.86	118.19	117.92	117.98	118.08	117.70
25	---	139.20	147.21	125.16	121.57	120.18	118.88	118.12	117.80	118.14	118.19	117.78
EOM	124.38	143.66	128.67	124.30	121.36	119.41	---	118.09	117.83	118.34	118.19	117.78

WATER YEAR 1987 HIGHEST 117.50 SEP 18, 1987 LOWEST 147.30 DEC 23, 24, 1986

364319076365501 Local number, 58B272 SOW 169E.
LOCATION.--Lat 36°43'19", long 76°36'55", Hydrologic Unit 02080208, 400 ft south of Norfolk and Western Railroad near Lake Kilby, 0.6 mi west of Suffolk. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 733 ft, screened 498 to 508 ft, 550 to 555 ft, 702 to 712 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 41 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 111.54 ft below land-surface datum, Feb. 25, 1986; lowest measured, 136.72 ft below land-surface datum, Feb. 24, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	114.92	NOV 19	112.73	JAN 08	112.68	FEB 25	111.54

WATER YEAR 1986 HIGHEST 111.54 FEB 25, 1986 LOWEST 114.92 OCT 08, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 24	136.72	MAY 06	134.17	AUG 04	134.10	SEP 22	133.72

WATER YEAR 1987 HIGHEST 133.72 SEP 22, 1987 LOWEST 136.72 FEB 24, 1987

CITY OF SUFFOLK--Continued

364348076363201 Local number, 58B273 SOW 169F.
LOCATION.--Lat 36°43'48", long 76°36'32", Hydrologic Unit 02080208, 100 ft south of U.S. Highway 58 near Lake Kilby, 0.2 mi west of Suffolk. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 661 ft, screened 541 to 546 ft, 567 to 572 ft, 635 to 640 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 26 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 111.54 ft below land-surface datum, Feb. 25, 1986; lowest recorded, 146.11 ft below land-surface datum, Dec. 24, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	111.75	JAN 08	112.68	FEB 25	111.54	JUL 23	126.55	AUG 12	126.59	SEP 30	131.41
NOV 19	112.08										

WATER YEAR 1986 HIGHEST 111.54 FEB 25, 1986 LOWEST 131.41 SEP 30, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	133.38	143.85	---	132.90	129.95	128.20	---	126.70	126.90	127.18	127.22
10	---	133.82	144.62	---	132.01	129.41	127.98	127.30	126.82	126.80	127.65	127.20
15	---	134.00	145.39	135.23	131.40	129.22	127.90	127.20	126.73	126.66	127.60	126.88
20	---	134.11	145.88	134.72	131.08	128.92	127.70	127.14	126.90	126.76	127.22	126.83
25	---	137.40	146.10	134.46	130.56	128.70	127.55	127.05	126.79	127.51	127.40	126.72
EOM	133.22	142.32	---	133.51	130.35	128.18	---	127.12	127.00	127.50	127.40	126.70

WATER YEAR 1987 HIGHEST 123.69 JUN 04, 1987 LOWEST 146.11 DEC 24, 1986

365055076355301 Local number, 58C 2.
LOCATION.--Lat 36°50'55", long 76°35'53", Hydrologic Unit 02080208, 900 ft northwest of State Highway 603, 0.5 mi south of Oakland. Owner: Scott Saunders.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 651 ft, screened 638 to 651 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 87 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing. 1.6 ft above land-surface datum.
PERIOD OF RECORD.--August 1970, December 1971 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 117.40 ft below land-surface datum, Aug. 28, 1970; lowest measured, 173.32 ft below land-surface datum, Dec. 16, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	154.80	MAR 18	153.86	JUN 23	157.43

WATER YEAR 1986 HIGHEST 153.86 MAR 18, 1986 LOWEST 157.43 JUN 23, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	173.32	MAR 18	162.57	JUN 17	160.00	SEP 02	161.00

WATER YEAR 1987 HIGHEST 160.00 JUN 17, 1987 LOWEST 173.32 DEC 16, 1986

CITY OF SUFFOLK--Continued

365218076313001 Local number, 58C 8.
LOCATION.--Lat 36°52'18", long 76°31'30", Hydrologic Unit 02080208, 0.5 mi west of Wilkerson Landing, 3.2 mi northeast of Chuckatuck. Owner: G. A. Nimo.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 562 ft, screened 552 to 562 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 22 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
PERIOD OF RECORD.--August to December 1970, November 1972 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.40 ft below land-surface datum, Aug. 28, 1970; lowest measured, 94.53 ft below land-surface datum, Dec. 16, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	84.15	MAR 18	83.43	JUN 23	84.65

WATER YEAR 1986 HIGHEST 83.43 MAR 18, 1986 LOWEST 84.65 JUN 23, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	94.53	MAR 18	91.05	JUN 17	88.84	SEP 02	91.07

WATER YEAR 1987 HIGHEST 88.84 JUN 17, 1987 LOWEST 94.53 DEC 16, 1986

364512076343701 Local number, 58C 52.
LOCATION.--Lat 36°45'12", long 76°34'37", Hydrologic Unit 02080208, at Virginia Department of Highways and Transportation Headquarters, 2,000 ft east of U.S. Highway 460, and 0.8 mi southeast of Elephant Fork. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1,688 ft, cased to 1,620 ft, open hole, 1,620 to 1,688 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.
PERIOD OF RECORD.--October 1984 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.35 ft below land-surface datum, Nov. 2, 1984; lowest measured, 13.74 ft below land-surface datum, Sept. 25, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	7.65	JAN 06	7.98	MAR 10	8.54	MAY 01	8.78	JUL 01	9.15	SEP 02	9.85
NOV 15	7.44	FEB 07	8.34	APR 10	8.73	JUN 03	8.95	AUG 01	9.45		

WATER YEAR 1986 HIGHEST 7.44 NOV 15, 1985 LOWEST 9.85 SEP 02, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	10.30	DEC 23	10.60	FEB 26	10.95	APR 28	11.11	JUN 26	12.22	AUG 26	13.29
29	10.48	JAN 28	10.63	MAR 27	11.03	MAY 27	11.68	JUL 28	12.80	SEP 25	13.74
NOV 25	10.55										

WATER YEAR 1987 HIGHEST 10.30 OCT 03, 1986 LOWEST 13.74 SEP 25, 1987

CITY OF SUFFOLK--Continued

364512076343702 Local number, 58C 53 SOW 162B.
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, 2,000 ft east of U.S. Highway 460, and 0.8 mi southeast of Elephant Fork. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 294 ft, diameter 2 in. from 294 to 881 ft, depth 896 ft, screened 881 to 896 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.4 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, 101.39 ft below land-surface datum, Dec. 20, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	95.65	98.54	100.47	89.73	86.02	83.33	81.57	81.32	80.29	80.83	80.63	80.48
10	95.98	98.90	100.72	---	85.37	82.78	81.85	81.08	80.27	80.29	80.40	80.22
15	96.67	99.06	101.09	88.76	84.80	82.78	---	80.93	80.28	80.17	80.64	80.06
20	97.24	99.26	101.39	88.38	84.35	82.41	---	80.70	80.21	80.21	80.44	80.07
25	97.59	99.30	98.41	87.73	83.89	82.24	---	80.56	80.37	80.19	80.50	80.15
EOM	98.27	99.98	90.95	86.67	83.71	81.85	81.76	80.45	80.23	80.26	80.44	80.00

WATER YEAR 1987 HIGHEST 79.71 JUL 28, 1987 LOWEST 101.39 DEC 20, 1986

364512076343705 Local number, 58C 56 SOW 162D.
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, 2,000 ft east of U.S. Highway 460, and 0.8 mi southeast of Elephant Fork. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 567 ft, screened 557 to 567 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.35 ft above land-surface datum.
PERIOD OF RECORD.--February 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 77.24 ft below land-surface datum, Oct. 1, 1984; lowest measured, 104.14 ft below land-surface datum, Dec. 23, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	95.51	98.03	102.01	101.26	97.61	94.41	92.26	91.60	90.91	90.99	91.61	91.63
10	95.71	98.42	102.69	100.44	96.78	93.77	92.20	91.50	90.97	91.17	91.83	91.32
15	96.18	98.68	103.33	100.15	96.07	93.68	92.17	91.55	90.87	91.09	91.99	91.08
20	96.63	98.78	103.86	99.75	95.63	93.28	91.91	91.32	91.01	91.00	91.61	91.03
25	97.02	99.22	104.09	99.02	95.10	93.04	91.76	91.19	90.98	91.22	91.66	91.15
EOM	97.71	100.70	102.49	98.38	94.87	92.55	91.71	91.11	91.12	91.51	91.59	91.02

WATER YEAR 1987 HIGHEST 90.85 MAY 27, 1987 LOWEST 104.14 DEC 23, 1986

365133076351201 Local number, 58C 57 SOW 141A.
LOCATION.--Lat 36°51'33", long 76°35'12", Hydrologic Unit 02080208, 500 ft west of old Chuckatuck High School in Chuckatuck. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 122 ft, screened 112 to 122 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 52 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--February 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.86 ft below land-surface datum, Apr. 18, 1983; lowest measured, 11.65 ft below land-surface datum, Nov. 26, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	11.41	JAN 09	9.55	APR 24	10.08	JUL 22	11.63	AUG 07	11.64	SEP 30	11.20
NOV 20	10.09	FEB 25	9.54	JUN 18	11.13						

WATER YEAR 1986 HIGHEST 9.54 FEB 25, 1986 LOWEST 11.64 AUG 07, 1986

CITY OF SUFFOLK--Continued

365133076351201 58C 57 SOW 141A--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	11.60	FEB 25	9.70	MAY 05	9.42	JUN 23	10.30	AUG 05	11.08	SEP 22	11.28
JAN 13	10.89										

WATER YEAR 1987 HIGHEST 9.42 MAY 05, 1987 LOWEST 11.60 NOV 18, 1986

365133076351202 Local number, 58C 58 SOW 141B.
LOCATION.--Lat 36°51'33", long 76°35'12", Hydrologic Unit 02080208, 500 ft west of old Chuckatuck High School in Chuckatuck. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 605 ft, screened 595 to 605 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 52 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 108.60 ft below land-surface datum, Apr. 24, 1980; lowest measured, 136.60 ft below land-surface datum, Jan. 13, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	120.96	JAN 09	119.75	APR 24	118.80	JUL 22	127.25	AUG 07	128.75	SEP 30	130.94
NOV 20	120.62	FEB 25	118.87	JUN 18	120.56						

WATER YEAR 1986 HIGHEST 118.80 APR 24, 1986 LOWEST 130.94 SEP 30, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	134.72	FEB 25	128.99	MAY 05	125.59	JUN 23	125.15	AUG 05	125.15	SEP 22	127.04
JAN 13	136.60										

WATER YEAR 1987 HIGHEST 125.15 JUN 23, AUG 05, 1987 LOWEST 136.60 JAN 13, 1987

365133076351203 Local number, 58C 59 SOW 141C.
LOCATION.--Lat 36°51'33", long 76°35'12", Hydrologic Unit 02080208, 500 ft west of old Chuckatuck High School in Chuckatuck. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 447 ft, screened 437 to 447 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 52 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 108.80 ft below land-surface datum, June 30, 1980; lowest recorded, 140.10 ft below land-surface datum, Jan. 17, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	123.37	123.19	123.18	122.40	122.20	121.58	121.67	122.77	126.90	131.74	135.40
10	120.77	123.55	122.84	122.90	122.07	122.53	121.19	122.03	123.14	127.80	132.60	---
15	123.74	123.89	122.55	122.83	122.83	122.10	121.57	122.15	123.10	128.95	133.30	---
20	124.10	123.50	123.37	122.25	121.87	122.21	121.65	121.74	123.97	130.02	133.88	---
25	123.90	123.31	123.23	122.42	121.37	122.93	121.60	122.10	125.20	130.90	134.70	---
EOM	123.72	---	123.10	122.47	121.85	121.99	121.58	122.62	125.97	131.57	135.20	134.47

WATER YEAR 1986 HIGHEST 120.43 APR 18, 1986 LOWEST 135.75 SEP 09, 1986

CITY OF SUFFOLK--Continued

365133076351203 58C 59 SOW 141C--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	134.55	137.80	139.00	139.69	---	131.11	128.70	129.04	129.11	128.82	128.98	128.82
10	134.66	138.20	139.12	139.67	---	129.91	129.60	129.25	128.98	128.75	129.10	131.69
15	135.48	138.42	138.47	139.66	---	130.03	129.46	128.40	128.81	128.75	131.53	133.42
20	136.18	138.60	139.50	139.54	---	128.91	128.91	128.00	128.90	128.91	133.02	131.65
25	136.80	138.95	139.10	138.80	131.78	129.05	128.60	127.99	128.78	129.09	133.70	130.33
EOM	137.40	139.12	139.61	---	131.91	128.70	128.91	130.09	128.82	129.15	129.43	129.75

WATER YEAR 1987 HIGHEST 127.17 SEP 02, 1987 LOWEST 140.10 JAN 17, 1987

364731076355501 Local number, 58C 61 SOW 159A.
LOCATION.--Lat 36°47'31", long 76°35'55", Hydrologic Unit 02080208, 0.5 mi northwest of intersection of State Highways 622 and 634, 2.3 mi northwest of Elephant Fork. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 25 ft, screened 20 to 25 ft, sounded to 17.50 ft on July 8, 1985.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 40 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.85 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board. Well reported dry several days in 1985-87.
PERIOD OF RECORD.--June 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.95 ft below land-surface datum, Apr. 19, 1984; lowest measured, 16.05 ft below land-surface datum, Nov. 18, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	*DRY	JAN 09	*DRY	JUN 19	*DRY	AUG 07	*DRY
NOV 20	*DRY	FEB 25	14.50	JUL 22	*DRY	SEP 30	*DRY

* See REMARKS paragraph.

WATER YEAR 1986 HIGHEST 14.50 FEB 25, 1986 LOWEST *WELL DRY SEVERAL DAYS DURING YEAR.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	*DRY	MAY 07	*DRY	JUN 23	*DRY	AUG 05	*DRY
FEB 25	14.79						

* See REMARKS paragraph.

WATER YEAR 1987 HIGHEST 14.79 FEB 25, 1987 LOWEST *WELL DRY SEVERAL DAYS DURING YEAR.

364731076355502 Local number, 58C 62 SOW 159B.
LOCATION.--Lat 36°47'31", long 76°35'55", Hydrologic Unit 02080208, 0.5 mi northwest of intersection of State Highways 622 and 634, 2.3 mi northwest of Elephant Fork. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 575 ft, screened 555 to 575 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 40 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--June 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 129.90 ft below land-surface datum, Aug. 28, 1984; lowest measured, 159.63 ft below land-surface datum, Jan. 13, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	137.10	JAN 09	134.45	JUN 19	142.05	JUL 22	146.83	AUG 07	148.38	SEP 30	149.20
NOV 20	135.37	FEB 25	133.60								

WATER YEAR 1986 HIGHEST 133.60 FEB 25, 1986 LOWEST 149.20 SEP 30, 1986

CITY OF SUFFOLK--Continued

364731076355502 58C 62 SOW 159B--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	157.13	FEB 25	146.75	MAY 07	140.98	JUN 23	140.89	AUG 05	141.15	SEP 22	141.39
JAN 13	159.63										

WATER YEAR 1987 HIGHEST 140.89 JUN 23, 1987 LOWEST 159.63 JAN 13, 1987

364731076355503 Local number, 58C 63 SOW 159C.
LOCATION.--Lat 36°47'31", long 76°35'55", Hydrologic Unit 02080208, 0.5 mi northwest of intersection of State Highways 622 and 634, 2.3 mi northwest of Elephant Fork. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 650 ft, screened 630 to 650 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 40 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--October 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 127.75 ft below land-surface datum, Dec. 23, 1981; lowest measured, 158.33 ft below land-surface datum, Jan. 13, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	136.87	JAN 09	133.43	FEB 25	132.53	JUL 22	146.73	AUG 07	148.42	SEP 30	147.89
NOV 20	134.35										

WATER YEAR 1986 HIGHEST 132.53 FEB 25, 1986 LOWEST 148.42 AUG 07, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	157.00	FEB 25	144.57	MAY 07	141.54	JUN 23	139.74	AUG 05	139.64	SEP 22	140.20
JAN 13	158.33										

WATER YEAR 1987 HIGHEST 139.64 AUG 05, 1987 LOWEST 158.33 JAN 13, 1987

SURRY COUNTY

370408076460101 Local number, 56E 1.
LOCATION.--Lat 37°04'08", long 76°40'01", Hydrologic Unit 03010202, off State Highway 617, 3.2 mi southwest of Bacons Castle. Owner: Buster E. Cox.
AQUIFER.--Sand of middle and upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 18 in. to 360 ft, 8 in. from 333.5 to 705 ft, depth 705 ft, screened 401 to 411 ft, 431 to 441 ft, 463 to 473 ft, 495 to 505 ft, 540 to 555 ft, 700 to 705 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 93 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top edge of recorder shelf, 3.6 ft above land-surface datum.
PERIOD OF RECORD.--March 1942, April 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 73.52 ft below land-surface datum, Mar. 10, 1942; lowest recorded, 154.17 ft below land-surface datum, Sept. 30, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	152.47	152.84	152.97	152.87	152.99	153.11	153.00	152.95	153.03	153.45	153.88	---
10	152.65	152.95	152.94	---	152.99	153.09	153.06	152.99	153.16	153.52	153.92	---
15	152.62	152.95	152.97	152.92	153.07	153.04	153.13	153.06	153.19	153.56	154.03	154.08
20	152.73	152.96	152.99	152.81	153.05	152.97	152.98	153.12	153.29	153.68	154.06	154.11
25	152.79	152.97	152.81	152.85	153.08	153.06	152.87	153.01	153.34	153.78	154.16	154.13
EOM	152.89	153.00	152.93	152.81	153.10	153.01	152.86	153.08	153.38	153.89	---	154.17

WATER YEAR 1987 HIGHEST 152.40 OCT 02, 1986 LOWEST 154.17 SEP 30, 1987

SURRY COUNTY--Continued

370800076500701 Local number, 56F 2 SOW 039.
LOCATION.--Lat 37°08'00", long 76°50'07", Hydrologic Unit 02080206, off State Highway 10, at Surry Elementary School in Surry. Owner: Town of Surry.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 367 ft, screened 350 to 362 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 122 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--December 1970 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 146.53 ft below land-surface datum, Mar. 1, 1971; lowest measured, 177.15 ft below land-surface datum, Sept. 2, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	174.53	DEC 16	174.44	FEB 24	173.89	JUN 20	174.31	AUG 11	175.10	SEP 29	175.57
NOV 19	174.54	JAN 09	174.40	MAR 19	174.82	JUL 22	174.84				

WATER YEAR 1986 HIGHEST 173.89 FEB 24, 1986 LOWEST 175.57 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	175.78	JAN 12	175.57	MAR 18	175.77	JUN 18	176.22	AUG 04	176.83	SEP 21	177.00
DEC 16	175.91	FEB 23	175.62	MAY 07	175.55	22	176.02	SEP 02	177.15		

WATER YEAR 1987 HIGHEST 175.55 MAY 07, 1987 LOWEST 177.15 SEP 02, 1987

370712076413201 Local number, 57E 11 SOW 094A.
LOCATION.--Lat 37°07'12", long 76°41'32", Hydrologic Unit 02080206, 0.5 mi east of State Highway 690, 2.5 mi northwest of Bacons Castle. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 605 ft, screened 595 to 605 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 92.19 ft below land-surface datum, July 24, 1980; lowest measured, 107.15 ft below land-surface datum, Aug. 4, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	105.40	JAN 09	104.10	FEB 24	102.83	JUL 22	104.99	AUG 11	105.78	SEP 29	106.07
NOV 19	104.82										

WATER YEAR 1986 HIGHEST 102.83 FEB 24, 1986 LOWEST 106.07 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	106.06	FEB 23	105.33	MAY 07	105.45	JUN 22	106.43	AUG 04	107.15	SEP 21	106.90
JAN 12	105.66										

WATER YEAR 1987 HIGHEST 105.33 FEB 23, 1987 LOWEST 107.15 AUG 04, 1987

SURRY COUNTY--Continued

370712076413202 Local number, 57E 12 SOW 094B.
LOCATION.--Lat 37°07'12", long 76°41'32", Hydrologic Unit 02080206, 0.5 mi east of State Highway 690, 2.5 mi northwest of Bacons Castle. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 430 ft, diameter 3 in. from 430 to 440 ft, depth 440 ft, screened 430 to 440 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 92.90 ft below land-surface datum, May 29, 1980; lowest measured, 107.90 ft below land-surface datum, Aug. 4, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	106.08	JAN 09	104.58	FEB 24	103.27	JUL 22	105.04	AUG 11	106.68	SEP 29	106.80
NOV 19	105.37										

WATER YEAR 1986 HIGHEST 103.27 FEB 24, 1986 LOWEST 106.80 SEP 29, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	106.75	FEB 23	105.80	MAY 07	105.97	JUN 22	107.04	AUG 04	107.90	SEP 21	107.68
JAN 12	106.14										

WATER YEAR 1987 HIGHEST 105.80 FEB 23, 1987 LOWEST 107.90 AUG 04, 1987

370712076413203 Local number, 57E 13 SOW 094C.
LOCATION.--Lat 37°07'12", long 76°41'32", Hydrologic Unit 02080206, 0.5 mi east of State Highway 690, 2.5 mi northwest of Bacons Castle. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 41 ft, diameter 3 in. from 41 to 46 ft, depth 46 ft, screened 41 to 46 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.90 ft below land-surface datum, May 29, 1980; lowest measured, 11.17 ft below land-surface datum, Dec. 13, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	8.17	JAN 09	7.53	FEB 24	7.27	JUL 22	10.06	AUG 11	10.44	SEP 29	9.32
NOV 19	7.61										

WATER YEAR 1986 HIGHEST 7.27 FEB 24, 1986 LOWEST 10.44 AUG 11, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	10.48	FEB 23	6.85	MAY 07	6.94	JUN 22	7.92	AUG 04	8.62	SEP 21	9.24
JAN 12	9.17										

WATER YEAR 1987 HIGHEST 6.85 FEB 23, 1987 LOWEST 10.48 NOV 17, 1986

SURRY COUNTY--Continued

371132076405501 Local number, 57F 16 SOW 087A.
LOCATION.--Lat 37°11'32", long 76°40'55", Hydrologic Unit 02080206, at the end of State Highway 650 in Homewood, 7.6 mi northeast of Bacons Castle. Owner: Virginia State Water Control Board.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 1,206 ft, screened 1,170 to 1,185 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.22 ft below land-surface datum, July 20, 1978; lowest measured, 70.30 ft below land-surface datum, Sept. 2, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	67.89	DEC 16	67.93	JAN 09	67.47	MAR 19	66.37	JUL 22	67.55	SEP 29	68.56
NOV 19	68.22	JAN 08	67.67	FEB 24	65.64	JUN 23	66.89	AUG 11	68.73		

WATER YEAR 1986 HIGHEST 65.64 FEB 24, 1986 LOWEST 68.73 AUG 11, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	68.64	JAN 12	69.08	MAR 18	68.43	JUN 18	69.02	AUG 04	69.49	SEP 21	69.09
DEC 16	69.04	FEB 23	68.62	MAY 07	68.94	22	68.60	SEP 02	70.30		

WATER YEAR 1987 HIGHEST 68.43 MAR 18, 1987 LOWEST 70.30 SEP 02, 1987

371132076405502 Local number, 57F 24 SOW 087B.
LOCATION.--Lat 37°11'32", long 76°40'55", Hydrologic Unit 02080206, at the end of State Highway 650 in Homewood, 7.6 mi northeast of Bacons Castle. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 520 ft, screened 510 to 520 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.17 ft below land-surface datum, Aug. 17, 1982; lowest measured, 79.70 ft below land-surface datum, Aug. 4, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	78.63	DEC 16	75.48	FEB 24	71.72	JUN 23	78.49	AUG 11	79.62	SEP 29	78.90
NOV 19	76.65	JAN 09	73.67	MAR 19	72.65	JUL 22	78.27				

WATER YEAR 1986 HIGHEST 71.72 FEB 24, 1986 LOWEST 79.62 AUG 11, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	77.03	JAN 12	76.02	MAR 18	75.36	JUN 18	78.22	AUG 04	79.70	SEP 21	78.08
DEC 16	76.59	FEB 23	74.29	MAY 07	76.19	22	77.77	SEP 02	79.61		

WATER YEAR 1987 HIGHEST 74.29 FEB 23, 1987 LOWEST 79.70 AUG 04, 1987

SUSSEX COUNTY

365649077101501 Local number, 53D 2.
LOCATION.--Lat 36°56'49", long 77°10'13", Hydrologic Unit 03010201, 200 ft northeast of State Highway 35, 0.2 mi south of Homeville. Owner: F. Slade West.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 250 ft, screened 240 to 250 ft.
INSTRUMENTATION.--Quarterly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 125.0 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of sanitary seal, 0.7 ft above land-surface datum.
PERIOD OF RECORD.--August 1970, November 1971 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 100.42 ft below land-surface datum, Aug. 12, 1970; lowest measured, 112.55 ft below land-surface datum, Feb. 2, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	110.52	MAR 17	110.21	JUN 26	111.26

WATER YEAR 1986 HIGHEST 110.21 MAR 17, 1986 LOWEST 111.26 JUN 26, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	112.28	MAR 17	110.80	JUN 16	110.43

WATER YEAR 1987 HIGHEST 110.43 JUN 16, 1987 LOWEST 112.28 DEC 17, 1986

365843077090201 Local number, 53D 3 SOW 048.
LOCATION.--Lat 36°58'43", long 77°09'02", Hydrologic Unit 03010201, off State Highway 40, 2.4 mi northeast of Homeville, and 5.5 mi south of Waverly. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 554 ft, screened 279 to 284 ft, 358 to 363 ft, 439 to 444 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.6 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--August 1971 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 72.39 ft below land-surface datum, May 15, 1972; lowest measured, 84.80 ft below land-surface datum, Aug. 31, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	83.85	JAN 08	82.92	MAR 17	84.13	JUN 24	84.72	JUL 24	83.48	AUG 11	82.20
NOV 20	83.42	FEB 26	80.90								

WATER YEAR 1986 HIGHEST 80.90 FEB 26, 1986 LOWEST 84.72 JUN 24, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	83.95	DEC 17	84.34	MAR 03	83.40	APR 21	83.00	JUL 23	84.00	SEP 22	83.30
NOV 11	84.20	JAN 08	84.20	17	83.28	JUN 16	83.24	AUG 31	84.80		

WATER YEAR 1987 HIGHEST 83.00 APR 21, 1987 LOWEST 84.80 AUG 31, 1987

SUSSEX COUNTY--Continued

365530077104002 Local number, 53D 6 SOW 179A
LOCATION.--Lat 36°55'30", long 77°10'40", Hydrologic Unit 03010201, off State Highway 634, 1.4 mi south of State Highway 35, and 1.7 mi southeast of Homeville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 470 ft, screened 460 to 470 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
PERIOD OF RECORD.--November 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.42 ft below land-surface datum, Apr. 16, 1987; lowest recorded, 83.96 ft below land-surface datum, Sept. 28, 29, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, NOVEMBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 27	80.44	FEB 04	80.75	JUN 26	81.86	AUG 07	82.69
DEC 17	80.68						

PERIOD NOVEMBER 1985 TO SEPTEMBER 1986 HIGHEST 80.44 NOV 27, 1985 LOWEST 82.69 AUG 07, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	82.36	81.79	---	81.05	81.05	81.36	82.07	83.10	83.86
10	---	---	---	82.35	81.68	---	81.12	81.08	81.47	82.23	83.22	83.81
15	---	---	---	82.26	81.63	81.11	81.19	81.14	81.55	82.38	83.40	83.79
20	---	---	82.72	82.10	81.55	81.19	80.69	81.22	81.66	82.59	83.46	83.81
25	---	---	82.65	81.53	81.53	81.18	80.83	81.29	81.82	82.77	83.57	83.86
EOM	82.74	---	82.51	81.74	81.23	81.09	80.80	81.40	82.02	83.00	83.64	83.93

WATER YEAR 1987 HIGHEST 79.42 APR 16, 1987 LOWEST 83.96 SEP 28, 29, 1987

365530077104003 Local number, 53D 7 SOW 179B.
LOCATION.--Lat 36°55'30", long 77°10'40", Hydrologic Unit 03010201, off State Highway 634, 1.4 mi south of State Highway 35, and 1.7 mi southeast of Homeville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of lower Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 398 ft, diameter 2 in. from 394 to 415 ft, depth 425 ft, screened 415 to 425 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
PERIOD OF RECORD.--December 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.47 ft below land-surface datum, Dec. 17, 1985; lowest measured, 82.42 ft below land-surface datum, Aug. 31, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 09	79.63	DEC 17	79.47	JUN 26	80.69

PERIOD DECEMBER 1985 TO SEPTEMBER 1986 HIGHEST 79.47 DEC 17, 1985 LOWEST 80.69 JUN 26, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	81.62	MAR 17	79.88	JUN 16	80.24	AUG 31	82.42

WATER YEAR 1987 HIGHEST 79.88 MAR 17, 1987 LOWEST 82.42 AUG 31, 1987

SUSSEX COUNTY--Continued

365530077104004 Local number, 53D 8 SOW 179C.
LOCATION.--Lat 36°55'30", long 77°10'40", Hydrologic Unit 03010201, off State Highway 634, 1.4 mi south of State Highway 35, and 1.7 mi southeast of Homeville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 256 ft, diameter 2 in. from 249 to 270 ft, depth 280 ft, screened 270 to 280 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.
PERIOD OF RECORD.--December 1986 to September 1987.
EXTREMES FOR PERIOD DECEMBER 1986 TO SEPTEMBER 1987.--Highest water level recorded, 78.79 ft below land-surface datum, Apr. 18, 1987; lowest recorded, 82.59 ft below land-surface datum, Sept. 29, 30, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	80.91	80.20	79.63	79.64	79.54	---	81.32	82.25	82.36
10	---	---	---	80.93	80.06	---	79.69	79.61	---	81.58	---	82.33
15	---	---	---	80.37	80.07	---	79.27	79.69	---	81.74	---	82.37
20	---	---	81.52	80.19	79.66	79.67	79.15	80.00	80.39	81.94	---	82.49
25	---	---	81.22	80.40	79.66	79.72	---	79.95	80.83	82.04	---	82.49
EOM	---	---	80.90	80.22	79.63	79.68	79.34	80.12	81.12	82.17	---	82.59

PERIOD DECEMBER 1986 TO SEPTEMBER 1987 HIGHEST 78.79 APR 18, 1987 LOWEST 82.59 SEP 29, 30, 1987

365530077104005 Local number, 53D 9 SOW 179D.
LOCATION.--Lat 36°55'30", long 77°10'40", Hydrologic Unit 03010201, off State Highway 634, 1.4 mi south of State Highway 35, and 1.7 mi southeast of Homeville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of middle Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 185 ft, diameter 2 in. from 178 to 199 ft, depth 209 ft, screened 199 to 209 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.
PERIOD OF RECORD.--December 1986 to September 1987.
EXTREMES FOR PERIOD DECEMBER 1986 TO SEPTEMBER 1987.--Highest water level recorded, 76.51 ft below land-surface datum, Apr. 17, 1987; lowest recorded, 82.16 ft below land-surface datum, Sept. 28, 29, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	80.45	79.75	79.03	79.22	78.83	79.27	80.21	81.35	82.09
10	---	---	---	80.35	79.65	79.01	79.28	78.99	79.10	80.38	81.47	82.05
15	---	---	---	80.34	79.67	79.03	79.38	79.12	79.13	80.57	81.61	81.98
20	---	---	81.00	80.15	79.62	79.15	78.94	79.21	79.75	80.80	81.67	82.00
25	---	---	80.90	79.48	79.48	79.24	78.94	79.26	79.93	81.00	81.79	82.09
EOM	---	---	80.56	79.61	79.18	79.19	78.55	79.27	80.13	81.23	81.88	82.14

PERIOD DECEMBER 1986 TO SEPTEMBER 1987 HIGHEST 76.51 APR 17, 1987 LOWEST 82.16 SEP 28, 29, 1987

365530077104006 Local number, 53D 10 SOW 179E.
LOCATION.--Lat 36°55'30", long 77°10'40", Hydrologic Unit 03010201, off State Highway 634, 1.4 mi south of State Highway 35, and 1.7 mi southeast of Homeville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of upper Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 130 ft, diameter 4 in. from 140 to 145 ft, depth 145 ft, screened 130 to 140 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.
PERIOD OF RECORD.--December 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 76.25 ft below land-surface datum, Apr. 24, 1987; lowest recorded, 80.23 ft below land-surface datum, Sept. 28, 29, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 14	76.97	JUN 26	78.16	JUL 22	79.94	AUG 07	78.58
DEC 17	79.12						

PERIOD DECEMBER 1985 TO SEPTEMBER 1986 HIGHEST 76.97 DEC 14, 1985 LOWEST 79.94 JUL 22, 1986

SUSSEX COUNTY--Continued

365530077104006 53D 10 SOW 179E--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	78.14	77.44	76.75	77.05	76.79	77.54	78.26	79.43	80.19
10	---	79.19	79.24	78.05	77.37	76.75	77.11	77.04	77.58	78.45	79.51	80.16
15	---	---	---	78.09	77.45	76.75	77.17	77.19	---	78.62	79.73	80.08
20	---	---	78.85	77.94	77.42	76.92	76.96	77.35	77.80	78.83	79.79	80.08
25	---	---	78.73	77.17	77.33	77.01	76.38	77.47	77.96	79.03	79.87	80.16
EOM	79.12	79.36	78.28	77.29	76.95	77.08	76.39	77.60	78.18	79.27	79.95	80.22

WATER YEAR 1987 HIGHEST 76.25 APR 24, 1987 LOWEST 80.23 SEP 28, 29, 1987

365530077104007 Local number, 53D 11 SOW 179F.
LOCATION.--Lat 36°55'30", long 77°10'40", Hydrologic Unit 03010201, off State Highway 634, 1.4 mi south of State Highway 35, and 1.7 mi southeast of Homeville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Paleocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 82 ft, diameter 4 in. from 92 to 97 ft, depth 97 ft, screened 82 to 92 ft.
INSTRUMENTION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
PERIOD OF RECORD.--December 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 70.60 ft below land-surface datum, Apr. 20, 1987; lowest recorded, 76.89 ft below land-surface datum, Dec. 17, 20, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	75.63	JAN 25	74.19	MAR 17	72.03	JUN 26	76.07	JUL 22	76.48	AUG 07	76.35

PERIOD DECEMBER 1985 TO SEPTEMBER 1986 HIGHEST 72.03 MAR 17, 1986 LOWEST 76.48 JUL 22, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	76.72	76.56	74.21	73.13	72.55	71.30	72.99	74.06	75.37	76.24
10	---	---	76.77	76.42	74.17	73.06	72.54	70.66	73.19	74.27	74.53	76.26
15	---	---	76.88	76.22	74.20	73.06	72.62	72.01	73.37	74.48	74.69	76.28
20	---	---	76.89	75.13	74.22	72.09	70.60	72.36	72.53	74.67	74.78	76.31
25	---	---	76.52	74.65	74.56	72.31	71.15	72.63	72.69	74.85	75.86	76.35
EOM	76.20	76.47	76.61	73.81	74.47	72.52	70.98	72.87	72.88	75.13	76.02	76.44

WATER YEAR 1987 HIGHEST 70.60 APR 20, 1987 LOWEST 76.89 DEC 17, 20, 1986

365530077104008 Local number, 53D 12 SOW 179G.
LOCATION.--Lat 36°55'30", long 77°10'40", Hydrologic Unit 03010201, off State Highway 634, 1.4 mi south of State Highway 35, and 1.7 mi south of Homeville. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 47 ft, diameter 4 in. from 57 to 67 ft, depth 67 ft, screened 47 to 57 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.
PERIOD OF RECORD.--December 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.46 ft below land-surface datum, Apr. 29, 1987; lowest recorded, 25.07 ft below land-surface datum, Sept. 2, 3, 1987.

365530077104008 53D 12 SOW 179G--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, DECEMBER 1985 TO AUGUST 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 18	14.95	JUN 26	21.39	AUG 07	23.38

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, AUGUST TO SEPTEMBER 1986
LOWEST VALUES

DAY	AUG	SEP
5	---	19.17
10	23.95	19.49
15	22.11	19.89
20	22.11	20.27
25	19.86	20.61
EOM	19.17	20.27

PERIOD DECEMBER 1985 TO SEPTEMBER 1986 HIGHEST 14.95 DEC 18, 1985 LOWEST 23.95 AUG 10, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.24	22.67	---	18.96	12.98	---	13.81	13.01	18.08	20.83	23.22	---
10	21.43	22.93	---	18.61	13.68	---	14.35	14.01	18.59	21.23	23.56	---
15	21.84	23.01	---	18.33	13.68	---	14.74	14.96	18.93	21.66	23.86	---
20	21.96	---	22.22	14.28	13.68	13.16	13.44	15.98	19.55	22.07	---	---
25	---	---	20.82	13.69	---	14.66	13.44	16.74	20.01	22.46	---	---
EOM	22.46	---	20.47	13.69	---	14.99	11.92	17.53	20.50	22.92	24.96	---

WATER YEAR 1987 HIGHEST 11.46 APR 29, 1987 LOWEST 25.07 SEP 2, 3, 1987

365235077150501 Local number, 53E 5 SOW 045.
LOCATION.--Lat 37°02'37", long 77°11'30", Hydrologic Unit 03010201, 400 ft northeast of State Highway 625, 2.5 mi north of Newville. Owner: Butler Lumber Company.
AQUIFER.--Sand of Paleocene age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 172 ft, screened 162 to 172 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 126.65 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.25 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--September 1971, October 1974 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 81.90 ft below land-surface datum, Mar. 16, 1976; lowest measured, 90.34 ft below land-surface datum, Dec. 17, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	89.65	DEC 18	88.04	FEB 26	86.60	JUN 24	88.34	JUL 24	89.06	AUG 11	87.30
NOV 20	89.10	JAN 08	87.68	MAR 17	86.53						

WATER YEAR 1986 HIGHEST 86.53 MAR 17, 1986 LOWEST 89.65 OCT 08, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	89.79	DEC 17	90.34	MAR 03	86.80	APR 21	86.00	JUL 28	88.30	SEP 22	89.90
NOV 11	89.00	JAN 08	89.50	17	86.49	JUN 16	86.92	AUG 31	89.57		

WATER YEAR 1987 HIGHEST 86.00 APR 21, 1987 LOWEST 90.34 DEC 17, 1986

CITY OF VIRGINIA BEACH

364920076093201 Local number, 61C 27 SOW 174A.
LOCATION.--Lat 36°49'20", long 76°09'32", Hydrologic Unit 02080208, at Kempsville High School in Virginia Beach.
Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 175 ft, screened 160 to 170 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.09 ft below land-surface datum, Apr. 25, 1984; lowest measured, 11.73 ft below land-surface datum, Aug. 6, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	10.05	JAN 07	8.63	FEB 25	8.50	JUL 18	11.62	AUG 06	11.73	SEP 24	10.08
NOV 14	8.73										

WATER YEAR 1986 HIGHEST 8.50 FEB 25, 1986 LOWEST 11.73 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	9.94	FEB 25	8.60	MAY 05	7.45	JUN 17	8.55	AUG 12	11.46	SEP 16	10.60
JAN 07	9.23										

WATER YEAR 1987 HIGHEST 7.45 MAY 05, 1987 LOWEST 11.46 AUG 12, 1987

364920076093202 Local number, 61C 28 SOW 174B.
LOCATION.--Lat 36°49'20", long 76°09'32", Hydrologic Unit 02080208, at Kempsville High School in Virginia Beach.
Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 80 ft, screened 65 to 75 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.51 ft below land-surface datum, Apr. 25, 1984; lowest measured, 17.99 ft below land-surface datum, July 18, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	9.73	JAN 07	10.24	FEB 25	10.36	JUL 18	17.99	AUG 06	15.00	SEP 24	13.87
NOV 14	9.60										

WATER YEAR 1986 HIGHEST 9.60 NOV 14, 1985 LOWEST 17.99 JUL 18, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	10.42	FEB 25	9.16	MAY 05	8.26	JUN 17	12.20	AUG 12	13.27	SEP 16	10.97
JAN 07	10.38										

WATER YEAR 1987 HIGHEST 8.26 MAY 05, 1987 LOWEST 13.27 AUG 12, 1987

CITY OF VIRGINIA BEACH--Continued

364837076092001 Local number, 61C 29 SOW 175.
LOCATION.--Lat 36°48'37", long 76°09'20", Hydrologic Unit 02080208, at Providence Elementary School in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 105 ft, screened 90 to 100 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.17 ft below land-surface datum, Apr. 25, 1984; lowest measured, 13.09 ft below land-surface datum, July 18, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	8.30	JAN 07	8.53	FEB 25	7.44	JUL 18	13.09	AUG 06	11.78	SEP 24	10.42
NOV 14	7.49										

WATER YEAR 1986 HIGHEST 7.44 FEB 25, 1986 LOWEST 13.09 JUL 18, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	9.20	FEB 25	6.99	APR 28	6.50	JUN 17	9.80	AUG 12	10.19	SEP 16	9.25
JAN 07	8.69										

WATER YEAR 1987 HIGHEST 6.50 APR 28, 1987 LOWEST 10.19 AUG 12, 1987

365327076080501 Local number, 61D 6 SOW 124.
LOCATION.--Lat 36°53'27", long 76°08'05", Hydrologic Unit 02080108, at Thoroughgood School in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 8 in. to 25 ft, diameter 6 in. from 25 to 40 ft, depth 40 ft, screened 25 to 30 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.85 ft below land-surface datum, Apr. 27, 1984; lowest measured, 10.72 ft below land-surface datum, Nov. 12, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	9.54	JAN 06	9.18	FEB 27	8.75	JUL 17	10.03	AUG 06	10.22	SEP 25	10.47
NOV 15	9.31										

WATER YEAR 1986 HIGHEST 8.75 FEB 27, 1986 LOWEST 10.47 SEP 25, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	10.72	FEB 26	8.70	MAY 05	8.16	JUN 17	8.55	AUG 12	9.69	SEP 16	9.90
JAN 08	10.42										

WATER YEAR 1987 HIGHEST 8.16 MAY 05, 1987 LOWEST 10.72 NOV 12, 1986

CITY OF VIRGINIA BEACH--Continued

363537076061001 Local number, 62A 2 SOW 097A.
LOCATION.--Lat 36°33'54", long 76°06'14", Hydrologic Unit 03010205, 0.2 mi south of Baum Road, 0.25 mi west of Crags Causeway in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 76 ft, screened 66 to 76 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.18 ft below land-surface datum, Apr. 30, 1980; lowest measured, 6.68 ft below land-surface datum, Nov. 28, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	6.22	JAN 07	3.47	FEB 25	2.76	JUL 17	5.31	AUG 06	5.66	SEP 27	5.50
NOV 20	4.93										

WATER YEAR 1986 HIGHEST 2.76 FEB 25, 1986 LOWEST 6.22 OCT 09, 1985

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	5.92	FEB 26	2.80	APR 29	2.55	JUN 17	3.94	AUG 13	5.04	SEP 22	5.70
JAN 07	4.53										

WATER YEAR 1987 HIGHEST 2.55 APR 29, 1987 LOWEST 5.92 NOV 12, 1986

363537076061002 Local number, 62A 3 SOW 097B.
LOCATION.--Lat 36°33'54", long 76°06'14", Hydrologic Unit 03010205, 0.2 mi south of Baum Road, 0.25 mi west of Crags Causeway in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 24 ft, screened 20 to 24 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--July 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.59 ft below land-surface datum, Feb. 16, 1983; lowest measured, 6.50 ft below land-surface datum, Oct. 17, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	1.86	JAN 07	2.83	FEB 25	1.22	JUL 17	5.53	AUG 06	5.83	SEP 24	4.84
NOV 20	2.17										

WATER YEAR 1986 HIGHEST 1.22 FEB 25, 1986 LOWEST 5.83 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	5.30	FEB 26	1.10	APR 29	1.12	JUN 17	4.30	AUG 13	6.09	SEP 22	6.19
JAN 07	1.19										

WATER YEAR 1987 HIGHEST 1.10 FEB 26, 1987 LOWEST 6.19 SEP 22, 1987

CITY OF VIRGINIA BEACH--Continued

364126076003501 Local number, 62B 1 SOW 098A.
LOCATION.--Lat 36°41'26", long 76°00'35", Hydrologic Unit 03010205, on north side of Pleasant Ridge Road at the Virginia Department of Highways and Transportation shop, 0.9 mi east of Pleasant Ridge in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 24 ft, screened 20 to 24 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--June 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.60 ft below land-surface datum, Feb. 26, 1987; lowest measured, 11.95 ft below land-surface datum, Sept. 16, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	4.05	JAN 07	2.94	FEB 25	2.09	JUL 17	5.44	AUG 06	6.50	SEP 24	5.18
NOV 20	2.55										

WATER YEAR 1986 HIGHEST 2.09 FEB 25, 1986 LOWEST 6.50 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	5.64	FEB 26	1.60	APR 29	2.40	JUN 17	4.56	AUG 13	5.92	SEP 22	4.60
JAN 07	1.93										

WATER YEAR 1987 HIGHEST 1.60 FEB 26, 1987 LOWEST 5.92 AUG 13, 1987

364126076003502 Local number, 62B 2 SOW 098B.
LOCATION.--Lat 36°41'26", long 76°00'35", Hydrologic Unit 03010205, on north side of Pleasant Ridge Road at the Virginia Department of Highways and Transportation shop, 0.9 mi east of Pleasant Ridge in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 98 ft, screened 88 to 98 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--June 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.53 ft below land-surface datum, Feb. 26, 1987; lowest measured, 11.76 ft below land-surface datum, Sept. 16, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	4.97	JAN 07	3.34	FEB 25	2.74	JUL 17	5.30	AUG 06	6.18	SEP 24	5.25
NOV 20	3.42										

WATER YEAR 1986 HIGHEST 2.74 FEB 25, 1986 LOWEST 6.18 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	5.88	FEB 26	2.53	APR 29	2.99	JUN 17	4.33	AUG 13	6.11	SEP 22	5.10
JAN 07	3.18										

WATER YEAR 1987 HIGHEST 2.53 FEB 26, 1987 LOWEST 6.11 AUG 13, 1987

CITY OF VIRGINIA BEACH--Continued

364715076030801 Local number, 62C 3 SOW 092B.
LOCATION.--Lat 36°47'15", long 76°03'08", Hydrologic Unit 03010205, at entrance to Oceana Naval Air Station on London Bridge Road in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 58 ft, screened 53 to 58 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 14 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.05 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--February 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.36 ft below land-surface datum, Feb. 16, 1983; lowest measured, 11.07 ft below land-surface datum, Aug. 6, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	9.53	JAN 06	7.98	FEB 26	6.50	JUL 17	10.87	AUG 06	11.07	SEP 24	9.82
NOV 14	8.47										

WATER YEAR 1986 HIGHEST 6.50 FEB 26, 1986 LOWEST 11.07 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	10.46	FEB 26	5.10	APR 28	5.69	JUN 16	8.84	AUG 13	10.05	SEP 16	10.43
JAN 07	8.04										

WATER YEAR 1987 HIGHEST 5.10 FEB 26, 1987 LOWEST 10.46 NOV 12, 1986

364711076060001 Local number, 62C 4 SOW 083.
LOCATION.--Lat 36°47'11", long 76°06'00", Hydrologic Unit 03010205, 0.3 mi northeast of State Highway 165, 3.5 mi northwest of Princess Anne, and in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 149 ft, screened 118 to 128 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 13 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--March 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.10 ft below land-surface datum, Feb. 20, 1980; lowest measured, 14.87 ft below land-surface datum, July 17, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	12.65	JAN 06	9.85	MAR 18	9.29	JUL 17	14.87	AUG 06	14.62	SEP 24	13.04
NOV 14	12.13	FEB 25	9.49	JUN 19	12.63						

WATER YEAR 1986 HIGHEST 9.29 MAR 18, 1986 LOWEST 14.87 JUL 17, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	12.82	JAN 07	11.13	MAR 20	9.50	JUN 12	10.31	AUG 12	13.23	SEP 16	12.73
DEC 24	11.51	FEB 26	10.10	APR 28	9.00	17	10.80	SEP 02	13.42		

WATER YEAR 1987 HIGHEST 9.00 APR 28, 1987 LOWEST 13.42 SEP 02, 1987

CITY OF VIRGINIA BEACH--Continued

364504076031301 Local number, 62C 5 SOW 093.
LOCATION.--Lat 36°45'04", long 76°03'13", Hydrologic Unit 03010205, 200 ft southeast of intersection of State Highways 149 and 165 in Princess Anne, in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 65 ft, screened 60 to 65 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 7 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.91 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--February 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.84 ft below land-surface datum, Feb. 8, 1978; lowest measured, 7.88 ft below land-surface datum, Nov. 12, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	6.27	JAN 06	5.69	FEB 25	5.44	JUL 17	6.83	AUG 06	6.61	SEP 24	5.86
NOV 14	5.56										

WATER YEAR 1986 HIGHEST 5.44 FEB 25, 1986 LOWEST 6.83 JUL 17, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	7.88	FEB 26	4.63	APR 28	4.58	JUN 17	5.86	AUG 13	6.84	SEP 16	6.81
JAN 07	5.69										

WATER YEAR 1987 HIGHEST 4.58 APR 28, 1987 LOWEST 7.88 NOV 12, 1986

365158076030401 Local number, 62C 6 SOW 125.
LOCATION.--Lat 36°51'58", long 76°03'04", Hydrologic Unit 02080108, at Trantwood Elementary School in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 57 ft, screened 52 to 57 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.1 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.86 ft below land-surface datum, Feb. 28, 1979; lowest measured, 11.19 ft below land-surface datum, July 17, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	9.41	JAN 06	9.48	FEB 27	9.15	JUL 17	11.19	AUG 06	10.89	SEP 24	9.95
NOV 14	8.89										

WATER YEAR 1986 HIGHEST 8.89 NOV 14, 1985 LOWEST 11.19 JUL 17, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 13	9.11	FEB 26	8.18	APR 28	8.08	JUN 16	9.11	AUG 12	9.78	SEP 16	9.80
JAN 08	9.39										

WATER YEAR 1987 HIGHEST 8.08 APR 28, 1987 LOWEST 9.80 SEP 16, 1987

CITY OF VIRGINIA BEACH--Continued

364906076043901 Local number, 62C 7 SOW 126.
LOCATION.--Lat 36°49'06", long 76°04'39", Hydrologic Unit 02080108, at Plaza Elementary School in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 67 ft, screened 55 to 60 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.1 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.84 ft below land-surface datum, Feb. 16, 1983; lowest measured, 7.32 ft below land-surface datum, July 17, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	6.02	JAN 06	5.39	FEB 27	3.60	JUL 17	7.32	AUG 06	6.99	SEP 24	6.43
NOV 14	5.32										

WATER YEAR 1986 HIGHEST 3.60 FEB 27, 1986 LOWEST 7.32 JUL 17, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	6.44	FEB 26	3.93	MAY 05	3.84	JUN 16	5.65	AUG 12	6.51	SEP 16	6.35
JAN 08	5.17										

WATER YEAR 1987 HIGHEST 3.84 MAY 05, 1987 LOWEST 6.51 AUG 12, 1987

364745076004301 Local number, 62C 9 SOW 172A.
LOCATION.--Lat 36°47'45", long 76°00'43", Hydrologic Unit 03010205, at the end of Phantom Boulevard, 0.25 mi south of Harpers Road and Oceana Naval Air Station in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 170 ft, screened 155 to 165 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 17 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.46 ft below land-surface datum, Apr. 25, 1984; lowest measured, 12.37 ft below land-surface datum, Aug. 6, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	10.53	JAN 06	9.17	FEB 26	8.86	JUL 17	10.89	AUG 06	12.37	SEP 24	10.83
NOV 14	9.56										

WATER YEAR 1986 HIGHEST 8.86 FEB 26, 1986 LOWEST 12.37 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	11.09	FEB 26	8.33	APR 28	8.52	JUN 16	10.10	AUG 13	11.63	SEP 16	11.28
JAN 07	10.00										

WATER YEAR 1987 HIGHEST 8.33 FEB 26, 1987 LOWEST 11.63 AUG 13, 1987

CITY OF VIRGINIA BEACH--Continued

364745076004302 Local number, 62C 10 SOW 172B.
LOCATION.--Lat 36°47'45", long 76°00'43", Hydrologic Unit 03010205, at the end of Phantom Boulevard, 0.25 mi south of Harpers Road and Oceana Naval Air Station in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 280 ft, screened 270 to 280 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 7 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.98 ft below land-surface datum, Apr. 25, 1984; lowest measured, 12.75 ft below land-surface datum, Aug. 6, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	10.89	JAN 06	9.55	FEB 26	9.32	JUL 17	12.44	AUG 06	12.75	SEP 24	10.54
NOV 14	9.98										

WATER YEAR 1986 HIGHEST 9.32 FEB 26, 1986 LOWEST 12.75 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	11.35	FEB 26	8.90	APR 28	8.50	JUN 16	10.45	AUG 13	11.98	SEP 16	11.68
JAN 07	9.90										

WATER YEAR 1987 HIGHEST 8.50 APR 28, 1987 LOWEST 11.98 AUG 13, 1987

364613075583201 Local number, 63C 2 SOW 100B.
LOCATION.--Lat 36°46'13", long 75°58'32", Hydrologic Unit 03010205, at Hampton Roads Sanitary District sludge disposal site off Old Dam Neck Road, 1.7 mi southeast of intersection of Oceana Boulevard and Old Dam Neck Road in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 1.25 in., depth 54 ft, screened 49 to 54 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 8 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.85 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--March 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.33 ft below land-surface datum, Mar. 26, 1983; lowest measured, 10.58 ft below land-surface datum, Mar. 20, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	6.69	JAN 06	5.83	FEB 26	5.65	JUL 17	7.75	AUG 06	7.92	SEP 24	6.99
NOV 14	5.82										

WATER YEAR 1986 HIGHEST 5.65 FEB 26, 1986 LOWEST 7.92 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 25	7.45	JAN 22	5.22	MAR 23	5.15	JUL 06	7.35

WATER YEAR 1987 HIGHEST 5.15 MAR 23, 1987 LOWEST 7.45 NOV 25, 1986

CITY OF VIRGINIA BEACH--Continued

364613075583202 Local number, 63C 3 SOW 100C.
LOCATION.--Lat 36°46'13", long 75°58'32", Hydrologic Unit 03010205, at Hampton Roads Sanitary District sludge disposal site off Old Dam Neck Road, 1.7 mi southeast of intersection of Oceana Boulevard and Old Dam Neck Road in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 1.25 in., depth 35 ft, screened 30 to 35 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 8 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.63 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.79 ft below land-surface datum, Feb. 16, Apr. 20, 1983; lowest measured, 12.35 ft below land-surface datum, Apr. 20, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	6.61	JAN 06	5.91	FEB 26	5.18	JUL 17	7.56	AUG 06	7.72	SEP 24	6.51
NOV 14	5.71										

WATER YEAR 1986 HIGHEST 5.18 FEB 26, 1986 LOWEST 7.72 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 25	7.60	JAN 22	4.42	MAR 23	4.68	JUL 06	7.87

WATER YEAR 1987 HIGHEST 4.42 JAN 22, 1987 LOWEST 7.87 JUL 06, 1987

364722075591801 Local number, 63C 4 SOW 173A.
LOCATION.--Lat 36°47'22", long 75°59'18", Hydrologic Unit 02080108, at Redwing Park, 0.7 mi northeast of intersection of Oceana Boulevard and Dam Neck Road in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Miocene-Pliocene age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 291 ft, screened 281 to 291 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 8 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.62 ft below land-surface datum, Apr. 25, 1984; lowest measured, 4.63 ft below land-surface datum, Nov. 12, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	4.00	JAN 06	4.05	FEB 26	3.94	JUL 17	4.38	AUG 06	4.48	SEP 24	4.34
NOV 14	3.99										

WATER YEAR 1986 HIGHEST 3.94 FEB 26, 1986 LOWEST 4.48 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	4.63	FEB 26	4.13	APR 28	4.09	JUN 16	4.28	AUG 13	4.28	SEP 16	4.38
JAN 07	4.15										

WATER YEAR 1987 HIGHEST 4.09 APR 28, 1987 LOWEST 4.63 NOV 12, 1986

CITY OF VIRGINIA BEACH--Continued

364722075591802 Local number, 63C 5 SOW 173B.
LOCATION.--Lat 36°47'22", long 75°59'18", Hydrologic Unit 02080108, at Redwing Park, 0.7 mi northeast of intersection of Oceana Boulevard and Dam Neck Road in Virginia Beach. Owner: Virginia Water Control Board.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 95 ft, screened 80 to 90 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 9 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.9 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.49 ft below land-surface datum, Feb. 26, 1987; lowest measured, 7.63 ft below land-surface datum, Aug. 6, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	4.74	JAN 06	3.44	FEB 26	3.02	JUL 17	7.43	AUG 06	7.63	SEP 26	5.13
NOV 14	3.78										

WATER YEAR 1986 HIGHEST 3.02 FEB 26, 1986 LOWEST 7.63 AUG 06, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	5.89	FEB 26	2.49	APR 28	3.05	JUN 16	5.10	AUG 13	6.90	SEP 16	6.15
JAN 07	3.88										

WATER YEAR 1987 HIGHEST 2.49 FEB 26, 1987 LOWEST 6.90 AUG 13, 1987

WESTMORELAND COUNTY

381110076550501 Local number, 55P 5.
LOCATION.--Lat 38°11'10", long 76°55'05", Hydrologic Unit 02070011, behind craft shop at George Washington Birthplace National Monument, 3.8 mi southeast of Colonial Beach. Owner: National Park Service.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 471 ft, screened 451 to 466 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 24 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.0 ft above land-surface datum.
PERIOD OF RECORD.--June 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.05 ft below land-surface datum, June 24, 1974; lowest measured, 40.56 ft below land-surface datum, Oct. 6, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	37.49	37.41	37.89	38.32	38.55	38.73	38.10	38.07	38.24	38.79	39.15	39.51
10	37.71	37.69	37.70	38.95	38.95	38.35	38.32	38.33	38.59	38.88	39.21	39.63
15	37.60	37.65	38.09	38.66	38.66	38.14	38.11	38.40	38.48	38.91	39.15	39.45
20	37.52	37.62	38.06	38.17	38.73	38.29	38.06	38.15	38.56	39.09	39.38	39.01
25	37.46	37.69	37.64	38.62	38.76	38.19	38.02	38.18	38.53	39.11	39.69	39.54
EOM	37.52	37.78	38.25	38.34	38.62	38.15	38.27	38.24	38.69	39.17	39.54	39.37

WATER YEAR 1987 HIGHEST 37.41 NOV 05, 1986 LOWEST 40.56 OCT 06, 1986

WESTMORELAND COUNTY--Continued

381132076551001. Local number, 55P 9.
LOCATION.--Lat 38°11'32", long 76°55'10", Hydrologic Unit 02070011, at George Washington Birthplace National Monument, 500 ft east of park road, 0.6 mi north of the end of State Highway 204, and 3.4 mi southeast of Colonial Beach. Owner: National Park Service.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 36 in., depth 22.6 ft.
INSTRUMENTATION.--Monthly measurements with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 17 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of concrete lip on casing, 1.65 ft above land-surface datum.
PERIOD OF RECORD.--July 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.11 ft below land-surface datum, Oct. 11, 1979; lowest measured, 11.82 ft below land-surface datum, Nov. 25, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 06	11.07	DEC 17	11.46	FEB 26	0.54	MAR 30	0.74	MAY 29	1.82	JUL 27	8.77
29	11.48	30	11.08	MAR 17	.58	APR 29	.44	JUN 29	2.08	AUG 26	10.00
NOV 25	11.82	FEB 04	.52								

WATER YEAR 1987 HIGHEST 0.44 APR 29, 1987 LOWEST 11.82 NOV 25, 1986

380538076490801 Local number, 56N 1 SOW 016.
LOCATION.--Lat 38°05'38", long 76°49'08", Hydrologic Unit 02080104, at Washington and Lee School, 0.5 mi east of Montross. Owner: Westmoreland County Public Schools.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in. to 189 ft, 2 in. from 189 to 641 ft, depth 641 ft, screened 608 to 628 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 149 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 133.47 ft below land-surface datum, Aug. 28, 1967; lowest measured, 157.20 ft below land-surface datum, Jan. 28, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	155.37	JAN 13	153.63	MAR 17	153.44	APR 21	153.51	JUN 23	154.14	AUG 11	155.20
NOV 18	154.22	MAR 09	153.23								

WATER YEAR 1987 HIGHEST 153.23 MAR 09, 1987 LOWEST 155.37 OCT 01, 1986

YORK COUNTY

371916076375901 Local number, 57G 2.
LOCATION.--Lat 37°19'16", long 76°37'59", Hydrologic Unit 02080107, at Building 3101 on Camp Peary Naval Reservation, 3.3 mi northeast of Williamsburg. Owner: U.S. Department of the Navy.
AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in. to 352 ft, diameter 8 in. from 352 to 387 ft, depth 387 ft, screen depth unknown.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.2 ft above land-surface datum.
PERIOD OF RECORD.--January 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 43.09 ft below land-surface datum, Mar. 7, 1968; lowest measured, 89.06 ft below land-surface datum, Oct. 5, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	89.06	---	87.81	86.45	85.22	84.33	83.34	83.04	83.73	85.09	87.00	87.55
10	---	---	87.25	86.21	85.14	83.41	83.43	83.52	84.13	85.36	87.45	87.94
15	---	88.42	87.59	85.97	84.57	83.91	83.25	83.65	84.33	85.58	87.17	87.76
20	---	87.60	87.10	85.48	84.70	83.95	83.14	83.21	84.47	85.71	87.47	87.17
25	---	87.68	86.80	85.63	84.61	83.83	83.09	83.53	84.44	86.11	87.82	88.01
EOM	---	87.58	86.86	85.03	84.39	83.81	83.29	83.59	85.03	86.74	87.66	87.83

WATER YEAR 1987 HIGHEST 83.04 MAY 05, 1987 LOWEST 89.06 OCT 05, 1986

YORK COUNTY--Continued

371654076401601 Local number, 57G 17 SOW 068.
LOCATION.--Lat 37°16'54", long 76°40'16", Hydrologic Unit 02080107, 0.05 mi east of State Highway 716 at Parkway Estates, 0.5 mi east of Williamsburg. Owner: Sydnor Hydrodynamics.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 8 in., depth 452.3 ft, screened 411 to 426 ft, 442.2 to 452.3 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 60 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.85 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--November 1972 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 106.09 ft below land-surface datum, Nov. 22, 1972; lowest measured, 148.26 ft below land-surface datum, Aug. 11, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 19	138.81	JAN 07	135.75	FEB 24	133.40	MAR 20	133.49	JUL 16	147.25	AUG 11	148.26

WATER YEAR 1986 HIGHEST 133.40 FEB 24, 1986 LOWEST 148.26 AUG 11, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	147.17	JAN 13	138.97	MAY 04	135.20	JUN 18	139.67	AUG 06	143.95	SEP 17	142.80
NOV 19	141.85	FEB 26	136.85								

WATER YEAR 1987 HIGHEST 135.20 MAY 04, 1987 LOWEST 147.17 OCT 01, 1986

371735076391501 Local number, 57G 19 SOW 069.
LOCATION.--Lat 37°17'35", long 76°39'15", Hydrologic Unit 02080107, 0.05 mi east of State Highway 716 at Queens Lake Subdivision, 1.6 mi east of Williamsburg. Owner: Sydnor Hydrodynamics.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 515 ft, screened 420 to 430 ft, 445 to 460 ft, 505 to 515 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 64 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.1 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board.
PERIOD OF RECORD.--November 1972 to current year. Unpublished records available prior to October 1985 in files of the Virginia Water Control Board.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.95 ft below land-surface datum, Nov. 29, 1972; lowest measured, 134.89 ft below land-surface datum, Aug. 11, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 19	126.52	JAN 07	123.50	FEB 24	127.20	MAR 20	126.68	JUL 16	133.88	AUG 11	134.89

WATER YEAR 1986 HIGHEST 123.50 JAN 07, 1986 LOWEST 134.89 AUG 11, 1986

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	134.75	JAN 13	131.45	MAY 04	128.35	JUN 18	130.25	AUG 06	133.22	SEP 17	133.64
NOV 19	133.39	FEB 26	129.68								

WATER YEAR 1987 HIGHEST 128.35 MAY 04, 1987 LOWEST 134.75 OCT 01, 1986

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

PRINCE WILLIAM COUNTY

LOCAL IDENT-I-FIER	STATION NUMBER	GEO-LOGIC UNIT	DATE	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	BENZENE TOTAL (UG/L)
50T 36E	384140077342101	220JRSC	08-26-87	250.00	265	530	6.70	<0.20
51T105	384326077281001	231MNSS	08-27-87	--	263	280	7.30	<0.20
50T 52	384352077313801	231BLBF	08-26-87	--	210	370	7.10	<0.20
50T 51	384401077313901	231BLBF	08-27-87	--	221	490	7.20	<0.20
51T 1A	384403077283801	231NWRK	08-28-87	385.00	230	300	7.10	<0.20
50U116	384511077322201	000IRSV	08-27-87	--	290	1400	6.70	<0.20
51U 4H	384520077263001	231MNSS	08-28-87	250.00	210	950	7.20	<0.20
51U111	384554077291501	231BLBF	08-28-87	850.00	270	950	7.10	<0.20
51U 97H	384632077273401	231MNSS	08-28-87	1000.00	250	510	7.40	<0.20
49U 59	384636077384901	000IRSV	08-28-87	--	345	160	7.00	<0.20
51U104G	384652077280401	231BLBF	08-28-87	945.00	230	800	7.20	<0.20
51U103G	384702077283401	231BLBF	08-28-87	925.00	210	850	7.20	<0.20
50U118	384712077350301	000IRSV	08-26-87	--	300	1400	6.60	<0.20
50U117	384718077351201	000IRSV	08-26-87	--	315	1100	6.60	<0.20
50U 70G	384726077363801	231BLBF	08-26-87	205.00	350	320	6.80	<0.20
50U110	384735077372801	231BLRN	08-26-87	345.00	305	390	6.90	<0.20
50U 76E	384842077342701	231BLBF	08-26-87	100.00	310	390	6.70	<0.20
49U 60	384844077382501	231BLRN	08-26-87	--	355	340	6.80	<0.20

LOCAL IDENT-I-FIER	BROMO-FORM TOTAL (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	CHLORO-FORM TOTAL (UG/L)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)
50T 36E	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51T105	<0.20	<0.20	<0.20	<0.20	<0.20	0.50	<0.20	<0.20	<0.20
50T 52	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50T 51	<0.20	<0.20	<0.20	<0.20	<0.20	0.50	<0.20	<0.20	<0.20
51T 1A	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U116	<0.20	<0.20	<0.20	<0.20	<0.20	0.40	<0.20	<0.20	<0.20
51U 4H	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51U111	<0.20	<0.20	<0.20	<0.20	<0.20	5.1	<0.20	<0.20	<0.20
51U 97H	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
49U 59	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51U104G	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51U103G	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U118	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U117	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U 70G	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U110	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U 76E	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
49U 60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

PRINCE WILLIAM COUNTY--Continued

LOCAL IDENT-I-FIER	ETHYL-BENZENE TOTAL (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	METHYL-CHLO-RIDE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)
50T 36E	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
51T105	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
50T 52	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	3.9	<0.20
50T 51	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
51T 1A	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
50U116	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
51U 4H	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
51U111	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
51U 97H	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
49U 59	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
51U104G	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
51U103G	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
50U118	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
50U117	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
50U 70G	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
50U110	<0.20	<0.20	<0.20	<0.20	<0.2	2.2	<0.20	<0.2	<0.20
50U 76E	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20
49U 60	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20

LOCAL IDENT-I-FIER	TOLUENE TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	XYLENE WATER WHOLE TOT REC (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,2-DIBROMO ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)
50T 36E	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
51T105	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
50T 52	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
50T 51	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
51T 1A	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
50U116	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
51U 4H	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
51U111	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
51U 97H	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
49U 59	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
51U104G	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
51U103G	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
50U118	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
50U117	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
50U 70G	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
50U110	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
50U 76E	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
49U 60	<0.20	<0.20	<0.2	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

PRINCE WILLIAM COUNTY--Continued

LOCAL IDENT-I-FIER	1,2-TRANSDI CHLORO-ETHYL-ENE TOTAL (UG/L)	1,3-DI-CHLORO-BENZENE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE TOTAL (UG/L)	1,4-DI-CHLORO-BENZENE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)
50T 36E	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51T105	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50T 52	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50T 51	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51T 1A	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U116	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51U 4H	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51U111	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51U 97H	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
49U 59	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51U104G	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
51U103G	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U118	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U117	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U 70G	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U110	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
50U 76E	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
49U 60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Geologic unit (Aquifer):

220JRSC Jurassic System
231MNSS Manassas Formation
231BLBF Balls Bluff Formation
000IRSV Intrusive Rocks
231BLRN Bull Run Formation

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

CLARKE COUNTY

LOCAL IDENTIFIER	STATION NUMBER	DATE	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)
46W 13	390149078023801	12-09-86	125.00	510	630	7.10	14.0	<1	K1	2.50
46W 14	390206078065401	12-10-86	236.00	630	410	7.10	12.5	K3	K17	2.60
46W 17	390304078062901	12-10-86	250.00	620	715	6.90	13.0	<1	<1	5.60
46W 11	390306078005001	12-11-86	128.00	545	435	7.10	10.0	<1	<1	4.10
45W 2	390309078081701	12-11-86	--	665	640	7.10	11.0	<1	K15	11.0
46W 15	390318078044201	12-09-86	240.00	630	720	7.00	9.0	<1	<1	10.0
46W 6	390332078055401	12-09-86	136.00	631	635	7.00	12.0	K1	K9	5.40
45W 1	390341078081401	12-09-86	400.00	680	725	7.10	21.0	<1	<1	<0.050
46W 8	390454078045001	12-10-86	253.00	590	625	6.70	14.0	K8	29	4.10
46W 19	390516078025401	12-10-86	127.00	575	660	6.90	11.0	K2	K2	4.80
46WS 3	390519078023701	12-11-86	--	510	555	7.10	11.5	<1	29	3.20
46W 16	390549078024501	12-10-86	550.00	580	645	6.90	12.5	<1	K1	9.50
46W 10	390617078005701	12-10-86	230.00	575	625	7.00	12.5	K1	K7	6.70
47WS 2	390618077583301	12-11-86	--	440	545	7.00	11.5	<1	K2	3.70
46W 12	390706078001701	12-10-86	370.00	615	585	6.60	12.5	<1	<1	2.70
47X 11	390738077541001	12-10-86	805.00	480	450	7.00	10.5	<1	K5	3.80
47X 9	390757077544901	12-10-86	140.00	520	730	6.95	18.0	K6	K6	5.30
47X 5	390800077593201	12-09-86	160.00	610	740	6.70	12.0	88	39	4.10
47X 6	390837077563501	12-10-86	348.00	565	710	7.10	12.5	<1	<1	3.10
47XS 3	390841077524201	12-10-86	--	420	460	7.10	12.5	71	64	4.40
46X 8	390900078003401	12-11-86	185.00	640	610	6.90	11.0	<1	K1	3.50
47X 4	390918077553001	12-10-86	255.00	540	510	7.20	13.0	<1	K4	3.40
47X 10	390949077572901	12-10-86	110.00	560	500	7.50	12.5	K2	K1	4.20
47X 7	391001077581801	12-09-86	162.00	605	720	7.90	17.0	<1	K1	3.00
46X 5	391033078030801	12-11-86	80.00	560	700	6.90	12.0	K3	K14	1.20
46X 4	391051078015701	12-11-86	260.00	585	575	7.40	12.0	<1	K2	2.90
46X 9	391154078003301	12-10-86	60.00	620	700	7.00	12.0	210	910	10.0

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CALENDAR FOR WATER YEAR 1987

1986

OCTOBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
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19	20	21	22	23	24	25
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NOVEMBER

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DECEMBER

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1987

JANUARY

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FEBRUARY

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MARCH

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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