

# Water Resources Data Virginia Water Year 1995

## Volume 1. Surface-Water-Discharge and Surface-Water-Quality Records

by Roger K. White, Donald C. Hayes, Michael R. Eckenwiler,  
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U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-95-1  
Prepared in cooperation with the Virginia Department of Environmental  
Quality and with other agencies

**U.S. DEPARTMENT OF THE INTERIOR**

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**1996**



## PREFACE

This volume of 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 and cooperating agencies' surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and water quality 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. Hydrologic data for Virginia are contained in two volumes:

Volume 1. Surface-Water-Discharge and Surface-Water-Quality Records

Volume 2. Ground-Water-Level and Ground-Water-Quality Records

This report (Volume 1) is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey and the Virginia Department of Environmental Quality who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following personnel contributed significantly to the collection, computation, processing, and completion of this information:

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

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## DISCONTINUED SURFACE-WATER-DISCHARGE OR STAGE-ONLY STATIONS

The following continuous-record surface-water-discharge or stage-only stations (gaging stations) in Virginia have been discontinued. Daily streamflow or stage records were collected and published for the period of record, expressed in water years, shown for each station. Those stations with an asterisk (\*) after the station number are currently operated as crest-stage partial-record stations. Discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page of this report.

[Letters after station name designate type of data collected: (d) discharge, (e) elevation]

Discontinued surface-water-discharge or stage-only stations

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
POTOMAC RIVER BASIN			
Abrams Creek at Winchester, Va. (d)	01615500	5.6	1946-49
Abrams Creek near Winchester, Va. (d)	01616000	16.5	1949-60 1979-94
Dry River at Rawley Springs, Va. (d)	01621000	72.6	1946-48
Cooks Creek at Mt. Crawford, Va. (d)	01621500	42	1905-06
Castle Spring near Churchville, Va. (d)	01622500	-	1949-56
Bell Creek at St. Pauls Chapel, near Staunton, Va. (d)	01623000	.61	1948-55
Bell Creek near Staunton, Va. (d)	01623500	3.8	1948-55
Bell Creek at Franks Mill, near Staunton, Va. (d)	01624000	9.6	1948-56
Middle River near Verona, Va. (d)	01624300	178	1967-86
Lewis Creek near Staunton, Va. (d)	01624500	18	1905-06
North River at Port Republic, Va. (d)	01625500	804	1895-99
Back Creek near Lyndhurst, Va. (d)	01625900	41.2	1974-77
South River at Waynesboro, Va. (d)	01626500	133	1905-06, 1928-52
South River at Port Republic, Va. (d)	01628000	248	1895-99
Elk Run at Elkton, Va. (d)	01629000	17	1901-06
Yagers Spring near Luray, Va. (d)	01629990	-	1949-56
Hawksbill Creek near Luray, Va. (d)	01630000	52	1905-06
Plains Mill Spring near New Market, Va. (d)	01632500	-	1949-56
Stony Creek at Columbia Furnace, Va. (d)	01633500	79.4	1947-56
Marlboro Spring at Marlboro, Va. (d)	01635000	-	1949-56
North Fork Shenandoah River near Riverton, Va. (d)	01636000	1,040	1899-1906
Happy Creek at Front Royal, Va. (d)	01636210	14.0	1948-77
Big Spring near Leesburg, Va. (d)	01643610	.03	1968-69, 1980-81
Stave Run at Reston, Va. (d)	01624290	.05	1966-71, 1973
Stave Run near Reston, Va. (d)	01624291	.08	1971-82
Smilax Branch at Reston, Va. (d)	01644295	.32	1967-78
Snakeden Branch at Reston, Va. (d)	01645784*	.79	1973-78
Fourmile Run at Alexandria, Va. (d)	01652500*	14.4 13.8	1951-69, 1974-75, 1979-82
Long Branch near Annandale, Va. (d)	01654500	3.71	1947-57

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



Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
<b>POTOMAC RIVER BASIN--Continued</b>			
Accotink Creek near Accotink Station, Va. (d)	01655000	37.0	1949-57
Cedar Run near Warrenton, Va. (d)	01655500*	12.3	1950-87
Cedar Run near Aden, Va. (d)	01656100	155	1973-87
Broad Run at Buckland, Va. (d)	01656500	50.5	1950-79, 1981-87
Broad Run near Bristow, Va. (d)	01656650	89.6	1975-87
Occoquan River near Manassas, Va. (d)	01656700	343	1968-81
Bull Run near Catharpin, Va. (d)	01656725	25.8	1969-87
Cub Run near Bull Run, Va. (d)	01656960	49.9	1973-87
Bull Run near Manassas, Va. (d)	01657000	147	1950-81
Bull Run near Manassas Park, Va. (d)	01657020	148	1984-87
Bull Run near Clifton, Va. (d)	01657415	185	1972-84
Occoquan River (Creek) near Occoquan, Va. (d)	01657500	570	1913-16, 1921-23, 1937-56
Hooes Run near Occoquan, Va. (d)	01657655	3.97	1975-82
Quantico Creek near Dumfries, Va. (d)	01658480	6.90	1983-85
South Fork Quantico Creek near Joplin, Va. (d)	01658550	9.62	1983-85
South Fork Quantico Creek near Dumfries, Va. (d)	01658650	16.6	1983-85
North Branch Chopawamsic Creek near Independent Hill, Va. (d)	01659000	5.79	1951-57, 1990
Middle Fork Chopawamsic Creek near Garrisonville, Va. (d)	01659500*	4.51	1951-57, 1960-67
South Branch Chopawamsic Creek near Garrisonville, Va. (d)	01660000	2.56	1951-57
Beaverdam Run near Garrisonville, Va. (d)	01660500	12.7	1951-57

**GREAT WICOMICO RIVER BASIN**

Bush Mill Stream near Heathsville, Va. (d)	01661800*	6.82	1964-87
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**RAPPAHANNOCK RIVER BASIN**

Carter Run near Marshall, Va. (d)	01661900*	19.5	1977-82
Rappahannock River near Warrenton, Va. (d)	01662000*	195	1943-86
Rush River at Washington, Va. (d)	01662500	14.7	1953-77
Thornton River near Laurel Mills, Va. (d)	01663000	142	1943-56
Hazel River at Rixeyville, Va. (d)	01663500	287	1942-92
Rappahannock River at Kellys Ford, Va. (d)	01664500	641	1925-52
Robinson River at Locust Dale, Va. (d)	01666000	148	1942
Rapidan River at Rapidan, Va. (d)	01667000	446	1924-31
Mountain Run near Burr Hill, Va. (d)	01667870*	28.8	1990-92
Hoskins Creek near Tappahannock, Va. (d)	01668800*	15.5	1965-86

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

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
PIANKATANK RIVER BASIN			
Dragon Swamp near Church View, Va. (d)	01669500	84.9	1943-81
YORK RIVER BASIN			
Beaverdam Swamp near Ark, Va. (d)	01670000	6.63	1950-89
Pamunkey Creek at Lahore, Va. (d)	01670180*	40.5	1989-92
Contrary Creek near Mineral, Va. (d)	01670300*	5.53	1976-86
North Anna River near Hewlett, Va. (d)	01670500	424	1926-28
North Anna River near Doswell, Va. (d)	01671000	441	1926-86
Bunch Creek near Boswells Tavern, Va. (d)	01671500	4.37	1949-79
South Anna River at Vontay, Va. (d)	01672000	332	1927-30
Totopotomoy Creek near Atlee, Va. (d)	01673500	5.89	1949-77
JAMES RIVER BASIN			
Bolar Spring at Bolar, Va. (d)	02010000	-	1950-56
Muddy Run Spring near Warm Springs, Va. (d)	02010500	-	1946-56
Warm Spring at Warm Springs, Va. (d)	02011000	-	1928-44
Back Creek on Rt. 600, near Mountain Grove, Va. (d)	02011480	85.8	1974-84
Falling Spring Creek near Falling Spring, Va. (d)	02012000	11.5	1948-52
Jackson River at Falling Spring, Va. (d)	02012500*	411	1925-84
Jackson River at Covington, Va. (d)	02012900	440	1907-08
Smith Creek above old dam, near Clifton Forge, Va. (d)	02014500	12.4	1947-56
Smith Creek near Clifton Forge, Va. (d)	02015000	12.5	1944-47
Stuart Spring near McDowell, Va. (d)	02015500	-	1950-56
Meadow Creek at New Castle, Va. (d)	02017000	13.8	1929-52
Catawba Creek near Fincastle, Va. (d)	02019000	104	1928-37
Karnes Spring near Buchanan, Va. (d)	02020000	-	1950-56
Calfpasture River at Goshen, Va. (d)	02021000	190	1925-39
Big Spring at Kerrs Creek, Va. (d)	02022000	-	1950-56
Maury River near Lexington, Va. (d)	02023000	487	1925-60
South River near Riverside, Va. (d)	02023500	111	1950-62
Buffalo Creek near Glasgow, Va. (d)	02024300	123	1963-64
Maury River at Glasgow, Va. (d)	02024500	831	1895-1906
Pedlar River near Pedlar Mills, Va. (d)	02025000	91	1942-56
Tye River at Roseland, Va. (d)	02026500	68	1927-38
Tye (Buffalo) River near Norwood, Va. (d)	02028000	360	1940-60
Hardware River near Scottsville, Va. (d)	02029500	104	1925-39
Mechums River near White Hall (Ivy), Va. (d)	02031000	95.4	1942-51
North Fork Moormans River near White Hall, Va. (d)	02031500	11.4	1952-63, 1982-84

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

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
<b>JAMES RIVER BASIN--Continued</b>			
Moormans River near White Hall, Va. (d)	02032000	18	1943-46
South Fork Rivanna River near Earlysville, Va. (d)	02032500	216	1951-66
North Fork Rivanna River near Proffit, Va. (d)	02032680*	176	1970-92
Rivanna River near Charlottesville, Va. (d)	02033000	473	1925
Rivanna River below Moores Creek, near Charlottesville, Va. (d)	02033500	507	1925-34
Willis River at Lakeside Village (Flanagan Mills), Va. (d)	02034500*	262	1927-86
(Big) Lickinghole Creek near Goochland, Va. (d)	02035500	70	1944-46
Beaverdam Creek at State Farm, Va. (d)	02036000	42	1944-47
Falling Creek near Chesterfield, Va. (d)	02038000*	32.8	1955-94
Falling Creek near Drewrys Bluff, Va. (d)	02038500	54	1942-56, 1957-64
Vaughans Creek near Hixburg, Va. (d)	02038880	23.2	1980-81
Fishpond Creek near Hixburg, Va. (d)	02038830	14	1980-81
Flat Creek near Amelia, Va. (d)	02040500*	73	1946-48
Appomattox River near Petersburg, Va. (d)	02041500	1,335	1927-66
Swift Creek near Chester, Va. (d)	02042000	143	1943-49
Chickahominy River tributary at Atlee Exit, near Greenwood, Va. (d)	0204228301	.002	1993-94
Upham Brook near Richmond, Va. (d)	02042426	37.6	1989-94
<b>GREAT DISMAL SWAMP BASIN</b>			
Washington Ditch near Cypress Chapel, Va. (d)	02043550	41	1979-81
<b>CHOWAN RIVER BASIN</b>			
Nottoway River near Burkeville, Va. (d)	02044000*	38.7	1946-86
Nottoway River near McKenney, Va. (d)	02045000	362	1946-50
Waqua Creek near Alberta, Va. (d)	02045200	15.0	1966-67
Anderson Branch at Sussex, Va. (d)	02046500	5.35	1949-56
Assamoosick Swamp near Sebrell, Va. (d)	02047100	86.4	1982-88
Blackwater River at Zuni, Va. (d)	02048000	456	1943-88
Seacock Creek at Unity, Va. (d)	02048500	102	1943-49
Blackwater River near Burdette, Va. (d)	02049000	576	1942-44
North Meherrin River near Keysville, Va. (d)	02050500	9.2	1949-61
Great Creek near Cochran, Va. (d)	02051600*	30.7	1958-86
Fontaine (Fountains) Creek near Emporia, Va. (d)	02053000	96	1944-53
<b>ROANOKE RIVER BASIN</b>			
Big Springs at Elliston, Va. (d)	02054000	-	1948-56
Tinker Creek at Roanoke, Va. (d)	02055500	70	1907-08
Back Creek near Roanoke, Va. (d)	02056500	43	1907-08
Blackwater River near Union Hall, Va. (d)	02057000	208	1925-64
Roanoke River near Toshes, Va. (d)	02057500	1,020	1925-63

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

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
ROANOKE RIVER BASIN--Continued			
Snow Creek at Sago, Va. (d)	02058000	60	1935-44
Pigg River near Toshes, Va. (d)	02058500	394	1930-63
Roanoke River near Greta, Va. (d)	02059000	1,430	1925-30
Goose Creek at Huddleston, Va. (d)	02060000	218	1929-32
Big Otter River near Bedford, Va. (d)	02061000	116	1944-60
Big Otter River near Altavista, Va. (d)	02062000	372	1929-37
Caldwells Creek near Appomattox, Va. (d)	02063000	5.13	1954-60
Falling River at Spring Mills, Va. (d)	02063500	52.2	1954-60
Little Falling River at Hat Creek, Va. (d)	02064500	43	1929-36
Falling River near Brookneal, Va. (d)	02065000	228	1936-41
Roanoke River at Clarkton, Va. (d)	02065200	2,691	1963-76
Roanoke Creek at Saxe, Va. (d)	02066500	135	1946-72
Roanoke River near Clover, Va. (d)	02067000	3,230	1929-52
Roanoke River above Dan River, at Clarksville, Va. (d)	02067500	-	1895-98
Leatherwood Creek near Martinsville (Old Liberty), Va. (d)	02073500	68	1926-34
Dan River at South Boston, Va. (d)	02076000*	2,730	1900-07 1923-52
Hyco River near Omega, Va. (d)	02078000	413	1934-50
Dan River at Clarksville, Va. (d)	02078500	-	1896-98
Roanoke River at Clarksville, Va. (d)	02079000	7,320	1935-52
Roanoke River at Buggs Island, Va. (d)	02079500*	7,780	1947-62
KANAWHA RIVER BASIN			
New River near Baywood, Va. (d)	03163000	1,000	1928-30
New River near Grayson, Va. (d)	03164500	1,160	1908-12
New River at Ivanhoe, Va. (d)	03165500	1,340	1927, 1930-78
Cripple Creek near Ivanhoe, Va. (d)	03166000	148	1930-34
Neff-Litz Spring near Rural Retreat, Va. (d)	03166500	-	1947-56
Glade Creek at Grahams Forge, Va. (d)	03166800*	7.15	1976-93
Peak Creek at Pulaski, Va. (d)	03168500	58.3 60.9	1927-33, 1951-57
Little River near Copper Valley, Va. (d)	03169500	239	1908-16
New River at Eggleston, Va. (d)	03171500	2,941	1915-76
Wabash Spring near Poplar Hill, Va. (d)	03172000	-	1950-51
Walker Creek at Staffordsville, Va. (d)	03172500	277	1908-16
Francis Spring near Bane, Va. (d)	03173500	-	1952-56
Wolf Creek near Shawver Mill (Burkes Garden), Va. (d)	03174500	36	1927-28
West Fork Cove Creek near Bluefield, Va. (d)	03175000	5.5	1929-32

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

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
KANAWHA RIVER BASIN--Continued			
Cox Branch above Tazewell Reservoir, near Gratton, Va. (d)	03175100	2.06	1988-92
Bluestone River at Bluefield, Va. (d)	03177700	39.8	1965-80
BIG SANDY RIVER BASIN			
Levisa Fork near Grundy, Va. (d)	03207500*	235	1942-74, 1986-87
Grissom Creek near Council, Va. (d)	03208034	2.82	1981-83
Barton Fork near Council, Va. (d)	03208036	1.23	1981-83
Russell Fork at Council, Va. (d)	03208040*	10.2	1981-83
Russell Fork near Birchleaf, Va. (d)	03208100*	87.4	1981-83
North Fork Pound River at Pound, Va. (d)	03208700*	18.5	1962-87
Pound River above Indian Creek, at Pound, Va. (d)	03208800*	36.7	1966-78
Pound River below Bold Camp Creek, at Pound, Va. (d)	03208850*	61.2	1966-78
Pound River near Georges Fork, Va. (d)	03208900*	82.5	1964-82
Russell Fork at Bartlick, Va. (d)	03209200*	526	1963-82
Kersaw Branch near Hurley, Va. (d)	03213577	.60	1981-82
Knox Creek at Kelsa, Va. (d)	03213590*	84.3	1980-81
Steve Keesling Spring at Sugar Grove, Va. (d)	03471000	-	1928, 1948-56
TENNESSEE RIVER BASIN			
South Fork Holston River near Chilhowie, Va. (d)	03472000	89.5	1907-10
Beaverdam Creek at Damascus, Va. (d)	03472500*	56.0	1947-59
Middle Fork Holston River at Groseclose, Va. (d)	03473500*	7.39	1948-57 1988-89
Middle Fork Holston River at Seven Mile Ford, Va. (d)	03474000*	132	1942-81 1988-89
Middle Fork Holston River at Chilhowie, Va. (d)	03474500	155	1907-10, 1921-32
Cedarville Spring at Cedarville, Va. (d)	03475500	-	1950-53
Beaver Creek near Wallace, Va. (d)	03477500	13.7	1946-57
Percy Preston Spring near Wallace, Va. (d)	03478000	-	1950-56
Lick Creek near Chatham Hill, Va. (d)	03487800*	25.5	1966-68
North Fork Holston River near Plasterco, Va. (d)	03488100	259	1963-66
Brumley Creek near Hansonville, Va. (d)	03488445	4.29	1979-82
Brumley Creek at Brumley Gap, Va. (d)	03488450*	21.1	1979-82
North Fork Holston River at Holston, Va. (d)	03488500	402	1951-59
North Fork Holston River near Mendota, Va. (d)	03489500	493	1921-32
Cove Creek near Hilton, Va. (d)	03489850	17.6	1966-68

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

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
TENNESSEE RIVER BASIN--Continued			
Big Moccasin Creek at Collinwood, near Hansonville, Va. (d)	03489870*	41.9	1966-68
Big Moccasin Creek near Gate City, Va. (d)	03489900	79.6	1953-59, 1966-68
North Fork Holston River near Gate City, Va. (d)	03490000*	672	1932-82
Taylor Springs at Cedar Bluff, Va. (d)	03520500	-	1953
Clinch River at Cedar Bluff, Va. (d)	03521000	125	1944-46
Clinch River at Richlands, Va. (d)	03521500*	137	1946-89
Little River at Wardell, Va. (d)	03522000	103	1949-52
Will Brooks Spring at Wardell, Va. (d)	03522500	-	1950-52
(Big) Cedar Creek near Lebanon, Va. (d)	03523000	51.5	1953-59
Thompson Creek near Coulwood, Va. (d)	03523500	14.0	1942-49
Guest River at Coeburn, Va. (d)	03524500*	87.3	1949-59, 1979-81
Stony Creek at Ka, Va. (d)	03524900*	30.9	1980-81
Stony Creek at Fort Blackmore, Va. (d)	03525000	41.4	1949-52
Clinch River at Clinchport, Va. (d)	03525500	986	1907-10
Copper Creek near Gate City, Va. (d)	03526000*	106	1947-72
Quillen Springs near Gate City, Va. (d)	03526500	-	1954-56
Clinch River at Speers Ferry, Va. (d)	03527000*	1,126	1920-76, 1979-81
North Fork Clinch River at Duffield, Va. (d)	03527500	23.1	1953-59
Powell River at Big Stone Gap, Va. (d)	03529500*	112	1945-59, 1979-81
South Fork Powell River at Big Stone Gap, Va. (d)	03530000	40	1945-47, 1951-77
Powell River near Pennington Gap, Va. (d)	03531000	290	1921-32

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

## DISCONTINUED SURFACE-WATER-QUALITY STATIONS

The following surface-water-quality stations in Virginia have been discontinued. Water-quality data (daily or periodic samples with collection frequency not less than quarterly) were collected and published for the period of record, expressed in water years, shown for each station. For each station entry, a period of record is provided for each type of record listed. Those stations with an asterisk (\*) after the station number are currently operated as partial-record water-quality sampling stations (sampling frequency less than quarterly).

[Type of record: C (chemical), T (water temperature), SC (specific conductance), SED (sediment)]

## Discontinued surface-water-quality stations

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record (water years)
POTOMAC RIVER BASIN				
North River near Burketown, Va.	01622000	379	C, T, SC	1994
Middle River near Grottoes, Va.	01625000	375	C, T, SC	1994
South River at Harriston, Va.	01627500	212	SC C, T, SC	1949 1994
South Fork Shenandoah River near Luray, Va.	01629500	1,377	SC C, T, SC	1949 1994
South Fork Shenandoah River at Front Royal, Va.	01631000	1,642	T, SC SED C C, T, SC	1953-56, 1968-77, 1980 1953-56 1949, 1953-56, 1968-86 1994
North Fork Shenandoah River near Strasburg, Va.	01634000	768	T, SC SED C C, T, SC	1949, 1956, 1969-71 1956 1930, 1949, 1952, 1956, 1970-86 1994
Goose Creek near Leesburg, Va.	01644000	332	T, SC C, T, SC	1969-71 1994
Stave Run near Reston, Va.	01644291	.08	SED	1971-74
Smilax Branch at Reston, Va.	01644295	.32	SED	1971-75
Snakeden Branch at Reston, Va.	01645784	.79	SED	1973-78
Cedar Run near Aden, Va.	01656100	155	SED	1974
Bull Run near Catharpin, Va.	01656725	25.8	SED	1974
Cub Run near Bull Run, Va.	01656960	49.9	SED	1972-74
Bull Run near Clifton, Va.	01657415	185	SED	1973-74
Quantico Creek near Dumfries, Va.	01658480	6.90	C	1983-85
South Fork Quantico Creek near Independent Hill, Va.	01658500	7.64	C	1951, 1953, 1955-56, 1969, 1973-75, 1983-85
South Fork Quantico Creek at Camp 5, near Joplin, Va.	01658550	9.62	C	1983-85
South Fork Quantico Creek near Dumfries, Va.	01658650	16.6	C	1983-85
South Fork Quantico Creek near Triangle, Va.	01658620	15.7	T, SC	1973
RAPPAHANNOCK RIVER BASIN				
Carter Run near Marshall, Va.	01661900	19.5	SED	1977-78
Hazel River at Rixeyville, Va.	01663500	287	T SC SED	1951-55 1953-55 1952-55
Rappahannock River at Remington, Va.	01664000	620	SC, T SED	1951-56, 1965-86 1951-93

## Discontinued surface-water-quality stations--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record (water years)
RAPPAHANNOCK RIVER BASIN--Continued				
Rapidan River near Culpeper, Va.	01667500	472	T SC SED	1946, 1951-56 1953-56 1951-56
Mountain Run near Burr Hill, Va.	01667870	28.8	C, T, SC	1990-92
Rappahannock River near Fredericksburg, Va.	01668000*	1,596	T, SC	1956, 1968-74
Rappahannock River at VEPCO Dam, at Fredericksburg, Va.	01668020	-	T, SC	1971-72

## YORK RIVER BASIN

North Anna River below Lake Anna, near Hewlett, Va.	01670600	-	T, SC	1972-73
Pamunkey Creek at Lahore, Va.	01670180	40.5	C, T, SC	1989-92
Bunch Creek near Boswells Tavern, Va.	01671500	4.37	T	1954-56
Pamunkey River near Hanover, Va.	01673000*	1,081	T SC	1946, 1968-76 1968-76
Mattaponi River near Bowling Green, Va.	01674000	257	T	1946
Mattaponi River near Beulahville, Va.	01674500*	601	T	1946

## JAMES RIVER BASIN

Jackson River at Falling Spring, Va.	02012500	411	T, SC C	1969-86 1930, 1948, 1968-86
James River at Buchanan, Va.	02019500	2,075	T  SC  SED C	1948, 1951-56, 1968-86 1953-56, 1968-86 1951-56 1930, 1948, 1951-56, 1968-86
James River at Bent Creek, Va.	02026000	3,683	T	1948
James River at Scottsville, Va.	02029000	4,584	T, SC SED	1951-56, 1987 1951-56
James River at Cartersville, Va.	02035000*	6,257	T, SC  SED	1968-76, 1979, 1981 1981
James River and Kanawha Canal, near Richmond, Va.	02037000	-	C, T, SC	1972-73
James River near Richmond, Va.	02037500	6,758	T, SC	1948-51, 1953-56
Fishpond Creek near Hixsburg, Va.	02038830	14.0	SC	1981
Vaughans Creek near Hixsburg, Va.	02038880	23.2	SC	1981
Chickahominy River tributary at Atlee Exit, near Greenwood, Va.	0204228301	-	C, T, SC,	1994
Chickahominy River near Atlee, Va.	02042287	62.2	C, SED	1989-91
Upham Brook near Richmond, Va.	02042428	38.6	C, SED	1989-91
Chickahominy River at Rt. 156, near Seven Pines, Va.	02042440	149.3	C SED	1984, 1987-91 1988-91

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



## Discontinued surface-water-quality stations--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record (water years)
JAMES RIVER BASIN--Continued				
Chickahominy River near Providence Forge, Va.	02042500	248	C, T, SC SED	1969-70, 1972-91 1990-91
Chickahominy River above Walkers Dam, at Walkers, Va.	02042720	301	C, T, SC SED	1983-91 1990-91
Diascund Creek at Rt. 628, near New Kent, Va.	02042726	9.25	C, T, SC SED	1986-91 1991
Diascund Creek Reservoir off Timber Swamp, near Walkers, Va.	02042734	-	C, T, SC	1983-91
Beaverdam Creek at Rt. 632, near Barhamsville, Va.	02042736	4.82	C, T, SC SED	1986-91 1991
Wahrani Swamp at Rt. 632, near Barhamsville, Va.	02042742	4.02	C, T, SC	1986-91
Diascund Creek Reservoir off pump station, near Walkers, Va.	02042746	-	C, T, SC	1983-91
Little Creek Reservoir Infall near Norge, Va.	0204275415	-	C, T, SC	1983-85
Little Creek Reservoir (North) near Norge, Va.	0204275420	-	C, T, SC	1983-85
Little Creek Reservoir (North Central) near Norge, Va.	0204275430	-	C, T, SC	1983-91
Little Creek Reservoir (Northeast) near Norge, Va.	0204275440	-	C, T, SC	1983-85
Little Creek Reservoir (South Central) near Norge, Va.	0204275470	-	C, T, SC	1983-91
Little Creek Reservoir (West) near Norge, Va.	0204275490	-	C, T, SC	1983-91

## CHOWAN RIVER BASIN

Nottoway River near Burkeville, Va.	02044000	38.7	T	1947
Nottoway River near Sebrell, Va.	02047000*	1,421	T	1947
Blackwater River at Zuni, Va.	02048000	456	T	1947
North Meherrin River near Lunenburg, Va.	02051000	55.6	T	1947
Meherrin River at Emporia, Va.	02052000	747	T, SC C	1968-80 1968-93

## ROANOKE RIVER BASIN

Roanoke River at Lafayette, Va.	02054500	257	T, SC	1951
Roanoke River at Altavista, Va.	02060500	1,789	T SC SED C	1951, 1953-56, 1968-86 1953-56, 1968-86 1953-56 1951, 1953-56, 1968-86
Roanoke River at Randolph, Va.	02066000	2,977	T, SC SED C	1951-56, 1968-62 1954-81 1930, 1951-86

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

## WATER RESOURCES DATA - VIRGINIA, 1995

## Discontinued surface-water-quality stations--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record (water years)
ROANOKE RIVER BASIN--Continued				
Smith River at Rt 8 near Woolwine, Va.	02071520	-	C, T, SC	1994
Dan River at Paces, Va.	02075500	2,550	T, SC SED C	1954-56 1954-81 1954-93
Dan River at South Boston, Va.	02076000	2,730	T SC	1952 1951-52
Roanoke River at Clarksville, Va.	02079000	7,320	C	1987-91
Lake Gaston near Elams, N. C.	02079785	-	T, SC SED	1988 1988
Lake Gaston (Little River Channel) near Henrico, Va.	0207987950	-	C, T, SC	1987-92
Pea Hill Creek at Route 665, near Gasburg, Va.	02079880	-	C, T, SC	1987-92
Pea Hill Creek above Rt. 667, near Gasburg, Va.	0207988050	-	C, T, SC	1989-90
Pea Hill Creek tributary No. 1, near Gasburg, Va.	02079881	-	C, T, SC	1989-90
Pea Hill Creek tributary No. 2, near Valentines, Va.	0207988130	-	C, T, SC	1989-90
Pea Hill Creek tributary No. 3, near Valentines, Va.	0207988160	-	C, T, SC	1989-90
Pea Hill Creek tributary No. 4, near Valentines, Va.	02079883	-	C, T, SC	1989-90
Pea Hill Creek tributary No. 4 tributary, near Valentines, Va.	0207988430	-	C, T, SC	1989-90
Cold Spring Branch near Gasburg, Va.	0207988440	-	C, T, SC	1989-90
Pea Hill Creek above North Carolina State line, near Gasburg, Va.	0207988450	-	C, T, SC	1987-92
Lake Gaston (Pea Hill Creek) near Henrico, N. C.	0207988490	-	C, T, SC	1989-90
Lake Gaston tributary near Tillans Chapel, near Elams, N. C.	0207988510	-	C, T, SC	1989-90
Pea Hill Creek tributary No. 5, near Henrico, N. C.	02079888550	-	C, T, SC	1989-90
Pea Hill Creek near Bowens Corner, near Valentines, Va.	02079882	-	C, T, SC	1988

## KANAWHA RIVER BASIN

New River near Galax, Va.	03164000	1,131	T, SC C	1950, 1968-83 1931, 1950, 1952, 1968-86
New River at Radford, Va.	03170000	2,748	T, SC	1950, 1956
New River at Eggleston, Va.	03171500	2,941	T, SC	1953-55
New River at Glen Lyn, Va.	03176500*	3,768	SC T	1968-88 1964-88

## BIG SANDY RIVER BASIN

Levisa Fork near Grundy, Va.	03207500	235	T, SC SED	1950 1986
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TYPE OF RECORD: C (chemical), T (water temperature), SC (specific conductance), SED (sediment)

\* Presently active periodic sampling station.

## Discontinued surface-water-quality stations--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record (water years)
BIG SANDY RIVER BASIN--Continued				
Levisa Fork at Big Rock, Va.	03207800	297	T, SC SED	1970-81 1970-81
Grissom Creek near Council, Va.	03208034	2.82	T, SC, C, SED	1982-83
Barton Fork near Council, Va.	03208036	10.2	T, SC, C, SED	1981-83
Russell Fork at Council, Va.	03208040	1.23	T, SC C	1981-83 1982-83
Russell Fork near Birchleaf, Va.	03208100	87.4	T, SC, C	1982-83

## TENNESSEE RIVER BASIN

South Fork Holston River near Damascus, Va.	03473000	301	T SC C	1950, 1968-73 1950 1950, 1952, 1968-86
Middle Fork Holston River at Chilhowie, Va.	03474500	155	T	1962
Brumley Creek near Hansonville, Va.	03488445	4.29	T	1980-81
Brumley Creek at Brumley Gap, Va.	03488450	21.1	T	1979-81
North Fork Holston River at Holston, Va.	03488500	402	T, SC	1952-56
North Fork Holston River near Gate City, Va.	03490000	672	T  SC SED	1950-51, 1968-78 1950-51 1935-38, 1963-65
Clinch River at Speers Ferry, Va.	03527000	1,126	T SC SED	1950, 1965-67 1950 1935-38, 1963-65
Powell River at Big Stone Gap, Va.	03529500	112	T, SC	1950
Powell River near Jonesville, Va.	03531500	319	T	1964-67

TYPE OF RECORD: C (chemical), T (water temperature), SC (specific conductance), SED (sediment)

\* Presently active periodic sampling station.

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# WATER RESOURCES DATA - VIRGINIA, 1995

## VOLUME 1. SURFACE-WATER-DISCHARGE AND SURFACE-WATER-QUALITY RECORDS

### 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 and stage, contents, and water quality of lakes and reservoirs. This volume contains records for water discharge at 176 gaging stations; stage only at 1 gaging station; stage and contents at 10 lakes and reservoirs; and water quality at 31 gaging stations. Also included are data for 95 crest-stage partial-record stations. Locations of these sites are shown on figures 4 and 5. Miscellaneous hydrologic data were collected at 28 measuring sites and 38 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. Beginning with the 1990 water year, the report format was changed to two volumes. Volume 1 contains surface-water-discharge and surface-water-quality data and Volume 2 contains ground-water-level and ground-water-quality data.

Prior to the 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." 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 the U.S. Geological Survey, Branch of Information Services, Federal Center, Bldg. 41, Box 25286, Denver, Colorado 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-95-1." 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, Virginia 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Office at the address given on the back of the title page or by telephone (804) 278-4750.

### COOPERATION

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

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY, Peter W. Schmidt, executive director.

VIRGINIA DEPARTMENT OF TRANSPORTATION, David P. Gehr, commissioner.

CITY OF ALEXANDRIA, Vola Lawson, city manager.

CITY OF DANVILLE, Herbert Dawson, director, Water and Wastewater.

CITY OF NEWPORT NEWS, Brian Ramaley, director, Department of Public Utilities.

CITY OF ROANOKE, Kit B. Kiser, director, Utilities and Operations.

JAMES CITY COUNTY, David B. Norman, county administrator

NORTHERN VIRGINIA PLANNING DISTRICT COMMISSION, G. Mark Gibb, executive director.

WEST PIEDMONT PLANNING DISTRICT COMMISSION, Robert W. Dowd, executive director.

SOUTHEASTERN PUBLIC SERVICE AUTHORITY, Durwood S. Curling, executive director.

UNIVERSITY OF VIRGINIA, Dr. James N. Galloway, chairman, Graduate Admissions.

CITY OF NORFOLK, Shurl Montgomery, assistant city manager.

HAMPTON ROADS PLANNING DISTRICT COMMISSION, Arthur L. Collins, executive director.

WASHINGTON COUNTY SERVICE AUTHORITY, Bert C. Mullins, general manager.

Assistance with funds or services was given by the U.S. Army Corps of Engineers in collecting records for 54 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 2 gaging stations, the records for which are published herein. Similar financial assistance for water-quality studies was provided by the U.S. Marine Corps Base, Quantico, Va., for the Quantico, Cannon, and Aquia Creek Basins. Other cooperators that provided funds for the collection of records are the Appalachian Power Company, Virginia Power, City of Danville, City of Radford, City of Bedford, Multitrade of Pittsylvania County, Hadson Power, STS Hydropower, and Georgia Pacific Corporation.

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 81 gaging stations operated by the Virginia Department of Environmental Quality. These records are published as provided and are acknowledged in the "COOPERATION" paragraph of each individual station. The Virginia Department of Environmental Quality is under the direction of Peter W. Schmidt, executive director. Published material for the gaging-station records is supplied, respectively, through the Water Division, Robert G. Burnley, director, and Office of Water Resources Management, Larry G. Lawson, director.

## SUMMARY OF HYDROLOGIC CONDITIONS

### Surface-Water Discharge

Annual-mean discharges for the 1995 water year in the Shenandoah, Rappahannock, York, James, Roanoke, and Kanawha River Basins were in the normal range of flow (between the twenty-fifth and seventy-fifth percentile of annual-mean flows) based on streamflow data at the most downstream gaged location of the basins. Annual-mean discharge for the Chowan River Basin was below normal (below the twenty-fifth percentile of annual-mean flows) based on streamflow data at the Nottoway River near Sebrell, Va. Several smaller basins within the major basins had annual-mean discharges that were below normal because of drought conditions in August and September, primarily in the eastern and southwestern areas of the State. Annual-mean discharges were below normal at the North Fork Shenandoah River near Strasburg, Va., Mattaponi River near Beulahville, Va., Slate River near Arvon, Va., Meherrin River near Lawrenceville, Va., Nottoway River near Stony Creek, Va., Blackwater River near Franklin, Va., and North Fork Holston River near Saltville, Va. No stream-gaging stations in the State had annual-mean discharges above normal (above the seventy-fifth percentile of annual-mean flows). Figure 1 shows a comparison of annual-mean discharges with the long-term mean discharges at selected stations throughout the State.

Monthly-mean discharges were generally below the median monthly-mean discharges at stream-gaging stations for most of the water year except for the winter and mid-summer months. The distribution of monthly-mean discharges for selected stations are shown in Figure 2. The unusually high monthly-mean discharges in June and July are primarily the result of severe flooding caused by a stationary front and a series of thunderstorms that occurred in late June in northwestern central Virginia. New annual maximum instantaneous discharges (table 1) were recorded at eight stream-gaging stations in the Rappahannock, James, and Roanoke River Basins as a result of floods during June. New annual minimum instantaneous discharges were recorded at two stream-gaging stations in the James River Basin; the Totopotomoy River near Studley, Va., (18 years of record) and the Chickahominy River near Providence Forge, Va., (54 years of record).

Table 1. Maximum, period of record, instantaneous peak discharges recorded during 1995 water year  
[>, indicates greater than]

Gaging Station	Maximum instantaneous discharge, in cubic feet per second	Recurrence interval, in years	Length of record, in years
Battle Run near Laurel Mills, Va.	9,120	68	37
Rapidan River near Ruckersville, Va.	106,000	>500	53
Robinson River near Locust Dale, Va.	25,400	40	51
Rapidan River near Culpeper, Va.	59,300	113	65
Moormans River near Free Union, Va.	19,100	23	16
Big Otter River near Evington, Va.	<sup>a</sup> 45,900	>100	59

a Daily mean discharge. Actual peak is known to be higher.

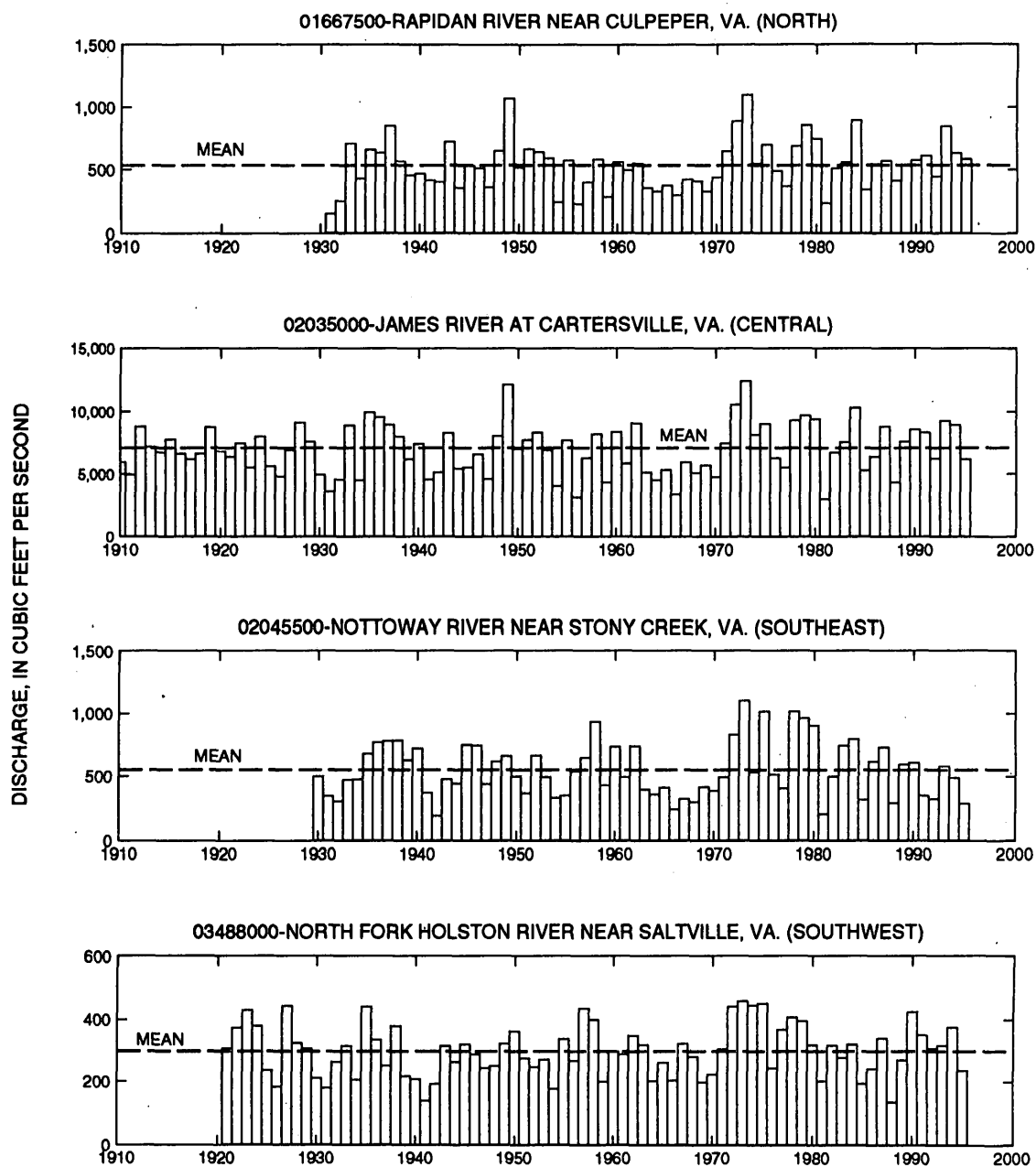
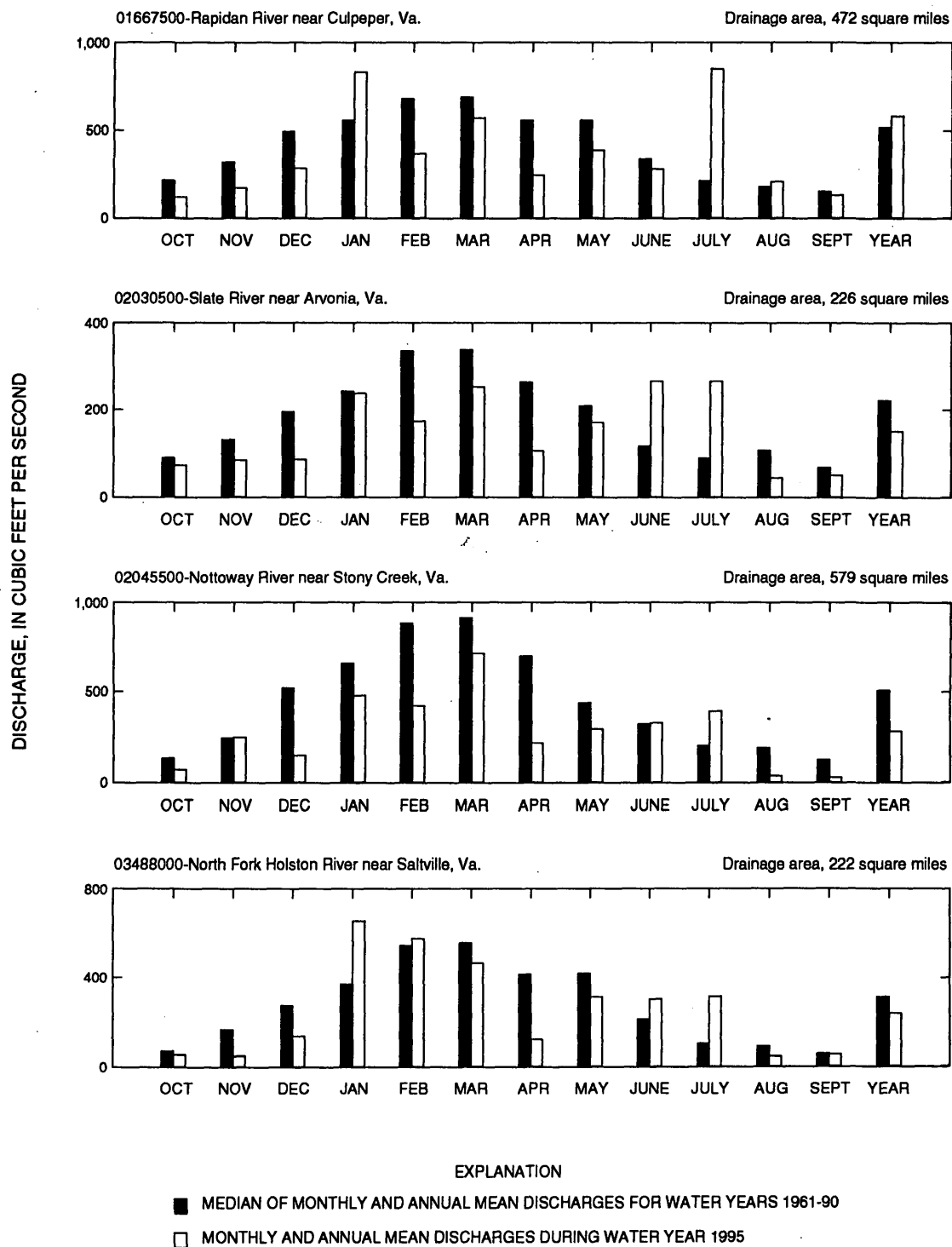


Figure 1. Annual mean discharge at selected stream-gaging stations.



**Figure 2.** Monthly and annual mean discharge during 1995 water year compared with median of monthly and annual mean discharge for 1961-90 at four representative stream-gaging stations.



Surface-Water Quality

Three stations were selected to represent variations in water-quality across Virginia: 1) the Blackwater River near Franklin, Va, in the Coastal Plain Physiographic Province; 2) the James River at Cartersville, Va., in the Piedmont Physiographic Province; and 3) the New River at Glen Lyn, Va., in the Valley and Ridge Physiographic Province. All of these stations were monitored as part of the National Stream Quality Accounting Network (NASQAN) Program or National Water-Quality Assessment (NAWQA) Program through September 1995. Each of the three stations was sampled at least quarterly during the year for specific analytes which included nutrients, suspended sediment, selected trace metals, and major anions and cations.

The water chemistry at any site is influenced by variables such as the geology of the basin, biological processes such as seasonal utilization of nutrients by plants, and human influences such as land use and waste-water discharge.

Some species of aquatic animals cannot tolerate instream dissolved oxygen concentrations below a certain concentration. Oxygen is incorporated into the water from the atmosphere and from respiration by aquatic plants. In Virginia, the water-quality standard for dissolved oxygen concentration is 5 mg/L. Of the three representative stations in Virginia, only the Blackwater River showed concentrations less than 5 mg/L; this occurred on three different sampling dates during the 1995 water year. The dissolved oxygen concentration ranged from 4.1 to 10.0 mg/L at the Blackwater River, 6.6 to 13.4 mg/L at the James River, and 6.8 to 11.7 mg/L at the New River.

Nutrients such as nitrogen and phosphorus are essential for plant growth, and are applied to cropland as fertilizers. Nitrogen is also abundant in animal wastes such as manure. Excess nutrients in streamwater may cause excess growth of algae and other aquatic plants which may clog waterways, block sunlight, and during decay, utilize oxygen necessary for aquatic life.

Concentrations of dissolved nitrite-plus-nitrate nitrogen ranged from <.05 to .28 mg/L at the Blackwater River, 0.14 to 0.39 mg/L at the James River, and 0.41 to 0.74 mg/L at the New River. The higher concentrations of nitrite-plus-nitrate in the New River may be due to the geologic setting and the land use. The Valley and Ridge Physiographic Province is underlain in places by porous limestone and dolomite which allow rapid ground-water flow and discharge to streams. Land use within this basin includes many poultry and livestock farms, which may be contributing large amounts of nitrogen to the New River by way of surface runoff and ground-water transport.

Concentrations of total phosphorus ranged from .02 to .09 mg/L at the Blackwater River, .05 to .14 mg/L at the James River, and .02 to .06 mg/L at the New River. The median value of total phosphorus in the James River increased steadily between 1981 and 1989, but decreased dramatically beginning in 1991. The decrease in total phosphorus concentration may have resulted from the Statewide phosphorus ban in detergents in 1988, and (or) to changes in agriculture in the basin.

Trace metals in a stream can be derived from natural rocks and soils, industrial discharge, or from urban runoff. During 1995, the concentrations of trace metals analyzed, which included aluminum, barium, cobalt, nickel, silver, selenium, strontium and vanadium, were well below the U.S. Environmental Protection Agency (USEPA) standards for safe drinking water. In most cases, concentrations were less than one-tenth of the established standard. At the Blackwater River, concentrations of iron and manganese were consistently higher than USEPA secondary maximum contaminant level (MCL) of 300 µg/L for iron and 50 µg/L for manganese. Although the concentrations do not pose a risk to human health, they may produce an objectionable taste and stain laundry.

The counts of fecal coliform bacteria at the three sampling stations ranged from 29 to 240 col/100 ml, 22 to 34 col/100 ml, and 6 to 240 col/100 ml for the Blackwater, James, and the New Rivers, respectively. Fecal streptococcal bacteria ranged from 4 to 150 col/100ml, 8 to 45 col/100 ml, and 12 to 250 col/100 ml.

Concentrations of total dissolved solids for the 1995 water year at the Blackwater, James, and New Rivers ranged from 66 to 117 mg/L, 66 to 148 mg/L, and 76 to 113 mg/L, respectively, all of which are below the USEPA secondary MCL of 500 mg/L in drinking water. Although sediment analyses were not completed for the New River, sediment concentration in the James River ranged from 7 to 621 mg/L, while sediment concentration in the slower-moving Blackwater River ranged from 4 to 12 mg/L.

### SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 53 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 national or regional water-quality planning and management. The 142 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.

NASQAN was redesigned in 1995 and will be known as NASQAN II beginning in 1996. NASQAN II will focus on four of the largest river basins in the Nation-- the Mississippi, the Columbia, the Colorado, and the Rio Grande. The objective of NASQAN II is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals.

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 wet atmospheric deposition, which includes snow, rain, sleet and hail. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, diverse, and geographically distributed part of the Nation's ground- and surface-water resources, and to identify, describe, and explain the major natural and human factors that affect these observed conditions and trends.

Assessment activities have begun in about two-thirds of the study units and ultimately will be conducted in 60 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Radiochemical Programs 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 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-discharge and surface-water-quality records published in this report are for the 1995 water year that began October 1, 1994, and ended September 30, 1995. 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, and water-quality data for surface water. The locations of the stations where the data were collected are shown in figures 4 and 5. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

### Station Identification Numbers

Each data station 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 system used by the U.S. Geological Survey to assign identification numbers for surface-water stations is based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is occasionally used 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 indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 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 some miscellaneous surface-water and water-quality 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 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.

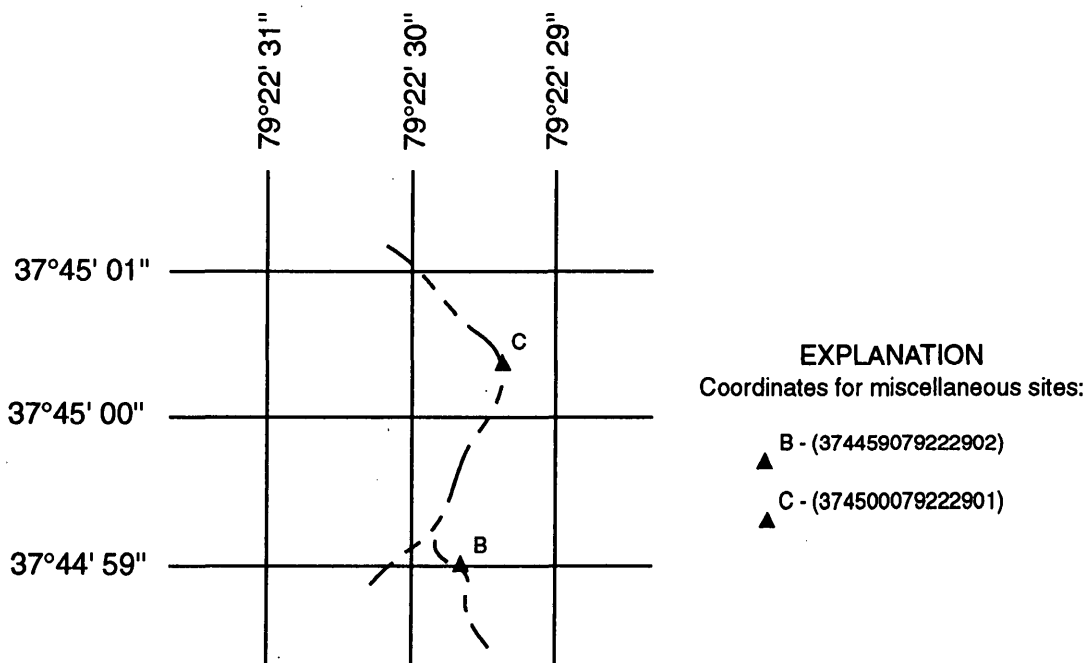


Figure 3. System for numbering selected miscellaneous sites.

### 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 4 and 5.

## 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 (TWRI's), Book 3, Chapter A1 through A19 and Book 8, Chapters A2 to B2. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

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

Streamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1991 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water-discharge station (gaging station) now consist of four parts: the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration.

Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; extremes for the current year; 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 gaging station 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 records have been published 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 flow at it can reasonably be considered equivalent to flow at the present station.

REVISED RECORDS.--Because of new information, published records 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 sea level (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 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 paragraph 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, and to conditions that affect natural flow at the station. In addition, information may be presented pertaining to average discharge data for the period of record; to extremes data for the period of record and the current year; 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 U.S. Geological Survey by a cooperating organization are identified here.

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 District Office (address 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 for a discontinued station 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.

Headings for AVERAGE DISCHARGE and EXTREMES FOR PERIOD OF RECORD have been deleted and the information contained in these paragraphs is now presented in the tabular summaries following the discharge table or in the REMARKS paragraph, as appropriate. No changes have been made to the data presentation of lake contents.

### Data table of daily mean values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month; the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for each 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 or in acre-feet may be omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. At some stations, monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

### Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEARS \_\_\_\_\_, BY WATER YEAR (WY)," and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

### Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS \_\_\_\_\_," will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (See line headings below.), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations, the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of title page of this report.)

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

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

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.--The discharge that has been exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that has been exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that has been exceeded 90 percent of the time for the designated period.

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

### Identifying Estimated Daily Discharge

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

### Accuracy of the Records

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

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

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

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

### Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables is on file in the Virginia District Office. 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 Virginia District Office. (See address on back of 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 detailed in the "Techniques of Water-Resources Investigations," Book 1, Chapter D2; Book 3, Chapter C2; Book 5, Chapters A1, A3, and A4. These references are listed in the "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" section of this report which appears at the end of the introductory text. These methods are consistent with American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO). Detailed information on collecting, treating, and shipping samples may be obtained from the Virginia District Office. (Address on back of title page.)

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. 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 District Office whose address is given on the back of the title page of this report.



## Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at 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 District Office. (Address on back of title page.)

## 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. Methods used in the computation of sediment records are described in the TWRI Book 3, Chapters C1 and C3. These methods are consistent with American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

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 to analyze sediment samples and to compute sediment records are given in TWRI Book 5, Chapter C1. Methods used by the Geological Survey laboratories are given in TWRI Book 1, Chapter D2; Book 3, Chapter C2; Book 5, Chapters A1, A3, A4, and A5. These methods are consistent with American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

## 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.

### ACCESS TO WATSTORE DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. As part of the Geological Survey's program of releasing water data to the public, a large-scale computerized system has been developed for the storage and retrieval of water data collected through its activities. The National Water Data Storage and Retrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey and to facilitate release of the data to the public. A variety of useful products, ranging from data tables to complex statistical analyses such as Log Pearson Type III, can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia, and consists of related files and data bases.

- \* Station Header File - Contains descriptive information on more than 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.
- \* Daily Values File - Contains more than 220 million daily values of stream flows, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water levels.

- \* Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.
- \* Water Quality File - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemical characteristics of both surface and ground water.

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requestor will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey  
National Water Data Exchange  
421 USGS National Center  
Reston, Virginia 22092

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division's District offices. (See address on the back of the title page.)

### 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.

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 + or - 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 + or - 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 + or - 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 micro-organisms, such as bacteria.

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

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

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

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

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.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

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

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

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

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

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

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

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

Hydrologic Bench-Mark Network is a network of 53 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.

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 ( $\mu\text{g/g}$ ) 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 ( $\mu\text{G/L}$ ,  $\mu\text{g/L}$ ) 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 ( $\text{MG/L}$ ,  $\text{mg/L}$ ) 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  $\text{mg/L}$  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 284 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).

The National Water-Quality Assessment (NAWOA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, diverse, and geographically distributed part of the Nation's ground- and surface-water resources, and to identify, describe, and explain the major natural and human factors that affect these observed conditions and trends.

Assessment activities have begun in more than one-third of the study units and ultimately will be conducted in 60 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide a basis for decision making on the use of water resources within the study units and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

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 ( $\text{m}^2$ ), 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:

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

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

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

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

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

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

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

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

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

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells 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<sup>2</sup>.time)] for periphyton and macrophytes and [mg C/(m<sup>3</sup>.time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

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

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

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

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

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

Sea level: In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

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 ( $\text{ft}^3/\text{s}$ ) 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 emerged or submersed solid surface, such as a rock or tree, upon which an organism lives.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1995, is called the "1995 water year."

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

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

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

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

The reports listed below are for sale by the U.S. Geological Survey, Branch of Information Services, Federal Center, Box 25286, 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-D2. Application of seismic-refraction techniques to hydrologic studies, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 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.
- 2-E2. Borehole geophysics applied to ground-water investigations, by W. Scott Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.
- 2-F1. Application of drilling, coring, and sampling techniques to test holes and wells, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 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. J. 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.
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- 3-A17. Acoustic velocity meter systems, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.
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An index of geophysical logging in Virginia by the U.S. Geological Survey, by M. P. Mulheren, J. D. Larson, and H. T. Hopkins: U.S. Geological Survey Open-File Report 82-432. 1982. 34 pages.

Annual maximum stages and discharges of selected streams in Virginia through 1990, by B. J. Prugh, Jr., E. H. Nuckels, and C. G. Humphrey: U.S. Geological Survey Open-File Report 90-587. 1991. 442 pages.

Assessment of ground-water contamination from a leaking underground storage tank at a Defense Supply Center near Richmond, Virginia, by W. G. Wright and J. D. Powell: U.S. Geological Survey Water-Resources Investigations Report 90-4091. 1990. 38 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.

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Ground water in Virginia: Use during 1990, availability, and resource information needs, by McFarland, E. R. and Focazio, M. J.: U.S. Geological Survey Open-File Report 94-114. 1 page.

Ground-water availability along the Blue Ridge Parkway, Virginia, by H. T. Hopkins: U.S. Geological Survey Water-Resources Investigations Report 84-4168. 1985. 154 pages.

Ground-water contamination and movement at the Defense General Supply Center, Richmond, Virginia, by J. D. Powell, W. G. Wright, D. L. Nelms, and R. J. Ahlin: U.S. Geological Survey Water-Resources Investigations Report 90-4113. 1991. 36 pages.

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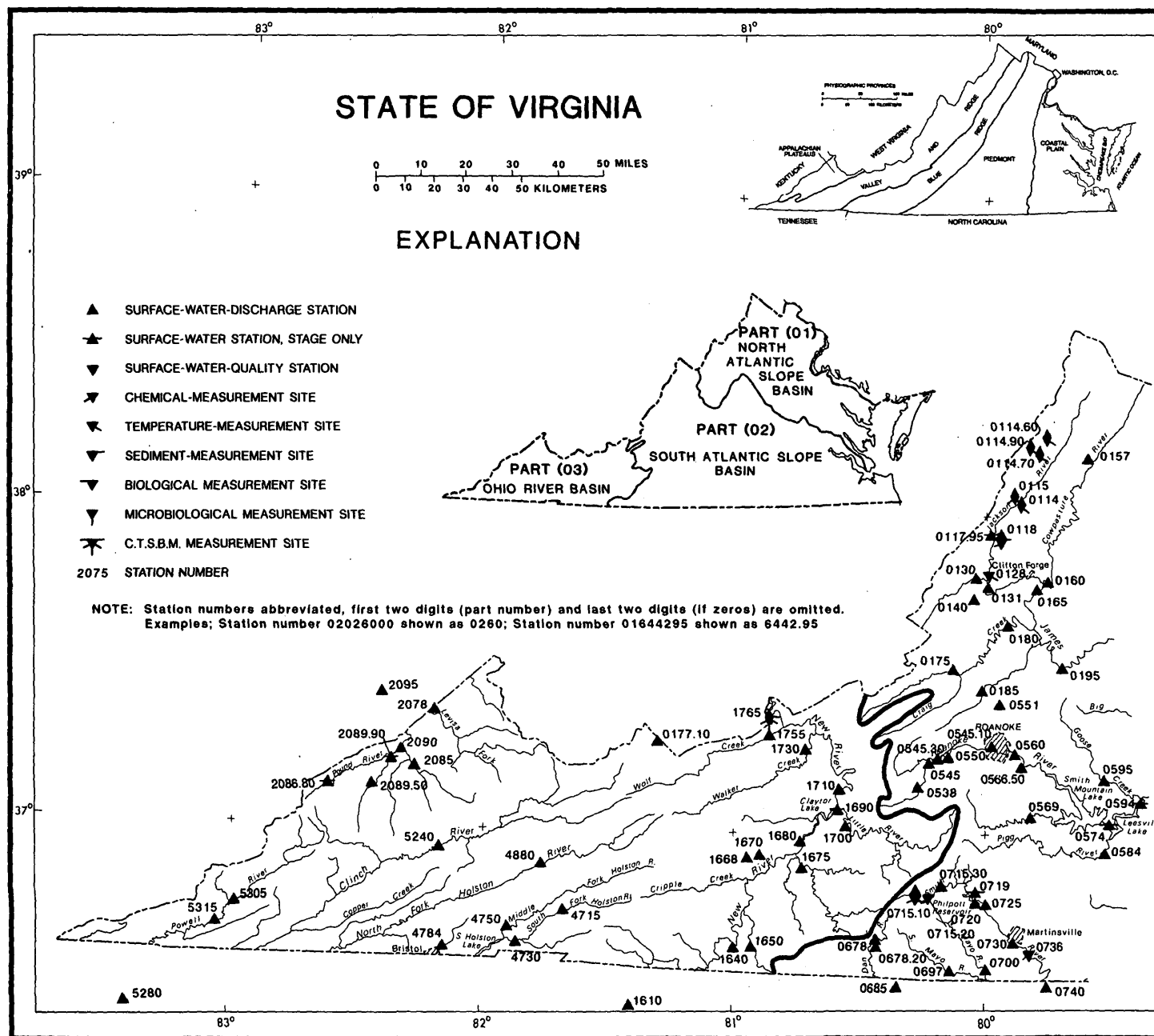
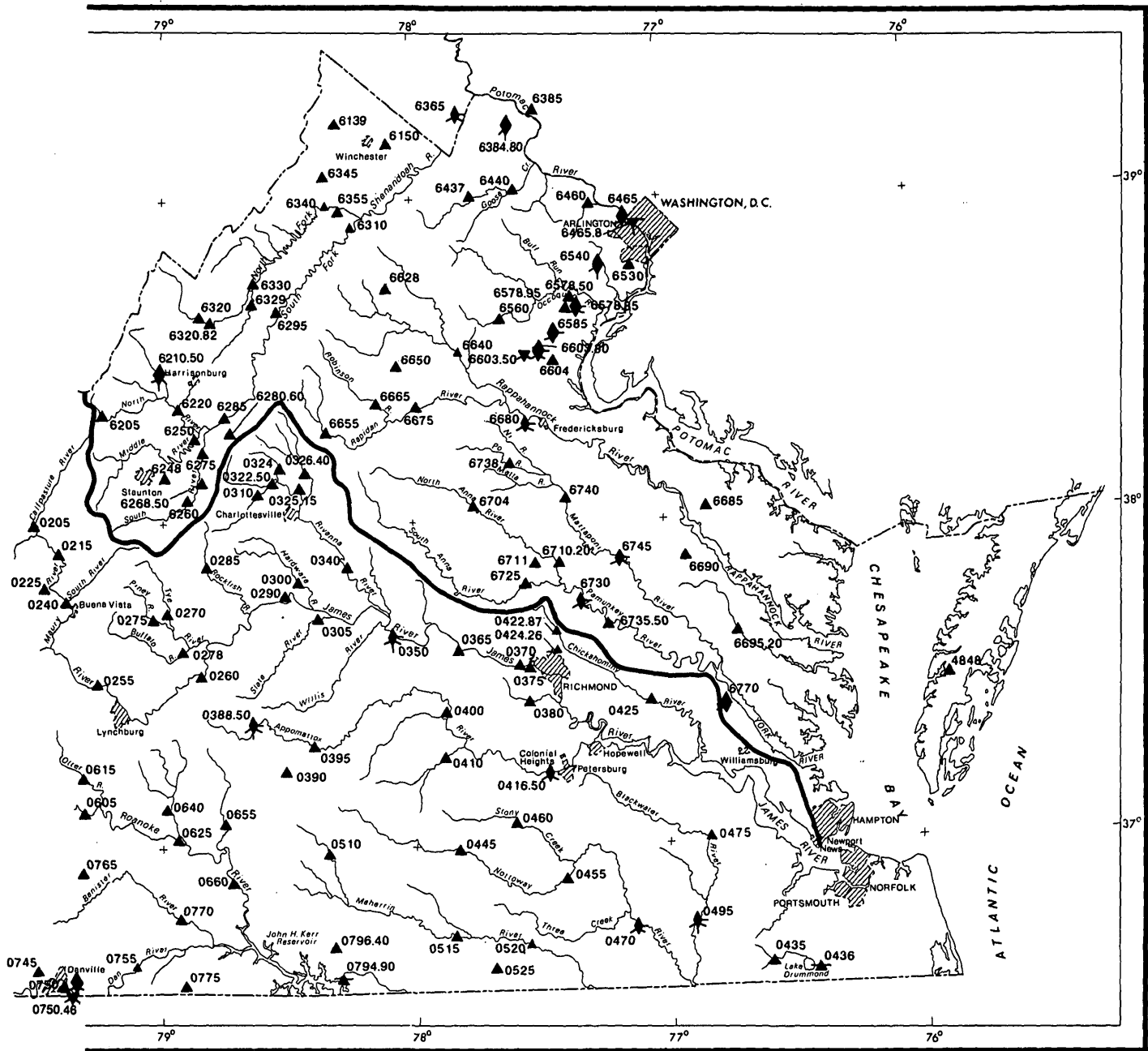


Figure 4. Location of surface-water-discharge and surface-water-quality data-collection stations.



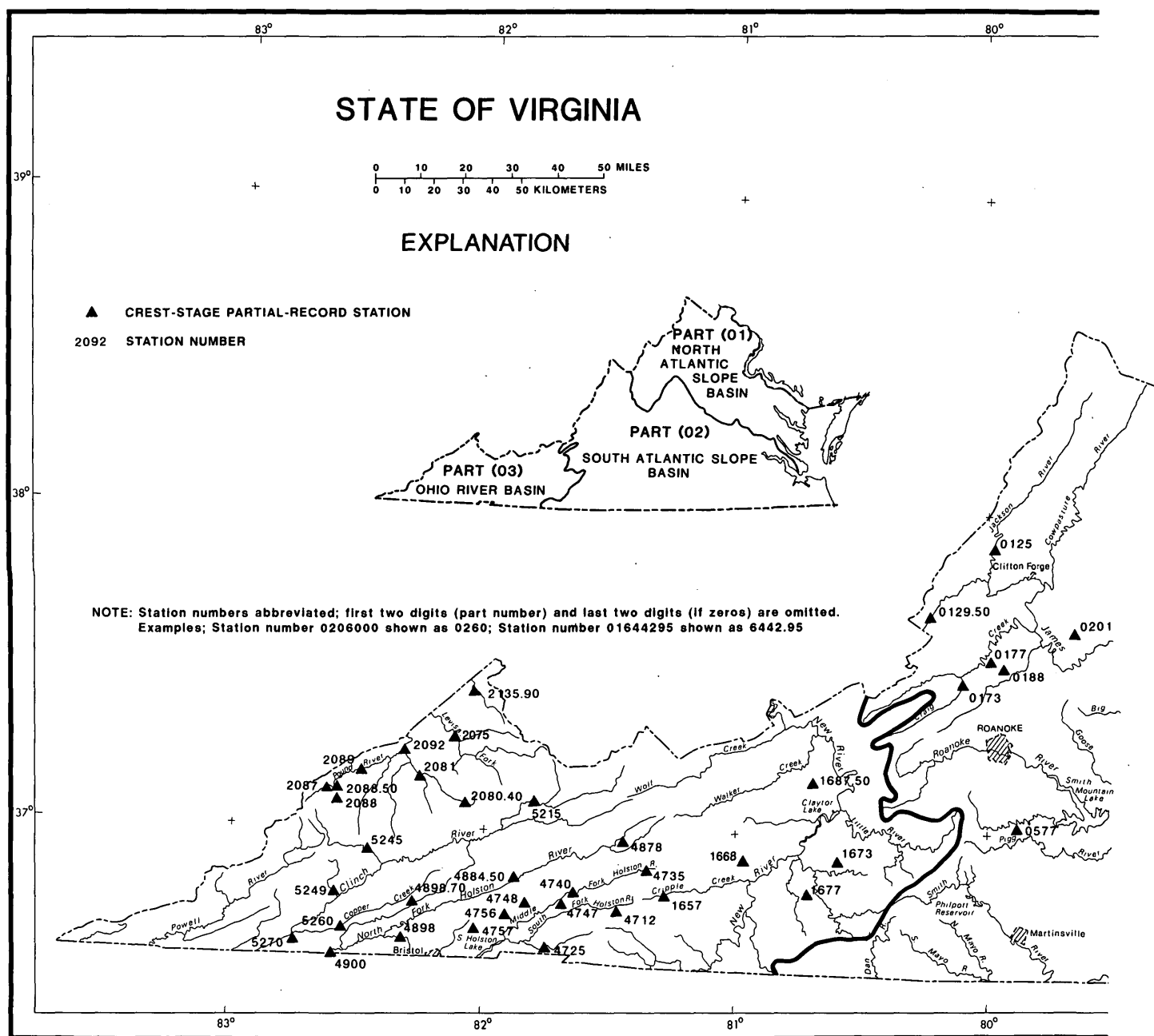
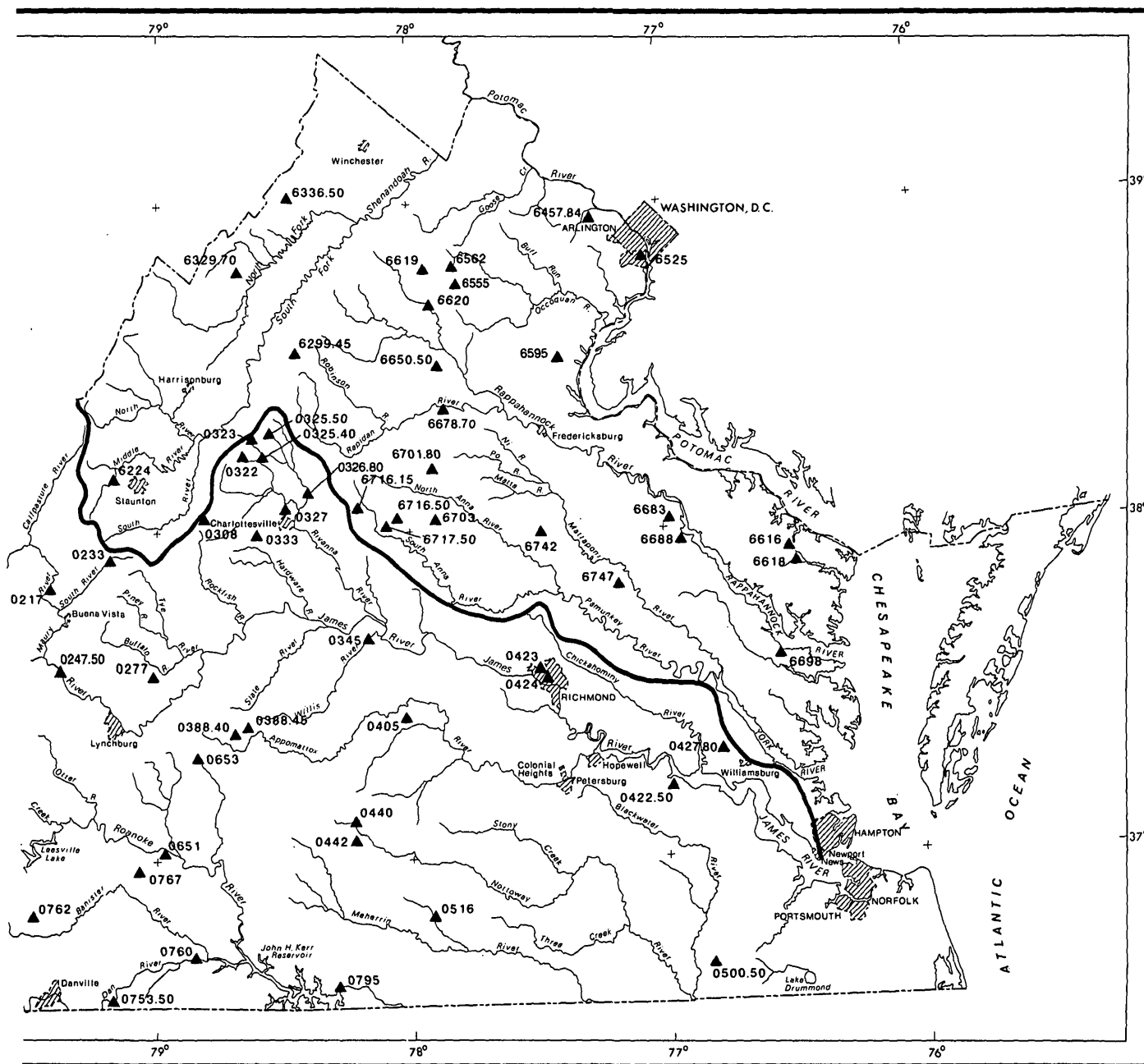


Figure 5. Location of surface-water partial-record stations.



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## SURFACE-WATER-DISCHARGE AND SURFACE-WATER-QUALITY RECORDS

### Remarks Codes

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

PRINT 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.

### Dissolved Trace-Element Concentrations

\*NOTE.-- Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter (ug/L) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter (ng/L). Data above the ug/L level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994.

### Change in National Trends Network Procedures

\*NOTE.-- Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP/NTN Coordination Office, Colorado State University, Fort Collins, CO 80523 (Telephone: 303-491-5643).

## HYDROLOGIC-DATA STATION RECORDS

## NORTH ATLANTIC SLOPE BASINS

## NASSAWADOX CREEK BASIN

01484800 GUY CREEK NEAR NASSAWADOX, VA

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 11.67 ft above sea level.

REMARKS.--Records fair except those for periods of doubtful gage-height record, Oct. 1-6, Oct. 17 to Nov. 16, Jan. 12-14, Feb. 3, 7, 8, 10-14, 21-27, Mar. 4-7, 14-22, Apr. 18-20, and May 16-18, which are poor. Some diversion into pond for irrigation upstream from station, amount unknown. Maximum discharge, 171 ft<sup>3</sup>/s, from rating curve extended above 20 ft<sup>3</sup>/s. No flow at times in 1964, 1966, 1981, 1983-85, 1987, 1991-95. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6.4 ft<sup>3</sup>/s, Jan. 20, gage height, 1.95 ft; no flow at times May to September, due to pumpage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.29	e.33	.77	.50	.58	3.8	.64	.62	.02	.00	.00	.04
2	e.28	e.29	.66	.38	.47	1.2	1.7	3.8	.02	.27	.00	.33
3	e.26	e.25	.52	.35	e.45	.59	1.5	3.8	.13	.13	.00	.35
4	e.24	e.22	.39	.34	.49	e.54	1.4	1.9	.15	.00	.00	.27
5	e.22	e.20	1.4	.30	.50	e.46	.79	.95	.00	.00	.05	.14
6	e.20	e.26	1.3	.32	.47	e.50	.52	.61	.16	.00	.12	.12
7	.10	e.25	.68	2.8	e.45	e.59	.45	.61	.55	.02	.18	.12
8	.16	e.23	.40	1.4	e.43	1.1	.39	.59	.26	.18	.14	.09
9	.26	e.22	.37	.80	.41	4.9	.37	.58	.16	.00	.11	.00
10	.13	e.24	1.5	.54	e.41	3.2	.36	.68	.14	.00	.01	.05
11	.23	e.23	1.7	.45	e.40	1.6	.19	.69	.07	.35	.00	.00
12	.27	e.22	.78	e.39	e.40	.82	.37	.66	.34	.00	.00	.00
13	.29	e.22	.61	e.35	e.39	.61	3.8	.63	.97	.18	.00	.02
14	.90	e.21	.56	e.40	e.41	e.60	2.8	.65	.90	.11	.00	.00
15	.50	e.20	.45	.52	.48	e.59	1.2	.69	.64	.17	.05	.05
16	.30	e.22	.50	.66	1.2	e.58	.56	e.68	.32	.07	.10	.19
17	e.29	.74	.56	.42	1.5	e.56	.47	e.66	.20	.00	.15	.33
18	e.28	1.3	.78	.35	.87	e.55	e.45	e.63	.19	.15	.07	.20
19	e.25	1.1	.65	.49	.59	e.54	e.44	.61	.22	.18	.00	.16
20	e.22	.31	.45	4.4	.54	e.53	e.43	.48	.22	.08	.15	.14
21	e.35	1.6	.38	3.8	e.50	e.62	.60	.24	.01	.00	.00	.14
22	e.33	3.1	.45	3.0	e.45	e.69	.51	.13	.24	.00	.01	.57
23	e.30	2.1	.47	2.0	e.41	.69	.47	.06	.12	.06	.00	.53
24	e.27	1.3	.46	1.3	e.38	.65	3.5	.11	.11	.20	.00	.19
25	e.25	.91	.40	.96	e.36	.58	1.9	.04	.13	.21	.00	.18
26	e.28	.63	.35	.77	e.35	.55	.57	.14	.10	.00	.00	.20
27	e.25	1.2	.35	.63	e.34	.50	.59	.52	.07	.08	.00	.21
28	e.21	2.2	.36	.57	.59	.45	.60	.54	.00	.00	.11	.21
29	e.19	1.4	.35	.70	---	.99	.54	.50	.00	.05	.00	.21
30	e.18	1.0	.34	.83	---	.97	.71	.33	.00	.09	.00	.22
31	e.25	---	.31	.77	---	.39	---	.03	---	.00	.00	---
TOTAL	8.53	22.68	19.25	31.49	14.82	30.94	28.82	23.16	6.44	2.58	1.25	5.26
MEAN	.28	.76	.62	1.02	.53	1.00	.96	.75	.21	.083	.040	.18
MAX	.90	3.1	1.7	4.4	1.5	4.9	3.8	3.8	.97	.35	.18	.57
MIN	.10	.20	.31	.30	.34	.39	.19	.03	.00	.00	.00	.00
CFSM	.16	.44	.36	.59	.31	.58	.56	.43	.12	.05	.02	.10
IN.	.18	.49	.42	.68	.32	.67	.62	.50	.14	.06	.03	.11

e Estimated.



## 01484800 GUY CREEK NEAR NASSAWADOX, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	.41	.77	1.17	1.99	2.35	3.07	2.13	1.15	.55	.61	.75	.39
MAX	1.59	4.90	2.98	5.42	5.44	6.85	6.23	5.13	1.99	3.55	4.59	2.66
(WY)	1965	1980	1984	1979	1979	1975	1983	1978	1979	1965	1979	1979
MIN	.095	.16	.21	.31	.50	.42	.51	.22	.000	.021	.040	.067
(WY)	1978	1977	1992	1966	1981	1981	1981	1991	1994	1993	1995	1977

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1965 - 1995
ANNUAL TOTAL	462.42	195.22	
ANNUAL MEAN	1.27	.53	1.27
HIGHEST ANNUAL MEAN			3.01 1979
LOWEST ANNUAL MEAN			.45 1992
HIGHEST DAILY MEAN	25 Mar 3	4.9 Mar 9	41 aJul 30 1979
LOWEST DAILY MEAN	b.00 (c)	b.00 (d)	b.00 (f)
ANNUAL SEVEN-DAY MINIMUM	b.00 gMay 29	b.00 Aug 21	b.00 hAug 27 1985
INSTANTANEOUS PEAK FLOW		6.4 Jan 20	171 Aug 22 1990
INSTANTANEOUS PEAK STAGE		1.95 Jan 20	6.84 Aug 22 1990
INSTANTANEOUS LOW FLOW		b.00 (j)	b.00 (f)
ANNUAL RUNOFF (CFSM)	.74	.31	.74
ANNUAL RUNOFF (INCHES)	10.00	4.22	10.06
10 PERCENT EXCEEDS	2.9	1.2	2.9
50 PERCENT EXCEEDS	.50	.35	.55
90 PERCENT EXCEEDS	.00	.00	.13

a Also July 31, 1979.

b Due to pumpage.

c Many days May to September 1994.

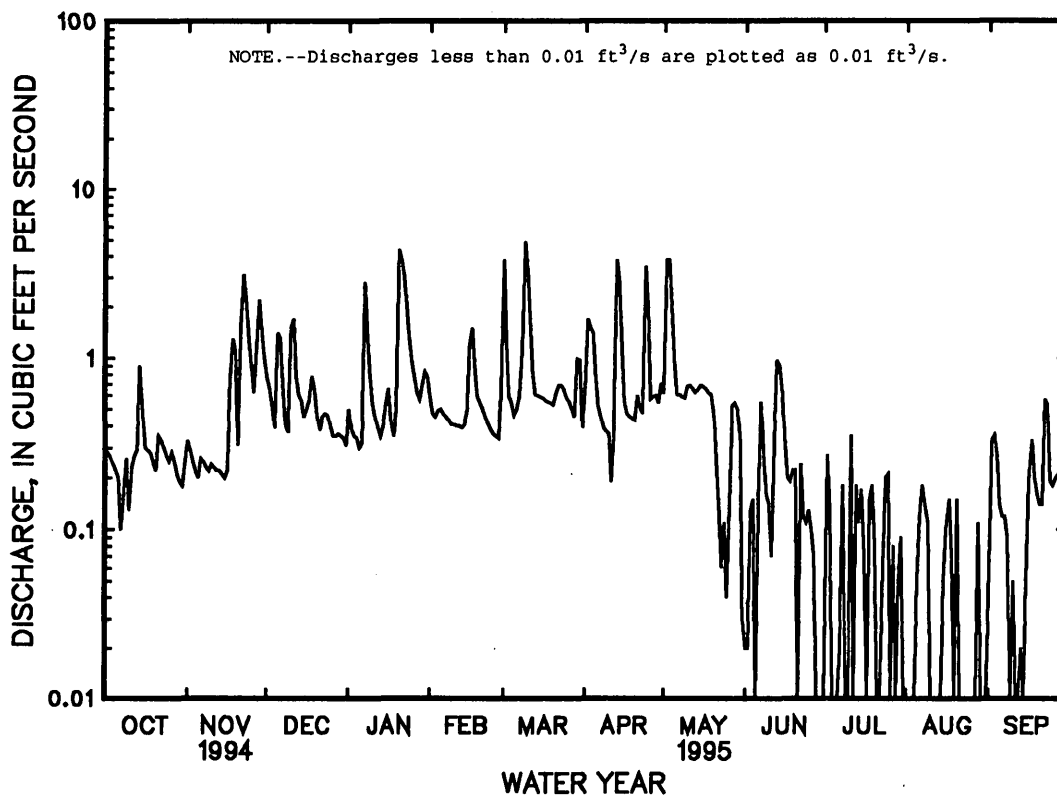
d Many days June to September 1995.

f At times in 1964 (partial year), 1966, 1981, 1983-85, 1987, 1991-95.

g Also May 30 to July 11, 1994.

h Also Aug. 28 to Sept. 19, 1985, July 9-11, 1992, July 13, 1993, and May 29 to July 11, 1994.

j At times May to September 1995.



## POTOMAC RIVER BASIN

## 01613900 HOGUE CREEK NEAR HAYFIELD, VA

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

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

PERIOD OF RECORD.--August 1960 to December 1986, October 1992 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 668.60 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 4, 7, and Feb. 5, period of no gage-height record, Jan. 5, 6, and period of doubtful gage-height record, Feb. 6 to Mar. 30, which are fair. Maximum discharge, 2,760 ft<sup>3</sup>/s, from rating curve extended above 870 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1730	523	3.67	June 29	1215	533	3.70
June 27	1030	*748	*4.28				

Minimum discharge, 0.55 ft<sup>3</sup>/s, Sept. 6, 7, 8, 10, 11, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	2.9	3.9	9.8	7.8	e7.3	5.0	6.3	4.2	42	1.8	.70
2	1.7	2.3	3.5	9.7	11	e6.5	4.9	35	4.1	24	1.7	.65
3	1.6	2.0	3.1	7.8	10	e6.0	4.5	32	4.4	16	1.6	.66
4	1.5	1.8	3.3	e6.9	11	e5.8	4.4	21	4.2	12	1.6	.66
5	1.4	1.7	17	e6.1	e9.5	e5.6	4.2	17	3.5	9.2	1.9	.70
6	1.4	1.7	13	e6.7	e8.0	e7.2	4.0	14	3.4	8.0	14	.66
7	1.4	1.6	8.4	e29	e7.6	e7.4	3.9	11	3.2	7.4	6.6	.65
8	1.4	1.6	6.2	21	e7.4	e7.6	4.0	9.8	3.2	5.8	3.1	.69
9	1.3	1.8	5.2	15	e6.4	e10	4.2	8.9	2.8	4.7	2.1	.73
10	1.3	2.1	16	12	e6.6	e12	4.8	13	2.8	4.3	1.8	.68
11	1.2	1.9	32	11	e6.4	e21	5.5	22	7.6	4.0	2.3	.64
12	1.3	1.6	16	12	e6.4	e53	21	15	8.9	3.6	2.3	.74
13	1.4	1.6	10	12	e6.2	e56	51	12	5.8	3.2	1.7	.83
14	1.5	1.6	8.4	11	e6.1	e43	25	50	4.3	2.9	1.5	.78
15	1.4	1.6	7.2	191	e6.0	e33	16	43	4.1	2.8	1.4	.70
16	1.4	3.0	6.3	131	e7.0	e27	13	25	3.2	2.5	1.4	.95
17	1.4	4.3	6.5	49	e8.0	e21	11	21	2.9	4.2	1.3	2.4
18	1.3	3.2	6.5	29	e9.0	e17	10	19	2.4	5.7	1.2	1.2
19	1.4	2.6	6.8	21	e9.5	e14	9.4	16	2.3	3.3	1.1	1.0
20	1.5	2.1	5.8	70	e9.4	e12	8.6	13	2.3	2.8	.96	.94
21	1.5	6.8	5.5	42	e9.6	e10	7.6	10	2.1	2.7	.92	1.0
22	1.5	5.9	4.9	27	e8.8	e9.3	7.2	8.6	2.1	2.6	.83	1.1
23	1.9	3.2	4.7	20	e8.4	e8.3	6.2	7.5	4.8	2.4	.78	1.2
24	1.8	2.3	7.0	16	e8.0	e7.5	8.1	6.7	4.4	2.3	.79	1.2
25	1.7	2.2	18	13	e7.3	e6.8	7.7	7.0	3.1	2.5	.73	1.5
26	1.6	1.9	12	11	e6.6	e6.2	6.5	8.0	12	2.2	.74	1.6
27	1.6	3.3	9.1	9.2	e6.0	e6.0	6.1	6.3	254	2.2	.81	1.3
28	1.6	18	7.2	8.8	e7.8	e6.1	5.5	6.3	78	2.3	.90	1.1
29	1.6	7.6	6.2	8.7	---	e6.0	5.4	7.1	197	2.2	.83	1.1
30	1.7	5.2	5.2	7.6	---	e5.8	5.7	5.6	92	1.9	.74	1.1
31	1.7	---	5.3	7.4	---	5.4	---	4.8	---	1.8	.73	---
TOTAL	46.4	99.4	270.2	831.7	221.8	449.8	280.4	481.9	729.1	193.5	60.16	29.16
MEAN	1.50	3.31	8.72	26.8	7.92	14.5	9.35	15.5	24.3	6.24	1.94	.97
MAX	1.9	18	32	191	11	56	51	50	254	42	14	2.4
MIN	1.2	1.6	3.1	6.1	6.0	5.4	3.9	4.8	2.1	1.8	.73	.64
CFSM	.10	.22	.58	1.79	.53	.97	.62	1.04	1.62	.42	.13	.06
IN.	.12	.25	.67	2.06	.55	1.12	.70	1.20	1.81	.48	.15	.07

e Estimated.

## 01613900 HOGUE CREEK NEAR HAYFIELD, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1986, 1993 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.86	12.0	15.8	17.0	26.1	37.8	26.6	16.7	12.1	4.90	4.56	3.80
MAX	53.6	52.5	51.2	43.6	62.8	114	89.7	47.4	94.2	30.6	54.2	32.6
(WY)	1980	1986	1973	1979	1979	1993	1983	1978	1972	1978	1978	1975
MIN	.52	1.08	1.06	1.72	4.38	5.81	6.31	2.17	.98	.81	.60	.78
(WY)	1964	1966	1966	1966	1977	1981	1963	1969	1969	1964	1977	1963

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

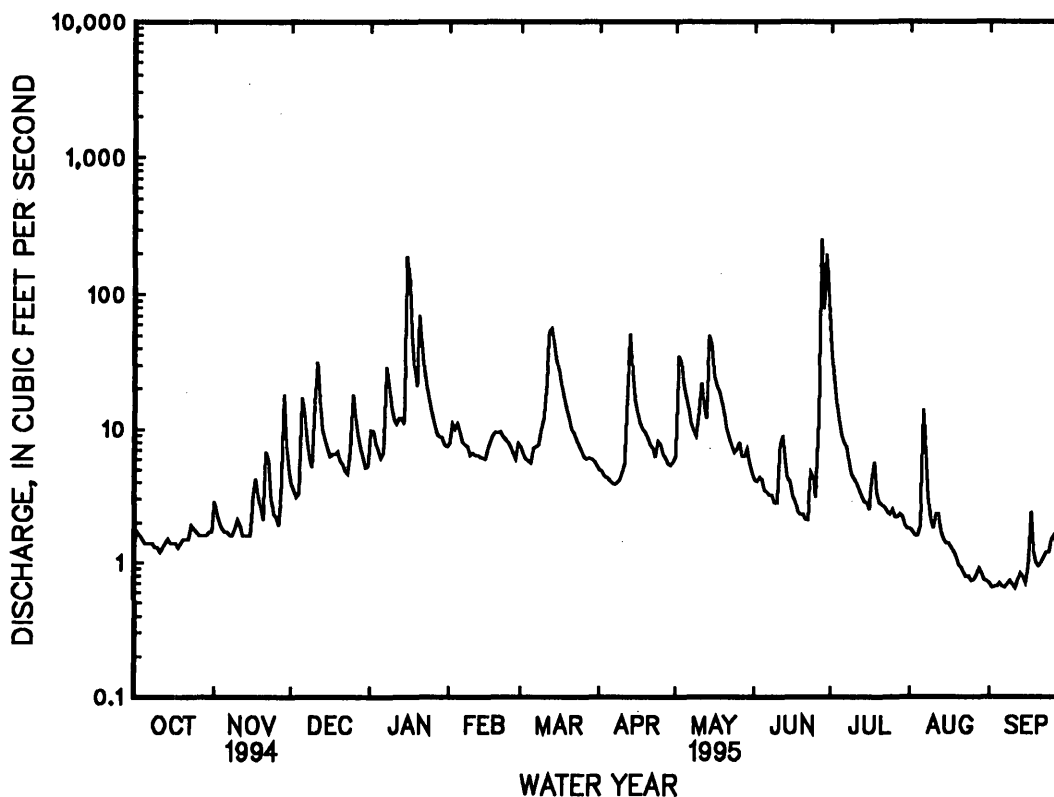
WATER YEARS 1960 - 1986,  
1993 - 1995

ANNUAL TOTAL	7624.4	3693.52	
ANNUAL MEAN	20.9	10.1	15.3
HIGHEST ANNUAL MEAN			27.8
LOWEST ANNUAL MEAN			3.84
HIGHEST DAILY MEAN	295	Mar 10	996
LOWEST DAILY MEAN	1.2	Oct 11	.64
ANNUAL SEVEN-DAY MINIMUM	1.3	aOct 6	.67
INSTANTANEOUS PEAK FLOW			748
INSTANTANEOUS PEAK STAGE			4.28
INSTANTANEOUS LOW FLOW			.55
ANNUAL RUNOFF (CFSM)	1.39		.67
ANNUAL RUNOFF (INCHES)	18.91		9.16
10 PERCENT EXCEEDS	55		19
50 PERCENT EXCEEDS	4.9		5.5
90 PERCENT EXCEEDS	1.6		1.2

a Also Oct. 7, 1994.

b Also Sept. 7, 8, 10, 11, 15, 1995..

c No flow part of Sept. 14, 1968, cause unknown.



## 01615000 OPEQUON CREEK NEAR BERRYVILLE, VA

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

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

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

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

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

REMARKS.--Records good except those for period with backwater from leaves, Oct. 17 to Nov. 11, and period with ice effect, Jan. 5-7, which are fair. Some diurnal fluctuation caused by mills and since July 18, 1988, by wastewater treatment plant 1,000 ft upstream from station. Most of water discharged from treatment plant was diverted from another drainage basin for municipal supply. Maximum discharge, 12,600 ft<sup>3</sup>/s, from rating curve extended above 4,800 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1830	*1,820	*7.05	Aug. 6	1330	1,050	5.43
June 27	1600	1,670	6.76				

Minimum daily discharge, 13 ft<sup>3</sup>/s, Nov. 8, 9, 13-15, 25, 26, Sept. 2, 3, 6-12, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	e18	23	32	38	40	25	21	24	124	20	14
2	16	e16	21	33	46	36	25	35	23	125	19	13
3	15	e14	20	30	48	33	25	43	79	58	19	13
4	15	e16	20	27	47	32	24	29	93	44	19	14
5	14	e15	e23	25	40	31	24	26	39	39	36	14
6	14	e15	e27	29	36	36	24	23	29	123	473	13
7	14	e14	e138	148	36	41	24	21	25	121	137	13
8	14	e13	28	85	33	41	24	21	28	53	57	13
9	14	e13	24	57	32	72	24	20	23	39	38	13
10	15	e16	43	46	32	79	25	22	26	38	31	13
11	15	e15	125	41	32	109	26	39	56	47	26	13
12	15	14	56	47	33	178	29	27	91	32	23	13
13	15	13	40	47	31	140	65	23	53	28	21	14
14	15	13	34	42	30	94	40	111	31	26	20	14
15	14	13	31	605	30	72	31	95	25	24	19	13
16	14	21	28	385	34	59	27	45	22	29	18	14
17	e15	29	28	129	37	49	26	33	20	34	18	25
18	e15	27	29	86	39	42	25	33	19	79	17	18
19	e15	24	31	71	38	38	25	33	19	32	16	15
20	e14	16	29	288	40	36	23	26	19	26	16	15
21	e14	23	26	150	41	35	22	23	e18	24	16	14
22	e15	32	25	91	36	33	21	22	18	25	15	14
23	e17	18	24	71	34	31	20	21	35	23	15	14
24	e16	14	25	60	35	30	22	20	34	22	15	14
25	e16	13	28	51	32	27	22	121	21	22	15	15
26	e15	13	27	47	31	27	21	145	20	21	14	16
27	e15	17	26	41	31	26	20	50	535	21	14	15
28	e15	68	25	40	39	27	20	35	152	22	15	14
29	e14	38	26	39	---	27	19	40	115	21	15	14
30	e14	27	24	38	---	26	20	35	97	20	14	14
31	e16	---	26	37	---	26	---	27	---	20	14	---
TOTAL	460	598	1080	2918	1011	1573	768	1265	1789	1362	1205	431
MEAN	14.8	19.9	34.8	94.1	36.1	50.7	25.6	40.8	59.6	43.9	38.9	14.4
MAX	17	68	138	605	48	178	65	145	535	125	473	25
MIN	14	13	20	25	30	26	19	20	18	20	14	13
(†)	5.50	7.19	7.70	9.61	6.98	8.25	6.62	7.21	8.15	8.17	8.43	7.18

CAL YR 1994 TOTAL 25060 MEAN 68.7 MAX 858 MIN 13 (†) 9.01  
WTR YR 1995 TOTAL 14460 MEAN 39.6 MAX 605 MIN 13 (†) 7.58

† Discharge from wastewater treatment plant, equivalent in cubic feet per second; provided by the Frederick-Winchester Service Authority.  
e Estimated.

## 01615000 OPEQUON CREEK NEAR BERRYVILLE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1988, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	24.7	32.2	46.9	53.1	72.3	80.8	61.4	47.1	35.7	19.4	21.0	21.8
MAX	186	146	167	161	250	215	254	269	347	120	130	219
(WY)	1977	1971	1973	1979	1984	1984	1952	1988	1972	1975	1955	1975
MIN	2.67	2.61	2.83	4.63	12.0	16.8	11.0	10.3	5.58	1.87	.92	1.32
(WY)	1966	1966	1966	1966	1947	1981	1947	1969	1966	1966	1966	1965

## SUMMARY STATISTICS

## WATER YEARS 1944 - 1988

ANNUAL MEAN	42.9
HIGHEST ANNUAL MEAN	90.4
LOWEST ANNUAL MEAN	14.5
HIGHEST DAILY MEAN	4670
LOWEST DAILY MEAN	.20
ANNUAL SEVERN-DAY MINIMUM	.27
INSTANTANEOUS PEAK FLOW	12600
INSTANTANEOUS PEAK STAGE	13.49
INSTANTANEOUS LOW FLOW	.20
ANNUAL RUNOFF (CFSM)	.75
ANNUAL RUNOFF (INCHES)	10.15
10 PERCENT EXCEEDS	81
50 PERCENT EXCEEDS	16
90 PERCENT EXCEEDS	4.7

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	35.8	29.3	53.5	68.6	60.5	135	77.1	49.2	35.6	25.7	24.6	17.4
MAX	148	74.2	116	136	182	309	184	119	77.0	43.9	52.6	27.6
(WY)	1991	1994	1993	1991	1994	1993	1993	1989	1992	1995	1994	1992
MIN	8.71	9.87	11.3	25.5	35.6	30.5	25.6	19.6	16.7	11.4	8.90	8.85
(WY)	1992	1992	1989	1989	1992	1990	1995	1991	1991	1991	1991	1991

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1989 - 1995

ANNUAL TOTAL	25060	14460	
ANNUAL MEAN	68.7	39.6	51.1
HIGHEST ANNUAL MEAN			78.8
LOWEST ANNUAL MEAN			32.3
HIGHEST DAILY MEAN	858	Mar 29	2380
LOWEST DAILY MEAN	13	cAug 4	7.6
ANNUAL SEVEN-DAY MINIMUM	13	Aug 10	7.9
INSTANTANEOUS PEAK FLOW			5990
INSTANTANEOUS PEAK STAGE			11.07
INSTANTANEOUS LOW FLOW			5.9
ANNUAL RUNOFF (CFSM)	1.20	.69	.89
ANNUAL RUNOFF (INCHES)	16.24	9.37	12.10
10 PERCENT EXCEEDS	148	71	89
50 PERCENT EXCEEDS	26	26	23
90 PERCENT EXCEEDS	15	14	12

a Also Sept. 13, 1966.

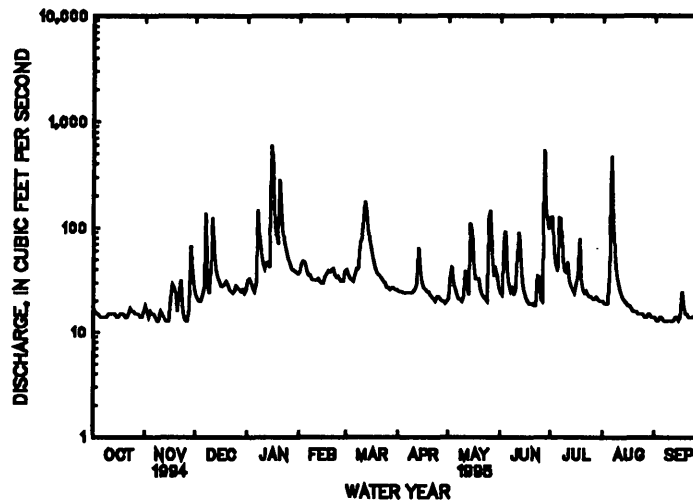
b Also Sept. 12, 13, 1966.

c Also Aug. 10, 11, 14-16, Nov. 8, 9, 13-15, 25, 26, 1994.

d Also Nov. 9, 13-15, 25, 26, 1994, and Sept. 2, 3, 6-12, 15, 1995.

e Estimated.

f Not determined.



## POTOMAC RIVER BASIN

## 01620500 NORTH RIVER NEAR STOKESVILLE, VA

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

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

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

REVISED RECORDS.--WSP 1903: 1960. WSP 2103: Drainage area. WDR VA-89-1: 1949 (M).

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

REMARKS.--Records fair except those for periods of doubtful gage-height record, Jan. 18 to Apr. 5 and May 17-31, which are poor. Maximum discharge, 9,530 ft<sup>3</sup>/s, from rating curve extended above 900 ft<sup>3</sup>/s on basis of computation of peak flow over dam at site 2.8 mi downstream. Maximum gage height, 19.8 ft, from floodmarks, backwater from Elkhorn Lake. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1600	*1,490	*6.23	Mar. 15	Unknown	Unknown	Unknown
Jan. 21	Unknown	Unknown	Unknown	May 16	0345	513	4.56
Feb. 6	Unknown	Unknown	Unknown	June 29	1445	791	5.06

Minimum daily discharge, 0.70 ft<sup>3</sup>/s, Sept. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.2	1.9	3.2	e21	e20	e14	17	10	488	6.4	1.9
2	1.1	1.2	1.8	3.0	e20	e17	e13	29	9.8	314	6.3	1.6
3	1.1	1.2	1.8	3.2	e19	e15	e11	56	9.9	186	6.2	1.3
4	1.1	1.1	1.9	3.3	e22	e14	e10	68	9.3	102	6.0	1.1
5	1.1	1.1	2.4	3.3	e21	e13	e9.8	61	8.3	65	6.0	.97
6	1.1	1.1	2.8	4.2	e19	e12	9.1	49	7.9	45	6.7	.95
7	1.1	1.1	4.5	47	e17	e12	8.5	35	7.9	65	8.9	.98
8	1.1	1.1	4.5	64	e16	e15	8.1	30	7.6	59	8.3	.98
9	1.1	1.1	4.1	44	e15	e23	7.9	27	7.2	45	7.5	.98
10	1.0	1.2	4.0	32	e14	e20	7.9	25	7.0	35	7.2	.90
11	.98	1.1	4.0	26	e13	e16	7.8	23	7.7	28	7.2	.87
12	.98	1.1	4.2	21	e12	e18	7.7	20	11	22	7.0	.83
13	.90	1.1	4.6	18	e11	e22	7.9	19	12	18	6.5	.77
14	.94	1.1	4.8	17	e10	e26	7.8	120	13	16	6.3	.72
15	.95	1.1	4.9	940	e10	e31	7.4	443	13	13	6.3	.70
16	.93	1.1	4.9	1110	e11	e33	7.2	501	12	12	6.3	.75
17	.90	1.2	4.9	874	e11	e31	8.2	e250	10	14	6.3	1.0
18	.90	1.2	5.1	e320	e12	e29	9.9	e150	9.1	12	6.2	1.0
19	.90	1.2	4.9	e160	e13	e27	10	e92	8.1	9.3	6.3	1.1
20	.92	1.2	4.9	e250	e14	e25	11	e62	7.7	8.1	6.2	1.0
21	.98	1.3	4.8	e180	e16	e23	12	e46	7.2	8.4	5.9	.98
22	.98	1.4	4.6	e130	e18	e21	12	e35	10	11	5.6	1.0
23	1.1	1.4	4.3	e100	e19	e20	12	e27	45	8.7	5.4	1.1
24	1.1	1.4	4.1	e80	e18	e19	16	e20	47	7.9	5.3	1.2
25	1.1	1.4	3.9	e64	e16	e18	18	e19	47	8.1	4.6	1.3
26	1.1	1.5	3.9	e52	e15	e17	19	e25	41	9.3	4.1	1.5
27	1.1	1.7	3.7	e42	e14	e15	20	e21	40	7.7	3.7	1.5
28	1.1	1.9	3.5	e35	e23	e19	20	e17	341	7.1	3.4	1.5
29	1.1	1.9	3.3	e30	---	e18	19	e15	667	6.9	3.1	1.4
30	1.1	1.9	3.1	e26	---	e16	18	e12	701	6.7	2.6	1.4
31	1.1	---	3.1	e23	---	e15	---	e9.8	---	6.6	2.2	---
TOTAL	32.16	38.6	119.2	4705.2	440	620	350.2	2323.8	2134.7	1644.8	180.0	33.28
MEAN	1.04	1.29	3.85	152	15.7	20.0	11.7	75.0	71.2	53.1	5.81	1.11
MAX	1.2	1.9	5.1	1110	23	33	20	501	701	488	8.9	1.9
MIN	.90	1.1	1.8	3.0	10	12	7.2	9.8	7.0	6.6	2.2	.70
CFSM	.06	.07	.22	8.82	.91	1.16	.68	4.36	4.14	3.08	.34	.06
IN.	.07	.08	.26	10.18	.95	1.34	.76	5.03	4.62	3.56	.39	.07

e Estimated.

## 01620500 NORTH RIVER NEAR STOKESVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1995, BY WATER YEAR (WY)

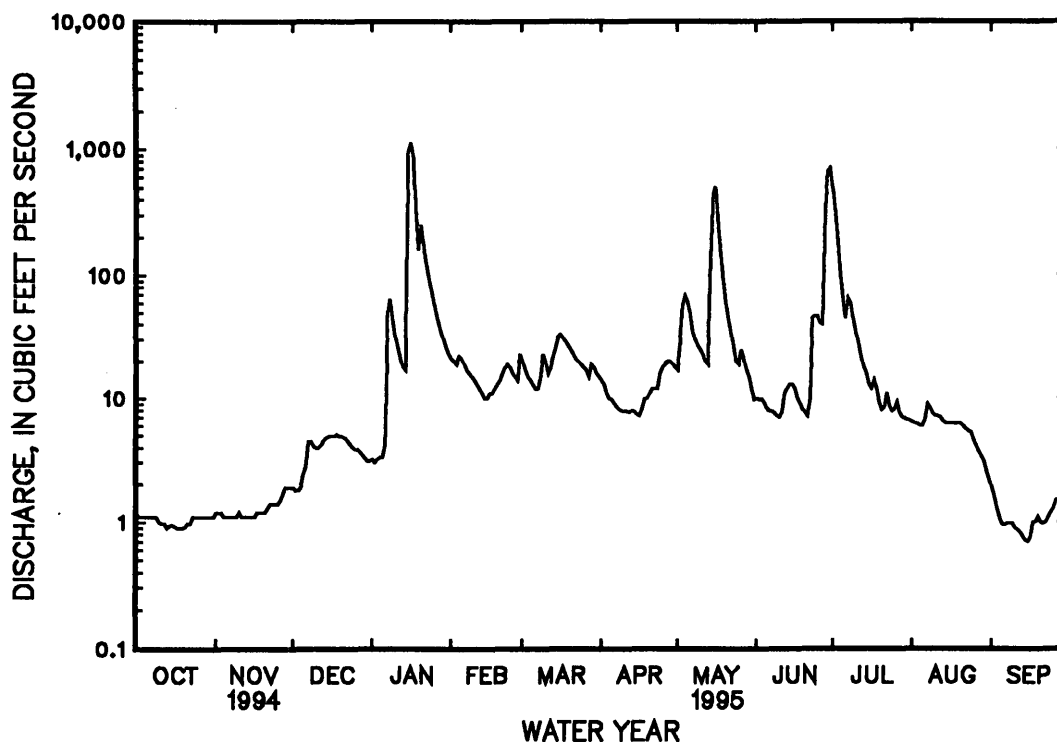
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	14.2	25.1	27.3	33.0	36.7	57.1	48.2	34.8	23.8	7.16	8.81	7.39
MAX	90.7	257	99.5	152	88.7	230	196	86.4	177	53.1	66.8	62.4
(WY)	1980	1986	1974	1995	1950	1993	1992	1960	1949	1995	1989	1979
MIN	.21	.41	1.29	.74	4.64	8.21	11.7	5.32	2.37	.87	.26	.25
(WY)	1964	1954	1961	1981	1977	1981	1995	1977	1977	1966	1987	1963

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1947 - 1995
ANNUAL TOTAL	11640.46	12621.94	
ANNUAL MEAN	31.9	34.6	26.9
HIGHEST ANNUAL MEAN			49.0
LOWEST ANNUAL MEAN			10.4
HIGHEST DAILY MEAN	512 May 8	1110 Jan 16	3300 Nov 5 1985
LOWEST DAILY MEAN	.90 Oct 13	.70 Sep 15	.10 aSep 15 1962
ANNUAL SEVEN-DAY MINIMUM	.92 Oct 13	.79 Sep 10	.12 Sep 29 1968
INSTANTANEOUS PEAK FLOW		1490 Jan 15	9530 Jun 17 1949
INSTANTANEOUS PEAK STAGE		6.23 Jan 15	b19.80 Nov 5 1985
INSTANTANEOUS LOW FLOW		.70 cSep 6	.10 Sep 15 1962
ANNUAL RUNOFF (CFSM)	1.85	2.01	1.56
ANNUAL RUNOFF (INCHES)	25.18	27.30	21.26
10 PERCENT EXCEEDS	73	47	60
50 PERCENT EXCEEDS	7.1	8.1	11
90 PERCENT EXCEEDS	1.1	1.1	1.1

a Also Sept. 16, 19-22, 1962, and Sept. 7-13, 1966.

b From floodmarks, backwater from Elkhorn Lake.

c Also Sept. 14-16, 1995.



## POTOMAC RIVER BASIN

## 01621050 MUDDY CREEK AT MOUNT CLINTON, VA

LOCATION.--Lat 38°29'12", long 78°57'40", Rockingham County, Hydrologic Unit 02070005, on right downstream side of bridge on State Highway 726, at Mount Clinton.

DRAINAGE AREA.--14.2 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1993 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,320 ft above sea level, from topographic map.

REMARKS.--Records fair except for period with ice effect, Feb. 5-12, which is poor.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 415 ft<sup>3</sup>/s, July 5, gage height, 6.96 ft; minimum, 1.2 ft<sup>3</sup>/s, Dec. 29, gage height, 2.52 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	5.4	2.5	3.0	7.4	5.8	4.9	3.3	3.9	34	7.2	4.4
2	3.0	9.3	2.4	2.5	7.6	5.6	4.8	6.8	3.5	25	6.6	4.2
3	3.0	8.9	2.3	2.3	7.4	5.4	4.6	5.3	3.5	18	6.1	4.1
4	2.9	8.2	2.8	2.2	7.7	5.3	4.5	4.7	3.4	15	5.9	4.1
5	2.9	7.5	4.2	2.2	e7.0	5.1	4.4	4.9	3.2	66	16	4.0
6	2.9	6.9	2.4	5.0	e6.4	5.2	4.3	4.2	3.2	52	64	3.9
7	2.9	6.4	2.0	14	e5.9	5.1	4.2	3.8	3.1	29	22	3.8
8	2.8	6.1	1.8	5.0	e5.7	7.1	4.0	3.7	2.9	20	17	3.7
9	2.8	5.7	1.7	4.0	e5.8	10	4.0	3.8	2.8	16	15	4.0
10	2.8	5.6	2.1	3.5	e5.5	9.1	4.1	4.2	4.2	14	14	3.7
11	2.8	4.9	2.5	3.5	e5.4	9.5	3.9	4.5	4.6	13	13	3.4
12	2.9	4.5	2.0	3.3	e5.2	9.6	4.4	4.0	4.6	12	12	3.4
13	3.0	4.1	1.9	3.1	5.1	9.1	4.6	3.8	4.0	11	11	3.4
14	3.1	3.0	2.2	3.2	4.6	8.7	4.1	24	3.4	10	11	3.2
15	2.9	2.1	2.8	45	4.8	8.2	3.9	15	3.1	9.7	11	2.7
16	2.9	2.1	2.7	24	5.7	7.8	3.8	11	3.0	9.5	10	3.1
17	2.9	2.4	2.8	15	6.9	7.3	4.1	9.4	2.9	11	9.3	5.0
18	2.9	2.0	2.8	13	6.4	7.0	4.0	8.7	2.8	10	8.6	3.5
19	2.9	1.9	2.9	11	6.3	6.8	3.8	8.3	2.7	8.2	8.1	3.1
20	3.2	1.8	2.5	20	6.2	6.7	3.7	7.0	2.6	7.8	7.8	2.9
21	3.6	3.4	2.3	14	5.9	6.6	3.9	6.3	2.6	8.4	7.3	2.9
22	3.7	2.4	2.3	12	5.5	6.3	3.6	6.0	4.8	7.7	6.8	3.0
23	4.7	2.1	2.3	11	5.3	6.3	3.6	5.5	9.4	7.0	6.3	2.9
24	4.2	2.5	2.5	11	5.2	5.9	4.9	5.3	6.4	9.9	6.2	3.0
25	4.1	2.6	2.6	9.5	4.9	5.4	4.1	5.4	5.5	8.1	5.8	3.6
26	4.0	2.4	2.5	9.0	4.8	5.1	3.8	5.3	6.0	7.4	5.6	4.5
27	4.1	2.6	2.5	8.6	4.7	5.2	3.8	5.0	8.8	21	5.6	3.5
28	4.2	3.2	2.6	8.5	6.4	5.5	3.6	5.1	28	13	5.4	2.8
29	4.3	2.5	2.5	8.2	---	5.1	3.5	5.0	26	10	5.0	2.6
30	4.3	2.5	2.3	8.0	---	5.1	3.5	4.6	36	8.7	4.6	2.6
31	4.4	---	2.4	7.7	---	4.9	---	4.4	---	7.8	4.5	---
TOTAL	104.1	125.0	76.1	292.3	165.7	205.8	122.4	198.3	200.9	500.2	338.7	105.0
MEAN	3.36	4.17	2.45	9.43	5.92	6.64	4.08	6.40	6.70	16.1	10.9	3.50
MAX	4.7	9.3	4.2	45	7.7	10	4.9	24	36	66	64	5.0
MIN	2.8	1.8	1.7	2.2	4.6	4.9	3.5	3.3	2.6	7.0	4.5	2.6
CFSM	.24	.29	.17	.66	.42	.47	.29	.45	.47	1.14	.77	.25
IN.	.27	.33	.20	.77	.43	.54	.32	.52	.53	1.31	.89	.28

e Estimated.

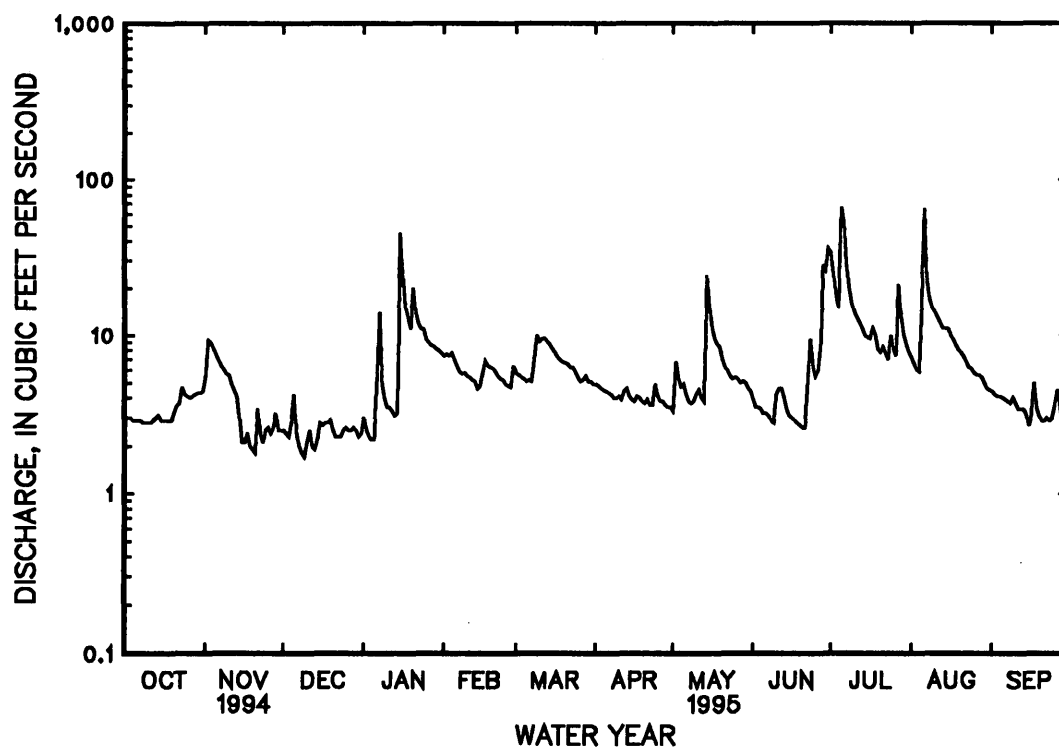


## 01621050 MUDDY CREEK AT MOUNT CLINTON, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.72	4.10	6.06	12.4	16.7	23.2	12.0	10.8	6.33	8.12	7.88	3.09
MAX	3.36	4.17	9.66	15.4	27.4	39.8	19.8	15.5	6.81	16.1	11.0	3.92
(WY)	1995	1995	1994	1994	1994	1994	1994	1994	1994	1995	1994	1994
MIN	2.07	4.03	2.45	9.43	5.92	6.64	4.08	6.40	5.48	3.16	1.75	1.85
(WY)	1994	1994	1995	1995	1995	1995	1995	1995	1993	1993	1993	1993

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1993 - 1995	
ANNUAL TOTAL	4677.9		2434.5			
ANNUAL MEAN	12.8		6.67		9.99	
HIGHEST ANNUAL MEAN					13.3	
LOWEST ANNUAL MEAN					6.67	
HIGHEST DAILY MEAN	123	Jan 28	66	Jul 5	123	Jan 28 1994
LOWEST DAILY MEAN	1.7	Dec 9	1.7	Dec 9	1.1	Jul 31 1993
ANNUAL SEVEN-DAY MINIMUM	2.0	Dec 7	2.0	Dec 7	1.4	Jul 29 1993
INSTANTANEOUS PEAK FLOW			415	Jul 5	415	Jul 5 1995
INSTANTANEOUS PEAK STAGE			6.96	Jul 5	6.96	Jul 5 1995
INSTANTANEOUS LOW FLOW			1.2	Dec 29	.93	Aug 2 1993
ANNUAL RUNOFF (CFSM)	.90		.47		.70	
ANNUAL RUNOFF (INCHES)	12.25		6.38		9.56	
10 PERCENT EXCEEDS	29		11		21	
50 PERCENT EXCEEDS	6.3		4.7		5.3	
90 PERCENT EXCEEDS	2.6		2.5		2.0	



## POTOMAC RIVER BASIN

01621050 MUDDY CREEK AT MOUNT CLINTON, VA--Continued  
(National water-quality assessment station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1993 to current year.

REMARKS.--These data are a part of the National Water-Quality Assessment (NAWQA) Program of the Potomac River Basin.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	AGENCY	AGENCY	DIS-	SPE-	PH	TEMPER-	TEMPER-	BARO-	OXYGEN,	HARD-		
		COL- LECTING SAMPLE (CODE NUMBER) (00027)	ANA- LYZING SAMPLE (CODE NUMBER) (00028)	CHARGE, INST. CUBIC FEET PER SECOND (00061)	CIFIC CON- DUCT- ANCE (US/CM) (00095)	WATER WHOLE FIELD (STAND- ARD UNITS) (00400)		ATURE WATER (DEG C) (00010)	ATURE AIR (DEG C) (00020)			METRIC PRES- SURE (MM OF HG) (00025)	DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
NOV 03...	1100	1028	80020	8.9	461	7.6	7.0	11.5	729	6.4	55	240	
JAN 04...	1100	1028	80020	2.2	386	7.5	3.0	2.0	729	10.0	78	240	
15...	0800	1028	80020	16	450	7.5	12.5	17.0	733	5.0	48	120	
MAR 08...	0930	1028	80020	4.9	479	7.8	11.5	16.5	729	7.9	76	230	
APR 21...	1500	1028	80020	3.7	435	8.0	17.5	18.0	733	7.9	86	220	
MAY 10...	1100	1028	80020	4.2	392	8.3	17.5	19.5	740	7.8	84	190	
JUN 28...	0930	1028	80020	29	460	8.0	18.0	19.5	738	6.5	71	170	
DATE		HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 03...	50	59	22	3.3	4.8	188	--	9.7	8.0	<0.10	5.5	260	
JAN 04...	69	60	23	3.5	3.7	176	--	9.3	7.9	<0.10	5.8	275	
15...	0	28	11	4.5	21	115	--	14	11	<0.10	8.7	204	
MAR 08...	78	59	21	3.3	3.1	156	190	11	7.8	0.10	2.9	262	
APR 21...	36	54	20	3.2	4.1	181	--	9.4	6.5	<0.10	5.5	240	
MAY 10...	5	49	17	3.1	3.5	188	229	9.1	5.9	<0.10	4.3	222	
JUN 28...	18	44	15	5.9	26	153	187	13	12	0.10	8.8	285	

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

## 01621050 MUDDY CREEK AT MOUNT CLINTON, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2) (71856)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)
NOV												
03...	263	0.35	6.25	3.56	3.56	16	0.040	0.13	3.60	3.60	0.030	0.04
JAN												
04...	270	0.37	1.63	4.27	4.27	19	0.030	0.10	4.30	4.30	0.060	0.08
15...	184	0.28	8.59	2.43	2.43	11	0.070	0.23	2.50	2.50	0.910	1.2
MAR												
08...	222	0.36	3.47	4.54	4.54	20	0.060	0.20	4.60	4.60	0.070	0.09
APR												
21...	239	0.33	2.40	3.41	3.41	15	0.090	0.30	3.50	3.50	0.070	0.09
MAY												
10...	217	0.30	2.52	2.74	2.74	12	0.060	0.20	2.80	2.80	<0.015	--
JUN												
28...	238	0.39	22.3	3.67	3.67	16	0.130	0.43	3.80	3.80	0.380	0.49

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS- (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDEED TOTAL (MG/L AS C) (00689)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)
NOV												
03...	0.30	0.30	0.060	0.040	0.040	0.12	41	30	3.8	0.90	--	--
JAN												
04...	0.40	0.30	0.050	0.050	0.040	0.12	34	25	1.8	0.60	--	--
15...	3.6	3.0	1.60	1.10	1.10	3.4	810	170	15	>4.6	--	--
MAR												
08...	0.30	<0.20	0.050	0.030	0.030	0.09	39	28	2.6	110	<0.013	<0.011
APR												
21...	0.70	0.60	0.120	0.080	0.080	0.25	79	31	3.3	0.80	<0.013	<0.011
MAY												
10...	0.60	0.40	0.110	0.050	0.040	0.12	100	41	3.2	0.20	<0.013	<0.011
JUN												
28...	3.4	2.0	1.90	1.10	1.00	3.1	340	190	13	>9.1	--	--

&gt; Actual value is known to be greater than the value shown.

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

## POTOMAC RIVER BASIN

01621050 MUDDY CREEK AT MOUNT CLINTON, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)
NOV 03...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 04...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 08...	<0.030	<0.012	<0.006	<0.009	<0.009	<0.007	0.048	<0.013	<0.008	<0.046	<0.013	<0.005
APR 21...	<0.030	<0.012	<0.006	E0.007	<0.009	<0.007	0.058	<0.013	<0.008	<0.046	<0.013	<0.005
MAY 10...	<0.030	<0.012	<0.006	E0.009	E0.005	<0.007	0.140	<0.013	E0.005	<0.046	<0.013	<0.005
JUN 28...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P,P' DDE DISSOLV (UG/L) (34653)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)
NOV 03...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 04...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 08...	<0.013	<0.004	<0.010	E0.072	<0.008	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039
APR 21...	<0.013	<0.004	<0.010	E0.054	<0.008	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039
MAY 10...	0.035	<0.004	<0.010	E0.044	<0.008	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039
JUN 28...	--	--	--	--	--	--	--	--	--	--	--	--

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

## 01621050 MUDDY CREEK AT MOUNT CLINTON, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	MALA- THION, DIS- SOLVED (UG/L) (39532)	METHYL AZIN- PHOS WAT FLT 0.7 U (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U (UG/L) (82684)	PEB- ULATE WATER FILTRD 0.7 U (UG/L) (82669)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PENDI- METH- ALIN WAT FLT 0.7 U (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U (UG/L) (82687)	PRO- METON, DISS, REC (UG/L) (04037)
NOV 03...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 04...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 08...	<0.014	<0.038	<0.035	<0.009	<0.012	<0.007	<0.010	<0.009	<0.022	<0.018	<0.016	E0.006
APR 21...	<0.014	<0.038	<0.035	E0.003	<0.012	<0.007	<0.010	<0.009	<0.022	<0.018	<0.016	E0.005
MAY 10...	<0.014	<0.038	<0.035	0.054	<0.012	<0.007	<0.010	<0.009	<0.022	<0.018	<0.016	E0.005
JUN 28...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROP- CHLOR, WATER, FLTRD DISS, REC (UG/L) (04024)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	SI- MAZINE, WATER, FLTRD DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)
NOV 03...	--	--	--	--	--	--	--	--	--	--	--
JAN 04...	--	--	--	--	--	--	--	--	--	11	0.06
15...	--	--	--	--	--	--	--	--	--	--	--
MAR 08...	<0.009	<0.015	<0.006	<0.016	0.018	E0.008	<0.012	<0.008	<0.008	16	0.21
APR 21...	<0.009	<0.015	<0.006	<0.016	0.019	E0.003	<0.012	<0.008	<0.008	15	0.15
MAY 10...	<0.009	<0.015	<0.006	<0.016	0.048	<0.015	<0.012	<0.008	<0.008	14	0.16
JUN 28...	--	--	--	--	--	--	--	--	--	--	--

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

## 01622000 NORTH RIVER NEAR BURKETOWN, VA

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

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

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

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

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

REMARKS.--Records good except those for periods with ice effect, Jan. 7, and Feb. 6-8, which are fair. At a point 26.8 mi upstream from station, there is an aqueduct tunnel diversion of about 2.8 ft<sup>3</sup>/s from Staunton Dam Reservoir by city of Staunton for industrial and municipal use. There is discharge of about 11.6 ft<sup>3</sup>/s from wastewater treatment plant 0.9 mi upstream from station and diversion during low flow by irrigation at points upstream. Maximum discharge, 65,000 ft<sup>3</sup>/s, from rating curve extended above 16,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 32.4 ft and 36.3 ft and contracted-opening measurements at gage heights 35.85 ft and 36.3 ft. Minimum discharge, 16 ft<sup>3</sup>/s, result of temporary dam upstream. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2100	*8,960	*13.26	June 30	2330	4,620	8.93
June 29	2230	4,310	8.59				

Minimum discharge, 55 ft<sup>3</sup>/s, Jan. 6, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	83	74	72	267	279	190	219	195	3350	185	108
2	91	84	76	67	264	275	185	269	184	2280	173	103
3	94	80	73	65	259	267	179	418	180	1550	159	103
4	89	82	73	66	277	264	170	556	175	1130	151	101
5	87	81	123	62	264	257	165	562	161	974	150	94
6	84	77	91	70	e226	248	162	500	145	1130	1080	92
7	85	80	80	e216	e213	239	157	440	141	1070	621	89
8	86	77	75	157	e220	263	153	387	132	783	463	87
9	87	77	74	282	209	344	151	349	125	600	367	87
10	89	88	82	258	208	316	149	353	212	478	320	90
11	84	83	96	229	202	313	147	323	246	393	275	88
12	81	78	80	210	195	331	148	297	262	337	272	81
13	80	76	74	195	182	364	162	278	247	291	254	81
14	83	78	74	186	173	401	148	1040	233	258	233	79
15	83	78	81	3080	173	421	145	1790	223	236	309	75
16	78	75	76	5020	181	408	141	1320	202	222	211	80
17	81	82	73	3340	211	382	150	1010	188	216	195	165
18	78	78	74	2330	226	351	152	769	172	254	180	98
19	74	78	74	1400	253	326	154	652	160	222	169	88
20	76	73	70	1520	287	301	154	515	146	197	162	83
21	80	91	70	1450	319	283	163	430	136	211	155	88
22	86	94	71	1170	332	269	159	375	158	225	143	85
23	99	77	70	907	328	265	159	323	270	194	135	83
24	92	74	69	706	316	250	201	283	486	226	132	81
25	81	72	68	558	298	229	191	278	881	247	129	90
26	81	77	66	464	280	220	197	303	896	285	125	122
27	79	72	66	397	266	211	207	285	789	275	125	97
28	78	97	66	361	305	214	215	273	2640	510	125	87
29	76	80	68	341	---	207	216	265	3850	290	118	82
30	79	77	63	309	---	200	216	244	3610	238	113	76
31	82	---	66	282	---	193	---	216	---	207	110	---
TOTAL	2593	2399	2336	25770	6934	8891	5086	15322	17445	18879	7339	2763
MEAN	83.6	80.0	75.4	831	248	287	170	494	581	609	237	92.1
MAX	99	97	123	5020	332	421	216	1790	3850	3350	1080	165
MIN	74	72	63	62	173	193	141	216	125	194	110	75
CFSM	.22	.21	.20	2.19	.65	.76	.45	1.30	1.53	1.61	.62	.24
IN.	.25	.24	.23	2.53	.68	.87	.50	1.50	1.71	1.85	.72	.27

e Estimated.

## 01622000 NORTH RIVER NEAR BURKETOWN, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1973, 1976 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	248	277	326	415	511	702	617	491	322	201	239	187
MAX	1500	2080	1087	1337	1256	1932	1831	1486	1704	809	1102	1057
(WY)	1943	1986	1935	1937	1939	1936	1987	1942	1949	1949	1949	1979
MIN	38.1	36.5	39.2	53.5	47.9	136	107	106	72.7	48.6	41.0	34.2
(WY)	1931	1931	1966	1966	1931	1981	1981	1930	1977	1977	1964	1930

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1927 - 1972  
1976 - 1995

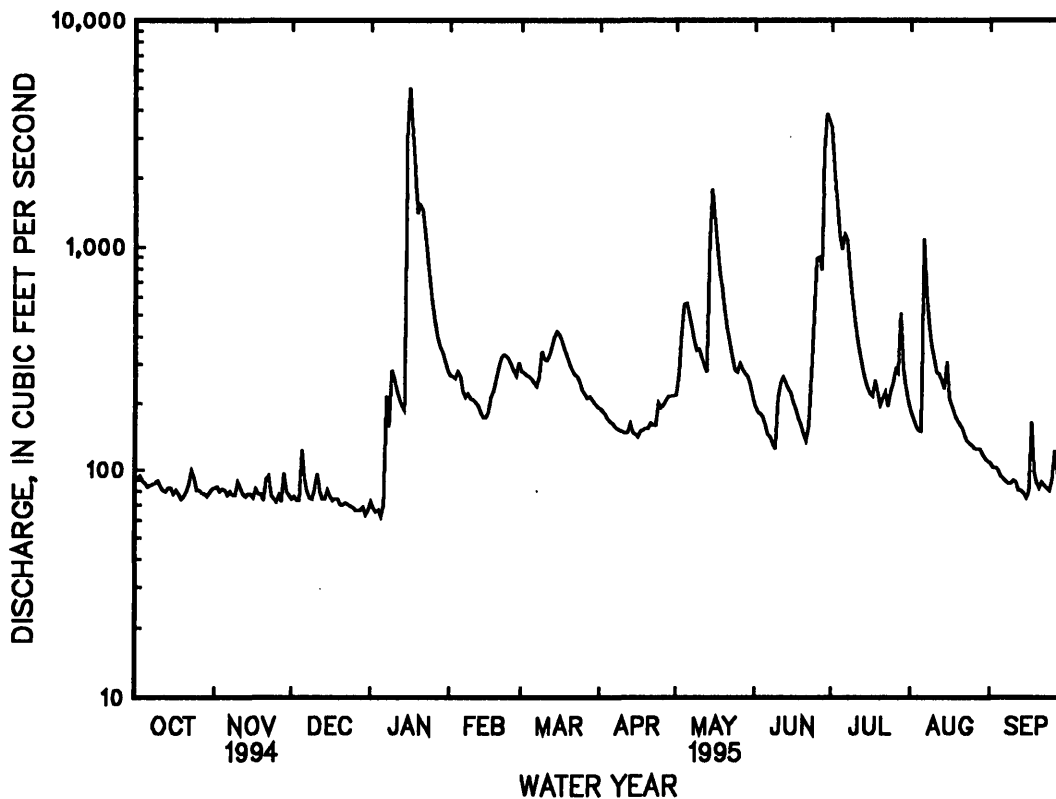
ANNUAL TOTAL	187166	115757	
ANNUAL MEAN	513	317	375
HIGHEST ANNUAL MEAN			820
LOWEST ANNUAL MEAN			168
HIGHEST DAILY MEAN	4410	Mar 29	5020
LOWEST DAILY MEAN	63	Dec 30	62
ANNUAL SEVEN-DAY MINIMUM	66	Dec 25	66
INSTANTANEOUS PEAK FLOW			8960
INSTANTANEOUS PEAK STAGE			13.26
INSTANTANEOUS LOW FLOW			b55
ANNUAL RUNOFF (CFSM)	1.35	.84	.99
ANNUAL RUNOFF (INCHES)	18.37	11.36	13.43
10 PERCENT EXCEEDS	1210	531	803
50 PERCENT EXCEEDS	188	181	202
90 PERCENT EXCEEDS	77	76	64

a From floodmarks; peak discharge, 62,600 ft<sup>3</sup>/s.

b Result of freezeup.

c Result of temporary dam upstream.

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 12 mi upstream from mouth.

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

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

GAGE.--Water-stage recorder. Elevation of gage is 1,230 ft above sea level, from topographic map.

REMARKS.--Records good except those for period of no gage-height record, Nov. 11-28, and periods with ice effect, Jan. 6, 7, and Feb. 7, 11-14, which are fair. Some diurnal fluctuation caused by discharge of about 1.5 ft<sup>3</sup>/s from wastewater treatment plants upstream from station. Most of the water discharged from treatment plants was diverted from another drainage basin for municipal supply. Maximum discharge, 4,520 ft<sup>3</sup>/s, from rating curve extended above 2,400 ft<sup>3</sup>/s. Minimum discharge, 3.8 ft<sup>3</sup>/s, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 22	2200	1,900	5.84	June 28	0930	*3,310	*11.38

Minimum discharge, 4.9 ft<sup>3</sup>/s, Jan. 5, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	29	18	20	37	42	27	21	23	290	27	18
2	18	26	18	18	50	39	27	37	23	277	27	21
3	20	24	18	17	55	37	27	30	22	145	26	18
4	19	24	19	16	52	37	25	25	20	116	25	17
5	18	23	28	14	44	35	25	25	19	101	24	17
6	18	23	23	e21	35	35	25	23	19	89	28	16
7	18	23	20	e140	e34	34	25	21	19	84	28	16
8	18	23	18	54	35	46	25	20	18	74	26	16
9	20	23	18	37	32	87	24	21	18	67	25	17
10	21	27	22	31	34	67	25	27	52	64	24	17
11	19	e25	35	28	e32	59	25	24	35	61	24	17
12	20	e24	24	27	e30	53	25	21	96	56	27	17
13	19	e23	21	25	e28	49	27	21	60	53	23	19
14	22	e23	20	25	e28	46	24	42	37	51	25	22
15	22	e22	21	402	30	43	22	35	31	48	22	19
16	20	e22	20	161	44	41	22	25	28	46	22	21
17	20	e23	19	88	76	39	25	23	27	78	21	50
18	20	e23	19	66	58	37	26	22	24	64	20	28
19	20	e24	18	55	52	36	24	51	23	45	19	24
20	22	e22	17	160	52	35	23	29	21	42	19	23
21	24	e21	17	91	50	35	24	24	20	40	18	21
22	24	e28	17	68	44	32	22	22	220	38	17	23
23	31	e26	17	58	41	35	21	21	367	36	18	23
24	29	e23	16	53	39	33	32	20	137	35	18	25
25	25	e22	16	46	36	31	26	21	83	36	17	27
26	27	e21	16	41	35	30	23	32	88	51	17	48
27	27	e20	16	38	35	30	21	44	94	35	18	38
28	26	e21	16	39	48	31	21	28	1300	34	20	27
29	25	23	16	39	---	29	20	29	465	31	18	24
30	24	20	16	38	---	29	20	38	208	30	18	23
31	24	---	17	36	---	28	---	25	---	29	17	---
TOTAL	678	701	596	1952	1166	1240	728	847	3597	2246	678	692
MEAN	21.9	23.4	19.2	63.0	41.6	40.0	24.3	27.3	120	72.5	21.9	23.1
MAX	31	29	35	402	76	87	32	51	1300	290	28	50
MIN	18	20	16	14	28	28	20	20	18	29	17	16
CPSM	.31	.33	.27	.90	.59	.57	.35	.39	1.71	1.03	.31	.33
IN.	.36	.37	.32	1.04	.62	.66	.39	.45	1.91	1.19	.36	.37

e Estimated.



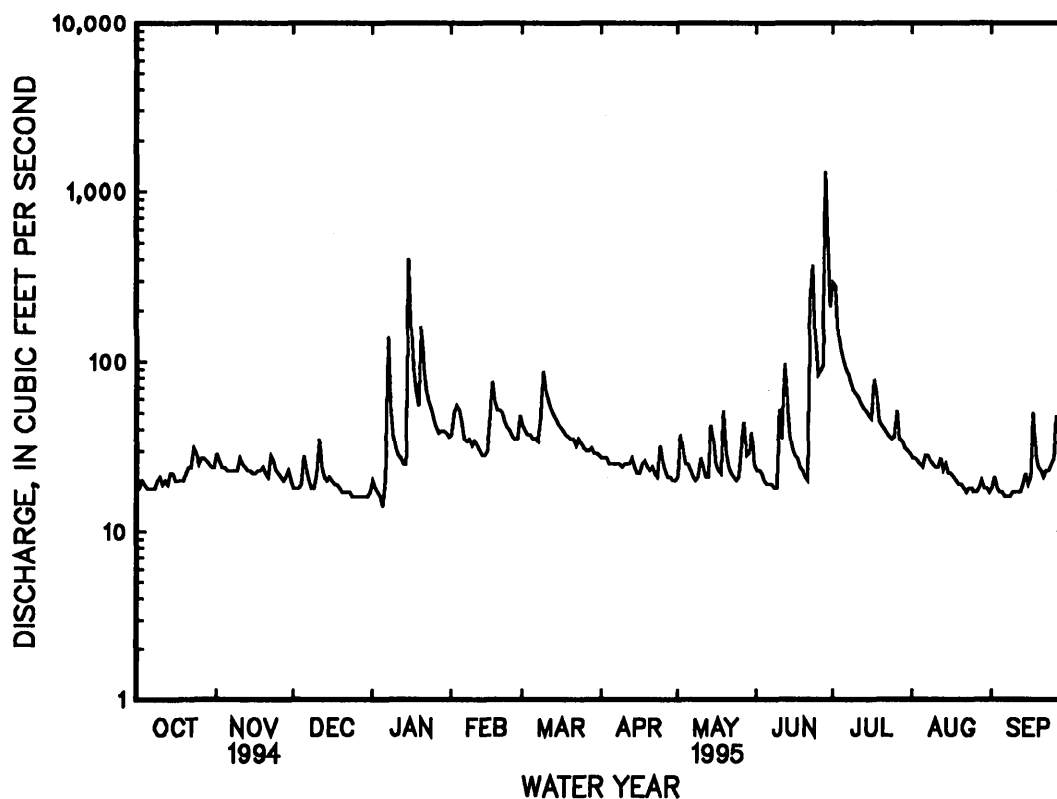
## 01624800 CHRISTIANS CREEK NEAR FISHERSVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	58.7	59.6	67.5	83.0	99.1	128	103	73.6	59.4	42.8	39.5	39.9
MAX	238	400	205	173	211	359	409	259	227	180	128	147
(WY)	1980	1986	1973	1978	1984	1993	1987	1989	1972	1972	1984	1989
MIN	14.3	16.4	16.7	14.9	28.8	20.3	16.2	16.4	17.5	15.0	13.0	12.4
(WY)	1969	1982	1969	1981	1969	1981	1981	1981	1969	1977	1977	1968

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1968 - 1995	
ANNUAL TOTAL	27990		15121			
ANNUAL MEAN	76.7		41.4		71.1	
HIGHEST ANNUAL MEAN					121	
LOWEST ANNUAL MEAN					21.9	
HIGHEST DAILY MEAN	1160	Mar 29	1300	Jun 28	2730	Nov 4 1985
LOWEST DAILY MEAN	16	aDec 24	14	Jan 5	8.5	bOct 28 1968
ANNUAL SEVEN-DAY MINIMUM	16	Dec 24	16	Dec 24	9.0	cOct 26 1968
INSTANTANEOUS PEAK FLOW			3310	Jun 28	4520	Nov 4 1985
INSTANTANEOUS PEAK STAGE			11.38	Jun 28	13.58	Nov 4 1985
INSTANTANEOUS LOW FLOW			d4.9	Jan 5	d3.8	Jan 11 1977
ANNUAL RUNOFF (CFSM)	1.09		.59		1.01	
ANNUAL RUNOFF (INCHES)	14.85		8.02		13.77	
10 PERCENT EXCEEDS	152		58		130	
50 PERCENT EXCEEDS	31		25		42	
90 PERCENT EXCEEDS	19		18		18	

a Also Dec. 25-30, 1994.  
b Also Oct. 29, 30, 1968.  
c Also Oct. 27, 1968.  
d Result of freezeup.



## 01625000 MIDDLE RIVER NEAR GROTTOS, VA

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

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

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

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

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

REMARKS.--Records good except those for periods with ice effect, Jan. 6, and Feb. 7-10, 13, 14, which are fair. There are discharges of about 6.0 ft<sup>3</sup>/s from wastewater treatment plants upstream from station. Most of water discharged from treatment plants was diverted from another drainage basin for industrial and municipal supply. Small diurnal fluctuation at low flow caused by mills upstream from station. Maximum discharge, 38,500 ft<sup>3</sup>/s, from rating curve extended above 15,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum discharge, 18 ft<sup>3</sup>/s, result of freezeup. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	0500	4,900	11.87	June 28	2230	*5,460	*12.55

Minimum discharge, 40 ft<sup>3</sup>/s, Jan. 6, result of freezeup; minimum daily, 72 ft<sup>3</sup>/s, Sept. 8, 12, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	104	101	99	204	254	148	136	130	1660	133	82
2	100	115	96	101	218	251	145	175	123	1690	126	78
3	102	102	94	96	253	244	142	197	125	923	124	79
4	102	98	97	90	267	234	139	206	123	682	122	83
5	99	96	123	74	257	221	133	221	111	554	116	76
6	100	96	134	e73	213	212	131	218	105	467	129	75
7	96	96	121	415	e205	206	131	196	135	418	168	76
8	96	96	106	457	e230	206	130	179	121	367	155	72
9	96	94	98	271	e210	375	127	168	106	321	139	75
10	103	102	100	204	e215	368	127	184	456	295	131	93
11	98	114	140	171	212	333	125	183	565	278	128	78
12	96	100	135	151	204	314	126	165	520	254	141	72
13	94	96	119	143	e190	293	136	155	447	238	124	72
14	99	95	110	139	e180	274	131	173	222	224	120	76
15	108	96	110	1030	172	257	123	433	174	211	117	79
16	103	96	110	3340	170	243	119	355	139	199	111	77
17	97	98	107	1100	263	232	123	266	124	203	108	164
18	93	106	106	638	315	219	138	228	131	308	101	163
19	92	113	103	456	313	206	130	274	114	235	95	112
20	93	103	100	720	315	200	124	248	110	194	94	94
21	98	102	96	873	334	196	124	195	100	180	92	86
22	97	132	95	608	322	192	122	172	106	175	93	88
23	111	116	96	462	281	187	118	155	1260	167	89	86
24	134	104	96	379	256	195	151	140	994	161	87	85
25	110	95	94	316	229	177	153	131	622	167	83	102
26	104	93	90	277	214	165	142	138	605	211	83	123
27	105	95	91	249	203	161	138	173	585	197	85	185
28	103	103	89	238	226	162	136	157	2610	157	86	126
29	103	118	89	240	---	161	134	142	3280	154	90	99
30	97	109	88	222	---	157	134	268	2170	154	87	92
31	99	---	90	211	---	153	---	157	---	138	83	---
TOTAL	3129	3083	3224	13843	6671	7048	3980	6188	16413	11582	3440	2848
MEAN	101	103	104	447	238	227	133	200	547	374	111	94.9
MAX	134	132	140	3340	334	375	153	433	3280	1690	168	185
MIN	92	93	88	73	170	153	118	131	100	138	83	72
CFSM	.27	.27	.28	1.19	.64	.61	.35	.53	1.46	1.00	.30	.25
IN.	.31	.31	.32	1.37	.66	.70	.39	.61	1.63	1.15	.34	.28

e Estimated.

## 01625000 MIDDLE RIVER NEAR GROTTOS, VA--Continued

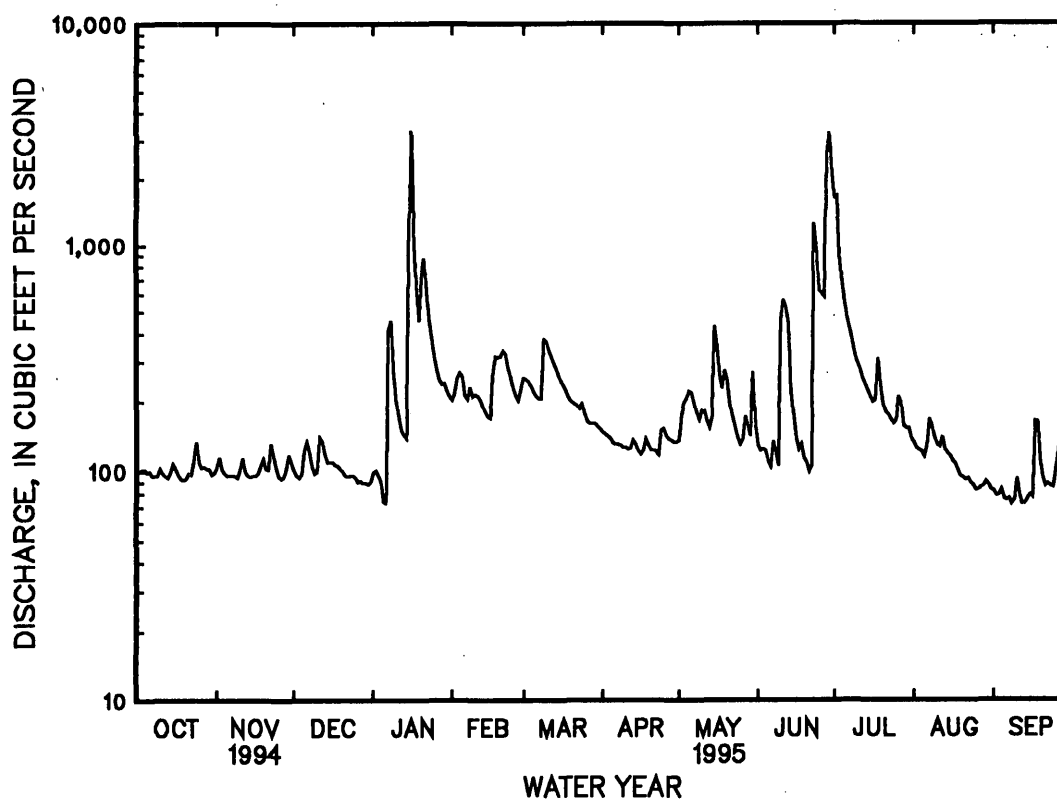
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	237	234	299	384	447	578	465	342	254	180	199	179
MAX	1138	2019	1111	1173	987	1704	1674	963	993	705	1017	727
(WY)	1980	1986	1949	1937	1936	1936	1987	1989	1972	1972	1940	1979
MIN	64.8	58.9	55.8	66.9	91.3	106	95.8	89.7	77.7	47.2	55.6	64.4
(WY)	1964	1931	1966	1981	1931	1981	1981	1969	1969	1966	1977	1932

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1928 - 1995	
ANNUAL TOTAL	151396		81449		316	
ANNUAL MEAN	415		223		609	
HIGHEST ANNUAL MEAN					1949	
LOWEST ANNUAL MEAN					105	
HIGHEST DAILY MEAN	4760	Mar 29	3340	Jan 16	26000	Nov 5 1985
LOWEST DAILY MEAN	88	Dec 30	72	aSep 8	28	Nov 28 1930
ANNUAL SEVEN-DAY MINIMUM	90	Dec 25	77	Sep 3	38	Sep 6 1966
INSTANTANEOUS PEAK FLOW			5460	Jun 28	38500	Nov 5 1985
INSTANTANEOUS PEAK STAGE			12.55	Jun 28	33.09	Nov 5 1985
INSTANTANEOUS LOW FLOW			b40	Jan 6	b18	Dec 16 1988
ANNUAL RUNOFF (CFSM)	1.11		.60		.84	
ANNUAL RUNOFF (INCHES)	15.02		8.08		11.44	
10 PERCENT EXCEEDS	882		342		620	
50 PERCENT EXCEEDS	166		134		188	
90 PERCENT EXCEEDS	97		91		83	

a Also Sept. 12, 13, 1995.

b Result of freezeup.



## POTOMAC RIVER BASIN

## 01626000 SOUTH RIVER NEAR WAYNESBORO, VA

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

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

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

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,296.20 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 6, and Feb. 7, which are fair. There is discharge of about 1.0 ft<sup>3</sup>/s from a wastewater treatment plant upstream from station, originating from well fields. Flow from 41 mi<sup>2</sup> upstream from station slightly regulated by flood-detention reservoirs (sixteen of which were built by Soil Conservation Service between 1954 and 1961). National Weather Service gage-height telemeter and Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 17,500 ft<sup>3</sup>/s, from rating curve extended above 4,200 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 13.95 ft. 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 Department of Environmental Quality - Water Division.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1600	3,000	7.82	June 29	0900	3,600	8.37
June 25	0300	1,210	5.45	July 2	0200	1,620	6.13
June 28	0930	*4,000	*8.71				

Minimum discharge, 31 ft<sup>3</sup>/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	56	66	77	145	125	78	59	77	1260	63	38
2	36	55	63	77	156	118	76	88	75	1410	62	38
3	41	46	61	71	162	113	73	92	74	909	61	37
4	36	43	59	69	157	110	70	88	67	618	58	38
5	35	41	136	64	145	107	68	89	61	515	54	37
6	34	41	159	e62	119	107	67	87	60	455	57	36
7	34	39	136	240	e114	104	66	79	60	406	62	35
8	34	38	115	217	122	126	65	76	56	350	57	35
9	33	38	98	172	104	272	64	73	82	304	54	36
10	34	41	93	146	112	242	62	89	112	267	54	36
11	33	46	114	129	107	216	62	84	124	225	52	36
12	45	41	102	117	104	191	63	78	344	170	51	35
13	52	40	96	107	94	172	78	74	298	153	50	36
14	46	40	95	130	93	159	70	104	187	139	54	36
15	45	39	91	1840	94	150	65	116	143	128	52	35
16	38	39	87	1780	100	141	63	98	118	119	49	36
17	36	43	84	1130	128	133	64	92	103	128	46	46
18	45	67	83	801	125	124	65	86	91	137	45	46
19	43	78	79	551	123	118	63	111	82	112	43	39
20	38	64	75	613	128	114	61	95	75	101	42	38
21	36	84	70	572	133	112	60	80	68	96	42	37
22	38	121	67	451	126	108	59	72	209	92	41	37
23	41	94	67	350	120	108	57	67	721	87	40	37
24	41	80	65	279	116	106	71	63	711	86	39	37
25	40	71	63	239	108	97	69	61	923	95	39	39
26	43	64	59	212	105	92	64	69	690	96	38	46
27	40	61	57	190	101	89	61	90	1110	85	40	55
28	40	75	56	180	125	87	59	87	3130	79	40	44
29	40	75	55	172	---	86	59	89	3030	79	39	39
30	39	70	53	161	---	83	58	96	1860	71	38	37
31	40	---	52	153	---	80	---	85	---	66	37	---
TOTAL	1212	1730	2556	11352	3366	3990	1960	2617	14741	8838	1499	1157
MEAN	39.1	57.7	82.5	366	120	129	65.3	84.4	491	285	48.4	38.6
MAX	52	121	159	1840	162	272	78	116	3130	1410	63	55
MIN	33	38	52	62	93	80	57	59	56	66	37	35
CFSM	.31	.45	.65	2.88	.95	1.01	.51	.66	3.87	2.24	.38	.30
IN.	.36	.51	.75	3.33	.99	1.17	.57	.77	4.32	2.59	.44	.34

e Estimated.

## 01626000 SOUTH RIVER NEAR WAYNESBORO, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	113	130	133	163	186	280	244	167	119	67.4	84.6	70.5
MAX	549	1214	349	372	454	748	1062	485	875	305	700	494
(WY)	1973	1986	1974	1978	1984	1993	1987	1989	1972	1972	1955	1979
MIN	25.5	25.1	24.2	23.6	64.5	49.0	44.0	50.4	37.5	26.1	26.3	27.0
(WY)	1966	1966	1966	1966	1959	1981	1981	1981	1964	1966	1966	1970

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1953 - 1995

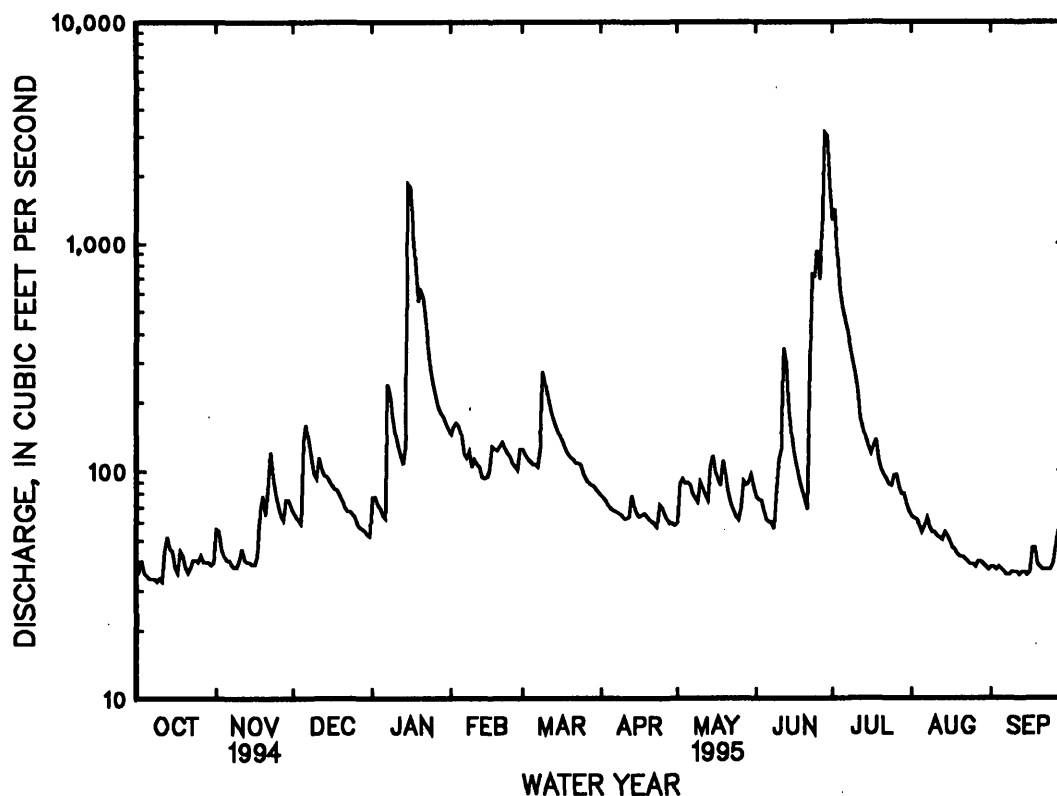
ANNUAL TOTAL	60147	55018	
ANNUAL MEAN	165	151	146
HIGHEST ANNUAL MEAN			265
LOWEST ANNUAL MEAN			47.5
HIGHEST DAILY MEAN	1500	aMar 8	3130 Jun 28
LOWEST DAILY MEAN	33	bOct 9	33 bOct 9
ANNUAL SEVEN-DAY MINIMUM	34	Oct 5	34 Oct 5
INSTANTANEOUS PEAK FLOW			4000 Jun 28
INSTANTANEOUS PEAK STAGE			8.71 Jun 28
INSTANTANEOUS LOW FLOW			31 Oct 9
ANNUAL RUNOFF (CFSM)	1.30	1.19	1.15
ANNUAL RUNOFF (INCHES)	17.62	16.12	15.65
10 PERCENT EXCEEDS	374	216	292
50 PERCENT EXCEEDS	70	75	82
90 PERCENT EXCEEDS	39	38	33

a Also Mar. 10, 1994.

b Also Oct. 11, 1994.

c Also Feb. 2, 1966.

d Result of regulation from unknown source upstream from gage.



## POTOMAC RIVER BASIN

## 01626850 SOUTH RIVER NEAR DOOMS, VA

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

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

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

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

REMARKS.--Records good except those for periods of no gage-height record, Jan. 6, and Feb. 6-9, which are fair. There are discharges of about 6.7 ft<sup>3</sup>/s from industrial and municipal wastewater treatment plants upstream from station, originating from well fields. Maximum discharge, 19,100 ft<sup>3</sup>/s, from rating curve extended above 8,100 ft<sup>3</sup>/s. Minimum gage height, 2.17 ft, Aug. 29, 30, 1981. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1600	4,320	10.61	June 25	0500	1,440	6.41
June 10	1530	1,030	5.46	June 28	1030	*5,590	*11.36
June 22	2330	1,150	5.75	June 29	1100	4,740	10.89
June 23	2200	1,050	5.51	July 2	0330	1,860	7.35

Minimum discharge, 52 ft<sup>3</sup>/s, Oct. 5, Sept. 7, 8, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	111	99	110	198	168	113	90	120	1490	94	61
2	60	82	94	110	209	160	110	137	117	1630	91	60
3	66	70	91	104	217	154	107	133	115	1020	91	59
4	60	67	97	101	212	152	104	128	104	695	87	59
5	55	66	188	95	197	148	102	132	93	586	82	60
6	59	66	220	e92	e170	149	101	125	88	537	92	58
7	59	64	191	327	e152	146	100	117	89	483	93	57
8	58	62	163	295	e160	198	97	110	82	426	87	57
9	63	62	142	238	e148	358	96	110	154	373	83	88
10	60	70	144	204	156	319	93	133	299	335	83	60
11	58	69	163	182	150	286	92	125	289	292	81	57
12	65	65	146	165	144	258	97	113	622	229	79	56
13	77	64	136	153	131	234	110	109	481	208	77	58
14	92	63	137	201	130	217	101	194	286	191	80	58
15	73	63	132	2670	133	205	95	187	208	178	79	56
16	64	63	126	2220	145	194	92	152	165	167	75	63
17	61	71	122	1310	174	183	96	142	141	190	71	100
18	68	113	119	856	173	172	97	133	124	192	69	72
19	69	116	115	604	171	164	93	198	112	156	67	64
20	66	97	108	718	179	157	90	148	102	143	66	61
21	65	139	104	646	184	156	89	124	92	138	66	59
22	66	186	100	521	176	151	88	112	324	131	64	61
23	76	143	99	426	169	150	87	103	950	123	63	59
24	64	120	97	350	162	147	109	97	899	119	61	62
25	64	109	94	306	153	135	103	99	1080	141	61	65
26	69	98	90	273	148	129	95	116	830	140	60	91
27	66	96	87	249	144	125	90	179	1320	140	62	82
28	65	111	86	238	170	125	90	143	4230	119	63	69
29	65	109	84	229	---	121	89	152	3880	120	62	64
30	66	104	82	215	---	119	88	155	2330	106	60	61
31	66	---	86	206	---	115	---	136	---	99	59	---
TOTAL	2025	2719	3742	14414	4655	5495	2914	4132	19726	10897	2308	1937
MEAN	65.3	90.6	121	465	166	177	97.1	133	658	352	74.5	64.6
MAX	92	186	220	2670	217	358	113	198	4230	1630	94	100
MIN	55	62	82	92	130	115	87	90	82	99	59	56
CFSM	.44	.61	.81	3.12	1.12	1.19	.65	.89	4.41	2.36	.50	.43
IN.	.51	.68	.93	3.60	1.16	1.37	.73	1.03	4.92	2.72	.58	.48

e Estimated.

## 01626850 SOUTH RIVER NEAR DOOMS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	155	215	182	239	240	388	347	224	163	113	106	130
MAX	604	1528	428	471	583	872	1248	589	658	352	294	653
(WY)	1980	1986	1984	1978	1984	1993	1987	1989	1995	1995	1985	1979
MIN	52.4	62.8	54.8	51.1	100	78.7	73.5	85.5	65.6	59.1	53.8	49.5
(WY)	1987	1982	1981	1981	1977	1981	1981	1977	a1977	1986	1977	1977

## SUMMARY STATISTICS

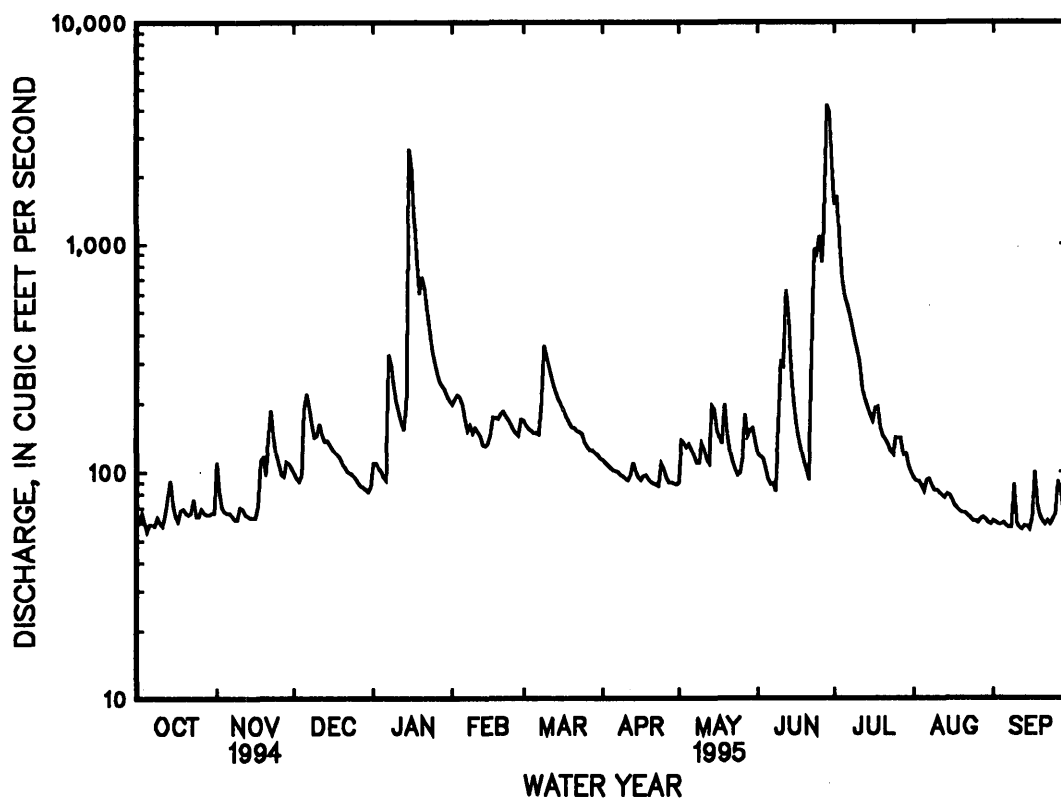
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1974 - 1995

ANNUAL TOTAL	80734	74964	
ANNUAL MEAN	221	205	
HIGHEST ANNUAL MEAN			208
LOWEST ANNUAL MEAN			293
HIGHEST DAILY MEAN	1820	Mar 8	4230 Jun 28
LOWEST DAILY MEAN	55	Oct 5	55 Oct 5
ANNUAL SEVEN-DAY MINIMUM	59	Oct 5	58 Sep 10
INSTANTANEOUS PEAK FLOW			5590 Jun 28
INSTANTANEOUS PEAK STAGE			11.36 Jun 28
INSTANTANEOUS LOW FLOW			52 dOct 5
ANNUAL RUNOFF (CFSM)	1.48	1.38	1.40
ANNUAL RUNOFF (INCHES)	20.16	18.72	18.99
10 PERCENT EXCEEDS	461	297	384
50 PERCENT EXCEEDS	110	111	125
90 PERCENT EXCEEDS	65	62	59

- a Also 1986.  
b Also Sept. 25, Oct. 7, 1977, and Aug. 29, 30, 1981.  
c From floodmarks.  
d Also Sept. 7, 8, 16, 1995.  
e Estimated.  
f Also Aug. 30, 1981.



## POTOMAC RIVER BASIN

## 01627500 SOUTH RIVER AT HARRISTON, VA

LOCATION.--Lat 38°13'07", long 78°50'13", Augusta County, Hydrologic Unit 02070005, on left bank 200 ft downstream from bridge on State Highway 778, 0.3 mi northwest of Harriston, 0.6 mi downstream from Paine Run, and 7.2 mi upstream from confluence with North River.

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

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

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

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

REMARKS.--Records good except those for periods with ice effect, Jan. 6, and Feb. 7, which are fair. There are discharges of about 6.7 ft<sup>3</sup>/s from industrial and municipal wastewater treatment plants upstream from station, originating from well fields. Maximum discharge, 28,100 ft<sup>3</sup>/s, from rating curve extended above 10,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2100	5,070	9.47	June 28	1430	*5,550	*9.77
June 25	1000	1,340	5.04	June 29	1700	4,780	9.26

Minimum discharge, 56 ft<sup>3</sup>/s, Sept. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	120	110	116	227	188	137	108	145	1830	111	65
2	75	94	106	124	238	178	134	148	138	1750	107	67
3	80	80	102	117	251	171	130	160	138	1270	106	65
4	76	73	101	114	248	167	127	150	127	867	103	65
5	71	71	164	106	232	165	123	157	117	698	98	67
6	72	71	236	e102	191	164	122	153	111	652	107	64
7	72	69	210	339	e180	161	121	143	118	611	108	63
8	73	65	184	355	194	188	116	135	109	511	102	64
9	76	66	161	284	165	433	117	132	143	439	97	86
10	80	75	155	242	179	409	116	155	286	392	95	90
11	69	74	187	213	170	368	114	153	326	351	94	64
12	69	72	170	194	165	328	116	138	598	275	93	62
13	92	68	157	179	152	296	134	131	625	245	89	62
14	111	68	156	190	149	274	127	207	387	224	87	66
15	90	68	154	2500	149	257	118	252	294	207	91	61
16	78	68	146	2980	158	242	115	202	235	195	87	64
17	71	71	142	1670	191	227	119	183	202	202	83	119
18	71	110	138	1120	192	212	121	169	179	243	80	85
19	84	122	133	776	188	201	116	223	164	190	77	73
20	76	107	126	932	194	193	110	186	151	173	74	68
21	73	119	122	895	203	190	109	156	140	165	73	67
22	73	201	116	702	197	184	107	139	211	161	72	68
23	90	164	115	560	189	181	103	128	963	151	69	68
24	80	138	113	446	184	180	128	120	1010	140	69	69
25	77	125	109	377	174	165	126	113	1080	157	68	74
26	80	113	105	331	167	157	117	127	887	171	68	99
27	79	108	100	297	163	152	110	188	1320	152	70	96
28	75	119	98	281	179	151	108	167	4210	163	73	82
29	75	123	96	272	---	148	106	169	3950	138	70	71
30	74	117	93	251	---	144	107	179	2790	129	68	68
31	74	---	93	240	---	139	---	159	---	118	66	---
TOTAL	2410	2939	4198	17305	5269	6613	3554	4930	21154	12970	2655	2182
MEAN	77.7	98.0	135	558	188	213	118	159	705	418	85.6	72.7
MAX	111	201	236	2980	251	433	137	252	4210	1830	111	119
MIN	69	65	93	102	149	139	103	108	109	118	66	61
CFSM	.37	.46	.64	2.63	.89	1.01	.56	.75	3.33	1.97	.40	.34
IN.	.42	.52	.74	3.04	.92	1.16	.62	.87	3.71	2.28	.47	.38

e Estimated.



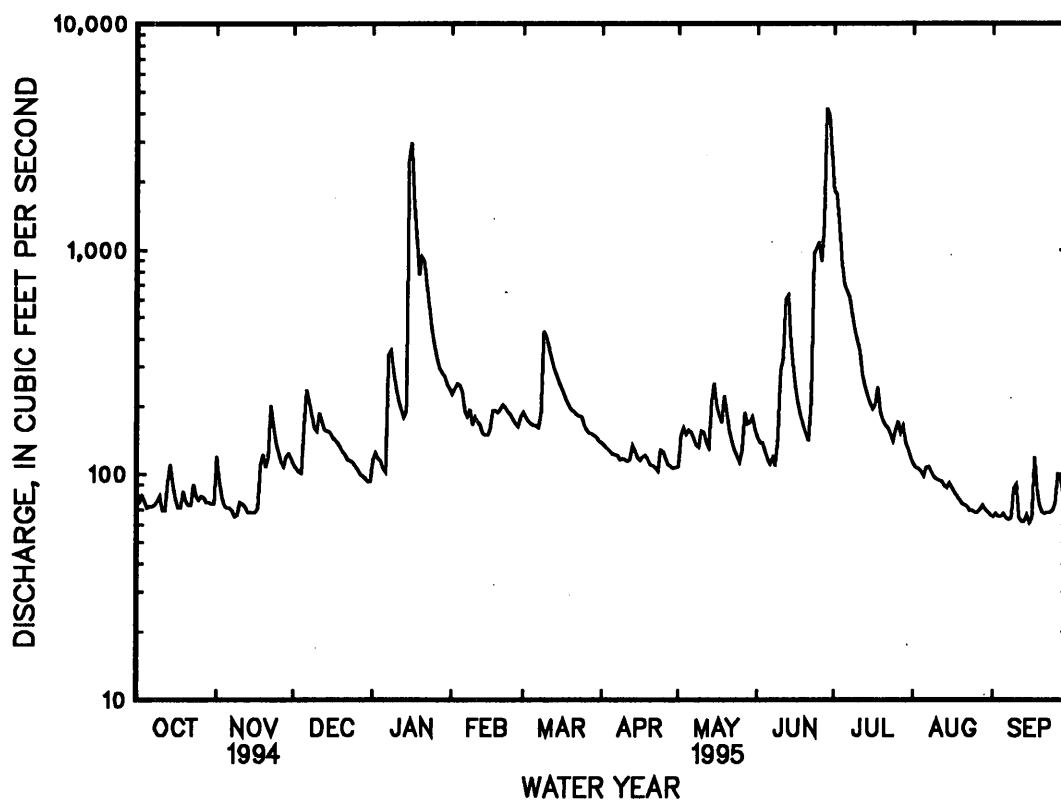
## 01627500 SOUTH RIVER AT HARRISTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1951, 1969 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	227	234	254	294	328	403	398	284	209	135	155	167
MAX	1048	1988	802	825	822	1407	1414	819	1454	520	925	970
(WY)	1943	1986	1949	1936	1984	1936	1987	1989	1972	1972	1940	1979
MIN	46.5	54.0	53.8	64.9	57.0	102	93.1	83.2	67.8	47.3	42.1	41.0
(WY)	1931	1931	1932	1981	1931	1981	1981	1930	1930	1930	1930	1930

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1926 - 1951, 1969 - 1995	
ANNUAL TOTAL	100155		86179			
ANNUAL MEAN	274		236		258	
HIGHEST ANNUAL MEAN					462	
LOWEST ANNUAL MEAN					97.5	
HIGHEST DAILY MEAN	2410		4210		16400	
LOWEST DAILY MEAN	65		61		a25	
ANNUAL SEVEN-DAY MINIMUM	70		65		38	
INSTANTANEOUS PEAK FLOW			5550		28100	
INSTANTANEOUS PEAK STAGE			9.77		b17.20	
INSTANTANEOUS LOW FLOW			56		a17	
ANNUAL RUNOFF (CFSM)	1.29		1.11		1.22	
ANNUAL RUNOFF (INCHES)	17.57		15.12		16.57	
10 PERCENT EXCEEDS	569		353		482	
50 PERCENT EXCEEDS	126		133		156	
90 PERCENT EXCEEDS	76		70		69	

a Probably result of regulation by mill then in existence upstream from station.

b Peak discharge, 23,100 ft<sup>3</sup>/s.

## 01628060 WHITE OAK RUN NEAR GROTTOS, VA

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

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

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

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

GAGE.--Water-stage recorder. Elevation of gage is 1,480 ft above sea level, from topographic map.

REMARKS.--Records good except those for periods of missing record, July 3-10 and Aug. 25 to Sept. 1, which are fair. Maximum discharge, 515 ft<sup>3</sup>/s, from rating curve extended above 33 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. No flow many days in 1980-89, 1993-94. Several measurements of water temperature were made during the year.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1800	156	3.54	June 27	2345	*252	*4.32

Minimum daily discharge, .02 ft<sup>3</sup>/s, many days in October and September.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.04	.34	.92	1.6	1.8	.68	.87	.40	15	1.9	e.10
2	.04	.18	.36	.90	1.5	1.7	.63	1.6	.33	9.1	1.5	.27
3	.03	.15	.44	.72	1.5	1.8	.57	2.1	.36	e7.5	1.2	.09
4	.03	.10	.56	.68	1.8	1.9	.53	2.4	.40	e5.3	.93	.06
5	.03	.08	2.4	.64	1.7	1.8	.53	2.5	.30	e4.3	.75	.05
6	.03	.07	4.2	1.5	1.4	1.9	.49	2.3	.27	e3.3	.78	.05
7	.03	.05	4.7	7.0	1.3	1.8	.46	2.0	.31	e2.8	.69	.04
8	.03	.05	3.9	6.0	1.2	2.6	.44	1.8	.40	e2.2	.51	.03
9	.03	.05	3.3	4.9	1.1	6.9	.42	1.7	.26	e1.8	.41	.04
10	.06	.05	3.3	3.8	.99	8.5	.37	1.6	.24	e1.5	.36	.07
11	.05	.06	3.6	3.1	.99	7.7	.32	1.4	.25	1.3	.30	.05
12	.04	.05	3.5	2.7	.88	6.6	.33	1.3	1.1	1.1	.31	.04
13	.03	.05	3.5	2.2	.67	5.4	.52	1.1	1.8	.92	.26	.03
14	.03	.05	3.5	3.5	.59	4.6	.39	1.8	1.6	.75	.21	.02
15	.06	.05	3.2	111	.58	3.9	.32	2.2	1.4	.65	.19	.02
16	.06	.05	2.9	58	.69	3.4	.30	2.5	1.1	.55	.19	.02
17	.04	.05	2.9	19	.92	3.0	.34	2.7	.93	2.1	.16	.26
18	.03	.18	2.8	11	1.0	2.5	.40	2.5	.76	5.9	.15	.16
19	.03	.28	2.4	7.9	1.3	2.2	.34	2.7	.66	3.8	.15	.08
20	.02	.22	2.0	14	1.8	2.0	.34	2.1	.60	2.7	.13	.05
21	.02	1.3	1.9	17	2.1	1.9	.37	1.7	.51	2.1	.12	.04
22	.02	2.1	1.8	12	2.2	1.7	.37	1.4	13	1.6	.10	.04
23	.04	1.6	1.7	8.7	2.2	1.5	.37	1.2	20	1.3	.09	.04
24	.09	1.3	1.7	6.4	2.2	1.4	.66	1.0	14	1.1	.09	.04
25	.07	.90	1.6	4.6	2.0	1.2	.68	.95	15	1.0	e.08	.05
26	.05	.62	1.3	3.6	1.8	1.0	.68	.83	13	1.1	e.07	.27
27	.05	.46	1.1	3.1	1.6	.99	.75	.72	47	.78	e.06	.35
28	.04	.48	1.1	2.7	1.9	.98	.79	.65	130	1.0	e.05	.17
29	.03	.45	.97	2.3	---	.88	.79	.63	52	1.9	e.04	.10
30	.03	.37	.77	2.0	---	.76	.84	.70	32	3.0	e.03	.08
31	.02	---	.68	1.8	---	.71	---	.50	---	2.4	e.03	---
TOTAL	1.20	11.44	68.42	323.66	39.51	85.02	15.02	49.45	349.98	89.85	11.84	2.71
MEAN	.039	.38	2.21	10.4	1.41	2.74	.50	1.60	11.7	2.90	.38	.090
MAX	.09	2.1	4.7	111	2.2	8.5	.84	2.7	130	15	1.9	.35
MIN	.02	.04	.34	.64	.58	.71	.30	.50	.24	.55	.03	.02
CFSM	.02	.20	1.14	5.38	.73	1.41	.26	.82	6.01	1.49	.20	.05
IN.	.02	.22	1.31	6.21	.76	1.63	.29	.95	6.71	1.72	.23	.05

e Estimated.

## 01628060 WHITE OAK RUN NEAR GROTTOS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.22	3.28	2.56	3.05	3.62	5.56	5.02	3.48	1.99	1.13	.70	.65
MAX	12.0	21.5	7.35	10.4	13.5	13.3	15.3	13.6	11.7	9.58	3.28	3.78
(WY)	1991	1986	1984	1995	1984	1994	1987	1989	1995	1991	1994	1992
MIN	.000	.059	.040	.007	.52	.46	.50	.27	.081	.002	.000	.000
(WY)	(a)	1982	1981	1981	1980	1981	1995	1991	1994	1987	1987	(b)

## SUMMARY STATISTICS

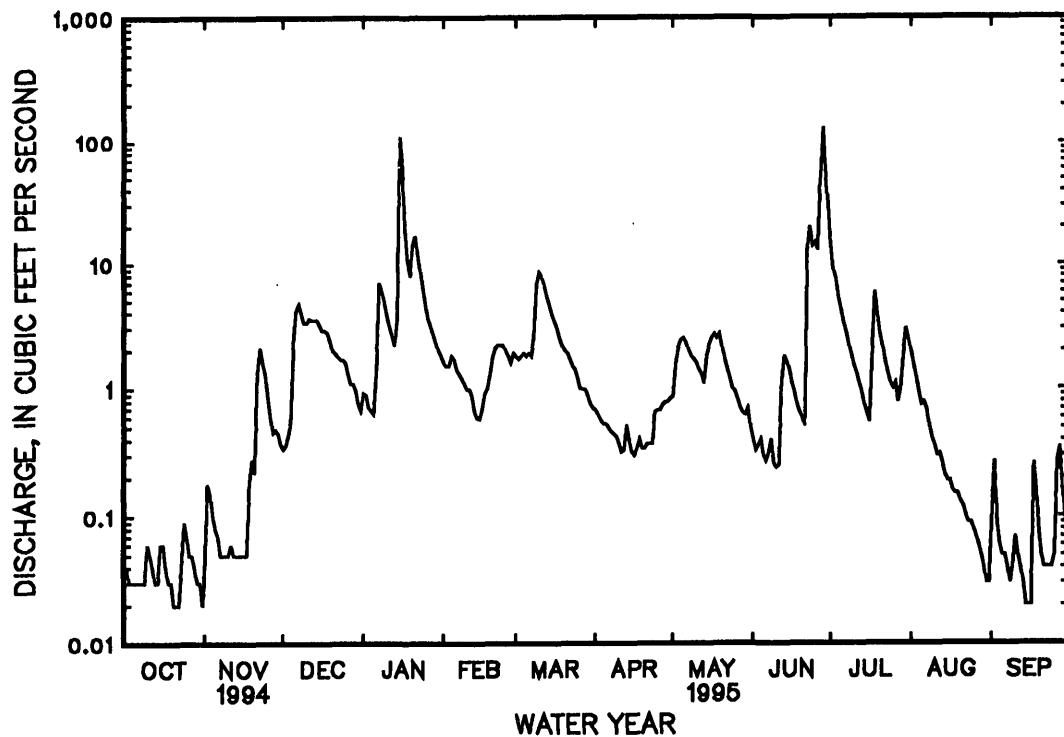
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1980 - 1995

ANNUAL TOTAL	1129.66	1048.10	
ANNUAL MEAN	3.09	2.87	
HIGHEST ANNUAL MEAN			2.77
LOWEST ANNUAL MEAN			3.95
HIGHEST DAILY MEAN	62	Mar 29	337
LOWEST DAILY MEAN	.00	cJul 5	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 2	.00
INSTANTANEOUS PEAK FLOW			515
INSTANTANEOUS PEAK STAGE			g6.17
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (CFSM)	1.60		1.43
ANNUAL RUNOFF (INCHES)	21.66		19.38
10 PERCENT EXCEEDS	7.2		6.3
50 PERCENT EXCEEDS	.54		.62
90 PERCENT EXCEEDS	.03		.00

- a Monthly mean flow is 0.0 ft<sup>3</sup>/s in 1987, 1989.  
b Monthly mean flow is 0.0 ft<sup>3</sup>/s in 1980, 1983, 1984.  
c Many days in October and July, 1994.  
d Many days in October 1994 and September 1995.  
f No flow many days in 1980-89, 1993-94.  
g From floodmarks.  
h Many days in October, November 1994, and September 1995.



## POTOMAC RIVER BASIN

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 1,013.17 ft above sea level.

REMARKS.--Records good except for period with ice effect, Jan. 6, which is fair. Diurnal fluctuation at low flow prior to 1960 caused by mill at Lynnwood. National Weather Service rain gage and gage-height telemeters and Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 95,100 ft<sup>3</sup>/s, from rating curve extended above 22,000 ft<sup>3</sup>/s on basis of computations of flow over dam at gage heights 23.60 ft and 27.2 ft. Minimum gage height, 1.63 ft, Sept. 20, 1932. 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 Department of Environmental Quality - Water Division.

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 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	0200	*19,200	*14.81	June 28	2130	15,600	13.48

Minimum discharge, 237 ft<sup>3</sup>/s, Sept. 12-13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	301	301	291	286	842	764	490	435	558	7450	479	281
2	298	308	285	299	812	743	478	509	541	6310	454	278
3	300	287	279	287	826	723	462	672	548	4320	435	271
4	301	276	279	280	849	703	444	826	544	3120	422	273
5	293	274	333	266	862	682	431	887	506	2420	411	267
6	288	273	440	e260	747	666	422	841	479	2560	1220	261
7	287	266	396	784	644	645	414	759	492	2390	998	261
8	285	265	360	906	680	657	402	686	532	1940	789	253
9	286	263	330	754	639	1180	395	624	471	1560	656	253
10	296	272	329	674	616	1190	396	654	857	1310	588	300
11	286	282	379	587	619	1080	382	645	1600	1140	541	257
12	282	271	375	536	586	1020	384	594	1480	961	527	248
13	285	269	343	500	548	981	418	562	1750	856	505	243
14	300	264	332	483	528	974	408	1020	1060	789	474	248
15	313	264	334	4720	532	962	378	2730	859	726	534	246
16	293	264	328	13300	552	929	367	2170	724	685	457	246
17	282	263	320	6710	681	877	377	1650	645	668	416	391
18	280	289	316	4710	755	819	405	1280	610	814	395	409
19	283	305	312	3130	774	767	383	1200	570	719	368	304
20	279	291	304	3420	807	728	374	993	543	623	357	272
21	274	282	297	3720	864	697	377	802	510	582	352	262
22	274	379	293	2910	878	674	375	707	524	624	342	261
23	291	344	289	2280	835	658	365	629	2330	567	326	258
24	319	309	289	1940	793	655	433	576	2850	564	317	257
25	284	292	284	1550	746	607	455	542	2750	635	312	271
26	278	286	278	1290	706	568	428	604	2740	755	305	307
27	278	285	274	1130	674	552	422	663	2940	618	304	408
28	272	297	273	1020	735	546	425	664	9380	894	306	310
29	269	315	271	997	---	539	427	631	12100	660	303	271
30	270	301	271	952	---	520	427	744	9500	586	296	254
31	272	---	268	903	---	504	---	626	---	521	287	---
TOTAL	8899	8637	9752	61584	20130	23610	12344	26925	60993	48367	14476	8421
MEAN	287	288	315	1987	719	762	411	869	2033	1560	467	281
MAX	319	379	440	13300	878	1190	490	2730	12100	7450	1220	409
MIN	269	263	268	260	528	504	365	435	471	521	287	243
CFSM	.26	.27	.29	1.83	.66	.70	.38	.80	1.88	1.44	.43	.26
IN.	.31	.30	.33	2.11	.69	.81	.42	.92	2.09	1.66	.50	.29

e Estimated.

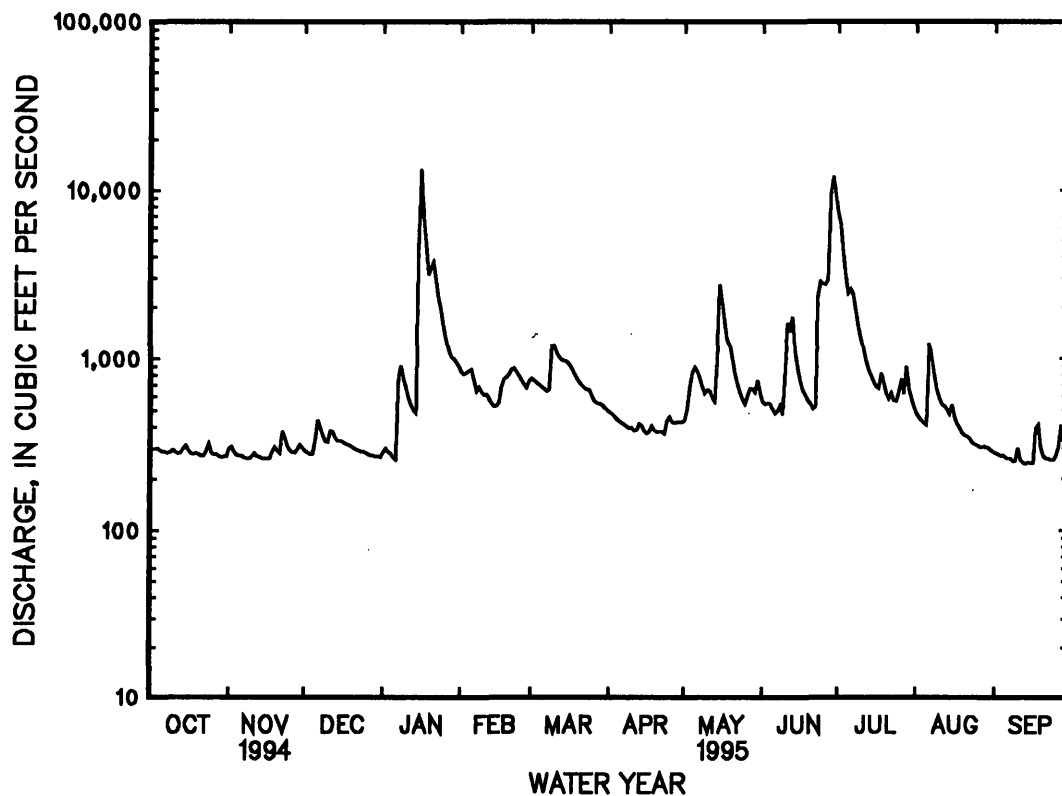
## 01628500 SOUTH FORK SHENANDOAH RIVER NEAR LYNNWOOD, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	731	769	940	1181	1385	1858	1584	1202	852	554	623	551
MAX	4172	6886	3302	3516	3018	5785	5454	3086	3656	2013	2895	2888
(WY)	1943	1986	1949	1937	1994	1936	1987	1989	1972	1949	1940	1979
MIN	122	150	156	154	203	360	317	362	245	162	166	173
(WY)	1931	1931	1966	1966	1931	1981	1981	1977	1956	1966	1932	1964

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1931 - 1995	
ANNUAL TOTAL	486300		304138			
ANNUAL MEAN	1332		833		1017	
HIGHEST ANNUAL MEAN					1977	
LOWEST ANNUAL MEAN					397	
HIGHEST DAILY MEAN	11700	Mar 29	13300	Jan 16	e60000	Nov 5 1985
LOWEST DAILY MEAN	263	aNov 9	243	Sep 13	100	Oct 13 1930
ANNUAL SEVEN-DAY MINIMUM	268	Nov 11	255	Sep 10	106	Oct 9 1930
INSTANTANEOUS PEAK FLOW			19200	Jan 16	95100	Nov 5 1985
INSTANTANEOUS PEAK STAGE			14.81	Jan 16	b29.46	Nov 5 1985
INSTANTANEOUS LOW FLOW			237	cSep 12	d32	Sep 20 1932
ANNUAL RUNOFF (CFSM)	1.23		.77		.94	
ANNUAL RUNOFF (INCHES)	16.69		10.44		12.75	
10 PERCENT EXCEEDS	3130		1280		2070	
50 PERCENT EXCEEDS	526		483		596	
90 PERCENT EXCEEDS	284		272		236	

- a Also Nov. 17, 1994.  
b From floodmarks.  
c Also Sept. 13, 1995.  
d Result of regulation.  
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 mi<sup>2</sup>.

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

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

REMARKS.--Records good except those for period with ice effect, Feb. 7-10, and periods of no gage-height record, Apr. 21 to May 5, and May 16, which are fair. Diurnal fluctuation at low and medium flow caused by powerplant 10 mi upstream from station. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 110,000 ft<sup>3</sup>/s, from rating curve extended above 86,300 ft<sup>3</sup>/s. Minimum gage height, 2.15 ft, Sept. 27, 1941. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	1000	*24,400	*13.62	June 29	0730	18,100	11.67

Minimum discharge, 248 ft<sup>3</sup>/s, Oct. 13, result of regulation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	402	384	440	412	1160	1100	738	e650	809	10200	656	363
2	399	409	423	435	1100	1070	719	e800	737	8540	602	353
3	406	438	407	447	1150	1040	708	e1000	709	6100	572	353
4	392	402	411	432	1210	1020	670	e1100	695	4120	543	341
5	397	371	466	412	1190	1000	656	e1220	650	3090	540	352
6	385	379	574	398	1100	980	635	1230	623	2810	1040	347
7	382	380	683	611	e930	955	617	1150	599	2650	1660	335
8	373	362	612	1400	e940	971	611	1060	605	2400	1160	330
9	379	363	559	1260	e960	1450	596	980	612	1970	924	326
10	388	373	509	1110	e850	1830	598	1060	571	1700	800	334
11	386	369	535	986	901	1700	584	1080	1460	1510	719	381
12	380	388	596	875	869	1670	586	952	1440	1330	673	346
13	377	376	567	795	831	1580	620	874	1970	1150	662	332
14	377	376	527	771	785	1500	640	1050	1560	1020	638	319
15	390	362	511	5380	788	1440	610	2590	1180	949	580	321
16	414	365	517	19300	794	1410	581	e2950	1000	882	634	329
17	400	364	503	10400	896	1330	586	2230	870	846	536	377
18	385	378	491	6690	1060	1240	594	1920	791	848	502	511
19	372	427	490	4450	1100	1170	618	1730	734	1010	477	497
20	379	445	476	3890	1130	1110	591	1610	691	846	451	405
21	373	440	459	5090	1190	1070	e576	1340	658	840	431	368
22	368	468	445	4040	1240	1020	e570	1150	642	808	427	368
23	392	579	432	3130	1200	987	e560	1040	1320	783	417	355
24	414	512	438	2520	1140	959	e660	913	3590	732	403	355
25	433	474	441	2080	1090	930	e690	842	3060	874	396	378
26	390	433	432	1800	1040	870	e660	949	3450	1120	386	404
27	379	426	421	1600	1010	825	e650	947	4360	1150	382	452
28	379	448	412	1460	1030	817	e640	979	9600	1060	385	520
29	364	446	409	1390	---	804	e640	927	16000	1100	386	423
30	371	463	404	1310	---	785	e640	897	14100	844	383	376
31	382	---	399	1220	---	754	---	987	---	744	373	---
TOTAL	12008	12400	14989	86094	28684	35387	18844	38207	75086	64026	18738	11251
MEAN	387	413	484	2777	1024	1142	628	1232	2503	2065	604	375
MAX	433	579	683	19300	1240	1830	738	2950	16000	10200	1660	520
MIN	364	362	399	398	785	754	560	650	571	732	373	319
CFSM	.28	.30	.35	2.02	.74	.83	.46	.90	1.82	1.50	.44	.27
IN.	.32	.33	.40	2.33	.77	.96	.51	1.03	2.03	1.73	.51	.30

e Estimated.

## 01629500 SOUTH FORK SHENANDOAH RIVER NEAR LURAY, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1930, 1939 - 1951, 1980 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1044	1124	1305	1413	1852	2189	2194	1680	1200	776	879	839
MAX	6332	8783	3821	3780	4415	7143	7412	4449	3418	2460	3637	4076
(WY)	1943	1986	1949	1991	1984	1993	1987	1989	1949	1949	1940	1979
MIN	271	254	351	260	574	548	452	499	438	296	258	257
(WY)	1942	1942	1944	1981	1944	1981	1981	1930	1930	1930	1930	1930

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

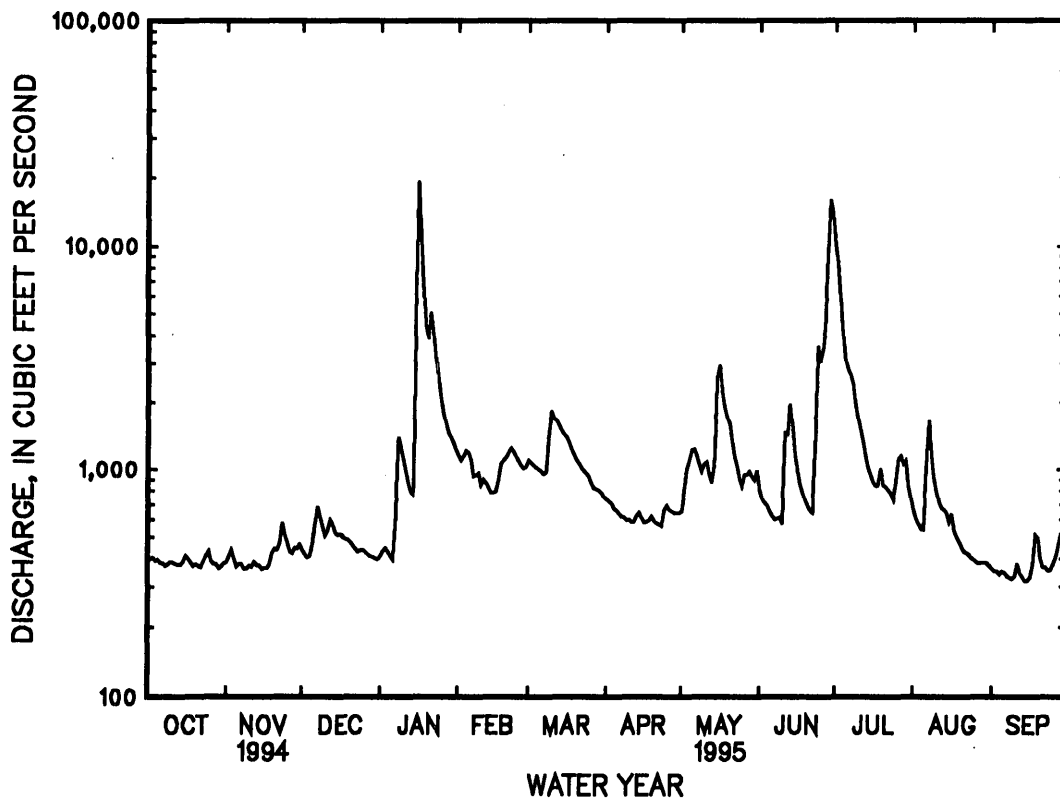
WATER YEARS 1926 - 1930,  
1939 - 1951,  
1980 - 1995

ANNUAL TOTAL	654023	415714	
ANNUAL MEAN	1792	1139	1362
HIGHEST ANNUAL MEAN			2404
LOWEST ANNUAL MEAN			580
HIGHEST DAILY MEAN	16100	Mar 29	78700
LOWEST DAILY MEAN	362	aNov 8	b135
ANNUAL SEVEN-DAY MINIMUM	371	Nov 5	195
INSTANTANEOUS PEAK FLOW			24400
INSTANTANEOUS PEAK STAGE			13.62
INSTANTANEOUS LOW FLOW			b248
ANNUAL RUNOFF (CFSM)	1.30	.83	.99
ANNUAL RUNOFF (INCHES)	17.67	11.23	13.44
10 PERCENT EXCEEDS	3960	1700	2700
50 PERCENT EXCEEDS	674	658	832
90 PERCENT EXCEEDS	390	376	361

a Also Nov. 15, 1994.

b Result of regulation.

c Also Sept. 16, 1925; data were collected for only part of the 1925 water year.



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

LOCATION.--Lat 38°54'50", long 78°12'40", Warren County, Hydrologic Unit 02070005, on left bank 0.7 mi downstream from bridge on State Highway 619, 1.0 mi west of Front Royal, and 3.5 mi upstream from confluence with North Fork.

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

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 sea level. June 1899 to July 1906, nonrecording gage at site 1.0 mi upstream at different datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 6-8 and Feb. 7-15, which are fair. Large diurnal fluctuation at low and medium flow caused by powerplants upstream from station prior to 1954; occasional large diurnal fluctuation thereafter. National Weather Service gage-height telemeter at station. Maximum discharge, 130,000 ft<sup>3</sup>/s, from rating curve extended above 92,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 0.56 ft, Jan. 30, 1934. Water-quality records for some prior periods have been collected at this location.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	2030	*23,300	*11.69	June 29	1730	17,700	9.99
June 27	1100	11,400	7.80				

Minimum daily discharge, 306 ft<sup>3</sup>/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	476	464	616	565	1240	1140	878	806	1060	10900	794	434
2	452	463	588	578	1240	1190	879	872	947	8820	665	416
3	443	459	558	580	1160	1150	850	941	910	7100	611	394
4	445	524	537	599	1250	1120	857	1060	898	5090	553	399
5	438	482	620	545	1260	1110	791	1180	876	3850	543	395
6	443	442	662	e480	1280	1100	794	1310	832	3170	1030	396
7	431	441	781	e470	e1150	1080	766	1290	814	3090	1890	397
8	425	445	865	e820	e1050	1090	752	1200	792	2930	1880	375
9	421	439	799	1630	e980	1310	757	1130	776	2650	1390	359
10	424	461	739	1430	e1000	1930	756	1090	814	2330	1100	353
11	423	456	721	1290	e990	2070	756	1690	849	2090	902	357
12	427	443	715	1170	e970	2110	750	1400	1680	1920	796	684
13	416	469	777	1080	e900	2080	842	1150	1500	1750	724	306
14	442	470	740	942	e860	1910	832	1150	2030	1540	711	378
15	410	472	691	2300	e850	1790	828	1470	1570	1320	685	423
16	424	466	660	17900	904	1690	797	3090	1160	1220	635	419
17	452	477	652	13900	924	1610	768	2690	1110	1120	685	472
18	441	545	655	7710	1030	1490	774	2220	1030	1060	597	484
19	426	557	638	5470	1160	1400	767	2130	971	1020	535	544
20	417	600	645	4270	1200	1310	770	1890	929	1070	515	622
21	422	657	624	4970	1240	1260	753	1690	910	1070	499	523
22	432	669	589	4750	1310	1190	736	1430	905	1010	473	480
23	445	667	577	3770	1340	1150	725	1210	958	992	465	463
24	476	762	568	3050	1290	1100	753	1140	2130	971	459	445
25	462	698	599	2480	1180	1050	778	1050	3400	936	448	460
26	510	651	608	2090	1150	1040	822	993	3260	895	431	498
27	463	581	587	1810	1110	982	818	1060	5340	1260	435	511
28	435	600	582	1590	1150	953	792	1050	8300	1480	428	535
29	435	620	564	1520	---	933	774	1090	14000	1300	435	598
30	422	589	556	1450	---	924	789	1040	14300	1200	446	530
31	431	---	551	1380	---	909	---	1010	---	914	442	---
TOTAL	13609	16069	20064	92589	31168	41171	23704	42522	75051	76068	22202	13650
MEAN	439	536	647	2987	1113	1328	790	1372	2502	2454	716	455
MAX	510	762	865	17900	1340	2110	879	3090	14300	10900	1890	684
MIN	410	439	537	470	850	909	725	806	776	895	428	306
CFSM	.27	.33	.39	1.82	.68	.81	.48	.84	1.52	1.49	.44	.28
IN.	.31	.36	.45	2.10	.71	.93	.54	.96	1.70	1.72	.50	.31

e Estimated.



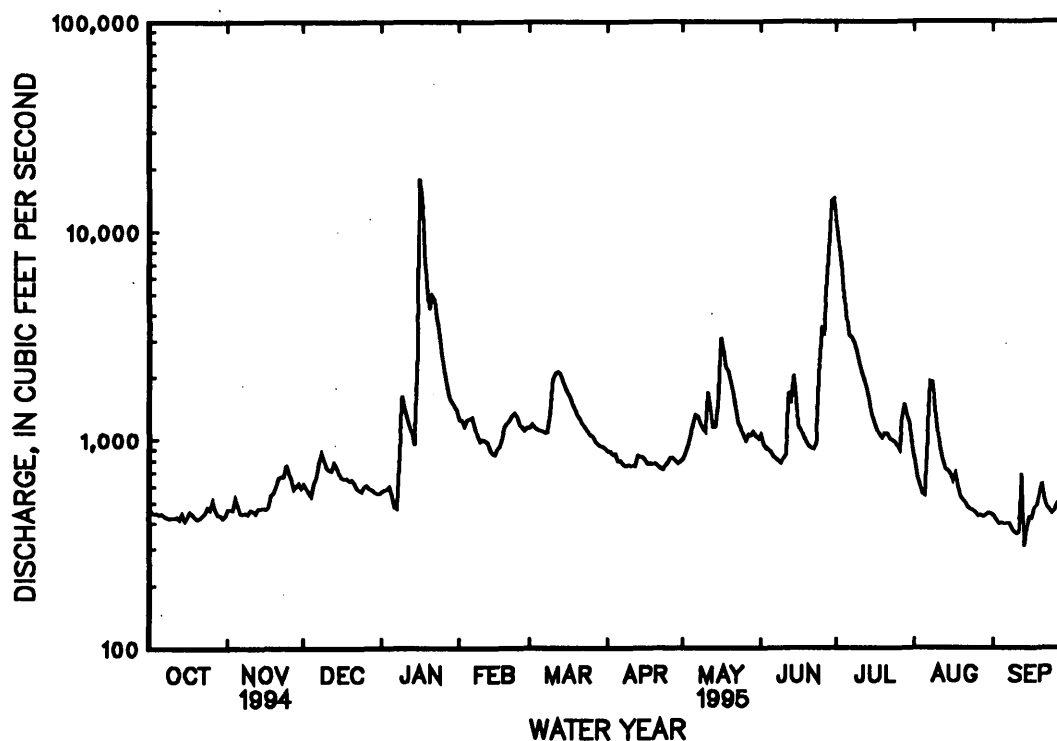
## 01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1900 - 1906, 1931 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1161	1202	1465	1804	2122	2846	2473	1853	1320	807	950	834
MAX	8678	10130	4795	4758	5392	10300	7963	4807	6586	2876	6807	4426
(WY)	1943	1986	1973	1937	1984	1936	1987	1989	1972	1949	1955	1979
MIN	225	242	268	285	348	632	516	578	393	252	281	314
(WY)	1931	1931	1966	1966	1931	1981	1981	1977	1977	1966	1932	1965

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1931 - 1995	
ANNUAL TOTAL	752303		467867		1567	
ANNUAL MEAN	2061		1282		2894	
HIGHEST ANNUAL MEAN					1973	
LOWEST ANNUAL MEAN					680	
HIGHEST DAILY MEAN	19300	Mar 30	17900	Jan 16	114000	Oct 16 1942
LOWEST DAILY MEAN	410	Oct 15	306	Sep 13	107	Nov 18 1930
ANNUAL SEVEN-DAY MINIMUM	423	Oct 9	376	Sep 5	152	Sep 6 1966
INSTANTANEOUS PEAK FLOW			23300	Jan 16	130000	Oct 16 1942
INSTANTANEOUS PEAK STAGE			11.69	Jan 16	34.80	Oct 16 1942
INSTANTANEOUS LOW FLOW			272	Sep 14	59	Jan 30 1934
ANNUAL RUNOFF (CFSM)	1.26		.78		.95	
ANNUAL RUNOFF (INCHES)	17.04		10.60		12.96	
10 PERCENT EXCEEDS	4450		2070		3140	
50 PERCENT EXCEEDS	849		828		937	
90 PERCENT EXCEEDS	463		437		386	

a From floodmarks.



## POTOMAC RIVER BASIN

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

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

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

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

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,051.8 ft above mean sea level (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 periods with ice effect, Jan. 4-6 and Feb. 5-14, and period of no gage-height record, Apr. 1-5, which are fair. National Weather Service gage-height telemeter and Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 50,000 ft<sup>3</sup>/s, from rating curve extended above 9,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow. Minimum gage height, 1.74 ft, Sept. 7-10, 1966. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1745	*10,100	*12.61	June 28	1300	7,910	11.17
June 25	0345	3,630	7.60				

Minimum daily discharge, 2.5 ft<sup>3</sup>/s, Sept. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	6.7	18	20	93	98	e79	127	70	1590	18	6.7
2	5.4	6.4	17	20	105	92	e75	266	63	885	17	5.8
3	5.4	6.4	17	19	122	85	e71	515	57	486	15	5.3
4	5.4	6.3	17	e17	131	79	e67	468	50	317	13	5.0
5	5.2	6.4	26	e16	e105	74	e62	382	44	323	47	4.6
6	5.0	6.8	33	e18	e95	72	59	306	39	555	1060	4.3
7	4.9	8.1	29	344	e88	71	54	255	36	418	719	3.9
8	4.7	8.3	26	269	e80	85	52	214	33	261	283	3.6
9	4.7	8.4	24	178	e75	150	52	190	30	176	162	3.4
10	4.6	9.5	24	131	e68	153	52	190	32	136	115	3.2
11	4.4	9.3	37	107	e63	188	54	279	61	109	84	2.9
12	4.3	9.2	45	93	e61	315	53	247	68	84	87	2.8
13	4.4	9.3	37	80	e62	329	77	214	71	68	59	2.8
14	4.5	9.3	33	77	e58	294	93	1020	54	56	45	2.7
15	4.5	9.5	30	4400	56	262	90	1380	48	47	34	2.5
16	4.3	11	28	2990	57	231	84	694	41	40	30	2.5
17	4.3	13	27	1120	73	195	85	457	35	40	26	4.9
18	4.1	13	26	584	95	169	87	407	31	35	23	3.8
19	4.1	12	26	365	114	147	81	412	27	29	21	3.4
20	4.1	12	25	842	145	130	77	335	24	25	19	3.1
21	4.1	15	24	816	165	123	77	273	22	24	17	3.3
22	4.4	19	24	529	159	123	74	219	26	38	16	3.8
23	5.3	18	23	374	148	120	71	190	239	28	14	4.1
24	5.4	17	22	286	140	112	108	192	370	25	13	4.3
25	5.2	17	22	225	124	100	137	199	2250	32	12	4.9
26	5.4	16	21	180	114	95	153	282	841	33	11	6.1
27	5.4	16	21	149	105	91	157	185	1100	27	10	5.8
28	5.4	18	21	135	104	96	153	144	4070	27	9.9	5.4
29	5.6	18	20	124	---	92	140	126	2610	25	9.0	4.9
30	5.7	19	19	111	---	87	130	105	2100	22	8.3	3.4
31	5.8	---	19	98	---	82	---	86	---	20	7.4	---
TOTAL	151.6	353.9	781	14717	2805	4340	2604	10359	14542	5981	3004.6	123.2
MEAN	4.89	11.8	25.2	475	100	140	86.8	334	485	193	96.9	4.11
MAX	5.8	19	45	4400	165	329	157	1380	4070	1590	1060	6.7
MIN	4.1	6.3	17	16	56	71	52	86	22	20	7.4	2.5
CFSM	.02	.06	.12	2.26	.48	.67	.41	1.59	2.31	.92	.46	.02
IN.	.03	.06	.14	2.61	.50	.77	.46	1.84	2.58	1.06	.53	.02

e Estimated.

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

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	128	140	183	206	282	411	352	272	128	65.5	87.0	67.7
MAX	1401	1883	850	656	762	1536	1156	964	906	552	697	954
(WY)	1943	1986	1974	1937	1994	1936	1987	1942	1972	1949	1955	1945
MIN	.76	3.26	3.04	5.13	11.3	38.4	27.7	24.3	6.10	1.60	.52	.66
(WY)	1931	1931	1966	1966	1934	1981	1981	1977	1977	1977	1930	1930

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

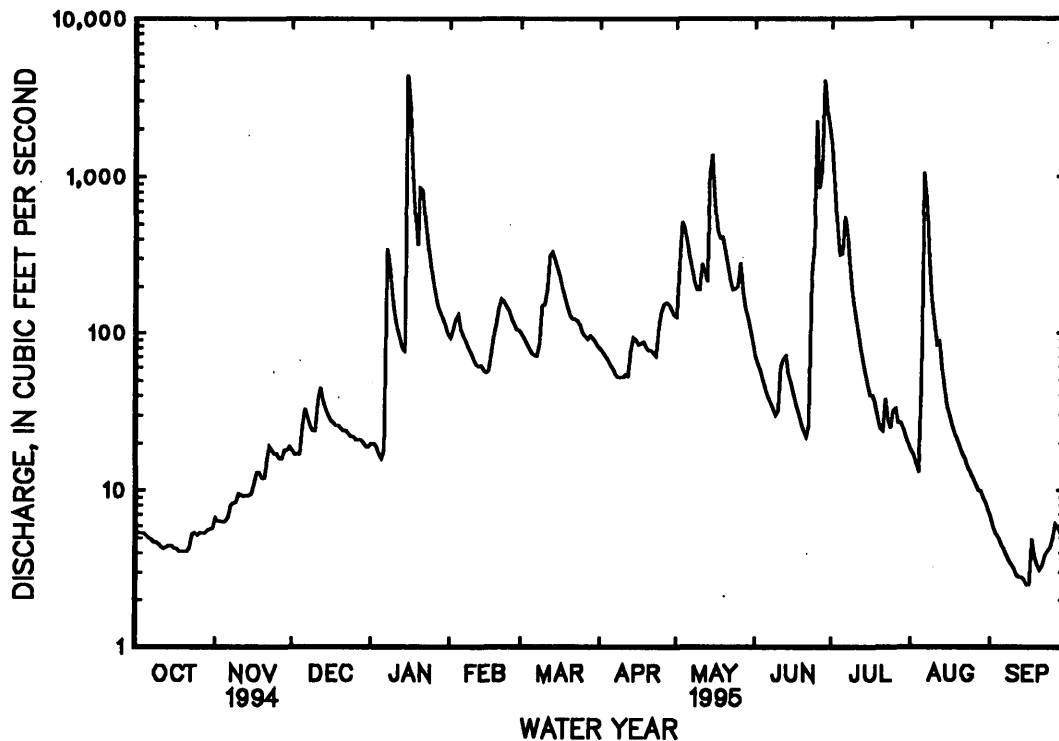
## WATER YEARS 1925 - 1995

ANNUAL TOTAL	98011.6	59762.3	
ANNUAL MEAN	269	164	194
HIGHEST ANNUAL MEAN			389
LOWEST ANNUAL MEAN			58.1
HIGHEST DAILY MEAN	4530	Aug 17	24900
LOWEST DAILY MEAN	4.1	Oct 18	.20
ANNUAL SEVEN-DAY MINIMUM	4.2	Oct 16	.27
INSTANTANEOUS PEAK FLOW			10100
INSTANTANEOUS PEAK STAGE			12.61
INSTANTANEOUS LOW FLOW			2.3
ANNUAL RUNOFF (CFSM)	1.28		.78
ANNUAL RUNOFF (INCHES)	17.36		10.59
10 PERCENT EXCEEDS	622		319
50 PERCENT EXCEEDS	45		50
90 PERCENT EXCEEDS	6.4		4.9

a Also Sept. 16, 1995.

b Also Aug. 29, Sept. 4, 1957, and Sept. 7-10, 1966.

c From floodmarks.



## POTOMAC RIVER BASIN

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

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

GAGE.--Water-stage recorder. Datum of gage is 1,029.90 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 4-7, and Feb. 5-15, which are fair. Maximum discharge, 3,160 ft<sup>3</sup>/s, from rating curve extended above 3,100 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
July 27	2100	*2,420	*5.54	Aug. 6	0115	1,950	5.07

Minimum discharge, 4.2 ft<sup>3</sup>/s, Jan. 5, result of freezeup; minimum daily, 5.5 ft<sup>3</sup>/s, June 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.8	11	7.7	9.6	16	23	14	11	15	188	41	16
2	9.0	9.5	7.5	7.8	17	22	13	18	15	179	35	16
3	9.2	9.5	7.7	7.3	17	20	12	15	13	112	31	15
4	8.7	9.4	8.0	e7.0	19	20	12	13	12	91	30	15
5	8.6	9.5	15	e6.6	e18	19	11	14	11	76	59	14
6	8.7	9.4	11	e9.9	e17	18	11	12	10	82	570	15
7	8.7	8.9	10	e62	e18	18	11	11	10	68	146	14
8	8.6	8.7	9.1	29	e19	21	11	10	8.9	55	96	14
9	9.0	9.1	8.3	20	e17	38	11	10	8.2	44	77	14
10	8.8	10	9.5	17	e16	39	11	14	8.8	37	66	13
11	8.4	8.7	11	16	e15	43	11	13	14	32	57	12
12	9.3	7.7	9.1	15	e14	44	13	11	16	27	50	12
13	9.4	7.5	8.6	14	e13	39	15	10	14	23	46	13
14	9.8	7.6	8.6	13	e12	36	12	57	11	20	41	12
15	9.2	7.6	9.2	103	e13	32	11	38	10	17	38	11
16	8.7	8.0	9.0	88	17	31	10	26	9.7	14	35	12
17	8.6	8.7	8.9	51	26	28	12	24	8.8	13	32	19
18	8.1	8.8	8.7	40	26	26	12	26	7.8	14	30	14
19	8.3	7.3	8.5	33	25	25	11	26	7.0	13	27	13
20	8.6	7.3	7.9	69	26	24	11	21	6.3	11	25	12
21	8.5	11	7.6	52	25	24	11	19	5.7	19	24	12
22	8.6	9.4	7.5	41	21	23	10	18	5.5	92	22	12
23	11	7.6	7.5	35	20	22	10	18	9.9	61	21	11
24	10	7.1	7.5	31	19	20	15	17	17	43	21	11
25	10	7.1	7.5	27	17	19	12	20	17	40	20	12
26	10	7.2	7.1	24	17	17	11	23	15	34	19	16
27	10	8.3	7.0	20	16	16	11	21	15	384	19	14
28	10	11	6.8	20	25	17	10	20	37	155	19	12
29	11	8.4	7.0	19	---	16	10	19	98	77	18	11
30	11	8.0	6.8	17	---	16	10	16	137	56	18	10
31	12	---	7.2	17	---	15	---	16	---	47	17	---
TOTAL	288.6	259.3	262.8	921.2	521	771	345	587	573.6	2124	1750	397
MEAN	9.31	8.64	8.48	29.7	18.6	24.9	11.5	18.9	19.1	68.5	56.5	13.2
MAX	12	11	15	103	26	44	15	57	137	384	570	19
MIN	8.1	7.1	6.8	6.6	12	15	10	10	5.5	11	17	10
CFSM	.20	.19	.19	.65	.41	.55	.25	.42	.42	1.51	1.24	.29
IN.	.24	.21	.21	.75	.43	.63	.28	.48	.47	1.74	1.43	.32

e Estimated.

## 01632082 LINVILLE CREEK AT BROADWAY, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1995, BY WATER YEAR (WY)

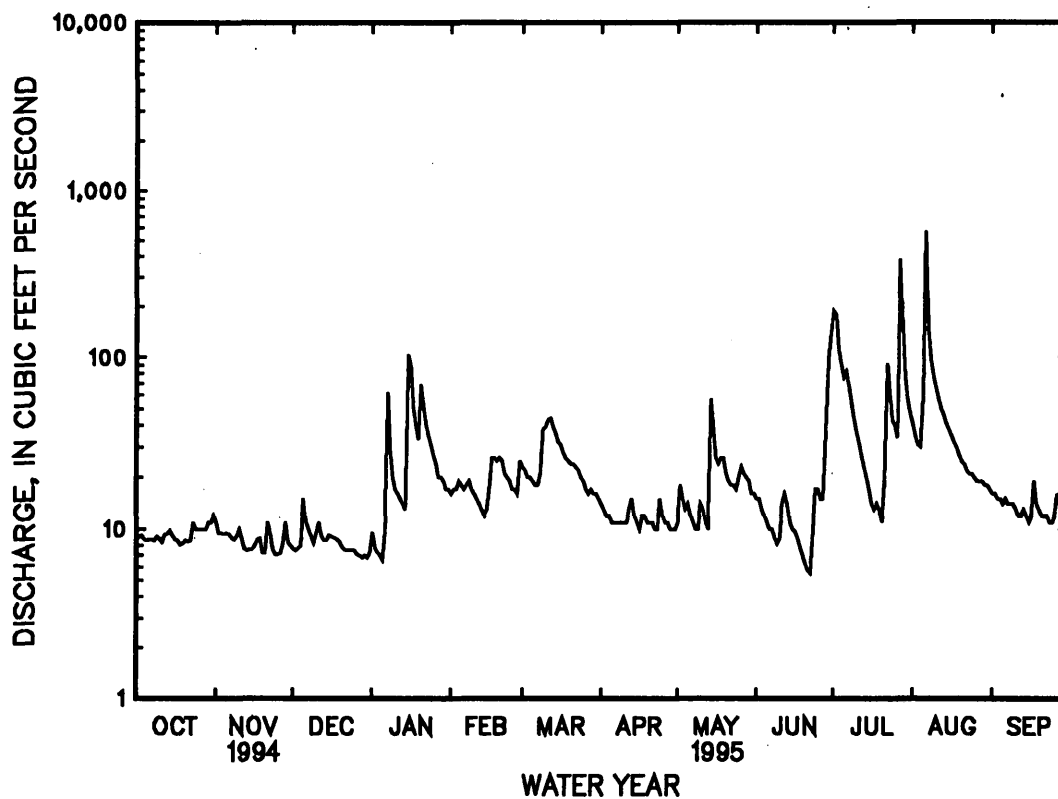
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	22.8	30.9	29.8	48.6	42.3	72.6	54.1	40.7	22.1	18.6	19.1	18.3
MAX	108	144	52.9	141	133	206	135	91.0	36.2	68.5	56.5	85.9
(WY)	1991	1986	1991	1991	1994	1994	1993	1989	1987	1995	1995	1987
MIN	6.66	7.34	7.05	9.75	10.1	17.1	11.5	12.9	9.68	8.28	5.79	5.21
(WY)	1989	1992	1989	1989	1989	1989	1995	1986	1986	1986	1986	1986

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1985 - 1995	
ANNUAL TOTAL	20593.6		8800.5			
ANNUAL MEAN	56.4		24.1		35.1	
HIGHEST ANNUAL MEAN					60.6	1994
LOWEST ANNUAL MEAN					22.6	1992
HIGHEST DAILY MEAN	663	Mar 29	570	Aug 6	1170	Mar 4 1993
LOWEST DAILY MEAN	6.8	aDec 28	5.5	Jun 22	3.2	Sep 17 1986
ANNUAL SEVEN-DAY MINIMUM	7.1	Dec 25	7.1	Dec 25	3.6	Sep 12 1986
INSTANTANEOUS PEAK FLOW			2420	Jul 27	3160	Nov 4 1985
INSTANTANEOUS PEAK STAGE			5.54	Jul 27	6.22	Nov 4 1985
INSTANTANEOUS LOW FLOW			b4.2	Jan 5	2.8	cSep 13 1986
ANNUAL RUNOFF (CFSM)	1.24		.53		.77	
ANNUAL RUNOFF (INCHES)	16.84		7.20		10.47	
10 PERCENT EXCEEDS	133		43		69	
50 PERCENT EXCEEDS	18		14		18	
90 PERCENT EXCEEDS	8.6		8.0		7.1	

a Also Dec. 30, 1994.

b Result of freezeup.

c Also Sept. 14, 17, 1986.



## POTOMAC RIVER BASIN

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 620, 3.6 mi north of New Market, and 4.4 mi upstream from mouth.

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

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

REVISED RECORDS.--WSP 2103: Drainage area.

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

REMARKS.--Records good except those for period of no gage-height record, Dec. 21 to Jan. 24, and period with ice effect, Feb. 6-14, which are fair. Maximum discharge, 10,600 ft<sup>3</sup>/s, from rating curve extended above 2,300 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow. Minimum discharge, 4.5 ft<sup>3</sup>/s, result of freezeup. 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 Department of Environmental Quality - Water Division.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	Unknown	777	a5.39	July 22	0130	*984	*6.08

a From high-water mark in well.

Minimum discharge, 12 ft<sup>3</sup>/s, Jan. 5, derived from minimum indicator; probably result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	21	16	e15	45	53	37	32	29	309	50	20
2	20	23	16	e15	47	49	36	46	29	222	46	19
3	19	19	15	e14	46	46	34	49	30	144	42	20
4	19	18	16	e13	48	46	33	42	29	112	40	20
5	18	18	23	e12	45	44	32	43	27	94	42	19
6	18	18	21	e13	e44	44	32	43	25	81	136	19
7	18	18	19	e140	e45	43	31	39	26	74	93	18
8	18	17	17	e68	e46	45	30	37	25	67	63	18
9	19	17	16	e50	e43	64	31	35	22	60	52	18
10	19	20	17	e43	e42	64	32	47	21	56	48	19
11	18	20	20	e40	e40	72	32	101	24	51	44	16
12	18	19	18	e38	e37	95	33	48	45	46	43	16
13	18	19	17	e37	e36	90	48	42	39	44	43	16
14	19	18	16	e36	e34	79	39	108	31	40	41	16
15	19	18	17	e240	35	72	35	135	27	38	36	15
16	18	18	16	e220	39	67	33	78	25	36	34	16
17	18	18	16	e150	55	62	33	67	23	35	33	27
18	17	19	17	e110	55	58	34	84	22	38	31	23
19	17	19	16	e90	53	55	33	93	21	34	30	20
20	18	18	15	e160	52	52	32	74	20	31	28	18
21	17	19	e15	e130	51	52	31	60	19	44	28	18
22	18	20	e14	e95	48	50	31	53	19	282	26	18
23	21	18	e14	e80	45	49	29	47	53	69	25	19
24	22	18	e15	e70	43	47	38	42	112	72	24	18
25	19	18	e16	63	41	44	38	39	61	68	24	20
26	19	18	e15	58	40	42	35	46	46	57	23	23
27	19	18	e14	54	39	42	33	43	44	67	24	24
28	19	21	e14	52	50	43	32	39	149	190	23	21
29	20	19	e13	52	---	41	31	40	239	85	22	19
30	20	17	e13	48	---	40	32	36	216	67	21	18
31	20	---	e13	47	---	39	---	33	---	56	21	---
TOTAL	581	561	500	2253	1244	1689	1010	1721	1498	2669	1236	571
MEAN	18.7	18.7	16.1	72.7	44.4	54.5	33.7	55.5	49.9	86.1	39.9	19.0
MAX	22	23	23	240	55	95	48	135	239	309	136	27
MIN	17	17	13	12	34	39	29	32	19	31	21	15
CFSM	.20	.20	.17	.78	.48	.58	.36	.60	.54	.92	.43	.20
IN.	.23	.22	.20	.90	.50	.67	.40	.69	.60	1.07	.49	.23

e Estimated.

## 01632900 SMITH CREEK NEAR NEW MARKET, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	52.8	56.2	66.4	91.3	109	154	118	85.7	58.5	36.6	34.2	29.7
MAX	297	323	222	248	313	530	372	238	294	121	121	120
(WY)	1973	1986	1973	1991	1984	1994	1987	1988	1972	1972	1969	1979
MIN	8.56	11.0	8.86	10.1	21.1	26.4	19.4	20.0	18.1	10.0	10.8	9.36
(WY)	1987	1966	1966	1966	1989	1981	1981	1969	1977	1977	1966	1986

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1960 - 1995

ANNUAL TOTAL	46177	15533	74.2	
ANNUAL MEAN	127	42.6	148	1973
HIGHEST ANNUAL MEAN			27.8	1981
LOWEST ANNUAL MEAN			3840	Oct 6 1972
HIGHEST DAILY MEAN	1950	Mar 8	6.5	Oct 7 1986
LOWEST DAILY MEAN	e13	bDec 29	7.5	dJul 27 1977
ANNUAL SEVEN-DAY MINIMUM	14	Dec 25	10600	Oct 6 1972
INSTANTANEOUS PEAK FLOW			16.38	Oct 6 1972
INSTANTANEOUS PEAK STAGE			4.5	Feb 9 1981
INSTANTANEOUS LOW FLOW			.80	
ANNUAL RUNOFF (CFSM)	1.36	.46	10.82	
ANNUAL RUNOFF (INCHES)	18.43	6.20	148	
10 PERCENT EXCEEDS	290	73	42	
50 PERCENT EXCEEDS	38	33	15	
90 PERCENT EXCEEDS	18	17		

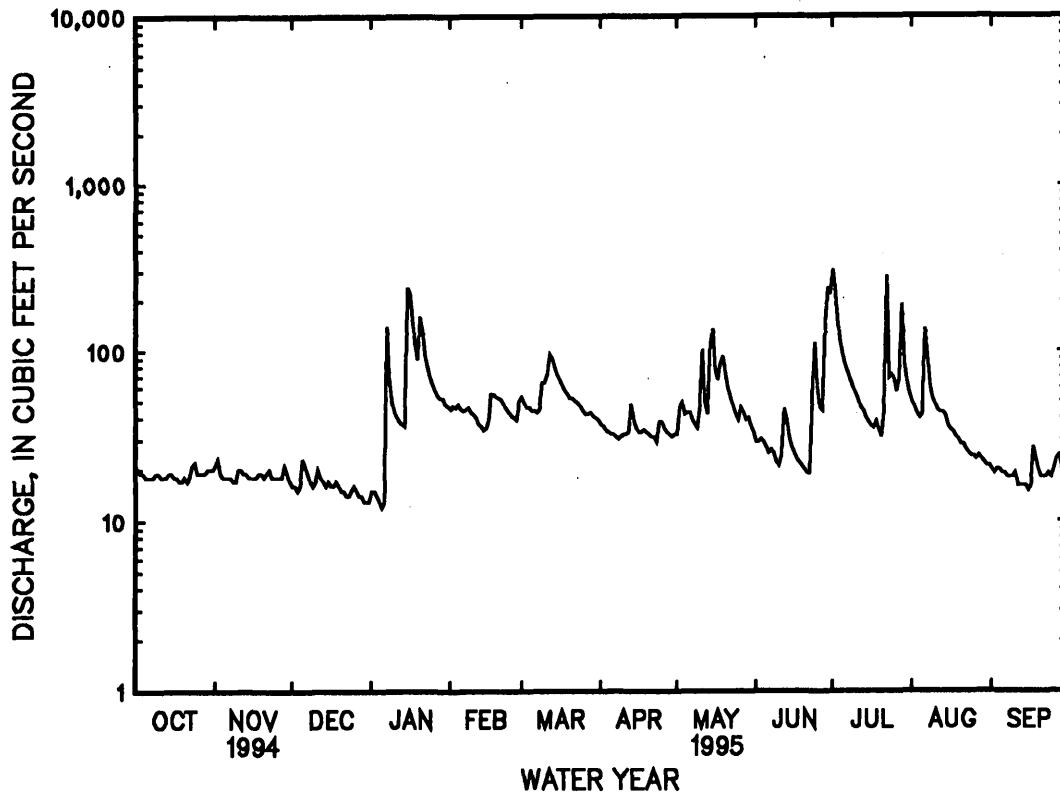
b Also Dec. 30, 31, 1994.

c Also Dec. 31, 1994.

d Also July 28, 1977.

e Estimated.

f Derived from minimum indicator; probably result of freezeup.



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

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

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 838.55 ft above sea level. 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 those for periods with ice effect, Jan. 6, 7, and Feb. 6-10, 13-15, which are fair. Some diversion during low flow for irrigation at points upstream from station. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 50,800 ft<sup>3</sup>/s, Nov. 5, 1985, from rating curve extended above 19,000 ft<sup>3</sup>/s on basis of peak runoff for stations at Cootes Store and near Strasburg. Minimum gage height, 1.97 ft, Sept. 3, 1966. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 20.2 ft, from floodmarks, discharge, about 80,000 ft<sup>3</sup>/s, from rating curve extended above 18,000 ft<sup>3</sup>/s on basis of peak runoff for flood in October 1942 for stations at Cootes Store and near Strasburg.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2400	*13,400	*13.14	June 28	1800	10,600	11.83

Minimum discharge, 33 ft<sup>3</sup>/s, Sept. 7, result of diversion for irrigation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	75	64	67	220	233	165	208	148	2360	123	50
2	67	77	61	68	220	218	158	276	136	1590	109	48
3	67	70	59	61	243	204	151	624	128	938	97	44
4	66	65	60	58	267	196	142	620	117	649	89	41
5	65	64	82	52	255	189	136	538	107	499	187	38
6	65	66	101	e54	e205	188	131	449	95	810	1820	35
7	64	64	96	e430	e210	182	126	368	91	723	1470	34
8	64	63	84	522	e220	185	122	318	84	496	694	39
9	64	62	75	371	e205	291	121	280	76	367	458	45
10	65	69	74	276	e195	328	122	274	73	302	352	46
11	63	71	86	225	186	356	126	463	108	261	287	44
12	59	67	102	200	171	539	129	382	188	219	261	41
13	59	64	100	183	e150	594	171	331	183	191	236	41
14	61	62	90	171	e145	537	182	811	143	166	210	42
15	61	60	87	3560	e148	472	175	1850	116	147	176	42
16	61	62	82	6190	157	420	165	1010	103	133	156	43
17	60	66	79	1730	197	373	161	684	90	126	141	69
18	59	73	77	1010	227	333	169	589	80	131	127	68
19	58	70	75	654	245	299	163	672	74	113	116	55
20	59	64	72	1000	276	274	151	538	67	97	109	50
21	62	70	70	1280	305	261	150	431	63	97	102	49
22	61	81	67	893	299	251	146	354	59	438	93	47
23	69	79	65	659	278	246	139	289	180	177	84	48
24	74	70	66	527	265	234	171	241	532	181	78	50
25	70	65	68	432	245	212	215	215	2110	197	74	54
26	66	63	65	365	228	199	227	417	1140	155	62	61
27	65	65	61	318	216	191	233	323	1090	149	63	63
28	66	76	60	293	231	193	229	255	5010	581	62	56
29	68	74	60	279	---	190	217	232	3990	223	62	50
30	68	67	59	254	---	183	206	203	2840	174	59	47
31	70	---	58	235	---	175	---	173	---	145	54	---
TOTAL	1993	2044	2305	22417	6209	8746	4899	14418	19221	12835	8011	1440
MEAN	64.3	68.1	74.4	723	222	282	163	465	641	414	258	48.0
MAX	74	81	102	6190	305	594	233	1850	5010	2360	1820	69
MIN	58	60	58	52	145	175	121	173	59	97	54	34
CFSM	.13	.13	.15	1.43	.44	.56	.32	.92	1.27	.82	.51	.09
IN.	.15	.15	.17	1.65	.46	.64	.36	1.06	1.41	.94	.59	.11

e Estimated.



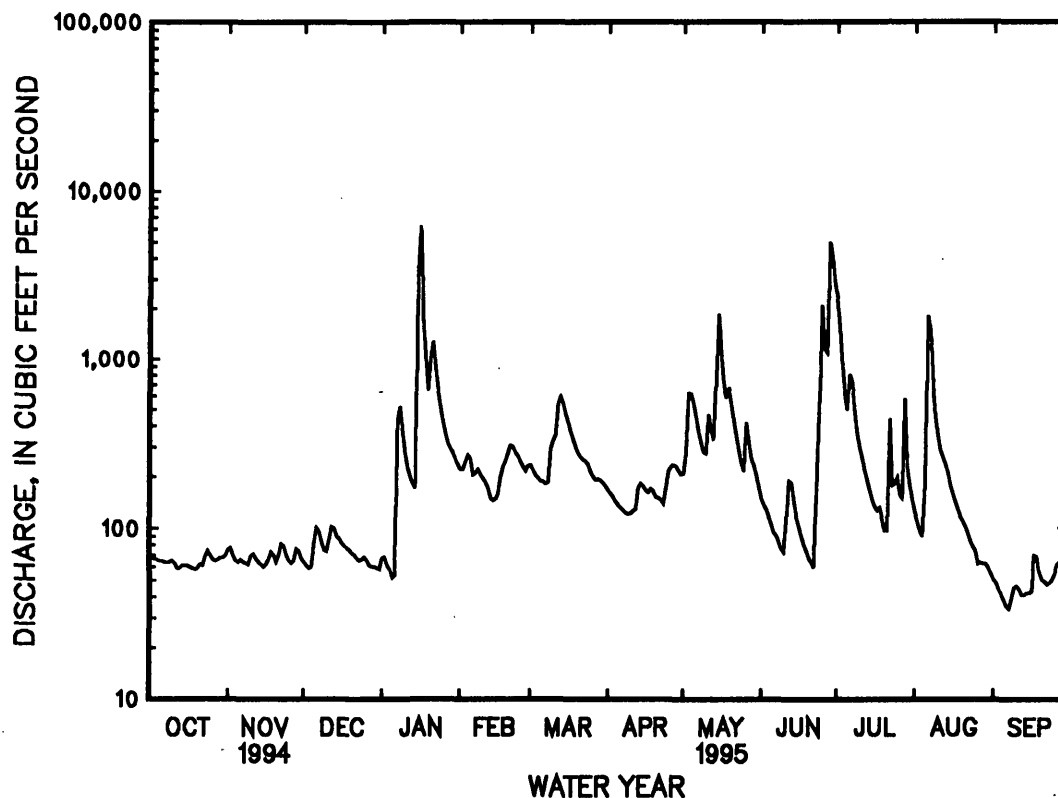
## 01633000 NORTH FORK SHENANDOAH RIVER AT MOUNT JACKSON, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	234	279	372	448	558	825	646	519	302	170	211	173
MAX	1580	2371	1272	1388	1555	2387	2193	1418	1483	834	1403	1316
(WY)	1980	1986	1973	1991	1994	1994	1987	1988	1972	1949	1955	1945
MIN	22.2	26.3	22.7	30.1	62.7	119	79.2	84.3	53.8	26.0	19.9	26.2
(WY)	1987	1966	1966	1966	1959	1981	1981	1969	1977	1977	1964	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1944 - 1995	
ANNUAL TOTAL	235667		104538			
ANNUAL MEAN	646		286		394	
HIGHEST ANNUAL MEAN					777	1973
LOWEST ANNUAL MEAN					136	1981
HIGHEST DAILY MEAN	8640	Mar 29	6190	Jan 16	30300	Nov 5 1985
LOWEST DAILY MEAN	58	aOct 19	b34	Sep 7	8.0	Sep 3 1966
ANNUAL SEVEN-DAY MINIMUM	60	cOct 13	39	Sep 3	11	dSep 2 1966
INSTANTANEOUS PEAK FLOW			13400	Jan 15	50800	Nov 5 1985
INSTANTANEOUS PEAK STAGE			13.14	Jan 15	f18.10	Oct 6 1972
INSTANTANEOUS LOW FLOW			b33	Sep 7	g7.0	Sep 3 1966
ANNUAL RUNOFF (CFSM)	1.28		.57		.78	
ANNUAL RUNOFF (INCHES)	17.33		7.69		10.58	
10 PERCENT EXCEEDS	1450		538		842	
50 PERCENT EXCEEDS	182		145		184	
90 PERCENT EXCEEDS	65		59		45	

- a Also Dec. 31, 1994.  
b Result of diversion for irrigation.  
c Also Oct. 14, 1994.  
d Also Sept. 3, 1966.  
f Peak discharge, 40,500 ft<sup>3</sup>/s.  
g Observed.



## 01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA

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

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

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 sea level. Prior to Sept. 21, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 3-6 and Feb. 5-16, which are fair. Large diurnal fluctuation at low and medium flow from unknown cause. Water-level elevations at the site were affected during the 1992-93 water years by construction of a new bridge about 50 ft downstream from the gage. National Weather Service gage-height telemeter at station. Maximum discharge, 100,000 ft<sup>3</sup>/s, from rating curve extended above 46,000 ft<sup>3</sup>/s. Minimum gage height, 1.52 ft, Feb. 9, 1934. Water-quality records for some prior periods have been collected at this location.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	1345	*11,300	*13.06	June 29	0900	8,360	10.88

Minimum daily discharge, 104 ft<sup>3</sup>/s, Sept. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	152	160	159	395	354	293	316	306	3400	286	150
2	160	151	151	150	385	359	281	346	284	3100	267	140
3	160	143	146	e140	386	338	275	422	275	1830	249	135
4	157	146	147	e135	411	324	264	769	280	1220	221	127
5	155	142	170	e130	e400	316	255	745	266	899	201	122
6	161	138	164	e210	e380	315	248	648	242	737	850	117
7	160	132	194	351	e370	312	241	552	227	1040	3480	116
8	160	136	197	685	e360	315	235	475	203	871	1560	116
9	164	132	182	687	e350	347	230	426	189	642	920	109
10	167	143	187	517	e340	419	230	408	283	522	660	109
11	167	141	202	429	e330	471	252	490	335	463	536	107
12	167	140	195	381	e320	545	266	690	355	410	472	106
13	170	141	212	354	e315	796	303	549	484	368	452	109
14	170	139	211	334	e310	809	366	577	406	340	424	115
15	175	134	211	754	e300	708	344	1840	334	314	387	104
16	176	144	199	7480	e295	627	325	1900	280	292	344	106
17	182	155	202	3540	303	567	312	1210	249	287	317	184
18	179	161	196	1860	318	510	300	919	216	277	297	168
19	176	163	192	1250	357	469	297	837	192	289	281	193
20	177	151	184	1100	375	433	296	850	172	270	262	167
21	171	163	177	1700	400	410	281	690	133	256	253	147
22	164	165	177	1510	423	394	273	569	133	301	249	122
23	170	160	173	1130	417	383	266	489	146	548	235	115
24	168	166	165	881	397	373	271	428	163	353	209	107
25	159	163	143	720	382	357	277	380	558	307	184	116
26	157	149	166	609	367	333	315	370	2250	410	186	127
27	154	138	168	529	346	320	327	500	1200	331	184	141
28	147	159	159	486	346	316	327	455	2830	306	176	134
29	145	154	157	467	---	309	325	398	6230	612	175	133
30	143	164	155	444	---	309	322	377	4210	378	167	129
31	143	---	147	415	---	299	---	341	---	314	157	---
TOTAL	5063	4465	5489	29537	10078	13137	8597	19966	23431	21687	14641	3871
MEAN	163	149	177	953	360	424	287	644	781	700	472	129
MAX	182	166	212	7480	423	809	366	1900	6230	3400	3480	193
MIN	143	132	143	130	295	299	230	316	133	256	157	104
CFSM	.21	.19	.23	1.24	.47	.55	.37	.84	1.02	.91	.61	.17
IN.	.25	.22	.27	1.43	.49	.64	.42	.97	1.13	1.05	.71	.19

e Estimated.

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

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1995, BY WATER YEAR (WY)

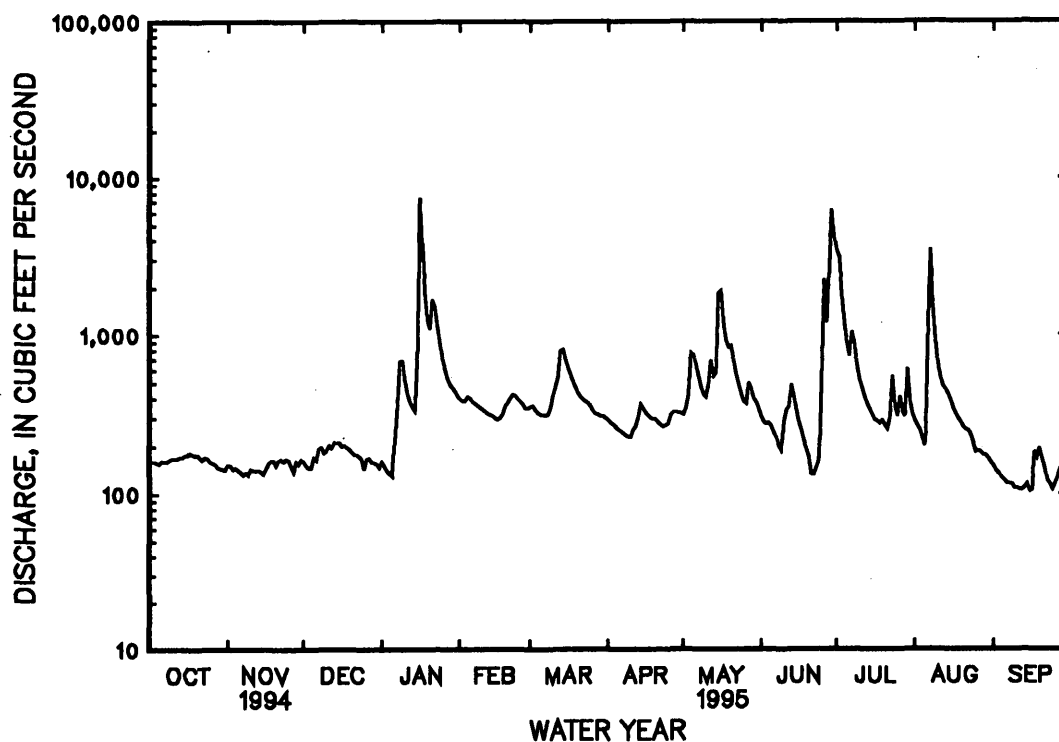
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	403	410	528	650	849	1131	984	761	464	300	350	276
MAX	3488	2813	1955	1937	2161	5017	2876	1821	2234	1169	2510	2033
(WY)	1943	1986	1973	1991	1994	1936	1993	1988	1972	1949	1955	1945
MIN	58.9	75.8	82.0	86.4	94.0	183	182	154	115	76.4	66.7	67.1
(WY)	1931	1931	1932	1966	1931	1931	1981	1969	1977	1977	1930	1986

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1925 - 1995
ANNUAL TOTAL	346897	159962	
ANNUAL MEAN	950	438	592
HIGHEST ANNUAL MEAN			1174
LOWEST ANNUAL MEAN			226
HIGHEST DAILY MEAN	9430	Aug 18	7480 Jan 16
LOWEST DAILY MEAN	132	Nov 7	104 Sep 15
ANNUAL SEVEN-DAY MINIMUM	137	Nov 6	108 Sep 10
INSTANTANEOUS PEAK FLOW			11300 Jan 16
INSTANTANEOUS PEAK STAGE			13.06 Jan 16
INSTANTANEOUS LOW FLOW			c97 Jan 5
ANNUAL RUNOFF (CFSM)	1.24	.57	.77
ANNUAL RUNOFF (INCHES)	16.80	7.75	10.47
10 PERCENT EXCEEDS	2310	740	1240
50 PERCENT EXCEEDS	340	286	312
90 PERCENT EXCEEDS	158	141	111

a Also Sept. 14, 18, 1986.

b From high-water mark in well.

c Result of freezeup.



## 01634500 CEDAR CREEK NEAR WINCHESTER, VA

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

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

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

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 647.09 ft above sea level.

REMARKS.--Records good except those for period with backwater from leaves, Oct. 13 to Nov. 21, periods of no gage-height record, Dec. 22 to Feb. 3, and Feb. 7-15, period with ice effect, Feb. 6, and period of doubtful gage-height record, July 22 to Aug. 6, which are fair. Maximum discharge, 22,000 ft<sup>3</sup>/s, from rating curve extended above 15,000 ft<sup>3</sup>/s. Minimum discharge, 1.5 ft<sup>3</sup>/s, result of freezeup. Minimum gage height, 1.04 ft, Feb. 19, 1941, result of freezeup. 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 Department of Environmental Quality - Water Division.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	Unknown	3,480	a9.07	June 28	0230	2,070	6.70
June 25	2100	3,430	8.99	June 28	1430	1,820	6.25
June 27	1130	*6,230	*13.09	June 29	1500	1,830	6.26

a From high-water mark in well.

Minimum discharge, 6.3 ft<sup>3</sup>/s, Sept. 7, 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	e16	25	e60	e68	69	47	54	45	535	e17	8.7
2	16	e20	22	e58	e87	60	45	154	43	358	e17	8.3
3	14	e16	20	e47	e92	54	43	202	78	231	e16	7.8
4	12	e13	19	e36	92	52	41	152	115	177	e17	8.1
5	11	e13	62	e28	77	51	38	132	67	138	e28	8.8
6	11	e13	63	e31	e72	59	40	113	55	123	e307	7.6
7	11	e12	45	e180	e68	61	42	97	51	124	131	6.9
8	11	e12	35	e125	e65	64	36	87	47	90	61	7.1
9	11	e13	29	e100	e60	90	37	79	37	74	43	7.8
10	12	e16	37	e90	e60	81	38	87	42	65	37	8.4
11	12	e18	120	e82	e60	113	46	136	230	57	32	7.3
12	12	e15	69	e81	e59	274	66	101	327	e50	33	7.3
13	e11	e13	53	e78	e58	311	223	86	202	e46	28	8.3
14	e11	e13	47	e70	e56	232	127	311	129	e40	34	8.7
15	e12	e13	43	e1000	e54	174	99	292	96	e36	26	8.0
16	e12	e22	39	e1600	66	144	87	187	74	e30	22	9.1
17	e11	e50	39	e420	83	122	79	153	60	e32	21	36
18	e11	e32	38	e180	87	104	76	144	51	e38	19	26
19	e12	e27	38	e120	90	94	75	133	45	e28	15	14
20	e12	e20	34	e360	87	87	65	106	40	e25	15	12
21	e12	e31	31	e275	91	83	62	86	36	24	14	11
22	e12	66	e30	e195	80	80	58	75	33	e34	14	12
23	e15	30	e29	e150	77	72	53	65	78	e27	12	12
24	e16	22	e47	e120	75	66	65	58	91	e25	11	11
25	e14	23	e76	e105	66	59	66	99	484	e25	11	12
26	e13	18	e62	e93	63	55	57	140	309	e22	9.1	17
27	e12	17	e53	e83	59	53	52	82	1910	e22	9.5	17
28	e12	74	e46	e82	72	56	50	69	1550	e22	10	13
29	e12	49	e39	e77	---	53	48	70	1220	e21	12	10
30	e12	33	e36	e70	---	51	49	63	765	e19	11	9.8
31	e12	---	e33	e65	---	49	---	51	---	e17	9.1	---
TOTAL	382	730	1359	6061	2024	2973	1910	3664	8310	2555	1041.7	341.0
MEAN	12.3	24.3	43.8	196	72.3	95.9	63.7	118	277	82.4	33.6	11.4
MAX	16	74	120	1600	92	311	223	311	1910	535	307	36
MIN	11	12	19	28	54	49	36	51	33	17	9.1	6.9
CFSM	.12	.24	.43	1.90	.70	.93	.62	1.15	2.69	.80	.33	.11
IN.	.14	.26	.49	2.19	.73	1.07	.69	1.32	3.00	.92	.38	.12

e Estimated.

## 01634500 CEDAR CREEK NEAR WINCHESTER, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	61.1	66.8	89.0	105	142	202	175	129	82.5	32.6	37.8	32.0
MAX	777	500	320	282	443	708	600	382	664	181	420	352
(WY)	1943	1986	1973	1979	1984	1993	1983	1988	1972	1978	1955	1945
MIN	6.01	8.64	7.95	10.2	21.5	38.2	37.0	24.5	10.5	6.06	4.52	6.95
(WY)	1964	1966	1966	1966	1959	1981	1947	1969	1969	1966	1957	1986

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1938 - 1995

ANNUAL TOTAL	50295	31350.7	
ANNUAL MEAN	138	85.9	95.9
HIGHEST ANNUAL MEAN			181
LOWEST ANNUAL MEAN			28.3
HIGHEST DAILY MEAN	2010	Mar 29	1910 Jun 27
LOWEST DAILY MEAN	10	Sep 13	6.9 Sep 7
ANNUAL SEVEN-DAY MINIMUM	11	cSep 8	7.5 Sep 6
INSTANTANEOUS PEAK FLOW			6230 Jun 27
INSTANTANEOUS PEAK STAGE			13.09 Jun 27
INSTANTANEOUS LOW FLOW			6.3 gSep 7
ANNUAL RUNOFF (CFSM)	1.34	.83	.93
ANNUAL RUNOFF (INCHES)	18.16	11.32	12.65
10 PERCENT EXCEEDS	349	144	205
50 PERCENT EXCEEDS	36	49	41
90 PERCENT EXCEEDS	12	12	10

b Also Sept. 3, 4, 7, 8, 1966.

c Also Sept. 9, 1994.

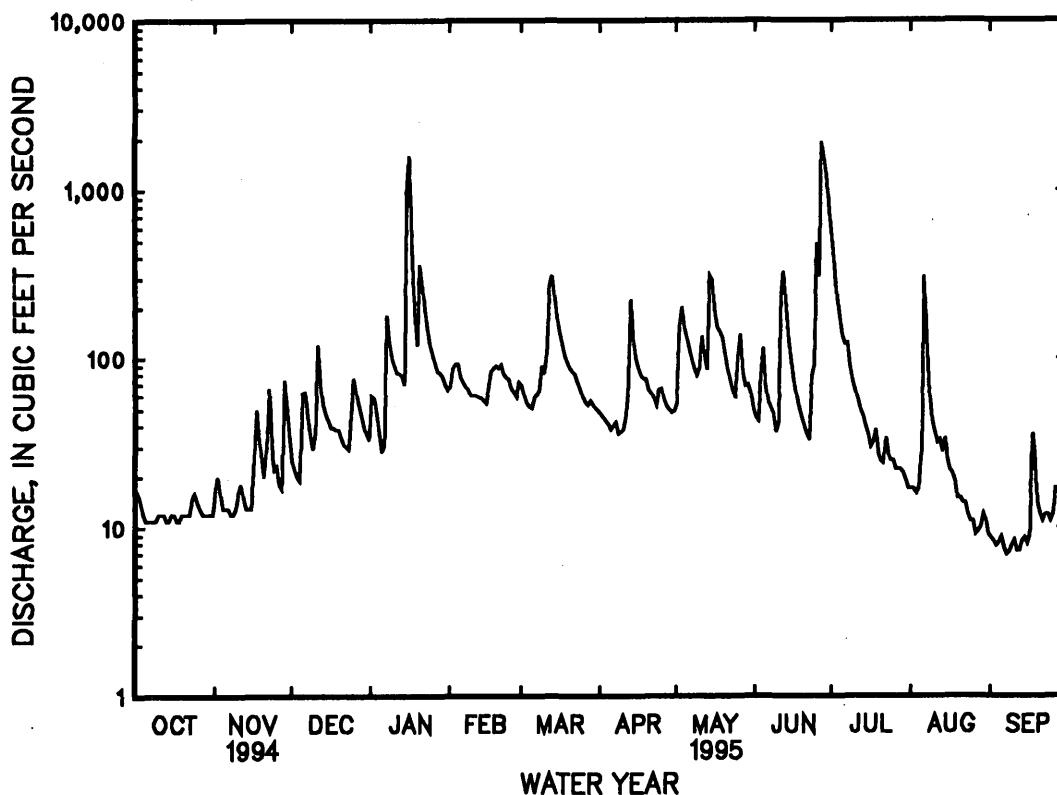
d Also Sept. 3, 1966.

e Estimated.

f From floodmarks.

g Also Sept. 8, 1995.

h Result of freezeup.



## POTOMAC RIVER BASIN

## 01635500 PASSAGE CREEK NEAR BUCKTON, VA

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

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

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

REVISED RECORDS.--WSP 2103: Drainage area.

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

REMARKS.--Records good except those for periods with ice effect, Dec. 31, and Jan. 3-7, and period of no gage-height record, Feb. 5-15, which are fair. Occasional diurnal fluctuation during low flow caused by State Fish Hatchery 2 mi upstream from station. At a point 14.2 mi upstream from station on Little Passage Creek, there has been a diversion in some years from Strasburg Reservoir, capacity, 54.6 acre-ft, by towp of Strasburg for municipal water supply. There was no diversion during the year. Maximum discharge, 21,000 ft<sup>3</sup>/s, from rating curve extended above 5,200 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	0330	*2,650	*8.40	No other peak equal to or greater than base discharge.			

Minimum discharge, 2.7 ft<sup>3</sup>/s, Sept. 11-12, 13, 15-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	6.3	11	17	52	59	33	38	25	330	9.2	4.5
2	5.3	5.7	10	25	58	51	32	75	23	285	8.1	4.1
3	5.2	6.6	9.5	e23	59	46	31	124	23	137	7.2	3.8
4	5.5	7.2	9.8	e18	60	44	29	87	26	97	6.6	3.6
5	5.1	6.8	16	e15	e50	42	27	78	25	75	7.1	3.6
6	7.5	6.4	29	e18	e48	45	26	70	21	76	328	3.4
7	4.5	6.1	21	e203	e45	45	25	60	19	74	188	3.2
8	4.7	6.0	16	114	e50	46	25	54	15	51	65	3.2
9	4.6	11	13	77	e46	88	25	50	13	41	42	3.1
10	4.1	6.6	16	61	e48	89	27	62	18	40	33	3.1
11	4.4	7.9	32	53	e45	101	38	261	71	37	28	2.8
12	4.9	8.7	30	52	e43	219	35	126	132	27	26	2.8
13	4.6	7.3	23	49	e41	209	88	91	83	23	22	2.8
14	5.0	6.7	19	45	e40	148	69	221	47	19	21	3.0
15	5.5	6.6	18	784	e39	121	54	263	34	17	19	2.8
16	5.6	8.2	17	1310	37	104	49	146	26	15	15	3.2
17	5.4	10	17	325	50	90	46	116	21	14	13	11
18	5.0	14	17	197	61	79	45	112	18	17	11	15
19	4.8	17	17	144	60	72	43	162	17	16	9.7	9.6
20	5.1	13	16	325	61	65	41	114	15	12	8.7	6.1
21	6.9	13	15	253	61	63	39	88	12	11	8.1	5.0
22	4.2	22	14	161	53	59	37	74	11	39	7.8	4.6
23	11	17	13	124	49	54	34	60	14	18	6.9	4.3
24	7.6	12	13	103	47	51	41	51	30	15	6.3	4.9
25	7.4	10	16	86	42	45	45	45	23	28	5.6	5.8
26	6.6	9.4	21	75	41	42	39	53	17	20	5.3	8.8
27	5.9	9.6	19	65	40	40	35	40	19	14	5.0	11
28	8.3	13	17	64	47	41	33	35	434	15	5.1	9.1
29	4.4	16	17	60	---	39	32	40	248	19	4.9	6.9
30	5.6	14	14	54	---	37	33	38	239	13	5.2	5.4
31	5.7	---	e13	52	---	35	---	30	---	11	4.8	---
TOTAL	176.0	304.1	529.3	4952	1373	2269	1156	2864	1719	1606	932.6	160.5
MEAN	5.68	10.1	17.1	160	49.0	73.2	38.5	92.4	57.3	51.8	30.1	5.35
MAX	11	22	32	1310	61	219	88	263	434	330	328	15
MIN	4.1	5.7	9.5	15	37	35	25	30	11	11	4.8	2.8
CFM	.06	.12	.19	1.82	.56	.83	.44	1.05	.65	.59	.34	.06
IN.	.07	.13	.22	2.10	.58	.96	.49	1.21	.73	.68	.40	.07

e Estimated.

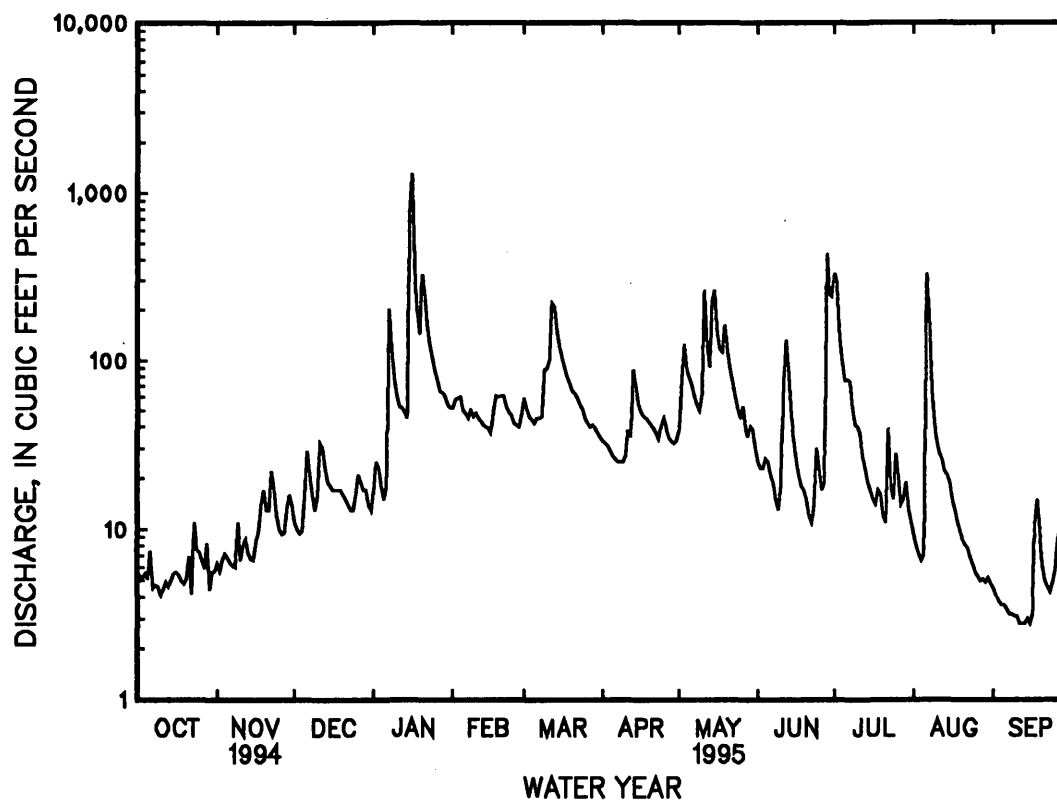
## 01635500 PASSAGE CREEK NEAR BUCKTON, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	38.8	39.9	65.7	90.4	115	154	136	94.0	49.5	18.4	24.8	21.0
MAX	581	276	235	269	357	573	377	339	609	87.3	437	241
(WY)	1943	1986	1973	1991	1936	1994	1952	1989	1972	1941	1955	1945
MIN	2.85	4.48	4.60	6.25	5.79	20.5	20.9	14.6	6.01	1.87	1.94	2.37
(WY)	1964	1966	1966	1966	1934	1959	1981	1963	1977	1934	1963	1936

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1933 - 1995	
ANNUAL TOTAL	45584.1		18041.5		70.4	
ANNUAL MEAN	125		49.4		142	
HIGHEST ANNUAL MEAN					1994	
LOWEST ANNUAL MEAN					1934	
HIGHEST DAILY MEAN	2000	Mar 29	1310	Jan 16	9290	Oct 15 1942
LOWEST DAILY MEAN	4.1	Oct 10	2.8	aSep 11	.40	Jul 20 1934
ANNUAL SEVEN-DAY MINIMUM	4.5	Oct 7	2.9	Sep 9	.50	Jul 15 1934
INSTANTANEOUS PEAK FLOW			2650	Jan 16	21000	Oct 15 1942
INSTANTANEOUS PEAK STAGE			8.40	Jan 16	b15.50	Oct 15 1942
INSTANTANEOUS LOW FLOW			2.7	cSep 11	d.10	Aug 5 1932
ANNUAL RUNOFF (CFSM)	1.42		.56		.80	
ANNUAL RUNOFF (INCHES)	19.31		7.64		10.90	
10 PERCENT EXCEEDS	353		102		153	
50 PERCENT EXCEEDS	17		25		25	
90 PERCENT EXCEEDS	6.2		5.1		4.2	

a Also Sept. 12, 13, 15, 1995.  
b From high-water mark in well.  
c Also Sept. 12, 13, 15, 16, 1995.  
d Observed.



## POTOMAC RIVER BASIN

## 01636500 SHENANDOAH RIVER AT MILLVILLE, WV

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

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

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 951: 1936(M). WSP 1432: Drainage area at former site, 1895-99, 1901-02, 1905, 1907-08, 1932(M), 1935(M).

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

REMARKS.--Water-discharge records good except those for estimated daily discharges (ice effect), which are poor. Regulation by hydroelectric plants, particularly that of Potomac Light and Power Company, 0.5 mi upstream from station. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite telemeter at station.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage Height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage Height (ft)
Jan. 17	0430	*35,100	*12.56	June 30	0300	26,900	11.00
June 28	2324	17,500	8.87				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	906	771	1010	1000	2410	2020	1650	1490	1730	19500	1540	836
2	907	843	1030	1000	2270	2030	1590	1590	1710	16100	1370	812
3	861	856	1000	1010	2270	2060	1550	1890	1470	12600	1230	774
4	823	794	963	1030	2240	1990	1500	2200	1470	8970	1170	729
5	812	829	1030	980	2310	1930	1480	2520	1580	6710	1160	716
6	806	846	1140	890	2190	1930	1400	2690	1430	5210	1660	699
7	799	754	1220	1180	2040	1920	1390	2570	1270	4820	6340	686
8	801	768	1270	2300	e1850	1920	1370	2430	1210	4750	5660	730
9	781	739	1390	2590	e1700	2130	1350	2220	1170	4240	3720	701
10	778	788	1340	2980	e1750	2490	1340	2090	1110	3600	2730	680
11	758	777	1390	2500	e1700	3290	1320	2190	1210	3800	2280	648
12	752	788	1450	2240	e1670	3680	1370	3220	1600	2820	1950	633
13	760	766	1390	2040	e1580	4240	1550	2760	2940	2470	1780	861
14	766	738	1370	1910	e1500	4340	1890	2380	2600	2190	1650	711
15	768	776	1350	1900	e1450	3940	1830	3030	2900	1960	1610	572
16	784	844	1260	15100	e1580	3600	1730	5370	2240	1820	1490	520
17	724	847	1200	28600	e1650	3310	1640	5670	1690	1760	1420	744
18	776	900	1190	14400	1770	3090	1580	4560	1570	1700	1340	832
19	784	1010	1190	9770	1900	2810	1540	4060	1390	1720	1300	866
20	768	991	1150	7870	2100	2570	1450	3880	1150	1540	1180	867
21	789	1010	1120	7740	2190	2430	1540	3480	1270	1620	1060	1010
22	748	1130	1090	8620	2260	2330	1430	3010	1120	1560	1020	925
23	809	1180	1010	7010	2320	2200	1380	2560	1050	1580	1000	851
24	838	1070	1030	5670	2320	2130	1380	2230	1210	1750	956	726
25	849	1120	1050	4730	2220	2010	1410	2050	2800	1660	944	787
26	807	1090	1050	4060	2090	1930	1430	1950	5040	1620	909	838
27	813	1050	1030	3510	2020	1870	1490	1970	8270	1660	859	844
28	817	1070	1090	3150	2010	1820	1520	2000	12200	1840	854	822
29	779	1040	1020	2860	---	1770	1480	1970	18600	1970	842	876
30	745	1090	990	2700	---	1750	1460	1960	23900	2080	854	883
31	756	---	990	2520	---	1670	---	1850	---	1850	828	---
TOTAL	24664	27275	35803	153860	55360	77200	45040	83840	108900	127470	52706	23179
MEAN	796	909	1155	4963	1977	2490	1501	2705	3630	4112	1700	773
MAX	907	1180	1450	28600	2410	4340	1890	5670	23900	19500	6340	1010
MIN	724	738	963	890	1450	1670	1320	1490	1050	1540	828	520
CFSM	.26	.30	.38	1.63	.65	.82	.49	.89	1.19	1.35	.56	.25
IN.	.30	.33	.44	1.88	.68	.94	.55	1.03	1.33	1.56	.64	.28

e Estimated



## 01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1895 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1936	1811	2451	3081	3802	5002	4398	3356	2377	1459	1634	1311
MAX	16250	13350	8164	7925	13100	17540	12840	8700	10380	4809	10390	6701
(WY)	1943	1986	1973	1991	1897	1936	1901	1901	1972	1972	1955	1945
MIN	343	388	410	503	542	929	992	1001	660	402	388	411
(WY)	1931	1932	1966	1966	1931	1931	1981	1969	1977	1966	1930	1963

## SUMMARY STATISTICS

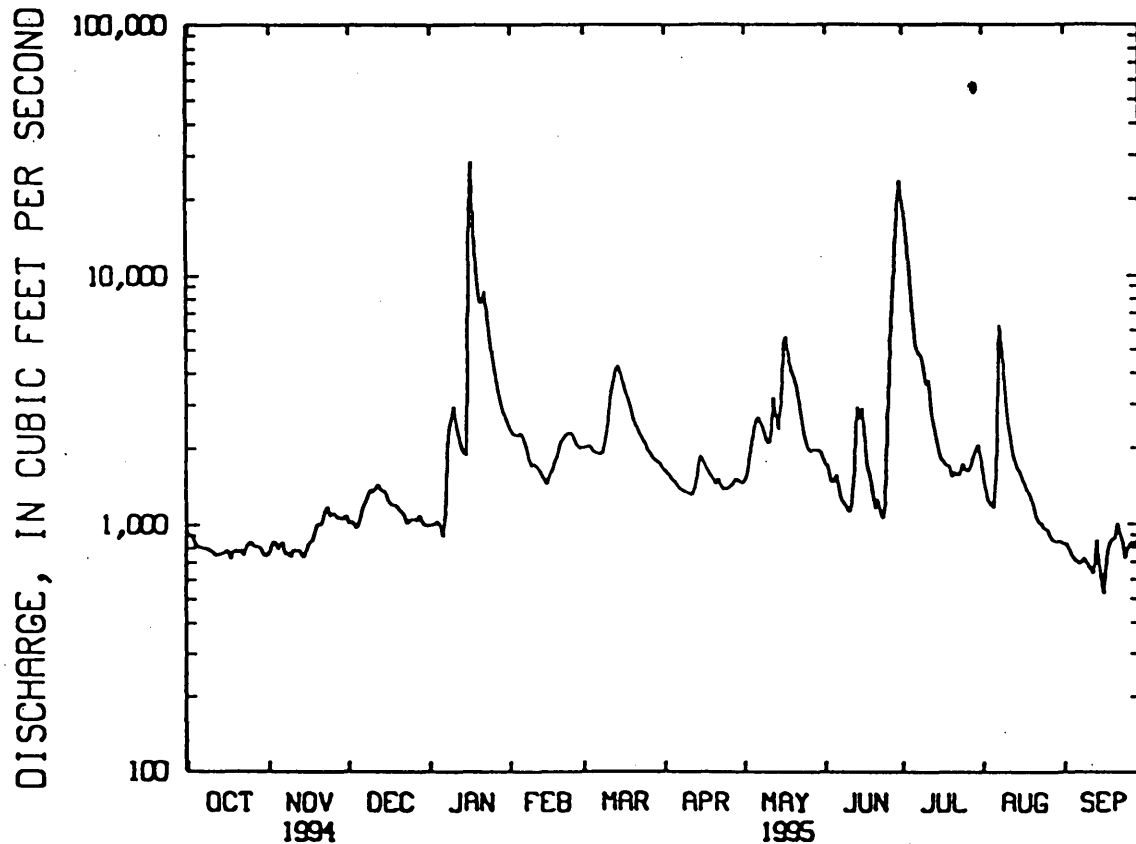
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1895 - 1995

ANNUAL TOTAL	1466460	815297	
ANNUAL MEAN	4018	2234	
HIGHEST ANNUAL MEAN			2712
LOWEST ANNUAL MEAN			4838
HIGHEST DAILY MEAN	37100	28600	192000
LOWEST DAILY MEAN	724	520	194
ANNUAL SEVEN-DAY MINIMUM	759	661	240
INSTANTANEOUS PEAK FLOW		35100	230000
INSTANTANEOUS PEAK STAGE		12.56	(a) 32.40
INSTANTANEOUS LOW FLOW		291	59
ANNUAL RUNOFF (CFSM)	1.32	.73	.89
ANNUAL RUNOFF (INCHES)	17.94	9.98	12.12
10 PERCENT EXCEEDS	9300	3750	5490
50 PERCENT EXCEEDS	1660	1500	1600
90 PERCENT EXCEEDS	821	780	610

a From floodmarks.



## 01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

## WATER-QUALITY RECORDS

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

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to September 1983.

WATER TEMPERATURES: October 1980 to September 1983.

EXTREMES FOR PERIOD OF DAILY RECORD.--

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

WATER TEMPERATURE: Maximum, 30.0°C, July 20, 21, 1981; minimum, 0.0°C on many days during winter periods.

REMARKS.--These data are a part of the Potomac National Water-Quality Assessment (NAWQA) program.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TEMPER- ATURE AIR (DEG C) (00020)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED CENT SATUR- ATION (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
NOV 07...	1230	764	383	8.3	14.5	15.0	763	10.5	103	170
JAN 17...	1340	28900	140	7.7	10.0	7.0	756	9.9	88	58
MAR 16...	1045	3620	210	7.9	10.5	12.0	757	10.8	97	100
MAY 09...	1000	2090	256	8.2	16.5	19.0	755	5.0	52	110
JUN 29...	1045	16100	149	7.4	20.0	22.5	756	7.6	84	66

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
NOV 07...	42	16	13	3.3	158	181	6	15	16
JAN 17...	17	3.7	2.6	2.7	46	56	--	9.3	4.7
MAR 16...	29	7.3	5.8	1.8	82	100	--	14	8.4
MAY 09...	29	8.6	6.4	2.1	90	109	--	10	8.5
JUN 29...	19	4.4	3.2	2.1	57	69	--	9.4	4.1

## 01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV 07...	0.10	0.47	213	--	<0.010	0.910	0.910	<0.015	0.20
JAN 17...	<0.10	6.6	94	3.8	0.020	0.880	0.880	0.050	1.3
MAR 16...	<0.10	3.1	134	--	<0.010	0.860	0.860	0.020	0.30
MAY 09...	0.10	4.6	146	3.5	0.010	0.790	0.790	0.030	0.20
JUN 29...	<0.10	8.4	88	2.9	0.020	0.670	0.670	0.050	0.80

DATE	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDEDED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)
NOV 07...	0.20	0.030	<0.010	0.010	14	3	2.7	0.10	--
JAN 17...	0.40	0.430	0.080	0.070	350	5	5.2	8.7	--
MAR 16...	<0.20	0.040	0.020	0.030	35	4	2.5	0.30	--
MAY 09...	0.30	0.100	0.100	0.100	34	7	2.4	0.40	4
JUN 29...	<0.20	0.320	0.070	0.070	150	2	3.8	2.4	242

## POTOMAC RIVER BASIN

## 01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA

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

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

## WATER-DISCHARGE RECORDS

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

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

REMARKS.--Records good except those for period with backwater from leaves, Oct. 12-22, period of doubtful gage-height record, Dec. 18, and periods with ice effect, Jan. 4-7, and Feb. 6-9, 12-14, which are fair. Maximum discharge, 23,800 ft<sup>3</sup>/s, from rating curve extended above 7,400 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 20	0815	1,440	6.62	July 11	0900	*2,410	*8.29

Minimum daily discharge, 1.8 ft<sup>3</sup>/s, Sept. 11-13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	28	38	47	84	90	50	39	27	38	9.2	3.9
2	8.7	56	33	55	84	73	49	55	25	81	8.3	3.4
3	12	25	31	45	77	66	47	72	34	37	7.5	3.1
4	9.3	17	29	e36	77	62	45	44	44	25	7.0	2.8
5	8.0	14	142	e29	67	60	42	40	29	21	26	2.6
6	7.4	13	138	e31	e61	69	40	37	24	22	309	2.4
7	7.3	14	79	e175	e58	75	40	32	24	44	156	2.4
8	6.7	14	68	169	e56	81	40	30	21	47	64	2.5
9	6.6	13	52	108	e54	214	45	29	20	25	45	2.4
10	6.6	14	93	90	54	158	46	32	19	18	31	2.4
11	7.9	15	278	81	55	156	46	51	24	1070	27	2.2
12	e7.1	14	119	79	e52	223	52	42	121	121	22	2.0
13	e6.9	13	87	86	e49	211	174	33	57	63	19	2.0
14	e6.8	13	76	85	e48	163	80	54	35	46	17	3.3
15	e6.8	12	69	171	48	140	60	81	27	36	15	6.9
16	e6.7	16	62	400	77	123	53	46	22	29	14	5.5
17	e6.7	30	68	172	98	113	49	40	18	29	13	7.7
18	e6.7	31	e61	136	78	98	48	54	17	55	11	18
19	e6.6	27	56	119	73	89	47	64	16	34	11	9.7
20	e6.6	22	53	786	73	85	45	59	15	24	9.0	6.0
21	e6.6	35	46	366	75	84	42	44	14	20	8.2	4.7
22	e11	91	44	221	65	79	42	36	13	18	7.6	4.8
23	28	41	43	171	60	72	36	32	14	17	6.8	6.0
24	35	29	42	146	61	69	41	29	17	17	5.9	8.4
25	18	25	53	124	55	61	44	28	18	16	5.2	11
26	13	23	53	110	53	57	40	52	19	15	4.8	17
27	11	22	43	100	54	59	34	39	81	13	4.3	14
28	10	132	39	97	95	56	32	31	86	13	4.3	10
29	11	80	38	95	---	56	30	39	42	12	4.3	7.1
30	11	49	35	89	---	55	32	36	33	12	4.7	5.7
31	11	---	33	85	---	53	---	29	---	11	4.4	---
TOTAL	314.9	928	2101	4504	1841	3050	1471	1329	956	2029	881.5	179.9
MEAN	10.2	30.9	67.8	145	65.7	98.4	49.0	42.9	31.9	65.5	28.4	6.00
MAX	35	132	278	786	98	223	174	81	121	1070	309	18
MIN	6.6	12	29	29	48	53	30	28	13	11	4.3	2.0
CFSM	.11	.35	.76	1.62	.73	1.10	.55	.48	.36	.73	.32	.07
IN.	.13	.39	.87	1.87	.76	1.27	.61	.55	.40	.84	.37	.07

e Estimated.

## 01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	67.6	56.6	113	120	146	184	166	126	93.4	49.7	30.1	43.2
MAX	414	130	313	320	373	580	476	445	706	284	186	281
(WY)	1977	1973	1993	1979	1984	1993	1983	1989	1972	1987	1984	1979
MIN	2.07	5.16	10.1	10.2	40.4	43.7	48.6	31.4	7.53	2.80	2.02	1.05
(WY)	1987	1992	1981	1981	1992	1981	1985	1977	1986	1986	1991	1986

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1972 - 1995

ANNUAL TOTAL	40176.4	19585.3	98.8
ANNUAL MEAN	110	53.7	34.6
HIGHEST ANNUAL MEAN			196
LOWEST ANNUAL MEAN			1981
HIGHEST DAILY MEAN	1330	Mar 10	1070
LOWEST DAILY MEAN	5.6	aAug 11	2.0
ANNUAL SEVEN-DAY MINIMUM	6.3	Aug 8	2.3
INSTANTANEOUS PEAK FLOW			2410
INSTANTANEOUS PEAK STAGE			8.29
INSTANTANEOUS LOW FLOW			1.8
ANNUAL RUNOFF (CFSM)	1.23	.60	1.10
ANNUAL RUNOFF (INCHES)	16.68	8.13	14.99
10 PERCENT EXCEEDS	270	99	200
50 PERCENT EXCEEDS	42	37	48
90 PERCENT EXCEEDS	7.9	6.7	8.2

a Also Aug. 12, 1994.

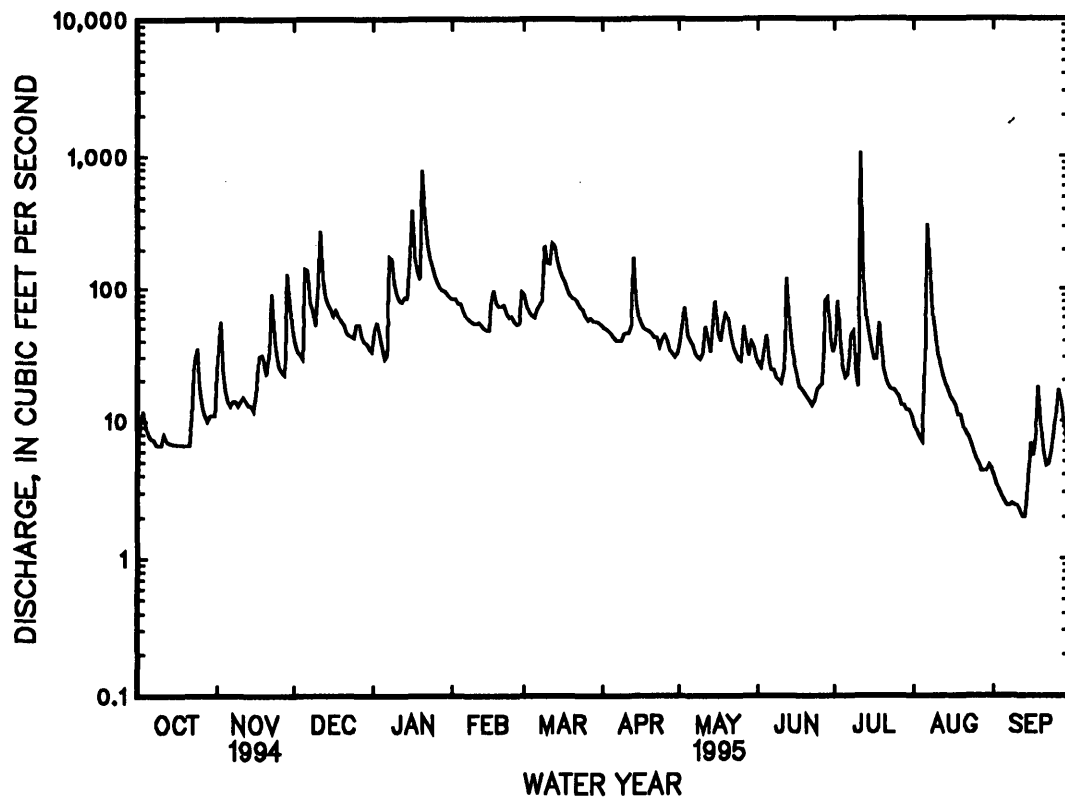
b Also Sept. 13, 1995.

c From floodmarks, site and datum then in use.

d Also Sept. 12-13, 1995.

e Estimated.

f Also Sept. 4, 1991.



## POTOMAC RIVER BASIN

01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA--Continued  
(National water-quality assessment station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1993 to current year.

REMARKS.--These data are a part of the National Water-Quality Assessment (NAWQA) Program of the Potomac River Basin.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TEMPER- ATURE AIR (DEG C) (00020)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
NOV												
07...	0815	1028	80020	14	184	7.4	12.5	11.5	766	9.7	91	68
JAN												
17...	1000	1028	80020	174	146	7.4	7.5	9.0	758	11.3	95	52
MAR												
15...	0830	1028	80020	143	142	7.2	8.5	11.0	763	11.9	102	52
MAY												
03...	0730	1028	80020	82	144	7.0	11.0	11.0	758	10.6	96	55

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV												
07...	13	17	6.3	6.7	5.1	55	67	12	13	0.10	9.2	112
JAN												
17...	23	13	4.7	4.8	2.6	29	35	16	9.2	<0.10	15	112
MAR												
15...	21	13	4.7	5.5	1.6	30	37	16	9.9	<0.10	13	96
MAY												
03...	17	14	4.9	5.4	1.9	38	46	12	9.2	<0.10	11	100

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

## 01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2) (71856)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)
NOV 07...	103	0.15	4.26	--	--	--	<0.010	--	--	<0.050	<0.015	--
JAN 17...	88	0.15	52.6	1.19	1.19	5.3	0.010	0.03	1.20	1.20	0.030	0.04
MAR 15...	87	0.13	37.1	1.20	--	--	<0.010	--	1.20	1.20	<0.015	--
MAY 03...	86	0.14	22.3	0.900	0.900	4.0	0.020	0.07	0.920	0.920	0.040	0.05

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)
NOV 07...	0.30	0.20	0.040	<0.010	0.010	0.03	150	40	4.0	0.60	--	--
JAN 17...	0.50	0.30	0.090	0.040	0.020	0.06	300	23	4.3	0.70	--	--
MAR 15...	0.30	<0.20	0.030	0.030	0.010	0.03	160	23	2.4	0.50	14	5.4
MAY 03...	0.30	0.30	0.030	0.020	0.020	0.06	300	27	5.5	--	57	13

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

## 01638500 POTOMAC RIVER AT POINT OF ROCKS, MD

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

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

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 sea level. Prior to Oct. 28, 1929, nonrecording gage at same site. Prior to Sept. 2, 1902, at datum about 0.45 ft higher.

REMARKS.--Records good 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 (see station 01597500); 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. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 17	0930	*87,200	*15.90	June 30	0500	40,100	9.35
Jan. 21	1600	37,000	8.85				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2630	2000	7180	4180	7600	7050	4860	4950	5600	32600	3550	1770
2	2570	2270	5770	4650	7100	7310	4920	5070	5070	31600	3120	1810
3	2530	2350	4950	5550	6820	8030	4500	5540	4580	27000	2720	1630
4	2420	2320	4440	6020	6840	8010	4410	6950	6270	19700	2580	1830
5	2430	2350	4850	5800	6850	7510	4210	10100	8230	14800	2430	1590
6	2590	2290	8980	4680	e6000	7410	3990	9770	6640	13400	3360	1700
7	2190	2080	11800	5140	e5000	7300	3880	9050	5460	11600	7620	1570
8	2230	2190	9750	6790	e5000	7470	3820	8180	4680	11900	13400	1690
9	2130	2070	8030	9270	e4900	7850	3790	7300	4370	9690	14100	1670
10	2110	2160	7080	12000	e4800	8140	3690	6670	3970	7880	8880	1540
11	2060	2160	7630	10000	e4800	9170	3860	6450	3870	8520	6680	1560
12	2130	2230	9610	8530	e4800	10000	4270	7330	4260	7490	5540	1530
13	2150	2290	10500	7710	e4800	12000	4940	8030	5190	6260	5050	1560
14	2120	2290	9120	7510	4750	13800	5520	7390	5480	5330	4570	1810
15	1900	2870	7940	8230	4580	13200	6130	7890	5910	4720	4290	1560
16	1820	2650	7050	24900	4630	12000	6170	20900	5200	4320	4090	1370
17	1960	2610	6440	76600	4680	10900	5670	23000	4390	4550	3750	1640
18	2070	2920	6140	47500	5100	9700	5280	17200	3920	5480	3600	1740
19	2230	3380	5940	30900	5280	8760	5060	14900	3440	7520	3370	1810
20	2130	3400	5770	26900	6340	8030	4800	16000	3110	6740	3110	1810
21	1800	3420	5560	34900	6940	7520	4780	15700	2790	5310	2570	1980
22	1870	4130	5320	34700	7290	7120	4680	13100	2880	4500	2410	1960
23	2030	6250	5110	27000	7450	6690	4410	10900	2690	4090	2250	1810
24	2360	5390	4960	21200	7480	6320	4390	9210	2600	3910	2140	1770
25	2200	4690	4910	17300	7020	6030	4460	8030	3500	3780	1970	2140
26	2280	4150	4940	14500	6800	5910	4500	7390	6250	3730	1930	1960
27	1860	3820	4910	12200	6890	5640	5000	6750	11900	3620	1860	2620
28	2020	4260	4780	10500	6920	5340	5320	6160	26300	3690	1810	2330
29	1900	6490	4520	9450	---	5110	5150	6010	34400	3930	1790	1840
30	1760	8250	4360	8750	---	5020	5040	6160	37000	3900	1770	1670
31	2120	---	4200	8110	---	4840	---	6570	---	3810	1810	---
TOTAL	66600	99730	202540	511470	167460	249180	141500	298650	229950	285370	128120	53270
MEAN	2148	3324	6534	16500	5981	8038	4717	9634	7665	9205	4133	1776
MAX	2630	8250	11800	76600	7600	13800	6170	23000	37000	32600	14100	2620
MIN	1760	2000	4200	4180	4580	4840	3690	4950	2600	3620	1770	1370
CFSM	.22	.34	.68	1.71	.62	.83	.49	1.00	.79	.95	.43	.18
IN.	.26	.38	.78	1.97	.65	.96	.55	1.15	.89	1.10	.49	.21

e Estimated



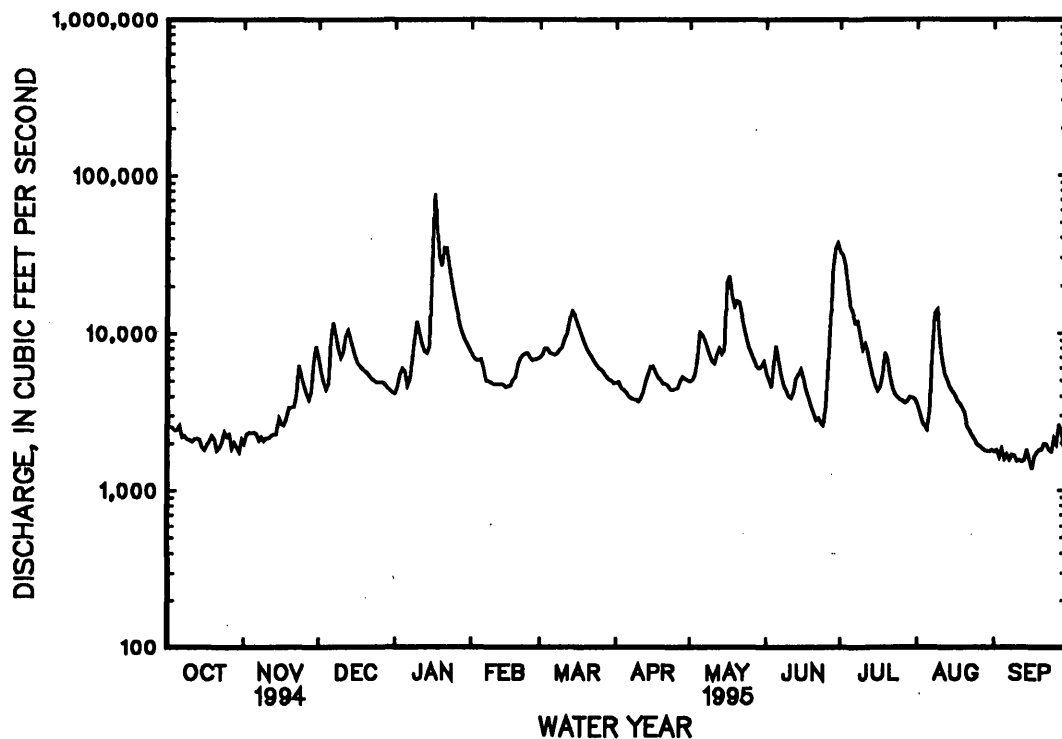
## 01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1895 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5008	5495	8477	11190	14240	19650	16570	12290	7934	4536	4208	3467
MAX	37030	39000	32610	31350	42640	68360	43840	41970	40400	16000	23580	17820
(WY)	1943	1986	1973	1937	1897	1936	1993	1924	1972	1949	1955	1975
MIN	706	840	1253	1703	2661	5400	4368	3276	1932	1056	771	834
(WY)	1931	1931	1966	1981	1934	1931	1915	1930	1969	1966	1930	1930

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1895 - 1995	
ANNUAL TOTAL	4985070		2433840			
ANNUAL MEAN	13660		6668		9408	
HIGHEST ANNUAL MEAN					15840	1972
LOWEST ANNUAL MEAN					4366	1969
HIGHEST DAILY MEAN	110000	Mar 30	76600	Jan 17	434000	Mar 19 1936
LOWEST DAILY MEAN	1760	Oct 30	1370	Sep 16	540	Sep 10 1914
ANNUAL SEVEN-DAY MINIMUM	1980	Oct 16	1560	Sep 10	593	Sep 6 1966
INSTANTANEOUS PEAK FLOW			87200	Jan 17	a480000	Mar 19 1936
INSTANTANEOUS PEAK STAGE			15.90	Jan 17	41.03	Mar 19 1936
INSTANTANEOUS LOW FLOW			1270	Sep 16	530	(b)
ANNUAL RUNOFF (CFSM)	1.42		.69		.97	
ANNUAL RUNOFF (INCHES)	19.22		9.38		13.25	
10 PERCENT EXCEEDS	38800		11900		20400	
50 PERCENT EXCEEDS	5760		4950		5380	
90 PERCENT EXCEEDS	2340		1920		1670	

- a From rating curve extended above 300,000 ft<sup>3</sup>/s, on the basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow.
- b September 11, 12, 1966.



## POTOMAC RIVER BASIN

## 01643700 GOOSE CREEK NEAR MIDDLEBURG, VA

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

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

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

REVISED RECORDS.--WSP 2103: Drainage area.

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

REMARKS.--Records good except those for periods with ice effect, Jan. 4-7, and Feb. 4-8, 11, 12, and period with backwater from beaverdam, Sept. 4-20, which are fair. Maximum discharge, 19,200 ft<sup>3</sup>/s, from rating curve extended above 2,900 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 14.44 ft and 27.46 ft. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 27	1300	*2,470	*9.47	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 0.50 ft<sup>3</sup>/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	21	23	63	106	91	73	61	74	374	26	11
2	14	50	20	64	109	80	70	92	69	329	24	10
3	14	23	20	55	105	74	68	96	141	229	23	9.2
4	14	18	19	e50	e101	73	65	73	263	183	22	e5.9
5	13	16	119	e47	e98	72	61	70	114	160	39	e4.4
6	12	15	104	e49	e90	77	60	65	93	135	494	e3.5
7	12	14	75	e172	e87	77	60	60	85	153	196	e2.7
8	12	14	63	152	e85	98	59	55	71	178	82	e1.9
9	12	13	55	107	86	250	63	53	61	105	59	e1.3
10	15	14	57	94	89	188	60	60	70	107	52	e.86
11	14	15	109	86	e84	210	63	139	142	105	45	e.55
12	12	14	77	88	e78	301	72	79	218	79	40	e.52
13	12	13	66	88	73	334	215	69	152	71	35	e.50
14	12	13	62	83	72	305	104	132	108	65	33	e.56
15	12	13	58	281	75	260	89	139	90	59	30	e1.8
16	12	13	54	445	78	221	82	100	73	54	29	e7.2
17	12	16	55	269	97	189	78	95	62	55	26	e9.1
18	12	22	55	204	91	162	76	124	56	88	24	e14
19	12	26	56	172	85	146	73	161	51	54	22	e10
20	12	21	52	606	93	134	67	117	47	47	20	e7.8
21	12	25	48	365	97	132	65	94	43	44	19	7.6
22	11	73	46	275	86	120	63	83	40	72	18	8.9
23	19	33	45	222	84	109	59	72	97	50	16	15
24	30	25	45	188	83	102	70	65	90	44	15	15
25	17	22	81	159	76	91	70	111	55	45	14	16
26	13	20	70	139	75	85	60	159	150	40	13	22
27	13	19	61	126	73	83	56	89	1540	36	12	23
28	12	35	57	123	102	91	53	77	759	36	13	16
29	12	35	54	121	---	85	51	99	547	35	13	11
30	12	27	49	111	---	81	53	158	439	30	13	10
31	12	---	46	107	---	77	---	89	---	27	12	---
TOTAL	417	678	1801	5111	2458	4398	2158	2936	5800	3089	1479	247.29
MEAN	13.5	22.6	58.1	165	87.8	142	71.9	94.7	193	99.6	47.7	8.24
MAX	30	73	119	606	109	334	215	161	1540	374	494	23
MIN	11	13	19	47	72	72	51	53	40	27	12	.50
CFSM	.11	.18	.47	1.34	.71	1.15	.58	.77	1.57	.81	.39	.07
IN.	.13	.21	.54	1.55	.74	1.33	.65	.89	1.75	.93	.45	.07

e Estimated.

## 01643700 GOOSE CREEK NEAR MIDDLEBURG, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1967, 1969 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	82.1	86.0	137	156	204	242	224	161	116	55.1	47.4	44.9
MAX	602	233	453	418	609	722	688	463	645	217	206	349
(WY)	1980	1978	1993	1978	1984	1993	1983	1989	1972	1972	1967	1979
MIN	.004	3.41	4.17	7.65	38.0	51.3	43.5	26.1	15.2	2.81	.41	.000
(WY)	1992	1992	1966	1966	1989	1981	1981	1985	1986	1966	1991	1991

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1966 - 1967  
1970 - 1995

ANNUAL TOTAL	50993.0	30572.29	
ANNUAL MEAN	140	83.8	130
HIGHEST ANNUAL MEAN			228
LOWEST ANNUAL MEAN			36.5
HIGHEST DAILY MEAN	1610	Mar 10	1540 Jun 27
LOWEST DAILY MEAN	8.6	Sep 21	e.50 Sep 13
ANNUAL SEVEN-DAY MINIMUM	9.8	Sep 15	e.87 Sep 9
INSTANTANEOUS PEAK FLOW			2470 Jun 27
INSTANTANEOUS PEAK STAGE			9.47 Jun 27
INSTANTANEOUS LOW FLOW			(c) (d)
ANNUAL RUNOFF (CFSM)	1.14	.68	1.05
ANNUAL RUNOFF (INCHES)	15.42	9.25	14.31
10 PERCENT EXCEEDS	389	160	293
50 PERCENT EXCEEDS	49	62	67
90 PERCENT EXCEEDS	13	12	5.7

a Also Sept. 22-26, 1985, Sept. 29 to Oct. 3, 1986, and many days in September to November 1991.

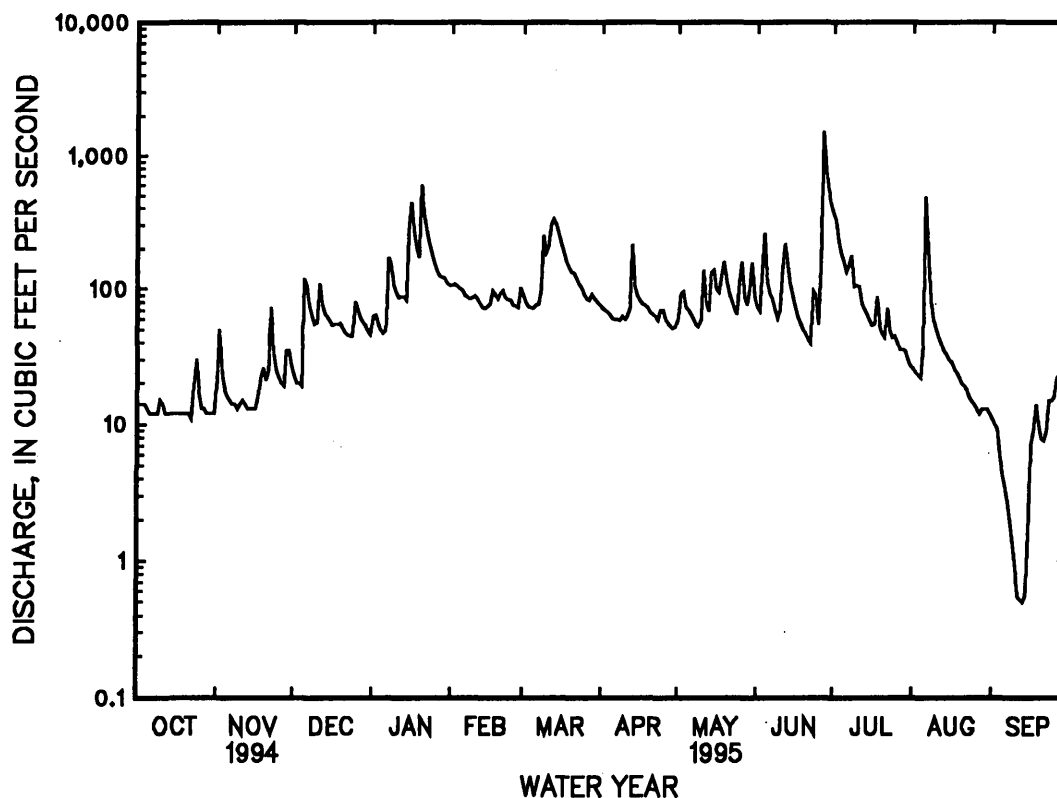
b Many periods in September to November 1991.

c Not determined.

d Probably occurred Sept. 13, 1995.

e Estimated.

f Also Sept. 21-27, 1985, Sept. 29 to Oct. 3, 1986, and many days in September to November 1991.



## POTOMAC RIVER BASIN

## 01644000 GOOSE CREEK NEAR LEESBURG, VA

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

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 248.93 ft above sea level. 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 of doubtful gage-height record, Dec. 7, Feb. 2, and May 9, and periods with ice effect, Jan. 7, and Feb. 7, 8, 11, 12, which are fair. National Weather Service gage-height telemeter at station. Maximum discharge, 78,100 ft<sup>3</sup>/s, from rating curve extended above 11,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 27	1830	*4,590	*7.48	No other peak equal to or greater than base discharge.			

Minimum discharge, 1.2 ft<sup>3</sup>/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	87	87	115	283	305	188	139	159	545	44	17
2	40	171	76	146	e273	252	179	176	141	525	40	14
3	40	104	71	129	271	227	172	277	137	353	38	11
4	39	70	68	111	266	216	163	198	467	282	35	8.5
5	37	57	237	87	242	206	153	177	230	254	51	6.6
6	35	52	361	101	180	207	144	165	180	228	1740	5.2
7	33	50	e198	e420	e170	214	140	147	167	280	840	4.2
8	33	48	164	494	e175	323	140	134	148	411	305	3.5
9	36	48	135	323	177	987	141	e118	127	217	196	2.7
10	41	50	132	265	185	726	142	134	118	186	153	2.1
11	43	53	350	232	e180	638	141	416	215	1240	129	1.6
12	43	53	268	228	e174	803	151	252	293	304	110	1.3
13	40	51	197	231	159	847	545	188	292	206	95	1.2
14	40	50	169	223	158	747	336	249	212	167	85	1.5
15	41	49	153	664	166	648	244	440	172	139	77	6.0
16	41	50	138	1520	177	565	213	273	145	120	69	8.5
17	40	60	130	773	239	496	200	231	122	111	63	22
18	40	69	130	573	257	432	190	284	108	188	57	47
19	39	82	130	483	246	385	183	484	98	140	50	37
20	39	82	130	1920	248	356	174	372	90	101	44	24
21	41	78	118	1210	254	345	161	265	83	89	40	18
22	41	168	110	799	241	326	157	223	76	109	37	19
23	57	126	107	633	224	290	149	186	79	110	33	39
24	100	85	105	527	221	271	147	162	198	89	29	43
25	86	73	125	448	199	243	169	149	118	89	26	53
26	63	67	163	391	186	224	156	292	179	81	23	70
27	51	65	131	351	184	218	138	204	2280	70	21	80
28	46	101	119	333	284	212	130	170	1640	66	19	69
29	45	126	113	329	---	213	124	168	890	65	20	52
30	46	103	105	305	---	205	120	283	694	59	22	42
31	52	---	98	289	---	201	---	196	---	50	20	---
TOTAL	1409	2328	4618	14653	6019	12328	5390	7152	9858	6874	4511	709.9
MEAN	45.5	77.6	149	473	215	398	180	231	329	222	146	23.7
MAX	100	171	361	1920	284	987	545	484	2280	1240	1740	80
MIN	33	48	68	87	158	201	120	118	76	50	19	1.2
CFSM	.14	.23	.45	1.42	.65	1.20	.54	.69	.99	.67	.44	.07
IN.	.16	.26	.52	1.64	.67	1.38	.60	.80	1.10	.77	.51	.08

e Estimated.

## 01644000 GOOSE CREEK NEAR LEESBURG, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 1913, 1930 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	193	212	322	392	504	580	519	369	258	142	155	124
MAX	2265	1155	1316	1200	1490	1892	1766	1322	2887	1207	1188	1054
(WY)	1943	1933	1993	1978	1984	1993	1983	1989	1972	1956	1937	1945
MIN	2.12	3.83	14.8	25.8	26.3	83.6	141	85.5	38.7	9.61	1.86	1.38
(WY)	1931	1931	1966	1966	1931	1931	1981	1969	1986	1966	1930	1985

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

WATER YEARS 1910, 1912,  
1931 - 1995

ANNUAL TOTAL	143549	75849.9	
ANNUAL MEAN	393	208	316
HIGHEST ANNUAL MEAN			664
LOWEST ANNUAL MEAN			55.2
HIGHEST DAILY MEAN	4310	Mar 10	2280
LOWEST DAILY MEAN	28	Sep 21	1.2
ANNUAL SEVEN-DAY MINIMUM	31	Sep 16	2.0
INSTANTANEOUS PEAK FLOW			4590
INSTANTANEOUS PEAK STAGE			7.48
INSTANTANEOUS LOW FLOW			1.2
ANNUAL RUNOFF (CFSM)	1.18	.63	(c)
ANNUAL RUNOFF (INCHES)	16.08	8.50	.95
10 PERCENT EXCEEDS	1030	418	688
50 PERCENT EXCEEDS	130	144	157
90 PERCENT EXCEEDS	41	37	18

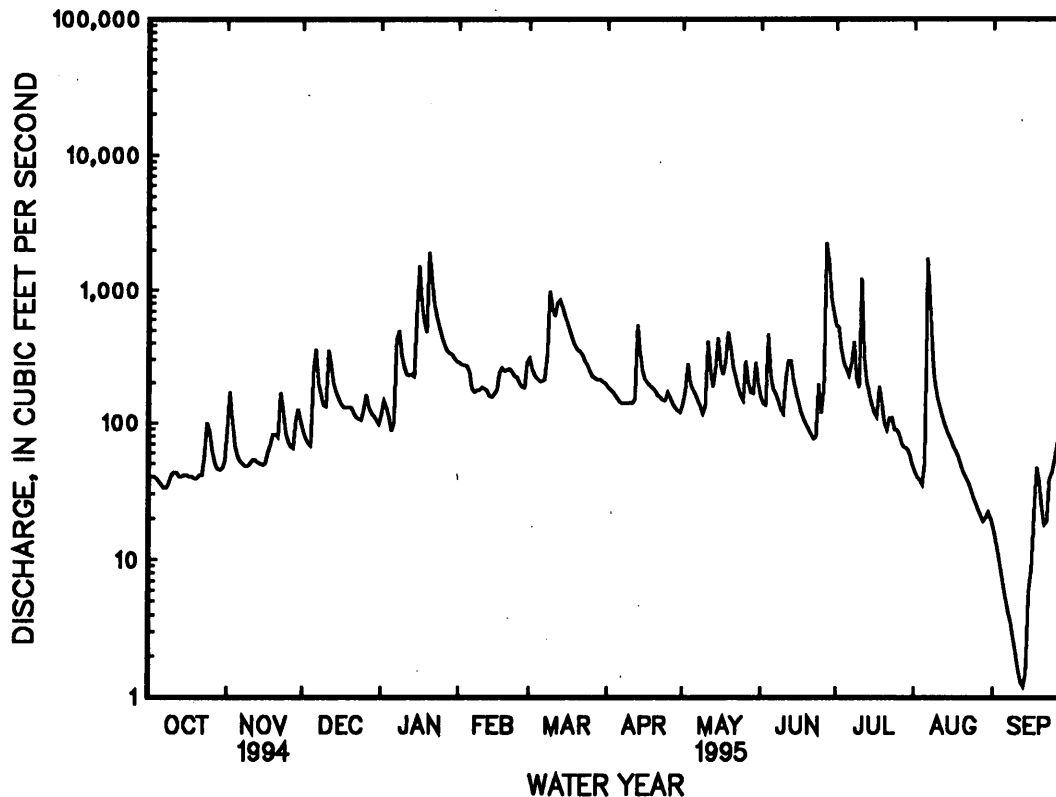
a Also Sept. 28-30, 1941.

b From high-water mark in gage house.

c Not determined.

e Estimated.

d Probably occurred Sept. 27-30, 1941.



## 01646000 DIFFICULT RUN NEAR GREAT FALLS, VA

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

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 151.30 ft above sea level.

REMARKS.--Records good except those for period of doubtful gage-height record, Feb. 1, and periods with ice effect, Feb. 4-6, and 11-14, which are fair. Maximum discharge, 32,200 ft<sup>3</sup>/s, from rating curve extended above 1,600 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 13.18 ft and slope-area measurement at gage height 21.40 ft. Minimum gage height, 1.65 ft, Sept. 9, 10, 1966. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2100	1,010	7.32	July 7	2230	1,060	7.45
Jan. 20	1030	*1,110	*7.58				

Minimum discharge, 2.7 ft<sup>3</sup>/s, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	87	32	71	e50	66	42	53	35	61	13	4.1
2	34	68	30	44	53	54	41	122	35	56	12	3.8
3	29	31	29	37	49	49	40	57	49	31	12	3.3
4	26	29	30	36	e46	47	38	40	72	48	11	3.3
5	26	28	177	34	e45	46	36	40	34	59	14	3.2
6	25	28	64	51	e44	49	36	35	31	107	203	3.4
7	25	27	45	320	44	47	38	32	32	308	52	3.1
8	25	25	38	88	42	281	39	30	42	201	17	3.0
9	33	25	34	60	41	422	43	29	29	52	13	3.3
10	53	40	64	52	41	113	43	41	27	64	12	13
11	27	34	113	50	e41	82	40	209	43	273	11	4.1
12	25	27	49	51	e40	73	55	51	157	59	11	3.2
13	24	26	40	48	e39	66	189	38	67	41	9.7	3.7
14	25	26	38	45	e38	61	57	111	37	32	8.8	4.0
15	25	28	37	349	42	57	45	66	30	27	8.1	3.9
16	24	27	36	276	67	55	41	42	26	34	7.9	3.8
17	24	26	46	83	97	53	39	65	24	24	7.9	105
18	23	29	41	65	70	52	38	228	23	31	7.7	16
19	23	31	38	59	62	51	39	421	22	22	6.8	8.3
20	25	27	35	611	63	49	36	97	21	19	6.2	6.6
21	25	63	34	125	59	49	36	59	20	19	6.3	6.6
22	23	65	34	78	51	46	35	48	19	19	6.1	18
23	76	35	36	65	48	45	32	41	26	18	5.8	28
24	47	30	35	60	46	46	58	37	278	18	5.8	9.8
25	29	29	50	56	40	44	40	38	109	24	5.9	41
26	27	28	36	52	40	43	36	55	110	17	5.4	59
27	26	31	34	50	40	43	33	41	86	17	6.4	25
28	26	84	33	50	129	42	34	40	58	20	6.0	12
29	26	42	33	54	---	41	28	106	41	19	6.6	9.9
30	25	35	32	53	---	40	61	115	35	17	5.4	8.9
31	25	---	32	53	---	42	---	44	---	13	4.6	---
TOTAL	905	1111	1405	3126	1467	2254	1368	2431	1618	1750	508.4	420.3
MEAN	29.2	37.0	45.3	101	52.4	72.7	45.6	78.4	53.9	56.5	16.4	14.0
MAX	76	87	177	611	129	422	189	421	278	308	203	105
MIN	23	25	29	34	38	40	28	29	19	13	4.6	3.0
CFSM	.50	.64	.78	1.74	.90	1.26	.79	1.35	.93	.97	.28	.24
IN.	.58	.71	.90	2.01	.94	1.45	.88	1.56	1.04	1.12	.33	.27

e Estimated.

## 01646000 DIFFICULT RUN NEAR GREAT FALLS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	39.2	48.7	59.7	71.8	80.3	87.9	81.4	70.3	67.9	41.1	38.2	34.6
MAX	317	116	165	183	184	227	224	203	1210	115	143	245
(WY)	1980	1973	1973	1978	1979	1993	1973	1989	1972	1975	1955	1975
MIN	4.69	7.75	11.4	16.5	32.4	33.2	31.5	21.8	10.0	4.52	1.88	5.57
(WY)	1942	1942	1966	1966	1942	1981	1985	1955	1986	1955	1966	1986

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1936 - 1995

ANNUAL TOTAL	31652	18363.7	
ANNUAL MEAN	86.7	50.3	59.9
HIGHEST ANNUAL MEAN			184
LOWEST ANNUAL MEAN			28.4
HIGHEST DAILY MEAN	817	Feb 23	611 Jan 20
LOWEST DAILY MEAN	18	aSep 15	3.0 Sep 8
ANNUAL SEVEN-DAY MINIMUM	19	cSep 10	3.2 Sep 3
INSTANTANEOUS PEAK FLOW			1110 Jan 20
INSTANTANEOUS PEAK STAGE			7.58 Jan 20
INSTANTANEOUS LOW FLOW			2.7 Sep 9
ANNUAL RUNOFF (CFSM)	1.50	.87	.05
ANNUAL RUNOFF (INCHES)	20.34	11.80	14.07
10 PERCENT EXCEEDS	180	82	101
50 PERCENT EXCEEDS	53	38	38
90 PERCENT EXCEEDS	25	8.9	13

a Also Sept. 16, 21, 1994.

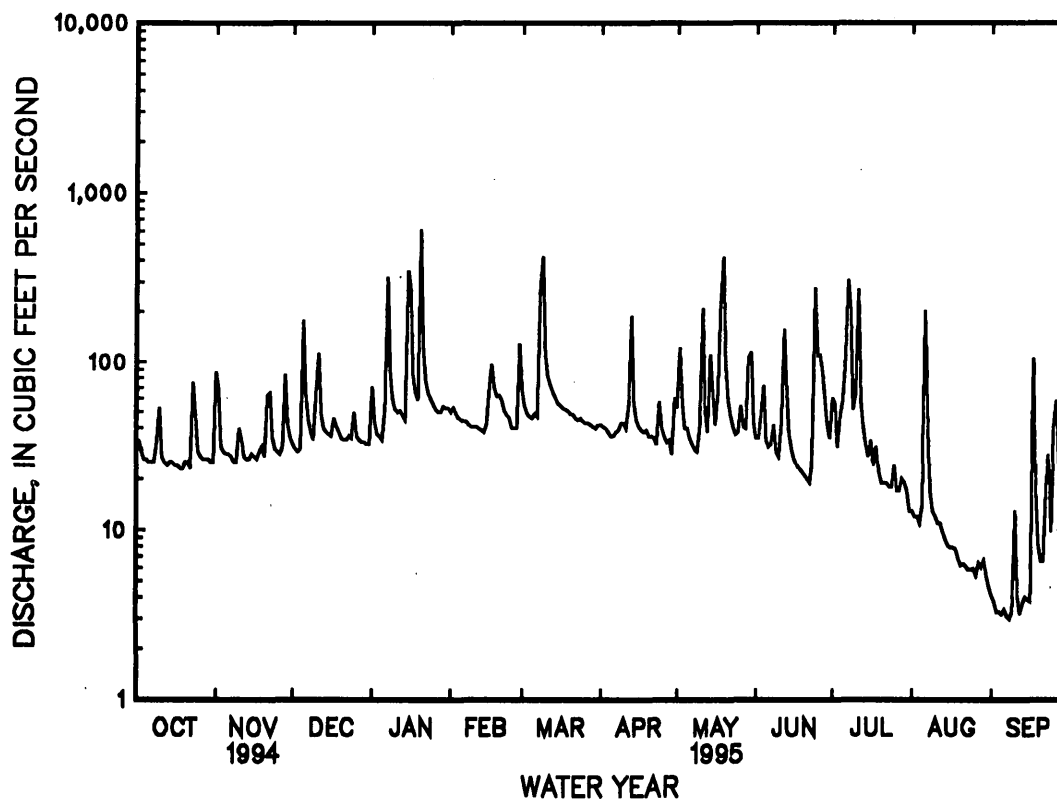
b Also Sept. 8, 9, 1966.

c Also Sept. 11, 1994.

d From floodmarks.

e Estimated.

f Also Sept. 10, 1966.



## 01646500 POTOMAC RIVER NEAR WASHINGTON, DC

LOCATION.--Lat 38°56'58", long 77°07'40", Montgomery County, 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, and at mile 117.4.

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

## WATER-DISCHARGE RECORDS

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 sea level. 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.--Water-discharge records good except those for estimated daily discharges (ice effect), 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 (see station 01597500), and since July 1981, by Jennings Randolph Lake. National Weather Service gage-height telemeter at station. Satellite telemeter at station.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 17	1600	*101,000	*8.90	June 30	1500	46,400	6.51
Jan. 21	1915	59,700	7.18				

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DAILY VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3090	2160	9730	4720	10400	10900	5910	5930	7210	40900	3220	1180
2	2820	2310	7910	5070	9850	10800	5890	6250	6090	38700	2960	1160
3	2670	2980	6430	6420	9300	10200	5780	6630	5560	34600	2530	1170
4	2690	3090	5530	6660	9010	10600	5340	7130	5420	25900	2180	1150
5	2520	2640	5870	6620	8650	10000	5170	9480	8180	19100	2070	988
6	2530	2430	10500	5730	e6560	9470	4940	11700	8560	15800	5450	1100
7	2610	2240	15500	7420	e5560	9390	4690	11000	7010	15300	7520	952
8	2280	2110	13500	9500	6390	10100	4550	10000	5700	18100	9880	981
9	2230	2130	10900	10500	6580	14100	4540	8930	4870	13300	16400	1010
10	2270	2150	9450	13000	6120	13500	4450	8160	4460	10700	12400	1100
11	2110	2150	10800	13300	6960	12600	4470	8520	4180	11500	8340	1090
12	2080	2170	13700	11200	6890	13300	4870	8000	4760	10200	6280	1100
13	2060	2240	13000	9950	6340	14500	6920	9020	4900	8390	5180	1070
14	2180	2270	12300	9240	6210	16700	7500	9500	5880	6550	4490	1030
15	2170	2210	10600	10800	5780	17100	7830	9380	5810	5350	3970	1120
16	1960	2600	9290	24500	5910	15800	7930	13200	6090	4510	3650	1180
17	1750	2660	8330	85100	6400	14300	7600	29800	5310	4010	3390	1690
18	1840	3420	7690	69400	6660	12900	6950	23300	4430	4500	2950	1370
19	1980	3870	7350	42400	7010	11700	6490	20700	3850	5620	2750	1350
20	2130	3770	7040	40900	7420	10600	6100	18100	3270	7680	2610	1440
21	2060	3800	6700	53300	8710	9900	5820	19100	2820	6300	2320	1490
22	1860	4130	6300	48200	9230	9180	5760	16600	2560	5040	2000	1540
23	1910	7760	5950	37900	9360	8670	5510	13800	2690	4230	1650	1930
24	2290	7340	5550	29200	9370	8020	5400	11600	3670	3670	1610	1690
25	2510	5990	5610	23800	9240	7550	5370	10100	3280	3490	1490	1600
26	2390	5130	5640	19800	8710	7200	5360	9010	5100	3390	1370	1930
27	2300	4570	5650	16700	8430	7050	5380	8830	13300	3190	1300	1980
28	2020	4760	5410	14600	9620	6770	5770	7940	25900	3210	1230	1940
29	1800	8110	5140	13000	---	6470	6030	7350	37100	3220	1200	2190
30	1990	10700	4880	11900	---	6220	5970	7220	44400	3390	1130	1860
31	1630	---	4700	11100	---	6110	---	7570	---	3350	1160	---
TOTAL	68730	113890	256950	671930	216670	331700	174290	353850	252360	343190	124680	41381
MEAN	2217	3796	8289	21680	7738	10700	5810	11410	8412	11070	4022	1379
MAX	3090	10700	15500	85100	10400	17100	7930	29800	44400	40900	16400	2190
MIN	1630	2110	4700	4720	5560	6110	4450	5930	2560	3190	1130	952
(†)	588	557	560	558	559	541	581	622	654	710	781	712
MEAN†	2804	4353	8846	22240	8298	11230	6390	12030	9062	11780	4800	2092
CFM#	.24	.38	.77	1.92	.72	.97	.55	1.04	.78	1.02	.42	.18
IN.†	.28	.42	.88	2.22	.75	1.12	.62	1.20	.87	1.18	.48	.20

e Estimated

† 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.



## 01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1958, BY WATER YEAR (WY) (UNREGULATED)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6120	6496	9843	13570	16660	21060	19120	13610	7960	5135	5804	4419
MAX	44100	21040	30900	37190	36790	76510	36430	27780	19090	21040	28210	19940
(WY)	1943	1933	1951	1937	1939	1936	1933	1932	1951	1949	1955	1945
MIN	583	700	1536	2527	2982	6505	7202	3953	2867	1284	569	679
(WY)	1931	1931	1944	1956	1934	1931	1947	1930	1930	1930	1930	1930

## SUMMARY STATISTICS

WATER YEARS 1930 - 1958

ANNUAL MEAN	10790
HIGHEST ANNUAL MEAN	16100
LOWEST ANNUAL MEAN	4525
HIGHEST DAILY MEAN	426000
LOWEST DAILY MEAN	448
ANNUAL SEVEN-DAY MINIMUM	499
INSTANTANEOUS PEAK FLOW	484000
INSTANTANEOUS PEAK STAGE	828.10
INSTANTANEOUS LOW FLOW	430
ANNUAL RUNOFF (CFSM)	.93
ANNUAL RUNOFF (INCHES)	12.68
10 PERCENT EXCEEDS	23600
50 PERCENT EXCEEDS	6440
90 PERCENT EXCEEDS	1810

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1995, BY WATER YEAR (WY) (REGULATED, UNADJUSTED)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5924	7316	11190	13020	16890	24890	21020	15240	9122	4747	3777	3839
MAX	36790	42030	35690	35700	39460	67370	57850	40410	46630	17160	11350	25310
(WY)	1977	1986	1973	1991	1984	1994	1993	1989	1972	1972	1984	1975
MIN	908	1097	1038	1682	5703	7403	5810	3921	2216	695	538	791
(WY)	1964	1966	1966	1981	1963	1990	1995	1969	1969	1966	1966	1964

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1959 - 1995

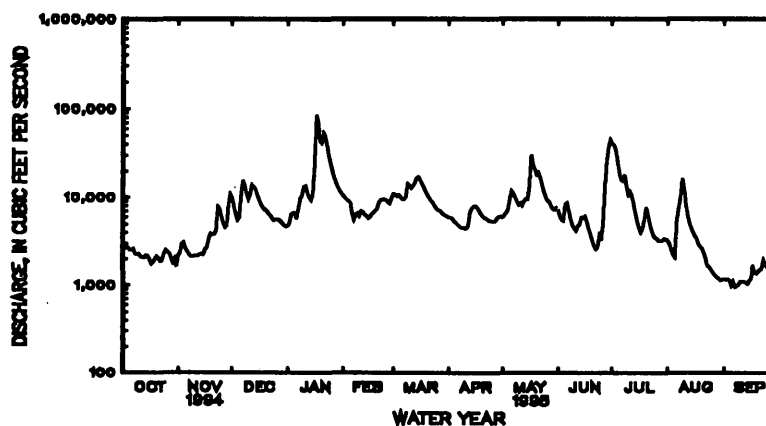
ANNUAL TOTAL	6089360	2949621	
ANNUAL MEAN	16680	8081	11390
ANNUAL MEAN†	17290	8698	11970
HIGHEST ANNUAL MEAN			18580
HIGHEST ANNUAL MEAN†			19030
LOWEST ANNUAL MEAN			4900
LOWEST ANNUAL MEAN†			5306
HIGHEST DAILY MEAN	140000	Mar 30	85100
LOWEST DAILY MEAN	1630	Oct 31	952
LOWEST DAILY MEAN†	2190	Oct 31	1780
ANNUAL SEVEN-DAY MINIMUM	1930	Oct 17	1030
INSTANTANEOUS PEAK FLOW			101000
INSTANTANEOUS PEAK STAGE			8.90
INSTANTANEOUS LOW FLOW			830
ANNUAL RUNOFF (CFSM)	1.44	.70	.98
ANNUAL RUNOFF (CFSM)†	1.50	.75	1.03
ANNUAL RUNOFF (INCHES)	19.60	9.49	13.38
ANNUAL RUNOFF (INCHES)†	20.30	10.22	13.96
10 PERCENT EXCEEDS	48800	14400	25900
50 PERCENT EXCEEDS	6130	5930	6300
90 PERCENT EXCEEDS	2270	1820	1600

† Adjusted for diversion.

a At previous site, 1 mi upstream at same datum.

b Minimum daily discharge observed at gaging station, does not include diversion of 489 ft<sup>3</sup>/s.c Includes diversion of 449 ft<sup>3</sup>/s for municipal use.

d Sept. 7, 9, 1995.



## 01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1989 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1988 to current year.

WATER TEMPERATURE: October 1988 to current year.

INSTRUMENTATION.--Water-quality monitor October 1988 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD--

SPECIFIC CONDUCTANCE: Maximum, 747 microsiemens, Jan. 11, 1991; minimum, 68 microsiemens, Oct. 23, 1990.

WATER TEMPERATURE (water years 1989-93, 1995): Maximum, 33.5°C, July 11, 1993; minimum, 0.0°C, on many days during winter periods.

EXTREMES FOR CURRENT PERIOD.--

SPECIFIC CONDUCTANCE: Maximum, 517 microsiemens, Feb. 17; minimum, 138 microsiemens, Jan. 20.

WATER TEMPERATURE: Maximum, 32.9°C, Aug. 4; minimum, 0.0°C, on many days during winter periods.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	359	351	354	391	351	382	326	277	305	362	359	360
2	362	357	360	366	299	343	338	326	334	362	358	360
3	357	350	353	387	365	380	340	323	333	370	357	362
4	352	347	350	397	386	392	323	297	310	366	315	341
5	348	342	346	395	378	389	297	260	278	330	319	325
6	343	339	340	379	372	374	322	268	301	335	326	330
7	346	339	342	387	374	380	316	284	303	473	306	343
8	358	345	351	399	387	393	340	316	329	314	288	300
9	362	356	358	400	397	398	348	340	344	302	285	290
10	362	358	360	403	400	402	354	348	351	312	292	303
11	368	359	364	403	397	400	363	354	358	323	311	318
12	369	366	368	403	399	401	388	363	376	313	282	295
13	371	366	369	405	400	402	411	388	399	301	281	288
14	369	361	364	402	399	400	428	411	421	305	296	300
15	362	354	358	402	399	401	433	427	431	317	238	289
16	356	353	354	404	400	402	434	429	432	257	231	243
17	355	349	352	410	403	407	429	426	427	260	192	231
18	357	352	354	411	408	409	432	426	429	192	163	171
19	362	355	360	421	411	417	432	385	395	167	161	163
20	366	361	363	416	379	398	385	330	346	176	138	159
21	369	366	367	386	375	382	334	319	328	171	164	168
22	374	368	372	387	360	374	328	320	324	191	171	182
23	383	366	375	403	387	394	328	321	324	186	177	180
24	368	344	362	403	332	355	324	319	322	196	186	192
25	378	365	373	417	348	391	326	319	322	206	195	201
26	379	374	377	418	377	402	330	326	328	216	206	212
27	385	379	380	377	344	355	334	329	331	224	216	220
28	385	382	384	345	294	317	363	333	353	233	224	228
29	386	379	381	337	319	330	360	355	357	270	233	244
30	389	380	386	326	275	295	360	357	358	299	270	285
31	393	385	388	---	---	---	360	358	359	313	297	306
MONTH	393	339	363	421	275	382	434	260	352	473	138	264

## 01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	323	308	316	302	287	295	313	300	308	332	328	330
2	308	295	300	288	283	285	337	303	320	342	331	336
3	295	288	290	286	281	283	385	316	358	349	341	345
4	303	285	290	285	282	283	398	313	371	357	349	355
5	317	302	308	286	277	282	421	325	361	360	355	357
6	349	301	314	279	272	275	474	414	456	366	360	362
7	355	326	340	280	271	275	419	337	379	373	366	370
8	356	336	347	283	230	273	370	339	355	374	370	372
9	336	321	327	310	224	283	370	323	343	376	372	374
10	321	311	317	310	279	289	368	324	333	373	351	360
11	315	308	311	290	279	283	341	334	336	351	340	345
12	326	314	319	285	275	278	363	337	355	343	337	340
13	333	318	322	285	277	281	376	321	358	337	257	290
14	333	324	327	286	276	281	384	346	364	257	242	247
15	344	327	334	291	282	287	406	384	393	242	235	238
16	455	344	393	289	277	284	415	329	398	241	234	238
17	517	385	450	284	275	279	329	319	322	247	228	243
18	393	349	369	281	272	276	331	318	321	238	200	222
19	352	332	342	282	266	276	341	311	332	218	206	209
20	336	326	330	289	274	283	311	289	298	217	211	214
21	330	322	324	289	274	281	291	286	289	216	183	201
22	324	320	322	294	283	288	314	291	301	226	182	197
23	333	319	324	293	276	282	332	310	321	233	202	219
24	339	294	306	286	278	282	313	297	301	239	233	236
25	320	305	311	285	277	282	299	293	295	240	228	233
26	312	285	301	290	280	285	303	293	296	247	237	243
27	301	285	296	295	280	288	303	295	297	241	231	235
28	344	297	318	291	283	288	304	292	298	238	234	237
29	---	---	---	297	286	290	313	304	308	238	230	234
30	---	---	---	293	288	290	329	313	321	295	233	253
31	---	---	---	301	292	295	---	---	---	302	277	286
MONTH	517	285	327	310	224	283	474	286	336	376	182	281
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	307	271	287	192	165	179	303	289	294	350	333	341
2	300	282	290	213	192	207	313	295	301	350	336	341
3	303	276	290	225	172	204	313	299	306	346	336	340
4	293	269	280	203	169	182	312	297	304	351	339	344
5	290	270	280	235	202	217	320	302	308	354	340	348
6	290	277	286	282	235	260	346	320	338	358	343	350
7	278	259	268	278	174	191	347	341	345	358	353	355
8	263	258	261	252	180	219	341	230	283	377	356	364
9	263	242	249	263	206	247	340	285	316	401	377	389
10	251	241	248	261	214	241	388	340	365	404	399	401
11	253	230	238	288	260	273	411	388	404	401	386	392
12	233	219	227	317	288	303	471	319	412	388	349	364
13	233	224	229	345	317	331	334	297	313	375	352	363
14	236	226	230	361	332	343	377	334	354	389	365	375
15	251	235	244	367	340	350	418	366	392	399	383	390
16	255	250	253	380	367	375	380	309	336	408	398	403
17	254	249	252	380	300	327	334	284	300	414	408	411
18	252	242	247	338	287	303	341	294	321	415	354	390
19	248	243	246	352	338	345	361	335	349	367	349	360
20	252	241	247	357	339	343	380	361	371	385	367	379
21	260	244	254	343	338	340	390	380	387	391	380	386
22	278	252	266	344	322	329	391	307	374	399	388	394
23	285	259	273	327	311	319	311	306	308	400	394	397
24	271	229	254	316	294	303	315	310	312	402	398	399
25	234	219	225	302	278	290	316	312	314	404	395	400
26	222	215	217	298	288	293	320	314	317	401	377	388
27	229	199	221	298	280	287	322	317	319	385	370	381
28	219	197	208	294	276	283	326	319	322	398	384	392
29	281	193	253	286	278	284	331	320	324	405	397	402
30	242	164	179	287	280	284	332	323	328	404	400	402
31	---	---	---	293	281	287	346	328	336	---	---	---
MONTH	307	164	250	380	165	282	471	230	334	415	333	378

## POTOMAC RIVER BASIN

## 01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	20.9	18.4	19.8	15.4	14.3	14.8	6.4	5.2	5.8	4.4	3.2	3.7
2	20.6	19.7	20.1	14.9	13.6	14.1	6.3	5.2	5.6	4.3	3.4	3.9
3	20.1	19.2	19.7	13.9	13.0	13.4	6.0	5.0	5.5	3.4	2.1	2.6
4	19.2	17.7	18.5	14.3	12.4	13.3	6.5	5.5	5.9	2.8	1.4	2.2
5	18.6	16.9	17.6	14.8	13.4	14.1	8.6	6.5	7.7	1.4	.0	.6
6	17.5	16.5	17.1	15.6	14.1	14.7	8.8	8.2	8.5	.0	.0	.0
7	17.7	16.4	17.0	15.4	14.2	14.7	9.3	8.5	8.9	.8	.0	.3
8	18.6	16.6	17.4	14.9	14.0	14.4	9.0	7.4	8.1	1.4	.5	.9
9	19.1	17.6	18.3	14.8	13.5	14.1	7.5	7.0	7.2	2.0	1.1	1.5
10	19.0	18.0	18.4	14.3	13.6	14.1	7.3	6.9	7.1	1.8	1.4	1.5
11	18.5	17.5	18.0	13.9	12.8	13.2	7.2	6.3	6.8	1.6	1.4	1.5
12	17.8	16.2	16.9	12.8	11.6	12.2	6.3	5.1	5.6	2.3	1.5	1.8
13	16.7	15.6	16.2	12.3	11.4	11.9	5.2	4.7	4.8	3.7	2.0	2.8
14	16.5	15.8	16.1	12.7	11.8	12.2	4.9	4.5	4.7	5.8	3.3	4.6
15	16.4	15.2	15.8	13.2	12.3	12.7	5.0	4.4	4.6	10.6	5.8	8.0
16	16.4	15.3	15.8	13.2	12.3	12.9	5.4	4.6	4.9	10.1	9.3	9.6
17	16.1	14.9	15.6	12.8	12.1	12.3	5.6	4.8	5.2	9.3	8.0	8.7
18	16.0	14.7	15.5	12.9	12.5	12.7	6.3	5.3	5.7	9.0	8.6	8.9
19	16.3	15.2	15.8	13.0	12.2	12.6	6.1	5.4	5.7	8.6	8.1	8.4
20	17.0	15.9	16.4	12.6	11.1	11.8	6.1	5.1	5.6	8.1	7.5	7.9
21	17.6	16.3	16.9	12.0	10.9	11.4	5.8	4.8	5.2	7.5	6.3	7.0
22	17.8	16.4	17.2	12.1	11.2	11.7	5.2	4.4	4.8	6.3	5.6	6.0
23	17.5	16.9	17.2	11.2	8.7	9.9	5.4	4.2	4.7	5.6	4.9	5.2
24	18.0	16.1	17.2	8.7	7.2	8.0	5.3	4.7	5.0	4.9	4.3	4.6
25	17.4	16.2	16.6	7.3	6.6	7.0	5.9	5.1	5.4	4.3	3.5	3.9
26	16.6	15.0	15.7	7.8	6.2	6.9	6.0	5.0	5.5	3.9	2.9	3.3
27	15.0	14.0	14.3	7.0	6.1	6.3	5.6	4.3	4.9	3.2	2.3	2.7
28	14.3	13.3	13.7	7.4	6.2	6.7	5.2	3.9	4.5	3.0	2.3	2.7
29	14.3	12.8	13.5	7.4	6.5	6.9	5.2	4.0	4.6	2.7	1.9	2.3
30	14.0	12.9	13.5	6.6	5.6	6.2	4.9	3.7	4.2	3.0	2.6	2.7
31	14.6	13.6	14.2	---	---	---	4.2	2.9	3.4	3.4	2.4	2.7
MONTH	20.9	12.8	16.6	15.6	5.6	11.6	9.3	2.9	5.7	10.6	.0	4.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	3.4	2.6	2.9	5.6	4.9	5.2	12.4	10.2	11.2	16.9	15.3	16.1
2	3.7	2.7	3.2	5.9	4.8	5.3	11.9	10.3	11.1	16.3	14.3	15.2
3	3.4	2.6	3.0	5.7	4.8	5.2	12.8	10.1	11.4	16.6	13.7	15.0
4	2.6	1.3	2.0	5.7	5.2	5.4	13.1	11.1	12.0	16.8	15.0	15.9
5	1.5	.0	1.0	6.0	5.3	5.6	12.3	10.1	11.1	17.2	15.8	16.4
6	.2	.0	.0	7.5	5.7	6.4	12.4	9.5	11.0	17.4	16.0	16.6
7	.2	.0	.0	8.0	6.7	7.4	14.4	10.7	12.4	17.8	16.5	17.0
8	.2	.0	.0	9.9	7.6	8.6	15.7	12.3	14.1	18.5	16.9	17.5
9	.0	.0	.0	8.0	5.7	6.5	17.6	14.2	15.9	18.5	17.0	17.8
10	.0	.0	.0	5.7	4.5	5.0	16.7	15.3	16.1	18.5	17.2	17.8
11	.4	.0	.1	6.1	4.5	5.2	15.7	14.4	14.8	18.7	16.8	17.7
12	.3	.0	.1	7.8	6.0	6.9	15.2	13.7	14.4	19.4	17.9	18.6
13	.2	.0	.1	9.0	7.7	8.4	14.9	13.7	14.4	20.4	18.2	19.1
14	.3	.0	.1	10.3	8.5	9.3	13.7	12.0	13.0	19.5	17.8	18.9
15	.0	.0	.0	10.8	9.2	10.1	13.5	11.3	12.2	20.2	17.7	18.7
16	.2	.0	.1	11.8	10.0	10.9	13.9	11.9	12.8	20.5	18.8	19.5
17	1.6	.1	.7	12.7	11.1	11.9	13.7	12.7	13.2	20.5	19.0	19.5
18	2.6	1.1	1.7	12.5	11.5	12.1	14.2	12.8	13.5	19.0	18.3	18.6
19	3.8	1.8	2.6	12.9	11.8	12.3	17.0	13.6	15.2	19.1	18.3	18.7
20	4.7	3.1	3.9	13.5	12.0	12.6	18.2	15.5	16.9	19.8	17.9	18.8
21	4.4	3.9	4.2	14.0	12.3	13.2	18.3	16.7	17.5	20.2	18.9	19.6
22	4.8	3.3	3.8	13.7	12.5	13.0	19.0	17.0	18.0	20.1	19.0	19.7
23	4.6	3.5	4.1	12.5	11.4	11.9	17.7	16.3	17.0	20.9	19.4	20.2
24	5.2	4.1	4.4	12.6	11.0	11.6	16.3	14.6	15.2	22.3	20.7	21.4
25	5.1	3.9	4.3	12.0	10.3	10.9	16.2	14.0	14.9	23.9	21.9	22.9
26	5.1	4.1	4.7	12.2	10.0	10.9	17.4	14.1	15.7	24.6	22.9	23.8
27	4.5	4.1	4.3	13.3	11.0	12.0	18.5	15.1	16.8	24.4	23.2	23.7
28	5.0	4.3	4.6	12.3	11.8	12.1	19.1	16.7	17.8	23.3	21.5	22.5
29	---	---	---	12.5	10.9	11.6	19.2	16.7	17.9	22.6	20.8	21.5
30	---	---	---	12.5	11.4	11.9	18.2	16.3	17.2	22.4	21.4	21.9
31	---	---	---	12.3	10.9	11.5	---	---	---	23.6	20.6	22.0
MONTH	5.2	.0	2.0	14.0	4.5	9.4	19.2	9.5	14.5	24.6	13.7	19.1

## 01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	24.5	22.2	23.4	21.8	20.8	21.3	32.2	29.4	30.8	28.5	27.3	27.9
2	24.8	23.0	23.9	22.2	21.0	21.5	32.0	29.8	31.1	27.9	26.4	27.2
3	25.8	23.7	24.7	22.8	21.1	22.0	32.2	30.1	31.3	28.0	25.9	27.0
4	26.2	23.9	24.9	22.9	21.8	22.3	32.9	30.6	31.5	27.8	25.5	26.4
5	25.8	24.1	24.9	24.0	22.5	23.1	32.4	30.8	31.4	26.8	25.4	26.1
6	24.7	23.7	24.4	24.9	23.7	24.3	31.1	28.2	29.7	27.1	25.4	26.1
7	26.2	23.4	24.6	25.4	24.0	24.7	28.2	26.3	27.2	27.0	25.6	26.5
8	27.5	24.8	26.1	25.4	24.4	25.0	26.3	25.3	25.8	28.0	26.0	26.8
9	27.7	25.9	26.8	25.1	23.7	24.6	26.1	25.7	25.9	27.6	26.0	26.7
10	26.9	25.9	26.3	25.7	24.7	25.2	26.6	25.6	26.1	27.2	25.8	26.3
11	27.4	25.3	26.4	26.6	25.1	25.8	27.7	26.1	26.8	26.3	24.7	25.6
12	26.6	24.3	25.5	27.1	25.5	26.3	28.9	26.5	27.6	25.3	24.2	24.4
13	24.3	23.1	23.6	28.5	26.4	27.4	29.8	27.5	28.6	25.9	23.5	24.6
14	24.7	22.2	23.4	29.9	27.3	28.6	30.4	28.2	29.4	25.7	24.3	25.0
15	25.7	22.9	24.2	31.5	28.8	30.2	31.2	28.8	30.2	26.4	24.2	25.3
16	26.0	23.6	24.9	31.8	29.7	30.9	31.3	29.2	30.4	25.2	23.5	24.2
17	26.6	24.1	25.4	32.0	29.6	31.0	31.3	29.5	30.6	23.5	22.7	22.9
18	27.3	24.3	25.9	32.1	29.6	30.8	31.5	29.6	30.7	22.8	21.7	22.0
19	28.2	24.9	26.7	31.3	29.4	30.4	31.1	29.2	30.3	22.7	21.0	21.8
20	29.0	25.8	27.5	30.4	29.0	29.6	30.3	28.6	29.7	22.2	21.4	21.8
21	29.7	27.0	28.4	30.4	29.0	29.7	29.9	28.0	28.9	23.7	21.6	22.6
22	29.1	27.7	28.5	30.7	29.1	29.9	29.5	28.2	28.9	23.2	22.3	22.8
23	28.4	26.6	27.3	31.4	29.1	30.2	29.3	27.9	28.7	22.3	20.5	21.2
24	26.6	25.3	25.9	31.1	29.3	30.4	29.1	27.4	28.3	20.5	19.1	19.6
25	26.9	24.8	25.9	31.4	29.0	30.4	28.6	27.3	27.9	19.1	18.2	18.4
26	27.8	26.0	26.9	31.6	29.5	30.8	28.2	26.7	27.5	18.2	17.8	17.9
27	26.6	25.1	26.0	31.8	29.8	31.0	28.1	26.9	27.4	19.0	17.5	18.3
28	25.1	23.0	23.8	31.3	29.7	30.7	27.4	26.6	26.8	19.5	18.2	18.8
29	23.0	22.0	22.7	31.1	29.4	30.5	27.8	25.8	26.6	20.3	19.0	19.5
30	22.0	21.2	21.6	31.5	29.4	30.6	28.6	26.0	27.2	20.6	19.2	19.8
31	---	---	---	32.0	29.4	30.9	29.2	26.5	27.8	---	---	---
MONTH	29.7	21.2	25.3	32.1	20.8	27.7	32.9	25.3	28.7	28.5	17.5	23.4

## POTOMAC RIVER BASIN

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC  
(National water-quality assessment station)

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

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

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

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1978 to September 1981.

pH: June 1978 to September 1981.

WATER TEMPERATURE: June 1978 to September 1981.

DISSOLVED OXYGEN: June 1978 to September 1981.

SUSPENDED-SEDIMENT DISCHARGE: October 1978 to September 1981.

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

REMARKS--High flows are sampled from the George Mason Memorial Bridge (14th Street) located 6 mi downstream from Chain Bridge. Duplicate samples taken on some days for quality-assurance checks.

## 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 1994 TO SEPTEMBER 1995

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	BARO-METRIC PRES-SURE (MM HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)
NOV										
09...	1115	1028	80020	2100	397	8.5	14.0	19.0	760	10.6
JAN										
25...	1000	1028	80020	29500	190	7.7	3.5	2.0	768	13.7
APR										
06...	1015	1028	80020	4630	254	7.6	10.0	6.0	763	10.9
MAY										
15...	0900	1028	80020	8740	235	7.5	18.5	14.0	759	8.5
19...	1515	1028	80020	20200	201	7.7	19.0	18.0	751	--
JUN										
29...	1430	1028	80020	37200	267	7.6	23.0	24.5	761	8.6

DATE	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)
NOV										
09...	103	160	47	46	12	15	3.7	117	135	4
JAN										
25...	103	84	--	25	5.2	4.6	1.8	--	--	--
APR										
06...	97	120	--	36	8.0	8.8	1.9	--	--	--
MAY										
15...	91	100	26	29	6.7	6.8	1.8	74	90	--
19...	--	81	30	24	5.1	5.6	1.8	51	62	--
JUN										
29...	101	110	41	31	7.2	8.4	3.3	67	81	--

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

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)
NOV 09...	43	21	0.10	0.98	237	218	0.32	1340	1.20	--
JAN 25...	21	7.3	0.10	7.7	121	115	0.16	9630	1.39	1.39
APR 06...	27	13	0.10	0.50	169	159	0.23	2110	1.09	1.09
MAY 15...	21	9.6	<0.10	5.4	136	129	0.18	3210	0.860	0.860
19...	22	6.7	<0.10	7.0	122	107	0.17	6670	0.800	0.800
JUN 29...	34	12	<0.10	6.7	158	148	0.21	15900	1.07	1.07

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2) (71856)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 09...	--	<0.010	--	1.20	1.20	<0.015	--	0.20	0.20	0.020
JAN 25...	6.2	0.010	0.03	1.40	1.40	0.040	0.05	0.20	<0.20	0.030
APR 06...	4.8	0.010	0.03	1.10	1.10	<0.015	--	<0.20	<0.20	<0.010
MAY 15...	3.8	0.020	0.07	0.880	0.880	0.080	0.10	0.40	0.30	0.060
19...	3.5	0.020	0.07	0.820	0.820	0.080	0.10	0.60	0.30	0.140
JUN 29...	4.7	0.030	0.10	1.10	1.10	0.050	0.06	0.30	1.1	0.070

DATE	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C) (00689)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L (T/DAY) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L (T/DAY) (80155)
NOV 09...	0.020	0.020	0.06	32	9	3.2	0.30	--	--
JAN 25...	0.010	0.020	0.06	58	10	25	0.80	35	2780
APR 06...	<0.010	<0.010	--	42	6	21	0.20	--	--
MAY 15...	0.050	0.060	0.18	21	8	14000	0.40	19	449
19...	0.060	0.050	0.15	110	8	3.5	2.1	79	4320
JUN 29...	0.280	0.070	0.21	150	4	4.8	>4.1	187	18800

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

## POTOMAC RIVER BASIN

## 01653000 CAMERON RUN AT ALEXANDRIA, VA

LOCATION.--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.

DRAINAGE AREA.--33.7 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Gage reinstalled Nov. 8, 1979. Datum of gage is 31.07 ft above sea level. 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, Feb. 4-14, and period of no gage-height record, June 9-17, which are fair. Some regulation by Lake Barcroft, formerly Alexandria Reservoir, on Holmes Run 3.6 mi upstream, usable capacity 2,092 acre-ft. Maximum discharge, 19,900 ft<sup>3</sup>/s, from rating curve extended above 2,500 ft<sup>3</sup>/s on basis of culvert computations of peak flow for main channel and bypass channels. Several measurements of water temperature were made during the year. Water-quality records for some periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,130 ft<sup>3</sup>/s, Jan. 20, gage height, 5.02 ft; minimum daily, 3.4 ft<sup>3</sup>/s, July 20 and Aug 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	60	7.7	43	17	23	12	22	12	15	3.7	4.8
2	11	22	6.7	16	16	18	12	78	12	8.6	4.1	4.1
3	6.8	8.6	5.8	12	15	14	12	21	47	6.0	3.4	3.8
4	6.3	7.0	15	11	e15	14	12	14	23	11	30	4.1
5	4.7	6.5	124	11	e14	14	11	23	12	6.1	85	4.6
6	4.6	7.2	18	69	e15	17	11	13	10	117	54	4.5
7	4.0	7.5	12	141	e14	16	10	11	9.4	126	15	4.6
8	4.3	5.3	9.3	24	e13	345	10	10	9.8	49	10	4.8
9	16	5.2	7.7	16	e14	132	12	9.7	e8.8	13	7.4	49
10	24	20	68	14	e12	41	21	82	e7.5	22	5.9	19
11	10	8.6	38	13	e13	28	18	87	e10	78	17	4.5
12	6.6	5.8	16	13	e14	22	73	19	e94	18	5.6	4.0
13	7.0	5.2	14	13	e14	21	63	13	e40	10	5.0	4.8
14	5.2	5.2	12	12	e13	18	16	73	e20	7.7	5.0	6.6
15	4.9	5.2	13	140	21	16	14	26	e16	6.0	4.6	4.4
16	4.0	5.2	11	42	65	16	14	15	e13	5.2	4.6	13
17	4.0	4.3	18	15	43	15	12	16	e11	4.6	4.6	79
18	4.0	6.4	13	15	27	13	11	84	e9.4	4.6	4.3	14
19	4.0	5.8	10	16	22	13	11	115	e8.4	4.3	3.9	8.7
20	4.3	4.6	10	283	21	14	11	21	e7.7	3.4	4.0	6.4
21	4.5	67	10	39	20	20	9.4	16	e7.2	9.5	4.0	5.2
22	4.0	16	9.4	24	16	15	9.4	13	e7.0	8.4	3.9	108
23	93	7.9	9.2	22	16	13	9.4	10	e30	5.4	5.2	25
24	18	7.7	14	17	16	12	40	9.8	e170	5.5	5.5	14
25	10	7.4	28	16	15	13	16	65	e40	5.1	4.0	64
26	9.6	6.1	13	16	15	12	12	52	e16	23	4.0	58
27	8.4	19	11	16	25	12	10	19	e13	14	4.0	18
28	7.5	26	9.4	15	91	11	10	33	12	5.0	4.2	12
29	6.6	11	8.9	25	---	12	9.4	57	11	4.8	5.0	7.3
30	6.0	9.4	8.5	23	---	13	72	30	9.0	4.2	5.1	6.1
31	6.0	---	20	20	---	12	---	15	---	3.8	4.4	---
TOTAL	317.4	383.1	570.6	1152	612	955	563.6	1072.5	696.2	604.2	326.4	566.3
MEAN	10.2	12.8	18.4	37.2	21.9	30.8	18.8	34.6	23.2	19.5	10.5	18.9
MAX	93	67	124	283	91	345	73	115	170	126	85	108
MIN	4.0	4.3	5.8	11	12	11	9.4	9.7	7.0	3.4	3.4	3.8
CFSM	.30	.38	.55	1.10	.65	.91	.56	1.03	.69	.58	.31	.56
IN.	.35	.42	.63	1.27	.68	1.05	.62	1.18	.77	.67	.36	.63

e Estimated.



## 01653000 CAMERON RUN AT ALEXANDRIA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1978, 1980, 1987 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	31.1	30.3	39.4	42.7	46.4	55.1	41.4	38.4	36.0	48.3	37.6	29.4
MAX	147	80.5	99.2	157	128	132	81.8	117	265	662	364	172
(WY)	1984	1964	1970	1978	1979	1993	1970	1989	1972	1981	1981	1975
MIN	4.52	4.40	3.47	10.0	15.6	19.9	10.6	8.59	7.93	2.51	3.85	5.31
(WY)	1964	1966	1966	1966	1968	1966	1969	1956	1956	1957	1957	1977

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1956 - 1978

1980,

1987 - 1995

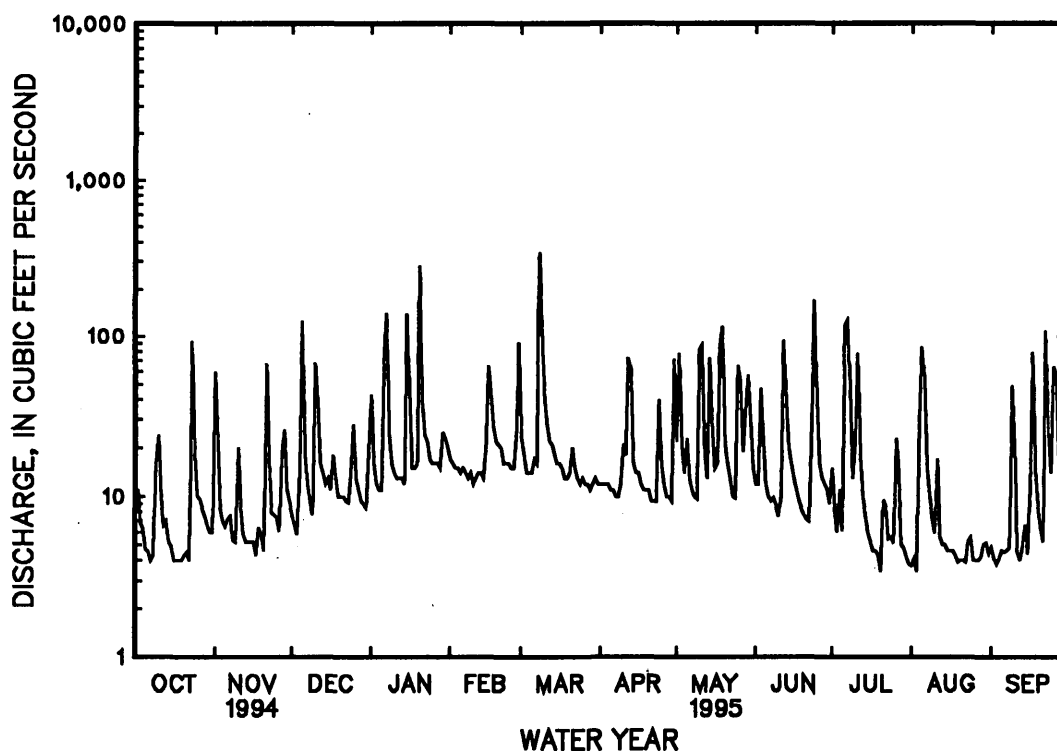
ANNUAL TOTAL	14650.9	7819.3	
ANNUAL MEAN	40.1	21.4	36.4
HIGHEST ANNUAL MEAN			64.4
LOWEST ANNUAL MEAN			21.4
HIGHEST DAILY MEAN	500	Mar 28	3680
LOWEST DAILY MEAN	4.0	Oct 7	1.1
ANNUAL SEVEN-DAY MINIMUM	4.1	Oct 16	1.3
INSTANTANEOUS PEAK FLOW		2130	19900
INSTANTANEOUS PEAK STAGE		5.02	18.14
INSTANTANEOUS LOW FLOW		3.0	1.1
ANNUAL RUNOFF (CFSM)	1.19	.64	1.08
ANNUAL RUNOFF (INCHES)	16.17	8.63	14.69
10 PERCENT EXCEEDS	98	50	78
50 PERCENT EXCEEDS	19	12	16
90 PERCENT EXCEEDS	6.0	4.6	4.7

a Also Aug. 3, 1995.

b Also Sept. 23-25, 1964.

c Also July 20 and Aug. 3-4, 1995.

d Also Sept. 22-25, 1964.



## POTOMAC RIVER BASIN

## 01654000 ACCOTINK CREEK NEAR ANNANDALE, VA

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

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

## WATER-DISCHARGE RECORDS

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 sea level (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 doubtful or no gage-height record, Oct. 3, and Jan. 24 to Feb. 1, period with ice effect, Feb. 11-13, and period with backwater from temporary dam, Mar. 24 to Apr. 7, which are fair. Maximum discharge, 12,000 ft<sup>3</sup>/s, from rating curve extended above 6,600 ft<sup>3</sup>/s on basis of contracted-opening and flow-over-road measurement of peak flow.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1830	*853	*6.76	No peak equal to or greater than base discharge.			

Minimum discharge, 0.11 ft<sup>3</sup>/s, part of each day, Sept. 6-9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	121	7.7	51	e12	18	e10	14	6.4	11	2.8	1.0
2	12	18	7.5	12	13	14	e10	74	13	7.0	2.5	.47
3	e5.8	8.5	7.7	9.3	12	13	e10	12	43	4.5	2.1	.29
4	5.5	7.7	11	8.9	17	12	e10	8.1	17	6.0	2.2	.24
5	5.1	7.8	137	8.2	16	12	e9.6	8.4	7.2	8.3	16	.19
6	4.8	7.8	16	56	12	14	e9.6	7.5	6.6	144	111	.15
7	4.6	7.7	12	181	11	12	e9.6	6.8	6.7	147	17	.14
8	4.3	6.9	9.6	21	11	214	9.6	6.3	12	26	4.4	.14
9	32	7.0	8.9	14	10	141	9.1	6.2	5.7	7.2	3.2	5.4
10	18	24	67	12	10	31	39	54	9.6	19	2.9	14
11	4.9	9.1	41	12	e11	22	29	94	20	66	2.7	2.0
12	4.5	6.9	12	13	e12	18	74	11	133	5.7	2.3	1.0
13	4.5	7.3	10	11	e10	16	78	8.0	13	5.7	2.1	2.2
14	4.6	7.7	10	11	10	15	11	69	7.5	5.1	1.8	4.5
15	4.6	7.2	9.6	228	12	15	9.5	13	6.6	4.7	1.7	1.8
16	4.4	6.7	8.9	47	57	14	9.0	8.5	5.5	6.4	1.7	3.1
17	4.3	6.8	19	19	43	14	9.0	15	5.2	4.6	1.7	101
18	4.5	8.5	10	14	20	13	9.3	131	4.7	5.3	1.3	4.6
19	5.4	9.1	9.2	14	17	13	9.1	156	4.5	4.8	1.2	4.1
20	6.2	6.7	8.6	234	17	13	8.7	15	4.2	4.2	1.1	1.8
21	6.2	59	8.5	32	15	17	9.0	9.5	3.7	4.6	.91	.96
22	4.8	15	8.5	19	13	14	8.5	8.2	3.5	5.4	1.2	59
23	85	8.1	8.5	15	12	12	7.8	7.3	9.1	4.3	1.3	11
24	10	8.3	10	e14	12	e12	39	6.9	103	5.7	.76	3.4
25	5.5	8.6	25	e13	11	e11	9.0	8.6	64	11	.43	63
26	5.2	8.3	8.9	e12	11	e10	7.8	29	17	3.9	.46	39
27	5.3	18	8.5	e11	14	e11	7.8	12	19	4.4	.45	7.0
28	5.2	34	8.5	e12	92	e9.6	7.1	22	14	13	.73	3.0
29	5.1	9.7	8.3	e13	---	e10	6.8	61	6.8	4.1	.77	1.9
30	5.4	8.4	8.1	e13	---	e11	53	22	5.8	3.3	.95	1.7
31	5.5	---	14	e11	---	e11	---	7.6	---	3.0	1.6	---
TOTAL	291.3	469.8	539.5	1141.4	513	762.6	528.9	911.9	577.3	555.2	191.26	338.08
MEAN	9.40	15.7	17.4	36.8	18.3	24.6	17.6	29.4	19.2	17.9	6.17	11.3
MAX	85	121	137	234	92	214	78	156	133	147	111	101
MIN	4.3	6.7	7.5	8.2	10	9.6	6.8	6.2	3.5	3.0	.43	.14
CFSM	.40	.67	.74	1.57	.78	1.05	.75	1.25	.82	.76	.26	.48
IN.	.46	.74	.85	1.81	.81	1.21	.84	1.44	.91	.88	.30	.54

e Estimated.

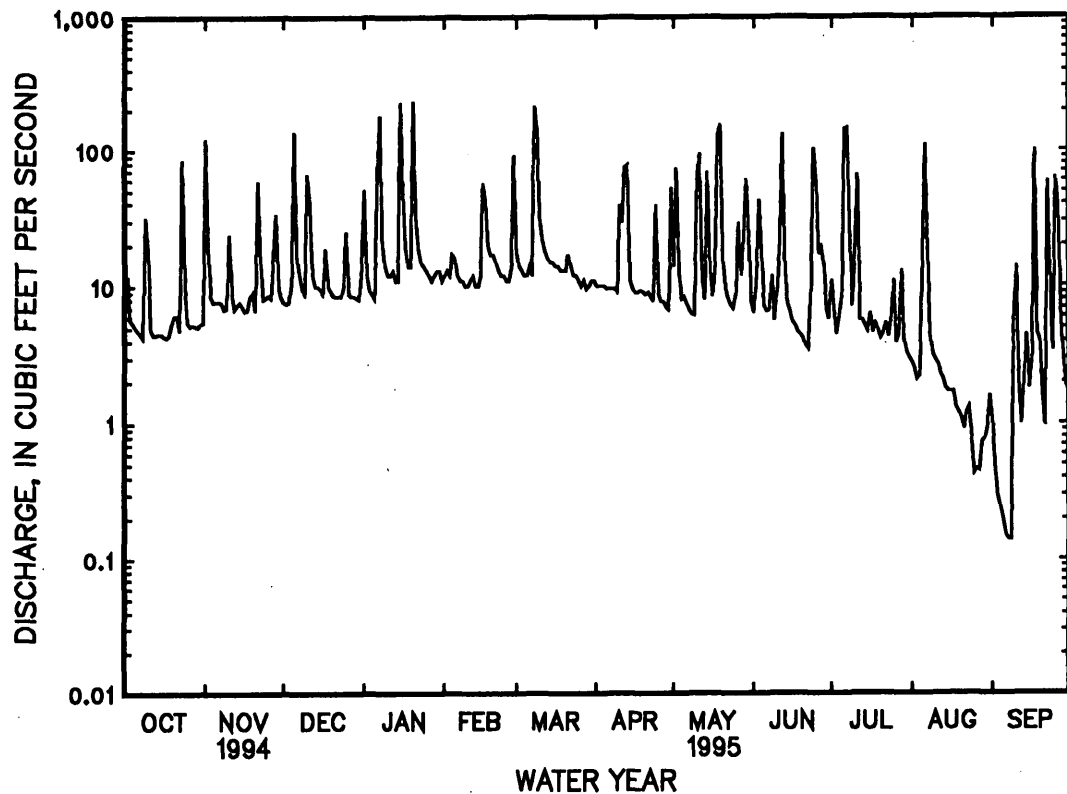
## 01654000 ACCOTINK CREEK NEAR ANNANDALE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	17.3	23.5	28.6	31.4	35.5	41.9	35.6	32.5	24.6	20.5	22.3	19.2
MAX	76.6	70.4	71.4	84.5	97.2	114	94.5	125	212	74.5	123	101
(WY)	1980	1994	1968	1978	1979	1993	1983	1989	1972	1969	1967	1979
MIN	2.03	3.25	5.48	4.53	12.1	10.6	8.40	8.46	2.83	1.81	1.94	.45
(WY)	1955	1955	1966	1981	1978	1981	1985	1986	1986	1955	1957	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1948 - 1995	
ANNUAL TOTAL	12838.2		6820.24		27.7	
ANNUAL MEAN	35.2		18.7		49.4	
HIGHEST ANNUAL MEAN					14.3	
LOWEST ANNUAL MEAN					1972	
HIGHEST DAILY MEAN	533	Feb 23	234	Jan 20	e3300	Jun 22 1972
LOWEST DAILY MEAN	3.6	Sep 21	.14	aSep 7	.02	bOct 10 1986
ANNUAL SEVEN-DAY MINIMUM	4.1	Sep 10	.23	Sep 2	.11	Oct 14 1988
INSTANTANEOUS PEAK FLOW			853	Jan 15	12000	Jun 22 1972
INSTANTANEOUS PEAK STAGE			6.76	Jan 15	c15.96	Jun 22 1972
INSTANTANEOUS LOW FLOW			.11	(d)	.02	fOct 9 1986
ANNUAL RUNOFF (CFSM)	1.50		.80		1.18	
ANNUAL RUNOFF (INCHES)	20.32		10.80		16.02	
10 PERCENT EXCEEDS	90		43		50	
50 PERCENT EXCEEDS	13		9.2		12	
90 PERCENT EXCEEDS	5.3		2.2		3.7	

- a Also Sept. 8, 1995.  
b Also Oct. 11, 12, 1986.  
c From high-water mark in gage house.  
d Part of each day Sept. 6-9, 1995.  
e Estimated.  
f Also Oct. 10-13, 1986, and Oct. 18, 1988.



## POTOMAC RIVER BASIN

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA--Continued  
(National water-quality assessment station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1993 to current year.

REMARKS.--These data are a part of the National Water-Quality Assessment (NAWQA) Program of the Potomac River Basin.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (000027)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (000028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (000061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (000095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (000400)	TEMPER-ATURE WATER (DEG C) (000010)	TEMPER-ATURE AIR (DEG C) (000020)	BARO-METRIC PRES-SURE (MM OF HG) (000025)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (000301)	OXYGEN, DIS-SOLVED (MG/L) (000300)
OCT											
12...	0700	1028	80020	4.7	147	7.3	11.0	4.0	--	--	--
NOV											
01...	1430	1028	80020	242	158	7.5	--	--	--	--	--
14...	0800	1028	80020	7.8	208	7.5	9.0	5.5	--	--	--
DEC											
14...	0815	1028	80020	9.9	162	7.3	4.0	2.0	--	--	--
JAN											
10...	0815	1028	80020	12	175	7.3	2.5	-2.0	--	--	--
20...	0752	1028	80020	600	63	7.0	--	--	--	--	--
FEB											
14...	0845	1028	80020	9.9	61	7.5	0.5	1.0	760	13.8	96
MAR											
13...	0845	1028	80020	17	415	7.4	6.5	11.0	771	12.2	98
APR											
18...	0715	1028	80020	9.2	304	7.2	11.0	13.0	760	10.5	96
MAY											
01...	1045	1028	80020	12	212	6.7	12.5	14.0	757	8.1	77
JUN											
15...	0815	1028	80020	6.5	171	6.8	18.5	16.0	763	6.4	68
JUL											
11...	0213	1028	80020	176	104	7.2	--	--	--	--	--
AUG											
06...	1109	1028	80020	248	117	7.3	--	--	--	--	--
06...	1509	1028	80020	292	131	7.3	--	--	--	--	--

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT											
12...	46	--	12	3.8	9.2	2.7	--	--	8.4	17	<0.10
NOV											
01...	50	--	13	4.2	9.2	3.6	--	--	6.8	19	<0.10
14...	63	--	16	5.7	11	3.3	--	--	7.8	25	<0.10
DEC											
14...	58	--	15	5.1	12	2.4	--	--	9.0	22	<0.10
JAN											
10...	56	--	14	5.0	16	2.7	--	--	11	31	<0.10
20...	19	--	5.0	1.6	3.8	1.9	--	--	3.8	7.3	<0.10
FEB											
14...	82	46	21	7.1	88	3.3	35	43	11	170	0.10
MAR											
13...	70	32	18	6.1	56	3.0	38	46	12	99	<0.10
APR											
18...	70	29	18	6.1	23	2.0	41	51	8.6	48	0.10
MAY											
01...	45	17	12	3.6	19	3.1	28	34	9.0	35	<0.10
JUN											
15...	47	10	13	3.6	13	3.0	38	46	6.5	20	0.10
JUL											
11...	29	10	7.7	2.4	7.8	2.2	19	23	5.9	14	<0.10
AUG											
06...	37	--	10	2.9	8.1	3.2	--	--	8.2	14	<0.10
06...	41	--	11	3.2	8.9	2.8	--	--	7.5	17	<0.10

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

## 01654000 ACCOTINK CREEK NEAR ANNANDALE, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2) (71856)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT											
12...	9.6	91	85	0.12	1.15	0.610	--	--	<0.010	--	0.610
NOV											
01...	10	106	88	0.14	69.3	0.210	--	--	<0.010	--	0.210
14...	14	127	114	0.17	2.67	0.100	--	--	<0.010	--	0.100
DEC											
14...	13	110	106	0.15	2.94	0.760	--	--	<0.010	--	0.760
JAN											
10...	13	132	119	0.18	4.31	1.19	1.19	5.3	0.010	0.03	1.20
20...	5.5	55	41	0.08	89.1	0.320	0.320	1.4	0.010	0.03	0.330
FEB											
14...	15	353	343	0.48	9.44	1.39	1.39	6.2	0.010	0.03	1.40
MAR											
13...	14	265	239	0.36	11.8	1.58	1.58	7.0	0.020	0.07	1.60
APR											
18...	9.4	157	143	0.21	3.90	0.670	--	--	<0.010	--	0.670
MAY											
01...	6.9	131	111	0.18	4.28	0.930	0.930	4.1	0.070	0.23	1.00
JUN											
15...	11	108	97	0.15	1.90	0.550	0.550	2.4	0.040	0.13	0.590
JUL											
11...	7.6	80	63	0.11	38.0	0.690	0.690	3.1	0.020	0.07	0.710
AUG											
06...	6.7	90	72	0.12	60.1	0.640	0.640	2.8	0.030	0.10	0.670
06...	7.0	94	80	0.13	74.0	0.560	0.560	2.5	0.020	0.07	0.580
DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT											
12...	0.610	0.020	0.03	0.30	0.20	0.030	0.020	0.010	0.03	240	56
NOV											
01...	0.210	<0.015	--	1.0	0.20	0.430	<0.010	0.010	0.03	340	43
14...	0.100	<0.015	--	0.30	<0.20	0.030	0.010	<0.010	--	660	130
DEC											
14...	0.760	0.020	0.03	<0.20	<0.20	0.020	0.010	<0.010	--	560	130
JAN											
10...	1.20	0.040	0.05	0.30	0.30	0.040	0.020	0.020	0.06	550	150
20...	0.330	0.050	0.06	2.2	<0.20	0.650	<0.010	0.020	0.06	670	140
FEB											
14...	1.40	0.120	0.15	0.40	0.30	<0.010	<0.010	<0.010	--	240	210
MAR											
13...	1.60	0.130	0.17	0.50	0.40	0.010	0.010	<0.010	--	360	200
APR											
18...	0.670	<0.015	--	<0.20	0.20	<0.010	0.020	<0.010	--	350	110
MAY											
01...	1.00	0.250	0.32	0.90	0.80	0.060	0.020	<0.010	--	370	130
JUN											
15...	0.590	0.340	0.44	0.80	0.70	0.080	0.060	0.040	0.12	590	96
JUL											
11...	0.710	0.070	0.09	1.8	0.40	0.480	0.020	0.020	0.06	350	26
AUG											
06...	0.670	0.050	0.06	1.2	0.40	0.280	0.020	0.020	0.06	230	33
06...	0.580	0.080	0.10	0.90	0.40	0.160	0.100	0.100	0.31	280	38

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

## 01654000 ACCOTINK CREEK NEAR ANNANDALE, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C) (00689)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	2,4-D, DIS- SOLVED (UG/L) (39732)	2,4,5-T DIS- SOLVED (UG/L) (39742)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)
OCT											
12...	3.5	0.40	<0.013	<0.011	<0.030	<0.012	0.160	<0.050	<0.006	<0.000	<0.009
NOV											
01...	--	--	<0.013	<0.011	<0.030	<0.012	<0.050	<0.050	<0.006	<0.000	<0.009
14...	4.2	0.50	<0.013	<0.011	<0.030	<0.012	<0.050	<0.050	<0.006	<0.009	<0.009
DEC											
14...	3.0	0.30	<0.013	<0.011	<0.030	<0.012	<0.050	<0.050	<0.006	<0.000	<0.009
JAN											
10...	3.4	0.40	<0.013	<0.011	<0.030	<0.012	<0.050	<0.050	<0.006	<0.000	<0.009
20...	--	--	<0.013	<0.011	<0.030	<0.012	<0.050	<0.050	<0.006	<0.000	<0.009
FEB											
14...	1.9	0.20	<0.013	<0.011	<0.030	<0.012	<0.050	<0.050	<0.006	<0.009	<0.009
MAR											
13...	2.2	0.30	<0.013	<0.011	<0.030	<0.012	<0.050	<0.050	<0.006	<0.009	<0.009
APR											
18...	2.2	0.20	<0.013	<0.011	<0.030	<0.012	<0.060	<0.010	<0.006	<0.009	<0.009
MAY											
01...	4.0	1.0	<0.013	<0.011	<0.030	<0.012	E0.690	<0.050	<0.006	<0.009	<0.009
JUN											
15...	8100	0.20	<0.013	<0.011	<0.030	<0.012	--	--	<0.006	<0.009	<0.009
JUL											
11...	--	--	<0.004	<0.002	<0.007	<0.002	--	--	<0.003	<0.002	0.031
AUG											
06...	--	--	<0.004	<0.002	<0.007	<0.002	--	--	<0.003	<0.002	<0.002
06...	--	--	<0.004	<0.002	<0.007	<0.002	--	--	<0.003	<0.002	<0.002

DATE	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P, P' DDE DISSOLV (UG/L) (34653)
OCT											
12...	<0.007	<0.017	<0.013	<0.008	<0.050	E0.200	<0.013	0.006	<0.013	<0.004	<0.010
NOV											
01...	<0.007	<0.017	<0.013	<0.008	<0.050	E0.030	<0.013	<0.005	<0.013	<0.004	<0.010
14...	<0.007	E0.007	<0.013	<0.008	<0.050	E0.021	<0.013	0.019	<0.013	0.008	<0.010
DEC											
14...	<0.007	E0.004	<0.013	<0.008	<0.050	E0.014	<0.013	0.010	<0.013	E0.002	<0.010
JAN											
10...	<0.007	<0.017	<0.013	<0.008	<0.050	E0.012	<0.013	0.007	<0.013	E0.002	<0.010
20...	<0.007	<0.017	E0.011	<0.008	<0.050	E0.012	<0.013	0.016	<0.013	0.013	<0.010
FEB											
14...	<0.007	E0.008	<0.013	<0.008	<0.050	<0.046	<0.013	0.008	<0.013	E0.003	<0.010
MAR											
13...	<0.007	E0.005	<0.013	<0.008	<0.050	E0.007	<0.013	0.010	<0.013	E0.002	<0.010
APR											
18...	<0.007	E0.015	<0.013	<0.008	<0.011	E0.014	<0.013	E0.003	<0.013	E0.001	<0.010
MAY											
01...	<0.007	0.042	<0.013	<0.008	<0.050	E0.110	<0.013	<0.005	<0.013	0.007	<0.010
JUN											
15...	<0.007	0.024	<0.013	<0.008	--	E0.110	<0.013	<0.005	<0.013	<0.004	<0.010
JUL											
11...	<0.002	0.007	<0.002	<0.002	--	E0.064	<0.003	0.019	<0.004	<0.002	<0.006
AUG											
06...	<0.002	<0.001	<0.002	<0.002	--	E0.930	<0.003	<0.004	<0.004	<0.002	<0.006
06...	<0.002	0.009	<0.002	<0.002	--	E0.850	<0.003	<0.004	<0.004	<0.002	<0.006

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

## 01654000 ACCOTINK CREEK NEAR ANNANDALE, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)
OCT											
12...	<0.007	0.140	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	0.017	<0.038
NOV											
01...	<0.007	0.030	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	<0.010	<0.038
14...	E0.004	0.031	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	<0.014	<0.038
DEC											
14...	E0.004	0.028	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	<0.014	<0.038
JAN											
10...	E0.006	0.014	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	<0.014	<0.038
20...	<0.003	0.054	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	<0.014	<0.038
FEB											
14...	E0.005	<0.008	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	<0.014	<0.038
MAR											
13...	E0.003	0.010	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	<0.014	<0.038
APR											
18...	E0.004	0.019	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	<0.014	<0.038
MAY											
01...	<0.003	0.081	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	E0.012	<0.038
JUN											
15...	E0.005	0.260	<0.008	<0.060	<0.005	<0.012	<0.008	<0.011	<0.039	<0.014	<0.038
JUL											
11...	<0.002	0.180	<0.001	<0.017	<0.002	<0.003	<0.003	<0.004	<0.002	<0.005	<0.001
AUG											
06...	<0.002	0.120	<0.001	<0.017	<0.002	<0.003	<0.003	<0.004	<0.002	E0.038	<0.001
06...	<0.002	0.100	<0.001	<0.017	<0.002	<0.003	<0.003	<0.004	<0.002	E0.048	<0.001

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

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	METHYL- PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)
OCT											
12...	<0.035	E0.005	<0.012	<0.007	<0.010	<0.009	<0.022	<0.018	<0.016	0.042	<0.009
NOV											
01...	<0.035	<0.009	<0.012	<0.007	<0.010	<0.009	<0.022	<0.018	<0.016	0.045	<0.009
14...	<0.035	E0.008	<0.012	<0.007	<0.010	<0.009	<0.022	<0.018	<0.016	0.039	<0.009
DEC											
14...	<0.035	E0.005	<0.012	<0.007	<0.010	<0.009	<0.022	<0.018	<0.016	0.024	<0.009
JAN											
10...	<0.035	E0.004	<0.012	<0.007	<0.010	<0.009	<0.022	<0.018	<0.016	0.021	<0.009
20...	<0.035	E0.005	<0.012	<0.007	<0.010	<0.009	<0.022	<0.018	<0.016	0.029	<0.009
FEB											
14...	<0.035	E0.006	<0.012	<0.007	<0.010	<0.009	<0.022	<0.018	<0.016	0.018	<0.009
MAR											
13...	<0.035	E0.004	<0.012	<0.007	<0.010	<0.009	<0.022	0.019	<0.016	0.016	<0.009
APR											
18...	<0.035	0.012	<0.012	<0.007	<0.010	<0.009	<0.022	0.041	<0.016	0.018	<0.009
MAY											
01...	<0.035	0.150	0.094	<0.007	<0.010	<0.009	<0.022	0.120	<0.016	0.080	<0.009
JUN											
15...	<0.035	0.063	<0.012	<0.007	<0.010	<0.009	<0.022	0.190	<0.016	0.074	<0.009
JUL											
11...	<0.006	0.038	<0.004	<0.004	<0.003	<0.004	<0.004	0.200	<0.005	0.055	<0.003
AUG											
06...	<0.006	0.076	E0.160	<0.004	<0.003	<0.004	<0.004	E0.110	<0.005	0.130	<0.003
06...	<0.006	0.051	E0.110	<0.004	<0.003	<0.004	<0.004	E0.110	<0.005	0.170	<0.003

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



## 01654000 ACCOTINK CREEK NEAR ANNANDALE, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	SILVEX, DIS- SOLVED (UG/L) (39762)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)
OCT											
12...	<0.015	<0.006	<0.016	<0.050	0.025	<0.015	<0.012	<0.008	<0.008	15	0.19
NOV											
01...	<0.015	<0.006	<0.016	<0.050	0.062	<0.015	<0.012	<0.008	<0.008	582	380
14...	<0.015	<0.006	<0.016	<0.050	0.031	<0.015	<0.012	<0.008	<0.008	14	0.29
DEC											
14...	<0.015	<0.006	<0.016	<0.050	0.022	<0.015	<0.012	<0.008	<0.008	10	0.27
JAN											
10...	<0.015	<0.006	<0.016	<0.050	0.016	EO.008	<0.012	<0.008	<0.008	13	0.42
20...	<0.015	<0.006	<0.016	<0.050	0.019	<0.015	<0.012	<0.008	<0.008	901	1460
FEB											
14...	<0.015	<0.006	<0.016	<0.050	0.020	<0.015	<0.012	<0.008	<0.008	6	0.16
MAR											
13...	<0.015	<0.006	<0.016	<0.050	0.072	<0.015	<0.012	<0.008	<0.008	10	0.45
APR											
18...	<0.015	<0.006	<0.016	<0.021	2.30	<0.015	<0.012	<0.008	<0.008	10	0.25
MAY											
01...	<0.015	<0.006	<0.016	<0.050	0.840	<0.015	<0.012	<0.008	<0.008	18	0.59
JUN											
15...	<0.015	<0.006	<0.016	--	0.410	<0.015	<0.012	<0.008	<0.008	30	0.53
JUL											
11...	<0.007	<0.013	<0.004	--	0.011	<0.010	<0.013	<0.002	<0.001	742	353
AUG											
06...	<0.007	<0.013	<0.004	--	<0.005	<0.010	<0.013	<0.002	<0.001	262	175
06...	<0.007	<0.013	<0.004	--	0.041	<0.010	<0.013	<0.002	<0.001	133	105

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

## 01656000 CEDAR RUN NEAR CATLETT, VA

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

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

PERIOD OF RECORD.--July 1950 to December 1986, January 1986 to September 1989 (annual maximum only), October 1989 to current year.

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

GAGE.--Water-stage recorder. Datum of gage is 199.15 ft above sea level. July 1950 to December 1986, water-stage recorder at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 6-10, 12-14, which are fair. Maximum discharge, 32,500 ft<sup>3</sup>/s (revised), from rating curve extended above 7,000 ft<sup>3</sup>/s, on basis of contracted-opening measurement of peak flow. No flow at times in many years. 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 Department of Environmental Quality - Water Division.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2130	*2,150	*9.18	Mar. 9	0130	1,980	8.87

Minimum discharge, 0.20 ft<sup>3</sup>/s, Sept. 6, 8, gage-height, 1.87 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	14	13	32	79	123	33	24	20	178	3.9	1.7
2	9.2	40	11	33	92	88	34	61	18	91	3.3	1.7
3	11	15	11	24	75	68	33	74	44	54	2.9	1.2
4	9.2	11	11	18	76	63	32	43	150	41	2.7	1.4
5	17	9.9	110	e16	71	58	43	43	40	36	3.6	1.0
6	38	9.4	70	e17	e57	69	41	37	28	37	93	.38
7	30	11	41	394	e45	63	39	27	23	45	51	1.3
8	11	10	31	188	e38	352	37	22	18	33	20	.30
9	7.7	7.5	22	106	e39	974	34	20	13	24	14	1.7
10	9.6	7.9	31	75	e40	315	33	25	12	28	11	1.4
11	9.0	9.6	84	64	42	204	33	193	17	25	8.8	.96
12	6.6	9.7	43	58	e45	160	32	80	300	19	7.3	1.1
13	6.1	8.6	32	52	e43	132	105	47	168	16	6.1	1.4
14	6.2	8.2	29	47	e36	108	73	99	68	14	5.2	4.3
15	6.4	8.4	28	737	37	94	55	122	40	12	4.7	3.9
16	6.4	9.5	23	747	103	84	45	64	26	10	4.0	2.9
17	6.1	8.2	27	229	235	75	42	46	20	9.7	3.4	13
18	6.5	9.5	32	146	165	63	39	88	17	20	2.9	9.4
19	6.4	12	30	119	129	56	35	303	14	17	2.3	3.6
20	8.8	10	24	826	123	54	31	133	13	10	1.9	2.0
21	8.0	10	19	309	106	52	28	74	11	19	2.0	1.5
22	6.4	25	18	175	78	47	26	52	9.6	55	1.2	1.5
23	10	16	17	127	66	41	23	39	213	20	1.2	3.0
24	19	13	17	106	60	38	30	30	88	16	1.3	5.3
25	11	10	20	83	49	34	31	25	42	26	.78	4.0
26	8.6	8.8	16	72	45	31	26	85	79	15	.76	12
27	8.2	9.5	14	64	43	30	22	36	437	11	.84	15
28	7.4	18	13	63	153	34	20	29	253	9.5	.67	6.0
29	7.0	18	15	67	---	32	19	39	145	7.0	.80	3.5
30	6.4	14	14	65	---	30	19	31	110	5.7	1.1	2.5
31	7.6	---	12	67	---	29	---	26	---	4.8	1.4	---
TOTAL	321.8	371.7	878	5126	2170	3601	1093	2017	2436.6	908.7	264.05	108.94
MEAN	10.4	12.4	28.3	165	77.5	116	36.4	65.1	81.2	29.3	8.52	3.63
MAX	38	40	110	826	235	974	105	303	437	178	93	15
MIN	6.1	7.5	11	16	36	29	19	20	9.6	4.8	.67	.30
CFSM	.11	.13	.30	1.77	.83	1.24	.39	.70	.87	.31	.09	.04
IN.	.13	.15	.35	2.04	.86	1.43	.44	.80	.97	.36	.11	.04

e Estimated.

## 01656000 CEDAR RUN NEAR CATLETT, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1987, 1990 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	43.5	59.4	107	141	164	175	126	71.9	72.4	31.4	46.8	34.4
MAX	450	248	379	467	431	531	544	210	917	323	407	388
(WY)	1980	1973	1993	1978	1979	1993	1983	1971	1972	1956	1955	1975
MIN	.40	3.15	3.53	4.64	28.0	22.3	19.6	9.41	2.90	.74	.58	.37
(WY)	1987	1966	1966	1981	1954	1981	1985	1956	1954	1963	1966	1954

## SUMMARY STATISTICS

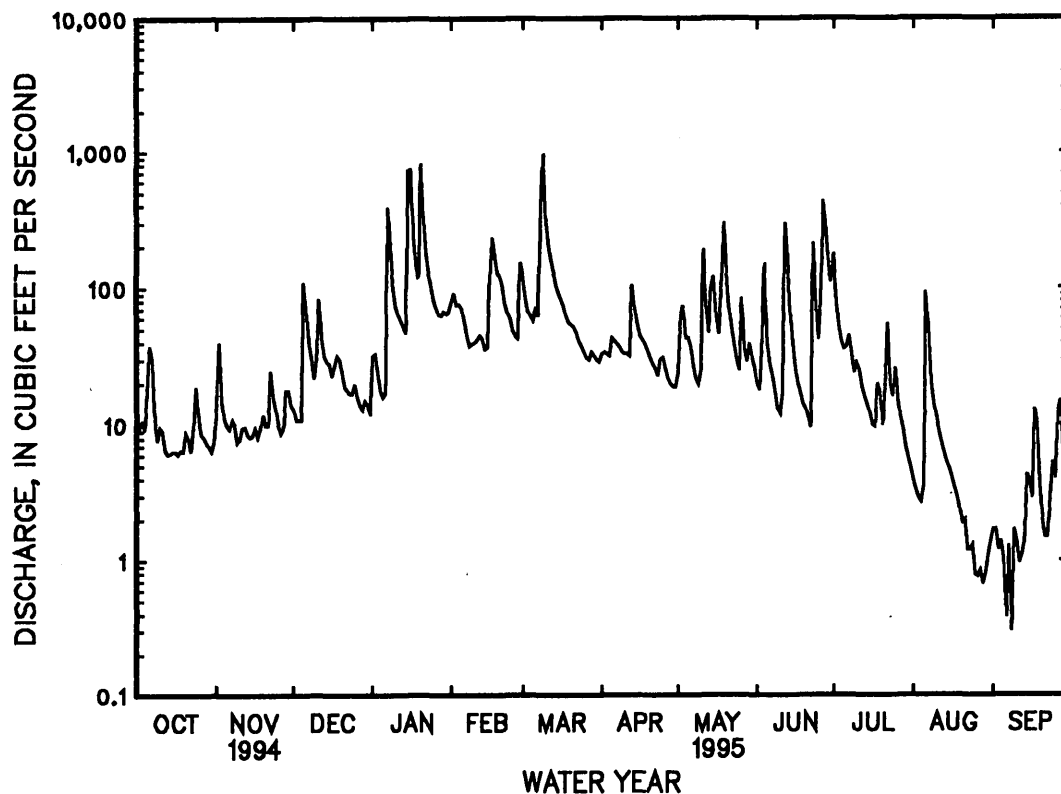
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1951 - 1986,  
1990 - 1995

ANNUAL TOTAL	47839.7	19296.79	
ANNUAL MEAN	131	52.9	89.1
HIGHEST ANNUAL MEAN			171
LOWEST ANNUAL MEAN			27.6
HIGHEST DAILY MEAN	2570	Aug 18	974
LOWEST DAILY MEAN	1.5	Jul 13	.30
ANNUAL SEVEN-DAY MINIMUM	2.2	Jul 8	.89
INSTANTANEOUS PEAK FLOW			2150
INSTANTANEOUS PEAK STAGE			9.18
INSTANTANEOUS LOW FLOW			.20
ANNUAL RUNOFF (CFSM)	1.40		.57
ANNUAL RUNOFF (INCHES)	19.05		7.69
10 PERCENT EXCEEDS	390		110
50 PERCENT EXCEEDS	30		26
90 PERCENT EXCEEDS	5.4		3.4

- a Many days in 1954, 1957, 1959, 1963-64, 1966, 1983, and 1993.  
b Many days in 1954, 1957, 1959, 1963-64, 1966, and 1983.  
c Revised.  
d From floodmarks.  
e Estimated.  
f Also Sept. 8, 1995.  
g Many days in 1954, 1957, 1959, 1963-64, 1966, 1983, 1991, and 1993.



## 01657850 NEABSCO CREEK AT DALE CITY, VA

LOCATION.-- Lat 38°38'43", long 77°20'50", Prince William County, Hydrologic Unit 02070010, on left bank at downstream side of bridge on State Highway 610 at Dale City, and 8.6 mi upstream from mouth.

DRAINAGE AREA.-- 6.11 mi<sup>2</sup>.

PERIOD OF RECORD.-- December 1994 to September 1995.

GAGE.-- Water-stage recorder. Elevation of gage is 185 ft above sea level, from topographic map.

REMARKS.-- Records good except for period with backwater from beaver dam, Dec. 22 to Jan. 15, which is fair. Maximum discharge, 350 ft<sup>3</sup>/s, from rating curve extended above 40 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT PERIOD.-- December 1994 to September 1995: Maximum discharge, 350 ft<sup>3</sup>/s, March 8, gage height, 3.43 ft; minimum, .05 ft<sup>3</sup>/s, Sept. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	e3.3	4.3	5.8	1.8	3.5	.70	3.5	.38	.18
2	---	---	---	e2.6	4.3	4.7	1.7	15	1.6	2.5	.39	.19
3	---	---	---	e2.2	3.6	4.3	1.7	6.0	28	.89	.36	.19
4	---	---	---	e1.9	5.3	3.9	1.8	3.9	12	.74	.35	.16
5	---	---	---	e1.6	4.1	3.7	1.7	6.5	4.9	.74	2.5	.11
6	---	---	---	e2.6	3.3	5.0	1.8	2.6	2.5	23	13	.09
7	---	---	---	e23	3.3	4.0	1.7	1.9	2.1	17	2.0	.09
8	---	---	---	e3.7	2.8	64	1.7	1.6	2.3	15	.62	.09
9	---	---	---	e2.8	2.7	40	1.7	1.4	1.4	5.4	.50	3.6
10	---	---	---	e2.5	2.7	11	2.0	5.9	1.5	5.2	.47	12
11	---	---	---	e2.4	4.4	6.4	2.1	18	3.5	6.9	.46	.75
12	---	---	---	e2.3	4.6	4.6	5.8	3.5	20	2.2	.42	.37
13	---	---	---	e2.2	3.0	3.9	12	2.1	6.4	1.4	.38	2.7
14	---	---	---	e2.1	2.8	3.6	3.4	12	2.2	1.3	.34	2.3
15	---	---	---	e35	4.7	3.3	2.4	5.4	1.3	1.0	.35	.39
16	---	---	---	18	19	3.0	2.3	2.6	.98	.96	.34	.74
17	---	---	---	7.7	16	2.8	2.4	3.4	.76	1.5	.29	18
18	---	---	---	5.2	7.6	2.5	2.1	12	.68	4.1	.28	2.5
19	---	---	---	5.0	5.9	2.4	2.1	23	.66	1.9	.26	.61
20	---	---	---	69	5.3	2.5	1.9	5.3	.59	.81	.25	.47
21	---	---	---	12	4.6	2.8	1.8	2.5	.57	.93	.24	.45
22	---	---	e1.6	6.2	4.2	2.4	1.7	1.6	.83	.97	.24	8.3
23	---	---	e1.5	4.6	3.7	2.2	1.5	1.3	9.9	.66	.22	3.7
24	---	---	e1.7	4.0	3.6	2.2	8.2	1.2	11	1.4	.20	.77
25	---	---	e1.8	3.4	3.3	1.9	2.6	1.1	6.5	1.5	.21	7.3
26	---	---	e1.7	3.2	3.2	1.9	1.9	1.7	4.8	.61	.19	9.1
27	---	---	e1.7	3.1	3.2	1.9	2.0	.95	14	.57	.17	2.6
28	---	---	e1.5	3.2	13	2.1	1.5	2.3	5.7	1.3	.26	.86
29	---	---	e1.5	5.0	---	2.0	1.3	2.7	2.4	.51	.23	.63
30	---	---	e1.4	3.9	---	2.0	7.2	1.3	1.8	.43	.18	.55
31	---	---	e1.7	4.0	---	1.9	---	.78	---	.40	.19	---
TOTAL	---	---	---	247.7	148.5	204.7	83.8	153.03	151.57	105.32	26.27	79.79
MEAN	---	---	---	7.99	5.30	6.60	2.79	4.94	5.05	3.40	.85	2.66
MAX	---	---	---	69	19	64	12	23	28	23	13	18
MIN	---	---	---	1.6	2.7	1.9	1.3	.78	.57	.40	.17	.09
MED	---	---	---	3.4	4.1	3.0	1.9	2.6	2.2	1.3	.34	.68

e Estimated.

## 01657850 NEABSCO CREEK AT DALE CITY, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 1995\*\*

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	7.99	5.30	6.60	2.79	4.94	5.05	3.40	.85	2.66
MAX	---	---	---	7.99	5.30	6.60	2.79	4.94	5.05	3.40	.85	2.66
(WY)	---	---	---	1995	1995	1995	1995	1995	1995	1995	1995	1995
MIN	---	---	---	7.99	5.30	6.60	2.79	4.94	5.05	3.40	.85	2.66
(WY)	---	---	---	1995	1995	1995	1995	1995	1995	1995	1995	1995

## SUMMARY STATISTICS

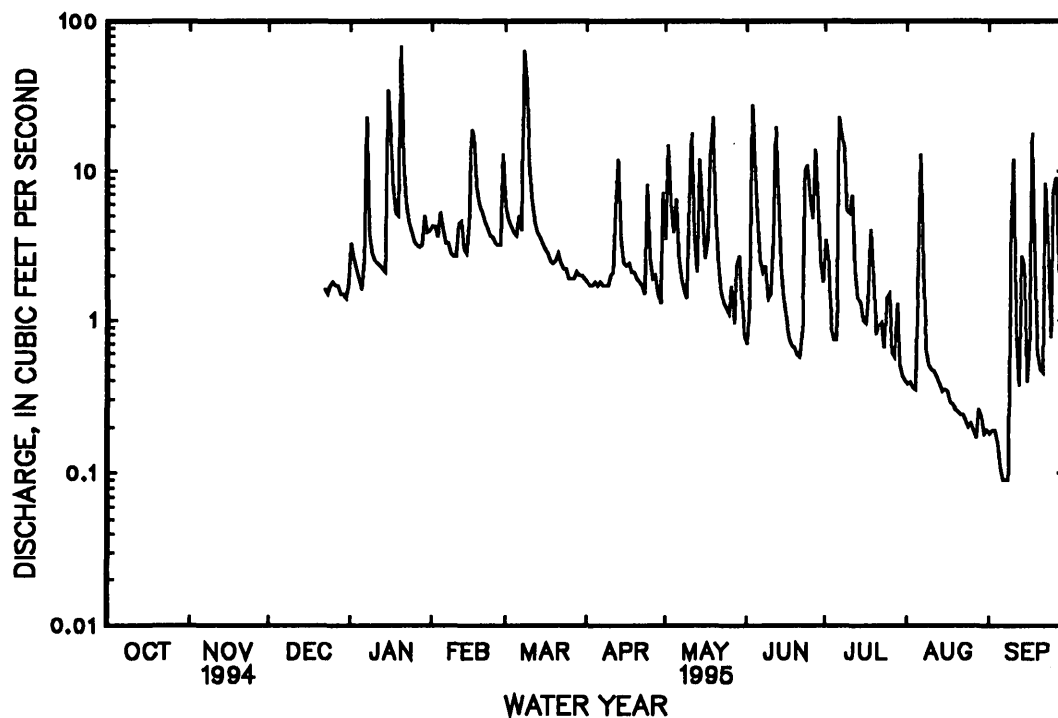
## FOR 1995\*\* WATER YEAR

HIGHEST DAILY MEAN	69	Jan 20
LOWEST DAILY MEAN	.09	aSep 6
INSTANTANEOUS PEAK FLOW	350	Mar 8
INSTANTANEOUS PEAK STAGE	3.43	Mar 8
INSTANTANEOUS LOW FLOW	.05	bSep 8

\*\* Partial water year, December to September.

a Also Sept. 7, 8, 1995.

b Also Sept. 9, 1995.



## POTOMAC RIVER BASIN

## 01657885 NEABSCO CREEK TRIBUTARY AT TELEGRAPH ROAD NEAR DALE CITY, VA

LOCATION.--Lat 38°38'41", long 77°17'15", Prince William County, Hydrologic Unit 02070010, on left bank at upstream side of culvert on State Highway 1781, 2.2 mi east of Dale City, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--0.91 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to September 1995.

GAGE.--Water-stage recorder. Elevation of gage is 130 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records poor. Maximum discharge, 575 ft<sup>3</sup>/s, from rating curve extended above 30 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT PERIOD.-- April to September 1995: Maximum discharge, 575 ft<sup>3</sup>/s, June 3, gage height, 4.54 ft; minimum, .02 ft<sup>3</sup>/s, Sept. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.45	4.5	.87	.58	.78
2	---	---	---	---	---	---	---	3.8	7.0	.63	.55	.64
3	---	---	---	---	---	---	---	.56	23	.56	.53	.23
4	---	---	---	---	---	---	---	.36	5.4	.51	.47	.20
5	---	---	---	---	---	---	---	2.0	4.5	.41	2.1	.42
6	---	---	---	---	---	---	---	.48	4.0	16	4.5	.64
7	---	---	---	---	---	---	---	.32	4.7	6.4	.81	.27
8	---	---	---	---	---	---	---	.30	4.6	1.8	.57	.27
9	---	---	---	---	---	---	---	.56	3.6	.61	.56	11
10	---	---	---	---	---	---	---	10	5.2	2.1	.80	2.9
11	---	---	---	---	---	---	.55	2.4	8.3	4.6	.47	.63
12	---	---	---	---	---	---	5.8	1.4	7.8	.50	.35	.55
13	---	---	---	---	---	---	2.5	1.2	1.2	.42	.44	1.1
14	---	---	---	---	---	---	.80	7.1	.81	.49	.43	.90
15	---	---	---	---	---	---	.75	2.0	.73	.63	.47	.51
16	---	---	---	---	---	---	.72	1.3	.69	.64	.26	4.3
17	---	---	---	---	---	---	.86	2.3	.67	.76	.21	13
18	---	---	---	---	---	---	.94	5.0	.64	.82	.19	.87
19	---	---	---	---	---	---	1.0	9.0	.56	.40	.19	.51
20	---	---	---	---	---	---	.90	3.8	.54	.39	.19	.22
21	---	---	---	---	---	---	.92	3.0	.54	1.0	.21	.25
22	---	---	---	---	---	---	.81	2.8	1.0	.55	.30	4.8
23	---	---	---	---	---	---	.97	2.3	5.2	.50	.20	.46
24	---	---	---	---	---	---	4.8	2.2	14	9.7	.19	.69
25	---	---	---	---	---	---	1.1	2.9	.88	1.3	.20	4.1
26	---	---	---	---	---	---	1.2	2.3	.85	.60	.28	2.9
27	---	---	---	---	---	---	8.5	1.7	3.5	1.5	.30	.39
28	---	---	---	---	---	---	2.0	5.0	2.5	1.1	.31	.21
29	---	---	---	---	---	---	.52	4.8	.77	.57	.34	.19
30	---	---	---	---	---	---	3.2	4.1	.83	.63	.37	.16
31	---	---	---	---	---	---	---	4.2	---	.61	.37	---
TOTAL	---	---	---	---	---	---	---	89.63	118.51	57.60	17.74	54.09
MEAN	---	---	---	---	---	---	---	2.89	3.95	1.86	.57	1.80
MAX	---	---	---	---	---	---	---	10	23	16	4.5	13
MIN	---	---	---	---	---	---	---	.30	.54	.39	.19	.16

## 01657885 NEABSCO CREEK TRIBUTARY AT TELEGRAPH ROAD NEAR DALE CITY, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 1995\*\*

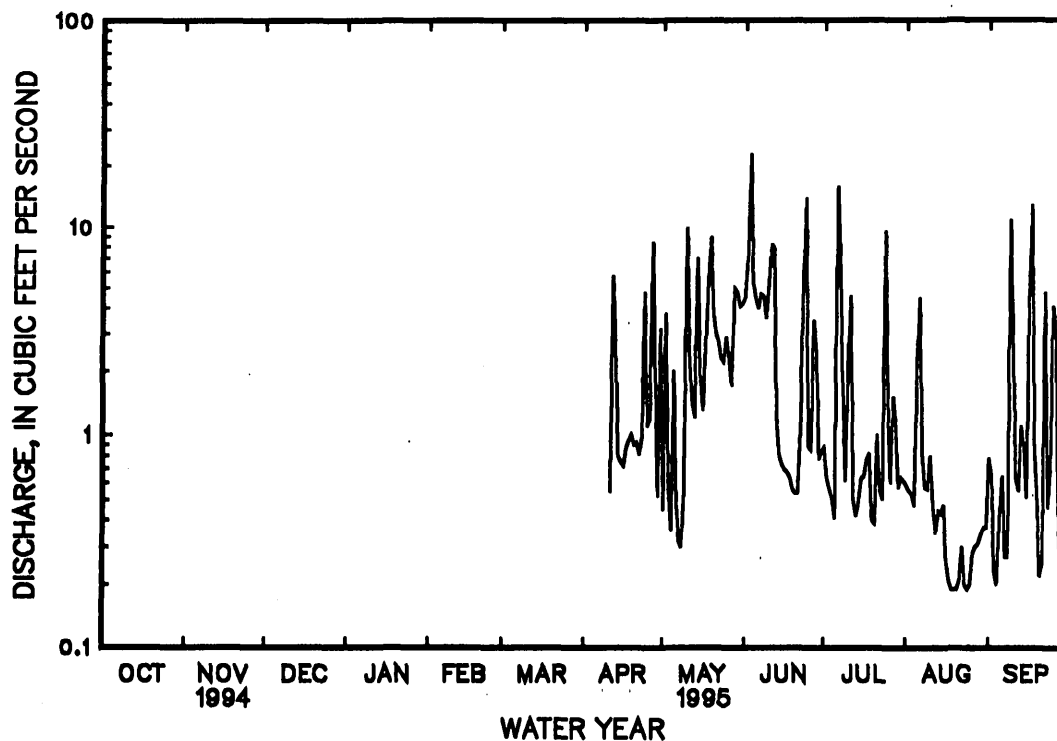
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	---	---	---	2.89	3.95	1.86	.57	1.80
MAX	---	---	---	---	---	---	---	2.89	3.95	1.86	.57	1.80
(WY)	---	---	---	---	---	---	---	1995	1995	1995	1995	1995
MIN	---	---	---	---	---	---	---	2.89	3.95	1.86	.57	1.80
(WY)	---	---	---	---	---	---	---	1995	1995	1995	1995	1995

## SUMMARY STATISTICS

## FOR 1995\*\* WATER YEAR

HIGHEST DAILY MEAN	5.23	Jun 3
LOWEST DAILY MEAN	.16	Sep 30
INSTANTANEOUS PEAK FLOW	575	Jun 3
INSTANTANEOUS PEAK STAGE	4.54	Jun 3
INSTANTANEOUS LOW FLOW	.02	Sep 20

\*\* Partial water year, April to September.



## 01657885 NEABSCO CREEK TRIBUTARY AT TELEGRAPH ROAD NEAR DALE CITY, VA--Continued

PERIOD OF RECORD.--February 1994 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)
FEB												
09...	1100	323	6.7	0.0	3.5	764	13.1	--	46	14	2.6	32
APR												
06...	1245	219	6.7	16.5	15.0	755	9.4	--	40	12	2.4	19
30...	1600	54	6.3	13.0	15.0	754	9.2	--	10	3.2	0.38	3.2
MAY												
17...	1100	185	6.6	23.0	17.0	751	7.8	--	42	13	2.2	12
JUN												
12...	0945	53	6.6	19.0	19.0	756	8.4	--	13	4.3	0.57	3.1
12...	1010	43	6.4	19.0	19.0	756	--	--	10	3.3	0.49	2.6
12...	1033	--	--	--	--	--	--	--	--	--	--	--
12...	1050	52	6.1	19.0	19.0	756	--	--	12	3.9	0.59	3.4
12...	1105	57	6.2	19.0	19.0	756	--	--	13	4.2	0.64	4.1
12...	1106	57	6.0	19.0	19.0	756	--	--	13	4.2	0.64	4.1
12...	1130	44	6.1	19.0	19.0	756	--	--	11	3.7	0.48	2.5
JUL												
06...	1106	--	--	--	--	--	--	--	--	--	--	--
06...	1630	64	5.8	--	--	--	--	--	16	5.2	0.68	3.7
06...	1645	33	5.5	--	--	--	--	--	7	2.4	0.31	0.90
06...	1700	31	5.8	--	--	--	--	--	7	2.3	0.29	1.1
06...	1715	54	6.4	--	--	--	--	--	12	3.7	0.61	3.3
06...	1730	75	6.8	--	--	--	--	--	16	4.9	0.94	5.2
06...	1745	84	6.9	--	--	--	--	--	18	5.4	1.0	5.8
06...	1800	--	--	--	--	--	--	--	--	--	--	--
06...	1815	--	--	--	--	--	--	--	--	--	--	--
06...	1830	58	6.5	--	--	--	--	--	13	4.0	0.71	3.7
06...	1845	--	--	--	--	--	--	--	--	--	--	--
07...	1106	113	6.7	--	--	--	--	--	29	8.7	1.7	7.1
20...	1030	314	6.5	28.0	23.0	764	7.8	--	42	13	2.4	8.6
24...	1715	--	--	--	--	--	--	--	--	--	--	--
24...	1730	--	--	--	--	--	--	--	--	--	--	--
24...	1745	--	--	--	--	--	--	--	--	--	--	--
24...	1800	--	--	--	--	--	--	--	--	--	--	--
24...	1845	--	--	--	--	--	--	--	--	--	--	--
AUG												
07...	1215	136	6.7	--	23.0	--	--	--	34	10	2.1	7.3
10...	1200	146	6.3	28.0	24.0	764	8.1	<10	43	13	2.5	7.8
23...	0940	172	6.1	24.5	20.5	--	--	--	--	--	--	--
SEP												
22...	0700	--	--	--	--	--	--	--	--	--	--	--
22...	1600	--	--	--	--	--	--	--	--	--	--	--
22...	1615	--	--	--	--	--	--	--	--	--	--	--
22...	1700	--	--	--	--	--	--	--	--	--	--	--
22...	1830	--	--	--	--	--	--	--	--	--	--	--
26...	1100	--	--	--	--	--	--	--	--	--	--	--

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



01657885 NEABSCO CREEK TRIBUTARY AT TELEGRAPH ROAD NEAR DALE CITY, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
FEB												
09...	3.5	15	60	<0.10	7.9	178	156	0.030	0.340	0.370	0.370	0.190
APR												
06...	2.7	15	34	0.10	6.6	108	110	<0.010	--	0.080	0.080	0.120
30...	1.2	7.7	3.9	<0.10	1.3	38	27	0.020	0.590	0.610	0.610	0.580
MAY												
17...	2.9	17	20	0.10	6.9	112	99	0.030	0.970	1.00	1.00	0.360
JUN												
12...	1.1	6.4	3.8	<0.10	2.0	40	29	0.020	0.730	0.750	0.750	0.300
12...	1.1	5.7	3.0	<0.10	1.5	34	23	0.020	0.460	0.480	0.480	0.260
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	1.3	5.4	4.4	<0.10	2.2	32	28	0.020	0.340	0.360	0.360	0.200
12...	1.5	5.5	4.8	<0.10	2.4	34	31	0.020	0.340	0.360	0.360	0.200
12...	1.4	4.8	4.9	<0.10	2.4	34	30	0.020	0.340	0.360	0.360	0.190
12...	1.0	5.0	2.9	<0.10	1.9	14	24	0.020	0.370	0.390	0.390	0.230
JUL												
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	1.4	11	6.1	<0.10	1.3	46	36	<0.010	--	0.660	0.660	0.490
06...	1.1	5.5	1.3	<0.10	0.65	18	15	0.010	0.410	0.420	0.420	0.280
06...	1.2	5.3	1.6	<0.10	0.95	20	16	<0.010	--	0.380	0.380	0.230
06...	1.9	6.4	5.3	<0.10	1.7	34	29	<0.010	--	0.320	0.320	0.170
06...	2.1	6.2	8.3	<0.10	2.2	50	38	<0.010	--	0.240	0.240	0.130
06...	2.2	6.2	9.5	<0.10	2.3	50	42	<0.010	--	0.210	0.210	0.110
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	1.5	5.1	5.2	<0.10	1.7	36	29	<0.010	--	0.250	0.250	0.140
06...	--	--	--	--	--	--	--	--	--	--	--	--
07...	2.5	11	11	<0.10	4.9	62	61	<0.010	--	0.170	0.170	0.060
20...	2.8	17	16	0.10	8.1	88	89	0.010	0.150	0.160	0.160	0.180
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
07...	2.4	9.2	12	<0.10	6.7	82	71	--	--	--	--	--
10...	2.3	13	15	--	--	89	--	--	--	0.170	0.170	0.140
23...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--

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

## 01657885 NEABSCO CREEK TRIBUTARY AT TELEGRAPH ROAD NEAR DALE CITY, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)
FEB												
09...	0.30	0.20	<0.010	0.020	<0.010	--	--	--	--	--	--	--
APR												
06...	<0.20	<0.20	<0.010	<0.010	<0.010	--	--	--	--	--	--	--
30...	0.90	0.80	0.070	0.040	0.030	--	--	--	--	--	--	--
MAY												
17...	0.80	0.70	0.040	0.020	0.020	--	--	--	--	--	--	--
JUN												
12...	0.80	0.50	0.070	<0.010	0.010	--	--	--	--	--	--	--
12...	0.60	0.50	0.100	0.030	<0.010	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	0.50	0.40	0.090	<0.010	<0.010	--	--	--	--	--	--	--
12...	0.40	0.60	0.060	0.010	0.010	--	--	--	--	--	--	--
12...	0.40	0.40	0.080	<0.010	<0.010	--	--	--	--	--	--	--
12...	0.30	0.40	0.040	0.010	<0.010	--	--	--	--	--	--	--
JUL												
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	1.9	<0.20	0.360	0.010	<0.010	--	--	--	--	--	--	--
06...	0.80	0.60	0.200	0.050	<0.010	--	--	--	--	--	--	--
06...	0.60	0.50	0.160	0.030	<0.010	--	--	--	--	--	--	--
06...	0.60	<0.20	0.120	<0.010	<0.010	--	--	--	--	--	--	--
06...	0.70	<0.20	0.120	<0.010	<0.010	--	--	--	--	--	--	--
06...	1.1	0.40	0.150	0.020	<0.010	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	0.60	<0.20	0.070	<0.010	<0.010	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
07...	0.40	<0.20	0.030	0.010	<0.010	--	--	--	--	--	--	--
20...	0.20	<0.20	0.020	<0.010	0.030	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
07...	--	--	--	--	--	--	--	--	--	--	--	--
10...	<0.20	--	<0.010	--	--	--	<10	--	<1.0	<5	--	--
23...	--	--	--	--	--	10	<10	<1	<1.0	<5	<1	<1
SEP												
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--

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

## 01657885 NEABSCO CREEK TRIBUTARY AT TELEGRAPH ROAD NEAR DALE CITY, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
FEB												
09...	--	--	5200	--	--	980	--	--	--	--	--	18
APR												
06...	--	--	2900	--	--	1000	--	--	--	--	--	10
30...	--	--	430	--	--	92	--	--	--	--	--	42
MAY												
17...	--	--	4300	--	--	860	--	--	--	--	--	28
JUN												
12...	--	--	510	--	--	130	--	--	--	--	--	57
12...	--	--	210	--	--	68	--	--	--	--	--	79
12...	--	--	--	--	--	--	--	--	--	--	--	98
12...	--	--	280	--	--	110	--	--	--	--	--	--
12...	--	--	320	--	--	110	--	--	--	--	--	--
12...	--	--	240	--	--	90	--	--	--	--	--	--
12...	--	--	310	--	--	130	--	--	--	--	--	83
JUL												
06...	--	--	--	--	--	--	--	--	--	--	--	27
06...	--	--	170	--	--	290	--	--	--	--	--	882
06...	--	--	59	--	--	94	--	--	--	--	--	2880
06...	--	--	94	--	--	68	--	--	--	--	--	2210
06...	--	--	220	--	--	79	--	--	--	--	--	2920
06...	--	--	370	--	--	90	--	--	--	--	--	1070
06...	--	--	350	--	--	97	--	--	--	--	--	15000
06...	--	--	--	--	--	--	--	--	--	--	--	5570
06...	--	--	--	--	--	--	--	--	--	--	--	3000
06...	--	--	280	--	--	84	--	--	--	--	--	2410
06...	--	--	--	--	--	--	--	--	--	--	--	8270
07...	--	--	1500	--	--	480	--	--	--	--	--	27
20...	--	--	2900	--	--	1300	--	--	--	--	--	31
24...	--	--	--	--	--	--	--	--	--	--	--	5010
24...	--	--	--	--	--	--	--	--	--	--	--	849
24...	--	--	--	--	--	--	--	--	--	--	--	1700
24...	--	--	--	--	--	--	--	--	--	--	--	6090
24...	--	--	--	--	--	--	--	--	--	--	--	6290
AUG												
07...	--	--	3400	--	--	820	--	--	--	--	--	--
10...	<10	--	2200	--	<1	1300	10	--	--	19	2.7	11
23...	<10	7000	3000	<1	<1	--	10	7	10	7	--	12
SEP												
22...	--	--	--	--	--	--	--	--	--	--	--	178
22...	--	--	--	--	--	--	--	--	--	--	--	322
22...	--	--	--	--	--	--	--	--	--	--	--	172
22...	--	--	--	--	--	--	--	--	--	--	--	51
22...	--	--	--	--	--	--	--	--	--	--	--	28
26...	--	--	--	--	--	--	--	--	--	--	--	36

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

## 01657895 POWELLS CREEK NEAR DALE CITY, VA

LOCATION.-- Lat 38°37'00", long 77°22'19", Prince William County, Hydrologic Unit 02070011, on right bank at upstream side of culvert on State Highway 643, 3.4 mi southwest of Dale City, and 2.5 mi upstream from Lake Montclair.

DRAINAGE AREA.-- 7.93 mi<sup>2</sup>.

PERIOD OF RECORD.-- December 1994 to September 1995.

GAGE.-- Water-stage recorder. Elevation of gage is 215 ft above sea level, from topographic map.

REMARKS.-- Records fair. Maximum discharge, 303 ft<sup>3</sup>/s, from rating curve extended above 70 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT PERIOD.-- January to September 1995: Maximum discharge, 303 ft<sup>3</sup>/s, Jan. 20, gage height, 4.37 ft; minimum, 0.00 ft<sup>3</sup>/s, all or part of each day Aug. 18 to Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	5.8	8.0	3.6	4.9	2.3	4.8	.31	.00
2	---	---	---	---	6.2	5.6	3.4	13	2.3	6.7	.24	.00
3	---	---	---	---	5.4	4.9	3.3	7.2	17	2.2	.21	.00
4	---	---	---	---	5.8	4.8	3.4	4.3	12	1.7	.17	.00
5	---	---	---	---	5.1	4.7	3.2	5.2	2.9	1.8	.20	.00
6	---	---	---	---	4.5	5.0	3.2	4.1	1.7	22	5.7	.00
7	---	---	---	---	4.1	4.7	3.2	3.4	1.9	15	3.3	.00
8	---	---	---	---	4.1	e8.0	3.3	3.0	1.6	13	1.3	.00
9	---	---	---	---	3.9	e50	3.4	2.9	1.2	3.2	1.2	.02
10	---	---	---	e3.4	4.0	e17	3.4	4.2	1.0	2.6	.74	.00
11	---	---	---	4.0	4.7	e9.1	3.4	16	1.2	2.7	.58	.17
12	---	---	---	3.7	5.7	e7.5	3.6	4.6	13	1.8	.48	.13
13	---	---	---	3.2	4.7	e6.4	12	3.5	6.3	1.5	.33	.12
14	---	---	---	3.1	4.2	e5.7	4.8	8.4	2.6	1.2	.22	.08
15	---	---	---	76	4.5	e5.2	3.9	6.3	1.4	1.1	.19	.07
16	---	---	---	28	14	e4.9	3.6	3.8	1.1	1.4	.13	.08
17	---	---	---	9.8	22	e4.5	3.5	3.3	.99	.87	.17	2.5
18	---	---	---	6.7	12	4.1	3.4	7.6	.98	1.9	.09	1.3
19	---	---	---	5.8	8.0	4.0	3.4	23	.90	1.5	.02	.61
20	---	---	---	86	7.1	3.9	3.3	6.3	.88	1.1	.09	.41
21	---	---	---	17	6.2	4.1	3.2	4.0	.96	.91	.03	.25
22	---	---	---	8.8	5.3	4.0	3.2	3.3	1.1	.90	.01	.54
23	---	---	---	6.7	5.0	3.9	2.9	2.9	10	.85	.00	2.0
24	---	---	---	5.8	4.8	3.7	5.3	2.7	8.8	.68	.00	.88
25	---	---	---	5.1	4.4	3.6	4.1	2.6	7.6	1.3	.00	1.2
26	---	---	---	4.8	4.3	3.5	3.4	2.6	7.4	1.1	.00	4.1
27	---	---	---	4.6	4.3	3.5	3.2	2.7	11	.72	.00	3.2
28	---	---	---	4.7	11	3.7	2.9	2.5	7.2	.69	.00	1.5
29	---	---	---	5.1	---	3.5	2.8	3.2	4.0	.61	.00	.81
30	---	---	---	5.0	---	3.6	4.2	2.8	2.6	.44	.00	.54
31	---	---	---	5.2	---	3.6	---	2.5	---	.40	.00	---
TOTAL	---	---	---	---	181.1	208.7	113.5	166.8	133.91	96.67	15.71	20.51
MEAN	---	---	---	---	6.47	6.73	3.78	5.38	4.46	3.12	.51	.68
MAX	---	---	---	---	22	50	12	23	17	22	5.7	4.1
MIN	---	---	---	---	3.9	3.5	2.8	2.5	.88	.40	.00	.00

e Estimated.

## 01657895 POWELLS CREEK NEAR DALE CITY, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 1995\*\*

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	6.47	6.73	3.78	5.38	4.46	3.12	.51	.68
MAX	---	---	---	---	6.47	6.73	3.78	5.38	4.46	3.12	.51	.68
(WY)	---	---	---	---	1995	1995	1995	1995	1995	1995	1995	1995
MIN	---	---	---	---	6.47	6.73	3.78	5.38	4.46	3.12	.51	.68
(WY)	---	---	---	---	1995	1995	1995	1995	1995	1995	1995	1995

## SUMMARY STATISTICS

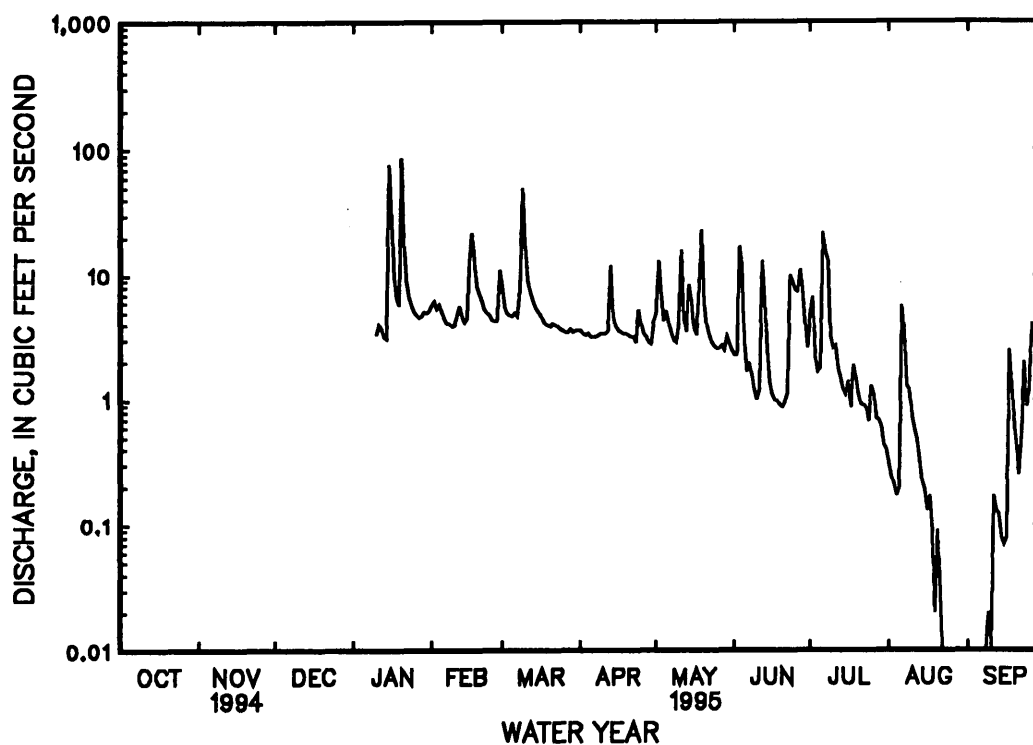
## FOR 1995\*\* WATER YEAR

HIGHEST DAILY MEAN	86	Jan 20
LOWEST DAILY MEAN	0.0	aAug 23
INSTANTANEOUS PEAK FLOW	303	Jan 20
INSTANTANEOUS PEAK STAGE	4.37	Jan 20
INSTANTANEOUS LOW FLOW	0.00	bAug 18

\*\* Partial water year, January to September.

a Also Aug. 24 to Sept. 10, 1995.

b Also all or part of each day Aug. 19 to Sept. 14, 1995.



## 01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA

LOCATION.--Lat 38°35'14", long 77°25'44", Prince William County, Hydrologic Unit 02070011, on left bank at upstream side of bridge on State Highway 619, 3.4 mi south of Independent Hill, 5.6 mi west of Dumfries, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--7.64 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 238.88 ft above sea level.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 31 to Nov. 16, May 10-12, June 16 to July 23, Aug. 5 to Sept. 15, and Sept. 17-30, which are fair. No flow at times in 1954, 1957, 1962-66, 1983, 1985, 1987, 1988, 1991, and 1993.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 20	0845	*208	*5.16	No other peak equal to or greater than base discharge.			

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.96	e1.2	1.7	4.6	5.9	7.9	3.4	5.2	1.6	e3.0	.25	e.15
2	.88	e2.2	1.6	3.5	6.6	5.9	3.3	15	1.5	e2.1	.26	e.15
3	.85	e1.8	1.6	2.8	5.5	4.9	3.2	10	4.0	e1.6	.25	e.14
4	.79	e1.6	1.7	2.6	5.7	4.8	3.5	5.8	5.5	e1.5	.24	e.13
5	.78	e1.4	12	2.2	5.2	4.6	3.7	7.5	2.3	e1.3	e.23	e.12
6	.80	e1.6	5.2	2.9	4.4	5.1	3.7	5.6	1.8	e10	e7.0	e.11
7	.78	e1.4	3.3	37	3.9	4.9	3.9	4.2	1.8	e7.0	e1.5	e.11
8	.83	e1.3	2.7	11	4.0	32	3.8	3.2	1.6	e4.5	e.90	e.10
9	.92	e1.2	2.2	6.1	3.6	52	3.9	2.8	1.3	e3.7	e.45	e.73
10	1.6	e1.8	2.9	4.6	3.6	15	3.9	e3.5	1.3	e4.1	e.35	e.44
11	1.2	e1.6	6.2	4.0	4.6	9.8	4.3	e17	1.3	e6.9	e.29	e.27
12	.97	e1.4	3.5	3.7	6.4	7.6	4.4	e5.2	7.1	e2.5	e.24	e.24
13	.96	e1.2	2.9	3.5	4.5	6.4	13	3.7	4.4	e1.5	e.22	e.23
14	1.0	e1.1	2.8	3.3	4.2	5.8	5.9	7.4	2.2	e1.0	e.21	e1.1
15	1.1	e1.1	2.7	55	4.6	5.3	4.5	6.8	1.6	e.82	e.20	e.44
16	1.1	e1.2	2.5	26	12	5.0	4.0	4.0	e1.3	e.75	e.23	.33
17	1.1	1.3	2.8	9.6	18	4.7	3.8	3.4	e1.1	e.92	e.22	e.19
18	1.0	1.6	3.0	6.3	11	4.3	3.7	6.0	e.70	e2.0	e.21	e.22
19	1.0	1.7	2.8	5.7	8.1	4.1	3.8	15	e.54	e1.3	e.20	e.39
20	1.2	1.4	2.5	74	7.1	4.0	3.6	5.8	e.50	e1.1	e.19	e.45
21	1.3	3.9	2.3	18	6.2	4.2	3.5	3.6	e.49	e1.0	e.19	e.40
22	1.5	3.5	2.2	9.7	5.1	4.0	3.4	2.9	e.47	e.87	e.18	e.35
23	2.7	2.2	2.3	7.1	4.8	3.7	2.9	2.3	e5.0	e.80	e.17	e3.5
24	2.0	1.7	2.3	6.0	4.6	3.6	6.6	2.1	e1.0	.76	e.16	e.80
25	1.3	1.6	2.6	5.1	4.2	3.4	4.8	1.9	e.70	.73	e.16	e1.1
26	1.2	1.5	2.4	4.7	4.0	3.4	3.7	2.0	e2.6	.60	e.15	e2.0
27	1.2	1.6	2.1	4.4	4.0	3.4	3.4	1.9	e6.1	.50	e.14	e4.1
28	1.1	3.4	2.1	4.5	11	3.6	3.2	1.8	e3.5	.46	e.17	e2.0
29	1.0	2.4	2.1	4.8	---	3.5	2.7	2.4	e2.3	.42	e.16	e1.1
30	1.1	1.9	1.9	4.9	---	3.5	4.1	2.0	e2.1	.37	e.15	e.48
31	e1.1	---	2.0	5.2	---	3.5	---	1.7	---	.29	e.16	---
TOTAL	35.32	52.8	90.9	342.8	172.8	233.9	125.6	161.7	67.70	64.39	15.43	21.87
MEAN	1.14	1.76	2.93	11.1	6.17	7.55	4.19	5.22	2.26	2.08	.50	.73
MAX	2.7	3.9	12	74	18	52	13	17	7.1	10	7.0	4.1
MIN	.78	1.1	1.6	2.2	3.6	3.4	2.7	1.7	.47	.29	.14	.10
CFSM	.15	.23	.38	1.45	.81	.99	.55	.68	.30	.27	.07	.10
IN.	.17	.26	.44	1.67	.84	1.14	.61	.79	.33	.31	.08	.11

e Estimated.

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.06	5.30	7.81	9.45	11.3	13.5	11.6	8.00	4.88	2.35	2.66	2.94
MAX	23.9	19.2	22.5	25.4	28.4	35.0	33.0	42.8	48.8	15.1	24.5	37.2
(WY)	1980	1953	1975	1978	1979	1994	1983	1989	1972	1975	1955	1975
MIN	.070	.34	.58	1.01	3.60	1.77	2.90	1.57	.40	.055	.010	.000
(WY)	1989	1955	1966	1981	1968	1981	1969	1956	1991	1963	1963	1964

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

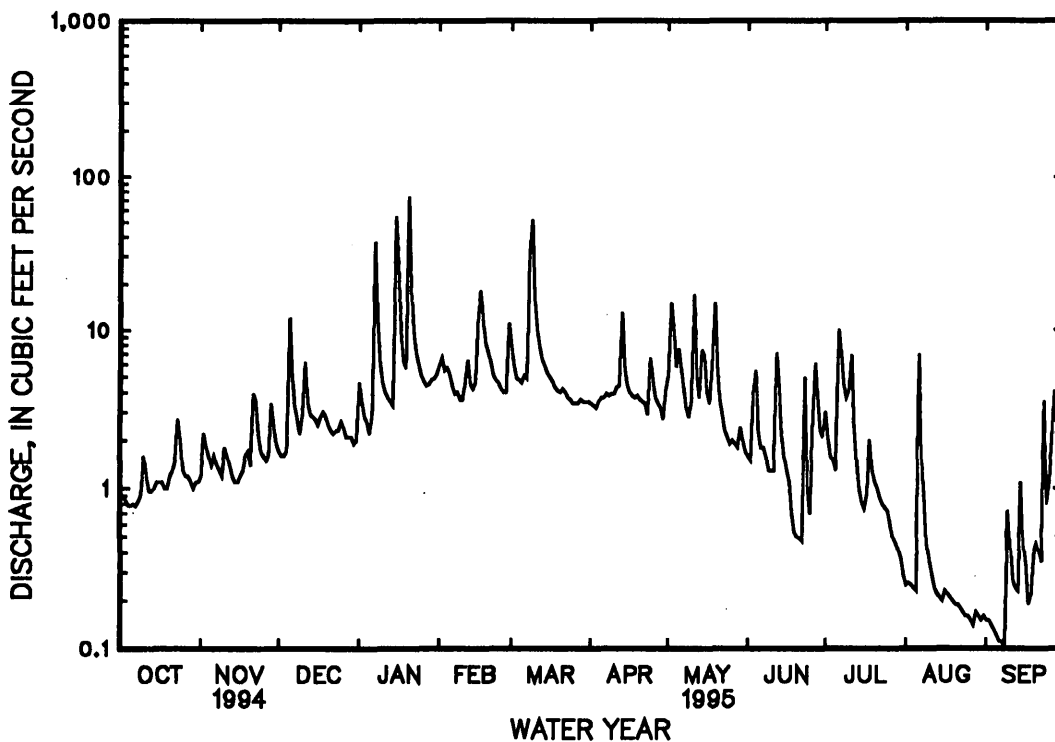
WATER YEARS 1951 - 1995

ANNUAL TOTAL	3017.40	1385.21	
ANNUAL MEAN	8.27	3.80	6.86
HIGHEST ANNUAL MEAN			11.9
LOWEST ANNUAL MEAN			2.55
HIGHEST DAILY MEAN	200	Mar 28	74
LOWEST DAILY MEAN	.42	Jun 27	e.10
ANNUAL SEVEN-DAY MINIMUM	.55	Jun 15	.12
INSTANTANEOUS PEAK FLOW			208
INSTANTANEOUS PEAK STAGE			5.16
INSTANTANEOUS LOW FLOW			(b)
ANNUAL RUNOFF (CFSM)	1.08	.50	.90
ANNUAL RUNOFF (INCHES)	14.69	6.74	12.21
10 PERCENT EXCEEDS	16	6.6	13
50 PERCENT EXCEEDS	2.7	2.4	2.6
90 PERCENT EXCEEDS	.80	.26	.20

a No flow at times many years. See REMARKS.

b Not determined.

e Estimated.



WATER-QUALITY RECORDS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (000061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (000095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (000400)	TEMPER- ATURE AIR (DEG C) (000020)	TEMPER- ATURE WATER (DEG C) (000010)	BARO- METRIC PRES- SURE (MM HG) (000025)	OXYGEN, DIS- SOLVED (MG/L) (000300)	OXYGEN, (PER- CENT SATUR- ATION) (000301)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (000453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (000452)
OCT											
12...	1350	--	--	--	--	--	--	--	--	--	--
13...	0930	--	--	--	--	--	--	--	--	--	--
13...	1000	0.93	62	6.7	15.0	11.0	765	8.4	76	14	0
31...	0945	--	--	--	--	--	--	--	--	--	--
NOV											
01...	0945	--	--	--	--	--	--	--	--	--	--
02...	0945	--	--	--	--	--	--	--	--	--	--
03...	0945	--	--	--	--	--	--	--	--	--	--
04...	0945	--	--	--	--	--	--	--	--	--	--
05...	0945	--	--	--	--	--	--	--	--	--	--
06...	0945	--	--	--	--	--	--	--	--	--	--
07...	0945	--	--	--	--	--	--	--	--	--	--
08...	0945	--	--	--	--	--	--	--	--	--	--
09...	0945	--	--	--	--	--	--	--	--	--	--
10...	0945	--	--	--	--	--	--	--	--	--	--
11...	0945	--	--	--	--	--	--	--	--	--	--
12...	0945	--	--	--	--	--	--	--	--	--	--
13...	0945	--	--	--	--	--	--	--	--	--	--
14...	0945	--	--	--	--	--	--	--	--	--	--
15...	0945	--	--	--	--	--	--	--	--	--	--
16...	0915	--	--	--	--	--	--	--	--	--	--
16...	1050	--	--	--	--	--	--	--	--	--	--
16...	1100	1.21	66	6.1	10.5	11.0	761	9.1	83	23	0
17...	0915	--	--	--	--	--	--	--	--	--	--
18...	0915	--	--	--	--	--	--	--	--	--	--
19...	0915	--	--	--	--	--	--	--	--	--	--
20...	0915	--	--	--	--	--	--	--	--	--	--
21...	0915	--	--	--	--	--	--	--	--	--	--
22...	0915	--	--	--	--	--	--	--	--	--	--
23...	0915	--	--	--	--	--	--	--	--	--	--
24...	0915	--	--	--	--	--	--	--	--	--	--
25...	0915	--	--	--	--	--	--	--	--	--	--
26...	0915	--	--	--	--	--	--	--	--	--	--
27...	0915	--	--	--	--	--	--	--	--	--	--
28...	0915	--	--	--	--	--	--	--	--	--	--
29...	0915	--	--	--	--	--	--	--	--	--	--
30...	0915	--	--	--	--	--	--	--	--	--	--
DEC											
05...	0505	--	--	--	--	--	--	--	--	--	--
05...	0905	--	--	--	--	--	--	--	--	--	--
05...	1305	--	--	--	--	--	--	--	--	--	--
08...	1215	--	--	--	--	--	--	--	--	--	--
09...	1215	--	--	--	--	--	--	--	--	--	--
10...	1215	--	--	--	--	--	--	--	--	--	--
11...	1215	--	--	--	--	--	--	--	--	--	--
12...	1215	--	--	--	--	--	--	--	--	--	--
13...	1215	--	--	--	--	--	--	--	--	--	--
14...	1215	--	--	--	--	--	--	--	--	--	--
15...	1215	--	--	--	--	--	--	--	--	--	--
16...	1215	--	--	--	--	--	--	--	--	--	--
17...	1215	--	--	--	--	--	--	--	--	--	--
18...	1215	--	--	--	--	--	--	--	--	--	--
19...	1215	--	--	--	--	--	--	--	--	--	--
20...	1215	--	--	--	--	--	--	--	--	--	--
21...	1215	--	--	--	--	--	--	--	--	--	--
22...	1215	--	--	--	--	--	--	--	--	--	--
23...	1215	--	--	--	--	--	--	--	--	--	--
24...	1215	--	--	--	--	--	--	--	--	--	--
25...	1215	--	--	--	--	--	--	--	--	--	--
26...	1215	--	--	--	--	--	--	--	--	--	--
27...	1215	--	--	--	--	--	--	--	--	--	--
28...	1215	--	--	--	--	--	--	--	--	--	--
29...	1215	--	--	--	--	--	--	--	--	--	--
29...	1315	--	--	--	--	--	--	--	--	--	--
30...	1230	--	--	--	--	--	--	--	--	--	--
31...	1330	--	--	--	--	--	--	--	--	--	--



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

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT										
12...	--	--	--	--	--	--	--	--	--	5
13...	--	--	--	--	--	--	--	--	--	3
13...	12	<0.010	<0.050	<0.015	<0.20	<0.20	<0.010	0.010	<0.010	--
31...	--	--	--	--	--	--	--	--	--	19
NOV										
01...	--	--	--	--	--	--	--	--	--	11
02...	--	--	--	--	--	--	--	--	--	10
03...	--	--	--	--	--	--	--	--	--	6
04...	--	--	--	--	--	--	--	--	--	5
05...	--	--	--	--	--	--	--	--	--	5
06...	--	--	--	--	--	--	--	--	--	5
07...	--	--	--	--	--	--	--	--	--	10
08...	--	--	--	--	--	--	--	--	--	3
09...	--	--	--	--	--	--	--	--	--	4
10...	--	--	--	--	--	--	--	--	--	6
11...	--	--	--	--	--	--	--	--	--	8
12...	--	--	--	--	--	--	--	--	--	5
13...	--	--	--	--	--	--	--	--	--	4
14...	--	--	--	--	--	--	--	--	--	9
15...	--	--	--	--	--	--	--	--	--	5
16...	--	--	--	--	--	--	--	--	--	8
16...	--	--	--	--	--	--	--	--	--	2
16...	19	<0.010	<0.050	<0.015	<0.20	<0.20	0.010	0.020	0.010	4
17...	--	--	--	--	--	--	--	--	--	5
18...	--	--	--	--	--	--	--	--	--	8
19...	--	--	--	--	--	--	--	--	--	6
20...	--	--	--	--	--	--	--	--	--	9
21...	--	--	--	--	--	--	--	--	--	8
22...	--	--	--	--	--	--	--	--	--	17
23...	--	--	--	--	--	--	--	--	--	19
24...	--	--	--	--	--	--	--	--	--	12
25...	--	--	--	--	--	--	--	--	--	10
26...	--	--	--	--	--	--	--	--	--	9
27...	--	--	--	--	--	--	--	--	--	6
28...	--	--	--	--	--	--	--	--	--	8
29...	--	--	--	--	--	--	--	--	--	9
30...	--	--	--	--	--	--	--	--	--	13
DEC										
05...	--	--	--	--	--	--	--	--	--	36
05...	--	--	--	--	--	--	--	--	--	33
05...	--	--	--	--	--	--	--	--	--	24
08...	--	--	--	--	--	--	--	--	--	56
09...	--	--	--	--	--	--	--	--	--	24
10...	--	--	--	--	--	--	--	--	--	30
11...	--	--	--	--	--	--	--	--	--	20
12...	--	--	--	--	--	--	--	--	--	23
13...	--	--	--	--	--	--	--	--	--	16
14...	--	--	--	--	--	--	--	--	--	17
15...	--	--	--	--	--	--	--	--	--	9
16...	--	--	--	--	--	--	--	--	--	9
17...	--	--	--	--	--	--	--	--	--	10
18...	--	--	--	--	--	--	--	--	--	13
19...	--	--	--	--	--	--	--	--	--	10
20...	--	--	--	--	--	--	--	--	--	16
21...	--	--	--	--	--	--	--	--	--	12
22...	--	--	--	--	--	--	--	--	--	15
23...	--	--	--	--	--	--	--	--	--	13
24...	--	--	--	--	--	--	--	--	--	14
25...	--	--	--	--	--	--	--	--	--	14
26...	--	--	--	--	--	--	--	--	--	12
27...	--	--	--	--	--	--	--	--	--	12
28...	--	--	--	--	--	--	--	--	--	15
29...	--	--	--	--	--	--	--	--	--	18
29...	--	--	--	--	--	--	--	--	--	5
30...	--	--	--	--	--	--	--	--	--	9
31...	--	--	--	--	--	--	--	--	--	11

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

## POTOMAC RIVER BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SEDI- MENT, SUS- PENDED (MG/L) (80154)
JAN		
01...	1330	12
02...	1330	11
03...	1330	8
04...	1330	9
05...	1330	272
06...	1330	245
07...	0020	64
07...	0420	351
07...	0820	265
07...	1220	115
07...	1330	114
07...	1620	57
07...	2020	30
08...	1330	65
09...	1330	45
12...	1005	40
12...	1015	8
12...	1020	6
13...	1005	9
14...	1005	11
15...	1005	358
15...	1345	64
15...	1745	701
16...	0145	265
16...	0545	68
16...	1005	194
17...	1005	91
18...	1005	95
19...	1005	1020
20...	1005	675
20...	1500	59
20...	1535	232
20...	1935	111
20...	2335	58
21...	0335	50
21...	1005	387
22...	1005	341
23...	1005	161
24...	1005	103
25...	1005	78
27...	1005	74
29...	1005	90
FEB		
23...	0915	45
24...	0915	13
25...	0915	13
26...	0915	14
27...	0915	16
28...	0915	18

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SEDI- MENT, SUS- PENDED (MG/L) (80154)
MAR		
01...	0915	14
02...	0915	11
03...	0915	11
04...	0915	10
05...	0915	10
06...	0915	10
07...	0915	9
08...	0915	739
08...	1600	44
08...	2000	266
09...	0000	679
09...	0400	669
09...	0800	358
09...	0915	16
09...	1200	216
09...	1600	136
09...	2000	67
10...	0000	11
10...	0915	416
11...	0915	608
12...	0915	311
13...	0915	135
14...	0915	92
15...	0915	76
16...	0915	78
17...	0915	65
18...	0915	11
20...	0830	10
20...	0831	10
20...	0900	14
21...	0900	7
22...	0900	10
23...	0900	9
24...	0900	7
25...	0900	6
26...	0900	8
27...	0900	17
28...	0900	22
29...	0900	15
30...	0900	12
31...	0900	8
APR		
01...	0900	6
02...	0900	17
03...	0900	7
04...	0900	11
05...	0900	14
06...	0900	33
07...	0900	14
08...	0900	14
09...	0900	20
10...	0915	21
11...	0915	16
12...	0915	332
13...	0220	92
13...	0915	338
14...	0915	186
15...	0915	149
16...	0915	121
17...	0915	105
18...	0915	59
19...	0915	62
20...	0915	62
21...	0915	113
22...	0915	72
23...	0915	137
24...	0915	155
25...	0915	107
26...	0915	79
27...	0915	80
28...	0915	98
29...	0915	52
30...	0915	36

## POTOMAC RIVER BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SEDI- MENT, SUS- PENDED (MG/L) (80154)
MAY		
01...	0915	53
02...	0915	832
02...	1145	118
02...	1545	122
03...	0915	493
03...	0930	12
03...	0935	183
03...	1000	126
04...	1000	65
05...	1000	68
06...	1000	47
07...	1000	48
08...	1000	33
09...	1000	25
10...	1000	51
11...	1000	143
12...	1000	40
13...	1000	11
14...	1145	19
14...	1150	29
15...	1147	18
16...	1147	14
17...	1147	7
18...	1147	12
18...	1430	14
18...	1445	26
19...	0600	26
19...	1000	33
19...	1145	28
20...	1145	16
21...	1145	12
22...	1145	10
25...	0910	14
25...	0913	10
25...	0915	11
26...	0915	11
27...	0915	13
28...	0915	15
29...	0915	13
30...	0915	6
31...	0915	4

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

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

## JUN

01...	0915	5
02...	0915	6
03...	0915	15
04...	0915	9
05...	0915	6
06...	0915	6
07...	0915	8
08...	0915	10
09...	0915	10
10...	0915	11
11...	0915	14
12...	0915	23
13...	0915	16
14...	0915	14
15...	0915	16
16...	0915	6
16...	0930	6
16...	0935	11
16...	1005	18
17...	1005	15
18...	1005	18
19...	1005	16
20...	1005	10
21...	1005	9
22...	1005	18
23...	1005	16
24...	1005	22
25...	1005	25
26...	1005	63
27...	1005	33
28...	1005	14
29...	1005	11
30...	1005	12

## JUL

01...	1005	27
02...	1005	18
03...	1005	9
04...	1005	9
05...	1005	9
06...	1005	14
07...	1005	58
08...	1005	23
09...	1005	8
10...	0925	15
10...	0930	24
10...	0950	20
11...	0200	133
11...	0600	52
11...	0950	28
11...	1030	21
11...	1035	21
12...	0950	23
13...	0950	17
14...	0950	14
15...	0950	12
16...	0950	13
17...	0950	15
18...	0950	14
19...	0950	11
20...	0950	10
21...	0950	12
22...	0950	9
23...	0950	10
24...	0950	8
25...	0950	10
26...	0950	9
27...	0950	8
28...	0950	8
29...	0950	10
30...	0950	9
31...	0950	12
31...	1325	10
31...	1330	5

## POTOMAC RIVER BASIN

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SEDI- MENT, SUS- PENDED (MG/L) (80154)
AUG		
01...	1340	29
02...	1340	15
03...	1340	18
04...	1340	15
05...	1340	7
06...	1340	483
07...	1340	198
08...	1340	94
09...	1340	102
10...	1340	92
11...	1340	48
12...	1340	30
13...	1340	28
14...	1340	24
15...	1340	16
16...	1340	26
17...	1340	19
18...	1340	13
19...	1340	75
20...	1340	39
21...	1340	20
22...	1340	17
23...	0930	16
23...	0940	11
23...	1200	--
24...	0945	23
25...	0945	12
26...	0945	9
27...	0945	9
28...	0945	8
29...	0945	7
30...	0945	15
31...	0945	8

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SEDI- MENT, SUS- PENDED (MG/L) (80154)
SEP		
01...	0945	10
02...	0945	6
03...	0945	8
04...	0945	8
05...	0945	6
06...	0945	4
07...	0945	8
08...	0945	9
09...	0945	9
10...	0945	9
11...	0945	4
12...	0945	8
13...	0950	6
14...	0950	5
15...	0950	45
16...	0950	12
17...	0950	12
18...	0950	14
19...	0915	4
19...	0920	14
19...	0945	9
20...	0945	6
21...	0945	96
22...	0945	13
23...	0945	6
25...	0945	6
26...	0945	4
28...	0945	10
29...	0945	5

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	.96	5	.01	e1.2	11	.04	1.7	11	.05
2	.88	5	.01	e1.5	10	.04	1.6	10	.04
3	.85	5	.01	e2.2	6	.04	1.6	8	.03
4	.79	6	.01	e1.8	5	.02	1.7	6	.03
5	.78	5	.01	e1.4	5	.02	12	26	.84
6	.80	5	.01	e1.6	6	.03	5.2	20	.28
7	.78	5	.01	e1.4	8	.03	3.3	19	.17
8	.83	5	.01	e1.3	3	.01	2.7	21	.15
9	.92	7	.02	e1.2	4	.01	2.2	24	.14
10	1.6	9	.04	e1.8	6	.03	2.9	50	.39
11	1.2	7	.02	e1.6	8	.03	6.2	62	1.0
12	.97	5	.01	e1.4	5	.02	3.5	23	.22
13	.96	4	.01	e1.2	5	.02	2.9	19	.15
14	1.0	3	.01	e1.1	8	.02	2.8	14	.11
15	1.1	3	.01	e1.1	5	.01	2.7	10	.07
16	1.1	3	.01	e1.2	5	.02	2.5	9	.06
17	1.1	2	.01	1.3	5	.02	2.8	10	.08
18	1.0	2	.01	1.6	8	.03	3.0	13	.11
19	1.0	2	.01	1.7	6	.03	2.8	10	.08
20	1.2	2	.01	1.4	9	.03	2.5	15	.10
21	1.3	2	.01	3.9	22	.23	2.3	12	.07
22	1.5	2	.01	3.5	32	.30	2.2	15	.09
23	2.7	12	.09	2.2	16	.10	2.3	13	.08
24	2.0	18	.10	1.7	12	.06	2.3	14	.09
25	1.3	15	.05	1.6	10	.04	2.6	14	.10
26	1.2	14	.05	1.5	9	.04	2.4	12	.08
27	1.2	13	.04	1.6	5	.02	2.1	13	.07
28	1.1	13	.04	3.4	8	.07	2.1	15	.09
29	1.0	13	.04	2.4	9	.06	2.1	12	.07
30	1.1	13	.04	1.9	13	.07	1.9	9	.05
31	e1.1	18	.05	---	---	---	2.0	11	.06
TOTAL	35.32	---	0.77	52.7	---	1.49	90.9	---	4.95

e Estimated



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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	4.6	13	.16	5.9	80	1.3	7.9	12	.26
2	3.5	11	.10	6.6	82	1.5	5.9	10	.16
3	2.8	9	.07	5.5	78	1.2	4.9	10	.13
4	2.6	9	.06	5.7	75	1.2	4.8	10	.13
5	2.2	9	.05	5.2	67	.94	4.6	10	.12
6	2.9	20	.16	4.4	60	.71	5.1	10	.14
7	37	159	16	3.9	55	.58	4.9	10	.13
8	11	57	1.7	4.0	55	.59	32	256	22
9	6.1	48	.79	3.6	50	.49	55	366	54
10	4.6	40	.50	3.6	50	.49	18	255	12
11	4.0	30	.32	4.6	60	.75	12	208	6.7
12	3.7	15	.15	6.4	65	1.1	9.6	175	4.5
13	3.5	10	.09	4.5	55	.67	8.2	130	2.9
14	3.3	10	.09	4.2	45	.51	7.5	90	1.8
15	55	339	50	4.6	40	.50	7.0	80	1.5
16	26	192	13	12	65	2.1	6.6	80	1.4
17	9.6	95	2.5	18	110	5.3	6.3	60	1.0
18	6.3	90	1.5	11	70	2.1	5.8	11	.17
19	5.7	95	1.5	8.1	65	1.4	5.5	11	.16
20	74	536	107	7.1	60	1.2	5.4	11	.16
21	18	385	19	6.2	55	.92	5.6	7	.11
22	9.7	322	8.4	5.1	50	.69	5.4	10	.15
23	7.1	160	3.1	4.8	45	.58	5.1	9	.12
24	6.0	100	1.6	4.6	12	.15	4.9	7	.09
25	5.1	80	1.1	4.2	12	.14	4.7	6	.08
26	4.7	77	.98	4.0	14	.15	4.6	9	.11
27	4.4	77	.91	4.0	15	.16	4.7	18	.23
28	4.5	80	.97	11	22	.65	4.9	22	.29
29	4.8	85	1.1	---	---	---	4.8	15	.19
30	4.9	84	1.1	---	---	---	4.8	11	.14
31	5.2	82	1.2	---	---	---	4.7	10	.13
TOTAL	342.8	---	235.20	172.8	---	28.07	271.2	---	111.00

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	4.6	7	.09	6.1	55	.91	1.6	5	.02
2	4.5	17	.21	16	634	27	1.5	7	.03
3	4.4	7	.08	10	176	4.8	4.0	19	.21
4	4.7	12	.15	5.8	60	.94	5.5	10	.15
5	5.0	14	.19	7.5	60	1.2	2.3	6	.04
6	5.1	14	.19	5.6	47	.71	1.8	6	.03
7	5.3	14	.20	4.2	48	.54	1.8	8	.04
8	5.2	16	.22	3.2	30	.26	1.6	10	.04
9	5.2	20	.28	2.8	25	.19	1.3	10	.04
10	5.3	21	.30	e3.5	60	.57	1.3	11	.04
11	5.7	16	.25	e17	130	6.0	1.3	16	.06
12	5.9	20	.32	e5.2	35	.49	7.1	40	.77
13	15	326	13	3.7	12	.12	4.4	17	.20
14	6.8	180	3.3	7.4	37	.74	2.2	15	.09
15	5.3	145	2.1	6.8	22	.40	1.6	16	.07
16	4.7	120	1.5	4.0	14	.15	e1.3	16	.06
17	4.6	105	1.3	3.4	8	.07	e1.1	15	.04
18	4.5	55	.67	6.0	21	.34	e.70	18	.03
19	4.5	60	.73	15	26	1.1	e.54	16	.02
20	4.3	62	.72	5.8	16	.25	e.50	10	.01
21	4.2	110	1.2	3.6	12	.12	e.49	10	.01
22	4.1	75	.83	2.9	10	.08	e.47	18	.02
23	3.6	140	1.4	2.3	10	.06	e.46	17	.02
24	7.6	150	3.1	2.1	11	.06	e.52	22	.03
25	5.6	105	1.6	1.9	11	.06	e.70	5	.01
26	4.4	80	.95	2.0	12	.06	e1.8	24	.12
27	4.0	85	.92	1.9	13	.07	e4.9	31	.41
28	3.8	95	.97	1.8	15	.07	e2.7	14	.10
29	3.3	50	.45	2.4	13	.08	e2.1	11	.06
30	4.8	171	2.2	2.0	6	.03	e1.9	13	.07
31	---	---	---	1.7	4	.02	---	---	---
TOTAL	156.0	---	39.42	163.6	---	47.49	59.48	---	2.84

e Estimated

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	e2.5	25	.17	.25	11	.01	e.15	9	.00
2	e1.5	17	.07	.26	15	.01	e.15	6	.00
3	e.90	10	.02	.25	18	.01	e.14	8	.00
4	e.70	9	.02	.24	15	.01	e.13	7	.00
5	e.62	9	.02	e.23	8	.00	e.12	5	.00
6	e10	21	.57	e7.0	305	5.8	e.11	4	.00
7	e7.0	52	.98	e1.5	210	.85	e.11	8	.00
8	e4.5	22	.27	e.90	100	.24	e.10	9	.00
9	e4.3	10	.12	e.45	102	.12	e.90	12	.03
10	e4.1	49	.54	e.35	95	.09	e4.5	9	.11
11	e6.9	43	.80	e.29	57	.04	e.90	5	.01
12	e2.5	23	.16	e.24	33	.02	e.30	10	.01
13	e1.5	17	.07	e.22	28	.02	e1.8	6	.03
14	e1.0	14	.04	e.21	25	.01	e.80	5	.01
15	e.82	12	.03	e.20	22	.01	e.44	7	.01
16	e.75	13	.03	e.23	21	.01	.33	12	.01
17	e.92	15	.04	e.22	19	.01	e.19	12	.01
18	e2.0	14	.08	e.21	18	.01	e.22	13	.01
19	e1.3	11	.04	e.20	18	.01	e.39	9	.01
20	e1.2	10	.03	e.19	19	.01	e.45	7	.01
21	e1.1	12	.04	e.19	20	.01	e.40	12	.01
22	1.0	9	.02	e.18	18	.01	e3.5	23	.22
23	.95	10	.03	e.17	15	.01	e1.2	18	.06
24	.76	8	.02	e.16	13	.01	e.64	15	.03
25	.73	10	.02	e.16	12	.01	e4.5	29	.35
26	.60	9	.01	e.15	9	.00	e1.5	25	.10
27	.50	8	.01	e.14	9	.00	e.70	15	.03
28	.46	8	.01	e.17	8	.00	e.60	11	.02
29	.42	10	.01	e.16	7	.00	e.54	9	.01
30	.37	9	.01	e.15	8	.00	e.48	8	.01
31	.29	10	.01	e.16	8	.00	---	---	---
TOTAL	62.19	---	4.29	15.43	---	7.34	26.29	---	1.10
YEAR	1448.71		483.96						

e Estimated

## POTOMAC RIVER BASIN

01660350 AQUIA CREEK AT ROUTE 610 NEAR GARRISONVILLE, VA

PERIOD OF RECORD.--August 1994 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
JAN											
12...	1400	87	6.9	10.0	5.0	759	12.4	97	<0.010	--	0.140
FEB											
23...	1300	85	7.1	18.0	5.5	755	12.5	100	<0.010	--	0.080
MAR											
20...	1330	90	6.9	12.0	12.0	757	9.8	92	<0.010	--	0.070
APR											
24...	1200	100	6.9	14.0	12.0	750	8.6	81	<0.010	--	0.060
MAY											
14...	1345	93	6.9	17.0	15.5	758	7.9	80	<0.010	--	0.120
14...	1400	93	6.9	17.5	15.5	758	7.9	80	0.010	0.110	0.120
25...	1335	106	6.8	19.0	22.0	758	7.8	90	<0.010	--	0.190
JUN											
26...	1145	104	6.8	25.0	22.5	755	8.2	95	0.010	0.190	0.200
JUL											
25...	1130	75	6.9	25.5	25.0	755	7.4	90	0.010	0.140	0.150
AUG											
*01...	0800	105	7.0	23.0	26.5	--	7.3	--	--	--	--
23...	1130	123	7.3	27.5	24.0	763	6.0	71	<0.010	--	0.110
SEP											
19...	1400	136	7.3	21.0	21.0	761	3.2	36	<0.010	--	--

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM BOT MAT <63U WS FIELD PERCENT (34790)	BARIUM BOT MAT <63U WS FIELD (UG/G) (34805)	BERYL- LIUM BOT MAT <63U WS FIELD (UG/G) (34810)	BISMUTH BOT MAT <180UWS FIELD (UG/G) (34816)
JAN											
12...	0.140	0.030	0.30	0.30	0.020	0.020	0.010	--	--	--	--
FEB											
23...	0.080	<0.015	<0.20	<0.20	<0.010	0.010	<0.010	--	--	--	--
MAR											
20...	0.070	<0.015	0.20	<0.20	0.020	<0.010	<0.010	--	--	--	--
APR											
24...	0.060	0.020	0.30	0.20	0.030	0.020	<0.010	--	--	--	--
MAY											
14...	0.120	0.050	0.40	0.40	0.040	0.040	0.020	--	--	--	--
14...	0.120	0.060	0.40	0.40	0.040	0.030	0.020	--	--	--	--
25...	0.190	0.060	0.30	0.20	0.020	<0.010	<0.010	--	--	--	--
JUN											
26...	0.200	0.040	0.30	0.30	0.030	0.040	0.030	--	--	--	--
JUL											
25...	0.150	0.070	0.50	0.30	0.020	<0.010	0.020	--	--	--	--
AUG											
*01...	--	--	--	--	--	--	--	8.4	520	2	<10
23...	0.110	<0.015	0.30	0.20	0.030	0.010	<0.010	--	--	--	--
SEP											
19...	<0.050	<0.015	0.30	0.20	0.030	<0.010	<0.010	--	--	--	--

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

\* Bed sediment sample.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

[illegible]

01660350 AQUIA CREEK AT ROUTE 610 NEAR GARRISONVILLE, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SCAN- DIUM BOT MAT <63U WS FIELD (UG/G) (34945)	SODIUM BOT MAT <63U WS FIELD PERCENT (34960)	STRON- TIUM BOT MAT <63U WS FIELD (UG/G) (34965)	TANTA- LUM BOT MAT <63U WS FIELD (UG/G) (34975)	TIN BOT MAT <63U WS FIELD (UG/G) (34985)	VANA- DIUM BOT MAT <63U WS FIELD (UG/G) (35005)	YTTRIUM BOT MAT <63U WS FIELD (UG/G) (35010)	YTTER- BIUM BOT MAT <63U WS FIELD (UG/G) (35015)	ZINC BOT MAT <63U WS FIELD (UG/G) (35020)	TITA- NIUM, S ED, BMW S, <63UD RY WGT REC P ERCENT (49274)
JAN										
12...	--	--	--	--	--	--	--	--	--	--
FEB										
23...	--	--	--	--	--	--	--	--	--	--
MAR										
20...	--	--	--	--	--	--	--	--	--	--
APR										
24...	--	--	--	--	--	--	--	--	--	--
MAY										
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
JUN										
26...	--	--	--	--	--	--	--	--	--	--
JUL										
25...	--	--	--	--	--	--	--	--	--	--
AUG										
01...	23	0.40	71	<40	<10	140	36	3	90	0.750
23...	--	--	--	--	--	--	--	--	--	--
SEP										
19...	--	--	--	--	--	--	--	--	--	--

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

\* Bed sediment sample.

## POTOMAC RIVER BASIN

## 01660380 CANNON CREEK NEAR GARRISONVILLE, VA

LOCATION.-- Lat 38°29'23", long 77°29'12", Stafford County, Hydrologic Unit 02070011, on left bank 0.2 mi upstream from confluence with Aquia Creek, and 3.3 mi west of Garrisonville.

DRAINAGE AREA.-- 10.2 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- November 1994 to September 1995.

GAGE.-- Water-stage recorder. Elevation of gage is 190 ft above sea level, from topographic map.

REMARKS.-- Records fair.

EXTREMES FOR CURRENT PERIOD.-- November to September 1995: Maximum discharge and gage height not determined, probably occurred Jan. 20; minimum daily 0.19 ft<sup>3</sup>/s, Sept. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	4.0	4.9	9.3	11	6.7	8.0	3.0	e4.8	e.97	e.26
2	---	---	3.8	4.5	9.3	9.3	6.6	12	2.8	e3.1	e1.7	e.25
3	---	---	3.6	3.9	8.6	8.5	6.6	11	4.1	e2.4	e1.1	e.23
4	---	---	3.7	e3.5	9.3	8.5	6.6	7.6	8.3	e2.0	e.80	e.22
5	---	---	11	e3.3	8.8	8.3	6.3	7.9	4.7	e1.9	e.75	e.21
6	---	---	7.5	3.6	e8.0	8.6	6.4	7.2	3.9	e16	e13	e.20
7	---	---	5.1	25	7.6	8.5	6.4	5.9	3.5	e15	e4.0	e.20
8	---	---	4.2	12	7.5	17	6.2	5.1	3.1	e13	e2.7	e.19
9	---	---	3.8	8.2	7.4	45	6.2	4.7	2.7	e8.0	e2.0	e.56
10	---	---	4.0	6.6	7.2	18	6.3	5.4	2.6	e7.0	e1.6	e1.4
11	---	---	6.4	5.8	8.2	14	7.4	19	3.4	e9.5	e1.4	e.70
12	---	---	4.9	e5.5	9.7	12	7.2	8.7	9.3	e5.0	e1.3	e.52
13	---	---	4.2	e5.2	10	10	12	6.5	8.9	e3.0	e1.2	e.45
14	---	---	4.2	e5.0	9.7	9.9	8.6	8.9	5.3	e2.4	e1.1	e2.2
15	---	---	4.2	e45	7.8	9.3	7.3	9.7	3.9	e2.2	e1.0	e.70
16	---	---	3.8	e25	11	8.8	6.8	6.6	3.0	e2.1	e.95	.62
17	---	---	4.1	e14	15	8.4	6.6	5.6	2.7	e2.5	e.87	.50
18	---	---	4.3	e10	12	7.9	6.5	6.5	2.4	e4.0	e.82	.22
19	---	---	4.0	e9.1	10	7.9	6.5	14	2.0	e2.6	e.78	e1.5
20	---	---	3.7	e60	9.9	7.7	6.4	8.2	1.8	e2.2	e.72	e1.1
21	---	---	3.6	e30	9.3	7.8	6.3	5.7	1.6	e2.8	e.68	e.97
22	---	---	3.5	e17	8.5	7.7	6.1	4.7	1.7	e1.9	e.65	e.90
23	---	e4.7	3.5	e11	8.2	7.2	5.8	4.0	7.5	e1.5	e.62	e5.2
24	---	4.2	3.4	10	8.0	7.2	8.9	3.6	7.3	e3.0	e.58	e1.9
25	---	3.9	3.7	9.2	7.6	6.9	8.2	3.3	4.9	e7.0	e.52	e2.0
26	---	3.6	3.4	8.7	7.6	6.8	6.7	3.7	e4.0	e1.8	e.45	e2.9
27	---	3.8	3.2	8.3	7.6	6.9	5.9	3.7	e10	e1.3	e.41	e8.0
28	---	5.9	3.2	8.4	12	7.3	5.6	3.6	e5.0	e1.6	e.38	e3.5
29	---	5.0	3.3	8.8	---	7.3	5.1	5.0	e3.9	e1.2	e.34	e1.9
30	---	4.3	3.0	8.6	---	7.1	5.8	4.4	e3.5	e1.1	e.31	e1.5
31	---	---	3.2	8.7	---	6.9	---	3.6	---	e1.0	e.28	---
TOTAL	---	---	131.5	388.8	255.1	317.7	204.0	213.8	130.8	132.9	43.98	41.00
MEAN	---	---	4.24	12.5	9.11	10.2	6.80	6.90	4.36	4.29	1.42	1.37
MAX	---	---	11	60	15	45	12	19	10	16	13	8.0
MIN	---	---	3.0	3.3	7.2	6.8	5.1	3.3	1.6	1.0	.28	.19

e Estimated.



## 01660380 CANNON CREEK NEAR GARRISONVILLE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 1995\*\*

MEAN	---	---	4.24	12.5	9.11	10.2	6.80	6.90	4.36	4.29	1.42	1.37
MAX	---	---	4.24	12.5	9.11	10.2	6.80	6.90	4.36	4.29	1.42	1.37
(WY)	---	---	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995
MIN	---	---	4.24	12.5	9.11	10.2	6.80	6.90	4.36	4.29	1.42	1.37
(WY)	---	---	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995

## SUMMARY STATISTICS

## FOR 1995\*\* WATER YEAR

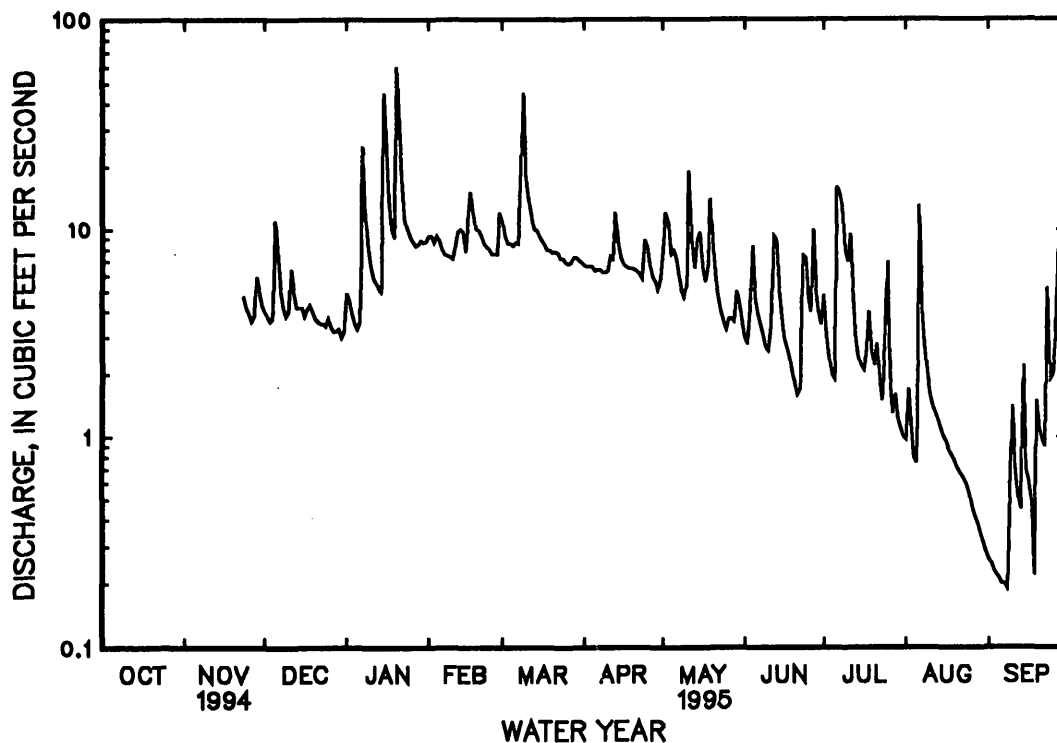
HIGHEST DAILY MEAN	e60	(a)
LOWEST DAILY MEAN	e.19	Sep 8
INSTANTANEOUS PEAK FLOW	(b)	(a)
INSTANTANEOUS PEAK STAGE	(b)	(a)
INSTANTANEOUS LOW FLOW	(b)	(b)

\*\* Partial water year, November to September.

a Probably occurred Jan. 20, 1995.

b Not determined.

e Estimated.



01660380 CANNON CREEK NEAR GARRISONVILLE, VA

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1994 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT											
19...	1030	5.7	47	6.1	19.0	11.0	760	7.8	71	<0.010	--
NOV											
15...	1030	2.1	48	6.5	19.0	8.5	752	9.8	85	<0.010	--
DEC											
29...	0930	3.2	43	7.0	7.0	3.5	765	12.6	94	<0.010	--
29...	0935	3.2	--	--	--	--	--	--	--	--	--
JAN											
12...	1200	5.8	40	6.2	8.5	5.0	759	12.0	94	<0.010	--
20...	1045	116	--	--	--	--	--	--	--	--	--
FEB											
23...	1115	7.3	37	6.7	15.0	4.5	754	12.4	97	<0.010	--
MAR											
20...	1100	7.8	39	6.6	15.0	10.5	755	10.0	90	<0.010	--
APR											
24...	1015	7.6	47	7.0	15.0	12.0	750	8.8	83	<0.010	--
24...	1020	7.6	--	--	--	--	--	--	--	--	--
MAY											
14...	1300	--	46	6.9	17.0	15.5	758	8.0	81	<0.010	--
25...	1145	3.2	49	6.6	19.0	19.0	758	12.0	130	<0.010	0.070
25...	1153	3.2	--	--	--	--	--	--	--	--	--
25...	1155	3.2	--	--	--	--	--	--	--	--	--
JUN											
26...	1000	3.9	48	6.8	24.0	21.5	755	7.0	80	<0.010	0.070
26...	1005	3.9	--	--	--	--	--	--	--	--	--
JUL											
25...	0930	7.0	46	6.6	28.0	23.5	755	6.8	81	<0.010	0.070
25...	0935	7.0	--	--	--	--	--	--	--	--	--
AUG											
*02...	1300	--	54	7.0	27.5	24.0	--	6.9	--	--	--
23...	1200	0.63	53	6.9	27.5	21.0	763	6.2	69	<0.010	0.070
SEP											
19...	1300	--	53	7.1	21.0	17.5	761	5.0	52	<0.010	--

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

\* Bed sediment sample.

## 01660380 CANNON CREEK NEAR GARRISONVILLE, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM <63U WS FIELD PERCENT (34790)	BARIUM BOT MAT <63U WS FIELD (UG/G) (34805)	BERYL- LIUM BOT MAT <63U WS FIELD (UG/G) (34810)	BISMUTH BOT MAT <180UWS FIELD (UG/G) (34816)
OCT											
19...	<0.050	<0.015	<0.20	<0.20	<0.010	<0.010	<0.010	--	--	--	--
NOV											
15...	<0.050	<0.015	<0.20	<0.20	0.030	0.010	<0.010	--	--	--	--
DEC											
29...	<0.050	<0.015	<0.20	<0.20	<0.010	0.010	<0.010	--	--	--	--
JAN											
12...	<0.050	<0.015	<0.20	<0.20	<0.010	0.020	<0.010	--	--	--	--
FEB											
23...	<0.050	<0.015	<0.20	<0.20	<0.010	<0.010	<0.010	--	--	--	--
MAR											
20...	<0.050	<0.015	<0.20	<0.20	<0.010	0.010	<0.010	--	--	--	--
APR											
24...	<0.050	<0.015	0.20	<0.20	0.020	0.020	<0.010	--	--	--	--
MAY											
14...	<0.050	0.030	0.30	0.30	0.030	0.030	<0.010	--	--	--	--
25...	0.070	0.050	<0.20	<0.20	<0.010	<0.010	0.010	--	--	--	--
JUN											
26...	0.070	0.040	0.30	0.30	0.050	0.030	0.020	--	--	--	--
JUL											
25...	0.070	0.040	0.20	<0.20	<0.010	<0.010	0.010	--	--	--	--
AUG											
*02...	--	--	--	--	--	--	--	8.8	820	3	<10
23...	0.070	0.030	<0.20	<0.20	0.020	<0.010	<0.010	--	--	--	--
SEP											
19...	<0.050	0.020	0.20	<0.20	0.040	<0.010	0.010	--	--	--	--

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

\* Bed sediment sample.

## POTOMAC RIVER BASIN

01660380 CANNON CREEK NEAR GARRISONVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

	CALCIUM	CERIUM	CHRO- MIUM	COBALT	COPPER	EURO- PIUM	GALLIUM	GOLD	HOLMIUM	IRON	LANTHA- NUM
DATE	BOT MAT <63U WS FIELD PERCENT (34830)	BOT MAT <63U WS FIELD (UG/G) (34835)	BOT MAT <63U WS FIELD (UG/G) (34840)	BOT MAT <63U WS FIELD (UG/G) (34845)	BOT MAT <63U WS FIELD (UG/G) (34850)	BOT MAT <63U WS FIELD (UG/G) (34855)	BOT MAT <63U WS FIELD (UG/G) (34860)	BOT MAT <63U WS FIELD (UG/G) (34870)	BOT MAT <63U WS FIELD (UG/G) (34875)	BOT MAT <63U WS FIELD PERCENT (34880)	BOT MAT <63U WS FIELD (UG/G) (34885)
AUG 02...	0.20	160	63	27	31	2	22	<8	<4	5.5	83

	LEAD	LITHIUM	MAGNE- SIUM	MANGA- NESE	MOLYB- DENUM	NEODYM- IUM	NICKEL	NIOBIUM	PHOS- PHORUS	POTAS- SIUM	SCAN- DIUM
DATE	BOT MAT <63U WS FIELD (UG/G) (34890)	BOT MAT <63U WS FIELD (UG/G) (34895)	BOT MAT <63U WS FIELD PERCENT (34900)	BOT MAT <63U WS FIELD (UG/G) (34905)	BOT MAT <63U WS FIELD (UG/G) (34915)	BOT MAT <63U WS FIELD (UG/G) (34920)	BOT MAT <63U WS FIELD (UG/G) (34925)	BOT MAT <63U WS FIELD (UG/G) (34930)	BOT MAT <63U WS FIELD PERCENT (34935)	BOT MAT <63U WS FIELD PERCENT (34940)	BOT MAT <63U WS FIELD (UG/G) (34945)
AUG *02...	26	40	0.48	3000	<2	69	32	19	0.07	2.4	15

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

\* Bed sediment sample.

## 01660380 CANNON CREEK NEAR GARRISONVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SODIUM BOT MAT <63U WS FIELD PERCENT (34960)	STRON- TIUM BOT MAT <63U WS FIELD (UG/G) (34965)	TANTA- LUM BOT MAT <63U WS FIELD (UG/G) (34975)	TIN BOT MAT <63U WS FIELD (UG/G) (34985)	VANA- DIUM BOT MAT <63U WS FIELD (UG/G) (35005)	YTTRIUM BOT MAT <63U WS FIELD (UG/G) (35010)	YTTER- BIUM BOT MAT <63U WS FIELD (UG/G) (35015)	ZINC BOT MAT <63U WS FIELD (UG/G) (35020)	TITA- NIUM,S ED, BMW S,<63UD RY WGT REC P ERCENT (49274)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
NOV										
15...	--	--	--	--	--	--	--	--	--	3
DEC										
29...	--	--	--	--	--	--	--	--	--	4
29...	--	--	--	--	--	--	--	--	--	8
JAN										
12...	--	--	--	--	--	--	--	--	--	7
20...	--	--	--	--	--	--	--	--	--	371
MAR										
08...	--	--	--	--	--	--	--	--	--	229
09...	--	--	--	--	--	--	--	--	--	1070
09...	--	--	--	--	--	--	--	--	--	6390
09...	--	--	--	--	--	--	--	--	--	376
09...	--	--	--	--	--	--	--	--	--	312
09...	--	--	--	--	--	--	--	--	--	216
09...	--	--	--	--	--	--	--	--	--	150
09...	--	--	--	--	--	--	--	--	--	80
20...	--	--	--	--	--	--	--	--	--	8
20...	--	--	--	--	--	--	--	--	--	6
APR										
24...	--	--	--	--	--	--	--	--	--	21
MAY										
11...	--	--	--	--	--	--	--	--	--	253
11...	--	--	--	--	--	--	--	--	--	185
11...	--	--	--	--	--	--	--	--	--	135
14...	--	--	--	--	--	--	--	--	--	23
25...	--	--	--	--	--	--	--	--	--	58
25...	--	--	--	--	--	--	--	--	--	7
JUN										
26...	--	--	--	--	--	--	--	--	--	9
26...	--	--	--	--	--	--	--	--	--	42
27...	--	--	--	--	--	--	--	--	--	430
27...	--	--	--	--	--	--	--	--	--	186
JUL										
25...	--	--	--	--	--	--	--	--	--	9
25...	--	--	--	--	--	--	--	--	--	130
AUG										
*02...	0.28	59	<40	<10	92	50	4	93	0.690	--
23...	--	--	--	--	--	--	--	--	--	7
SEP										
19...	--	--	--	--	--	--	--	--	--	5
19...	--	--	--	--	--	--	--	--	--	6

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

\* Bed sediment sample.

## POTOMAC RIVER BASIN

## 01660400 AQUIA CREEK NEAR GARRISONVILLE, VA

LOCATION.--Lat 38°29'25", long 77°26'02", Stafford County, Hydrologic Unit 02070011, on right bank at bridge on State Highway 641, 1.1 mi northwest of Garrisonville, and 3.0 mi upstream from Beaverdam Run.

DRAINAGE AREA.--34.9 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Elevation of gage is 120 ft above sea level, from topographic map.

REMARKS.--Records good except those for period with ice effect, Feb. 5-14, which is fair, and periods with backwater from beaver dams, Oct. 1 to Jan. 15, June 8-27, and July 4 to Sept. 30, which are poor. Maximum discharge, 11,600 ft<sup>3</sup>/s, from rating curve extended above 1,600 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow. No flow part or all of each day Sept. 15-17, 1980, Aug. 24-27, 1983, Aug. 13-19, Sept. 21-24, 1988, and Sept. 17, 18, 1991. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality-Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1730	538	3.52	Mar. 8	2300	*692	*3.90

Minimum daily discharge, 0.04 ft<sup>3</sup>/s, Sept. 13-15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6.1	e4.4	e8.3	e15	25	35	14	16	8.3	28	e5.0	e.45
2	e4.7	e10	e6.9	e14	25	26	14	35	7.7	22	e2.0	e.44
3	e3.1	e9.7	e6.2	e10	23	22	13	30	17	20	e2.3	e.43
4	e2.8	e7.6	e7.9	e8.8	26	21	13	18	36	e18	e1.7	e.42
5	e2.5	e6.9	e45	e7.0	e25	20	12	16	12	e16	e7.6	e.40
6	e2.3	e6.1	e32	e7.8	e22	22	12	15	8.4	e26	e16	e.38
7	e2.1	e5.8	e20	e130	e18	21	12	12	7.2	e20	e9.7	e.35
8	e1.8	e5.1	e14	e49	e16	142	12	10	e6.6	e22	e5.8	e.29
9	e1.8	e4.7	e12	e29	e16	270	12	9.2	e6.2	e15	e3.7	e.24
10	e1.9	e8.7	e10	e21	e17	71	13	20	e5.8	e23	e2.5	e.16
11	e2.4	e9.3	e17	e17	e18	44	14	93	e5.6	e25	e1.8	e.08
12	e2.6	e8.0	e14	e14	e19	33	15	30	e40	e22	e1.4	e.06
13	e2.0	e7.6	e12	e13	e18	28	33	19	e17	e13	e1.2	e.04
14	e2.5	e6.8	e11	e12	e18	25	23	36	e10	e7.0	e1.1	e.04
15	e3.9	e5.8	e11	e200	19	22	16	38	e7.0	e5.3	e1.0	e.04
16	e3.9	e5.1	e9.0	159	34	21	14	21	e5.8	e4.3	e1.2	e.10
17	e3.4	e6.1	e9.0	55	60	20	13	17	e5.0	e3.7	e1.1	e6.0
18	e3.0	e10	e11	36	42	19	13	17	e4.3	e3.2	e1.0	e2.8
19	e2.7	e13	e9.6	29	32	19	13	46	e3.8	e28	e.95	e1.1
20	e2.7	e11	e8.8	238	29	19	12	28	e3.3	e12	e.90	e.70
21	e4.7	e20	e8.0	96	26	18	12	18	e2.8	e45	e.85	e.55
22	e4.4	e22	e7.2	48	22	18	11	14	e2.5	e60	e.81	e1.2
23	e11	e11	e7.0	34	20	17	9.8	12	e20	e15	e.77	e1.0
24	e15	e8.0	e7.0	29	19	16	17	10	e15	e8.0	e.75	e1.6
25	e8.3	e6.8	e7.6	25	18	15	16	10	e8.8	e12	e.69	e2.7
26	e7.6	e5.8	e7.2	23	18	15	12	15	e6.5	e9.2	e.65	e4.5
27	e6.2	e5.8	e7.2	21	19	15	10	12	e82	e7.0	e.62	e5.0
28	e5.4	e16	e6.0	21	36	16	9.5	11	68	e9.0	e.90	e4.0
29	e5.0	e14	e6.6	24	---	16	8.5	16	43	e10	e.70	e3.5
30	e4.7	e9.8	e6.0	23	---	15	11	14	30	e9.5	e.60	e3.0
31	e4.4	---	e5.8	23	---	15	---	11	---	e8.2	e.49	---
TOTAL	134.9	270.9	350.3	1431.6	680	1076	409.8	669.2	495.6	526.4	75.78	41.57
MEAN	4.35	9.03	11.3	46.2	24.3	34.7	13.7	21.6	16.5	17.0	2.44	1.39
MAX	15	22	45	238	60	270	33	93	82	60	16	6.0
MIN	1.8	4.4	5.8	7.0	16	15	8.5	9.2	2.5	3.2	.49	.04
CFSM	.12	.26	.32	1.32	.70	.99	.39	.62	.47	.49	.07	.04
IN.	.14	.29	.37	1.53	.72	1.15	.44	.71	.53	.56	.08	.04

e Estimated.

## 01660400 AQUIA CREEK NEAR GARRISONVILLE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	21.2	30.4	42.6	50.8	53.1	61.9	53.8	39.9	26.6	15.1	11.7	16.7
MAX	138	91.3	105	118	123	175	141	144	234	103	65.8	174
(WY)	1980	1973	1975	1978	1979	1994	1973	1989	1972	1975	1984	1975
MIN	.42	1.95	7.17	3.93	20.8	8.71	11.6	10.8	2.84	1.41	.15	.058
(WY)	1981	1992	1989	1981	1991	1981	1981	1986	1986	1977	1983	1980

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1972 - 1995

ANNUAL TOTAL	14255.6	6162.05	
ANNUAL MEAN	39.1	16.9	
HIGHEST ANNUAL MEAN			35.3
LOWEST ANNUAL MEAN			58.6
HIGHEST DAILY MEAN			12.2
LOWEST DAILY MEAN			1972
ANNUAL SEVEN-DAY MINIMUM			1981
INSTANTANEOUS PEAK FLOW	1130	Mar 28	270
INSTANTANEOUS PEAK STAGE	e1.2	Sep 16	Mar 9
INSTANTANEOUS LOW FLOW	e1.8	Sep 10	3900
ANNUAL RUNOFF (CFSM)			.00
ANNUAL RUNOFF (INCHES)			bSep 15 1980
10 PERCENT EXCEEDS	76	31	.01
50 PERCENT EXCEEDS	13	11	Sep 11 1980
90 PERCENT EXCEEDS	3.0	1.1	11600
			Jun 22 1972
			Jun 22 1972
			(d)
			1.01
			13.72
			68
			18
			1.5

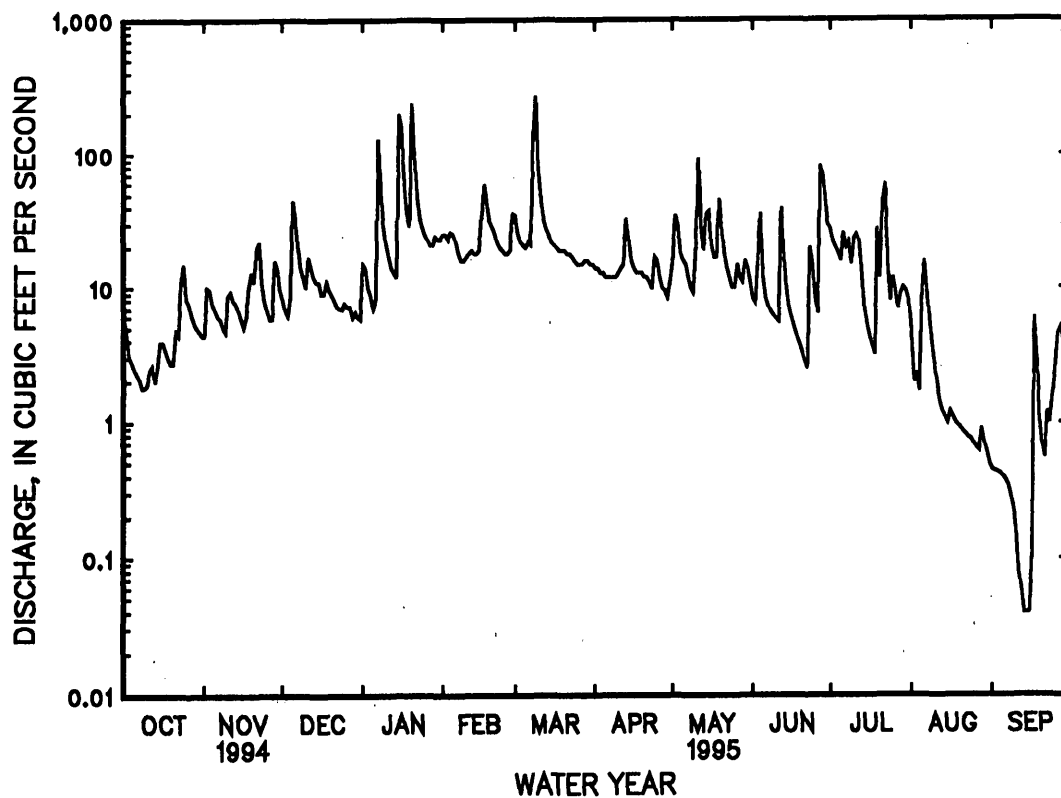
a Also Sept. 14, 15, 1995.

b Also Sept. 16, 17, 1980, Aug. 24-27, 1983, Aug. 14, 15, Sept. 22, 1988, and Sept. 17, 1991.

c Not determined.

d Part or all of each day Sept. 15-17, 1980, Aug. 24-27, 1983, Aug. 13-19, Sept. 21-24, 1988, and Sept. 17, 18, 1991.

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 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1958 to July 1995 (discontinued).

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 sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 6-14, and period of no gage-height record, July 10, which are fair. Maximum discharge, 9,120 ft<sup>3</sup>/s, from rating curve extended above 2,500 ft<sup>3</sup>/s on basis of velocity-area study and slope-area measurement of peak flow. No flow many days in September 1966. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1994 to July 1995, 9,120 ft<sup>3</sup>/s, June 27, gage height, 14.4 ft; minimum 6.2 ft<sup>3</sup>/s, June 21-22.

DISCHARGE, CUBIC FEET PER SECOND, OCTOBER 1994 TO JULY 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	15	10	16	24	24	18	15	12	180	---	---
2	11	14	9.9	13	24	22	18	26	12	117	---	---
3	11	9.8	9.6	12	22	21	17	20	14	75	---	---
4	10	9.2	10	11	26	21	17	17	15	61	---	---
5	10	9.1	42	e9.4	e23	21	16	18	12	52	---	---
6	9.8	9.1	24	e11	e20	23	17	15	11	45	---	---
7	14	8.9	19	40	e18	22	16	14	11	40	---	---
8	10	8.7	16	28	e17	55	16	13	9.3	35	---	---
9	10	9.1	14	22	e16	86	16	13	8.5	31	---	---
10	10	10	16	20	e18	55	17	34	9.5	e30	---	---
11	9.1	10	20	19	e17	46	17	54	17	---	---	---
12	8.7	8.9	16	19	e18	44	22	27	23	---	---	---
13	9.1	9.0	16	18	e16	37	34	22	15	---	---	---
14	9.6	8.9	15	17	e15	33	21	37	14	---	---	---
15	9.2	9.0	14	92	20	32	19	33	17	---	---	---
16	8.8	9.3	13	85	26	30	18	26	11	---	---	---
17	8.6	10	14	51	32	28	18	24	9.2	---	---	---
18	8.6	11	14	40	29	26	17	36	9.2	---	---	---
19	8.7	10	13	36	28	25	17	45	7.8	---	---	---
20	8.7	9.1	12	87	28	24	16	32	7.1	---	---	---
21	8.4	19	12	56	27	24	16	26	6.5	---	---	---
22	8.3	17	12	45	25	23	15	22	6.8	---	---	---
23	13	11	12	38	24	22	14	20	34	---	---	---
24	11	10	11	34	23	21	22	18	20	---	---	---
25	9.3	9.9	11	31	21	20	16	18	14	---	---	---
26	9.0	9.5	10	32	21	19	14	19	69	---	---	---
27	8.7	10	11	26	21	19	14	17	1780	---	---	---
28	8.8	16	11	26	28	21	13	17	200	---	---	---
29	8.7	13	11	25	---	20	13	18	145	---	---	---
30	8.8	11	10	24	---	19	15	16	155	---	---	---
31	9.5	---	11	24	---	19	---	13	---	---	---	---
TOTAL	299.4	324.5	439.5	1007.4	627	902	519	725	2674.9	---	---	---
MEAN	9.66	10.8	14.2	32.5	22.4	29.1	17.3	23.4	89.2	---	---	---
MAX	14	19	42	92	32	86	34	54	1780	---	---	---
MIN	8.3	8.7	9.6	9.4	15	19	13	13	6.5	---	---	---
CFSM	.35	.39	.51	1.18	.81	1.05	.63	.85	3.23	---	---	---
IN.	.40	.44	.59	1.36	.85	1.22	.70	.98	3.61	---	---	---

e Estimated.



## 01662800 BATTLE RUN NEAR LAUREL MILLS, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1995\*\*

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	17.6	22.7	27.0	33.2	39.7	48.0	41.6	32.2	22.8	11.7	12.2	11.6
MAX	119	106	79.9	116	108	144	149	85.9	91.8	39.9	73.8	102
(WY)	1980	1986	1993	1978	1984	1993	1983	1988	1972	1972	1994	1979
MIN	.92	2.36	1.82	1.45	7.92	12.5	9.31	8.31	3.61	1.23	.42	.63
(WY)	1992	1966	1966	1966	1989	1981	1981	1969	1986	1966	1966	1985

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## WATER YEARS 1958 - 1995\*\*

ANNUAL TOTAL	13765.1	
ANNUAL MEAN	37.7	26.7
HIGHEST ANNUAL MEAN		48.4 1993
LOWEST ANNUAL MEAN		9.17 1981
HIGHEST DAILY MEAN	517 Aug 17	2000 Oct 9 1976
LOWEST DAILY MEAN	4.9 Jul 14	.00 aSep 3 1966
ANNUAL SEVEN-DAY MINIMUM	6.5 Jul 8	.00 bSep 6 1966
INSTANTANEOUS PEAK FLOW		9120 cOct 9 1976
INSTANTANEOUS PEAK STAGE		d14.40 Jun 27 1995
INSTANTANEOUS LOW FLOW		.00 aSep 3 1966
ANNUAL RUNOFF (CFSM)	1.37	.97
ANNUAL RUNOFF (INCHES)	18.55	13.14
10 PERCENT EXCEEDS	74	55
50 PERCENT EXCEEDS	20	15
90 PERCENT EXCEEDS	9.0	2.8

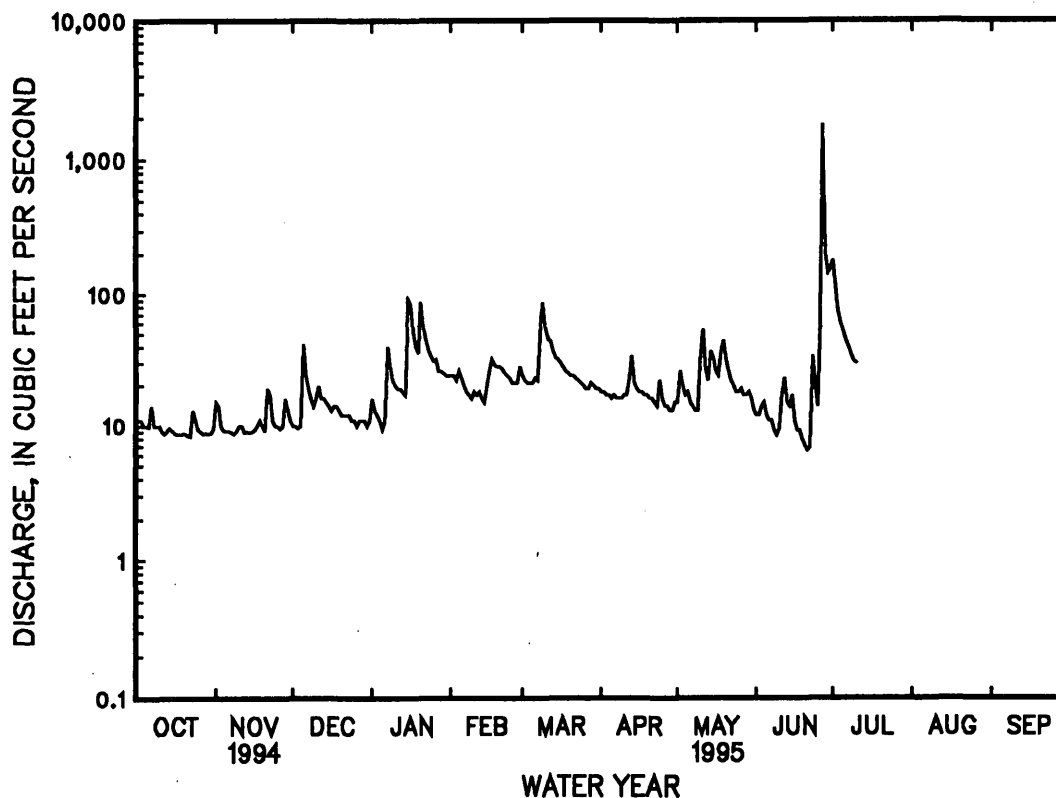
\*\* Partial water year.

a Also Sept. 6-13, 1966.

b Also Sept. 7, 1966.

c Also June 27, 1995.

d From high-water mark in gage house. Result of backwater from bridge collapse.



## RAPPAHANNOCK RIVER BASIN

## 01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA

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

DRAINAGE AREA.--620 mi<sup>2</sup>.

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 sea level. Prior to Nov. 21, 1951, nonrecording gage at bridge 80 ft downstream at same datum.

REMARKS.--Records good except for period of no gage-height record, Dec. 21 to Jan. 25, and period with ice effect, Feb. 6-14, which are fair. National Weather Service gage-height telemeter at station. Maximum discharge, 90,000 ft<sup>3</sup>/s, from rating curve extended above 43,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 2.31 ft, Sept. 13, 1966. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	Unknown	6,460	a11.56	June 28	0730	*27,800	*20.06

a From high-water mark.

Minimum discharge, 64 ft<sup>3</sup>/s, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	240	260	e341	631	749	412	356	360	3960	252	85
2	200	431	236	e429	641	615	399	464	332	3260	233	79
3	197	284	225	e356	618	549	385	761	326	1930	214	74
4	191	212	220	e322	627	524	373	556	653	1480	196	70
5	183	190	946	e274	608	509	359	513	445	1320	195	67
6	181	183	1090	e327	e420	523	344	487	342	1170	2470	68
7	174	175	703	e1280	e410	525	345	422	320	1170	1710	67
8	170	165	535	e1210	e400	771	341	382	299	1000	849	65
9	165	164	444	e858	e420	3200	337	359	261	827	581	64
10	180	176	420	e701	e450	1620	353	398	246	781	481	76
11	178	188	594	e606	e440	1280	378	1240	292	792	499	107
12	164	179	566	e580	e480	1170	373	894	1150	618	415	92
13	158	170	459	e541	e460	1090	826	658	986	540	349	80
14	161	166	425	e504	e440	1000	683	653	566	490	316	93
15	167	164	409	e1390	451	918	505	1110	442	444	309	97
16	163	164	385	e4440	536	851	446	793	389	407	267	90
17	158	167	383	e2390	938	789	424	653	309	376	246	118
18	153	183	397	e1650	811	723	418	660	270	482	237	258
19	151	213	381	e1300	728	667	409	1270	246	474	209	170
20	152	225	356	e2530	710	632	391	1020	227	351	188	125
21	155	202	e332	e2110	707	610	377	771	209	452	178	107
22	149	431	e332	e1470	636	587	372	637	198	1490	170	104
23	163	362	e322	e1300	577	551	346	536	427	620	158	125
24	225	260	e313	e1190	551	519	388	471	829	468	144	121
25	213	229	e304	e993	507	479	446	457	854	862	134	129
26	175	218	e366	815	480	449	382	819	2210	553	123	206
27	164	210	e332	745	470	444	345	659	5490	412	112	296
28	157	292	e313	705	685	458	328	512	21600	378	104	220
29	154	368	e309	709	---	469	312	523	6570	360	98	156
30	155	300	e295	654	---	445	307	490	4570	313	94	128
31	158	---	e278	638	---	431	---	420	---	282	90	---
TOTAL	5325	6911	12930	33358	15832	24147	12104	19944	51418	28062	11621	3537
MEAN	172	230	417	1076	565	779	403	643	1714	905	375	118
MAX	225	431	1090	4440	938	3200	826	1270	21600	3960	2470	296
MIN	149	164	220	274	400	431	307	356	198	282	90	64
CFSM	.28	.37	.67	1.74	.91	1.26	.65	1.04	2.76	1.46	.60	.19
IN.	.32	.41	.78	2.00	.95	1.45	.73	1.20	3.09	1.68	.70	.21

e Estimated.

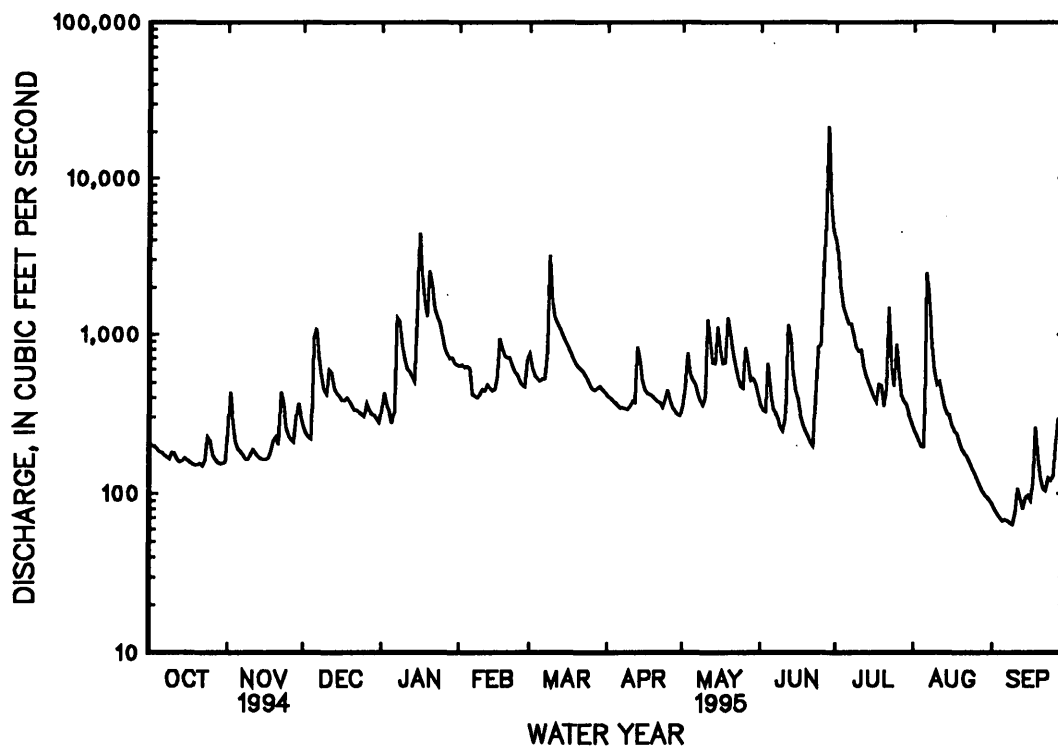
## 01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	491	562	712	816	979	1179	1053	829	587	345	374	325
MAX	4895	2575	2172	2344	2819	3751	3784	2177	3520	974	2926	2743
(WY)	1943	1986	1951	1978	1984	1993	1983	1989	1972	1949	1955	1979
MIN	27.3	61.8	61.1	78.3	212	292	248	198	71.8	30.1	13.2	15.4
(WY)	1987	1966	1966	1966	1989	1981	1981	1977	1977	1966	1966	1985

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1943 - 1995	
ANNUAL TOTAL	337853		225189		686	
ANNUAL MEAN	926		617		1198	
HIGHEST ANNUAL MEAN					251	
LOWEST ANNUAL MEAN					1981	
HIGHEST DAILY MEAN	14500	Aug 18	21600	Jun 28	64000	Oct 16 1942
LOWEST DAILY MEAN	117	Jul 14	64	Sep 9	2.9	Sep 12 1966
ANNUAL SEVEN-DAY MINIMUM	149	Jul 11	68	Sep 3	3.2	Sep 7 1966
INSTANTANEOUS PEAK FLOW			27800	Jun 28	90000	Oct 16 1942
INSTANTANEOUS PEAK STAGE			20.06	Jun 28	30.00	Oct 16 1942
INSTANTANEOUS LOW FLOW			63	cSep 9	1.1	Sep 10 1966
ANNUAL RUNOFF (CFSM)	1.49		1.00		1.11	
ANNUAL RUNOFF (INCHES)	20.27		13.51		15.03	
10 PERCENT EXCEEDS	2040		1090		1380	
50 PERCENT EXCEEDS	431		397		410	
90 PERCENT EXCEEDS	167		154		77	

b From floodmarks.  
c Also Sept. 10, 1995.



## RAPPAHANNOCK RIVER BASIN

## 01665000 MOUNTAIN RUN NEAR CULPEPER, VA

LOCATION.--Lat 38°28'50", long 78°03'10", Culpeper County, Hydrologic Unit 02080103, on left bank 30 ft upstream from bridge on State Highway 641, 1.5 mi downstream from Mountain Run Lake, and 3.0 mi west of Culpeper.

DRAINAGE AREA.--15.9 mi<sup>2</sup>, of which 10.9 mi<sup>2</sup> are above flood-detention structures.

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

REVISED RECORDS.--WSP 1332: 1950-51. WSP 2103: Drainage area. WDR VA-89-1: 1951 (M).

GAGE.--Water-stage recorder. Datum of gage is 389.46 ft above sea level.

REMARKS.--Records good except those for periods of no gage-height record, Jan. 5, 6, and Feb. 7-14, and period with ice effect, Feb. 5, 6, which are fair. Some regulation since 1959 by two reservoirs, combined flood storage, 2,240 acre-ft; 531 acre-ft additional storage used for low-water regulation for municipal supply for town of Culpeper. Maximum discharge, 5,940 ft<sup>3</sup>/s, from rating curve extended above 910 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 10.52 ft and 11.00 ft. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
July 21	1630	512	5.93	July 24	1630	*1,010	*7.32

Minimum discharge, 1.3 ft<sup>3</sup>/s, Sept. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	25	8.1	12	15	21	10	8.4	5.9	61	8.3	2.4
2	5.9	22	8.1	11	16	17	9.9	15	5.6	52	7.2	2.3
3	5.6	12	7.6	10	16	15	9.5	15	6.2	24	6.5	2.1
4	5.1	9.2	7.6	9.4	18	15	9.6	12	6.4	16	5.8	2.1
5	5.3	8.1	54	e7.8	e14	14	9.1	12	5.6	13	8.5	2.0
6	5.2	7.9	30	e8.3	e12	14	8.8	11	5.0	14	40	2.0
7	5.2	7.3	19	58	e11	14	9.0	9.1	5.0	16	25	1.8
8	5.3	6.7	14	34	e9.8	45	9.6	8.0	4.6	40	15	1.6
9	5.7	6.5	12	21	e9.2	112	8.9	7.4	4.1	21	11	1.9
10	7.4	8.2	13	16	e11	50	9.1	9.6	4.1	18	9.6	2.3
11	6.7	8.6	18	14	e10	28	9.7	11	6.5	17	8.5	2.2
12	6.0	7.6	14	13	e11	22	11	9.4	41	12	7.4	2.2
13	5.8	7.3	12	12	e9.4	19	19	8.2	30	9.9	6.5	2.6
14	6.4	6.9	12	12	e8.4	17	14	15	13	8.4	7.0	3.0
15	7.2	6.7	12	67	12	16	11	17	9.6	7.7	6.7	2.7
16	7.3	6.5	11	103	16	15	10	12	6.5	6.7	6.0	2.6
17	7.1	6.9	11	41	24	14	9.9	9.8	5.1	8.0	5.4	6.9
18	7.2	8.0	11	26	20	13	10	9.4	4.4	18	4.9	5.8
19	6.8	7.6	12	21	17	12	10	15	4.1	12	4.3	4.3
20	7.3	7.0	11	50	16	12	9.4	12	4.6	8.9	3.8	4.6
21	7.1	8.4	10	34	16	13	9.6	8.9	4.6	80	3.5	4.7
22	7.1	11	9.8	24	14	13	9.2	7.4	8.9	96	3.2	5.6
23	10	9.1	9.3	19	13	12	7.8	6.4	26	42	2.9	6.0
24	11	7.9	9.1	17	13	12	13	5.8	22	135	2.7	5.7
25	9.1	7.2	9.2	16	12	10	12	5.7	13	93	2.5	6.9
26	8.5	6.6	8.5	15	12	9.9	10	8.4	11	28	2.4	10
27	8.5	7.0	8.1	14	12	10	9.0	8.9	133	24	2.5	9.3
28	7.7	12	8.1	14	23	11	8.2	8.4	127	40	2.6	5.8
29	7.6	11	7.9	15	---	11	7.6	9.6	88	19	2.6	4.4
30	7.7	9.3	7.7	15	---	11	7.4	8.3	67	13	2.6	3.7
31	8.0	---	8.1	15	---	11	---	6.9	---	10	2.4	---
TOTAL	216.9	275.5	393.2	744.5	390.8	608.9	301.3	311.0	677.8	963.6	227.3	119.5
MEAN	7.00	9.18	12.7	24.0	14.0	19.6	10.0	10.0	22.6	31.1	7.33	3.98
MAX	11	25	54	103	24	112	19	17	133	135	40	10
MIN	5.1	6.5	7.6	7.8	8.4	9.9	7.4	5.7	4.1	6.7	2.4	1.6
CFSM	.44	.58	.80	1.51	.88	1.24	.63	.63	1.42	1.95	.46	.25
IN.	.51	.64	.92	1.74	.91	1.42	.70	.73	1.59	2.25	.53	.28

e Estimated.

## 01665000 MOUNTAIN RUN NEAR CULPEPER, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1958, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	9.06	14.6	19.5	16.6	21.7	26.1	21.5	14.6	11.8	8.31	14.2	10.8
MAX	15.7	54.0	48.7	31.2	32.5	45.8	35.6	26.0	31.9	23.4	74.2	46.9
(WY)	1951	1953	1951	1953	1951	1953	1952	1952	1951	1958	1955	1950
MIN	2.36	2.87	5.63	5.00	7.64	15.7	10.6	4.79	2.81	1.12	.41	.56
(WY)	1954	1954	1956	1956	1954	1956	1956	1956	1956	1957	1957	1954

## SUMMARY STATISTICS

## WATER YEARS 1950 - 1958

ANNUAL TOTAL	
ANNUAL MEAN	15.7
HIGHEST ANNUAL MEAN	21.5
LOWEST ANNUAL MEAN	6.59
HIGHEST DAILY MEAN	e1150 Aug 18 1955
LOWEST DAILY MEAN	.10 aSep 28 1954
ANNUAL SEVEN-DAY MINIMUM	.11 Sep 26 1954
INSTANTANEOUS PEAK FLOW	5940 Dec 4 1950
INSTANTANEOUS PEAK STAGE	11.20 Dec 4 1950
INSTANTANEOUS LOW FLOW	.09 bSep 30 1954
ANNUAL RUNOFF (CFSM)	.99
ANNUAL RUNOFF (INCHES)	13.41
10 PERCENT EXCEEDS	28
50 PERCENT EXCEEDS	9.5
90 PERCENT EXCEEDS	2.4

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	12.8	16.3	19.0	22.0	25.6	28.6	23.5	18.6	13.4	11.3	8.84	10.7
MAX	74.5	58.3	50.2	59.8	50.4	96.5	94.9	47.5	80.4	49.1	37.7	63.0
(WY)	1977	1986	1993	1978	1984	1993	1983	1993	1972	1989	1984	1987
MIN	1.54	1.30	1.19	2.09	7.65	9.60	8.65	5.47	2.14	1.92	1.67	1.29
(WY)	1992	1966	1966	1966	1989	1981	1985	1977	1986	1966	1963	1985

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1959 - 1995

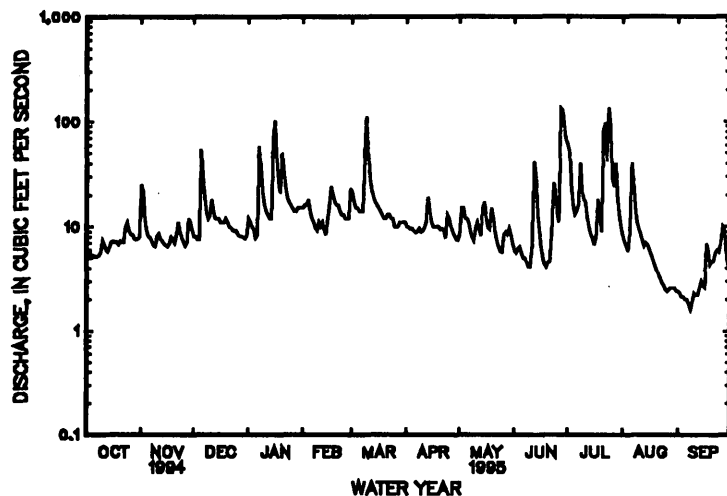
ANNUAL TOTAL	8019.5	5230.3	
ANNUAL MEAN	22.0	14.3	17.5
HIGHEST ANNUAL MEAN			31.6
LOWEST ANNUAL MEAN			8.28
HIGHEST DAILY MEAN	253 Jul 27	135 Jul 24	555 Jun 21 1972
LOWEST DAILY MEAN	2.7 cJun 26	1.6 Sep 8	.48 Sep 6 1983
ANNUAL SEVEN-DAY MINIMUM	2.8 Jul 11	1.9 Sep 3	.69 Sep 2 1983
INSTANTANEOUS PEAK FLOW		1010 Jul 24	4510 May 5 1993
INSTANTANEOUS PEAK STAGE		7.32 Jul 24	11.87 May 5 1993
INSTANTANEOUS LOW FLOW		1.3 Sep 8	.30 Aug 31 1965
ANNUAL RUNOFF (CFSM)	1.38	.90	1.10
ANNUAL RUNOFF (INCHES)	18.76	12.24	14.97
10 PERCENT EXCEEDS	46	24	32
50 PERCENT EXCEEDS	11	9.6	10
90 PERCENT EXCEEDS	5.0	4.5	2.5

a Also Sept. 29 to Oct. 1, 1954, and Aug. 14, 1957.

b Also Oct. 1, 1954.

c Also July 12-15, 1994.

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 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1942 to June 1995 (discontinued).

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 sea level.

REMARKS.--Records good except those for periods with backwater from beaver dams, Oct. 1-5, 12-23, Oct. 27 to Nov. 1, Nov. 9, 10, 19, 21, 24-27, periods with ice effect, Jan. 5, 6, and Feb. 6, and periods of no gage-height record, Apr. 14 to May 12, and June 27-30, 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 averaged about 0.53 ft<sup>3</sup>/s. Maximum discharge, 106,000 ft<sup>3</sup>/s, from rating curve extended above 8,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1994 to June 1995, 106,000 ft<sup>3</sup>/s, June 27, gage height, 31.3 ft; minimum 21 ft<sup>3</sup>/s, Oct. 7, 8.

DISCHARGE, CUBIC FEET PER SECOND, OCTOBER 1994 TO June 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e34	e50	62	86	129	118	82	e79	86	---	---	---
2	e32	67	57	72	128	111	80	e96	86	---	---	---
3	e30	43	55	63	121	106	79	e135	88	---	---	---
4	e28	36	55	61	124	104	77	e110	82	---	---	---
5	e26	34	216	e52	111	102	76	e95	74	---	---	---
6	24	32	158	e60	e93	103	75	e90	72	---	---	---
7	23	30	130	323	111	98	76	e83	71	---	---	---
8	23	30	114	211	102	248	74	e80	64	---	---	---
9	25	e29	103	167	94	402	74	e74	60	---	---	---
10	31	e33	102	149	98	258	74	e85	63	---	---	---
11	28	38	121	137	92	222	73	e100	84	---	---	---
12	e25	36	100	129	86	205	79	e90	165	---	---	---
13	e24	34	90	124	78	188	119	81	114	---	---	---
14	e28	32	88	128	76	175	e98	216	81	---	---	---
15	e32	31	83	1310	79	164	e89	180	71	---	---	---
16	e27	31	78	1320	95	154	e78	142	62	---	---	---
17	e26	31	79	692	118	144	e73	133	58	---	---	---
18	e25	34	80	468	105	135	e76	126	54	---	---	---
19	e25	e39	93	362	101	129	e79	143	50	---	---	---
20	e24	42	81	532	104	123	e75	116	46	---	---	---
21	e27	e41	76	400	107	120	e74	104	45	---	---	---
22	e29	108	71	330	101	113	e72	98	70	---	---	---
23	e30	73	69	283	98	111	e70	91	151	---	---	---
24	44	e60	66	243	97	105	e93	86	146	---	---	---
25	36	e56	66	209	92	98	e85	136	438	---	---	---
26	33	e53	63	185	90	94	e77	153	475	---	---	---
27	e30	e52	60	167	89	92	e72	108	e29400	---	---	---
28	e29	81	59	157	134	92	e69	103	e9030	---	---	---
29	e28	73	57	149	---	90	e68	112	e6380	---	---	---
30	e29	65	55	140	---	87	e71	103	e2590	---	---	---
31	e32	---	57	132	---	85	---	92	---	---	---	---
TOTAL	887	1394	2644	8841	2853	4376	2357	3440	50256	---	---	---
MEAN	28.6	46.5	85.3	285	102	141	78.6	111	1675	---	---	---
MAX	44	108	216	1320	134	402	119	216	29400	---	---	---
MIN	23	29	55	52	76	85	68	74	45	---	---	---
CFSM	.25	.41	.75	2.50	.89	1.24	.69	.97	14.7	---	---	---
IN.	.29	.45	.86	2.88	.93	1.43	.77	1.12	16.40	---	---	---

e Estimated.

## 01665500 RAPIDAN RIVER NEAR RUCKERSVILLE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1995\*\*

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	132	141	161	174	198	246	229	179	168	80.3	90.5	79.5
MAX	976	798	465	483	485	570	692	376	1675	378	760	598
(WY)	1943	1986	1951	1978	1984	1993	1983	1978	1995	1949	1955	1979
MIN	9.44	25.3	20.4	21.0	52.4	79.7	72.8	48.0	23.3	6.99	6.32	5.83
(WY)	1964	1966	1966	1981	1989	1981	1981	1977	1977	1977	1966	1954

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## WATER YEARS 1943 - 1995\*\*

ANNUAL TOTAL	54186		
ANNUAL MEAN	148		155
HIGHEST ANNUAL MEAN			337
LOWEST ANNUAL MEAN			70.6
HIGHEST DAILY MEAN	1190	Mar 29	e29400
LOWEST DAILY MEAN	13	aJul 13	.90
ANNUAL SEVEN-DAY MINIMUM	16	Jul 8	1.1
INSTANTANEOUS PEAK FLOW			106000
INSTANTANEOUS PEAK STAGE			b31.3
INSTANTANEOUS LOW FLOW			(c)
ANNUAL RUNOFF (CFSM)	1.30		1.36
ANNUAL RUNOFF (INCHES)	17.68		18.44
10 PERCENT EXCEEDS	329		311
50 PERCENT EXCEEDS	80		98
90 PERCENT EXCEEDS	29		20

\*\* Partial water year.

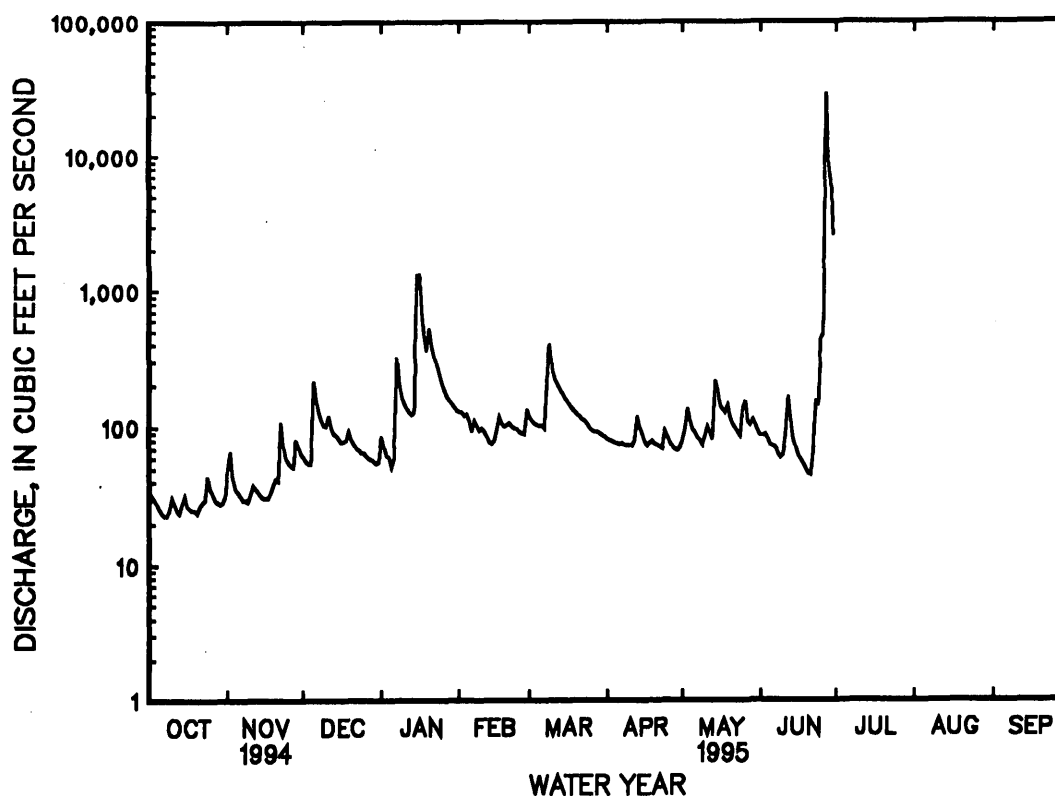
a Also July 14, 1994.

b From floodmarks.

c Not determined.

d Probably occurred Sept. 12, 1966.

e Estimated.



## RAPPAHANNOCK RIVER BASIN

## 01666500 ROBINSON RIVER NEAR LOCUST DALE, VA

LOCATION.--Lat 38°19'30", long 78°05'45", Madison County, Hydrologic Unit 02080103, on right bank 100 ft upstream from bridge on State Highway 614, 1.1 mi upstream from Great Run, 1.7 mi upstream from mouth, 2.0 mi southeast of Locust Dale, and 3.4 mi downstream from Crooked Run.

DRAINAGE AREA.--179 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1943 to current year. Prior to October 1965, published as Robertson River near Locust Dale.

REVISED RECORDS.--WSP 1171: 1948(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 283.70 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 5-14, which are fair. Maximum discharge, 25,400 ft<sup>3</sup>/s, from rating curve extended above 9,100 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 20.17 ft. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.9 ft, from floodmarks, discharge, about 44,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2130	3,710	11.81	June 29	2200	4,120	12.78
Mar. 8	2400	2,900	10.36	July 1	0030	3,160	11.10
June 27	1930	*25,400	*22.93	July 1	2000	2,140	8.66

Minimum discharge, 29 ft<sup>3</sup>/s, Sept. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	146	97	125	181	207	113	99	108	2080	97	44
2	57	125	91	118	189	181	112	164	103	1230	91	68
3	58	78	88	106	179	170	107	184	102	799	85	43
4	56	71	87	102	187	164	105	149	139	610	80	38
5	56	67	327	e88	e164	158	100	150	95	495	76	37
6	55	65	233	e104	e126	160	99	139	88	454	291	37
7	54	62	171	535	e141	154	99	122	87	493	246	35
8	53	61	144	305	e136	580	97	111	80	556	153	33
9	54	61	129	221	e120	1220	94	105	72	339	123	32
10	62	67	126	188	e139	462	93	134	73	302	114	41
11	55	71	168	168	e142	362	97	134	83	292	116	39
12	53	63	139	157	e137	320	97	114	355	237	100	33
13	52	63	128	147	e126	286	173	104	211	214	91	33
14	55	62	125	141	e120	262	137	220	125	195	97	35
15	57	61	121	1230	129	241	118	219	109	182	85	33
16	54	62	116	1600	149	228	112	156	91	166	80	30
17	54	62	117	713	234	212	111	142	81	158	73	107
18	54	64	119	494	189	196	112	137	75	161	68	87
19	54	82	135	392	177	185	110	182	70	151	63	57
20	54	80	120	591	177	175	102	156	66	131	60	49
21	61	83	115	474	177	166	104	131	61	149	58	47
22	57	150	111	378	165	157	100	121	64	283	57	49
23	63	109	109	323	159	151	91	110	198	153	52	60
24	75	92	103	282	154	148	129	101	288	151	51	49
25	60	88	100	248	144	135	120	116	547	236	49	59
26	59	84	103	225	141	129	105	350	549	145	45	97
27	59	83	101	207	137	127	98	243	13200	130	45	123
28	58	122	99	200	230	127	95	154	11600	136	48	76
29	57	123	98	199	---	124	89	166	3370	146	48	64
30	57	106	94	186	---	120	92	136	2520	138	46	57
31	58	---	93	181	---	117	---	118	---	104	42	---
TOTAL	1769	2513	3907	10428	4449	7424	3211	4667	34610	11016	2730	1592
MEAN	57.1	83.8	126	336	159	239	107	151	1154	355	88.1	53.1
MAX	75	150	327	1600	234	1220	173	350	13200	2080	291	123
MIN	52	61	87	88	120	117	89	99	61	104	42	30
CFSM	.32	.47	.70	1.88	.89	1.34	.60	.84	6.45	1.99	.49	.30
IN.	.37	.52	.81	2.17	.92	1.54	.67	.97	7.19	2.29	.57	.33

e Estimated.



## 01666500 ROBINSON RIVER NEAR LOCUST DALE, VA--Continued

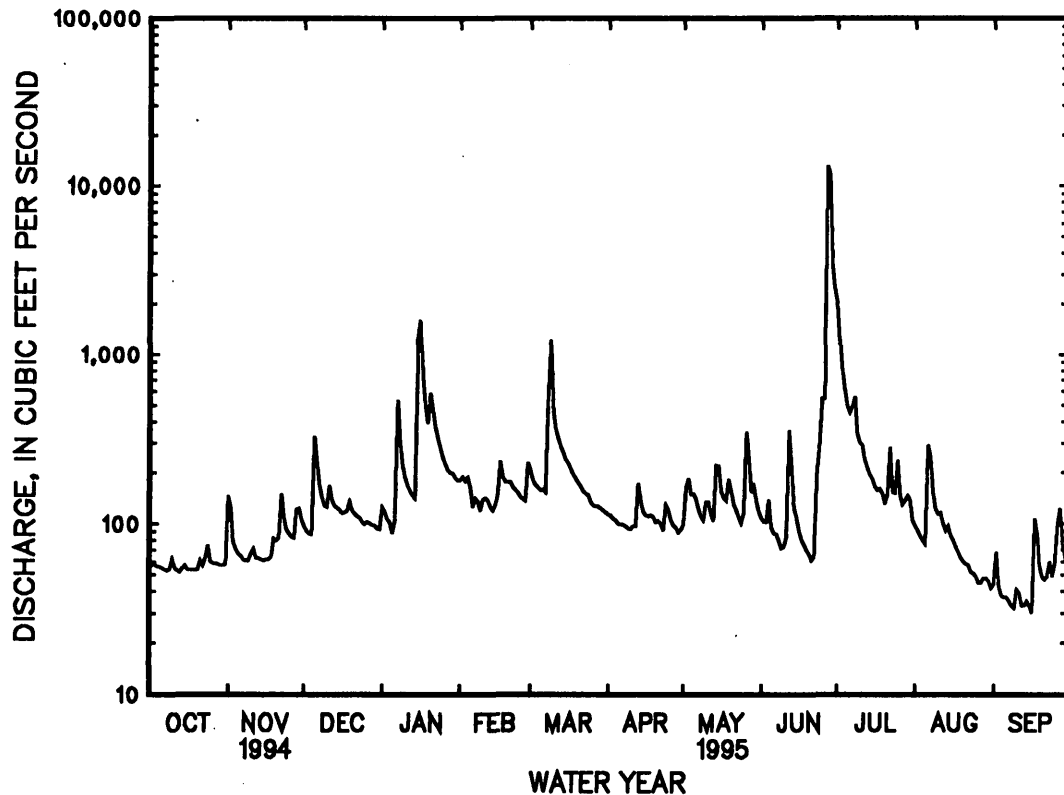
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	171	213	230	259	292	344	311	249	214	130	142	143
MAX	783	1350	624	752	704	980	989	625	1154	522	1063	1064
(WY)	1991	1986	1973	1978	1979	1993	1983	1989	1995	1949	1955	1979
MIN	18.5	35.1	32.0	47.5	105	105	89.3	70.9	35.7	21.3	12.2	8.05
(WY)	1964	1966	1966	1966	1977	1981	1981	1977	1977	1944	1963	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1944 - 1995	
ANNUAL TOTAL	86216		88316			
ANNUAL MEAN	236		242		224	
HIGHEST ANNUAL MEAN					445	
LOWEST ANNUAL MEAN					95.6	
HIGHEST DAILY MEAN	2280	Mar 29	13200	Jun 27	14700	Jun 22 1972
LOWEST DAILY MEAN	46	Jul 14	30	Sep 16	1.8	aSep 13 1954
ANNUAL SEVEN-DAY MINIMUM	51	Jul 9	35	Sep 10	3.0	Sep 7 1966
INSTANTANEOUS PEAK FLOW			25400	Jun 27	25400	Jun 27 1995
INSTANTANEOUS PEAK STAGE			22.93	Jun 27	22.93	Jun 27 1995
INSTANTANEOUS LOW FLOW			29	Sep 16	1.2	bSep 7 1954
ANNUAL RUNOFF (CFSM)	1.32		1.35		1.25	
ANNUAL RUNOFF (INCHES)	17.92		18.35		17.04	
10 PERCENT EXCEEDS	475		291		423	
50 PERCENT EXCEEDS	126		116		146	
90 PERCENT EXCEEDS	60		54		40	

a Also Sept. 27, 1954.

b Also Sept. 13, 1954.



## 01667500 RAPIDAN RIVER NEAR CULPEPER, VA

LOCATION.--Lat 38°21'01", long 77°58'31", Culpeper County, Hydrologic Unit 02080103, on left bank 0.7 mi upstream from Cedar Run and bridge on U.S. Highway 522, 8.5 mi south of Culpeper, and at mile 29.6.

DRAINAGE AREA.--472 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 741: 1931. WSP 801: 1934(M), 1936(M). WSP 1081: 1943-46. WSP 1171: 1932(M), 1933-35. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 241.36 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 6-11, 13, 14, and periods of doubtful or no gage-height record, June 28, 29, and July 3, 4, which are fair. Prior to 1977, diurnal fluctuation at low flow caused by mill at Rapidan, and since July 1986, by powerplant at same site. National Weather Service gage-height telemeter at station. Maximum discharge, 59,300 ft<sup>3</sup>/s, from rating curve extended above 43,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 30.26 ft. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	0130	6,420	9.60	June 28	a0730	*59,300	*b30.40
Mar. 9	0445	4,870	7.39	July 1	0415	5,890	7.90

a About.

b From high-water mark in gage house.

Minimum discharge, 65 ft<sup>3</sup>/s, Sept. 14, 16, result of regulation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	149	206	242	424	505	268	241	263	4660	316	117
2	130	353	191	275	464	405	264	347	249	3080	293	265
3	125	192	185	225	446	365	252	488	292	e2030	274	209
4	121	152	181	207	447	355	242	362	384	e1630	255	127
5	118	137	650	e163	426	336	235	342	269	1330	241	108
6	118	132	716	e136	e267	344	228	328	233	1220	412	97
7	114	128	465	1350	e260	334	228	290	227	1630	568	90
8	111	120	374	982	e250	844	226	266	213	1480	412	83
9	113	118	315	645	e245	3150	222	250	191	930	336	80
10	125	128	293	506	e270	1270	222	307	181	802	313	95
11	126	148	392	432	e305	969	227	362	205	828	312	92
12	113	135	354	390	322	831	231	288	821	606	281	77
13	108	127	295	361	e258	738	370	251	926	575	259	71
14	115	125	281	333	e258	664	340	538	400	487	275	70
15	132	121	276	1650	261	599	272	870	303	443	268	75
16	124	121	258	4390	298	556	253	494	241	402	233	71
17	114	122	256	1920	619	516	249	401	206	387	217	180
18	111	124	264	1370	486	466	261	382	189	388	202	280
19	111	140	306	1070	420	436	257	510	175	382	186	164
20	108	163	289	1510	407	417	242	448	162	320	174	124
21	118	159	259	1340	401	401	234	341	150	298	166	110
22	121	305	241	1040	368	384	235	302	149	548	159	110
23	123	276	235	886	341	364	217	268	367	349	149	124
24	159	209	226	773	327	365	272	244	722	324	138	125
25	139	191	215	662	304	331	307	260	938	521	131	130
26	126	182	213	576	293	312	254	759	1670	481	123	180
27	123	176	205	509	282	304	231	630	17300	347	117	309
28	117	233	200	485	461	304	221	378	e43500	723	122	224
29	116	281	197	485	---	301	210	408	e9070	435	125	166
30	115	233	189	436	---	291	217	378	7020	462	122	139
31	117	---	186	428	---	278	---	303	---	353	110	---
TOTAL	3746	5180	8913	25777	9910	17735	7487	12036	87016	28451	7289	4092
MEAN	121	173	288	832	354	572	250	388	2901	918	235	136
MAX	159	353	716	4390	619	3150	370	870	43500	4660	568	309
MIN	108	118	181	136	245	278	210	241	149	298	110	70
CFSM	.26	.37	.61	1.76	.75	1.21	.53	.82	6.15	1.94	.50	.29
IN.	.30	.41	.70	2.03	.78	1.40	.59	.95	6.86	2.24	.57	.32

e Estimated.

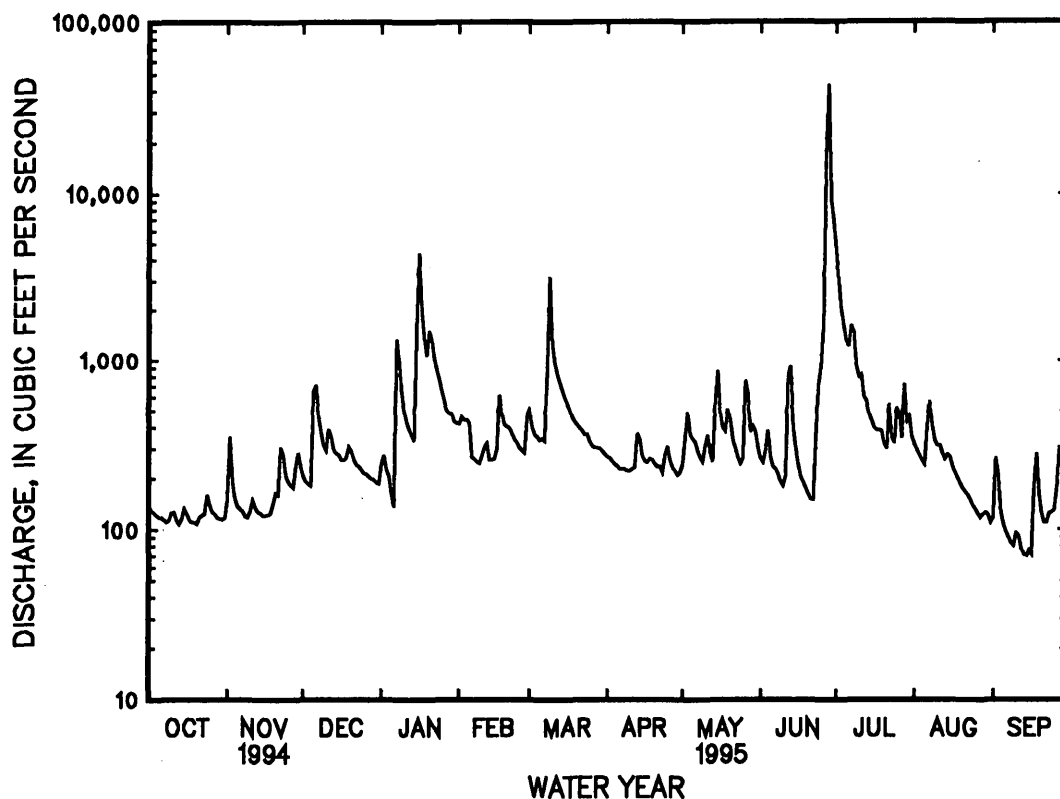
## 01667500 RAPIDAN RIVER NEAR CULPEPER, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	423	459	544	640	713	833	782	569	486	303	340	328
MAX	3163	2690	1653	1732	1693	2236	2615	1603	2901	1206	2323	2084
(WY)	1943	1986	1949	1978	1984	1993	1937	1989	1995	1949	1955	1979
MIN	8.10	29.4	62.4	93.6	91.5	179	210	166	86.2	68.0	22.5	14.0
(WY)	1931	1931	1931	1966	1931	1931	1981	1956	1977	1957	1957	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1931 - 1995	
ANNUAL TOTAL	207040		217632		534	
ANNUAL MEAN	567		596		1099	
HIGHEST ANNUAL MEAN					151	
LOWEST ANNUAL MEAN					1973	
HIGHEST DAILY MEAN	5640	Mar 29	e43500	Jun 28	e43500	Jun 28 1995
LOWEST DAILY MEAN	60	Jul 14	70	Sep 14	2.2	Oct 4 1954
ANNUAL SEVEN-DAY MINIMUM	72	Jul 9	79	Sep 10	4.5	Oct 2 1954
INSTANTANEOUS PEAK FLOW			59300	Jun 28	59300	Jun 28 1995
INSTANTANEOUS PEAK STAGE			b30.40	Jun 28	b30.40	Jun 28 1995
INSTANTANEOUS LOW FLOW			c65	dSep 14	2.1	fOct 4 1954
ANNUAL RUNOFF (CFSM)	1.20		1.26		1.13	
ANNUAL RUNOFF (INCHES)	16.32		17.15		15.37	
10 PERCENT EXCEEDS	1280		785		1060	
50 PERCENT EXCEEDS	281		269		337	
90 PERCENT EXCEEDS	120		121		84	

b From high-water mark in gage house.  
c Result of regulation.  
d Also Sept. 16, 1995.  
e Estimated.  
f Also Oct. 5, 11, 1954.



## 01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA

LOCATION.--Lat 38°19'20", long 77°31'05", Spotsylvania County, Hydrologic Unit 02080104, on right bank 1.6 mi upstream from Virginia Power dam, 2.2 mi downstream from Motts Run, and 3.8 mi upstream from Fredericksburg.

DRAINAGE AREA.--1,596 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1907 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 801: 1924(M). WSP 951: 1937(M). WSP 1302: 1907-12, 1913(M), 1916(M), 1918(M), 1920-21(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 55.18 ft above sea level. 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 for period with ice effect, Feb. 6-14, which is fair. Maximum discharge, 140,000 ft<sup>3</sup>/s, from rating curve extended above 76,000 ft<sup>3</sup>/s on basis of flow-over-dam and slope-area measurements at gage heights 26.1 ft and 26.9 ft, present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1889 was probably several feet lower than that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 16,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	1030	17,900	8.68	June 28	2330	*68,600	*17.14

Minimum discharge, 167 ft<sup>3</sup>/s, Sept. 11, gage height, 1.46 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	484	363	677	659	1510	1990	928	666	781	11500	699	257
2	448	559	619	816	1550	1550	902	795	702	8400	629	245
3	423	827	578	867	1600	1330	868	1320	723	4800	579	280
4	407	567	567	744	1490	1220	848	1260	898	3520	534	353
5	398	469	809	667	1480	1170	806	981	1170	2940	501	254
6	382	435	2510	603	e1200	1150	772	933	783	2590	1700	222
7	381	414	1620	2690	e1040	1200	737	865	678	4090	2750	207
8	373	389	1220	3540	e1000	1330	726	775	650	3960	1780	194
9	370	379	1010	2140	e970	11600	736	701	593	2510	1170	188
10	384	391	914	1630	e1010	5090	739	683	537	1870	914	188
11	398	406	977	1370	e1080	3030	760	1770	526	2240	827	172
12	414	442	1230	1240	e1010	2410	805	1700	1180	1810	819	211
13	385	428	1040	1180	e1090	2070	948	1100	3260	1390	701	210
14	377	399	928	1100	e950	1840	1440	965	1690	1270	625	189
15	384	395	891	1930	1010	1660	1040	2020	1050	1120	592	183
16	398	389	862	14400	1050	1530	932	1690	875	1020	584	193
17	398	394	831	6500	1860	1420	903	1200	732	946	554	245
18	370	421	850	3780	2080	1350	871	1050	613	918	491	294
19	359	446	870	2820	1700	1330	857	1430	552	1190	465	554
20	357	481	880	4680	1540	1370	840	1920	512	963	418	384
21	369	530	836	5550	1500	1320	819	1310	475	835	385	299
22	374	570	772	3280	1400	1210	793	1040	463	2800	364	268
23	411	916	751	2630	1250	1140	798	895	556	1790	341	262
24	432	735	740	2320	1180	1060	807	798	1360	1130	327	272
25	506	595	716	2090	1120	994	860	728	1530	2290	307	303
26	482	552	698	1890	1050	941	862	1150	2670	1880	288	322
27	422	541	727	1690	1020	934	782	2030	12800	1250	279	434
28	387	561	694	1560	1190	943	705	1300	48600	1080	268	601
29	366	729	679	1580	---	944	657	1050	46100	1300	259	505
30	354	802	665	1530	---	944	638	1100	17100	978	262	384
31	356	---	640	1460	---	939	---	926	---	865	265	---
TOTAL	12349	15525	27801	78936	35930	57009	25179	36151	150159	75245	20677	8673
MEAN	398	517	897	2546	1283	1839	839	1166	5005	2427	667	289
MAX	506	916	2510	14400	2080	11600	1440	2030	48600	11500	2750	601
MIN	354	363	567	603	950	934	638	666	463	835	259	172
CFSM	.25	.32	.56	1.60	.80	1.15	.53	.73	3.14	1.52	.42	.18
IN.	.29	.36	.65	1.84	.84	1.33	.59	.84	3.50	1.75	.48	.20

e Estimated.

## 01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1143	1297	1655	2147	2459	2673	2504	1896	1424	923	1028	897
MAX	11090	6522	5357	6203	6550	8505	9484	10310	7112	3368	7190	5911
(WY)	1943	1986	1949	1978	1979	1993	1983	1924	1972	1949	1955	1979
MIN	15.3	75.4	147	268	224	526	587	492	224	78.6	21.1	46.5
(WY)	1931	1931	1931	1966	1931	1931	1981	1956	1977	1930	1930	1930

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

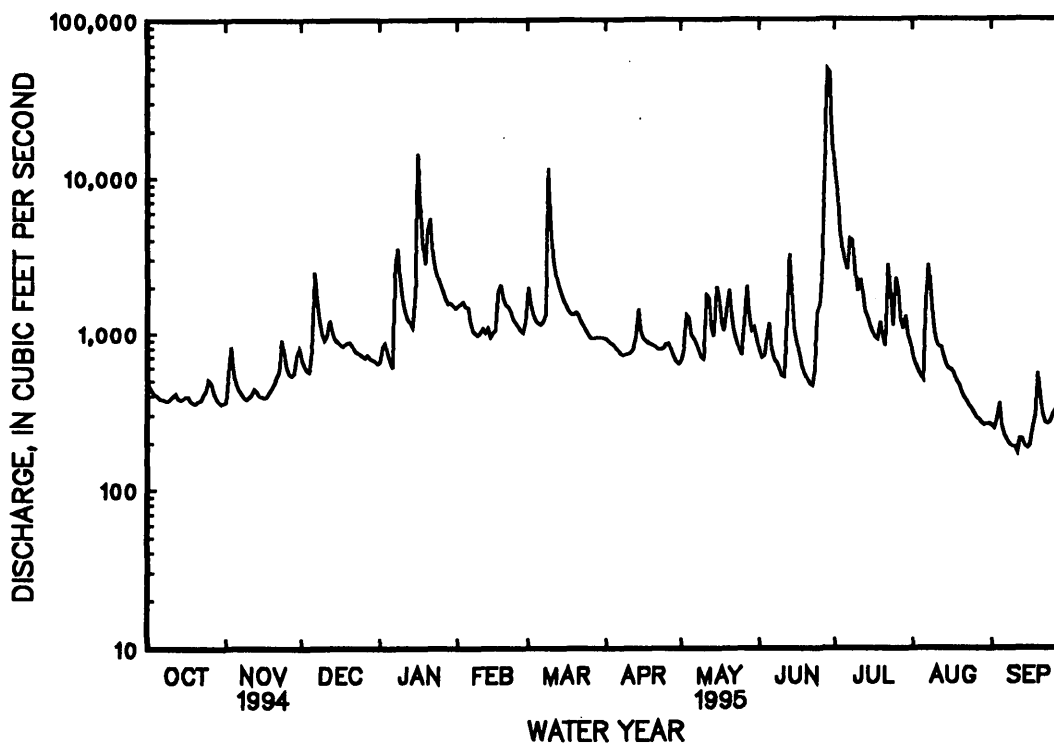
## FOR 1995 WATER YEAR

## WATER YEARS 1907 - 1995

ANNUAL TOTAL	772807	543634	
ANNUAL MEAN	2117	1489	1666
HIGHEST ANNUAL MEAN			3066
LOWEST ANNUAL MEAN			440
HIGHEST DAILY MEAN	22700	Mar 28	48600 Jun 28
LOWEST DAILY MEAN	281	Jul 14	172 Sep 11
ANNUAL SEVEN-DAY MINIMUM	345	Jul 9	192 Sep 9
INSTANTANEOUS PEAK FLOW			68600 Jun 28
INSTANTANEOUS PEAK STAGE			17.14 Jun 28
INSTANTANEOUS LOW FLOW			167 Sep 11
ANNUAL RUNOFF (CFSM)	1.33	.93	1.04
ANNUAL RUNOFF (INCHES)	18.01	12.67	14.18
10 PERCENT EXCEEDS	4500	2110	3290
50 PERCENT EXCEEDS	916	860	983
90 PERCENT EXCEEDS	390	358	236

a Also Oct. 12, 1930.

b From floodmarks.



## RAPPAHANNOCK RIVER BASIN

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1929-30, 1956, 1967-74, 1978 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1955 to September 1956, April 1968 to August 1974. October 1991 to current year.

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

COOPERATION.--Chemical data as noted were provided by the Virginia Division of Consolidated Laboratory Services (VDCLS) and reviewed by the U.S. Geological Survey.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)
OCT										
05...	1030	399	89	7.1	13.0	15.0	766	VDCLS	2.1	9.6
18...	1000	374	97	7.1	11.0	12.0	768	VDCLS	1.7	9.9
18...	1015	374	97	7.1	11.0	12.0	768	VDCLS	1.9	9.9
NOV										
02...	0930	410	97	7.0	12.0	11.5	764	VDCLS	1.2	10.4
09...	1130	379	89	7.4	23.0	11.5	760	USGS	--	10.3
22...	1000	566	89	7.0	11.5	10.0	767	VDCLS	5.9	10.8
DEC										
09...	0900	1020	84	7.2	5.5	7.0	774	VDCLS	9.7	11.0
22...	0900	775	85	7.0	2.0	4.0	772	VDCLS	3.4	12.6
JAN										
09...	1035	2140	86	7.3	4.0	3.0	768	VDCLS	50	14.0
17...	1045	6380	61	6.8	8.0	10.0	766	VDCLS	120	11.0
18...	0915	3910	65	7.4	11.0	8.5	766	VDCLS	60	10.2
FEB										
02...	0930	1470	81	6.6	6.0	3.0	757	VDCLS	6.9	12.8
16...	0900	1020	78	7.1	5.0	1.0	765	VDCLS	11	14.3
16...	0915	1020	78	7.1	5.0	1.0	765	USGS	--	14.3
MAR										
10...	0900	5220	70	7.0	1.5	5.0	--	VDCLS	220	--
11...	0830	3130	74	7.0	4.0	5.0	776	VDCLS	50	12.8
12...	0900	2460	76	7.1	3.0	6.0	777	VDCLS	30	12.6
13...	0900	2090	77	7.1	14.0	7.0	773	VDCLS	21	11.8
29...	0900	944	78	7.0	15.0	10.5	763	VDCLS	3.7	10.1
APR										
14...	0930	1540	82	6.7	9.0	13.0	762	VDCLS	4.8	9.1
21...	0930	826	74	6.8	17.0	17.5	762	VDCLS	3.3	8.6
MAY										
03...	1145	1380	80	7.5	15.5	13.5	761	VDCLS	3.2	9.8
15...	0930	1930	74	7.6	20.0	19.0	761	VDCLS	8.4	8.8
15...	0945	1930	74	7.6	20.0	19.0	761	USGS	--	8.8
18...	0900	1050	74	6.4	22.0	20.0	757	VDCLS	9.9	8.5

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)
JUN										
07...	0930	680	159	7.4	25.0	23.0	756	VDCLS	7.8	8.0
22...	0900	443	81	6.9	24.0	26.5	767	VDCLS	7.4	6.6
26...	1045	2610	81	6.7	27.0	24.0	764	VDCLS	45	7.4
26...	1100	2610	81	6.7	27.0	24.0	764	VDCLS	54	7.4
27...	0950	10800	149	6.8	22.0	19.0	769	VDCLS	330	7.4
28...	1100	44900	42	6.5	26.0	22.0	764	VDCLS	960	8.4
30...	1030	16800	58	6.3	27.5	17.0	--	VDCLS	420	--
JUL										
06...	1000	2590	62	6.7	24.0	23.0	767	VDCLS	38	8.2
10...	1400	1830	80	7.4	29.5	23.5	764	VDCLS	60	6.6
21...	0930	808	78	7.0	28.5	28.0	763	VDCLS	6.5	7.4
AUG										
08...	1330	1670	81	7.5	20.5	23.5	767	VDCLS	40	7.5
23...	1030	340	93	7.3	24.5	26.0	770	VDCLS	4.7	7.2
SEP										
08...	0930	195	94	6.6	30.5	25.0	764	VDCLS	4.5	6.6
22...	1200	266	104	6.9	25.5	23.0	763	VDCLS	3.5	8.3

## RAPPAHANNOCK RIVER BASIN

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530) (*)	RESIDUE VOLATILE TILE, SUS- PENDED (MG/L) (00535) (*)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540) (*)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) (*)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618) (*)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) (*)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) (*)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) (*)
OCT										
05...	95	12	<3	<3	<3	0.002	0.173	0.175	0.175	0.008
18...	91	9.2	<3	<3	<3	<0.002	<0.004	--	<0.004	0.007
18...	91	9.3	<3	<3	<3	<0.002	<0.004	--	<0.004	0.005
NOV										
02...	95	8.6	<3	<3	<3	<0.002	<0.004	--	<0.004	0.005
09...	95	--	--	--	--	--	--	--	--	--
22...	95	6.9	5	<3	3	0.002	0.038	0.040	0.040	0.005
DEC										
09...	89	13	5	<3	4	0.003	0.455	0.458	0.458	0.015
22...	95	12	<3	<3	<3	0.003	0.483	0.486	0.486	0.005
JAN										
09...	103	6.5	28	5	23	0.004	0.602	0.606	0.606	0.119
17...	97	9.6	134	17	117	0.003	0.572	0.575	0.575	0.028
18...	87	10	32	4	28	0.002	0.607	0.609	0.609	0.024
FEB										
02...	96	12	3	<3	3	0.004	0.710	0.714	0.714	0.004
16...	100	18	3	<3	<3	0.003	0.729	0.732	0.732	0.014
16...	100	12	7	4	3	<0.010	--	0.700	0.700	0.020
MAR										
10...	--	9.0	251	31	220	0.005	0.552	0.557	0.557	0.078
11...	98	11	61	9	52	0.003	0.631	0.634	0.634	0.030
12...	99	12	28	4	24	0.003	0.640	0.643	0.643	0.019
13...	96	12	19	3	16	0.004	0.634	0.638	0.638	0.016
29...	90	12	<3	<3	<3	0.003	0.416	0.419	0.419	0.019
APR										
14...	86	8.7	6	<3	4	0.002	0.289	0.291	0.291	0.009
21...	90	7.6	<3	<3	<3	0.002	0.159	0.161	0.161	0.014
MAY										
03...	94	9.2	7	<3	5	0.002	0.290	0.292	0.292	0.022
15...	95	11	21	4	17	0.003	0.346	0.349	0.349	0.055
15...	95	10	16	8	8	0.010	0.310	0.320	0.320	0.040
18...	94	12	9	<3	7	0.005	0.389	0.394	0.394	0.054
JUN										
07...	94	11	4	<3	3	0.006	0.526	0.532	0.532	0.027
22...	82	7.6	<3	<3	<3	0.002	0.121	0.123	0.123	0.046
26...	88	12	63	10	53	0.008	0.592	0.600	0.600	0.042
26...	88	12	62	8	54	0.008	0.594	0.602	0.602	0.041
27...	79	8.2	550	66	484	0.008	0.385	0.393	0.393	0.060
28...	96	4.6	698	86	612	0.008	0.395	0.403	0.403	0.068
30...	--	10	505	57	448	0.004	0.413	0.417	0.417	0.014
JUL										
06...	95	14	40	5	35	0.002	0.504	0.506	0.506	0.015
10...	78	13	44	6	38	0.004	0.539	0.543	0.543	0.015
21...	95	8.3	<3	<3	<3	0.004	0.331	0.335	0.335	0.021
AUG										
08...	87	12	39	5	34	0.006	0.485	0.491	0.491	0.041
23...	88	10	<3	<3	<3	0.003	0.113	0.116	0.116	0.027
SEP										
08...	80	5.9	3	<3	<3	0.002	0.037	0.039	0.039	0.019
22...	97	6.8	<3	<3	<3	<0.002	0.041	0.041	0.041	0.015

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

\* For these constituents, there are differences in the minimum constituent reporting levels between the analyzing agencies.



## 01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671) (*)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT									
05...	0.20	0.030	0.020	0.009	--	--	--	--	--
18...	0.20	0.020	0.010	0.004	--	--	--	--	--
18...	0.20	0.020	0.020	0.003	--	--	--	--	--
NOV									
02...	0.20	0.020	0.010	0.003	--	--	--	--	--
09...	--	--	--	--	--	2.9	0.10	2	79
22...	0.20	0.030	0.020	0.004	--	--	--	--	--
DEC									
09...	0.40	0.050	0.040	0.014	--	--	--	--	--
22...	<0.10	0.010	0.030	0.007	--	--	--	--	--
JAN									
09...	0.80	0.120	0.070	0.031	--	--	--	--	--
17...	0.90	0.240	0.070	0.023	--	--	--	--	--
18...	0.50	0.120	0.040	0.017	--	--	--	--	--
FEB									
02...	<0.10	0.020	0.010	0.009	--	--	--	--	--
16...	0.10	0.040	0.030	0.014	--	--	--	--	--
16...	<0.20	<0.010	--	0.020	2.3	--	--	--	--
MAR									
10...	1.4	0.490	0.080	0.031	--	--	--	--	--
11...	0.60	0.150	0.060	0.021	--	--	--	--	--
12...	0.30	0.080	0.040	0.017	--	--	--	--	--
13...	0.30	0.070	0.040	0.016	--	--	--	--	--
29...	0.20	0.020	0.020	0.008	--	--	--	--	--
APR									
14...	0.30	0.040	0.020	0.009	--	--	--	--	--
21...	<0.10	0.030	0.020	0.008	--	--	--	--	--
MAY									
03...	0.20	--	--	0.009	--	--	--	--	--
15...	0.40	0.060	0.040	0.019	--	--	--	--	--
15...	0.40	0.060	--	0.020	4.1	--	--	--	--
18...	0.40	0.050	0.040	0.021	--	--	--	--	--
JUN									
07...	0.40	0.050	0.030	0.022	--	--	--	--	--
22...	0.20	0.030	0.030	0.018	--	--	--	--	--
26...	0.60	0.140	0.060	0.032	--	--	--	--	--
26...	0.50	0.140	0.050	0.031	--	--	--	--	--
27...	2.2	0.700	0.060	0.026	--	--	--	--	--
28...	2.5	1.50	0.050	0.022	--	--	--	--	--
30...	1.4	1.10	0.040	0.029	--	--	--	--	--
JUL									
06...	0.20	0.110	0.040	0.024	--	--	--	--	--
10...	0.40	0.120	0.060	0.035	--	--	--	--	--
21...	0.20	0.030	0.030	0.028	--	--	--	--	--
AUG									
08...	0.50	0.120	0.060	0.035	--	--	--	--	--
23...	0.20	0.040	0.030	0.028	--	--	--	--	--
SEP									
08...	0.20	0.020	0.020	0.010	--	--	--	--	--
22...	0.30	0.020	0.020	0.008	--	--	--	--	--

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

\* For these constituents, there are differences in the minimum constituent reporting levels between the analyzing agencies.

## RAPPAHANNOCK RIVER BASIN

## 01668500 CAT POINT CREEK NEAR MONTROSS, VA

LOCATION.--Lat 38°02'23", long 76°49'38", Richmond County, Hydrologic Unit 02080104, on right bank 200 ft upstream from bridge on State Highway 637, 1.7 mi west of Farmers Fork, 3.8 mi south of Montross, and 11.4 mi upstream from mouth.

DRAINAGE AREA.--45.6 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1382: 1944(M), 1945, 1946-51(M), 1952(P), 1953-54(M). WSP 2103: Drainage area. WDR VA-94-1: 1979(P), 1985(M), 1992(M).

GAGE.--Water-stage recorder. Datum of gage is 3.04 ft above sea level. 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, Feb. 6-10, which is fair. Prior to 1980, slight diurnal fluctuation at low flow caused by gristmill upstream from station. Maximum discharge, 6,820 ft<sup>3</sup>/s, from rating curve extended above 1,400 ft<sup>3</sup>/s. No flow at times in 1943, 1957, 1959-60, 1966, and 1977. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1935 exceeded 9.3 ft.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 9	0800	324	5.65	July 4	2300	*1,370	*7.44
July 2	0500	531	6.01				

Minimum discharge, 1.2 ft<sup>3</sup>/s, Sept. 9-10, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	24	31	25	40	28	18	38	11	87	18	1.6
2	11	24	27	26	40	26	15	78	8.3	428	14	2.3
3	11	23	26	26	36	28	16	124	30	180	10	2.8
4	11	22	26	25	52	29	14	84	48	321	8.0	2.3
5	11	21	33	24	65	31	14	61	34	810	5.8	2.0
6	11	22	35	24	e42	35	14	50	22	301	6.6	1.6
7	10	23	33	68	e35	23	14	41	17	184	14	1.5
8	10	23	32	78	e32	34	14	37	13	175	15	1.4
9	11	23	28	46	e30	256	15	31	9.3	130	12	1.3
10	12	24	28	35	e31	133	23	38	7.2	88	26	1.3
11	11	24	30	30	32	103	18	44	5.3	70	72	1.5
12	12	24	29	28	30	70	18	37	17	57	38	1.5
13	12	23	27	27	29	57	63	29	17	48	21	1.5
14	14	23	26	26	29	50	60	39	14	42	14	1.4
15	19	21	25	29	29	38	39	57	8.6	36	15	1.4
16	20	21	24	36	42	38	31	42	5.0	31	16	1.3
17	19	28	26	34	51	38	25	33	3.3	27	25	2.5
18	17	43	26	29	44	36	22	28	2.6	35	32	6.4
19	17	47	26	27	39	33	22	31	2.2	79	13	4.9
20	17	39	25	87	35	33	21	32	2.0	56	5.6	3.3
21	19	48	25	112	33	62	18	24	1.8	37	3.7	2.8
22	20	107	24	57	29	60	15	19	1.7	171	3.0	3.7
23	24	70	24	41	26	44	13	14	2.0	141	2.6	13
24	26	41	25	36	22	38	45	10	21	66	2.3	10
25	26	33	27	32	20	33	55	16	28	99	2.1	7.7
26	26	28	26	31	20	31	38	107	25	89	1.9	19
27	26	32	25	30	26	29	25	48	67	58	1.7	18
28	25	42	24	29	23	28	20	28	82	46	1.8	11
29	24	40	23	31	---	27	17	29	38	36	1.7	7.8
30	23	38	22	33	---	27	29	24	22	29	1.7	5.5
31	26	---	22	37	---	25	---	16	---	23	1.6	---
TOTAL	534	1001	830	1199	962	1523	751	1289	565.3	3980	405.1	142.3
MEAN	17.2	33.4	26.8	38.7	34.4	49.1	25.0	41.6	18.8	128	13.1	4.74
MAX	26	107	35	112	65	256	63	124	82	810	72	19
MIN	10	21	22	24	20	23	13	10	1.7	23	1.6	1.3
CFSM	.38	.73	.59	.85	.75	1.08	.55	.91	.41	2.82	.29	.10
IN.	.44	.82	.68	.98	.78	1.24	.61	1.05	.46	3.25	.33	.12

e Estimated.

## 01668500 CAT POINT CREEK NEAR MONTROSS, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	25.4	36.7	46.3	57.5	62.4	76.9	67.4	51.1	35.6	27.9	28.9	25.3
MAX	134	119	126	175	175	211	164	149	232	128	153	209
(WY)	1980	1980	1984	1978	1979	1994	1983	1990	1972	1995	1969	1979
MIN	1.47	6.70	11.6	12.9	24.1	23.2	20.7	11.1	4.59	1.13	.89	.41
(WY)	1955	1992	1955	1955	1955	1945	1985	1955	1945	1957	1963	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1944 - 1995	
ANNUAL TOTAL	21196.0		13181.7			
ANNUAL MEAN	58.1		36.1		45.0	
HIGHEST ANNUAL MEAN					89.4	1958
LOWEST ANNUAL MEAN					18.7	1954
HIGHEST DAILY MEAN	1080	Mar 3	810	Jul 5	2390	Sep 6 1979
LOWEST DAILY MEAN	3.5	Sep 14	1.3	aSep 9	.00	(b)
ANNUAL SEVEN-DAY MINIMUM	3.9	Sep 9	1.4	cSep 8	.00	dAug 8 1957
INSTANTANEOUS PEAK FLOW			1370	Jul 4	6820	Aug 20 1969
INSTANTANEOUS PEAK STAGE			7.44	Jul 4	f10.86	Sep 6 1992
INSTANTANEOUS LOW FLOW			1.2	aSep 9	.00	(g)
ANNUAL RUNOFF (CFSM)	1.27		.79		.99	
ANNUAL RUNOFF (INCHES)	17.29		10.75		13.42	
10 PERCENT EXCEEDS	115		62		96	
50 PERCENT EXCEEDS	32		26		30	
90 PERCENT EXCEEDS	8.8		3.5		4.6	

a Also Sept. 10, 16, 1995.

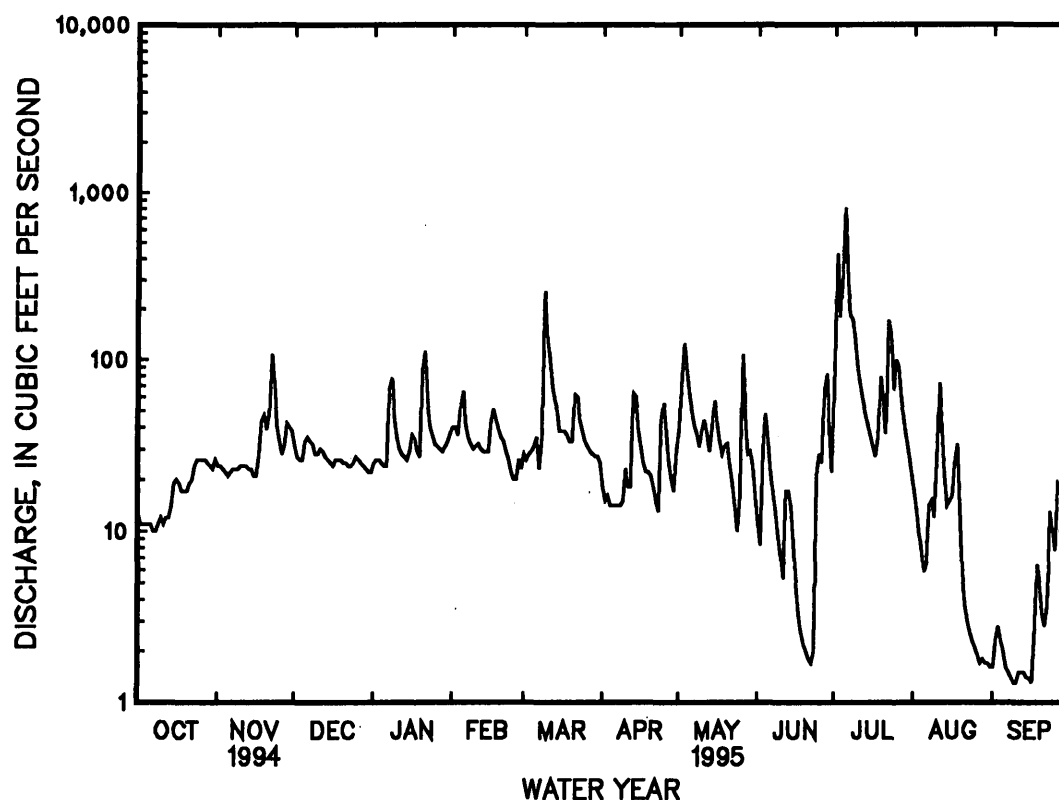
b Many days in 1943 (partial year), 1957, 1959, 1966, and 1977.

c Also Sept. 9, 10, 1995.

d Also Aug. 9, 10, 1957, and Aug. 31 to Sept. 7, 1966.

f Result of Chandlers Millpond dam washout.

g At times in 1943 (partial year), 1957, 1959-60, 1966, and 1977.



## RAPPAHANNOCK RIVER BASIN

01669000 PISCATAWAY CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°52'37", long 76°54'03", Essex County, Hydrologic Unit 02080104, on right bank at upstream side of bridge on State Highway 691, 0.6 mi south of Hensley Fork, 2.3 mi downstream from Sturgeon Swamp, and 4.2 mi southwest of Tappahannock.

DRAINAGE AREA.--28.0 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-79-1: 1970-76(P), 1978(P).

GAGE.--Water-stage recorder. Datum of gage is 2.50 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Feb. 6, 7, 9, which are fair. Maximum discharge, 2,380 ft<sup>3</sup>/s, from rating curve extended above 1,400 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jul. 5	0800	*301	*3.68	No other peak equal to or greater than base discharge.			

Minimum discharge, 0.50 ft<sup>3</sup>/s, Sept. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	19	24	17	25	29	19	67	12	22	4.3	.75
2	10	20	22	17	25	33	18	78	9.6	45	4.5	2.0
3	10	20	20	15	22	25	17	86	12	44	4.0	2.6
4	9.1	19	20	16	28	21	17	51	13	82	3.2	2.4
5	9.4	18	25	14	30	19	17	42	13	230	2.9	2.1
6	8.7	18	28	17	e24	19	17	38	10	83	3.5	1.6
7	8.8	18	24	44	e22	19	18	30	11	54	8.9	1.4
8	8.2	17	21	47	17	35	17	26	11	42	11	1.3
9	8.4	17	21	27	e17	156	16	22	8.9	33	11	1.2
10	10	17	21	22	17	74	15	26	6.9	28	10	1.1
11	11	17	24	18	19	50	15	49	8.0	26	19	.82
12	11	16	23	17	19	40	15	39	50	25	28	.70
13	9.5	16	20	16	17	36	31	25	58	22	17	.66
14	13	16	19	16	15	33	32	32	30	19	11	.60
15	19	16	20	20	17	32	20	52	18	18	9.3	.59
16	20	16	18	27	27	28	16	36	12	16	7.3	.54
17	15	24	18	24	35	27	16	27	8.3	14	5.8	2.6
18	13	33	19	20	29	24	14	29	6.4	13	4.6	7.1
19	13	36	19	18	23	23	14	28	5.7	12	4.9	9.0
20	12	29	18	31	20	23	13	28	5.1	11	7.4	6.9
21	12	53	17	36	19	26	13	23	4.3	12	4.4	4.9
22	13	97	17	26	17	28	11	19	4.2	18	2.5	9.6
23	19	51	17	21	16	25	11	16	11	15	1.8	15
24	27	31	17	19	15	24	27	13	77	14	1.3	17
25	24	26	18	18	15	22	40	11	62	16	1.0	14
26	21	25	17	17	14	20	24	12	33	13	.86	20
27	19	25	18	16	14	20	17	13	26	11	.75	21
28	19	34	17	17	17	21	14	14	24	8.9	.80	14
29	18	34	16	18	---	23	12	18	21	7.4	1.0	10
30	17	28	15	20	---	21	38	18	18	6.0	.91	7.7
31	17	---	15	23	---	20	---	16	---	4.7	.80	---
TOTAL	437.1	806	608	674	575	996	564	984	589.4	965.0	193.72	179.16
MEAN	14.1	26.9	19.6	21.7	20.5	32.1	18.8	31.7	19.6	31.1	6.25	5.97
MAX	27	97	28	47	35	156	40	86	77	230	28	21
MIN	8.2	16	15	14	14	19	11	11	4.2	4.7	.75	.54
CFSM	.50	.96	.70	.78	.73	1.15	.67	1.13	.70	1.11	.22	.21
IN.	.58	1.07	.81	.90	.76	1.32	.75	1.31	.78	1.28	.26	.24

e Estimated.

## 01669000 PISCATAWAY CREEK NEAR TAPPAHANNOCK, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	18.9	26.9	30.5	37.4	43.3	52.5	48.7	37.5	25.5	17.9	17.7	15.4
MAX	63.4	74.1	66.8	88.4	99.8	118	109	87.0	111	105	88.0	70.4
(WY)	1980	1980	1958	1978	1961	1994	1958	1958	1972	1975	1955	1979
MIN	1.30	6.30	9.20	7.93	14.0	13.5	13.4	7.41	4.20	2.01	1.00	.28
(WY)	1955	1955	1966	1955	1955	1981	1985	1955	1986	1954	1954	1954

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

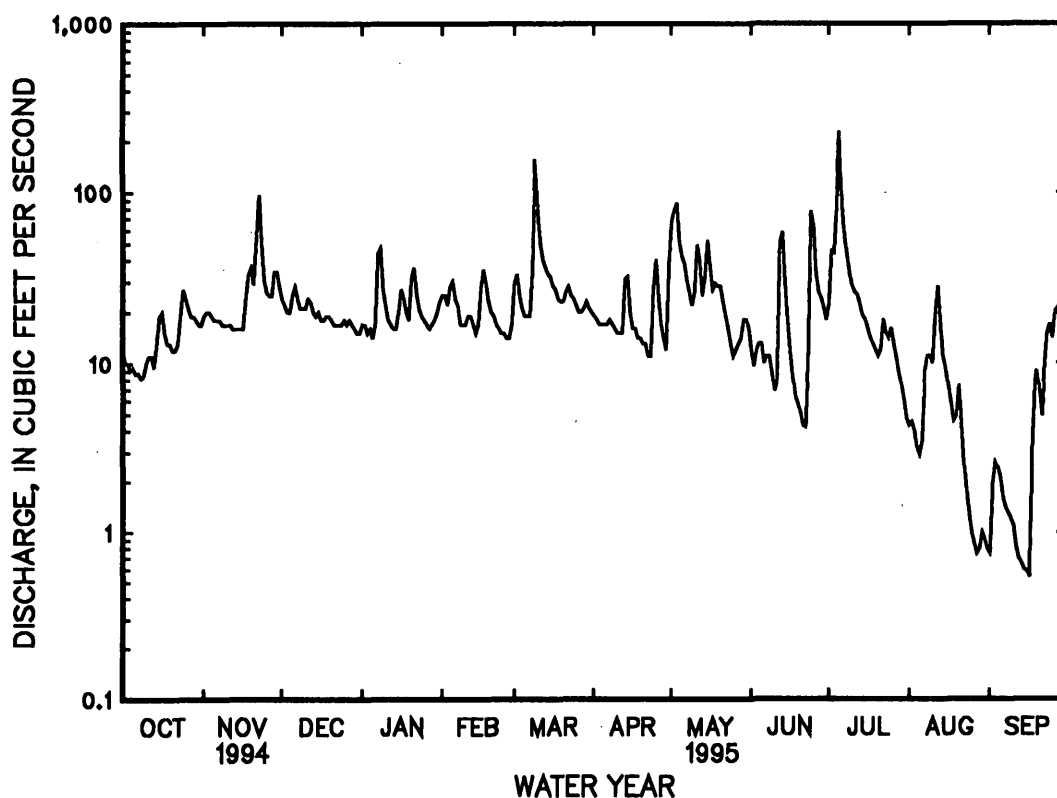
## FOR 1995 WATER YEAR

## WATER YEARS 1952 - 1995

ANNUAL TOTAL	14064.5	7571.38	
ANNUAL MEAN	38.5	20.7	30.9
HIGHEST ANNUAL MEAN			56.8
LOWEST ANNUAL MEAN			12.1
HIGHEST DAILY MEAN	406 Mar 3	230 Jul 5	1080 Aug 13 1955
LOWEST DAILY MEAN	1.6 aSep 13	.54 Sep 16	.02 Oct 1 1954
ANNUAL SEVEN-DAY MINIMUM	1.8 Sep 11	.72 Sep 10	.13 Sep 25 1954
INSTANTANEOUS PEAK FLOW		301 Jul 5	2380 Aug 20 1969
INSTANTANEOUS PEAK STAGE		3.68 Jul 5	b7.52 Aug 20 1969
INSTANTANEOUS LOW FLOW		.50 Sep 16	.01 Oct 2 1954
ANNUAL RUNOFF (CFSM)	1.38	.74	1.11
ANNUAL RUNOFF (INCHES)	18.69	10.06	15.02
10 PERCENT EXCEEDS	82	35	63
50 PERCENT EXCEEDS	25	17	22
90 PERCENT EXCEEDS	7.8	4.6	5.2

a Also Sept. 14, 15, 1994.

b From high-water mark in well.



## PIANKATANK RIVER BASIN

## 01669520 DRAGON SWAMP AT MASCOT, VA

LOCATION.--Lat 37°38'01", long 76°41'48", King and Queen County, Hydrologic Unit 02080102, on right bank at upstream side of bridge on State Highway 603, 0.8 mi east of Mascot, 2.1 mi downstream from Church Swamp, and 3.3 mi west of Warner.

DRAINAGE AREA.--108 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 21.60 ft above sea level.

REMARKS.--Records good except those for period of no gage-height record, Nov. 5 to Dec. 7, and periods with ice effect, Feb. 6-9, 13, 14, which are fair. Maximum discharge, 2,750 ft<sup>3</sup>/s, from rating curve extended above 1,400 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 11	2400	*460	*5.89	No peak equal to or greater than base discharge.			

Minimum discharge, 3.7ft<sup>3</sup>/s, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	87	e160	56	104	66	63	132	76	105	74	26
2	25	90	e140	54	100	75	60	194	67	145	47	91
3	21	88	e120	55	96	76	57	306	63	126	31	30
4	18	104	e110	51	106	76	55	322	65	103	24	22
5	16	e116	e100	51	109	75	52	327	61	100	20	17
6	15	e122	e95	57	e104	75	49	301	58	95	21	20
7	14	e121	e91	100	e97	71	48	252	56	110	24	23
8	13	e114	86	121	e90	93	46	206	52	121	21	19
9	12	e92	80	130	e85	323	46	170	45	135	18	14
10	12	e80	103	128	79	315	44	162	38	168	17	11
11	11	e67	117	113	84	387	43	158	34	176	16	9.4
12	11	e58	114	101	87	416	43	134	38	148	14	8.3
13	11	e50	111	91	e85	287	59	118	67	114	13	7.7
14	23	e46	106	84	e80	206	63	121	67	84	12	7.1
15	49	e43	98	94	77	166	65	143	51	60	11	6.6
16	46	e41	92	123	94	142	65	160	41	43	10	6.4
17	47	e42	87	127	110	125	64	166	36	33	9.3	14
18	43	e44	85	120	111	111	60	172	37	27	8.7	18
19	41	e47	82	109	105	98	56	172	34	23	8.3	14
20	39	e60	79	137	96	90	54	159	30	20	7.7	13
21	44	e78	77	157	89	90	55	141	25	21	7.2	13
22	38	e100	74	159	81	89	57	124	22	24	7.0	15
23	62	e240	72	143	72	88	45	110	21	22	6.5	20
24	80	e260	69	126	66	87	66	93	21	24	5.9	21
25	74	e250	68	118	59	83	70	78	39	30	5.6	28
26	79	e240	65	109	55	80	63	92	53	25	5.2	40
27	83	e235	62	96	52	76	61	93	95	84	4.9	36
28	81	e230	61	89	54	73	62	105	131	360	4.9	34
29	79	e215	60	89	---	70	55	113	118	310	4.6	30
30	75	e190	57	91	---	67	72	105	107	199	4.3	25
31	79	---	55	102	---	65	---	89	---	121	4.1	---
TOTAL	1274	3550	2776	3181	2427	4141	1698	5018	1648	3156	467.2	639.5
MEAN	41.1	118	89.5	103	86.7	134	56.6	162	54.9	102	15.1	21.3
MAX	83	260	160	159	111	416	72	327	131	360	74	91
MIN	11	41	55	51	52	65	43	78	21	20	4.1	6.4
CFSM	.38	1.10	.83	.95	.80	1.24	.52	1.50	.51	.94	.14	.20
IN.	.44	1.22	.96	1.10	.84	1.43	.58	1.73	.57	1.09	.16	.22

e Estimated.

## 01669520 DRAGON SWAMP AT MASCOT, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1995, BY WATER YEAR (WY)

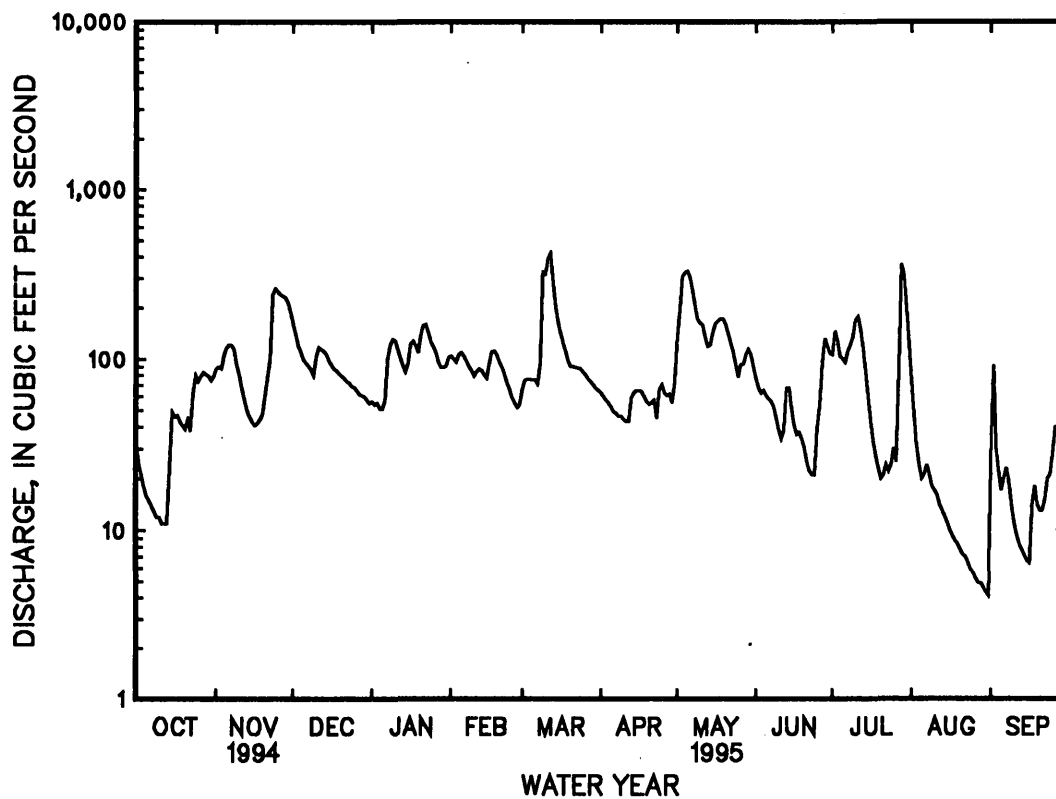
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	49.2	82.2	110	147	167	232	190	127	76.5	47.7	53.7	37.8
MAX	247	290	179	340	300	567	450	215	166	102	200	170
(WY)	1986	1986	1986	1993	1994	1994	1983	1993	1984	1994	1992	1985
MIN	7.97	22.3	39.5	45.9	76.5	58.8	31.2	28.5	6.23	3.15	4.90	5.47
(WY)	1982	1982	1989	1989	1991	1985	1985	1985	1986	1993	1987	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1982 - 1995	
ANNUAL TOTAL	58705.4		29975.7		110	
ANNUAL MEAN	161		82.1		164	
HIGHEST ANNUAL MEAN					56.4	
LOWEST ANNUAL MEAN					2530	
HIGHEST DAILY MEAN	2530 Mar 4		416 Mar 12		e.04 aSep 15 1991	
LOWEST DAILY MEAN	4.8 Sep 17		4.1 Aug 31		e.05 Sep 13 1991	
ANNUAL SEVEN-DAY MINIMUM	5.2 Sep 11		4.8 Aug 25		2750 Mar 4 1994	
INSTANTANEOUS PEAK FLOW			460 Mar 11		9.00 Mar 4 1994	
INSTANTANEOUS PEAK STAGE			5.89 Mar 11		.04 bSep 19 1991	
INSTANTANEOUS LOW FLOW			3.7 Sep 1		1.02	
ANNUAL RUNOFF (CFSM)	1.49		.76		13.80	
ANNUAL RUNOFF (INCHES)	20.22		10.32		248	
10 PERCENT EXCEEDS	311		158		74	
50 PERCENT EXCEEDS	110		72		7.7	
90 PERCENT EXCEEDS	13		14			

a Also Sept. 16, 17, 1991.

b Also probably occurred Sept. 15-17, 1991, during period of estimated record.

e Estimated.



## YORK RIVER BASIN

## 01670400 NORTH ANNA RIVER NEAR PARTLOW, VA

LOCATION.--Lat 38°00'46", long 77°42'06", Spotsylvania County, Hydrologic Unit 02080106, on left downstream side of bridge on State Highway 601, 1.1 mi upstream from Northeast Creek, and 3.8 mi southwest of Partlow.

DRAINAGE AREA.--344 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1978 to September 1995 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 168.25 ft above sea level.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Nov. 1-22 and June 27 to July 12, which are fair. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 0.5 mi upstream. Maximum discharge, 11,700 ft<sup>3</sup>/s, from rating curve extended above 7,200 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

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, 11,700 ft<sup>3</sup>/s, June 27, gage height, 26.24 ft, occurred during period of doubtful gage-height record; minimum daily, 39 ft<sup>3</sup>/s, Oct. 6-9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	e69	43	219	227	208	183	183	182	1420	84	45
2	167	e57	44	220	194	193	182	209	74	991	92	45
3	167	e50	44	99	193	193	181	250	182	362	98	45
4	151	e48	45	83	458	193	184	247	183	266	96	45
5	42	e45	159	48	208	193	180	437	188	115	100	45
6	39	e47	200	50	195	193	181	426	103	746	432	45
7	39	e48	202	351	115	193	74	224	94	923	92	47
8	39	e46	204	417	64	757	54	178	193	760	80	67
9	39	e49	202	232	98	4030	48	186	185	108	91	80
10	40	e56	204	219	109	2300	48	195	40	123	88	66
11	66	e89	206	219	149	776	49	194	55	239	87	45
12	41	e83	204	219	196	489	58	179	195	e80	98	45
13	40	e64	206	246	196	268	161	167	196	81	104	45
14	42	e57	207	278	213	193	183	124	197	78	103	45
15	43	e49	207	1080	195	212	183	181	196	78	99	46
16	44	e46	209	2040	288	394	182	181	196	78	96	46
17	44	e45	210	1130	315	184	180	181	195	77	94	47
18	44	e52	210	476	382	182	179	180	196	76	91	46
19	44	e49	213	203	268	181	135	181	196	77	96	46
20	46	e74	187	1600	217	180	48	132	64	70	99	46
21	48	e160	48	654	195	182	48	47	40	114	96	46
22	49	e54	48	248	193	181	48	49	40	338	99	46
23	49	45	48	241	193	180	48	47	924	202	113	46
24	50	43	54	196	196	182	150	47	333	363	110	46
25	50	43	49	196	193	182	183	50	196	548	108	46
26	51	44	48	196	193	173	183	47	1010	187	105	46
27	51	44	52	196	193	58	183	47	6620	172	103	46
28	51	44	219	196	193	180	183	166	6420	194	105	46
29	51	44	219	196	---	180	183	208	3070	163	123	46
30	50	44	219	196	---	181	183	183	1760	123	102	47
31	51	---	218	203	---	180	---	182	---	85	45	---
TOTAL	1895	1688	4628	12147	5829	13371	4065	5308	23523	9237	3329	1448
MEAN	61.1	56.3	149	392	208	431	135	171	784	298	107	48.3
MAX	167	160	219	2040	458	4030	184	437	6620	1420	432	80
MIN	39	43	43	48	64	58	48	47	40	70	45	45
CFSM	.18	.16	.43	1.14	.61	1.25	.39	.50	2.28	.87	.31	.14
IN.	.20	.18	.50	1.31	.63	1.45	.44	.57	2.54	1.00	.36	.16

e Estimated.



## 01670400 NORTH ANNA RIVER NEAR PARTLOW, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	138	244	265	401	507	601	485	330	215	133	134	109
MAX	1085	1230	682	926	1362	1762	1378	947	784	563	478	530
(WY)	1980	1986	1993	1979	1979	1994	1983	1989	1995	1984	1984	1979
MIN	42.4	44.0	45.4	45.2	55.6	51.8	55.7	53.5	46.1	45.7	49.1	44.3
(WY)	1992	1992	1989	1989	1981	1981	1981	1981	1991	1980	1993	1992

d

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1979 - 1995	
ANNUAL TOTAL	155662		86468			
ANNUAL MEAN	426		237		296	
HIGHEST ANNUAL MEAN					527	
LOWEST ANNUAL MEAN					52.1	
HIGHEST DAILY MEAN	8330	Mar 29	6620	Jun 27	10000	Feb 26 1979
LOWEST DAILY MEAN	39	Oct 6	39	Oct 6	38	Aug 26 1988
ANNUAL SEVEN-DAY MINIMUM	43	Oct 12	43	Oct 12	39	Sep 8 1989
INSTANTANEOUS PEAK FLOW			11700	Jun 27	11700	Feb 26 1979
INSTANTANEOUS PEAK STAGE			26.24	Jun 27	26.24	Jun 27 1995
INSTANTANEOUS LOW FLOW			39	Oct 5	25	Aug 1 1988
ANNUAL RUNOFF (CFSM)	1.24		.69		.86	
ANNUAL RUNOFF (INCHES)	16.83		9.35		11.68	
10 PERCENT EXCEEDS	941		299		575	
50 PERCENT EXCEEDS	167		159		74	
90 PERCENT EXCEEDS	46		45		45	

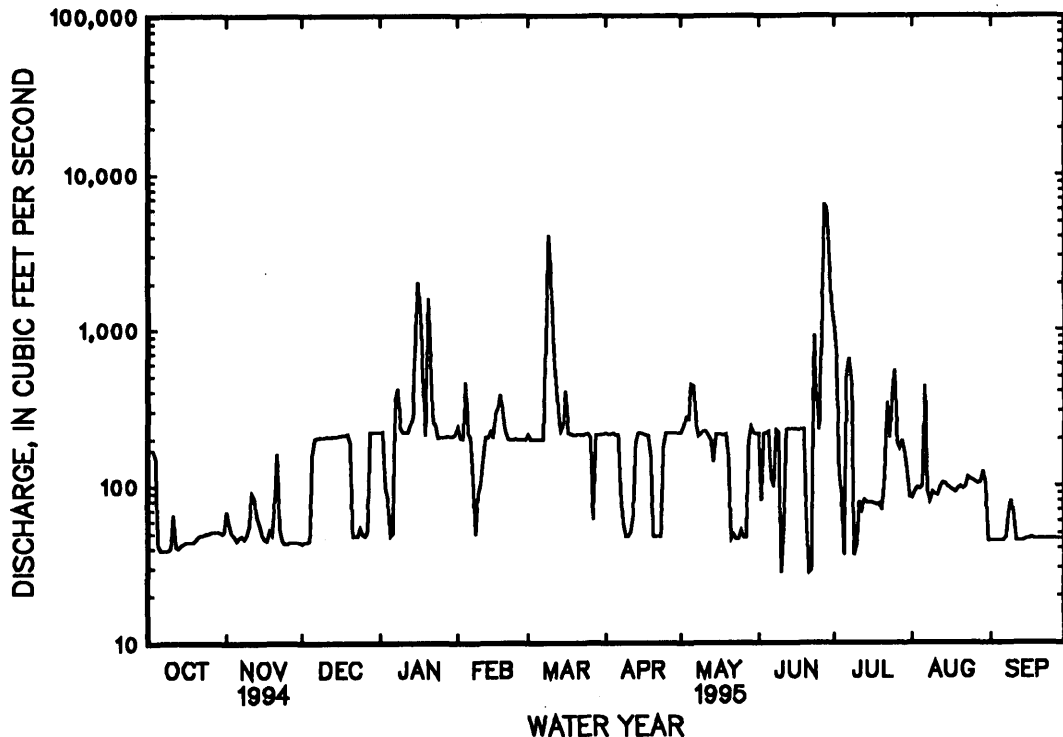
a Also Oct. 7-9, 1994.

b Also June 27, 1995.

c Occurred during period of doubtful gage-height record.

d Also Oct. 6-9, 12, 1994.

e Estimated.



## 01671020 NORTH ANNA RIVER AT HART CORNER, NEAR DOSWELL, VA

LOCATION.--Lat 37°51'00", long 77°25'41", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 30, 0.3 mi west of Hart Corner, 2.1 mi east of Doswell, and 5.4 mi upstream from confluence with South Anna River.

DRAINAGE AREA.--463 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Elevation of gage is 43 ft above sea level, from topographic map.

REMARKS.--Records good except those for periods of doubtful gage-height record, Feb. 6, 7, 9, Mar. 9-13, Apr. 15, 25, 26, and May 3, 6, 16, and period of no gage-height record, May 13-15, which are fair. 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. Maximum discharge, 12,000 ft<sup>3</sup>/s, from rating curve extended above 10,100 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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, 8,860 ft<sup>3</sup>/s, June 28, gage height, 19.78 ft; minimum, 40 ft<sup>3</sup>/s, Sept. 4-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	214	77	99	219	290	262	244	266	224	1780	90	55		
2	207	85	92	222	314	276	248	420	219	1460	83	46		
3	204	82	87	209	299	251	241	e415	167	790	90	42		
4	201	76	85	126	417	247	240	381	224	492	92	40		
5	174	76	92	113	532	244	237	374	240	358	91	40		
6	75	78	226	80	e299	244	231	e602	230	213	94	41		
7	64	79	254	208	e269	244	215	385	167	916	355	42		
8	61	76	240	616	164	278	132	254	109	1010	102	43		
9	63	75	231	519	e119	e1500	108	234	211	508	93	56		
10	63	77	229	283	149	e3900	95	258	207	178	94	75		
11	60	94	230	259	163	e2000	95	268	102	175	92	70		
12	81	114	227	250	220	e659	99	248	86	268	91	43		
13	74	112	224	245	247	e454	245	e222	214	131	93	42		
14	72	101	224	306	241	393	316	e259	233	115	96	43		
15	83	78	224	480	261	310	e273	e290	220	106	97	42		
16	79	76	223	2500	262	412	252	e287	213	99	96	42		
17	73	79	224	2030	444	393	244	252	206	95	96	53		
18	72	86	224	874	466	279	243	241	202	90	93	50		
19	68	92	230	492	426	272	241	244	200	88	88	45		
20	68	88	229	1090	342	266	167	237	198	85	88	45		
21	99	146	193	1810	265	266	102	159	113	82	91	45		
22	91	197	94	572	252	265	97	85	57	181	91	46		
23	95	128	87	407	247	259	95	80	60	296	92	53		
24	99	106	83	313	243	259	150	75	890	213	100	46		
25	86	94	86	283	240	257	e326	72	571	447	100	46		
26	85	88	82	269	233	248	e282	100	351	350	100	49		
27	87	87	77	261	231	215	254	150	1470	187	99	49		
28	84	106	84	258	245	145	240	122	6320	222	99	49		
29	79	114	213	264	---	247	231	233	7190	201	97	46		
30	78	107	215	261	---	248	259	289	2950	175	102	45		
31	78	---	216	262	---	245	---	244	---	120	100	---		
TOTAL	3017	2874	5324	16081	7880	15538	6202	7746	23844	11431	3185	1429		
MEAN	97.3	95.8	172	519	281	501	207	250	795	369	103	47.6		
MAX	214	197	254	2500	532	3900	326	602	7190	1780	355	75		
MIN	60	75	77	80	119	145	95	72	57	82	83	40		
(†)	4.81	4.43	4.68	5.00	5.34	5.48	5.29	6.60	7.02	6.53	6.74	6.28		
MEAN‡	102	100	177	524	286	506	212	257	802	376	110	53.9		
CFSM‡	.22	.22	.38	1.13	.62	1.09	.46	.56	1.73	.81	.24	.12		
IN.‡	.25	.24	.44	1.31	.64	1.26	.51	.64	1.93	.94	.27	.13		
CAL YR 1994	TOTAL	208368	MEAN	571	MAX	10900	MIN	55	MEAN‡	576	CFSM‡	1.24	IN.‡	16.89
WTR YR 1995	TOTAL	104551	MEAN	286	MAX	7190	MIN	40	MEAN‡	292	CFSM‡	.63	IN.‡	8.56

† Average diversion, equivalent in cubic feet per second; provided by Hanover County Department of Public Utilities.

‡ Adjusted for diversion.

e Estimated.

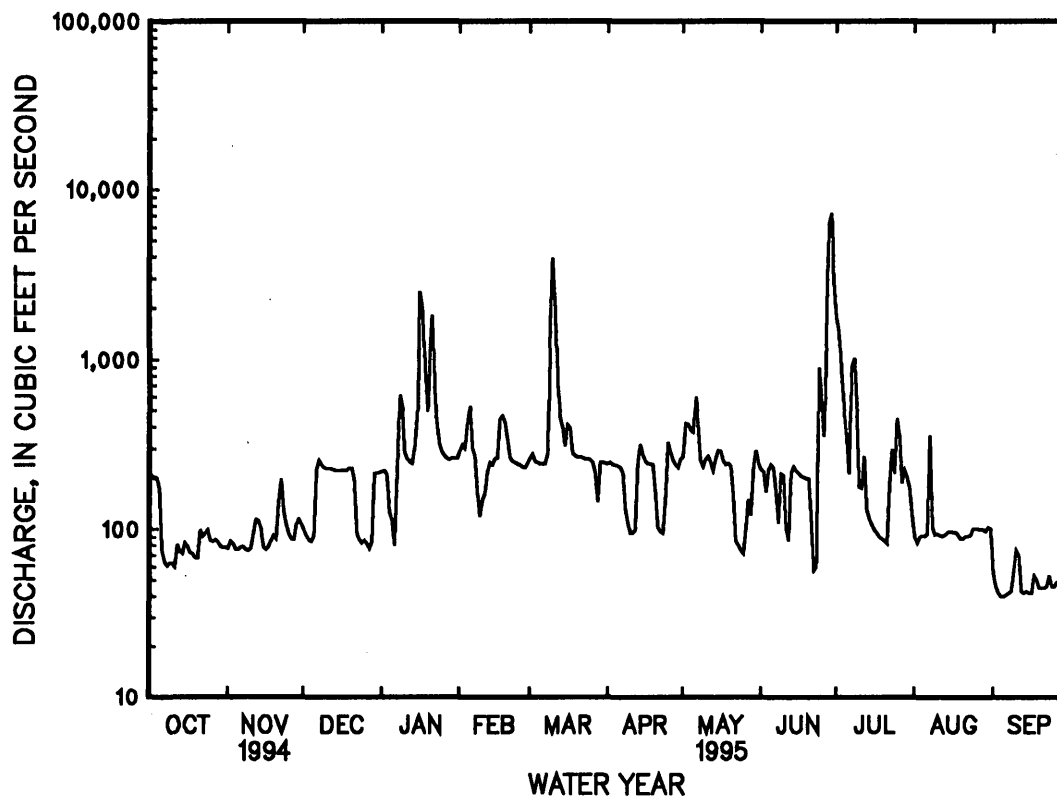
## 01671020 NORTH ANNA RIVER AT HART CORNER, NEAR DOSWELL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	194	312	365	491	611	823	690	471	252	167	176	98.6
MAX	1428	1561	738	1157	1483	2345	1887	1217	795	591	614	275
(WY)	1980	1986	1984	1980	1994	1994	1983	1990	1995	1984	1984	1989
MIN	43.7	46.7	75.2	71.9	122	90.5	108	110	51.1	66.3	57.7	47.6
(WY)	1992	1992	1981	1981	1981	1981	1981	1991	1991	1980	1983	1995

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1980 - 1995	
ANNUAL TOTAL	208368		104551			
ANNUAL MEAN	571		286		386	
HIGHEST ANNUAL MEAN					712	
LOWEST ANNUAL MEAN					85.7	
HIGHEST DAILY MEAN	10900	Mar 30	7190	Jun 29	10900	Mar 30 1994
LOWEST DAILY MEAN	55	Sep 17	40	aSep 4	36	Oct 8 1991
ANNUAL SEVEN-DAY MINIMUM	64	Sep 1	42	Sep 2	39	Oct 4 1991
INSTANTANEOUS PEAK FLOW			8860	Jun 28	12000	Mar 29 1994
INSTANTANEOUS PEAK STAGE			19.78	Jun 28	21.80	Mar 29 1994
INSTANTANEOUS LOW FLOW			40	bSep 4	c35.5	Oct 8 1991
ANNUAL RUNOFF (CFSM)	1.23		.62		.83	
ANNUAL RUNOFF (INCHES)	16.74		8.40		11.34	
10 PERCENT EXCEEDS	1340		416		809	
50 PERCENT EXCEEDS	201		201		144	
90 PERCENT EXCEEDS	76		68		58	

a Also Sept. 5, 1995.  
b Also Sept. 5, 6, 1995.  
c Observed.



## 01671100 LITTLE RIVER NEAR DOSWELL, VA

LOCATION.--Lat 37°52'21", long 77°30'48", Hanover County, Hydrologic Unit 02080106, on left bank at downstream side of bridge on State Highway 685, 0.8 mi southwest of Verdon, 2.9 mi west of Doswell, and 9.6 mi upstream from mouth.

DRAINAGE AREA.--107 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WDR VA-70-1: 1969.

GAGE.--Water-stage recorder. Datum of gage is 132.30 ft above sea level (levels by La Prade Bros., Engineers).

REMARKS.--Records good except those for periods with ice effect, Jan. 6, and Feb. 6-8, which are fair. At a point 100 ft upstream from station, there was a diversion by General Crushed Stone Company, Verdon Plant, of 0.10 ft<sup>3</sup>/s during September. Maximum discharge, 12,000 ft<sup>3</sup>/s, from rating curve extended above 7,600 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	1700	670	4.38	Mar. 10	0600	*1,050	*5.00

Minimum discharge, 0.50 ft<sup>3</sup>/s, Sept. 15-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	31	62	39	82	72	58	61	80	66	30	2.3
2	36	30	57	41	94	81	56	120	56	56	23	3.7
3	29	29	52	40	106	79	52	212	70	45	18	2.9
4	22	28	48	40	126	74	49	198	91	40	15	.85
5	19	28	53	37	149	69	47	131	119	70	13	.84
6	17	28	63	e31	e112	67	46	96	92	55	12	.98
7	14	28	72	91	e104	67	45	79	65	63	11	1.0
8	14	30	72	166	e95	91	45	64	50	97	10	.87
9	14	29	63	154	88	648	44	56	42	92	9.0	.72
10	14	30	58	116	72	958	44	55	37	61	8.2	.74
11	15	32	56	88	72	414	44	60	33	46	7.7	.71
12	15	33	53	74	74	198	45	57	33	37	7.0	.69
13	14	33	50	66	69	144	113	53	32	32	6.8	.63
14	18	33	48	62	63	122	136	75	30	28	6.4	.56
15	32	32	47	100	61	110	115	145	34	26	6.2	.53
16	40	32	47	564	74	100	84	123	33	24	6.0	.54
17	40	34	47	436	104	94	71	91	29	21	5.6	2.1
18	35	37	47	200	120	86	68	70	25	18	5.4	2.3
19	31	40	48	124	113	80	63	64	22	16	5.0	1.4
20	28	39	47	222	99	74	59	59	20	14	4.5	1.2
21	34	58	46	407	91	72	56	52	17	13	4.4	1.1
22	43	146	46	257	81	72	51	45	16	22	4.0	1.6
23	43	153	45	146	79	72	46	38	16	23	3.9	4.4
24	41	108	43	108	67	73	67	33	16	23	3.7	2.6
25	36	77	46	90	61	69	117	30	17	21	3.7	2.1
26	34	61	44	80	58	66	133	33	43	21	3.0	2.4
27	37	53	41	73	55	64	97	30	43	22	2.9	2.9
28	35	61	39	69	58	64	71	30	63	45	2.7	2.7
29	35	64	38	72	---	62	58	40	97	91	3.1	2.4
30	33	66	36	74	---	62	58	100	94	60	3.1	2.0
31	31	---	36	78	---	60	---	127	---	40	2.9	---
TOTAL	904	1483	1550	4145	2427	4364	2038	2427	1415	1288	247.2	49.76
MEAN	29.2	49.4	50.0	134	86.7	141	67.9	78.3	47.2	41.5	7.97	1.66
MAX	55	153	72	564	149	958	136	212	119	97	30	4.4
MIN	14	28	36	31	55	60	44	30	16	13	2.7	.53
CFSM	.27	.46	.47	1.25	.81	1.32	.63	.73	.44	.39	.07	.02
IN.	.31	.52	.54	1.44	.84	1.52	.71	.84	.49	.45	.09	.02

e Estimated.

## 01671100 LITTLE RIVER NEAR DOSWELL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1995, BY WATER YEAR (WY)

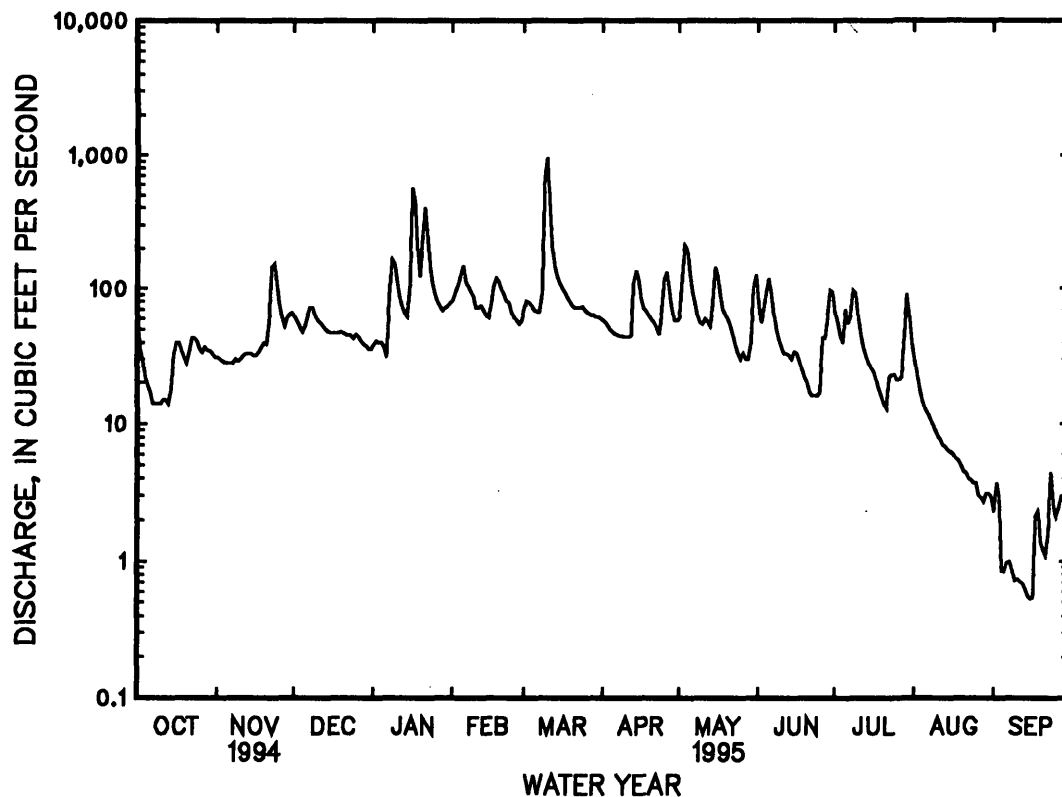
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	54.4	72.6	102	144	156	191	146	101	68.3	41.0	53.2	34.3
MAX	264	340	249	491	419	583	391	311	532	288	653	404
(WY)	1980	1973	1974	1978	1979	1994	1993	1990	1972	1975	1969	1975
MIN	1.03	3.25	18.2	20.5	46.6	33.0	44.2	22.0	5.45	2.78	1.35	.70
(WY)	1969	1992	1966	1981	1968	1981	1968	1969	1991	1968	1977	1968

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1962 - 1995	
ANNUAL TOTAL	50614.6		22337.96			
ANNUAL MEAN	139		61.2		96.8	
HIGHEST ANNUAL MEAN					176	
LOWEST ANNUAL MEAN					29.8	
HIGHEST DAILY MEAN	3320	Mar 29	958	Mar 10	9800	Aug 21 1969
LOWEST DAILY MEAN	7.0	Sep 16	.53	Sep 15	.10	Sep 26 1968
ANNUAL SEVEN-DAY MINIMUM	7.2	aSep 14	.63	Sep 10	.21	Sep 30 1968
INSTANTANEOUS PEAK FLOW			1050	Mar 10	12000	Aug 21 1969
INSTANTANEOUS PEAK STAGE			5.00	Mar 10	11.09	Aug 21 1969
INSTANTANEOUS LOW FLOW			.50	bSep 15	.10	cSep 25 1968
ANNUAL RUNOFF (CFSM)	1.30		.57		.90	
ANNUAL RUNOFF (INCHES)	17.60		7.77		12.29	
10 PERCENT EXCEEDS	264		112		190	
50 PERCENT EXCEEDS	58		46		50	
90 PERCENT EXCEEDS	17		3.7		6.5	

a Also Sept. 15, 1994.

b Also Sept. 16, 1995.

c Also Sept. 26, 1968.



## YORK RIVER BASIN

## 01672500 SOUTH ANNA RIVER NEAR ASHLAND, VA

LOCATION.--Lat 37°47'48", long 77°32'57", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 54, 4.5 mi northwest of Ashland, and 7.6 mi upstream from Newfound River.

DRAINAGE AREA.--394 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 801: 1935(M). WSP 1502: 1935, 1939. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 83.74 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Since 1966, diversion 150 ft upstream from station for town of Ashland water supply has averaged less than 0.6 ft<sup>3</sup>/s. Capacity of the diversion pickup is about 1.5 ft<sup>3</sup>/s. Small diurnal fluctuation at low flow in some years caused by gristmills upstream from station. Maximum discharge, 17,100 ft<sup>3</sup>/s, from rating curve extended above 12,600 ft<sup>3</sup>/s. Minimum discharge, 0.10 ft<sup>3</sup>/s, caused by diversion 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 15, 1928, reached a stage of about 24 ft, discharge, about 14,500 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 12	0300	2,560	9.31	July 1	1130	*3,400	*11.07

Minimum discharge, 2.8 ft<sup>3</sup>/s, Sept. 15, gage height, 0.94 ft, caused by diversion upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	246	111	199	139	316	311	193	237	292	3230	104	16
2	194	108	175	138	386	453	187	600	197	1710	98	20
3	158	114	160	143	462	361	183	882	671	805	80	18
4	132	126	151	144	582	308	185	696	794	498	67	23
5	115	126	164	131	583	287	175	439	437	329	58	23
6	106	118	236	118	512	278	163	325	341	252	52	22
7	100	114	430	354	373	269	159	266	247	294	49	23
8	95	106	332	863	303	441	155	215	220	475	45	25
9	91	108	267	831	288	2170	156	180	194	300	44	21
10	91	108	215	509	278	2300	154	189	161	213	80	19
11	86	115	159	368	274	2380	150	329	140	172	68	17
12	82	119	178	298	257	1840	149	296	144	149	58	16
13	81	122	191	258	249	649	420	257	381	146	51	17
14	98	124	177	230	241	508	440	267	467	144	47	11
15	159	120	164	401	231	426	318	601	323	120	43	11
16	185	114	166	1400	273	377	243	780	214	104	39	28
17	167	115	168	1720	411	343	216	439	155	96	33	28
18	135	125	166	1010	599	312	193	283	124	81	29	17
19	110	132	175	577	510	286	187	233	107	74	27	14
20	102	129	181	830	410	266	180	223	96	69	25	12
21	106	239	192	914	364	260	176	189	87	66	24	23
22	113	546	181	736	327	258	159	154	83	65	22	39
23	116	388	169	509	289	256	146	119	78	61	20	38
24	131	260	164	405	260	265	202	103	78	84	18	38
25	130	194	158	344	239	255	437	94	82	90	17	31
26	138	166	149	306	223	239	386	118	155	80	16	32
27	148	153	144	275	218	220	260	136	212	126	16	40
28	138	188	140	264	221	211	202	366	556	151	21	44
29	121	212	138	270	---	205	164	316	1560	122	19	41
30	116	226	134	281	---	202	198	376	2160	131	17	45
31	111	---	132	288	---	200	---	502	---	135	15	---
TOTAL	3901	4926	5755	15054	9679	17136	6536	10210	10756	10372	1302	752
MEAN	126	164	186	486	346	553	218	329	359	335	42.0	25.1
MAX	246	546	430	1720	599	2380	440	882	2160	3230	104	45
MIN	81	106	132	118	218	200	146	94	78	61	15	11
CFSM	.32	.42	.47	1.23	.88	1.40	.55	.84	.91	.85	.11	.06
IN.	.37	.47	.54	1.42	.91	1.62	.62	.96	1.02	.98	.12	.07

## 01672500 SOUTH ANNA RIVER NEAR ASHLAND, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	221	268	381	529	576	653	576	356	244	195	239	167
MAX	1434	1389	1375	1850	1436	1774	1968	963	1998	820	2349	1098
(WY)	1973	1986	1949	1978	1979	1994	1937	1990	1972	1945	1969	1975
MIN	10.5	25.7	50.2	67.7	87.5	117	166	95.1	56.7	24.5	12.2	6.53
(WY)	1931	1931	1931	1966	1931	1981	1985	1969	1977	1977	1932	1932

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

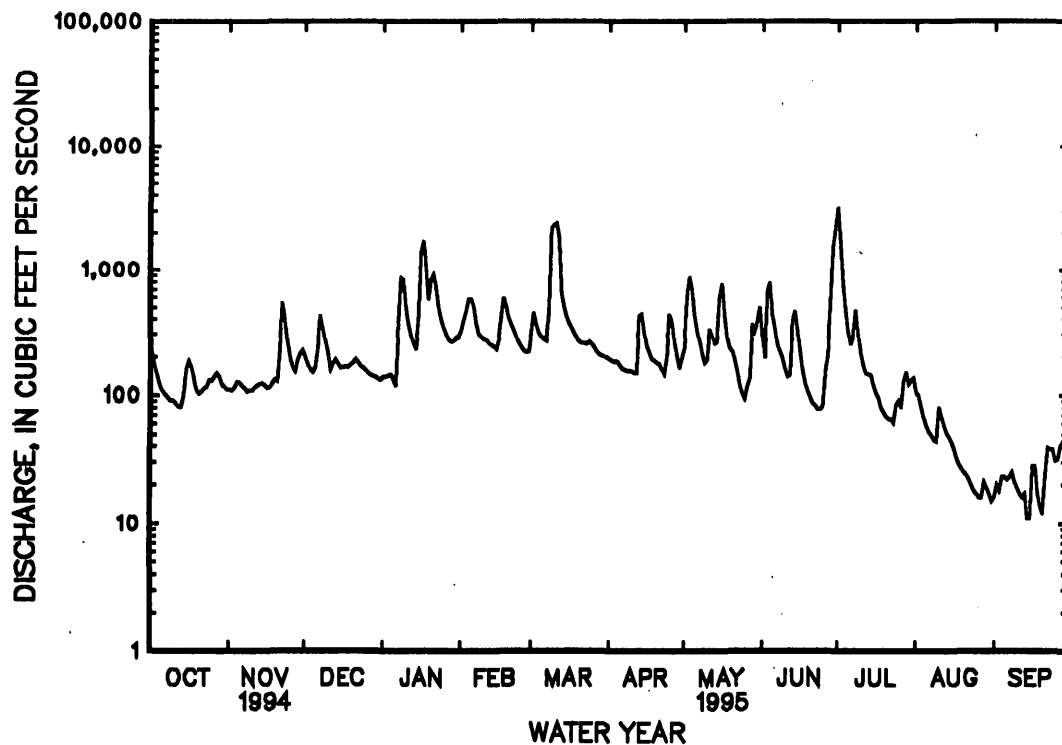
## FOR 1995 WATER YEAR

## WATER YEARS 1931 - 1995

ANNUAL TOTAL	186195	96379	
ANNUAL MEAN	510	264	366
HIGHEST ANNUAL MEAN			689
LOWEST ANNUAL MEAN			107
HIGHEST DAILY MEAN	6720	Mar 31	3230
LOWEST DAILY MEAN	48	Jul 9	11
ANNUAL SEVEN-DAY MINIMUM	61	Jun 28	16
INSTANTANEOUS PEAK FLOW			3400
INSTANTANEOUS PEAK STAGE			11.07
INSTANTANEOUS LOW FLOW			b2.8
ANNUAL RUNOFF (CFSM)	1.29		.67
ANNUAL RUNOFF (INCHES)	17.58		9.10
10 PERCENT EXCEEDS	1130		504
50 PERCENT EXCEEDS	199		169
90 PERCENT EXCEEDS	82		32

a Also Sept. 15, 1995.

b Caused by diversion upstream from station.



## 01673000 PAMUNKEY RIVER NEAR HANOVER, VA

LOCATION.--Lat 37°46'03", long 77°19'57", Hanover County, Hydrologic Unit 02080106, on right bank 100 ft downstream from bridge on State Highway 614, 0.3 mi upstream from Mechumps Creek, 2.0 mi east of Hanover, and 7.0 mi upstream from Millpond Creek.

DRAINAGE AREA.--1,081 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1302: 1944(M). WSP 1382: 1949. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 14.72 ft above sea level. Prior to Oct. 15, 1976, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. 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. Maximum discharge, 40,300 ft<sup>3</sup>/s, from rating curve extended above 22,000 ft<sup>3</sup>/s.

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, 9,510 ft<sup>3</sup>/s, June 30, gage height, 20.34 ft, minimum, 56 ft<sup>3</sup>/s, Sept. 16, gage height, 2.31 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	630	249	453	445	697	599	509	646	740	8380	296	110
2	513	252	402	461	824	772	502	988	530	7380	236	111
3	443	250	370	458	890	786	489	1950	542	5150	215	77
4	399	246	344	404	1080	685	481	1800	1250	1980	201	64
5	370	249	342	337	1540	637	468	1230	927	1370	178	62
6	278	252	430	273	1170	615	451	1120	724	806	167	63
7	190	253	704	505	860	609	438	989	600	1190	350	62
8	172	245	780	1350	705	623	378	686	386	1690	314	62
9	166	234	662	1990	489	3340	302	537	384	1680	164	64
10	167	237	604	1290	520	6260	269	518	400	811	168	77
11	164	242	559	892	556	8380	255	689	322	503	219	97
12	159	283	511	747	537	7530	256	734	232	588	187	90
13	184	298	523	673	597	4640	555	617	300	453	164	63
14	180	300	527	639	576	1670	1010	635	698	365	171	59
15	248	282	509	728	581	1010	880	1040	631	327	169	57
16	297	256	498	3030	624	889	680	1370	481	278	160	56
17	310	259	500	5050	864	1000	572	1080	389	253	154	73
18	286	281	505	4740	1180	767	531	740	334	236	143	95
19	248	297	504	2120	1310	687	511	634	300	220	136	79
20	224	297	510	1650	984	650	482	615	278	200	128	71
21	251	380	511	3810	820	633	349	534	245	185	131	68
22	280	1010	415	2920	711	626	296	353	132	228	133	72
23	298	1010	345	1450	657	613	263	262	104	468	131	96
24	343	699	329	1020	612	617	323	220	415	396	132	109
25	308	522	319	796	568	606	667	197	976	466	139	105
26	285	415	313	710	542	579	923	255	1050	724	127	101
27	296	364	293	652	525	556	730	320	1120	414	121	105
28	301	400	282	619	528	447	578	341	3320	486	122	105
29	286	450	346	631	---	478	488	586	6270	516	122	107
30	265	464	438	639	---	526	494	670	9250	464	123	102
31	252	---	432	670	---	519	---	855	---	424	128	---
TOTAL	8793	10976	14260	41699	21547	48349	15130	23211	33330	38631	5329	2462
MEAN	284	366	460	1345	770	1560	504	749	1111	1246	172	82.1
MAX	630	1010	780	5050	1540	8380	1010	1950	9250	8380	350	111
MIN	159	234	282	273	489	447	255	197	104	185	121	56
CFSM	.26	.34	.43	1.24	.71	1.44	.47	.69	1.03	1.15	.16	.08
IN.	.30	.38	.49	1.43	.74	1.66	.52	.80	1.15	1.33	.18	.08



## 01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1971, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	474	633	996	1242	1450	1712	1327	925	578	490	818	355
MAX	2492	1910	3782	3051	3288	3585	2743	2570	2493	2697	6381	1123
(WY)	1943	1953	1949	1949	1961	1962	1948	1946	1971	1945	1969	1944
MIN	60.6	112	166	207	552	816	523	321	223	91.9	63.1	30.3
(WY)	1942	1942	1966	1966	1968	1959	1968	1969	1970	1957	1966	1954

## SUMMARY STATISTICS

## WATER YEARS 1942 - 1971

ANNUAL MEAN	915
HIGHEST ANNUAL MEAN	1606
LOWEST ANNUAL MEAN	434
HIGHEST DAILY MEAN	39300
LOWEST DAILY MEAN	13
ANNUAL SEVEN-DAY MINIMUM	15
INSTANTANEOUS PEAK FLOW	40300
INSTANTANEOUS PEAK STAGE	a31.12
INSTANTANEOUS LOW FLOW	12
ANNUAL RUNOFF (CFSM)	.85
ANNUAL RUNOFF (INCHES)	11.50
10 PERCENT EXCEEDS	1960
50 PERCENT EXCEEDS	511
90 PERCENT EXCEEDS	130

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	703	834	1272	1615	1681	2036	1800	1207	846	562	471	456
MAX	3461	3505	2782	4334	3899	5430	5009	2821	4293	2747	2025	2939
(WY)	1980	1986	1973	1978	1994	1994	1984	1978	1972	1975	1985	1975
MIN	86.2	113	216	197	521	248	434	265	140	128	92.8	76.3
(WY)	1992	1992	1981	1981	1981	1981	1981	1991	1991	1977	1983	1983

## SUMMARY STATISTICS

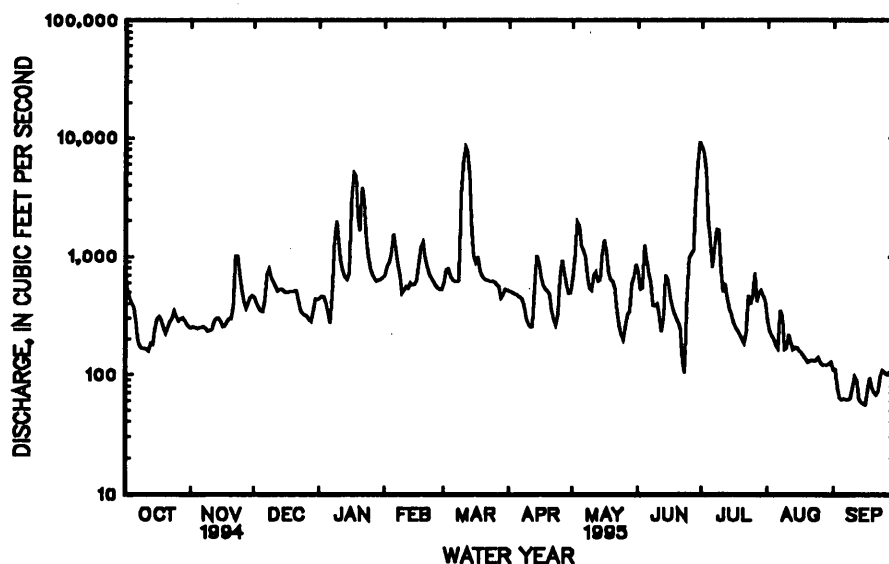
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1972 - 1995

ANNUAL TOTAL	566844	263717	
ANNUAL MEAN	1553	723	1121
HIGHEST ANNUAL MEAN			1757
LOWEST ANNUAL MEAN			265
HIGHEST DAILY MEAN	20400	Mar 31	9250
LOWEST DAILY MEAN	130	Sep 11	56
ANNUAL SEVEN-DAY MINIMUM	144	Sep 6	65
INSTANTANEOUS PEAK FLOW			9510
INSTANTANEOUS PEAK STAGE			20.34
INSTANTANEOUS LOW FLOW			56
ANNUAL RUNOFF (CFSM)	1.44	.67	1.04
ANNUAL RUNOFF (INCHES)	19.51	9.08	14.09
10 PERCENT EXCEEDS	3870	1170	2620
50 PERCENT EXCEEDS	578	461	609
90 PERCENT EXCEEDS	243	128	124

a From floodmarks.



## YORK RIVER BASIN

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1968 to January 1976, October 1991 to current year.

WATER TEMPERATURE: October 1945 to September 1946, April 1968 to January 1976.

COOPERATION.--Chemical data as noted were provided by the Virginia Division of Consolidated Laboratory Services (VDCLS) and reviewed by the U.S. Geological Survey.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	TUR- BID- IDITY (NTU) (00076)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
OCT											
19...	1300	245	127	6.9	19.5	12.5	764	VDCLS	4.0	9.1	85
19...	1315	245	127	6.9	19.5	12.5	764	VDCLS	3.6	9.1	85
NOV											
07...	1200	251	132	7.0	16.0	14.0	774	VDCLS	2.8	9.6	92
08...	1015	243	136	7.4	15.0	12.0	770	USGS	--	8.7	80
DEC											
15...	1130	508	93	7.1	7.0	7.0	775	VDCLS	5.5	12.0	97
JAN											
11...	0830	917	76	7.1	4.0	3.5	774	VDCLS	24	13.3	99
16...	1030	3070	65	7.0	14.0	12.0	761	VDCLS	100	10.6	98
18...	1200	5000	68	7.0	12.0	11.0	766	VDCLS	68	9.2	83
FEB											
17...	1030	791	92	7.3	10.0	4.0	775	VDCLS	9.4	13.2	99
MAR											
07...	0930	610	97	7.1	--	9.0	--	VDCLS	6.8	11.2	--
10...	1200	6000	59	6.9	5.0	8.0	--	VDCLS	76	--	--
11...	1200	8570	55	6.7	12.0	8.0	775	VDCLS	52	11.6	96
12...	1200	7580	60	6.9	16.0	8.0	777	VDCLS	58	11.6	96
13...	1200	4630	86	7.0	18.0	9.5	775	VDCLS	35	10.0	86
17...	1030	1080	75	6.7	20.0	13.0	765	VDCLS	12	10.2	96
APR											
10...	1030	267	105	7.0	11.0	17.0	770	VDCLS	5.5	8.4	86
19...	1030	510	90	7.0	21.5	14.5	756	USGS	--	9.0	89
26...	1000	965	87	6.6	17.0	14.5	771	VDCLS	12	9.8	95
MAY											
02...	1245	820	96	6.7	14.0	12.0	760	VDCLS	39	--	--
03...	1130	1980	86	6.8	15.0	11.0	770	VDCLS	57	10.0	90
04...	1100	1860	71	7.0	20.0	14.0	769	VDCLS	14	8.9	86
16...	1201	1430	77	6.6	26.0	20.0	765	VDCLS	35	8.2	90
16...	1202	1430	77	6.6	26.0	20.0	765	VDCLS	30	8.2	90
16...	1215	1430	77	6.9	26.0	20.0	765	USGS	--	8.2	90
19...	1000	630	75	6.7	20.0	21.0	755	VDCLS	14	8.2	93
JUN											
04...	0815	1310	79	6.8	22.5	21.0	760	VDCLS	80	10.1	114
12...	0830	219	112	6.7	22.5	24.5	755	USGS	--	6.4	78
22...	1200	124	115	6.8	29.0	25.0	767	VDCLS	5.1	6.8	82
28...	1300	3400	61	6.7	24.5	22.0	761	VDCLS	62	7.6	87
30...	0930	9450	64	6.6	24.0	23.0	768	VDCLS	15	6.4	74
JUL											
13...	1100	444	95	6.5	28.0	25.0	770	VDCLS	12	7.1	85
AUG											
11...	0930	231	143	7.6	23.0	23.0	761	VDCLS	5.7	6.5	76
21...	1000	133	172	7.1	28.0	24.0	761	USGS	--	5.8	69
SEP											
01...	0930	114	167	6.5	27.0	25.0	761	VDCLS	3.2	6.1	74

## 01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
OCT											
19...	--	--	--	--	--	--	--	--	--	--	13
19...	--	--	--	--	--	--	--	--	--	--	14
NOV											
07...	--	--	--	--	--	--	--	--	--	--	15
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
15...	--	--	--	--	--	--	--	--	--	--	--
JAN											
11...	--	--	--	--	--	--	--	--	--	--	12
16...	--	--	--	--	--	--	--	--	--	--	11
18...	--	--	--	--	--	--	--	--	--	--	9.8
FEB											
17...	--	--	--	--	--	--	--	--	--	--	18
MAR											
07...	--	--	--	--	--	--	--	--	--	--	11
10...	--	--	--	--	--	--	--	--	--	--	9.1
11...	--	--	--	--	--	--	--	--	--	--	8.8
12...	--	--	--	--	--	--	--	--	--	--	9.0
13...	--	--	--	--	--	--	--	--	--	--	10
17...	--	--	--	--	--	--	--	--	--	--	12
APR											
10...	--	--	--	--	--	--	--	--	--	--	8.6
19...	22	5.0	2.2	7.1	2.0	24	11	4.8	<0.10	<0.010	9.5
26...	--	--	--	--	--	--	--	--	--	--	13
MAY											
02...	--	--	--	--	--	--	--	--	--	--	12
03...	--	--	--	--	--	--	--	--	--	--	12
04...	--	--	--	--	--	--	--	--	--	--	13
16...	--	--	--	--	--	--	--	--	--	--	13
16...	--	--	--	--	--	--	--	--	--	--	13
16...	--	--	--	--	--	--	--	--	--	--	12
19...	--	--	--	--	--	--	--	--	--	--	12
JUN											
04...	--	--	--	--	--	--	--	--	--	--	15
12...	28	6.5	2.8	9.5	2.1	11	13	4.7	<0.10	0.030	13
22...	--	--	--	--	--	--	--	--	--	--	13
28...	--	--	--	--	--	--	--	--	--	--	9.1
30...	--	--	--	--	--	--	--	--	--	--	8.9
JUL											
13...	--	--	--	--	--	--	--	--	--	--	13
AUG											
11...	--	--	--	--	--	--	--	--	--	--	11
21...	33	8.6	2.9	18	3.1	28	29	6.3	0.10	<0.010	9.8
SEP											
01...	--	--	--	--	--	--	--	--	--	--	9.2

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

## 01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530) (*)	RESIDUE VOLATILE, TILE, SUS- PENDE (MG/L) (00535) (*)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540) (*)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) (*)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618) (*)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00630) (*)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) (*)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) (*)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT											
19...	--	--	<3	<3	<3	<0.002	0.168	0.168	0.168	0.006	0.30
19...	--	--	<3	<3	<3	<0.002	0.167	0.167	0.167	0.007	0.30
NOV											
07...	--	--	<3	<3	<3	<0.002	0.149	0.149	0.149	0.013	0.30
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
15...	--	--	3	<3	<3	0.082	0.216	0.298	0.298	0.013	0.20
JAN											
11...	--	--	13	3	10	0.010	0.309	0.319	0.319	0.026	0.40
16...	--	--	197	26	171	0.006	0.224	0.230	0.230	0.021	1.2
18...	--	--	50	6	44	0.003	0.201	0.204	0.204	0.018	0.70
FEB											
17...	--	--	8	<3	7	0.019	0.411	0.430	0.430	0.020	0.20
MAR											
07...	--	--	4	<3	3	0.008	0.270	0.278	0.278	0.014	--
10...	--	--	69	9	60	0.005	0.204	0.209	0.209	0.008	0.70
11...	--	--	31	5	26	0.004	0.163	0.167	0.167	0.020	0.50
12...	--	--	30	5	25	0.004	0.189	0.193	0.193	0.008	0.60
13...	--	--	20	4	16	0.005	0.256	0.261	0.261	0.014	0.50
17...	--	--	16	<3	13	0.018	0.260	0.278	0.278	0.022	0.20
APR											
10...	--	--	4	<3	3	0.010	0.133	0.143	0.143	0.009	0.20
19...	62	55	--	--	--	--	--	--	--	--	--
26...	--	--	17	3	14	0.003	0.124	0.127	0.127	0.022	0.30
MAY											
02...	--	--	46	6	40	0.010	0.480	0.490	0.490	0.074	0.50
03...	--	--	94	14	80	0.004	0.206	0.210	0.210	0.042	0.70
04...	--	--	46	7	39	0.003	0.138	0.141	0.141	0.030	0.50
16...	--	--	49	7	42	0.007	0.194	0.201	0.201	0.039	0.50
16...	--	--	48	7	41	0.007	0.192	0.199	0.199	0.044	0.60
16...	--	--	44	14	30	0.010	0.190	0.200	0.200	0.040	0.40
19...	--	--	14	<3	12	0.004	0.221	0.225	0.225	0.040	0.40
JUN											
04...	--	--	111	14	97	0.011	0.337	0.348	0.348	0.027	0.80
12...	76	69	--	--	--	--	--	--	--	--	--
22...	--	--	3	<3	<3	0.003	0.425	0.428	0.428	0.038	0.30
28...	--	--	103	12	91	0.002	0.190	0.192	0.192	0.058	0.60
30...	--	--	8	<3	7	0.004	0.150	0.154	0.154	0.037	0.50
JUL											
13...	--	--	5	<3	4	0.002	0.278	0.280	0.280	0.026	0.30
AUG											
11...	--	--	5	<3	4	0.009	0.604	0.613	0.613	0.045	0.40
21...	106	96	--	--	--	--	--	--	--	--	--
SEP											
01...	--	--	<3	<3	<3	0.005	0.681	0.686	0.686	0.031	0.40

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

\* For these constituents, there are differences in the minimum constituent reporting levels between the analyzing agencies.

## 01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671) (*)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
19...	0.070	0.070	0.050	--	--	--	--	--	--	--
19...	0.070	0.070	0.051	--	--	--	--	--	--	--
NOV										
07...	0.060	0.050	0.040	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	7.0	0.6	3	89
DEC										
15...	0.040	0.020	0.021	--	--	--	--	--	--	--
JAN										
11...	0.050	0.030	0.022	--	--	--	--	--	--	--
16...	0.290	0.070	0.021	--	--	--	--	--	--	--
18...	0.130	0.040	0.013	--	--	--	--	--	--	--
FEB										
17...	0.040	0.040	0.019	--	--	--	--	--	--	--
MAR										
07...	--	0.040	0.024	--	--	--	--	--	--	--
10...	0.120	0.060	0.015	--	--	--	--	--	--	--
11...	0.080	0.040	0.013	--	--	--	--	--	--	--
12...	0.090	0.050	0.016	--	--	--	--	--	--	--
13...	0.080	0.030	0.015	--	--	--	--	--	--	--
17...	0.050	0.030	0.022	--	--	--	--	--	--	--
APR										
10...	0.050	0.040	0.027	--	--	--	--	--	--	--
19...	--	--	--	570	27	--	--	--	--	--
26...	0.060	0.050	0.026	--	--	--	--	--	--	--
MAY										
02...	0.100	0.040	0.025	--	--	--	--	--	--	--
03...	0.150	0.050	0.026	--	--	--	--	--	--	--
04...	0.130	0.130	0.022	--	--	--	--	--	--	--
16...	0.080	0.040	0.025	--	--	--	--	--	--	--
16...	0.080	0.050	0.026	--	--	--	--	--	--	--
16...	0.050	--	0.030	--	--	7.7	--	--	--	--
19...	0.060	0.040	0.024	--	--	--	--	--	--	--
JUN										
04...	0.200	0.060	0.056	--	--	--	--	--	--	--
12...	--	--	--	740	56	--	--	--	--	--
22...	0.070	0.050	0.048	--	--	--	--	--	--	--
28...	0.150	0.040	0.012	--	--	--	--	--	--	--
30...	0.040	0.020	0.015	--	--	--	--	--	--	--
JUL										
13...	0.050	0.040	0.035	--	--	--	--	--	--	--
AUG										
11...	0.070	0.070	0.060	--	--	--	--	--	--	--
21...	--	--	--	120	100	--	--	--	--	--
SEP										
01...	0.090	0.090	0.074	--	--	--	--	--	--	--

\* For these constituents, there are differences in the minimum constituent reporting levels between the analyzing agencies.

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

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 38.36 ft above sea level.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Dec. 5 to Feb. 7, Aug. 3-10, and Aug. 17 to Sept. 1, which are fair. Maximum discharge, 802 ft<sup>3</sup>/s, from rating curve extended above 783 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 160 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 21	1530	*182	*5.11	Sep. 1	1830	162	4.88

Minimum discharge observed, 0.025 ft<sup>3</sup>/s, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	17	18	e14	e22	23	14	55	10	7.7	1.2	e23
2	6.3	16	16	e14	e21	27	14	57	8.4	7.1	1.2	32
3	5.8	17	15	e13	e19	23	15	90	16	5.9	e.80	24
4	5.5	16	15	e13	e23	19	14	45	18	14	e.65	12
5	5.4	12	e17	e12	e21	18	13	34	17	11	e.55	6.5
6	5.0	12	e16	e18	e20	18	13	29	12	15	e.50	4.4
7	4.9	12	e15	e35	e18	18	13	23	9.8	20	e.54	3.1
8	4.8	12	e15	e38	16	30	13	18	9.0	22	e.58	2.6
9	4.8	12	e14	e33	16	119	13	15	9.0	17	e.54	2.2
10	4.9	11	e22	e25	15	71	12	20	7.9	9.2	e2.2	2.1
11	4.7	11	e21	e20	16	34	12	24	7.5	6.2	3.9	1.9
12	4.8	11	e20	e17	17	27	13	30	11	4.8	3.2	1.6
13	4.9	11	e17	e15	16	25	19	22	17	4.0	2.8	1.6
14	10	12	e16	e14	16	22	22	27	17	3.2	2.4	1.5
15	14	11	e15	e23	17	20	17	45	13	3.1	1.4	1.5
16	16	11	e16	e37	23	19	14	36	8.9	2.7	1.1	1.3
17	12	14	e18	e30	27	18	13	22	6.7	3.1	e1.0	4.6
18	9.0	18	e17	e25	26	18	13	17	5.6	2.9	e.85	4.5
19	7.7	21	e16	e18	21	17	13	17	5.2	2.8	e.67	4.9
20	7.2	19	e16	e30	18	17	12	17	4.6	1.5	e.52	4.7
21	12	58	e15	e33	17	18	11	19	4.4	1.3	e.40	4.1
22	13	131	e15	e25	15	19	12	14	4.3	1.3	e.32	4.8
23	29	60	e14	e21	15	19	11	11	6.1	1.3	e.24	6.9
24	36	27	e14	e20	14	19	20	9.5	5.9	1.3	e.19	8.6
25	26	22	e16	e19	13	18	29	8.0	6.4	1.2	e.15	11
26	18	19	e15	e17	13	17	20	13	15	1.2	e.11	9.0
27	15	19	e14	e16	14	16	14	31	24	1.2	e.15	6.7
28	13	23	e14	e18	17	16	12	21	43	2.0	e.10	5.5
29	12	24	e13	e20	---	15	11	17	21	1.3	e.06	5.0
30	11	21	e13	e21	---	15	24	17	12	1.2	e.04	4.6
31	13	---	e12	e23	---	15	---	13	---	1.2	e.03	---
TOTAL	343.6	680	490	677	506	770	446	816.5	355.7	177.7	28.39	206.2
MEAN	11.1	22.7	15.8	21.8	18.1	24.8	14.9	26.3	11.9	5.73	.92	6.87
MAX	36	131	22	38	27	119	29	90	43	22	3.9	32
MIN	4.7	11	12	12	13	15	11	8.0	4.3	1.2	.03	1.3
CFSM	.42	.87	.60	.83	.69	.95	.57	1.01	.45	.22	.03	.26
IN.	.49	.97	.70	.96	.72	1.09	.63	1.16	.51	.25	.04	.29

e Estimated.

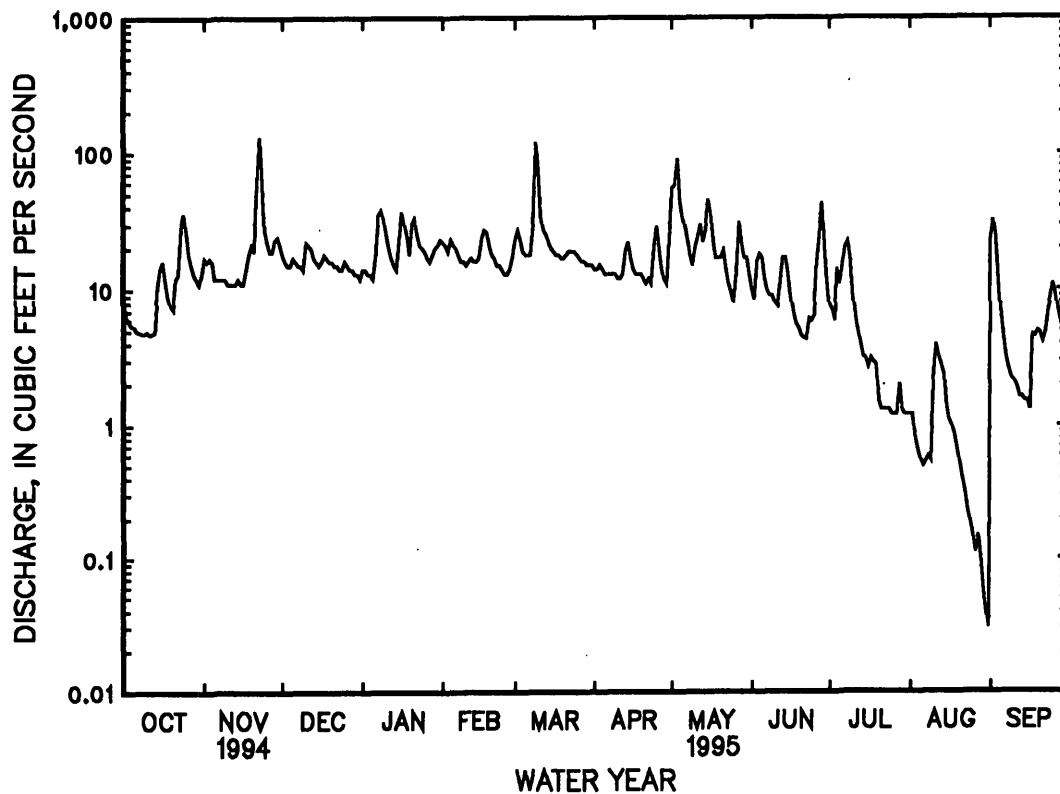
## 01673550 TOTOPOTOMOY CREEK NEAR STUDLEY, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	13.3	23.4	25.3	35.2	36.4	50.6	42.7	31.1	18.1	11.9	14.7	10.2
MAX	54.0	80.8	50.8	114	81.9	127	106	68.4	43.2	22.5	49.7	44.4
(WY)	1980	1986	1978	1978	1979	1984	1984	1978	1979	1984	1985	1979
MIN	2.93	6.44	10.5	10.3	15.5	12.7	12.3	8.46	4.95	5.73	.92	2.31
(WY)	1982	1982	1981	1981	1991	1981	1985	1985	1986	1995	1995	1981

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1978 - 1995
ANNUAL TOTAL	10794.3	5497.09	
ANNUAL MEAN	29.6	15.1	26.0
HIGHEST ANNUAL MEAN			45.1 1984
LOWEST ANNUAL MEAN			11.8 1981
HIGHEST DAILY MEAN	497 Mar 3	131 Nov 22	612 Mar 29 1984
LOWEST DAILY MEAN	1.9 Sep 15	e.03 Aug 31	e.03 Aug 31 1995
ANNUAL SEVEN-DAY MINIMUM	2.2 Sep 9	e.09 Aug 25	e.09 Aug 25 1995
INSTANTANEOUS PEAK FLOW		182 Nov 21	802 Aug 19 1985
INSTANTANEOUS PEAK STAGE		5.11 Nov 21	8.77 Feb 25 1979
INSTANTANEOUS LOW FLOW		(a) Sep 1	(a) Sep 1 1995
ANNUAL RUNOFF (CFSM)	1.13	.57	.99
ANNUAL RUNOFF (INCHES)	15.33	7.81	13.49
10 PERCENT EXCEEDS	57	25	52
50 PERCENT EXCEEDS	18	14	17
90 PERCENT EXCEEDS	4.9	1.4	4.4

a Minimum discharge observed, 0.025 ft<sup>3</sup>/s.  
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 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 183.76 ft above sea level. Prior to Sept. 30, 1964, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Feb. 6, 7, 9, 14, period of no gage-height record, Aug. 25-30, and period with backwater from leaves, Sept. 3-30, which are fair. Maximum discharge, 10,900 ft<sup>3</sup>/s, from rating curve extended above 3,400 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 10	0330	*938	*7.41	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 0.26 ft<sup>3</sup>/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	18	27	24	53	73	30	52	30	76	16	.54
2	14	19	24	28	62	60	29	92	25	88	11	.69
3	12	21	22	27	69	48	27	138	65	63	8.3	e.82
4	10	21	22	24	67	43	27	71	75	41	6.7	e.60
5	8.5	19	38	23	66	42	25	50	51	35	5.4	e.50
6	7.8	18	85	22	e48	43	25	40	33	25	5.1	e.55
7	7.3	18	50	172	e43	45	25	33	28	47	5.7	e.46
8	6.7	17	37	211	38	122	25	28	24	74	4.8	e.40
9	6.2	17	29	86	e37	607	25	24	22	49	4.9	e.35
10	6.6	20	27	58	36	529	24	28	18	31	5.3	e.42
11	6.7	25	30	47	41	135	24	39	15	28	5.0	e.34
12	6.4	26	32	41	51	98	26	34	58	45	4.5	e.30
13	6.1	23	29	37	49	78	57	26	115	29	4.1	e.26
14	8.0	20	28	35	e37	66	62	42	61	18	4.0	e.50
15	14	18	30	168	39	59	41	114	35	15	3.5	e.45
16	14	18	29	534	53	55	32	61	23	12	2.9	e.42
17	13	19	30	181	115	51	29	37	18	10	2.6	e.90
18	12	23	33	92	103	46	29	29	15	9.5	2.0	e1.2
19	11	27	33	68	74	43	28	29	11	14	4.5	e.98
20	11	25	30	264	64	41	27	27	9.5	15	4.2	e.86
21	25	29	27	382	58	41	25	24	8.5	14	2.3	e.76
22	19	40	25	127	51	39	24	20	7.9	18	1.5	e.82
23	22	38	25	84	45	38	22	17	11	22	1.1	e.92
24	36	27	25	66	42	37	42	14	32	15	.84	e.94
25	30	23	25	56	39	35	59	33	36	82	e.68	e.96
26	23	21	25	49	36	32	42	189	38	66	e.61	e1.1
27	21	21	23	44	34	31	31	109	308	29	e.58	e1.8
28	19	34	24	43	48	32	26	70	184	20	e.56	e1.6
29	18	41	22	47	---	33	22	74	108	25	e.56	e1.4
30	18	33	21	48	---	32	25	70	69	22	e.58	e1.2
31	17	---	21	48	---	31	---	45	---	23	.56	---
TOTAL	448.3	719	928	3136	1498	2665	935	1659	1533.9	1060.5	120.37	23.04
MEAN	14.5	24.0	29.9	101	53.5	86.0	31.2	53.5	51.1	34.2	3.88	.77
MAX	36	41	85	534	115	607	62	189	308	88	16	1.8
MIN	6.1	17	21	22	34	31	22	14	7.9	9.5	.56	.26
CFSM	.19	.31	.39	1.31	.69	1.11	.40	.69	.66	.44	.05	.01
IN.	.22	.35	.45	1.51	.72	1.28	.45	.80	.74	.51	.06	.01

e Estimated.



## 01673800 PO RIVER NEAR SPOTSYLVANIA, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	40.1	62.7	85.1	112	127	152	114	79.5	52.5	28.9	25.3	23.1
MAX	275	278	206	326	370	566	397	221	490	145	207	268
(WY)	1980	1994	1974	1978	1979	1994	1983	1972	1972	1984	1969	1975
MIN	.24	.85	11.1	10.4	37.3	25.2	27.1	19.1	4.62	1.68	.25	.26
(WY)	1992	1992	1966	1981	1968	1981	1981	1986	1986	1963	1963	1991

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

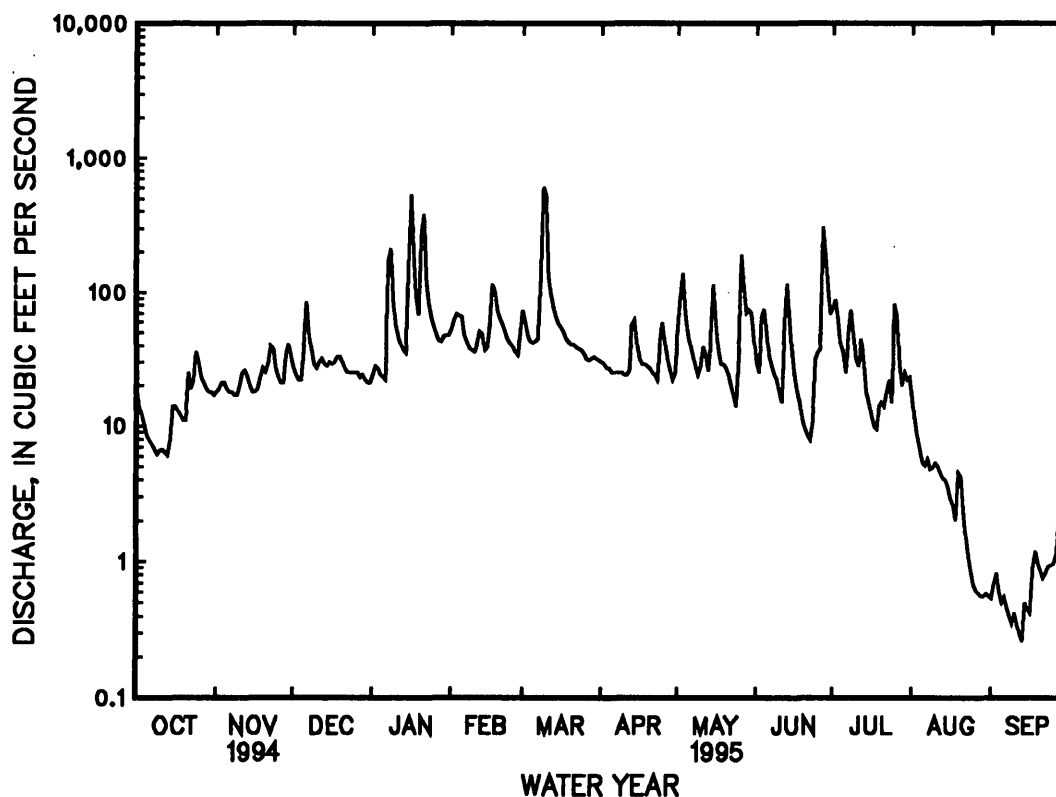
## WATER YEARS 1963 - 1995

ANNUAL TOTAL	40123.2	14726.11	
ANNUAL MEAN	110	40.3	74.9
HIGHEST ANNUAL MEAN			164
LOWEST ANNUAL MEAN			18.7
HIGHEST DAILY MEAN	3680	Mar 29	8160
LOWEST DAILY MEAN	2.2	Sep 16	.04
ANNUAL SEVEN-DAY MINIMUM	2.9	Sep 10	.06
INSTANTANEOUS PEAK FLOW			10900
INSTANTANEOUS PEAK STAGE			19.03
INSTANTANEOUS LOW FLOW			.03
ANNUAL RUNOFF (CFSM)	1.42		.97
ANNUAL RUNOFF (INCHES)	19.28		13.16
10 PERCENT EXCEEDS	196		146
50 PERCENT EXCEEDS	28		35
90 PERCENT EXCEEDS	6.5		2.8

a Not determined.

b Probably occurred Sept. 13, 1995.

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 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1382: 1943, 1945(M), 1948(M), 1949, 1953(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 85.14 ft above sea level. Prior to Aug. 17, 1978, gage located on left bank at same datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 6, and Feb. 6-9, 13, 14, which are fair. Some diurnal fluctuation from gristmill upstream on Po River. Maximum discharge, 13,400 ft<sup>3</sup>/s, from rating curve extended above 8,100 ft<sup>3</sup>/s. No flow at times in September and October 1954 and September 1966. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1928 reached a stage of 19.5 ft based on relative difference in stage between this flood and flood of Oct. 17, 1942, at Milford 4 mi downstream, discharge, 15,000 ft<sup>3</sup>/s, from rating curve extended above 8,100 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 10	2400	*1,860	*9.57	No peak equal to or greater than base discharge.			

Minimum discharge, 1.2 ft<sup>3</sup>/s, Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	51	123	74	197	153	112	153	147	263	38	2.8
2	72	52	105	81	221	177	109	220	107	216	32	2.7
3	57	51	93	81	227	165	107	359	113	191	25	2.3
4	47	53	87	80	242	145	102	394	148	162	19	2.2
5	41	50	106	75	281	131	98	310	158	124	13	2.5
6	37	49	141	e71	e240	126	92	223	134	114	14	2.2
7	34	45	173	184	e195	125	90	169	107	206	78	1.8
8	29	45	160	367	e170	153	88	133	89	193	59	1.7
9	27	47	123	483	e140	520	90	108	76	192	36	1.6
10	27	49	105	409	149	1320	93	103	67	145	25	1.5
11	25	61	104	256	142	1650	90	130	60	105	19	1.4
12	25	63	101	190	152	915	87	146	79	89	17	1.4
13	24	63	97	160	e135	524	178	123	134	88	13	1.4
14	27	75	98	140	e120	375	258	118	175	71	11	1.2
15	38	68	98	160	133	305	222	217	147	53	10	1.7
16	44	59	100	375	145	264	169	255	97	41	9.1	1.6
17	46	59	108	887	215	234	136	219	69	35	8.2	2.2
18	44	73	117	1070	281	209	118	146	55	31	7.5	4.0
19	38	89	123	596	292	187	112	120	46	33	6.7	4.2
20	36	92	110	441	254	171	105	114	40	34	6.2	3.3
21	38	100	99	588	216	166	97	100	35	35	5.7	2.5
22	57	184	89	927	184	161	90	85	34	44	5.6	3.1
23	69	185	86	802	163	152	82	70	53	45	5.0	3.5
24	89	147	83	463	145	150	142	60	254	47	4.5	3.7
25	87	116	80	312	127	141	256	53	311	150	4.2	3.5
26	84	96	81	247	117	131	226	124	189	127	3.8	4.2
27	91	86	78	205	111	125	170	255	259	115	3.6	4.2
28	77	112	75	182	117	123	127	307	315	91	3.4	3.9
29	64	134	73	180	---	121	102	281	400	79	3.3	3.8
30	61	136	69	183	---	120	95	235	364	56	3.1	3.8
31	55	---	67	189	---	117	---	201	---	46	2.9	---
TOTAL	1602	2490	3152	10458	5111	9356	3843	5531	4262	3221	491.8	79.9
MEAN	51.7	83.0	102	337	183	302	128	178	142	104	15.9	2.66
MAX	112	185	173	1070	292	1650	258	394	400	263	78	4.2
MIN	24	45	67	71	111	117	82	53	34	31	2.9	1.2
CFSM	.20	.32	.40	1.31	.71	1.17	.50	.69	.55	.40	.06	.01
IN.	.23	.36	.46	1.51	.74	1.35	.56	.80	.62	.47	.07	.01

e Estimated.

## 01674000 MATTAPONI RIVER NEAR BOWLING GREEN, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	120	166	267	352	389	474	379	257	141	106	119	77.5
MAX	860	721	1041	1174	1062	1540	1163	707	1111	853	939	714
(WY)	1943	1973	1949	1978	1961	1994	1983	1972	1972	1945	1955	1975
MIN	1.44	6.04	33.1	34.7	113	79.8	104	56.5	17.5	9.24	1.18	.43
(WY)	1992	1992	1966	1981	1968	1981	1968	1955	1977	1977	1977	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1943 - 1995	
ANNUAL TOTAL	129174		49597.7			
ANNUAL MEAN	354		136		237	
HIGHEST ANNUAL MEAN					516	
LOWEST ANNUAL MEAN					61.0	
HIGHEST DAILY MEAN	7140	Mar 30	1650	Mar 11	12200	Jun 23 1972
LOWEST DAILY MEAN	12	aSep 14	1.2	Sep 14	.00	(b)
ANNUAL SEVEN-DAY MINIMUM	12	Sep 11	1.5	cSep 8	.00	(d)
INSTANTANEOUS PEAK FLOW			1860	Mar 10	13400	Jun 23 1972
INSTANTANEOUS PEAK STAGE			9.57	Mar 10	f18.95	Jun 23 1972
INSTANTANEOUS LOW FLOW			1.2	Sep 14	.00	(b)
ANNUAL RUNOFF (CFSM)	1.38		.53		.92	
ANNUAL RUNOFF (INCHES)	18.70		7.18		12.51	
10 PERCENT EXCEEDS	700		257		534	
50 PERCENT EXCEEDS	105		100		124	
90 PERCENT EXCEEDS	28		4.2		12	

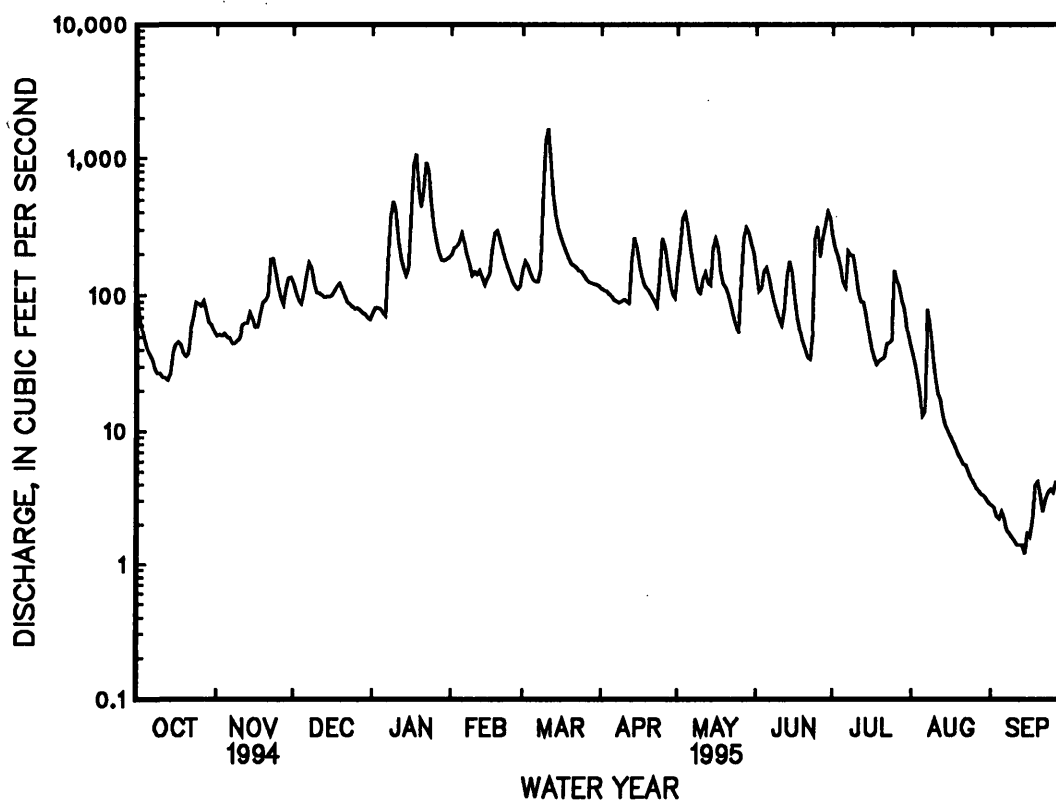
a Also Sept. 15-17, 1994.

b Many days in September and October 1954, and September 1966.

c Also Sept. 9, 1995.

d Many days in September and October 1954.

f From floodmark in well.



## YORK RIVER BASIN

## 01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA

LOCATION.--Lat 37°53'02", long 77°09'55", King and Queen County, Hydrologic Unit 02080105, on upstream side of bridge on State Highway 628, 2.4 mi north of Beulahville, and 3.3 mi downstream from Maracossic Creek.

DRAINAGE AREA.--601 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1941 to September 1987, October 1989 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Nonrecording gage, periodic observer readings. Datum of gage is 12.43 ft above sea level (levels by Virginia Department of Transportation). Prior to Oct. 14, 1942, nonrecording gage. Oct. 14, 1942, to Aug. 8, 1974, water-stage recorder on right bank at site 0.6 mi upstream at same datum. Aug. 8, 1974, to Sept. 8, 1987, water-stage recorder on left bank 80 ft downstream from previous site, at same datum. Sept. 8, 1987, to Aug. 31, 1989, nonrecording gage at present site and datum. Sept. 1, 1989, to Mar. 31, 1994, water-stage recorder. Apr. 1, 1994, to Sept. 28, 1995, non-recording gage at present site and datum. Sept. 29-30, 1995, water-stage recorder.

REMARKS.--Records poor. Diurnal fluctuation at times during low flow caused by gristmill on Po River. Maximum discharge, 16,900 ft<sup>3</sup>/s, from rating curve extended above 11,760 ft<sup>3</sup>/s. Minimum gage height, 0.94 ft, Sept. 14, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum not determined, maximum daily discharge, 1,990 ft<sup>3</sup>/s, Mar. 14; minimum daily, 12 ft<sup>3</sup>/s, Sept. 14, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e415	e180	e350	e200	e540	e354	e239	e309	e323	e569	e124	e17
2	e350	e190	e300	e218	e570	e415	e227	e489	e254	e455	e100	e16
3	e301	e194	e260	e228	e600	e443	e221	e659	e278	e452	e85	e18
4	e200	e185	e240	e210	e640	e427	e218	e775	e290	e366	e73	e19
5	e117	e170	e265	e200	e700	e401	e210	e792	e285	e406	e69	e18
6	e105	e152	e355	e190	e720	e377	e195	e665	e273	e347	e82	e17
7	e94	e143	e425	e350	e630	e361	e179	e476	e245	e376	e68	e16
8	e88	e138	e316	e710	e550	e360	e178	e337	e206	e519	e127	e15
9	e84	e132	e290	e1100	e475	e695	e174	e285	e190	e435	e89	e14
10	e80	e130	e270	e1200	e438	e1020	e174	e269	e154	e379	e164	e14
11	e85	e150	e255	e780	e415	e1260	e168	e304	e132	e297	e185	e13
12	e79	e170	e245	e560	e430	e1500	e164	e298	e140	e241	e124	e13
13	e75	e185	e242	e425	e420	e1790	e382	e290	e146	e224	e107	e13
14	e154	e192	e238	e400	e390	e1990	e575	e282	e177	e197	e92	e12
15	e165	e178	e235	e390	e385	e1770	e622	e392	e203	e169	e79	e12
16	e148	e168	e250	e450	e425	e827	e474	e473	e199	e136	e66	e14
17	e130	e155	e275	e608	e580	e563	e377	e447	e161	e113	e56	e17
18	e112	e196	e310	e865	e700	e462	e297	e397	e107	e92	e47	e19
19	e101	e220	e315	e1100	e750	e389	e260	e350	e90	e79	e42	e30
20	e96	e240	e295	e1300	e780	e333	e239	e282	e66	e55	e35	e58
21	e100	e270	e275	e1600	e600	e353	e219	e272	e52	e69	e31	e50
22	e110	e564	e250	e1680	e491	e337	e202	e227	e51	e91	e28	e44
23	e160	e540	e230	e1550	e440	e334	e180	e180	e137	e183	e26	e36
24	e210	e465	e215	e1350	e394	e312	e241	e161	e1000	e166	e25	e32
25	e220	e380	e205	e910	e367	e296	e348	e136	e1200	e157	e24	e30
26	e230	e320	e200	e690	e347	e286	e523	e154	e1250	e128	e23	e40
27	e240	e300	e210	e580	e322	e269	e459	e250	e956	e122	e22	e56
28	e248	e294	e200	e520	e324	e263	e356	e481	e554	e262	e21	e49
29	e240	e320	e190	e500	---	e259	e277	e484	e547	e267	e20	46
30	e210	e345	e185	e490	---	e253	e274	e457	e555	e199	e19	43
31	e190	---	e175	e520	---	e250	---	e388	---	e164	e18	---
TOTAL	5137	7266	8066	21874	14423	18949	8652	11761	10221	7715	2071	791
MEAN	166	242	260	706	515	611	288	379	341	249	66.8	26.4
MAX	415	564	425	1680	780	1990	622	792	1250	569	185	58
MIN	75	130	175	190	322	250	164	136	51	55	18	12
CFSM	.28	.40	.43	1.17	.86	1.02	.48	.63	.57	.41	.11	.04
IN.	.32	.45	.50	1.35	.89	1.17	.54	.73	.63	.48	.13	.05

e Estimated.

## 01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1987, 1989 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	315	421	624	802	894	1073	960	655	411	295	339	228
MAX	1801	1461	2115	2418	1837	2483	3291	1912	3217	2119	2409	1287
(WY)	1980	1973	1949	1978	1961	1979	1984	1978	1972	1945	1969	1975
MIN	26.1	49.9	96.8	131	286	229	288	130	46.3	43.5	20.3	17.4
(WY)	1942	1992	1966	1981	1992	1981	1995	1942	1991	1966	1977	1980

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

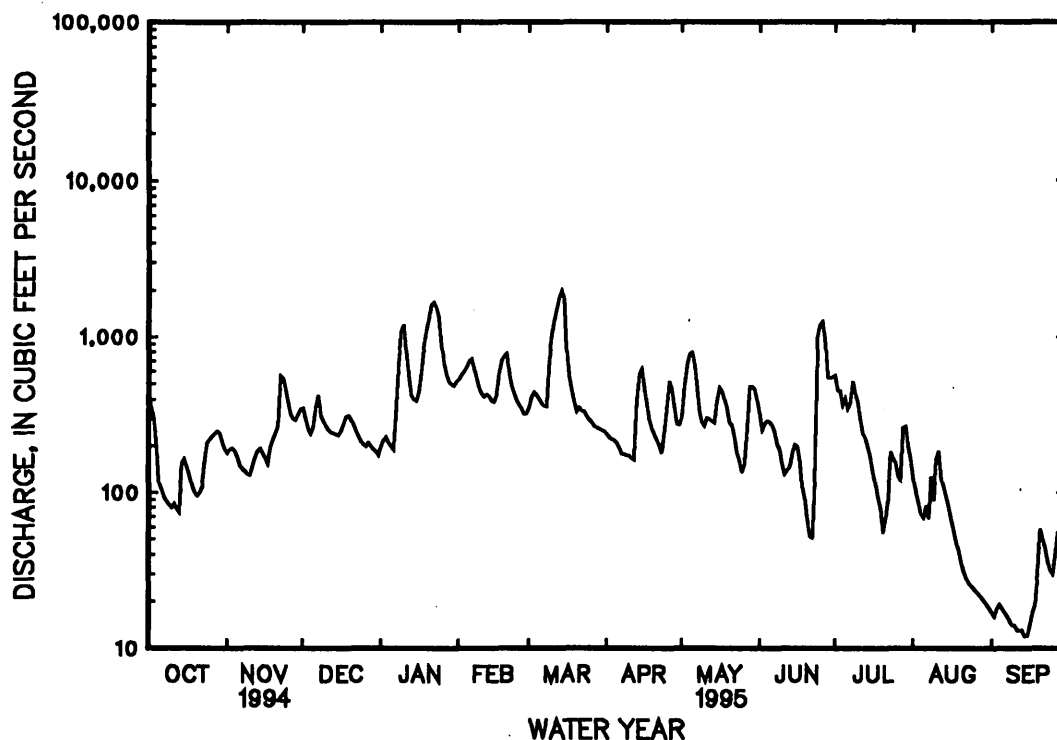
WATER YEARS 1942 - 1987  
1989 - 1995

ANNUAL TOTAL	280763	116926	
ANNUAL MEAN	769	320	583
HIGHEST ANNUAL MEAN			1210
LOWEST ANNUAL MEAN			185
HIGHEST DAILY MEAN	7780	Apr 1	16200
LOWEST DAILY MEAN	48	Sep 17	6.3
ANNUAL SEVEN-DAY MINIMUM	53	Sep 12	7.8
INSTANTANEOUS PEAK FLOW			16900
INSTANTANEOUS PEAK STAGE			24.09
INSTANTANEOUS LOW FLOW			5.9
ANNUAL RUNOFF (CFSM)	1.28	.53	.97
ANNUAL RUNOFF (INCHES)	17.38	7.24	13.17
10 PERCENT EXCEEDS	1810	625	1310
50 PERCENT EXCEEDS	320	242	369
90 PERCENT EXCEEDS	113	43	65

a Also Sept. 15, 1995

b Not determined.

e Estimated.



## 01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968, 1969, 1979 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1991 to current year.

WATER TEMPERATURE: October 1991 to current year.

COOPERATION.--Chemical data as noted were provided by the Virginia Division of Consolidated Laboratory Services (VDCLS) and reviewed by the U.S. Geological Survey.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	TUR- BID- IDY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED CENT SATUR- ATION) (00301)
OCT											
19...	0915	101	54	6.4	13.0	11.5	764	VDCLS	3.6	8.8	80
19...	0930	101	54	6.4	13.0	11.5	764	VDCLS	4.2	8.8	80
NOV											
07...	1030	143	53	6.8	14.5	13.5	775	VDCLS	3.6	9.2	87
08...	1500	132	50	6.7	21.0	12.0	758	USGS	--	9.5	89
DEC											
15...	0930	235	52	7.0	4.0	6.0	777	VDCLS	6.2	12.4	98
JAN											
17...	1300	631	53	7.0	11.0	10.0	765	VDCLS	10	10.9	96
18...	1110	865	52	6.5	11.5	10.0	767	VDCLS	26	9.4	83
20...	0900	1300	47	7.1	9.0	9.0	749	VDCLS	38	10.4	92
FEB											
10...	1030	438	60	7.0	5.0	0.5	762	VDCLS	6.7	13.4	93
MAR											
10...	1100	1020	50	7.0	4.0	7.5	--	VDCLS	15	--	--
11...	1100	1230	52	6.5	9.0	6.5	776	VDCLS	25	12.0	96
12...	1100	1480	46	6.5	15.0	6.5	777	VDCLS	26	11.8	94
13...	1100	1760	46	6.9	17.0	7.5	775	VDCLS	25	10.8	89
15...	0830	1850	50	7.0	10.0	10.5	765	VDCLS	15	10.3	91
17...	0901	587	53	6.4	15.5	12.5	765	VDCLS	8.9	10.0	93
17...	0915	587	53	6.4	15.5	12.5	765	USGS	--	10.0	93
APR											
10...	0901	176	56	6.8	10.0	16.0	769	VDCLS	4.5	9.2	92
26...	0900	507	55	6.6	11.0	14.5	770	VDCLS	10	9.5	92
MAY											
03...	0930	640	59	6.5	13.0	10.0	770	VDCLS	9.4	9.6	84
04...	0900	768	51	6.6	11.5	13.5	769	VDCLS	6.5	8.8	84
16...	1031	465	50	6.9	25.0	19.0	766	VDCLS	9.7	8.2	88
16...	1032	465	50	6.9	25.0	19.0	766	VDCLS	8.8	8.2	88
16...	1045	465	50	6.9	25.0	19.0	766	USGS	--	8.2	88
19...	0900	358	56	6.5	20.0	20.0	756	VDCLS	8.6	8.5	94
JUN											
12...	1030	120	57	6.8	24.5	24.0	755	USGS	--	6.3	76
19...	1030	94	59	6.5	26.0	21.0	768	VDCLS	8.6	8.1	90
26...	0915	1260	42	6.0	24.0	23.0	763	VDCLS	25	7.2	84
28...	1000	568	56	6.5	22.0	20.0	772	VDCLS	15	6.5	71
29...	1000	549	52	6.4	27.0	22.5	764	VDCLS	9.9	6.9	80
30...	1100	547	52	6.6	25.0	22.0	768	VDCLS	11	7.2	82
JUL											
13...	0930	231	56	6.6	26.0	24.0	770	VDCLS	12	7.6	89
AUG											
11...	1130	188	55	6.9	26.0	22.5	760	VDCLS	10	6.9	80
21...	0845	34	64	6.9	26.5	23.5	761	USGS	--	6.0	71
SEP											
01...	0800	11	74	6.5	24.0	24.0	761	VDCLS	3.3	6.2	74

## 01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
OCT											
19...	--	--	--	--	--	--	--	--	--	--	8.1
19...	--	--	--	--	--	--	--	--	--	--	8.1
NOV											
07...	--	--	--	--	--	--	--	--	--	--	8.9
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
15...	--	--	--	--	--	--	--	--	--	--	9.6
JAN											
17...	--	--	--	--	--	--	--	--	--	--	8.7
18...	--	--	--	--	--	--	--	--	--	--	9.2
20...	--	--	--	--	--	--	--	--	--	--	9.5
FEB											
10...	--	--	--	--	--	--	--	--	--	--	9.6
MAR											
10...	--	--	--	--	--	--	--	--	--	--	5.7
11...	--	--	--	--	--	--	--	--	--	--	6.3
12...	--	--	--	--	--	--	--	--	--	--	7.3
13...	--	--	--	--	--	--	--	--	--	--	8.1
15...	--	--	--	--	--	--	--	--	--	--	8.3
17...	--	--	--	--	--	--	--	--	--	--	8.2
17...	--	--	--	--	--	--	--	--	--	--	7.7
APR											
10...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	6.0
MAY											
03...	--	--	--	--	--	--	--	--	--	--	7.0
04...	--	--	--	--	--	--	--	--	--	--	7.8
16...	--	--	--	--	--	--	--	--	--	--	7.6
16...	--	--	--	--	--	--	--	--	--	--	7.6
16...	--	--	--	--	--	--	--	--	--	--	6.8
19...	--	--	--	--	--	--	--	--	--	--	9.5
JUN											
12...	17	3.5	2.0	3.6	1.3	6	2.1	4.4	<0.10	0.030	8.2
19...	--	--	--	--	--	--	--	--	--	--	9.8
26...	--	--	--	--	--	--	--	--	--	--	6.6
28...	--	--	--	--	--	--	--	--	--	--	9.3
29...	--	--	--	--	--	--	--	--	--	--	11
30...	--	--	--	--	--	--	--	--	--	--	10
JUL											
13...	--	--	--	--	--	--	--	--	--	--	11
AUG											
11...	--	--	--	--	--	--	--	--	--	--	9.5
21...	18	3.8	2.1	3.8	2.0	17	3.1	5.4	<0.10	<0.010	9.7
SEP											
01...	--	--	--	--	--	--	--	--	--	--	10

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

## YORK RIVER BASIN

## 01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530) (*)	RESIDUE VOLATILE, SUS- PENDE (MG/L) (00535) (*)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540) (*)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N) (00613) (*)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L) AS N) (00618) (*)	NITRO- GEN, NO2+NO3 TOTAL (MG/L) AS N) (00630) (*)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631) (*)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608) (*)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)
OCT											
19...	--	--	<3	<3	<3	<0.002	0.065	0.065	0.065	0.008	0.40
19...	--	--	<3	<3	<3	<0.002	0.065	0.065	0.065	0.007	0.30
NOV											
07...	--	--	<3	<3	<3	<0.002	0.025	0.025	0.025	0.011	0.40
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
15...	--	--	<3	<3	<3	<0.002	0.107	0.107	0.107	0.014	0.30
JAN											
17...	--	--	8	<3	6	<0.002	0.099	0.099	0.099	0.017	0.50
18...	--	--	18	3	15	0.002	0.081	0.083	0.083	0.017	0.60
20...	--	--	25	5	20	<0.002	0.053	0.053	0.053	0.022	0.80
FEB											
10...	--	--	5	<3	3	0.003	0.178	0.181	0.181	0.028	0.30
MAR											
10...	--	--	21	3	18	<0.002	0.100	0.100	0.100	0.010	0.50
11...	--	--	24	4	20	0.002	0.112	0.114	0.114	0.078	0.60
12...	--	--	22	5	17	<0.002	0.090	0.090	0.090	0.067	0.60
13...	--	--	13	3	10	<0.002	0.065	0.065	0.065	0.004	0.60
15...	--	--	7	<3	5	<0.002	0.055	0.055	0.055	0.017	0.70
17...	--	--	10	<3	7	<0.002	0.089	0.089	0.089	0.039	0.30
17...	--	--	11	12	0	<0.010	--	0.090	0.090	0.020	0.30
APR											
10...	--	--	<3	<3	<3	--	--	--	--	--	0.20
26...	--	--	16	3	13	<0.002	0.080	0.080	0.080	0.022	0.60
MAY											
03...	--	--	17	4	13	0.002	0.115	0.117	0.117	0.051	0.60
04...	--	--	18	3	15	0.002	0.107	0.109	0.109	0.052	0.60
16...	--	--	14	3	11	0.003	0.129	0.132	0.132	0.060	0.50
16...	--	--	13	3	10	0.004	0.131	0.135	0.135	0.060	0.60
16...	--	--	14	8	6	0.010	0.110	0.120	0.120	0.050	0.50
19...	--	--	8	<3	6	0.004	0.121	0.125	0.125	0.060	0.70
JUN											
12...	48	37	--	--	--	--	--	--	--	--	--
19...	--	--	<3	<3	<3	0.002	0.155	0.157	0.157	0.029	0.40
26...	--	--	23	4	19	0.003	0.080	0.083	0.083	0.043	0.50
28...	--	--	11	3	8	0.003	0.116	0.119	0.119	0.066	0.70
29...	--	--	10	<3	8	0.004	0.169	0.173	0.173	0.058	0.80
30...	--	--	11	3	8	0.004	0.189	0.193	0.193	0.050	0.60
JUL											
13...	--	--	3	<3	3	0.003	0.196	0.199	0.199	0.034	0.40
AUG											
11...	--	--	5	<3	4	0.003	0.176	0.179	0.179	0.032	0.50
21...	48	43	--	--	--	--	--	--	--	--	--
SEP											
01...	--	--	<3	<3	<3	0.002	0.135	0.137	0.137	0.049	0.50

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

\* For these constituents, there are differences in the minimum constituent reporting levels between the analyzing agencies.



## 01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671) (*)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
19...	0.050	0.030	0.020	--	--	--	--	--	--	--
19...	0.050	0.030	0.020	--	--	--	--	--	--	--
NOV										
07...	0.050	0.040	0.021	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	6.8	0.30	3	91
DEC										
15...	0.050	0.030	0.020	--	--	--	--	--	--	--
JAN										
17...	0.050	0.040	0.016	--	--	--	--	--	--	--
18...	0.090	0.050	0.019	--	--	--	--	--	--	--
20...	0.130	0.050	0.017	--	--	--	--	--	--	--
FEB										
10...	0.040	0.040	0.013	--	--	--	--	--	--	--
MAR										
10...	0.080	0.050	0.012	--	--	--	--	--	--	--
11...	0.090	0.060	0.016	--	--	--	--	--	--	--
12...	0.090	0.060	0.013	--	--	--	--	--	--	--
13...	0.080	0.030	0.012	--	--	--	--	--	--	--
15...	0.060	0.040	0.013	--	--	--	--	--	--	--
17...	0.050	0.030	0.021	--	--	--	--	--	--	--
17...	0.040	--	0.010	--	--	7.5	--	--	--	--
APR										
10...	0.030	--	--	--	--	--	--	--	--	--
26...	0.120	0.060	0.026	--	--	--	--	--	--	--
MAY										
03...	0.080	0.050	0.029	--	--	--	--	--	--	--
04...	0.090	0.060	0.022	--	--	--	--	--	--	--
16...	0.060	0.050	0.033	--	--	--	--	--	--	--
16...	0.070	0.040	0.035	--	--	--	--	--	--	--
16...	0.050	--	0.030	--	--	9.3	--	--	--	--
19...	0.080	0.060	0.036	--	--	--	--	--	--	--
JUN										
12...	--	--	--	2400	77	--	--	--	--	--
19...	0.070	0.070	0.039	--	--	--	--	--	--	--
26...	0.050	0.090	0.039	--	--	--	--	--	--	--
28...	0.090	0.060	0.041	--	--	--	--	--	--	--
29...	0.090	0.070	0.041	--	--	--	--	--	--	--
30...	0.070	0.050	0.034	--	--	--	--	--	--	--
JUL										
13...	0.060	--	0.044	--	--	--	--	--	--	--
AUG										
11...	0.070	0.060	0.038	--	--	--	--	--	--	--
21...	--	--	--	1700	190	--	--	--	--	--
SEP										
01...	0.070	0.070	0.057	--	--	--	--	--	--	--

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

\* For these constituents, there are differences in the minimum constituent reporting levels between the analyzing agencies.

## 01677000 WARE CREEK NEAR TOANO, VA

LOCATION.--Lat 37°26'17", long 76°47'12", New Kent County, Hydrologic Unit 02080107, on left bank at upstream side of bridge on State Highway 600, 0.8 mi upstream from France Swamp, and 4.9 mi north of Toano.

DRAINAGE AREA.--6.29 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to October 1981, March 1982 to September 1995 (discontinued).

REVISED RECORDS.--WDR VA-83-1: 1981.

GAGE.--Water-stage recorder. Elevation of gage is 10 ft above sea level, from topographic map. October 1979 to October 1981, water-stage recorder at same site and datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Aug. 1-6 and 22-27, which are fair. Maximum discharge, 260 ft<sup>3</sup>/s, from rating curve extended above 120 ft<sup>3</sup>/s. No flow at times September 1980 and July to September 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 139 ft<sup>3</sup>/s, Mar. 9, gage height, 2.03 ft; minimum daily, .05 ft<sup>3</sup>/s, Aug. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	3.4	6.8	5.3	8.7	12	5.3	8.3	3.0	3.0	e.45	1.6
2	1.9	4.7	5.8	4.9	6.7	10	5.2	19	2.5	20	e.31	11
3	1.8	3.5	5.6	4.3	5.6	5.8	5.4	12	2.6	5.7	e.31	6.6
4	1.8	2.5	5.6	3.9	8.2	5.1	5.5	6.1	2.8	2.5	e.20	2.5
5	1.9	2.4	7.0	3.7	8.7	4.3	5.0	5.3	2.5	4.7	e.10	1.3
6	2.0	3.2	7.7	3.7	5.9	4.4	4.7	4.6	2.3	3.9	e1.1	1.0
7	2.0	3.1	7.0	15	4.6	4.6	5.0	3.6	2.8	30	11	.93
8	1.9	2.6	6.1	9.8	4.4	15	5.1	3.2	2.6	9.8	5.4	.93
9	1.9	2.1	5.6	5.8	4.4	68	4.8	3.0	2.3	4.6	2.7	.93
10	2.0	2.2	7.0	5.0	4.7	15	4.6	10	2.0	2.9	2.3	.93
11	2.0	2.4	9.0	4.3	5.2	9.5	4.5	13	1.8	2.4	2.4	.87
12	2.1	2.4	7.5	4.0	5.8	8.1	4.9	6.9	3.6	2.1	2.3	.76
13	2.2	2.2	6.4	4.5	5.2	7.0	9.1	4.4	23	1.9	1.7	.76
14	6.7	2.2	6.0	5.7	4.7	6.6	7.3	7.9	11	1.6	1.5	.76
15	12	2.2	5.8	11	5.3	6.4	5.3	14	5.1	1.4	1.2	.76
16	5.4	2.4	5.6	18	11	5.8	4.7	5.8	3.6	1.4	1.3	.77
17	3.4	5.8	5.6	9.5	12	5.2	4.7	3.8	2.7	3.2	1.3	10
18	2.5	9.1	6.0	6.9	9.4	5.0	4.9	3.6	2.2	2.7	1.0	16
19	2.5	8.6	6.5	6.2	7.2	5.2	4.9	6.0	1.9	2.0	.78	5.5
20	2.6	5.0	6.1	9.3	6.0	5.2	4.6	7.2	1.8	1.3	.53	2.7
21	8.2	14	5.8	7.9	5.5	6.4	4.4	4.2	1.8	1.2	.45	1.9
22	6.4	32	5.6	5.4	5.1	6.2	4.3	3.3	1.8	1.4	e.31	3.2
23	5.4	11	5.7	4.6	4.1	5.6	3.7	2.7	1.9	1.6	e.31	23
24	7.3	6.7	5.5	4.2	3.8	5.7	10	2.4	3.1	1.6	e.20	9.4
25	4.1	6.0	5.6	4.4	3.4	5.0	9.1	2.2	4.0	2.2	e.10	5.0
26	3.1	5.9	5.4	4.5	3.3	5.1	5.7	3.9	8.4	2.1	e.05	5.2
27	3.0	6.9	5.0	4.4	3.5	5.6	4.5	4.2	5.1	1.4	e.10	4.7
28	2.9	9.4	4.7	4.5	4.7	5.6	4.1	3.4	3.0	.94	.51	3.1
29	2.4	7.8	4.4	6.1	---	5.6	3.9	4.3	2.7	.68	1.0	2.2
30	2.0	7.4	4.2	7.3	---	5.3	4.9	4.2	2.2	.59	1.3	1.8
31	2.0	---	4.3	11	---	5.4	---	3.7	---	.59	1.2	---
TOTAL	107.4	179.1	184.9	205.1	167.1	269.7	160.1	186.2	116.1	121.40	43.41	126.10
MEAN	3.46	5.97	5.96	6.62	5.97	8.70	5.34	6.01	3.87	3.92	1.40	4.20
MAX	12	32	9.0	18	12	68	10	19	23	30	11	23
MIN	1.8	2.1	4.2	3.7	3.3	4.3	3.7	2.2	1.8	.59	.05	.76
CFSM	.55	.95	.95	1.05	.95	1.38	.85	.95	.62	.62	.22	.67
IN.	.64	1.06	1.09	1.21	.99	1.60	.95	1.10	.69	.72	.26	.75

e Estimated.

## 01677000 WARE CREEK NEAR TOANO, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1981, 1982 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4.81	6.25	5.84	7.23	6.87	8.27	7.37	7.17	4.86	4.04	4.10	3.72
MAX	9.58	9.44	8.43	10.6	10.2	17.4	13.8	15.1	9.18	11.3	9.19	10.5
(WY)	1981	1986	1981	1987	1986	1994	1984	1980	1987	1984	1986	1985
MIN	2.03	1.19	3.65	3.34	3.91	1.88	3.42	2.65	1.99	1.00	.39	1.26
(WY)	1992	1992	1992	1992	1992	1981	1985	1991	1986	1988	1981	1980

## SUMMARY STATISTICS

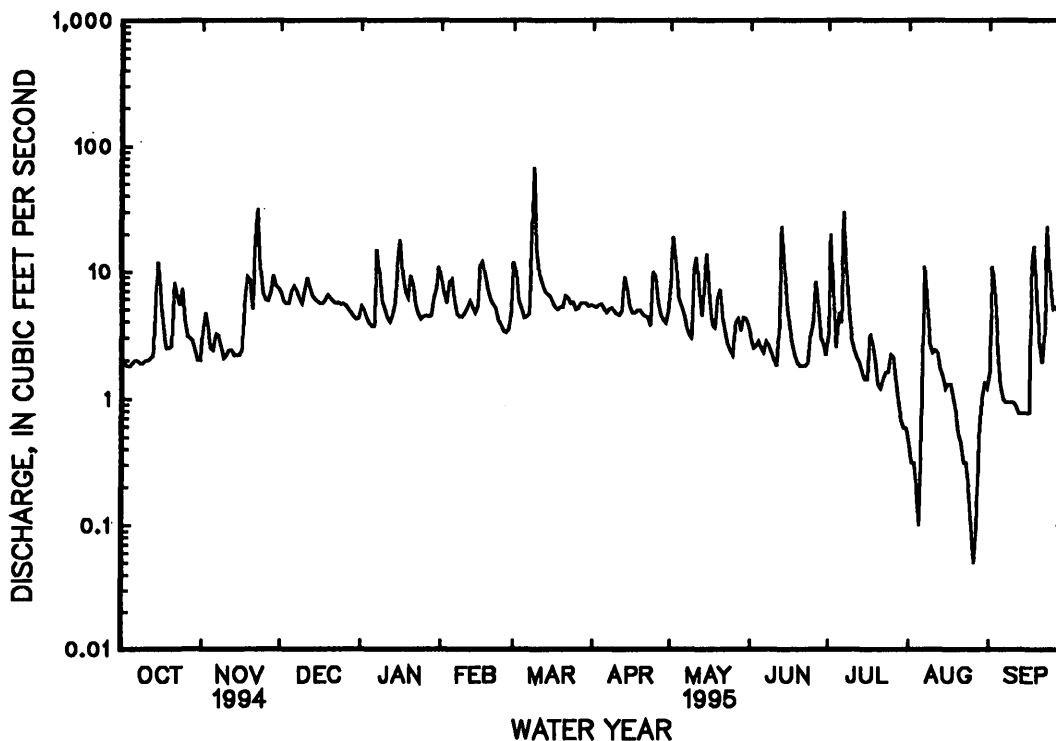
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1980 - 1981  
1982 - 1995

ANNUAL TOTAL	2665.7			1866.61					
ANNUAL MEAN	7.30			5.11			5.92		
HIGHEST ANNUAL MEAN							9.10		
LOWEST ANNUAL MEAN							3.74		
HIGHEST DAILY MEAN	98 Mar 3			68 Mar 9			e150 Sep 27 1985		
LOWEST DAILY MEAN	1.6 Jul 9			.05 Aug 26			a.00 Sep 14 1980		
ANNUAL SEVEN-DAY MINIMUM	1.9 Oct 2			.22 Aug 21			a.00 Sep 14 1980		
INSTANTANEOUS PEAK FLOW				139 Mar 9			260 Sep 27 1985		
INSTANTANEOUS PEAK STAGE				2.03 Mar 9			b2.60 Sep 27 1985		
INSTANTANEOUS LOW FLOW				(c)			a.00 Sep 14 1980		
ANNUAL RUNOFF (CFSM)	1.16			.81			.94		
ANNUAL RUNOFF (INCHES)	15.77			11.04			12.79		
10 PERCENT EXCEEDS	13			9.4			11		
50 PERCENT EXCEEDS	5.6			4.5			4.6		
90 PERCENT EXCEEDS	2.4			1.3			1.5		

- a No flow at times September 1980 and July to September 1981.  
b From floodmarks.  
c Not determined.  
e Estimated.



## 01677000 WARE CREEK NEAR TOANO, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979-81, October 1985 to September 1995.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
DEC 27...	1030	4.9	112	7.0	5.0	8.0	780	11.4	94	--
FEB 22...	0915	5.0	103	6.9	7.0	6.5	765	11.7	95	12
APR 04...	0915	5.5	104	7.0	15.0	13.5	755	10.1	98	13
MAY 16...	0915	5.4	100	6.9	17.5	20.5	762	5.1	57	13
16...	0930	5.4	100	6.9	17.5	20.5	762	5.1	57	13
JUL 05...	0930	5.0	91	6.4	25.5	26.0	771	7.0	85	13
AUG 10...	0830	2.3	123	6.9	23.5	24.5	768	4.8	57	16
SEP 06...	0830	1.0	135	7.2	21.5	23.5	766	5.2	61	16

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)
DEC 27...	--	--	--	--	<0.010	0.190	0.40	--	0.030	--
FEB 22...	1.4	3.8	6.2	5	<0.010	0.560	0.30	<0.20	--	<0.010
APR 04...	1.5	3.5	3.6	9	0.010	<0.050	0.50	<0.20	--	<0.010
MAY 16...	1.5	3.3	6.4	9	<0.010	<0.050	0.60	0.40	--	0.040
16...	1.5	3.4	6.4	9	0.010	<0.050	0.60	0.60	--	0.060
JUL 05...	1.3	3.1	8.0	13	<0.010	<0.050	0.60	0.20	--	0.010
AUG 10...	1.6	5.1	10	28	<0.010	<0.050	0.60	0.40	--	<0.010
SEP 06...	1.8	7.7	10	20	<0.010	<0.050	0.70	0.40	--	0.040

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

## 01677000 WARE CREEK NEAR TOANO, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
DEC 27...	0.020	--	--	--	--	--	--	660	--
FEB 22...	0.010	13	<0.5	<1.0	<5	<3	<10	400	<10
APR 04...	<0.010	8	<0.5	<1.0	<5	<3	<10	560	<10
MAY 16...	0.020	27	<0.5	2.0	<5	7	<10	1600	10
16...	0.030	27	<0.5	<1.0	<5	9	<10	1600	<10
JUL 05...	0.020	22	<0.5	<1.0	<5	<3	<10	1200	10
AUG 10...	<0.010	21	<0.5	<1.0	<5	<3	<10	190	<10
SEP 06...	<0.010	20	<0.5	2.0	<5	<3	<10	120	30

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
DEC 27...	--	10	--	--	--	--	--	--	4.9
FEB 22...	<4	21	<10	<10	<1.0	37	<6	<3	4.8
APR 04...	<4	13	<10	<10	<1.0	40	<6	<3	1.9
MAY 16...	<4	16	10	<10	<1.0	46	<6	<3	8.4
16...	<4	15	<10	<10	<1.0	46	<6	<3	8.3
JUL 05...	<4	3	<10	<10	<1.0	44	<6	<3	10
AUG 10...	<4	74	<10	<10	<1.0	56	<6	<3	10
SEP 06...	<4	8	10	<10	<1.0	54	<6	<3	13

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

## SOUTH ATLANTIC SLOPE BASINS

## JAMES RIVER BASIN

## 02011400 JACKSON RIVER NEAR BACOVA, VA

LOCATION.--Lat 38°02'32", long 79°52'54", Bath County, Hydrologic Unit 02080201, on left bank 0.1 mi downstream from ford, 1.8 mi upstream from Back Creek, and 2.2 mi southwest of Bacova.

DRAINAGE AREA.--158 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,639.20 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Feb. 7-10, 13, which are poor. U.S. Army Corps of Engineers satellite water temperature, precipitation and gage-height telemeter at station. Maximum discharge, 30,000 ft<sup>3</sup>/s, from rating curve extended above 1,300 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 8.88 ft, 11.40 ft, 13.88 ft, and 22.25 ft. Minimum gage height, 2.42 ft, Aug. 18, 19, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 11.40 ft, discharge, 4,800 ft<sup>3</sup>/s, and flood of Dec. 26, 1973, reached a stage of 13.88 ft, discharge, 7,560 ft<sup>3</sup>/s, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1430	*5,230	*11.86	June 23	0800	2,960	9.42

Minimum discharge, 24 ft<sup>3</sup>/s, Sept. 6, 11, 15; minimum gage height, 2.60 ft, Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	30	28	33	107	260	90	104	80	275	52	29
2	27	30	26	36	118	227	86	195	116	239	50	29
3	27	28	26	34	122	201	80	254	128	198	47	28
4	27	27	28	30	123	180	76	242	130	172	45	27
5	27	26	52	49	107	161	74	251	118	151	44	27
6	27	26	58	93	91	155	71	230	108	133	54	26
7	27	26	42	246	e84	142	69	197	100	127	60	26
8	27	25	35	204	e84	158	66	176	93	111	51	26
9	27	25	32	130	e88	221	64	162	82	99	47	26
10	27	26	36	100	e94	200	62	174	77	91	45	26
11	26	26	66	87	98	209	62	174	103	84	45	25
12	26	25	57	126	95	238	61	159	108	78	45	25
13	26	25	44	189	e94	220	67	146	111	72	42	26
14	27	25	40	231	94	203	65	232	93	68	40	26
15	27	25	40	3760	77	186	60	347	82	64	40	25
16	26	25	38	2010	106	173	58	278	73	64	42	27
17	26	27	37	887	235	157	62	248	66	223	39	42
18	26	28	37	542	248	140	79	232	62	367	38	43
19	27	27	36	389	236	126	75	246	59	156	37	34
20	27	25	34	565	262	116	75	228	55	114	36	31
21	27	30	32	452	266	133	83	200	53	94	35	30
22	27	38	32	339	226	132	78	179	91	90	34	30
23	30	32	31	275	196	137	73	157	2050	77	33	30
24	32	27	31	232	184	136	137	141	1210	70	32	30
25	28	26	30	196	167	120	157	126	628	75	32	32
26	27	26	30	172	153	111	142	119	411	103	31	36
27	26	26	29	152	142	107	131	106	379	79	31	37
28	26	30	28	143	246	113	121	101	298	69	32	32
29	26	33	28	132	---	108	110	102	286	65	31	29
30	26	30	28	121	---	99	103	102	278	60	30	28
31	26	---	28	113	---	95	---	87	---	56	29	---
TOTAL	836	825	1119	12068	4143	4964	2537	5695	7528	3724	1249	888
MEAN	27.0	27.5	36.1	389	148	160	84.6	184	251	120	40.3	29.6
MAX	32	38	66	3760	266	260	157	347	2050	367	60	43
MIN	26	25	26	30	77	95	58	87	53	56	29	25
CFSM	.17	.17	.23	2.46	.94	1.01	.54	1.16	1.59	.76	.26	.19
IN.	.20	.19	.26	2.84	.98	1.17	.60	1.34	1.77	.88	.29	.21

e Estimated.

## 02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	91.6	125	163	225	249	367	289	227	135	62.1	57.9	59.0
MAX	367	762	314	478	569	767	814	508	388	130	282	342
(WY)	1980	1986	1984	1991	1994	1993	1987	1989	1982	1989	1984	1979
MIN	19.7	27.5	36.1	31.6	101	68.0	81.1	61.1	37.1	29.7	20.6	23.8
(WY)	1989	1995	1995	1981	1978	1981	1988	1977	1977	1988	1988	1983

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1975 - 1995

ANNUAL TOTAL	75322	45576	
ANNUAL MEAN	206	125	171
HIGHEST ANNUAL MEAN			227
LOWEST ANNUAL MEAN			86.9
HIGHEST DAILY MEAN	2730	May 8	3760 Jan 15
LOWEST DAILY MEAN	25	aNov 8	25 bNov 8
ANNUAL SEVEN-DAY MINIMUM	25	Nov 8	25 Nov 8
INSTANTANEOUS PEAK FLOW			5230 Jan 15
INSTANTANEOUS PEAK STAGE			11.86 Jan 15
INSTANTANEOUS LOW FLOW			24 dSep 6
ANNUAL RUNOFF (CFSM)	1.31	.79	1.08
ANNUAL RUNOFF (INCHES)	17.73	10.73	14.70
10 PERCENT EXCEEDS	517	233	361
50 PERCENT EXCEEDS	68	71	88
90 PERCENT EXCEEDS	27	26	28

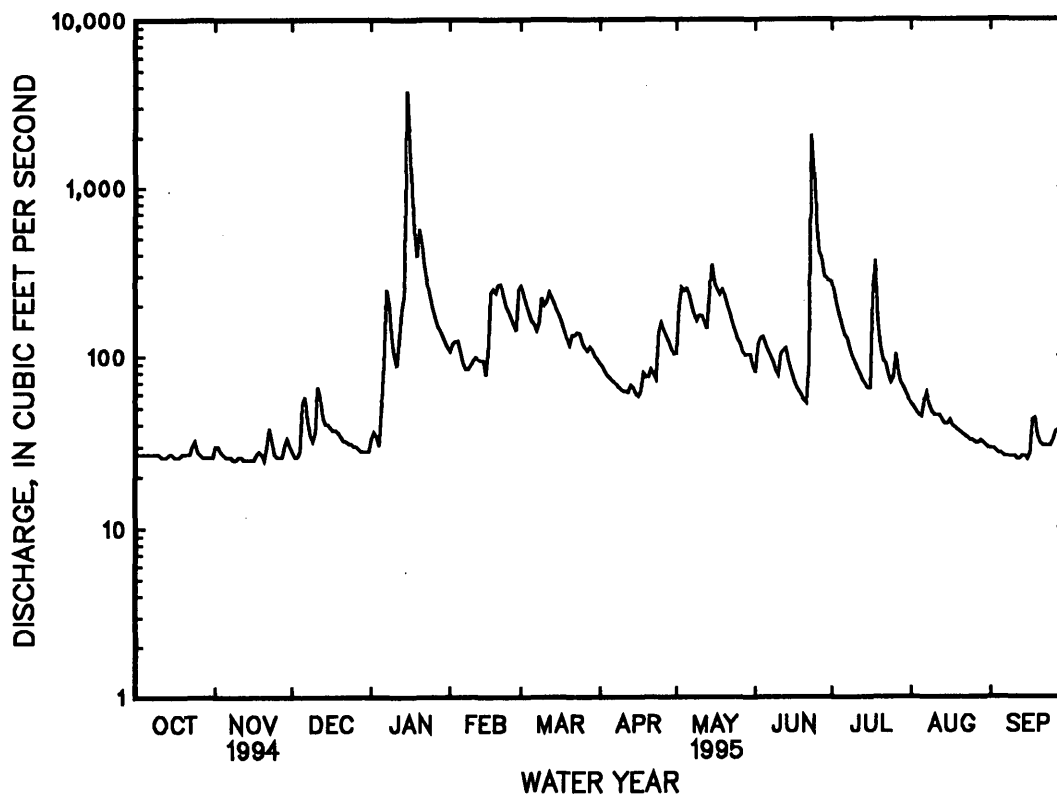
a Also Nov. 9, 12-16, 20, 1994.

b Also Nov. 9, 12-16, 20, 1994, and Sept. 11, 12, 15, 1995.

c From floodmark.

d Also Sept. 11, 15, 1995.

f Also Aug. 18, 19, and Sept. 16, 17, 23, 1988.



## 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. Records represent water temperature at sensor within 0.5°C. Temperature at the sensor was compared with the average for the river by temperature cross section on July 21, 1994. A maximum variation of 0.5°C was found within the cross section.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded (water years 1978-81, 1983-95), 31.0°C, July 16, 1988; minimum recorded (water years 1978-81, 1983-95), 0.0°C on many days during winter periods.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 29.5°C, Aug. 5, 16, 17; minimum, 0.0°C on several days during winter period.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	18.5	13.5	16.0	12.5	10.0	12.0	4.5	2.0	3.5	5.5	3.0	4.0
2	19.0	15.0	17.0	11.0	9.0	10.0	4.5	2.0	3.5	5.5	2.0	3.5
3	18.0	15.0	17.0	10.5	7.0	9.0	5.0	2.0	3.5	2.0	.5	1.0
4	17.0	13.0	15.0	11.5	7.5	10.0	6.5	5.0	5.5	1.0	.0	1.0
5	15.5	13.0	14.0	11.5	9.0	10.5	9.5	6.0	8.0	1.5	.0	1.0
6	15.5	11.0	13.5	13.0	10.0	11.5	9.5	8.5	9.0	1.5	1.0	1.5
7	16.0	11.5	14.0	12.5	10.0	11.0	9.5	8.0	8.5	1.5	.0	.0
8	16.5	12.5	14.5	11.5	8.0	10.0	9.5	7.0	8.0	1.0	.0	.5
9	15.5	13.5	14.5	12.0	8.0	10.0	7.5	6.5	7.0	1.5	.0	.5
10	15.5	12.0	13.5	12.0	10.0	11.5	7.5	7.0	7.0	2.5	.0	1.0
11	13.5	9.5	12.0	10.0	6.5	8.0	7.5	4.5	6.0	4.5	2.0	3.5
12	13.0	9.0	11.0	8.5	5.0	7.0	4.5	2.0	3.5	6.5	4.0	5.0
13	12.5	11.0	12.0	9.0	5.5	7.5	3.5	1.0	2.5	7.5	5.5	6.5
14	13.5	12.0	12.5	9.5	6.5	8.5	3.5	2.0	3.0	9.5	7.0	8.5
15	15.0	11.0	13.5	10.0	7.0	8.5	5.5	3.0	4.0	10.5	9.0	10.0
16	14.5	10.0	12.5	10.0	9.0	9.5	4.5	3.5	4.0	10.0	8.5	9.0
17	13.5	9.0	12.0	9.5	9.0	9.0	5.5	4.0	4.5	8.5	7.0	8.0
18	14.0	9.5	12.0	11.5	9.0	10.5	5.5	4.5	5.0	8.0	6.0	7.0
19	13.0	11.0	11.5	11.0	9.0	10.5	5.5	4.0	5.0	8.0	7.0	7.5
20	14.5	12.0	13.0	10.5	8.0	9.0	4.0	2.0	3.0	8.0	6.0	7.0
21	14.5	11.5	13.0	11.5	9.0	10.0	3.5	1.0	2.5	5.5	4.0	5.0
22	13.5	10.5	12.5	10.5	8.0	9.5	3.5	2.0	2.5	4.0	3.0	3.5
23	15.5	13.0	14.0	8.0	5.0	6.0	4.0	2.0	3.0	5.0	3.0	3.5
24	14.5	11.0	12.5	5.5	3.0	4.5	4.5	2.0	3.5	4.0	2.0	3.0
25	12.5	9.5	11.0	5.0	3.0	4.0	5.5	4.0	4.5	4.0	2.0	2.5
26	11.0	9.0	10.0	5.5	3.5	4.5	4.5	2.0	3.5	4.0	1.0	2.5
27	10.5	7.0	9.0	5.5	4.5	5.0	3.5	1.0	2.5	3.0	.5	2.0
28	10.5	6.0	8.5	8.0	5.0	6.5	3.5	1.0	2.5	3.0	2.0	2.5
29	10.5	6.0	8.5	6.5	4.5	5.5	4.0	2.0	3.0	3.0	2.0	2.5
30	12.0	7.0	9.5	5.5	3.0	4.5	4.5	3.0	3.5	4.0	2.0	3.0
31	12.5	10.5	11.5	---	---	---	3.5	2.0	2.5	5.0	2.0	3.5
MONTH	19.0	6.0	12.5	13.0	3.0	8.5	9.5	1.0	4.5	10.5	.0	4.0



TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.5	2.0	4.0	9.0	7.5	8.5	10.5	6.0	8.0	15.0	11.5	13.5
2	7.5	4.0	5.5	8.5	6.0	7.0	9.5	6.0	8.0	13.5	11.0	11.5
3	6.0	3.5	5.0	7.0	5.0	6.0	12.0	5.5	8.5	15.0	10.0	12.0
4	4.0	2.0	3.0	7.0	5.0	6.0	12.5	9.0	10.5	14.5	12.0	13.0
5	2.0	.0	.5	6.0	5.0	5.5	11.5	6.5	9.0	13.5	12.0	13.0
6	.0	.0	.0	10.5	5.5	8.0	13.0	6.5	9.5	16.0	10.5	13.0
7	.0	.0	.0	11.5	8.5	10.0	14.5	8.5	11.5	17.5	11.0	14.0
8	.0	.0	.0	11.5	6.0	9.5	16.5	10.5	13.5	18.5	12.0	15.0
9	.0	.0	.0	7.0	4.0	5.5	18.0	13.0	15.5	16.0	13.0	14.5
10	.0	.0	.0	7.0	2.0	4.5	16.5	13.0	15.0	20.0	14.0	16.5
11	.5	.0	.0	9.0	3.0	6.0	15.0	11.5	13.0	19.0	16.0	17.5
12	.0	.0	.0	10.5	5.0	7.5	14.0	12.0	13.5	17.0	14.0	15.5
13	.0	.0	.0	11.5	6.0	8.5	12.0	10.5	11.5	15.5	12.5	14.5
14	.5	.0	.0	12.5	7.0	9.5	14.5	8.5	11.5	17.0	13.5	15.0
15	.5	.0	.0	13.5	8.0	10.5	14.0	8.5	11.5	19.5	15.0	16.5
16	1.0	.0	.5	13.5	8.0	11.0	14.5	10.0	12.5	18.0	14.5	16.5
17	3.5	1.0	2.0	13.5	8.5	11.0	13.5	11.5	12.5	18.5	15.5	16.5
18	6.0	3.0	4.0	12.5	7.5	10.0	14.5	12.5	13.0	18.0	16.5	17.0
19	7.5	4.0	5.5	12.5	7.0	9.5	19.0	12.5	15.5	18.0	16.0	16.5
20	8.0	5.0	6.0	11.5	7.5	10.0	17.0	14.0	15.0	18.5	13.5	16.0
21	6.5	4.5	6.0	12.0	10.0	11.0	16.5	13.5	14.5	17.5	14.0	16.0
22	6.5	3.0	4.5	13.5	9.0	11.0	17.0	12.5	15.0	20.0	14.0	16.5
23	7.5	4.0	5.5	11.0	8.5	10.0	15.0	11.5	13.0	19.0	14.5	17.0
24	7.5	5.0	6.5	12.0	7.5	9.5	11.5	9.5	10.5	22.0	15.0	18.5
25	6.5	3.0	5.0	11.5	6.0	8.5	12.5	8.0	10.5	21.0	17.0	19.5
26	8.5	4.0	6.0	11.0	5.5	9.0	15.5	8.5	12.0	22.5	18.5	20.5
27	8.5	6.0	7.5	10.5	9.0	10.0	16.5	10.5	13.5	21.0	17.5	19.0
28	10.0	8.0	9.0	10.0	9.0	9.5	17.5	12.5	15.0	17.5	15.5	16.5
29	---	---	---	10.0	8.0	9.0	18.0	11.5	14.5	20.5	15.0	17.5
30	---	---	---	10.0	8.0	9.5	16.0	13.5	14.0	21.0	16.5	18.5
31	---	---	---	9.0	7.5	8.5	---	---	---	21.0	16.5	19.0
MONTH	10.0	.0	3.0	13.5	2.0	8.5	19.0	5.5	12.5	22.5	10.0	16.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	19.5	17.0	17.5	20.0	18.5	19.0	28.5	23.5	26.0	24.5	22.0	23.5
2	18.5	17.0	17.5	21.0	17.5	19.0	28.5	24.0	26.0	24.5	20.0	22.0
3	21.5	16.5	19.0	20.0	17.0	18.5	28.0	24.0	26.0	23.0	17.5	20.5
4	21.5	18.0	20.0	20.5	17.5	18.5	29.0	24.0	26.5	22.5	18.0	20.5
5	20.5	18.5	19.5	22.5	18.0	20.5	29.5	24.5	27.0	24.0	19.0	21.0
6	21.0	18.0	19.5	22.5	20.0	21.5	27.0	24.0	25.0	22.5	19.0	20.5
7	22.5	18.0	20.0	24.0	20.0	22.0	25.5	23.0	24.0	23.5	18.5	21.0
8	24.0	19.5	21.5	23.5	19.5	21.5	24.0	21.5	22.5	22.0	19.5	21.0
9	25.5	20.5	23.0	22.5	18.5	20.5	21.5	20.5	21.0	23.0	19.0	21.0
10	25.0	22.0	23.5	24.5	19.0	21.5	23.0	20.0	21.5	22.5	19.5	21.0
11	24.5	20.5	22.5	25.0	20.5	23.0	25.5	20.5	23.0	20.5	18.5	19.5
12	22.5	19.0	20.5	25.5	20.5	23.0	26.5	22.5	24.5	20.5	18.0	19.0
13	21.0	17.0	19.0	26.5	22.0	24.0	28.5	23.5	26.0	21.0	18.5	19.5
14	21.0	16.0	18.5	28.0	23.0	25.5	29.0	24.5	27.0	23.5	19.5	21.0
15	22.5	16.5	19.5	28.5	24.0	26.0	29.0	25.5	27.5	22.5	19.0	21.0
16	22.5	17.5	20.0	27.0	24.5	26.0	29.5	25.5	27.0	21.0	18.0	19.0
17	23.5	19.0	21.0	25.0	21.0	23.5	29.5	25.0	27.0	20.0	17.5	18.5
18	23.5	20.0	22.0	23.0	19.5	21.5	27.5	25.0	26.5	19.5	17.0	18.5
19	23.0	19.5	21.5	24.0	19.5	21.5	26.5	23.5	25.0	18.5	15.5	17.0
20	25.0	20.0	22.5	24.0	19.0	21.5	26.5	22.5	24.5	19.5	16.5	18.0
21	25.5	21.5	23.5	24.0	21.5	23.0	27.0	22.5	25.0	20.0	18.5	19.0
22	24.0	19.0	22.0	26.0	22.0	24.0	27.5	22.5	25.0	19.5	17.0	19.0
23	19.0	15.5	16.5	26.5	22.0	24.0	26.0	21.0	23.5	17.0	14.5	15.5
24	17.0	15.0	16.0	26.0	23.0	24.5	26.5	21.0	23.5	14.5	13.0	14.0
25	19.0	16.0	17.5	27.0	23.0	24.5	26.0	21.5	24.0	16.0	13.5	14.5
26	18.5	17.5	18.0	26.5	23.0	24.5	24.5	21.5	23.0	16.5	15.0	15.5
27	19.0	17.0	17.5	25.5	22.5	24.0	23.0	21.5	22.5	17.5	14.0	16.0
28	19.0	18.0	18.5	26.0	22.5	24.5	24.5	21.0	22.5	18.5	14.5	16.5
29	19.5	17.5	18.0	26.0	23.0	24.5	26.0	21.5	23.5	18.5	15.0	16.5
30	20.5	17.5	19.0	28.0	23.0	25.0	26.5	21.5	24.0	17.5	15.0	16.5
31	---	---	---	28.0	23.5	25.5	26.5	22.0	24.5	---	---	---
MONTH	25.5	15.0	20.0	28.5	17.0	23.0	29.5	20.0	24.5	24.5	13.0	19.0
YEAR	29.5	.0	13.0									

## 02011460 BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°14'43", long 79°46'08", Bath County, Hydrologic Unit 02080201, on right bank 900 ft upstream from bridge on State Highway 600, 0.8 mi upstream from Gap Run, and 4.8 mi northeast of Sunrise.

DRAINAGE AREA.--60.1 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR VA-85-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,200.02 ft above sea level (levels by Virginia Department of Transportation). July 2 to Sept. 6, 1990, nonrecording gage at present site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 1-6 and Feb. 6-14, which are poor. Virginia Power gage-height transmitter at station, receiver at Back Creek Dam. Maximum discharge, 17,500 ft<sup>3</sup>/s, from rating curve extended above 3,800 ft<sup>3</sup>/s. Minimum gage height, 0.07 ft, July 21, 1977.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0600	*4,980	*6.63	June 23	0300	3,980	6.19

Minimum discharge, 1.8 ft<sup>3</sup>/s, Sept. 16, gage height, 0.62 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	8.3	12	e13	35	252	61	68	28	127	17	3.5
2	5.5	16	11	e14	37	180	55	95	51	101	15	3.4
3	5.3	11	9.3	e14	41	135	50	189	127	79	14	3.2
4	5.1	8.7	9.2	e15	48	108	45	203	157	64	13	2.9
5	4.9	7.8	55	e15	41	91	44	169	119	55	12	2.9
6	4.9	7.1	61	e19	e37	84	39	144	91	48	24	2.8
7	4.9	6.9	38	363	e34	75	35	125	73	45	26	2.5
8	4.9	6.9	28	226	e33	77	33	108	58	38	19	2.3
9	4.9	5.9	22	130	e31	89	30	93	45	34	17	2.3
10	4.9	5.7	21	90	e30	87	29	95	61	32	15	2.3
11	4.9	5.7	58	73	e28	100	28	93	161	29	15	2.2
12	4.9	5.7	62	117	e27	161	28	93	131	27	16	2.1
13	4.9	5.7	45	260	e26	168	30	91	123	24	14	2.2
14	4.9	5.7	34	292	e25	150	31	318	95	22	12	2.3
15	4.9	5.5	30	3010	21	126	31	400	71	20	10	2.2
16	4.9	5.7	26	1080	34	106	31	234	54	34	9.3	2.8
17	4.9	8.7	24	460	112	89	37	178	42	46	8.5	15
18	4.9	10	24	266	154	77	61	152	33	47	7.6	12
19	4.9	9.0	24	182	151	69	70	241	29	32	7.4	8.1
20	4.9	8.3	22	242	164	62	69	261	26	26	7.0	6.1
21	4.9	12	21	251	192	69	67	185	23	24	6.5	4.9
22	4.9	22	20	187	154	76	60	134	77	24	5.5	4.8
23	7.3	16	20	139	119	92	55	99	1760	21	5.5	5.1
24	8.3	13	19	109	123	98	101	80	571	19	5.1	4.4
25	8.2	11	18	86	125	97	135	67	290	20	5.1	4.8
26	7.3	9.8	17	70	107	89	133	59	202	22	5.0	8.1
27	6.5	9.2	14	61	93	80	111	50	184	25	4.3	8.6
28	6.5	11	13	59	218	78	95	45	218	38	4.4	6.7
29	6.5	16	13	53	---	74	80	43	177	29	4.4	5.1
30	6.5	13	13	44	---	69	71	39	153	23	4.1	4.2
31	6.3	---	12	39	---	64	---	31	---	19	3.8	---
TOTAL	173.2	287.3	795.5	7979	2240	3172	1745	4182	5230	1194	332.5	139.8
MEAN	5.59	9.58	25.7	257	80.0	102	58.2	135	174	38.5	10.7	4.66
MAX	8.3	22	62	3010	218	252	135	400	1760	127	26	15
MIN	4.9	5.5	9.2	13	21	62	28	31	23	19	3.8	2.1
CFSM	.09	.16	.43	4.28	1.33	1.70	.97	2.24	2.90	.64	.18	.08
IN.	.11	.18	.49	4.94	1.39	1.96	1.08	2.59	3.24	.74	.21	.09

e Estimated.

## 02011460 BACK CREEK NEAR SUNRISE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	47.1	81.1	108	132	147	203	143	122	60.7	26.9	24.1	20.4
MAX	256	512	208	309	326	394	330	210	174	69.5	80.6	148
(WY)	1977	1986	1984	1979	1994	1993	1987	1989	1995	1994	1984	1979
MIN	4.08	9.58	20.1	8.49	45.4	54.5	45.9	31.8	13.2	6.81	4.41	2.48
(WY)	1992	1995	1981	1981	1978	1988	1986	1991	1994	1988	1987	1983

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

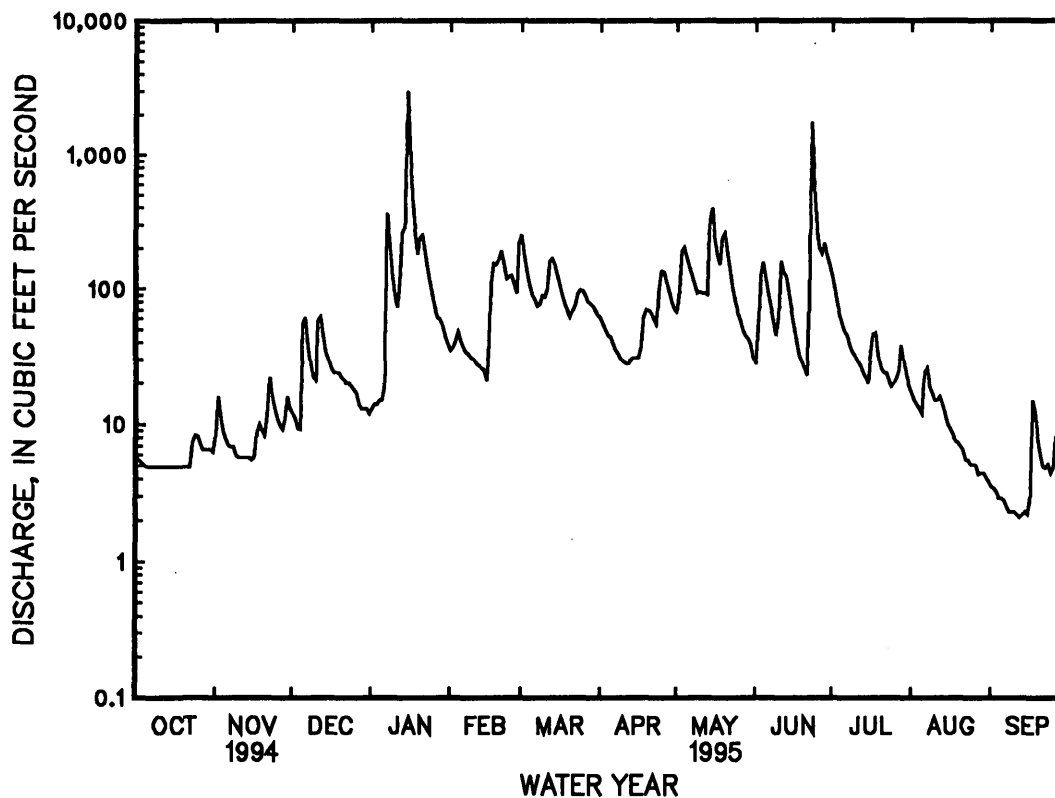
FOR 1995 WATER YEAR

WATER YEARS 1974 - 1995

ANNUAL TOTAL	43686.9	27470.3	
ANNUAL MEAN	120	75.3	92.7
HIGHEST ANNUAL MEAN			138
LOWEST ANNUAL MEAN			51.6
HIGHEST DAILY MEAN	2110	May 8	3010
LOWEST DAILY MEAN	4.9	aOct 5	2.1
ANNUAL SEVEN-DAY MINIMUM	4.9	Oct 5	2.2
INSTANTANEOUS PEAK FLOW			4980
INSTANTANEOUS PEAK STAGE			6.63
INSTANTANEOUS LOW FLOW			1.8
ANNUAL RUNOFF (CFSM)	1.99		1.25
ANNUAL RUNOFF (INCHES)	27.04		17.00
10 PERCENT EXCEEDS	342		161
50 PERCENT EXCEEDS	30		30
90 PERCENT EXCEEDS	6.0		4.9

a Also Oct. 6-22, 1994.

b Also Sept. 14, 1980.



## 02011460 BACK CREEK NEAR SUNRISE, VA--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1984 to September 1995 (discontinued).

INSTRUMENTATION.--Water-temperature recorder Oct. 1, 1984, to July 1, 1990, and since Sept. 7, 1990.

REMARKS.--Interruption in record was due to probe being out of water. Fragmentary record for 1990 water year was caused by replacement of instrument shelter. Records represent water temperature at sensor within 0.5°C. Temperature at the sensor was compared with the average for the creek by temperature cross section on June 28. No variation of temperature was found within the cross section.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum (water years 1985-89, 1991-95), 27.5°C, July 7, 1991, July 27, 1993; minimum (water years 1985-95), 0.0°C on many days during winter periods.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 26.5°C, July 15; minimum, 0.0°C on many days during winter period.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

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

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TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

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

## 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<sup>2</sup>.

## 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 sea level (Virginia Power bench mark). Nov. 5, 1992, to Jan. 5, 1993, nonrecording gage at present site and datum.

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. U.S. Army Corps of Engineers satellite precipitation, and gage-height telemeter at station. Maximum discharge, 5,100 ft<sup>3</sup>/s, from rating curve extended above 960 ft<sup>3</sup>/s on basis of release from Back Creek Lake at peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,420 ft<sup>3</sup>/s, Jan. 15, gage height, 10.60 ft, from rating curve extended as explained above; minimum, 4.4 ft<sup>3</sup>/s, July 24, gage height, 3.66 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	15	14	15	55	278	83	83	42	199	14	15
2	14	14	14	15	40	235	71	140	74	140	14	15
3	14	14	14	15	44	205	36	263	172	102	14	15
4	14	14	15	15	60	169	33	258	192	95	15	14
5	14	14	17	15	41	124	31	244	181	74	15	14
6	14	14	15	17	39	120	31	191	147	64	16	15
7	14	14	15	30	101	100	31	157	79	54	15	15
8	14	14	15	22	58	95	42	127	98	56	15	14
9	14	14	15	19	47	130	39	120	57	50	14	14
10	14	14	16	21	47	150	26	121	79	21	15	15
11	14	14	16	95	43	154	28	127	200	18	15	14
12	14	14	15	147	26	188	42	165	171	17	15	14
13	14	14	15	281	18	229	42	129	145	17	15	14
14	14	14	15	334	19	244	42	310	124	17	15	14
15	14	14	14	3620	25	186	42	462	82	18	15	14
16	14	15	14	1500	49	136	41	184	73	20	15	15
17	14	14	14	559	144	133	41	194	55	70	15	16
18	15	14	14	371	199	95	94	277	36	64	15	14
19	14	14	14	215	197	87	110	267	31	51	15	14
20	14	14	14	259	182	85	114	288	23	22	15	14
21	14	16	14	306	230	91	113	208	22	23	14	14
22	14	15	14	198	273	104	115	151	78	23	14	14
23	15	14	14	186	201	125	54	136	2660	22	14	13
24	14	14	14	141	158	147	125	131	1040	17	14	14
25	14	14	14	135	159	148	207	109	436	15	14	14
26	14	14	14	116	152	131	185	67	253	15	14	14
27	14	14	14	74	154	109	160	54	291	23	14	14
28	14	15	14	69	241	109	138	49	409	50	14	14
29	14	14	14	83	---	110	101	48	273	40	14	13
30	14	14	14	63	---	88	85	49	233	35	14	13
31	14	---	14	68	---	82	---	51	---	22	14	---
TOTAL	436	426	449	9004	3002	4387	2302	5160	7756	1454	451	426
MEAN	14.1	14.2	14.5	290	107	142	76.7	166	259	46.9	14.5	14.2
MAX	15	16	17	3620	273	278	207	462	2660	199	16	16
MIN	14	14	14	15	18	82	26	48	22	15	14	13

## 02011470 BACK CREEK AT SUNRISE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

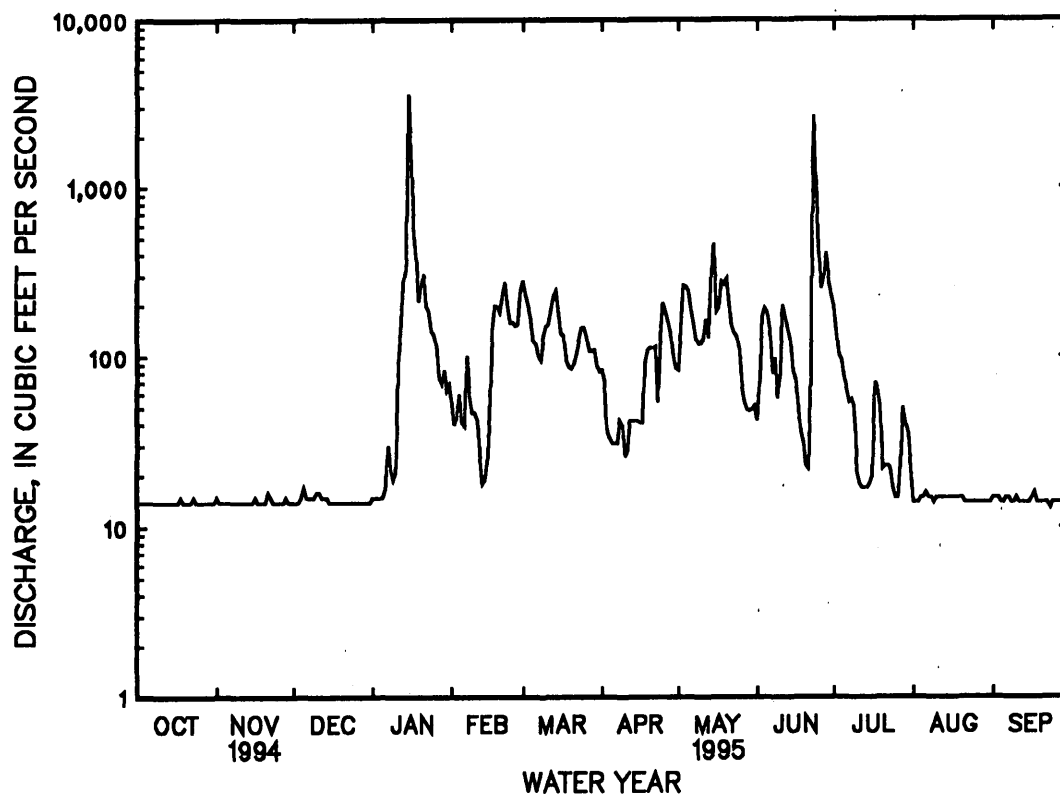
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	37.6	78.3	124	168	163	255	184	175	80.6	33.7	30.4	22.3
MAX	150	371	233	305	416	616	496	399	259	83.0	88.8	88.6
(WY)	1990	1986	1991	1991	1994	1993	1987	1989	1995	1994	1989	1989
MIN	9.31	12.0	14.5	14.8	58.2	61.4	51.1	37.5	14.6	12.7	13.6	11.5
(WY)	1985	1985	1995	1985	1993	1988	1986	1991	1994	1985	1987	1985

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1985 - 1995	
ANNUAL TOTAL	54504		35253		113	
ANNUAL MEAN	149		96.6		170	
HIGHEST ANNUAL MEAN					55.8	
LOWEST ANNUAL MEAN					3620	
HIGHEST DAILY MEAN	3030	May 8	3620	Jan 15	3620	Jan 15 1995
LOWEST DAILY MEAN	13	(a)	13	bSep 23	5.2	Nov 3 1984
ANNUAL SEVEN-DAY MINIMUM	13	Jul 6	14	Sep 23	5.6	Oct 29 1984
INSTANTANEOUS PEAK FLOW			4220	Jan 15	5100	Nov 5 1985
INSTANTANEOUS PEAK STAGE			10.60	Jan 15	11.37	Nov 5 1985
INSTANTANEOUS LOW FLOW			4.4	Jul 24	(c)	
ANNUAL RUNOFF (CFSM)	1.96		1.27		1.48	
ANNUAL RUNOFF (INCHES)	26.64		17.23		20.16	
10 PERCENT EXCEEDS	396		200		239	
50 PERCENT EXCEEDS	20		25		38	
90 PERCENT EXCEEDS	14		14		14	

a Many days in July, August, and September 1994.

b Also Sept. 29, 30, 1995.

c Not determined.



## 02011470 BACK CREEK AT SUNRISE, VA--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1984 to November 1992, January 1993 to September 1995 (discontinued).

INSTRUMENTATION.--Water-temperature recorder Oct. 1, 1984, to Nov. 4, 1992, and since Jan. 6, 1993.

REMARKS.--Some record in prior years fragmentary due to instrument malfunction. Fragmentary record for 1993 water year was caused by replacement of instrument shelter. Records represent water temperature at sensor within 0.5°C. Temperature at the sensor was compared with the average for the creek by temperature cross section on June 28. No variation of temperature was found within the cross section.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded (water years 1985-95), 27.5°C, Aug. 10, 1985; minimum (water years 1985-92, 1994-95), 0.0°C, Jan. 20, 21, 1985.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 28.5°C, Aug. 16; minimum, 2.0°C, Feb. 5, 6, 12-14.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	22.5	17.5	19.0	15.5	13.0	14.5	11.5	8.5	9.5	9.0	8.0	8.5
2	21.5	18.0	19.5	15.5	12.5	13.5	11.5	8.5	9.5	8.0	5.5	6.5
3	20.0	17.5	18.5	16.5	12.0	14.0	12.0	8.5	10.0	6.0	5.0	5.5
4	21.5	16.5	18.0	17.0	12.5	14.5	11.5	10.0	10.5	7.5	4.5	5.5
5	18.5	17.0	17.5	16.5	13.5	14.5	11.5	10.5	11.0	6.5	4.0	5.0
6	21.0	16.0	18.0	16.5	13.5	14.5	12.0	10.5	11.0	6.0	3.0	4.5
7	21.0	16.5	18.0	16.0	12.5	14.0	12.0	10.0	11.0	5.5	4.0	5.0
8	21.0	17.0	18.0	16.0	12.0	13.5	12.0	9.5	10.5	6.5	4.5	5.5
9	19.0	17.0	18.0	16.0	12.5	14.0	10.5	9.5	10.0	7.0	4.5	5.5
10	19.5	15.5	17.0	15.0	12.0	13.5	10.5	10.0	10.5	7.0	5.0	6.0
11	19.0	15.0	16.0	15.0	11.5	12.5	10.0	7.5	9.0	7.0	6.5	7.0
12	18.5	14.0	15.5	15.0	11.0	12.5	9.5	7.0	8.0	7.0	6.5	7.0
13	16.5	15.0	16.0	15.5	11.5	13.0	10.0	7.0	8.5	7.0	7.0	7.0
14	17.5	16.0	16.5	15.5	11.5	13.0	9.5	8.0	9.0	7.0	7.0	7.0
15	19.5	15.5	17.0	15.0	12.0	13.5	10.0	8.5	9.0	8.0	7.0	7.5
16	20.0	15.0	16.5	13.5	12.0	13.0	9.5	8.5	9.0	7.5	7.5	7.5
17	18.0	14.0	15.5	12.5	11.5	12.0	10.0	9.0	9.0	7.5	7.5	7.5
18	18.5	14.5	16.0	15.0	12.0	13.5	10.0	8.5	9.0	7.5	7.0	7.5
19	17.0	15.5	16.0	15.0	11.5	13.0	9.0	7.0	8.0	7.5	7.0	7.5
20	18.5	16.0	17.0	14.5	11.5	12.5	9.5	6.5	7.5	7.5	7.0	7.0
21	19.0	15.5	16.5	14.5	12.0	13.0	10.0	7.0	8.0	7.0	6.5	7.0
22	17.5	14.5	16.0	13.5	10.0	11.5	9.5	7.5	8.0	7.0	6.0	6.5
23	18.0	15.0	16.5	12.0	9.5	10.5	10.0	7.5	8.5	6.5	6.0	6.5
24	18.0	14.0	15.5	12.5	9.0	10.5	9.5	7.5	8.0	6.5	6.0	6.0
25	18.0	13.5	15.5	11.0	9.0	10.0	10.0	7.5	8.5	6.5	6.0	6.0
26	16.0	13.5	14.5	11.5	9.5	10.5	10.0	7.0	8.0	6.5	5.5	6.0
27	17.0	13.0	14.5	10.5	10.0	10.5	9.5	6.5	7.5	6.0	5.5	5.5
28	17.0	12.5	14.0	12.0	9.5	11.0	9.5	6.5	7.5	5.5	5.0	5.5
29	17.0	12.5	14.0	11.5	9.0	10.0	10.0	7.0	8.0	5.5	5.5	5.5
30	18.0	13.0	15.0	11.5	9.0	10.0	9.0	7.0	7.5	5.5	5.0	5.5
31	16.0	14.0	15.0	---	---	---	8.0	7.0	7.5	6.0	5.0	5.5
MONTH	22.5	12.5	16.5	17.0	9.0	12.5	12.0	6.5	9.0	9.0	3.0	6.5



TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	6.5	5.0	5.5	4.5	4.0	4.5	7.5	6.5	7.0	11.0	9.5	10.5
2	7.0	5.0	5.5	4.5	4.0	4.5	7.5	6.5	6.5	10.0	10.0	10.0
3	6.0	4.0	5.5	4.5	4.5	4.5	9.5	6.0	7.5	10.5	10.0	10.5
4	5.5	4.0	5.0	4.5	4.5	4.5	9.0	6.5	7.5	10.5	10.0	10.5
5	4.5	2.0	3.5	4.5	4.5	4.5	9.5	5.5	7.0	10.5	10.5	10.5
6	4.5	2.0	3.0	5.0	4.5	4.5	10.0	6.0	7.5	11.0	10.5	10.5
7	4.5	3.5	4.0	5.5	4.5	5.0	10.5	6.5	8.0	11.5	10.5	11.0
8	4.0	3.5	3.5	5.5	4.0	5.0	10.5	7.0	8.5	12.0	10.5	11.0
9	5.0	3.0	3.5	5.0	4.0	4.5	10.5	7.5	9.0	11.5	10.5	11.0
10	4.0	3.5	4.0	5.0	4.0	4.5	11.0	8.0	9.5	12.5	11.0	11.5
11	5.0	3.5	4.0	5.0	4.5	4.5	12.0	8.0	9.0	12.0	11.0	11.5
12	5.0	2.0	3.0	5.0	4.5	4.5	9.0	8.0	8.5	12.0	11.5	11.5
13	5.5	2.0	3.0	5.5	4.5	5.0	8.5	8.0	8.0	12.0	11.0	11.5
14	5.5	2.0	3.5	5.5	5.0	5.0	10.0	7.5	8.5	12.0	11.5	11.5
15	4.0	3.0	3.5	5.5	5.0	5.5	10.0	7.5	8.5	12.0	11.5	12.0
16	4.0	3.5	4.0	6.5	5.5	5.5	10.0	8.0	9.0	16.0	12.0	13.0
17	4.0	3.5	3.5	6.5	5.5	6.0	9.5	8.5	9.0	15.0	12.0	12.5
18	4.0	3.5	3.5	7.5	5.5	6.0	9.0	8.5	8.5	13.0	12.5	12.5
19	4.0	3.5	3.5	7.5	5.5	6.5	10.0	8.5	9.0	13.0	12.5	12.5
20	4.0	3.5	4.0	7.5	6.0	6.5	9.0	8.5	9.0	13.0	12.5	13.0
21	4.0	3.5	3.5	7.0	6.0	6.5	10.0	9.0	9.0	13.0	12.5	13.0
22	4.0	3.5	4.0	7.5	6.0	6.5	10.0	9.0	9.5	14.0	12.5	13.0
23	4.0	3.5	4.0	6.5	6.0	6.5	10.0	9.0	9.5	14.0	13.0	13.5
24	4.0	4.0	4.0	7.0	6.0	6.5	9.5	9.0	9.0	14.5	13.0	13.5
25	4.0	3.5	4.0	7.0	6.0	6.5	9.5	9.0	9.5	14.5	13.5	14.0
26	4.5	4.0	4.0	7.0	6.0	6.5	10.0	9.0	9.5	15.5	13.5	14.5
27	4.5	4.0	4.0	7.0	6.5	6.5	10.0	9.0	9.5	14.0	14.0	14.0
28	4.5	4.0	4.0	6.5	6.5	6.5	10.5	9.5	10.0	14.0	13.5	14.0
29	---	---	---	7.0	6.5	6.5	11.0	9.5	10.0	16.0	14.0	14.5
30	---	---	---	7.5	6.5	7.0	10.5	9.5	10.0	16.0	13.5	14.5
31	---	---	---	7.5	6.5	6.5	---	---	---	16.0	13.5	15.0
MONTH	7.0	2.0	4.0	7.5	4.0	5.5	12.0	5.5	8.5	16.0	9.5	12.5
	JUNE			JULY			AUGUST			SEPTEMBER		
1	14.5	14.0	14.5	18.5	18.0	18.0	27.0	20.5	23.5	24.0	21.5	22.5
2	15.5	14.5	14.5	19.0	18.0	18.5	27.5	21.0	23.5	26.0	20.0	22.0
3	15.0	14.5	14.5	19.0	18.0	18.5	27.0	21.0	23.5	26.0	19.0	22.0
4	15.5	14.5	15.0	19.0	18.0	18.5	27.0	21.0	24.0	24.5	19.0	21.5
5	15.5	15.0	15.0	20.0	18.0	19.0	27.0	21.5	24.0	25.5	19.5	21.5
6	16.0	15.0	15.5	21.0	18.5	19.0	23.0	22.0	22.5	26.0	19.5	22.0
7	17.0	15.0	16.0	21.0	18.5	19.5	26.0	21.5	23.0	25.5	20.0	22.0
8	17.0	15.5	16.0	21.0	18.5	19.5	22.5	20.5	21.5	23.0	20.0	21.5
9	18.0	15.5	16.5	21.5	18.5	19.5	22.0	20.5	21.0	24.5	19.5	21.5
10	18.0	16.0	16.5	23.5	17.5	20.0	24.0	20.5	22.0	24.0	19.5	21.5
11	17.0	16.5	16.5	24.5	17.5	20.5	25.5	20.5	22.5	22.5	18.5	20.0
12	16.5	16.5	16.5	24.0	18.0	20.5	26.5	21.0	23.0	21.5	19.5	20.5
13	17.0	16.0	16.5	25.5	18.5	21.0	27.5	21.5	23.5	21.5	19.5	20.5
14	17.5	16.0	16.5	26.0	19.0	22.0	27.5	22.0	24.0	24.0	19.5	21.5
15	18.0	16.0	17.0	26.0	19.5	22.0	27.5	22.0	24.0	24.0	19.0	21.0
16	18.0	16.0	17.0	24.5	19.5	21.5	28.5	22.0	24.5	20.0	19.5	19.5
17	19.0	16.0	17.5	22.0	20.5	21.0	28.0	22.0	24.5	23.0	19.0	20.5
18	19.5	16.5	17.5	22.5	20.5	21.0	26.0	22.0	23.5	20.0	18.5	19.5
19	19.5	16.5	17.5	23.0	20.0	21.5	27.5	21.0	23.5	22.5	17.5	19.0
20	21.5	16.5	18.5	25.0	19.0	21.5	27.0	21.5	23.5	21.5	18.5	19.5
21	22.0	17.0	19.0	24.0	20.5	22.0	26.5	21.5	23.5	21.5	19.0	20.0
22	20.0	17.0	18.0	24.5	20.5	22.0	27.5	21.5	23.5	20.5	17.5	19.5
23	18.0	17.5	17.5	25.0	20.5	22.0	27.5	20.5	23.0	18.5	16.5	17.5
24	17.5	16.0	17.0	25.0	20.0	22.0	27.5	20.5	23.0	17.5	16.5	17.0
25	17.5	16.5	17.0	26.0	20.0	22.5	27.0	21.0	23.0	20.0	16.5	17.5
26	17.5	17.5	17.5	27.0	20.5	23.0	24.5	21.0	22.5	20.0	16.5	18.0
27	18.0	17.5	17.5	25.0	20.0	22.0	24.0	21.5	22.5	21.0	16.0	18.0
28	18.0	17.0	17.5	23.5	21.5	22.5	26.5	21.0	23.0	21.5	16.0	18.0
29	18.0	17.0	17.5	24.0	21.5	22.5	27.0	21.0	23.0	21.5	16.5	18.0
30	18.5	18.0	18.0	25.5	21.5	22.5	27.0	21.0	23.5	21.5	16.5	18.5
31	---	---	---	27.0	21.5	23.5	26.5	21.0	23.5	---	---	---
MONTH	22.0	14.0	16.5	27.0	17.5	21.0	28.5	20.5	23.0	26.0	16.0	20.0
YEAR	28.5	2.0	13.0									

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

## 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 sea level (Virginia Power bench mark). Nov. 5, 1992, to Jan. 5, 1993, nonrecording gage at present site and datum.

REMARKS.--Records good except for period with ice effect, Feb. 7-16, which is poor. Flow regulated since January 1985 by Little Back Creek Lake 1.2 mi upstream, amount unknown. Maximum discharge, 580 ft<sup>3</sup>/s, from rating curve extended above 30 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 0.63 ft, Nov. 16, 1994.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 80 ft<sup>3</sup>/s, Jan. 15, gage height, 2.86 ft, from rating curve extended as explained above; minimum, 0.83 ft<sup>3</sup>/s, Nov. 16, gage height, 0.63 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	3.0	2.7	3.2	4.0	12	4.1	5.0	4.0	8.4	3.0	2.8
2	2.7	2.8	2.7	3.2	4.1	9.5	3.9	7.3	6.4	7.9	3.1	2.7
3	2.7	2.7	2.7	3.3	4.5	7.7	3.8	11	13	6.5	3.0	2.6
4	2.7	2.7	2.8	3.3	4.7	6.4	3.9	11	10	5.5	3.1	2.6
5	2.7	2.7	3.7	3.2	4.6	5.5	3.9	8.9	8.0	4.9	3.0	2.8
6	2.7	2.6	3.5	3.6	4.5	5.2	3.6	7.5	6.5	4.5	3.4	2.8
7	2.7	2.7	3.3	12	e4.2	5.1	3.6	6.9	5.6	4.1	3.2	2.8
8	2.6	2.8	3.2	10	e4.0	5.5	3.6	6.5	5.0	3.9	3.1	2.7
9	2.7	2.8	3.2	7.0	e3.8	6.2	3.6	6.1	4.5	3.6	3.1	2.7
10	2.7	2.9	3.3	5.6	e3.6	6.5	3.6	5.9	4.4	3.6	3.1	2.6
11	2.7	2.8	4.2	5.0	e3.5	7.2	3.6	5.9	4.8	3.6	3.1	2.6
12	2.7	2.8	4.2	5.6	e3.7	9.9	3.7	6.0	4.8	3.5	3.0	2.8
13	2.7	2.7	3.9	8.3	e3.6	10	3.9	5.9	4.9	3.5	3.0	2.8
14	2.7	2.7	3.6	9.3	e3.6	8.9	3.8	7.2	4.8	3.4	3.0	2.8
15	2.6	2.7	3.4	63	e3.7	7.2	3.7	10	4.5	3.3	3.0	2.6
16	2.6	2.0	3.3	31	e4.2	6.4	3.7	9.3	4.1	3.2	2.9	2.7
17	2.7	2.5	3.2	15	7.8	5.8	4.2	8.0	3.9	3.3	2.3	3.2
18	2.7	3.2	3.2	9.7	10	5.3	5.8	7.3	3.7	3.4	2.8	3.1
19	2.7	3.0	3.3	7.4	9.8	5.1	6.3	10	3.8	3.2	2.9	3.0
20	2.6	2.8	3.3	8.6	11	4.9	5.7	12	3.7	3.1	2.8	2.9
21	2.6	3.1	3.3	9.1	12	5.3	5.4	9.2	3.6	3.1	2.9	2.8
22	2.6	3.0	3.3	7.8	9.3	5.1	5.1	7.3	4.4	3.1	2.9	2.7
23	2.9	2.9	3.2	6.7	7.5	5.1	5.0	6.0	40	3.0	2.7	2.6
24	2.8	2.8	3.1	5.9	7.3	5.1	9.2	5.2	28	3.1	2.7	2.6
25	2.8	2.8	3.1	5.2	7.1	5.1	10	4.7	12	3.3	2.7	2.8
26	3.1	2.8	3.1	4.8	6.5	5.0	8.6	4.3	10	3.5	2.5	3.1
27	2.7	2.7	3.1	4.5	6.1	4.9	7.2	4.0	16	3.3	2.7	2.9
28	2.6	2.7	3.1	4.4	9.7	4.9	6.0	3.9	11	3.2	2.7	2.7
29	2.6	2.8	3.0	4.2	---	4.6	5.2	4.1	8.4	3.1	2.7	2.6
30	2.6	2.7	3.0	4.2	---	4.4	5.0	4.3	8.4	3.0	2.8	2.5
31	2.8	---	3.0	4.1	---	4.2	---	4.1	---	3.0	2.8	---
TOTAL	83.7	83.2	101.0	278.2	168.4	194.0	148.7	214.8	252.2	121.1	90.0	82.9
MEAN	2.70	2.77	3.26	8.97	6.01	6.26	4.96	6.93	8.41	3.91	2.90	2.76
MAX	3.1	3.2	4.2	63	12	12	10	12	40	8.4	3.4	3.2
MIN	2.6	2.0	2.7	3.2	3.5	4.2	3.6	3.9	3.6	3.0	2.3	2.5

e Estimated.

## 02011490 LITTLE BACK CREEK NEAR SUNRISE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.57	5.09	5.82	6.76	6.72	8.36	6.93	7.08	4.30	3.28	3.25	3.10
MAX	7.46	12.6	8.64	9.82	12.9	16.4	13.1	14.8	8.41	4.95	5.13	5.43
(WY)	1990	1986	1991	1991	1994	1993	1987	1985	1995	1994	1989	1989
MIN	2.17	2.72	3.26	3.56	3.78	3.91	3.37	3.37	2.79	2.46	2.33	2.28
(WY)	1987	1992	1995	1985	1993	1985	1986	1991	1991	1987	1986	1985

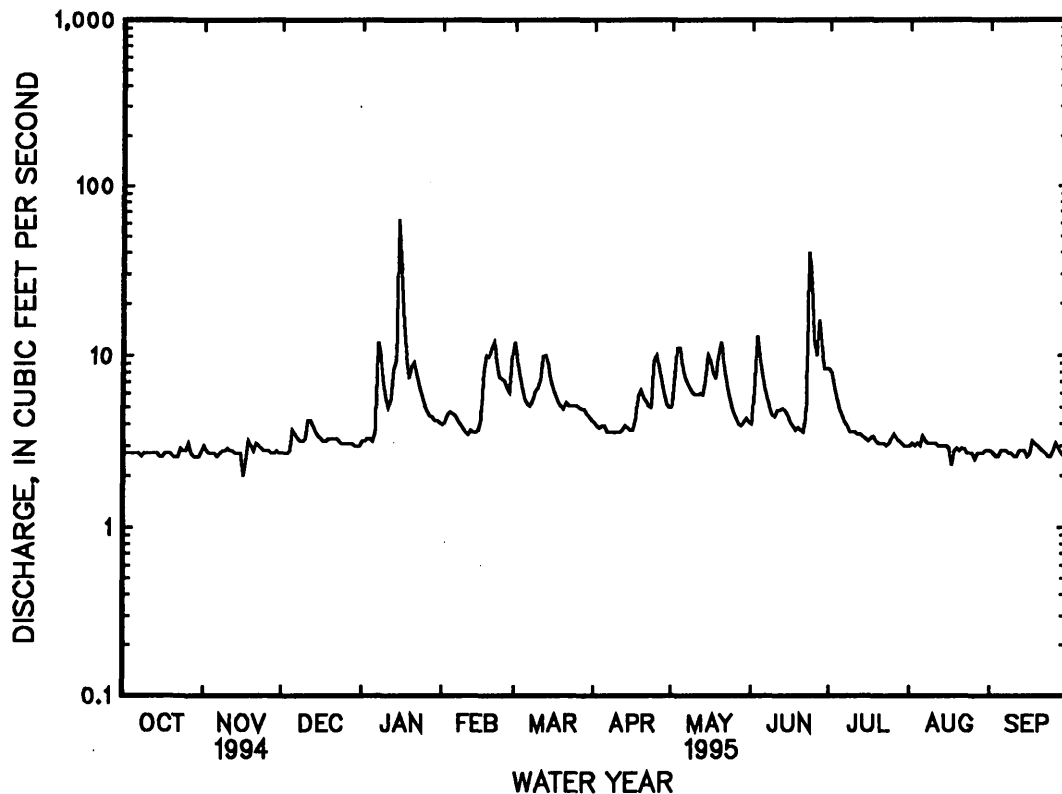
## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1985 - 1995

ANNUAL TOTAL	2199.1		1818.2			
ANNUAL MEAN	6.02		4.98		5.35	
HIGHEST ANNUAL MEAN					6.57	
LOWEST ANNUAL MEAN					4.37	
HIGHEST DAILY MEAN	57	May 8	63	Jan 15	158	Nov 4 1985
LOWEST DAILY MEAN	2.0	Nov 16	2.0	Nov 16	.90	Oct 13 1984
ANNUAL SEVEN-DAY MINIMUM	2.6	Nov 11	2.6	Nov 11	1.2	Jan 24 1985
INSTANTANEOUS PEAK FLOW			80		580	Nov 4 1985
INSTANTANEOUS PEAK STAGE			2.86		4.06	Nov 4 1985
INSTANTANEOUS LOW FLOW			.83		.83	Nov 16 1994
ANNUAL RUNOFF (CFSM)	1.23		1.01		1.09	
ANNUAL RUNOFF (INCHES)	16.66		13.78		14.80	
10 PERCENT EXCEEDS	11		8.9		9.2	
50 PERCENT EXCEEDS	3.6		3.6		3.7	
90 PERCENT EXCEEDS	2.7		2.7		2.5	



## 02011490 LITTLE BACK CREEK NEAR SUNRISE, VA--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1984 to November 1992, January 1993 to September 1995 (discontinued).

INSTRUMENTATION.--Water-temperature recorder Oct. 1, 1984, to Nov. 4, 1992, and since Jan. 6, 1993.

REMARKS.--Some record in prior years fragmentary due to instrument malfunction. Fragmentary record for 1993 water year was caused by replacement of instrument shelter. Records represent water temperature at sensor within 0.5°C. Temperature at the sensor was compared with the average for the creek by temperature cross section on June 28. A maximum variation of 0.5°C was found within the cross section.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded (water years 1985-95), 25.0°C, July 18, 1986, July 24, 1987, Aug. 17, 1988; minimum (water years 1985-92, 1994-95), 0.0°C on many days during winter periods.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 23.0°C, Aug. 4, 17-19, 21; minimum, 0.0°C, Jan. 5.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

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

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

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

## 02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA

LOCATION.--Lat 38°04'10", long 79°53'50", Bath County, Hydrologic Unit 02080201, on left bank 0.3 mi downstream from Cummings Run, 0.8 mi downstream from bridge on State Highway 39, and 2.1 mi south of Mountain Grove.

DRAINAGE AREA.--134 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,701.45 ft above sea level.

REMARKS.--Records good except for period with ice effect, Feb. 8-12, which is poor. 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. Diversion 10.5 mi upstream from station by Virginia Power for recreation lakes, net averages 0.5 ft<sup>3</sup>/s. U.S. Army Corps of Engineers satellite water temperature and gage-height telemeter at station. Maximum discharge, 14,200 ft<sup>3</sup>/s, from rating curve extended above 4,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 7.39 ft, 9.05 ft, and 9.35 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,570 ft<sup>3</sup>/s, Jan. 15, gage height, 8.51 ft, from rating curve extended as explained above; minimum, 16 ft<sup>3</sup>/s, Oct. 1, gage height 2.33 ft; minimum daily, 18 ft<sup>3</sup>/s, Oct. 1-6, 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	24	23	36	85	459	107	121	70	284	25	21
2	18	23	23	35	80	391	101	234	101	249	23	20
3	18	22	23	37	86	325	72	497	266	172	22	21
4	18	22	24	36	98	265	64	484	295	149	22	20
5	18	22	39	45	98	186	60	441	254	118	22	20
6	18	23	39	46	77	167	58	351	208	102	27	19
7	19	23	37	263	112	150	57	293	127	84	24	20
8	18	22	34	169	e80	144	60	227	112	79	23	20
9	19	22	33	105	e60	211	64	197	93	75	25	19
10	19	23	36	81	e50	257	57	191	118	53	24	19
11	20	22	55	118	e47	275	44	208	352	39	25	19
12	20	21	51	204	e45	351	61	258	301	35	25	20
13	19	21	46	423	41	385	64	228	273	33	24	20
14	20	21	43	494	40	390	63	377	202	31	23	21
15	19	22	42	4690	43	313	62	717	130	30	23	21
16	19	23	39	1970	95	218	61	376	108	29	22	21
17	20	23	38	844	349	191	65	341	90	60	22	27
18	19	22	38	578	434	148	94	412	69	68	22	22
19	21	22	38	367	409	122	126	406	57	66	23	20
20	20	22	38	422	413	113	137	451	50	34	22	21
21	21	28	38	488	442	124	138	348	44	31	22	20
22	20	27	38	360	446	132	140	243	67	32	22	22
23	25	24	36	291	352	156	103	196	3010	31	21	21
24	21	24	36	225	261	203	196	176	1490	29	21	21
25	21	24	36	186	248	202	351	146	678	26	20	22
26	20	24	35	163	220	185	310	112	398	30	21	26
27	21	24	35	120	220	148	256	85	409	25	21	22
28	21	26	34	101	362	147	209	82	465	50	21	20
29	21	25	33	113	---	139	156	76	375	49	21	20
30	20	24	33	94	---	122	131	77	319	44	21	19
31	21	---	33	89	---	108	---	75	---	37	20	---
TOTAL	612	695	1126	13193	5293	6727	3467	8426	10531	2174	699	624
MEAN	19.7	23.2	36.3	426	189	217	116	272	351	70.1	22.5	20.8
MAX	25	28	55	4690	446	459	351	717	3010	284	27	27
MIN	18	21	23	35	40	108	44	75	44	25	20	19

e Estimated.

## 02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1984, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	83.1	107	221	246	320	455	303	230	128	56.3	53.5	32.4
MAX	512	526	694	578	689	980	561	449	396	369	408	308
(WY)	1977	1973	1974	1979	1971	1963	1980	1967	1982	1972	1969	1979
MIN	7.21	10.4	15.2	14.3	87.6	103	90.9	74.2	13.0	7.91	7.18	4.05
(WY)	1954	1954	1961	1981	1978	1981	1963	1977	1964	1964	1964	1968

## SUMMARY STATISTICS

## WATER YEARS 1952 - 1984

ANNUAL MEAN	186
HIGHEST ANNUAL MEAN	320
LOWEST ANNUAL MEAN	111
HIGHEST DAILY MEAN	7110
LOWEST DAILY MEAN	1.5
ANNUAL SEVEN-DAY MINIMUM	2.3
INSTANTANEOUS PEAK FLOW	12700
INSTANTANEOUS PEAK STAGE	10.77
INSTANTANEOUS LOW FLOW	1.5
ANNUAL RUNOFF (CFSM)	1.39
ANNUAL RUNOFF (INCHES)	18.85
10 PERCENT EXCEEDS	425
50 PERCENT EXCEEDS	79
90 PERCENT EXCEEDS	12

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	57.6	140	198	269	269	389	285	256	117	51.3	43.0	35.5
MAX	246	696	340	483	600	833	824	510	351	105	127	123
(WY)	1990	1986	1991	1991	1994	1993	1987	1989	1995	1994	1989	1989
MIN	19.5	23.2	36.3	77.7	107	92.8	83.5	62.9	32.7	20.4	17.9	16.5
(WY)	1986	1995	1995	1986	1993	1988	1986	1991	1991	1993	1987	1985

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

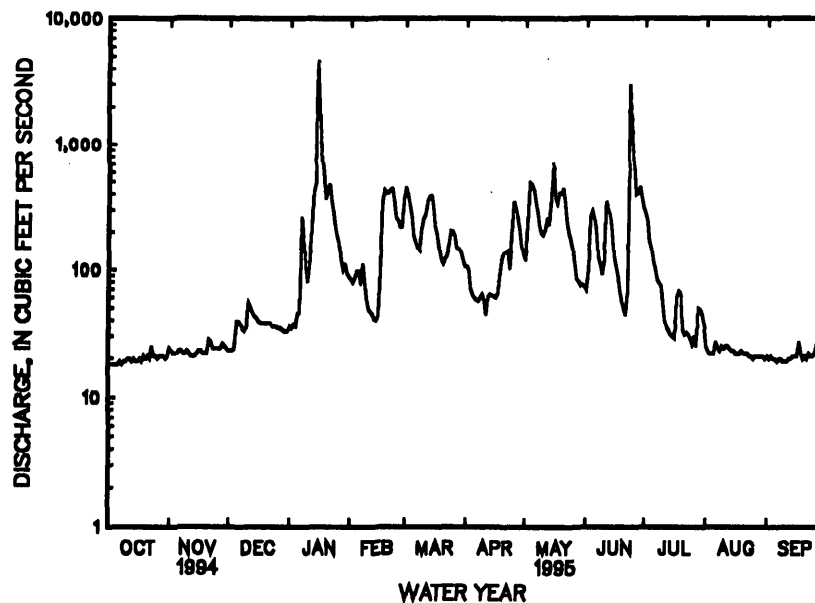
## WATER YEARS 1985 - 1995

ANNUAL TOTAL	79587	53567	
ANNUAL MEAN	218	147	175
HIGHEST ANNUAL MEAN			245
LOWEST ANNUAL MEAN			109
HIGHEST DAILY MEAN	4170	May 8	4690
LOWEST DAILY MEAN	16	Jul 11	18
ANNUAL SEVEN-DAY MINIMUM	17	Jul 6	18
INSTANTANEOUS PEAK FLOW			6570
INSTANTANEOUS PEAK STAGE			8.51
INSTANTANEOUS LOW FLOW			16
ANNUAL RUNOFF (CFSM)	1.63	1.10	1.31
ANNUAL RUNOFF (INCHES)	22.09	14.87	17.74
10 PERCENT EXCEEDS	566	355	400
50 PERCENT EXCEEDS	44	50	72
90 PERCENT EXCEEDS	18	20	20

a Also Oct. 2-6, 8, 1994.

b Also Aug. 12, 13, and Sept. 3, 4, 1987.

c Result of freezeup.



## 02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1978 to current year.

INSTRUMENTATION.--Water-temperature recorder since June 1978.

REMARKS.--Some record in prior years fragmentary due to instrument malfunction. Records represent water temperature at sensor within 0.5°C. Temperature at the sensor was compared with the average for the creek by temperature cross section on June 28. No variation of temperature was found within the cross section.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 33.5°C, Aug. 14, 1988; minimum recorded, 0.0°C on many days during winter periods.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 30.0°C, Aug. 4, 15, 16; minimum, 0.0°C on several days during winter period.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	18.0	12.0	15.0	12.5	9.5	12.0	3.5	.5	2.0	5.5	3.0	4.0
2	18.5	14.0	16.5	10.5	8.0	9.5	3.5	.0	2.0	5.0	.5	3.0
3	18.0	15.0	16.5	10.5	5.5	8.0	5.0	1.0	3.5	.5	.0	.0
4	16.5	11.0	14.0	11.5	6.5	9.0	7.5	4.5	6.0	.5	.0	.0
5	14.5	12.0	13.0	12.0	8.0	10.0	10.5	7.5	9.0	.0	.0	.0
6	15.0	10.0	12.5	14.0	10.0	11.5	10.0	8.0	9.0	.0	.0	.0
7	15.5	10.0	13.0	11.5	9.0	10.5	9.5	7.5	8.5	1.5	.0	.5
8	16.5	11.5	14.0	11.0	6.0	8.5	7.5	5.5	7.0	3.0	1.5	2.0
9	15.0	12.5	14.0	11.5	6.5	9.5	7.0	5.5	6.5	3.0	1.0	2.0
10	15.0	10.5	13.0	11.5	8.5	10.5	7.0	6.5	7.0	3.5	1.0	2.5
11	13.0	8.0	11.0	8.5	5.0	7.0	7.0	3.0	5.5	5.5	3.0	4.0
12	12.0	7.5	10.0	7.5	3.5	5.5	3.5	1.5	2.5	7.0	4.5	5.5
13	12.5	10.0	11.5	9.0	4.0	6.5	3.5	1.0	2.0	7.5	5.0	6.0
14	13.5	12.0	12.5	9.5	5.5	8.0	4.0	2.0	3.0	8.0	6.5	7.5
15	15.0	11.0	13.0	10.0	6.5	8.5	6.0	4.0	5.0	8.0	5.5	7.5
16	14.0	9.0	12.0	9.5	9.0	9.0	5.0	4.0	4.5	7.5	7.0	7.5
17	13.0	8.0	11.0	9.0	8.5	9.0	6.0	4.5	5.0	8.0	6.0	7.0
18	13.5	8.5	11.0	12.5	9.0	10.5	6.0	4.5	5.0	8.0	5.5	6.5
19	12.0	9.5	11.0	10.5	7.5	9.5	5.0	3.0	4.5	7.0	6.0	6.5
20	15.0	12.0	13.5	9.5	6.5	8.0	3.0	.5	2.0	6.5	5.0	6.0
21	14.5	10.5	12.5	11.5	8.0	9.5	3.0	.5	1.5	5.5	4.0	5.0
22	12.5	9.5	11.5	9.5	5.0	8.0	3.5	1.5	2.0	5.0	3.5	4.0
23	15.0	12.0	13.0	5.0	2.5	4.0	4.5	2.5	3.5	5.5	3.5	4.5
24	14.0	10.0	12.0	4.5	1.5	3.0	4.5	2.5	3.5	4.0	2.5	3.5
25	12.0	8.5	10.5	4.5	1.0	3.5	5.5	3.5	4.0	5.0	2.5	3.5
26	11.0	8.0	9.5	5.0	2.5	4.0	4.0	1.5	3.0	4.5	1.5	3.0
27	10.0	6.5	8.5	5.0	4.0	4.5	3.0	.0	1.5	3.5	.5	2.5
28	9.5	5.0	7.5	8.0	3.5	6.0	3.5	.0	1.5	3.0	1.5	2.0
29	10.0	5.0	8.0	5.0	3.0	4.0	4.0	1.5	2.5	3.5	2.0	2.5
30	12.0	6.5	9.5	5.0	1.5	3.5	4.0	2.0	3.0	3.5	2.5	3.0
31	12.5	10.0	11.5	---	---	---	3.0	1.5	2.0	4.5	1.5	3.0
MONTH	18.5	5.0	12.0	14.0	1.0	7.5	10.5	.0	4.0	8.0	.0	3.5



TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.0	1.5	3.5	5.5	4.5	5.0	10.0	4.5	6.5	12.5	9.0	11.0
2	6.0	4.0	5.0	6.5	3.5	4.5	8.0	4.5	6.5	11.0	9.5	10.0
3	4.0	1.0	3.0	5.5	3.5	4.0	12.0	3.5	7.5	14.5	9.0	11.0
4	3.0	.5	1.5	6.0	3.5	4.5	12.5	7.0	9.5	12.0	9.5	11.0
5	1.0	.0	.0	5.0	3.0	4.0	10.0	3.5	7.0	11.5	10.0	11.0
6	.0	.0	.0	9.0	4.0	6.0	13.0	4.5	8.5	15.5	9.0	11.5
7	.0	.0	.0	8.5	5.0	7.0	14.5	7.0	11.0	16.5	8.5	12.0
8	.0	.0	.0	8.0	3.5	7.0	15.5	8.0	12.0	16.5	9.0	12.5
9	.0	.0	.0	6.0	2.0	3.5	17.0	10.5	13.5	14.0	10.0	12.0
10	.0	.0	.0	6.0	1.0	3.5	14.0	10.5	12.5	18.0	11.5	14.5
11	1.0	.0	.5	8.5	2.0	4.5	14.0	9.0	11.5	16.0	12.0	14.0
12	1.0	.0	.0	9.0	3.0	5.5	12.5	10.0	11.5	14.0	10.5	12.0
13	.0	.0	.0	9.5	3.5	6.0	10.0	8.0	9.0	14.5	9.5	12.0
14	.0	.0	.0	10.0	4.0	6.0	13.5	6.5	9.5	15.5	11.5	13.0
15	.5	.0	.0	10.5	4.5	7.0	13.0	6.0	9.5	16.5	11.5	13.5
16	2.0	.5	1.5	11.0	4.5	7.5	14.0	8.0	11.0	16.5	11.0	13.5
17	5.0	1.5	3.0	11.5	5.0	8.0	12.0	9.5	10.5	17.5	12.0	14.5
18	5.5	2.0	3.5	10.5	4.0	7.0	12.5	10.5	11.5	15.5	13.0	14.0
19	5.5	1.0	4.0	11.0	4.0	7.5	17.5	9.5	13.0	15.0	12.0	13.5
20	6.0	3.0	4.0	10.0	5.0	7.5	13.5	9.0	11.0	17.5	11.5	14.0
21	4.0	2.5	3.5	10.0	7.5	8.5	14.0	9.5	11.5	16.0	11.0	13.5
22	5.5	2.0	3.5	12.0	6.5	9.0	15.0	8.5	12.0	19.0	12.0	15.0
23	6.0	2.5	4.0	9.5	5.5	7.5	12.0	8.5	9.5	18.0	11.5	14.5
24	5.5	3.0	4.0	10.5	5.0	7.5	9.0	8.0	8.5	20.0	13.0	16.5
25	5.5	1.5	3.0	10.5	4.0	6.5	12.0	7.5	9.5	19.0	13.5	16.5
26	7.5	3.0	4.5	10.5	3.5	7.0	15.0	7.0	10.5	19.5	15.0	17.5
27	6.0	3.0	4.5	9.0	7.0	8.0	15.0	8.0	11.0	18.0	15.0	16.0
28	6.5	5.0	5.5	8.0	6.5	7.0	15.5	9.0	12.0	15.0	13.5	14.0
29	---	---	---	9.0	6.0	7.5	15.5	7.5	11.5	20.0	13.5	16.5
30	---	---	---	9.0	6.5	7.5	13.0	10.0	11.0	19.5	15.0	17.5
31	---	---	---	8.0	5.5	6.5	---	---	---	20.0	14.0	17.0
MONTH	7.5	.0	2.0	12.0	1.0	6.5	17.5	3.5	10.5	20.0	8.5	13.5
	JUNE			JULY			AUGUST			SEPTEMBER		
1	18.0	15.0	16.0	20.0	17.5	18.5	29.5	22.0	25.5	23.5	20.5	22.0
2	17.5	15.0	16.0	22.0	16.5	19.0	30.0	22.5	26.0	24.5	18.0	21.0
3	19.5	15.0	16.5	20.5	16.0	18.0	29.5	22.5	25.5	23.0	16.0	19.5
4	19.0	14.5	16.5	21.0	17.5	19.0	30.0	22.5	26.0	22.0	16.5	19.5
5	18.0	15.0	16.5	23.5	18.0	20.5	28.0	23.0	25.5	22.0	17.0	19.5
6	19.0	15.0	17.0	22.5	19.5	21.0	25.5	23.0	24.0	23.0	17.0	20.0
7	21.5	15.0	18.0	24.5	19.0	21.5	25.0	22.0	23.0	23.5	17.5	20.5
8	22.5	16.5	19.5	24.0	18.0	21.0	23.0	20.5	21.0	21.5	18.0	20.0
9	24.0	17.0	20.5	23.5	17.5	20.0	20.5	19.0	20.0	22.5	17.5	20.0
10	22.5	17.0	20.0	25.5	18.5	21.5	23.0	19.5	21.0	22.0	18.0	20.0
11	20.5	16.0	18.0	25.5	19.5	22.0	26.5	20.0	23.0	20.0	17.5	19.0
12	17.5	15.0	16.5	26.5	19.0	22.5	27.0	21.5	24.0	20.0	16.5	18.5
13	19.5	14.0	16.5	28.0	20.5	24.0	28.5	22.5	25.0	19.5	17.0	18.5
14	20.5	13.5	16.5	29.0	21.5	25.0	29.0	23.5	26.0	23.0	18.0	20.5
15	21.0	14.0	17.5	29.5	22.5	25.5	30.0	23.5	26.5	22.0	17.5	20.0
16	21.5	14.5	18.0	27.0	23.0	25.0	30.0	23.5	26.5	19.0	17.0	17.5
17	22.0	15.5	19.0	26.5	22.0	24.0	29.5	23.5	26.5	19.5	16.5	18.0
18	22.5	17.5	19.5	27.0	21.5	24.0	27.0	23.5	25.5	18.5	16.5	17.5
19	21.5	17.0	19.5	25.5	20.0	22.5	26.5	21.5	24.0	18.0	15.0	16.5
20	25.5	18.0	21.0	26.0	19.0	22.5	27.0	21.5	24.0	19.5	15.5	17.5
21	25.0	19.0	22.0	24.5	21.5	23.0	26.0	21.0	24.0	20.0	17.5	18.5
22	22.5	18.5	20.5	26.5	22.0	24.0	28.0	21.0	24.0	19.0	16.0	18.0
23	18.5	16.5	17.0	28.0	21.5	24.0	26.5	19.5	23.0	16.0	13.5	14.5
24	18.0	16.0	17.0	26.0	22.0	24.0	26.0	19.0	22.5	13.5	12.0	13.0
25	20.5	16.5	18.0	28.5	21.5	24.5	26.5	20.0	23.0	16.0	12.5	14.0
26	19.0	17.0	17.5	27.0	22.0	24.5	24.0	20.5	22.0	17.0	14.5	15.5
27	20.5	17.0	18.0	26.5	21.5	24.0	22.5	20.5	21.5	18.0	13.5	15.5
28	20.0	17.5	18.5	27.0	22.0	24.0	25.5	19.5	22.5	18.0	13.0	15.5
29	20.5	17.0	18.5	26.0	22.0	24.0	26.5	20.0	23.0	18.5	13.5	16.0
30	21.5	17.5	19.0	28.5	22.0	24.5	26.5	20.5	23.5	17.5	13.5	15.5
31	---	---	---	29.0	22.0	25.0	27.0	20.5	23.5	---	---	---
MONTH	25.5	13.5	18.0	29.5	16.0	22.5	30.0	19.0	24.0	24.5	12.0	18.0
YEAR	30.0	.0	12.0									

## JAMES RIVER BASIN

## 02011795 LAKE MOOMAW NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°57'04", long 79°59'21", Alleghany County, Hydrologic Unit 02080201, in control tower at Gathright Dam on Jackson River, 0.9 mi upstream from Cedar Creek, 7.6 mi southwest of Hot Springs, and 19 mi upstream from Covington.

DRAINAGE AREA.--344 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is at sea level (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. U.S. Army Corps of Engineers satellite precipitation and elevation telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

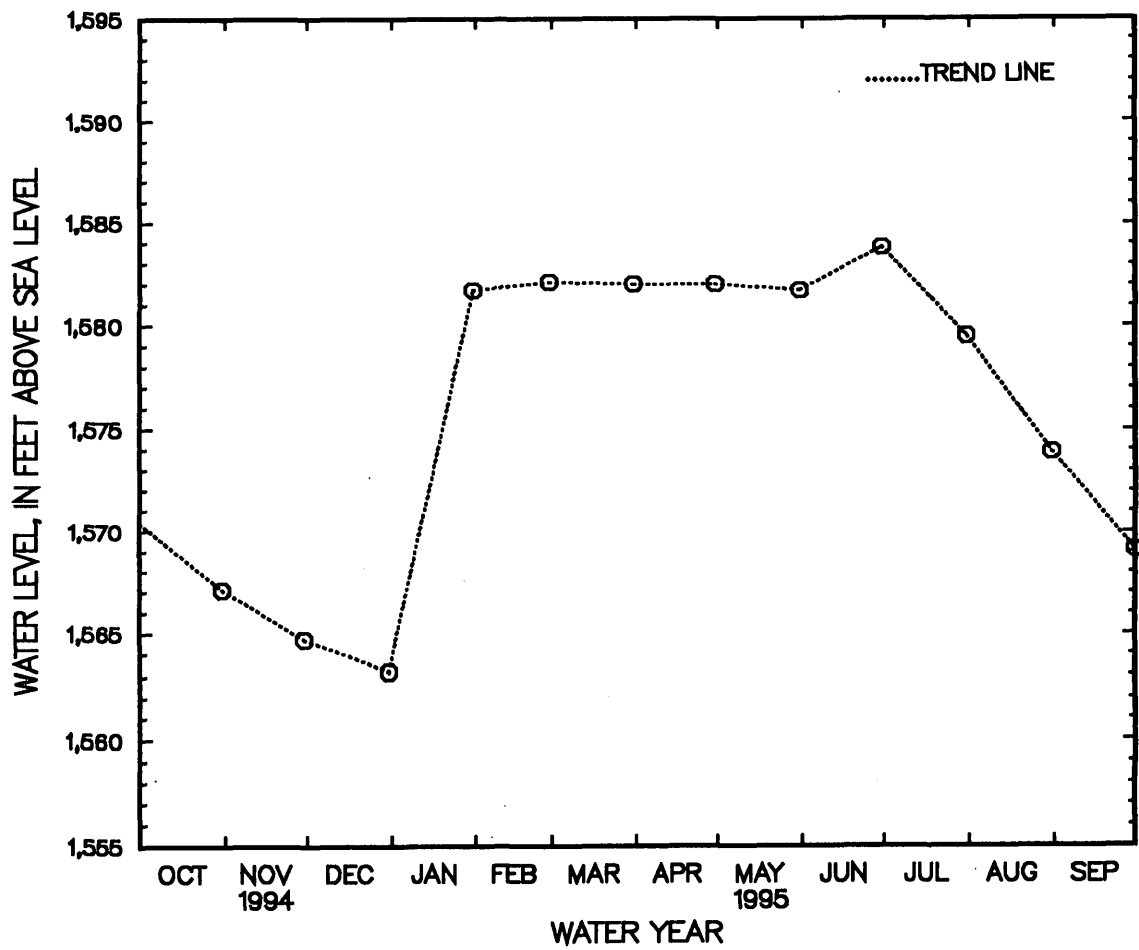
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 160,300 acre-ft, Apr. 18, 1987, elevation, 1,595.6 ft; minimum, (after first filling to minimum conservation pool), 71,900 acre-ft, Nov. 30, Dec. 1, 1991, elevation, 1,558.8 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 133,800 acre-ft, June 24, elevation, 1585.9 ft; minimum, 80,000 acre-ft, Jan. 6, elevation, 1,562.9 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,570.5	96,300	-
Oct. 31.....	1,567.1	88,800	-7,500
Nov. 30.....	1,564.7	83,800	-5,000
Dec. 31.....	1,563.2	80,700	-3,100
CAL YR 1994.....	-	-	-25,500
Jan. 31.....	1,581.7	123,100	+42,400
Feb. 28.....	1,582.1	124,000	+900
Mar. 31.....	1,582.0	123,700	-300
Apr. 30.....	1,582.0	123,700	0
May 31.....	1,581.7	123,000	-700
June 30.....	1,583.8	128,300	+5,300
July 31.....	1,579.5	117,500	-10,800
Aug. 31.....	1,573.9	104,100	-13,400
Sept. 30.....	1,569.1	93,100	-11,000
WTR YR 1995.....	-	-	-3,200

02011795 LAKE MOOMAW NEAR HOT SPRINGS, VA--Continued



## 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 Lake Moomaw, and 7.3 mi southwest of Hot Springs.

DRAINAGE AREA.--345 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 to current year.

REVISED RECORDS.--WDR VA-81-1: 1980.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above sea level (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 Lake Moomaw (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 satellite water-quality and gage-height telemeter at station. Maximum discharge, 29,000 ft<sup>3</sup>/s, result of cofferdam failure during construction of Gathright Dam, from rating curve extended above 9,200 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum discharge, 3.0 ft<sup>3</sup>/s, July 12, 1979, result of gate closure at Gathright Dam, gage height, 7.78 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 17.20 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,000 ft<sup>3</sup>/s, June 24, gage height, 12.31 ft; minimum, 7.1 ft<sup>3</sup>/s, Oct. 21, gage height, 7.85 ft; minimum daily, 154 ft<sup>3</sup>/s, June 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222	166	159	156	296	743	249	287	267	1070	296	267
2	204	156	159	156	294	826	249	470	270	1070	296	259
3	200	156	159	156	293	684	224	576	270	1070	296	259
4	191	159	159	156	295	576	195	884	269	901	296	259
5	189	161	159	156	295	455	187	928	266	448	296	259
6	189	161	159	156	296	376	185	1070	269	314	296	258
7	189	161	159	156	295	376	183	701	337	299	296	258
8	189	161	159	156	296	376	183	453	322	299	296	256
9	189	161	159	156	295	436	183	453	266	298	296	257
10	189	161	159	156	252	492	183	453	266	299	296	256
11	189	161	159	156	220	492	183	453	267	299	296	256
12	189	161	159	156	220	626	183	453	327	299	296	256
13	189	161	159	157	220	716	184	453	498	299	294	256
14	189	161	159	159	220	716	186	453	512	299	292	253
15	189	161	159	160	220	681	185	873	340	299	292	256
16	189	161	159	160	220	521	183	1070	256	299	292	256
17	189	161	159	161	220	416	184	1070	249	299	292	257
18	189	161	159	164	428	351	186	933	249	299	292	256
19	189	160	158	164	570	298	185	528	258	299	292	256
20	189	160	159	531	712	292	184	407	263	299	292	256
21	169	159	158	1070	799	292	186	407	263	299	292	256
22	186	159	159	893	799	292	185	494	264	299	292	256
23	187	159	157	642	799	292	184	533	678	299	292	256
24	187	159	156	493	585	294	343	411	2190	298	292	256
25	186	159	156	405	429	296	508	319	2960	299	292	256
26	186	159	156	363	429	296	576	303	2940	299	292	256
27	186	159	156	323	429	432	552	303	1390	298	292	256
28	186	159	156	296	513	538	426	279	209	297	292	254
29	186	159	156	296	---	407	344	263	154	296	291	253
30	186	159	156	296	---	307	345	263	765	296	288	253
31	186	---	156	296	---	275	---	265	---	296	288	---
TOTAL	5872	4801	4901	8901	10939	14170	7513	16808	17834	12334	9093	7698
MEAN	189	160	158	287	391	457	250	542	594	398	293	257
MAX	222	166	159	1070	799	826	576	1070	2960	1070	296	267
MIN	169	156	156	156	220	275	183	263	154	296	288	253
(†)	-122	-84	-50	+690	+16	-5	0	-11	+89	-176	-218	-185
MEAN†	67.4	76.0	108	977	407	452	250	531	683	222	75.3	71.6
CFSM†	.20	.22	.31	2.83	1.18	1.31	.72	1.54	1.98	.64	.22	.21
IN.†	.23	.25	.36	3.27	1.23	1.51	.81	1.77	2.21	.74	.25	.23

CAL YR 1994	TOTAL	201965	MEAN	553	MAX	4710	MIN	156	MEAN†	518	CFSM†	1.50	IN.†	20.39
WTR YR 1995	TOTAL	120864	MEAN	331	MAX	2960	MIN	154	MEAN†	327	CFSM†	0.95	IN.†	12.87

† Change in contents, equivalent in cubic feet per second, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

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

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1979, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	350	255	643	858	605	1050	561	579	374	153	130	222
MAX	1043	388	1584	1306	1096	1656	1134	925	650	180	172	754
(WY)	1977	1978	1974	1979	1979	1978	1977	1975	1974	1979	1978	1979
MIN	67.6	84.3	287	145	241	408	313	191	115	91.5	92.5	76.3
(WY)	1979	1979	1976	1977	1978	1976	1976	1977	1977	1977	1977	1978

## SUMMARY STATISTICS

## WATER YEARS 1974 - 1979

ANNUAL MEAN	482
HIGHEST ANNUAL MEAN	585
LOWEST ANNUAL MEAN	357
HIGHEST DAILY MEAN	12600
LOWEST DAILY MEAN	63
ANNUAL SEVEN-DAY MINIMUM	65
INSTANTANEOUS PEAK FLOW	a29000
INSTANTANEOUS PEAK STAGE	a18.77
INSTANTANEOUS LOW FLOW	b3.0
ANNUAL RUNOFF (CFSM)	1.40
ANNUAL RUNOFF (INCHES)	18.97
10 PERCENT EXCEEDS	962
50 PERCENT EXCEEDS	245
90 PERCENT EXCEEDS	92

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	242	298	244	424	630	903	776	595	431	267	275	233
MAX	829	1235	617	1297	1416	1881	2052	1477	1017	398	644	454
(WY)	1980	1986	1984	1991	1994	1993	1987	1989	1982	1995	1984	1989
MIN	70.8	64.1	60.8	74.5	114	74.4	172	230	202	123	71.4	57.5
(WY)	1981	1982	1982	1981	1981	1981	1981	1991	1980	1980	1981	1981

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

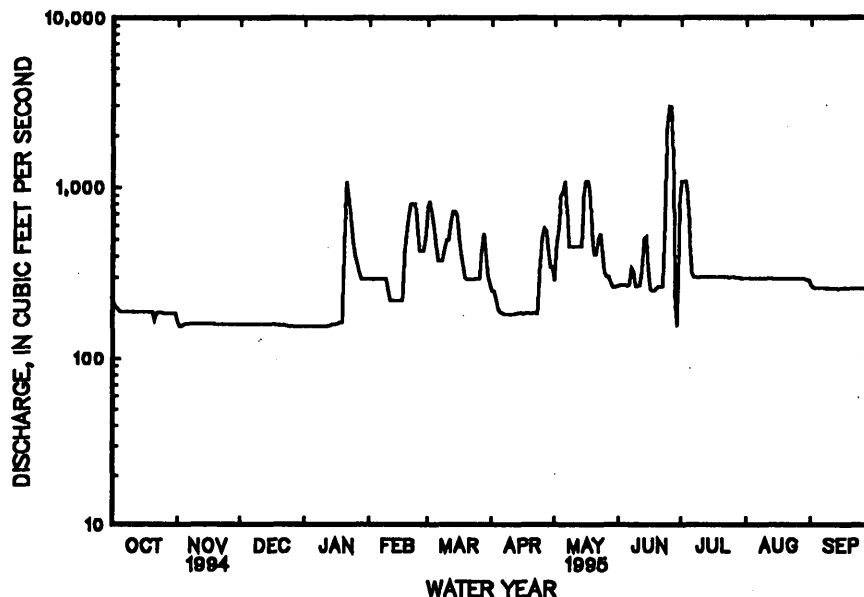
## WATER YEARS 1980 - 1995

ANNUAL TOTAL	201965	120864	
ANNUAL MEAN	553	331	442
HIGHEST ANNUAL MEAN			568
LOWEST ANNUAL MEAN			196
HIGHEST DAILY MEAN	4710	Mar 31	2960
LOWEST DAILY MEAN	156	cNov 2	154
ANNUAL SEVEN-DAY MINIMUM	156	Dec 24	156
INSTANTANEOUS PEAK FLOW			3000
INSTANTANEOUS PEAK STAGE			12.31
INSTANTANEOUS LOW FLOW			7.1
ANNUAL RUNOFF (CFSM)	1.60	.96	1.28
ANNUAL RUNOFF (INCHES)	21.78	13.03	17.40
10 PERCENT EXCEEDS	1070	572	876
50 PERCENT EXCEEDS	288	265	263
90 PERCENT EXCEEDS	159	159	147

a Result of cofferdam failure during construction of Gathright Dam.

b Result of gate closure at Gathright Dam.

c Also Nov. 3, and Dec. 24-31, 1994.



## 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.--Some record in prior years fragmentary due to instrument malfunction. The intake tower at Gathright Dam permits selective withdrawal of water from one or more reservoir depths. Records represent conductance within 5 microsiemens, pH within 0.5 units, water temperature within 0.5°C, and dissolved oxygen within 0.5 mg/L at the intake to the monitor. All four parameters were compared at the intake with the average for the river by a cross section on June 27. A maximum variation of 3 microsiemens was found for specific conductance, a maximum of 0.1 units for pH, a maximum variation of 0.2°C for water temperature, and 0.4 mg/L for dissolved oxygen was found within the cross section.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE (water years 1979, 1981-95): Maximum recorded, 249 microsiemens, Nov. 5, 1985; minimum recorded, 78 microsiemens, May 14, 1979.

pH (water years 1979, 1981-95): Maximum recorded, 8.6 units, Jan. 29, 1982, Jan. 13, 1983; minimum recorded, 6.7 units, Oct. 22, 1989.

WATER TEMPERATURE (water years 1979, 1981-95): Maximum recorded, 28.0°C, Aug. 1, 2, 1979; minimum recorded, 0.0°C, Feb. 16-19, 1979.

DISSOLVED OXYGEN (water years 1979, 1981, 1984-95): 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 recorded, 172 microsiemens, Jan. 1; minimum recorded, 119 microsiemens, on Mar. 12-16.

pH: Maximum recorded, 8.1 units, Jan. 5; minimum recorded, 7.1 units, Sept. 30.

WATER TEMPERATURE: Maximum recorded, 16.5°C, May 31; minimum recorded, 4.0°C, Feb. 18, 19, 22, 23.

DISSOLVED OXYGEN: Maximum recorded, 13.7 mg/L, Jan. 25, 26; minimum recorded, 7.9 mg/L, June 8.

## SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	134	131	132	135	133	134	157	156	156	172	156	157
2	134	132	133	139	135	138	157	157	157	157	157	157
3	134	133	134	141	138	140	157	153	156	157	153	155
4	135	133	134	145	141	143	156	153	156	154	153	154
5	138	133	135	150	145	148	160	155	156	157	153	156
6	136	135	135	152	150	151	156	156	156	157	155	157
7	136	135	135	154	151	153	158	156	157	158	157	157
8	135	134	135	157	154	156	160	158	159	157	157	157
9	136	134	135	157	157	157	161	160	160	157	157	157
10	136	134	135	158	157	157	162	160	161	157	156	156
11	135	133	134	158	154	157	163	158	162	157	156	156
12	134	132	133	157	157	157	162	161	162	157	156	156
13	132	131	131	157	154	156	162	161	162	157	156	156
14	132	131	131	157	155	155	162	158	161	156	156	156
15	131	131	131	155	153	154	161	160	161	160	156	157
16	131	130	130	162	153	157	160	159	160	157	155	156
17	131	129	130	165	161	162	159	157	159	156	154	155
18	131	129	130	163	162	163	158	155	156	154	150	152
19	131	129	130	164	161	163	163	156	157	150	148	149
20	131	130	131	165	162	164	159	156	158	149	140	144
21	143	128	130	165	162	164	159	157	158	140	138	139
22	131	128	130	164	161	163	160	159	159	139	138	138
23	132	129	130	161	151	156	161	160	160	140	139	140
24	131	127	130	155	151	153	161	154	160	141	138	140
25	135	130	133	156	155	156	160	159	160	141	138	140
26	135	133	134	155	152	154	160	158	158	142	140	141
27	134	133	133	155	152	154	158	157	158	141	137	139
28	135	133	134	156	155	155	158	157	157	137	136	137
29	134	132	133	156	156	156	157	157	157	137	136	137
30	134	133	133	156	153	155	157	153	157	141	136	138
31	134	132	133	---	---	---	157	156	157	138	134	137
MONTH	143	127	132	165	133	154	163	153	158	172	134	149

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	136	135	135	123	121	121	124	123	124	136	129	134
2	135	135	135	121	121	121	124	123	124	135	129	132
3	135	135	135	122	121	121	125	124	124	134	129	132
4	135	135	135	122	121	121	125	124	125	131	126	128
5	135	135	135	122	121	122	127	125	126	141	127	129
6	135	132	134	122	121	122	127	126	126	130	128	129
7	134	133	134	122	121	121	127	126	126	132	129	130
8	134	134	134	122	121	121	127	125	126	132	131	131
9	134	132	134	123	120	121	128	124	127	132	131	131
10	134	133	134	121	120	120	129	128	128	132	130	130
11	134	133	133	120	120	120	129	129	129	133	131	132
12	134	133	133	120	119	120	129	129	129	140	131	136
13	133	132	133	120	119	120	130	129	129	137	135	136
14	133	133	133	120	119	119	130	129	130	137	136	137
15	138	133	136	119	119	119	130	129	130	137	134	135
16	138	137	138	123	119	121	130	129	130	135	133	134
17	138	137	137	124	123	123	130	130	130	135	122	129
18	137	133	134	125	124	125	130	130	130	126	122	124
19	133	132	132	125	125	125	131	130	130	127	122	125
20	132	130	131	125	125	125	131	130	130	127	124	126
21	130	125	127	125	124	125	131	130	131	127	125	126
22	125	124	124	125	120	123	137	130	131	126	125	126
23	124	123	124	121	120	121	131	130	131	126	125	125
24	124	123	124	122	121	121	131	128	129	127	125	126
25	124	123	124	123	122	123	128	127	127	128	126	128
26	124	123	123	124	123	123	127	127	127	128	126	127
27	123	122	123	123	122	122	133	127	128	128	127	128
28	123	122	122	122	122	122	135	128	132	128	127	127
29	---	---	---	124	122	123	135	129	132	129	127	128
30	---	---	---	123	122	123	135	129	131	129	128	128
31	---	---	---	123	122	123	---	---	---	130	126	128
MONTH	138	122	131	125	119	122	137	123	128	141	122	130
	JUNE			JULY			AUGUST			SEPTEMBER		
1	130	129	129	132	132	132	139	138	138	141	139	140
2	130	129	129	132	131	132	139	138	139	141	140	141
3	130	129	129	132	131	132	139	138	139	141	141	141
4	129	128	129	133	131	132	139	138	139	141	141	141
5	130	129	129	134	132	133	139	138	139	142	141	141

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

PH (STANDARD UNITS), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

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





## JAMES RIVER BASIN

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

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	15.0	14.5	15.0	14.5	14.0	14.0	11.5	11.0	11.0	8.5	8.0	8.0
2	15.0	14.5	15.0	14.5	14.0	14.0	11.0	11.0	11.0	8.0	8.0	8.0
3	15.0	14.5	14.5	14.0	14.0	14.0	11.0	11.0	11.0	8.0	7.5	7.5
4	15.0	14.5	14.5	14.5	14.0	14.0	11.0	11.0	11.0	7.5	6.0	7.5
5	15.0	14.5	14.5	14.5	14.0	14.0	11.0	11.0	11.0	7.5	5.5	7.0
6	15.0	14.5	14.5	14.5	14.0	14.0	11.0	10.5	11.0	7.0	6.5	7.0
7	15.0	14.5	14.5	14.0	14.0	14.0	10.5	10.5	10.5	7.0	6.5	7.0
8	15.0	14.5	14.5	14.0	14.0	14.0	10.5	10.0	10.5	7.0	6.5	6.5
9	15.0	14.5	14.5	14.0	14.0	14.0	10.0	10.0	10.0	7.0	6.5	6.5
10	15.0	14.5	14.5	14.0	13.5	14.0	10.0	10.0	10.0	7.0	6.5	6.5
11	14.5	14.5	14.5	14.0	13.5	13.5	10.0	9.5	10.0	7.0	6.5	6.5
12	14.5	14.5	14.5	13.5	13.5	13.5	10.0	9.5	9.5	6.5	6.5	6.5
13	14.5	14.5	14.5	14.0	13.5	13.5	9.5	9.5	9.5	6.5	6.5	6.5
14	14.5	14.5	14.5	14.0	13.5	13.5	10.0	9.5	10.0	6.5	6.5	6.5
15	14.5	14.0	14.5	14.0	13.5	13.5	10.0	9.5	9.5	6.5	6.0	6.5
16	14.5	14.0	14.5	13.5	13.5	13.5	10.0	9.5	9.5	6.5	6.5	6.5
17	14.5	14.0	14.5	13.5	13.0	13.5	10.0	9.5	9.5	6.5	6.5	6.5
18	14.5	14.0	14.5	13.5	13.0	13.0	9.5	9.5	9.5	7.0	6.5	6.5
19	14.5	14.5	14.5	13.0	13.0	13.0	9.5	9.0	9.5	7.0	6.5	7.0
20	14.5	14.5	14.5	13.0	12.5	13.0	9.5	9.0	9.0	7.0	6.5	7.0
21	14.5	14.0	14.5	13.0	12.5	13.0	9.0	9.0	9.0	6.5	6.5	6.5
22	14.5	14.0	14.5	13.0	12.5	12.5	9.0	8.5	9.0	6.5	6.5	6.5
23	14.5	14.0	14.5	12.5	11.5	12.5	9.0	8.5	8.5	6.5	6.5	6.5
24	14.5	14.0	14.5	12.5	12.5	12.5	8.5	8.5	8.5	6.5	6.5	6.5
25	14.5	14.0	14.0	12.5	12.0	12.5	8.5	8.5	8.5	6.5	6.5	6.5
26	14.5	14.0	14.0	12.5	12.0	12.5	8.5	8.5	8.5	6.5	6.0	6.0
27	14.5	14.0	14.0	12.0	12.0	12.0	8.5	8.5	8.5	6.0	6.0	6.0
28	14.5	14.0	14.0	12.0	11.5	12.0	8.5	8.5	8.5	6.0	6.0	6.0
29	14.0	14.0	14.0	12.0	11.5	11.5	8.5	8.0	8.5	6.5	5.5	6.0
30	14.5	14.0	14.0	12.0	11.0	11.5	8.5	8.0	8.0	6.5	6.0	6.0
31	14.5	14.0	14.5	---	---	---	8.0	8.0	8.0	6.0	6.0	6.0
MONTH	15.0	14.0	14.5	14.5	11.0	13.0	11.5	8.0	9.5	8.5	5.5	6.5
FEBRUARY				MARCH			APRIL			MAY		
1	6.0	5.5	5.5	4.5	4.5	4.5	8.5	7.5	8.0	11.0	10.5	11.0
2	5.5	5.5	5.5	4.5	4.5	4.5	9.0	7.5	8.0	11.0	10.5	11.0
3	5.5	5.5	5.5	5.0	4.5	5.0	9.0	7.5	8.5	11.0	10.5	11.0
4	5.5	5.5	5.5	5.0	5.0	5.0	10.0	7.0	8.5	10.5	6.0	10.0
5	5.5	5.5	5.5	5.0	5.0	5.0	9.5	8.5	9.0	12.0	10.5	11.0
6	5.5	5.0	5.0	5.0	5.0	5.0	9.0	7.5	8.5	12.0	10.5	11.5
7	5.0	5.0	5.0	5.0	5.0	5.0	9.0	7.0	8.5	11.5	11.0	11.5
8	5.0	4.5	5.0	5.5	5.0	5.0	9.5	8.0	9.0	11.5	11.0	11.5
9	5.0	4.5	5.0	5.5	5.0	5.0	9.5	7.5	8.5	12.0	11.0	11.5
10	5.0	5.0	5.0	5.0	5.0	5.0	9.5	7.5	8.5	12.0	11.0	11.5
11	5.0	4.5	5.0	5.5	5.0	5.0	10.0	8.5	9.5	12.5	11.0	12.0
12	4.5	4.5	4.5	5.5	5.0	5.5	9.0	8.5	9.0	12.5	11.5	12.0
13	4.5	4.5	4.5	5.5	5.0	5.0	10.5	8.5	9.5	12.5	11.5	12.0
14	4.5	4.5	4.5	5.5	5.0	5.5	11.0	9.5	10.5	12.5	11.5	12.0
15	4.5	4.5	4.5	5.5	5.0	5.5	10.5	9.0	10.0	13.0	11.5	12.5
16	4.5	4.5	4.5	6.5	5.5	6.0	10.5	9.0	9.5	12.5	11.5	12.0
17	4.5	4.5	4.5	8.0	5.5	6.5	10.0	9.0	9.5	13.5	11.0	12.5
18	4.5	4.0	4.5	7.5	5.5	6.5	10.0	9.5	9.5	14.0	11.5	12.5
19	4.5	4.0	4.5	7.5	6.0	6.5	11.0	9.0	10.0	14.0	11.5	13.0
20	4.5	4.5	4.5	7.0	5.5	6.5	10.0	8.5	9.5	13.5	12.5	13.0
21	4.5	4.5	4.5	8.5	6.0	7.0	10.5	9.5	10.5	13.5	12.5	13.0
22	4.5	4.0	4.5	9.0	7.0	8.0	11.5	9.0	10.0	13.5	13.0	13.0
23	4.5	4.0	4.5	8.0	6.0	7.0	10.5	9.5	10.0	13.5	13.0	13.0
24	4.5	4.5	4.5	9.0	7.0	8.0	11.0	9.5	10.0	14.0	12.5	13.5
25	4.5	4.5	4.5	9.0	8.0	8.5	10.5	9.0	10.0	14.0	13.0	13.5
26	4.5	4.5	4.5	9.0	7.5	8.0	10.5	9.0	10.0	14.0	13.0	13.5
27	4.5	4.5	4.5	7.5	7.0	7.0	10.5	9.5	10.0	14.0	13.5	14.0
28	4.5	4.5	4.5	8.5	7.0	8.0	11.5	9.5	10.5	14.0	13.0	13.5
29	---	---	---	8.5	7.5	8.0	11.0	10.0	10.5	14.0	13.0	14.0
30	---	---	---	8.5	7.5	8.0	11.0	10.0	10.5	15.0	13.0	14.5
31	---	---	---	8.5	7.5	8.0	---	---	---	16.5	12.5	14.0
MONTH	6.0	4.0	5.0	9.0	4.5	6.0	11.5	7.0	9.5	16.5	6.0	12.5



## JAMES RIVER BASIN

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

OXYGEN, DISSOLVED (MG/L), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	9.2	9.0	9.1	9.4	9.3	9.3	9.7	9.4	9.6	10.5	10.1	10.2
2	9.2	9.1	9.1	9.6	9.3	9.4	9.7	9.5	9.6	10.5	10.1	10.2
3	9.3	9.1	9.2	9.6	9.5	9.5	9.8	9.6	9.6	10.4	9.3	10.1
4	9.4	9.1	9.2	9.6	9.5	9.5	9.9	9.5	9.7	10.4	9.3	10.0
5	9.1	8.8	9.0	9.7	9.5	9.6	9.9	9.6	9.7	10.4	9.4	10.1
6	8.8	8.4	8.6	9.7	9.6	9.6	9.9	9.5	9.7	10.3	9.9	10.1
7	8.5	8.3	8.4	9.8	9.6	9.7	9.8	9.5	9.6	10.5	9.9	10.2
8	8.6	8.3	8.5	9.7	9.5	9.6	9.8	9.5	9.7	10.8	10.3	10.5
9	8.7	8.5	8.6	9.8	9.6	9.7	9.8	9.5	9.6	11.0	10.5	10.7
10	8.9	8.6	8.8	9.9	9.6	9.7	9.6	9.4	9.5	11.2	10.7	10.9
11	9.0	8.8	8.9	9.8	9.7	9.8	9.7	9.3	9.5	11.4	10.8	11.1
12	9.2	8.9	9.0	10.0	9.8	9.8	10.0	9.4	9.6	11.6	11.0	11.2
13	9.4	9.0	9.3	10.0	9.8	9.8	9.8	9.5	9.6	11.7	11.2	11.4
14	9.4	9.2	9.3	10.0	9.8	9.9	9.8	9.5	9.6	11.9	11.4	11.5
15	9.4	9.2	9.3	10.1	9.9	10.0	10.4	9.2	9.8	11.8	11.4	11.6
16	9.5	9.2	9.3	9.9	9.6	9.8	10.3	9.8	10.0	12.1	11.5	11.8
17	9.4	9.2	9.3	9.8	9.6	9.7	10.2	9.8	10.0	12.1	11.7	12.0
18	9.4	9.2	9.3	9.9	9.6	9.7	10.2	9.8	9.9	12.5	12.0	12.2
19	9.4	9.2	9.3	9.8	9.6	9.7	10.3	9.9	10.0	12.4	12.1	12.2
20	9.5	9.2	9.3	10.0	9.6	9.7	10.3	10.0	10.1	12.9	12.1	12.5
21	9.5	9.1	9.3	9.8	9.5	9.6	10.3	10.0	10.2	13.2	12.9	13.1
22	9.5	9.2	9.3	9.7	9.5	9.6	10.5	9.9	10.1	13.3	13.1	13.2
23	9.4	9.2	9.3	9.7	9.5	9.6	10.4	10.0	10.1	13.4	13.2	13.3
24	9.5	9.4	9.4	9.7	9.4	9.5	10.2	9.9	10.0	13.6	13.3	13.4
25	9.5	9.3	9.4	9.8	9.4	9.6	10.3	9.9	10.0	13.7	13.5	13.6
26	9.7	9.3	9.5	9.7	9.4	9.5	10.3	10.0	10.1	13.7	11.4	12.4
27	9.6	9.4	9.5	9.8	9.4	9.6	10.2	9.9	10.1	13.0	11.2	12.0
28	9.7	9.5	9.6	9.7	9.4	9.5	10.2	9.9	10.0	12.8	12.6	12.7
29	9.6	9.4	9.5	9.8	9.5	9.6	10.3	10.0	10.1	12.8	12.5	12.6
30	9.6	9.4	9.5	9.7	9.3	9.5	10.5	10.1	10.2	12.5	12.3	12.4
31	9.7	9.4	9.6	---	---	---	10.3	10.0	10.2	12.4	12.1	12.3
MONTH	9.7	8.3	9.2	10.1	9.3	9.6	10.5	9.2	9.9	13.7	9.3	11.7
FEBRUARY			MARCH			APRIL			MAY			
1	12.1	11.9	12.0	11.6	11.3	11.5	10.9	10.7	10.8	8.5	8.1	8.3
2	11.9	11.8	11.9	11.7	11.5	11.6	11.0	10.6	10.8	8.4	8.0	8.2
3	11.8	11.7	11.7	11.7	11.4	11.5	11.0	10.7	10.8	8.5	8.3	8.4
4	11.7	11.6	11.6	11.6	11.4	11.5	11.0	10.6	10.8	9.7	8.3	9.0
5	11.6	11.4	11.5	11.5	11.2	11.3	10.8	10.4	10.6	9.7	9.2	9.6
6	11.5	11.2	11.3	11.6	11.2	11.3	10.9	10.4	10.7	9.9	9.7	9.8
7	11.5	11.1	11.2	11.5	11.2	11.4	10.7	10.2	10.5	10.0	9.5	9.8
8	11.3	11.1	11.2	11.4	11.1	11.2	10.5	10.0	10.2	9.9	9.6	9.8
9	11.2	10.9	11.1	11.6	11.1	11.4	10.4	10.0	10.2	10.0	9.8	9.9
10	11.0	10.7	10.9	11.7	11.4	11.5	10.4	9.8	10.2	10.1	9.9	10.0
11	11.1	10.7	10.8	11.7	11.5	11.5	10.2	9.8	10.0	10.1	9.9	10.0
12	10.7	10.6	10.6	11.9	11.5	11.7	10.2	9.7	9.9	10.3	10.0	10.1
13	10.8	10.5	10.6	11.9	11.7	11.8	9.8	9.3	9.6	10.4	10.1	10.3
14	10.8	10.3	10.5	11.8	11.7	11.7	9.7	9.1	9.4	10.5	10.2	10.3
15	11.0	10.3	10.6	11.9	11.7	11.7	9.7	9.1	9.4	10.8	10.3	10.6
16	11.0	10.6	10.7	11.8	10.9	11.3	9.5	8.8	9.3	11.0	10.7	10.9
17	11.3	10.7	10.9	11.2	10.7	10.9	9.2	8.8	9.0	11.1	10.1	10.6
18	11.3	10.8	11.1	11.1	10.8	10.9	9.1	8.5	8.9	10.9	10.1	10.5
19	11.3	11.0	11.2	11.0	10.8	10.9	8.9	8.5	8.7	10.5	9.6	10.0
20	11.3	11.0	11.2	11.0	10.7	10.9	8.9	8.4	8.7	10.3	9.7	9.9
21	11.3	11.0	11.2	10.9	10.5	10.7	8.8	8.2	8.5	10.2	9.8	10.0
22	11.4	11.2	11.3	11.0	10.4	10.7	8.9	8.4	8.6	10.3	9.7	10.1
23	11.4	11.3	11.3	10.8	10.6	10.7	8.7	8.3	8.4	10.3	10.1	10.2
24	11.4	11.1	11.2	10.8	10.6	10.7	8.6	8.2	8.4	10.1	9.7	9.9
25	11.4	11.1	11.2	10.9	10.6	10.7	9.3	8.4	8.8	9.7	9.3	9.5
26	11.4	11.2	11.3	10.9	10.7	10.8	9.3	9.0	9.1	9.8	9.1	9.4
27	11.5	11.2	11.3	11.1	10.8	10.9	9.2	8.9	9.0	9.3	9.1	9.2
28	11.5	11.1	11.3	11.1	10.9	11.0	9.1	8.6	8.8	9.4	8.7	9.1
29	---	---	---	11.0	10.8	10.9	8.8	8.5	8.7	9.2	8.6	8.9
30	---	---	---	11.1	10.7	10.8	8.6	8.3	8.4	9.0	8.4	8.7
31	---	---	---	10.9	10.7	10.8	---	---	---	9.6	8.3	8.8
MONTH	12.1	10.3	11.2	11.9	10.4	11.2	11.0	8.2	9.5	11.1	8.0	9.7



## JAMES RIVER BASIN

## 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 50 ft upstream from Dry Run and 1.7 mi upstream from Dunlap Creek and bridge on U.S. Highway 60.

DRAINAGE AREA.--439 mi<sup>2</sup>.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1978 to current year.

INSTRUMENTATION.--Water-temperature recorder since June 1978.

REMARKS.--Interruptions in the record were due to malfunction of the instrument. Some record in prior years fragmentary due to instrument malfunction. Records represent water temperature at sensor within 0.5°C. U.S. Army Corps of Engineers satellite water-temperature telemeter at station.

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, 22.0°C, July 26-28, but may have been higher during instrument malfunction, July 6-19; minimum, 0.0°C, Jan. 6, Feb. 6.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

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

## 02012800 JACKSON RIVER AT FILTRATION PLANT, AT COVINGTON, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

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

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

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1929-30, 1932-34, 1942. WSP 1303: 1929-35(M), 1937-38(M), 1941-48(M). WSP 2104: Drainage area. WDR VA-74-1: 1969(M), 1972, 1973(P).

GAGE.--Water-stage recorder. Datum of gage is 1,294.70 ft above sea level. Prior to Dec. 8, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except for period of doubtful gage-height record, Feb. 14, which is fair. Occasional diurnal fluctuation caused by dam 7.9 mi upstream from station. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 27,400 ft<sup>3</sup>/s, from rating curve extended above 4,500 ft<sup>3</sup>/s on basis of step-backwater computations and contracted-opening measurement at gage height 15.65 ft. Minimum gage height, 0.69 ft, June 6, July 14, 1969. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 18 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0600	*8,710	*10.45	No other peak equal to or greater than base discharge.			

Minimum discharge, 5.9 ft<sup>3</sup>/s, Aug. 2, gage height, 1.09 ft; minimum daily, 13 ft<sup>3</sup>/s, Sept. 12, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	28	25	25	75	246	87	107	63	299	27	16
2	22	27	24	24	119	220	83	379	281	229	25	16
3	22	26	23	24	168	198	79	554	499	175	20	15
4	22	24	26	23	175	173	74	374	376	139	21	15
5	21	23	39	19	149	163	71	402	241	113	21	15
6	22	23	46	22	126	176	68	407	178	96	21	14
7	21	23	41	190	133	204	65	319	142	199	22	14
8	21	22	35	256	105	232	63	251	120	149	22	14
9	22	22	30	159	90	358	61	208	284	104	22	14
10	22	23	34	122	82	381	59	189	247	83	22	14
11	22	22	101	103	80	392	57	194	585	69	22	14
12	21	22	91	120	73	446	56	198	1010	59	27	13
13	22	21	65	137	73	397	56	182	816	53	26	14
14	25	21	52	220	e70	323	54	187	413	47	22	14
15	25	21	45	5180	74	262	51	620	254	43	21	13
16	24	22	40	1720	174	218	49	527	177	40	38	15
17	24	22	37	623	880	185	51	359	134	43	34	23
18	23	21	36	359	670	161	53	266	107	39	28	25
19	25	21	35	252	484	142	51	423	90	36	27	20
20	27	21	34	353	426	128	53	414	80	33	25	19
21	27	25	32	350	368	132	76	305	69	32	22	18
22	27	27	31	260	271	122	87	226	67	30	20	18
23	32	26	30	202	218	125	86	172	280	38	19	19
24	33	26	30	164	190	129	190	140	664	30	18	19
25	30	26	29	133	160	125	225	116	365	35	18	20
26	29	24	28	113	143	119	185	101	293	40	17	24
27	28	25	27	97	129	117	158	89	369	39	18	25
28	27	28	26	96	189	115	139	85	244	35	20	23
29	26	27	26	91	---	105	121	85	237	33	19	20
30	25	26	25	82	---	97	111	74	279	30	18	19
31	25	---	24	76	---	91	---	66	---	28	17	---
TOTAL	764	715	1167	11595	5894	6282	2619	8019	8964	2408	699	522
MEAN	24.6	23.8	37.6	374	210	203	87.3	259	299	77.7	22.5	17.4
MAX	33	28	101	5180	880	446	225	620	1010	299	38	25
MIN	21	21	23	19	70	91	49	66	63	28	17	13
CFSM	.15	.15	.23	2.28	1.28	1.24	.53	1.58	1.82	.47	.14	.11
IN.	.17	.16	.26	2.63	1.34	1.42	.59	1.82	2.03	.55	.16	.12

e Estimated.



## 02013000 DUNLAP CREEK NEAR COVINGTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	67.7	106	169	239	304	401	286	211	102	49.0	57.8	37.7
MAX	431	659	694	715	659	1053	1071	536	584	358	514	336
(WY)	1990	1986	1974	1937	1994	1993	1987	1989	1972	1972	1984	1989
MIN	13.4	15.7	21.5	24.2	21.5	59.1	54.7	43.7	24.3	14.3	12.5	11.0
(WY)	1942	1932	1956	1981	1934	1988	1986	1930	1934	1966	1932	1970

## SUMMARY STATISTICS

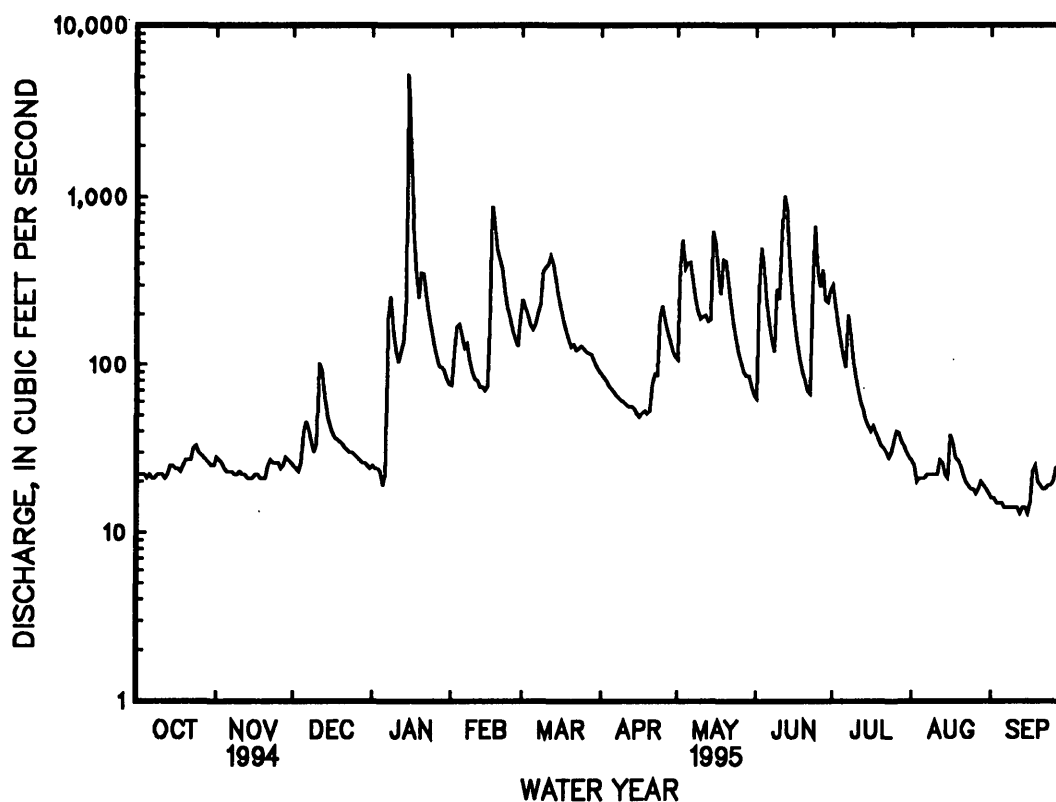
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1929 - 1995

ANNUAL TOTAL	70237	49648	
ANNUAL MEAN	192	136	169
HIGHEST ANNUAL MEAN			320
LOWEST ANNUAL MEAN			67.3
HIGHEST DAILY MEAN	2220	Feb 23	5180 Jan 15
LOWEST DAILY MEAN	20	Jul 12	13 aSep 12
ANNUAL SEVEN-DAY MINIMUM	21	Jul 6	14 Sep 9
INSTANTANEOUS PEAK FLOW			8710 Jan 15
INSTANTANEOUS PEAK STAGE			10.45 Jan 15
INSTANTANEOUS LOW FLOW			5.9 Aug 2
ANNUAL RUNOFF (CFSM)	1.17	.83	1.03
ANNUAL RUNOFF (INCHES)	15.93	11.26	13.99
10 PERCENT EXCEEDS	516	321	364
50 PERCENT EXCEEDS	44	56	67
90 PERCENT EXCEEDS	22	20	18

a Also Sept. 15, 1995.



## 02013100 JACKSON RIVER BELOW DUNLAP CREEK, AT COVINGTON, VA

LOCATION.--Lat 37°47'19", long 80°00'03", Covington City, Hydrologic Unit 02080201, on left bank in city recreation park and 0.5 mi downstream from Dunlap Creek.

DRAINAGE AREA.--614 mi<sup>2</sup>.

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

REVISED RECORDS.--WDR VA-76-1: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 1,206.53 ft above sea level.

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 Lake Moomaw (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 ft<sup>3</sup>/s for industrial use of which approximately 42 ft<sup>3</sup>/s is returned upstream from station. Diversion 2.0 mi upstream from station for city of Covington water supply averages less than 4.0 ft<sup>3</sup>/s. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 31,300 ft<sup>3</sup>/s, from rating curve extended above 19,000 ft<sup>3</sup>/s. Minimum discharge, 41 ft<sup>3</sup>/s, Jan. 5, 1981, gage height, 4.38 ft, result of freezeup. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 24.36 ft, discharge, 34,000 ft<sup>3</sup>/s, from floodmarks, and flood of Dec. 27, 1973, reached a stage of 22.09 ft, from floodmarks, discharge, 28,300 ft<sup>3</sup>/s, from rating curve extended above 19,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,800 ft<sup>3</sup>/s, Jan. 15, gage height, 14.23 ft; minimum, 131 ft<sup>3</sup>/s, Oct. 21, gage height, 4.57 ft; minimum daily, 167 ft<sup>3</sup>/s, Dec. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	272	221	171	188	422	1090	377	464	363	1730	309	286
2	228	192	168	186	479	1170	372	887	618	1540	312	268
3	230	191	167	186	553	1060	356	1420	991	1420	309	268
4	224	192	171	186	569	858	303	1340	783	1280	316	268
5	214	194	188	179	526	769	290	1530	597	763	310	268
6	216	194	189	192	463	637	287	1680	511	518	317	268
7	215	192	183	401	455	671	278	1340	502	580	311	269
8	215	190	176	537	454	728	276	855	538	517	310	268
9	216	188	175	361	422	981	273	793	595	453	310	269
10	213	192	183	297	406	1080	271	777	564	420	306	272
11	211	190	262	276	347	1070	268	759	1020	400	304	266
12	212	189	262	294	336	1210	263	760	1550	379	311	269
13	213	188	231	330	314	1310	263	732	1490	367	309	270
14	222	186	221	390	318	1220	257	745	1130	354	301	266
15	218	185	212	7350	337	1120	251	1450	760	345	301	268
16	218	185	205	2860	442	947	247	1710	511	340	314	278
17	215	184	203	1270	1380	726	249	1510	441	337	320	298
18	217	181	203	801	1290	651	249	1360	405	331	311	282
19	221	182	199	609	1270	518	239	1190	388	328	311	278
20	221	181	198	929	1270	478	245	975	382	323	309	275
21	202	192	197	1660	1340	494	262	826	370	319	307	272
22	217	190	195	1400	1220	472	277	777	375	316	303	277
23	234	181	196	1060	1140	479	276	785	1040	313	302	274
24	223	180	192	825	978	483	540	670	2770	322	299	274
25	224	177	189	672	686	471	816	506	3390	330	297	271
26	224	176	190	576	648	465	865	453	3260	354	300	284
27	221	176	188	516	630	536	809	437	2460	334	305	280
28	219	179	188	465	805	738	689	428	678	328	302	273
29	217	175	186	452	---	656	512	392	649	322	300	267
30	217	172	186	439	---	453	492	372	1070	318	295	267
31	218	---	188	425	---	432	---	362	---	313	294	---
TOTAL	6827	5595	6062	26312	19500	23973	11152	28285	30201	16294	9505	8193
MEAN	220	186	196	849	696	773	372	912	1007	526	307	273
MAX	272	221	262	7350	1380	1310	865	1710	3390	1730	320	298
MIN	202	172	167	179	314	432	239	362	363	313	294	266
(†)	-122	-84	-50	+690	+16	-5	0	-11	+89	-176	-218	-185
MEAN†	98.2	102	146	1539	712	768	372	901	1096	350	88.6	88.1
CFSM†	.16	.17	.24	2.51	1.16	1.25	.61	1.47	1.79	.57	.14	.14
IN.†	.18	.19	.27	2.89	1.21	1.44	.68	1.69	1.99	.66	.17	.16

CAL YR 1994 TOTAL 308609 MEAN 846 MAX 5650 MIN 167 MEAN† 811 CFSM† 1.32 IN.† 17.92  
WTR YR 1995 TOTAL 191899 MEAN 526 MAX 7350 MIN 167 MEAN† 522 CFSM† 0.85 IN.† 11.54

† Change in contents, equivalent in cubic feet per second, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

## 02013100 JACKSON RIVER BELOW DUNLAP CREEK, AT COVINGTON, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1979, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	572	425	712	1258	1079	1794	971	946	529	231	200	350
MAX	1495	853	1020	1930	1757	2762	1790	1600	906	304	270	1058
(WY)	1977	1978	1978	1979	1979	1978	1977	1975	1979	1979	1978	1979
MIN	97.2	118	370	208	450	690	472	296	187	144	135	123
(WY)	1979	1979	1976	1977	1978	1976	1976	1977	1977	1977	1977	1978

## SUMMARY STATISTICS

## WATER YEARS 1975 - 1979

ANNUAL MEAN	755
HIGHEST ANNUAL MEAN	905
LOWEST ANNUAL MEAN	536
HIGHEST DAILY MEAN	18800
LOWEST DAILY MEAN	88
ANNUAL SEVEN-DAY MINIMUM	92
INSTANTANEOUS PEAK FLOW	23200
INSTANTANEOUS PEAK STAGE	19.85
INSTANTANEOUS LOW FLOW	80
ANNUAL RUNOFF (CFSM)	1.23
ANNUAL RUNOFF (INCHES)	16.70
10 PERCENT EXCEEDS	1620
50 PERCENT EXCEEDS	380
90 PERCENT EXCEEDS	135

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	366	513	507	764	1083	1502	1257	922	609	351	379	318
MAX	1302	2363	1089	2007	2385	3189	3540	2223	1403	526	1285	938
(WY)	1980	1986	1984	1991	1994	1993	1987	1989	1982	1995	1984	1989
MIN	111	114	130	119	283	211	356	397	303	190	117	87.3
(WY)	1981	1982	1981	1981	1981	1981	1986	1991	1980	1981	1981	1981

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

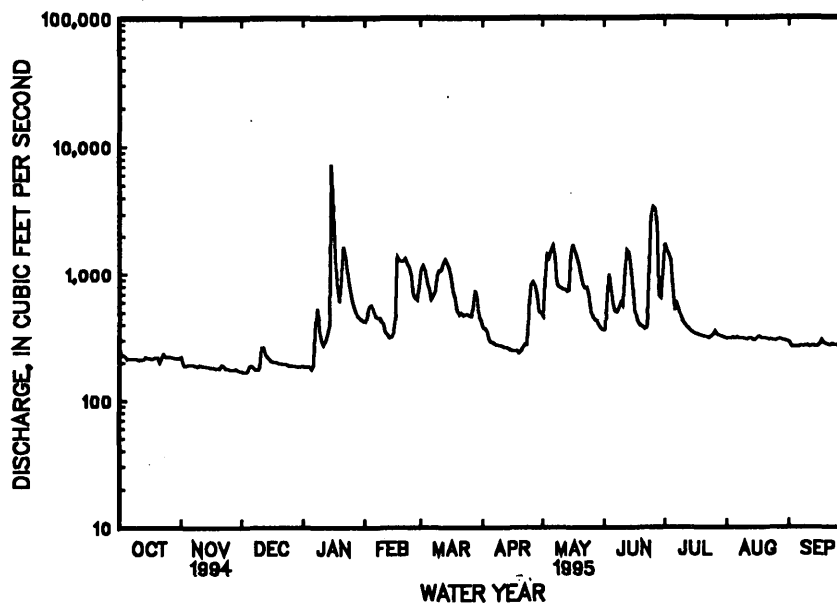
## FOR 1995 WATER YEAR

## WATER YEARS 1980 - 1995

ANNUAL TOTAL	308609	191899	
ANNUAL MEAN	846	526	712
HIGHEST ANNUAL MEAN			954
LOWEST ANNUAL MEAN			348
HIGHEST DAILY MEAN	5650	Mar 31	7350
LOWEST DAILY MEAN	167	Dec 3	167
ANNUAL SEVEN-DAY MINIMUM	172	Nov 28	172
INSTANTANEOUS PEAK FLOW			12800
INSTANTANEOUS PEAK STAGE			14.23
INSTANTANEOUS LOW FLOW			131
ANNUAL RUNOFF (CFSM)	1.38	.86	1.16
ANNUAL RUNOFF (INCHES)	18.70	11.63	15.75
10 PERCENT EXCEEDS	2480	1130	1550
50 PERCENT EXCEEDS	340	316	356
90 PERCENT EXCEEDS	190	189	205

a Also Sept. 27-29, 1981.

b Result of freezeup.



## 02014000 POTTS CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°43'44", long 80°02'33", Alleghany County, Hydrologic Unit 02080201, on left bank at downstream side of bridge on State Highway 18, 0.8 mi downstream from Blue Spring Creek, and 5.2 mi southwest of Covington.

DRAINAGE AREA.--153 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to September 1956, October 1965 to current year.

REVISED RECORDS.--WSP 1723: 1935, 1936(M), 1940(M), 1942(M), 1948-49(M), 1951-52(M), 1954(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,273.93 ft above sea level. Prior to Sept. 30, 1956, nonrecording gage at site 1.3 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 15,400 ft<sup>3</sup>/s, from rating curve extended above 12,000 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0700	*6,570	*9.83	No other peak equal to or greater than base discharge.			

Minimum discharge, 18 ft<sup>3</sup>/s, Jan. 6; minimum gage height, 1.80 ft, Sept. 11-13, 14-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	37	38	49	104	280	97	104	66	546	40	24
2	27	35	33	51	134	252	94	283	74	468	38	24
3	27	36	30	51	191	234	90	364	183	351	36	23
4	27	35	32	45	200	217	84	322	218	281	37	23
5	27	33	60	36	174	201	80	338	172	233	34	22
6	26	36	72	37	133	201	75	329	147	208	36	22
7	26	36	71	223	128	197	73	281	129	304	36	21
8	26	33	59	300	130	216	72	243	122	250	36	21
9	28	32	51	221	97	353	69	215	156	199	38	21
10	30	35	56	180	109	331	66	217	143	166	38	21
11	30	33	90	154	106	354	63	206	367	141	38	21
12	31	33	104	151	86	428	61	182	712	122	42	21
13	32	32	85	156	62	438	72	166	638	107	39	21
14	37	32	78	284	70	406	63	167	431	94	35	21
15	42	31	75	4800	85	362	55	300	307	85	32	21
16	38	30	72	2130	254	318	52	287	225	79	31	24
17	35	30	71	956	712	273	54	254	226	96	29	40
18	33	30	76	609	620	235	69	224	169	88	29	44
19	35	29	80	446	527	208	66	262	137	74	31	37
20	39	29	76	588	470	186	61	253	119	67	31	30
21	40	30	70	500	427	181	74	210	101	62	28	28
22	42	32	67	396	355	172	81	180	98	58	27	29
23	54	32	65	323	301	162	77	152	556	57	26	31
24	57	35	62	261	261	156	98	132	708	54	25	33
25	57	31	59	205	219	136	121	114	511	57	24	33
26	48	29	60	176	194	125	126	101	508	66	23	42
27	41	31	59	148	175	119	122	90	822	67	25	48
28	38	35	49	144	221	117	119	89	697	62	29	41
29	36	43	48	137	---	111	110	96	772	58	29	32
30	36	43	46	123	---	106	104	86	563	48	28	29
31	35	---	45	111	---	101	---	71	---	44	26	---
TOTAL	1107	998	1939	13991	6545	7176	2448	6318	10077	4592	996	848
MEAN	35.7	33.3	62.5	451	234	231	81.6	204	336	148	32.1	28.3
MAX	57	43	104	4800	712	438	126	364	822	546	42	48
MIN	26	29	30	36	62	101	52	71	66	44	23	21
CFSM	.23	.22	.41	2.95	1.53	1.51	.53	1.33	2.20	.97	.21	.18
IN.	.27	.24	.47	3.40	1.59	1.74	.60	1.54	2.45	1.12	.24	.21

## 02014000 POTTS CREEK NEAR COVINGTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1956, 1966 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	98.2	127	174	241	296	379	294	223	133	68.3	68.0	59.4
MAX	548	766	643	788	577	1078	1184	519	650	288	461	516
(WY)	1990	1986	1949	1937	1972	1955	1987	1971	1972	1938	1940	1989
MIN	20.7	23.8	24.7	29.8	26.9	75.7	80.5	51.4	29.4	22.1	21.9	18.4
(WY)	1940	1940	1940	1956	1934	1988	1986	1934	1934	1966	1930	1968

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

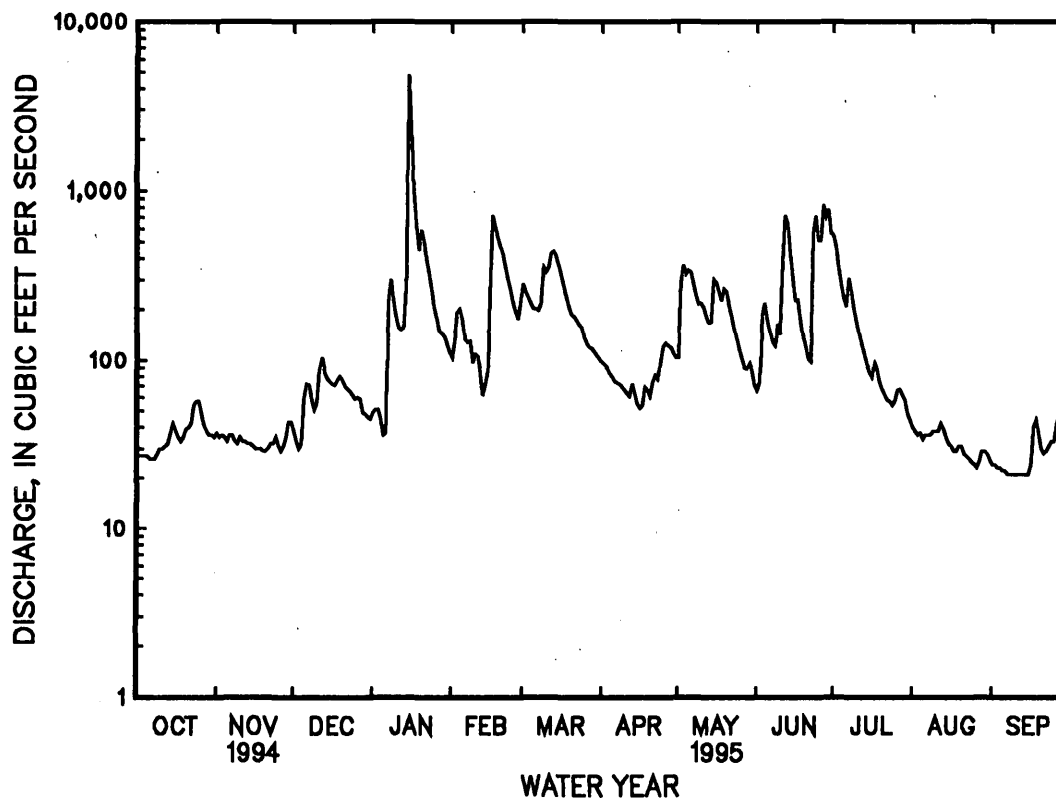
FOR 1995 WATER YEAR

WATER YEARS 1929 - 1995

ANNUAL TOTAL	71570	57035	
ANNUAL MEAN	196	156	179
HIGHEST ANNUAL MEAN			320
LOWEST ANNUAL MEAN			77.2
HIGHEST DAILY MEAN	2050	Mar 28	8870
LOWEST DAILY MEAN	25	Sep 16	15
ANNUAL SEVEN-DAY MINIMUM	27	Oct 2	15
INSTANTANEOUS PEAK FLOW			15400
INSTANTANEOUS PEAK STAGE			13.46
INSTANTANEOUS LOW FLOW			b13
ANNUAL RUNOFF (CFSM)	1.28	1.02	1.17
ANNUAL RUNOFF (INCHES)	17.40	13.87	15.89
10 PERCENT EXCEEDS	535	343	396
50 PERCENT EXCEEDS	66	74	86
90 PERCENT EXCEEDS	29	29	27

a Also Sept. 8-15, 1995.

b Minimum observed.



## JAMES RIVER BASIN

## 02015700 BULLPASTURE RIVER AT WILLIAMSVILLE, VA

LOCATION.--Lat 38°11'43", long 79°34'14", Bath County, Hydrologic Unit 02080201, on left bank 15 ft downstream from bridge on State Highway 614 at Williamsville and 0.62 mi upstream from mouth.

DRAINAGE AREA.--110 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 2104: Drainage area. WRD VA-62-1: 1961.

GAGE.--Water-stage recorder. Datum of gage is 1,610.14 ft above sea level. Prior to July 12, 1974, at site 700 ft upstream at datum 11.84 ft higher.

REMARKS.--Records good except those for period of no gage-height record, Nov. 19-29, and periods with ice effect, Jan. 4-6, and Feb. 6-8, 12-14, which are fair. Maximum discharge, 22,900 ft<sup>3</sup>/s, from rating curve extended above 3,300 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum discharge, 19 ft<sup>3</sup>/s, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1630	*4,480	*6.37	June 23	0100	3,320	5.60

Minimum discharge, 28 ft<sup>3</sup>/s, Sept. 11-13, gage height, 1.34 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	42	34	45	90	210	84	97	73	232	54	32
2	36	43	34	50	103	180	82	188	93	190	50	32
3	36	40	34	36	110	156	75	223	112	156	47	31
4	35	38	35	e36	103	143	73	203	120	136	45	31
5	35	38	82	e35	88	129	70	193	97	120	44	31
6	35	38	66	e37	e76	125	68	168	90	114	57	31
7	35	38	50	276	e67	118	66	146	84	118	62	30
8	35	36	45	178	e69	125	65	129	75	97	48	30
9	35	36	39	118	70	166	65	125	66	88	45	30
10	36	36	40	101	70	150	62	146	65	80	45	30
11	35	36	88	97	72	166	62	134	84	73	44	30
12	35	36	65	156	e65	198	62	122	84	68	42	28
13	35	36	52	186	e55	190	77	112	84	66	42	30
14	35	36	48	173	e60	176	70	430	68	63	40	31
15	36	36	51	2700	65	163	65	364	63	58	60	30
16	36	36	51	1360	70	148	63	251	58	57	47	31
17	36	42	51	548	146	132	72	216	54	86	42	54
18	36	43	50	312	168	118	93	196	52	120	39	44
19	36	e40	48	229	168	110	84	203	50	78	38	38
20	38	e38	44	436	183	103	80	173	45	66	36	35
21	38	e47	42	322	198	114	84	150	44	74	35	34
22	38	e54	40	232	166	116	80	134	426	93	35	33
23	40	e47	40	190	146	112	75	116	1550	70	33	33
24	42	e41	40	163	143	112	146	105	570	63	33	33
25	39	e40	39	141	125	99	143	101	352	73	32	34
26	38	e39	38	120	114	91	122	107	229	101	32	39
27	38	e38	35	107	110	91	114	90	210	75	32	43
28	36	e40	35	107	221	101	110	88	204	101	32	38
29	36	e45	36	103	---	97	101	95	263	75	33	35
30	36	38	35	99	---	91	95	91	263	65	32	33
31	38	---	35	91	---	86	---	78	---	58	32	---
TOTAL	1131	1193	1422	8784	3121	4116	2508	4974	5628	2914	1288	1014
MEAN	36.5	39.8	45.9	283	111	133	83.6	160	188	94.0	41.5	33.8
MAX	42	54	88	2700	221	210	146	430	1550	232	62	54
MIN	35	36	34	35	55	86	62	78	44	57	32	28
CFSM	.33	.36	.42	2.58	1.01	1.21	.76	1.46	1.71	.85	.38	.31
IN.	.38	.40	.48	2.97	1.06	1.39	.85	1.68	1.90	.99	.44	.34

e Estimated.

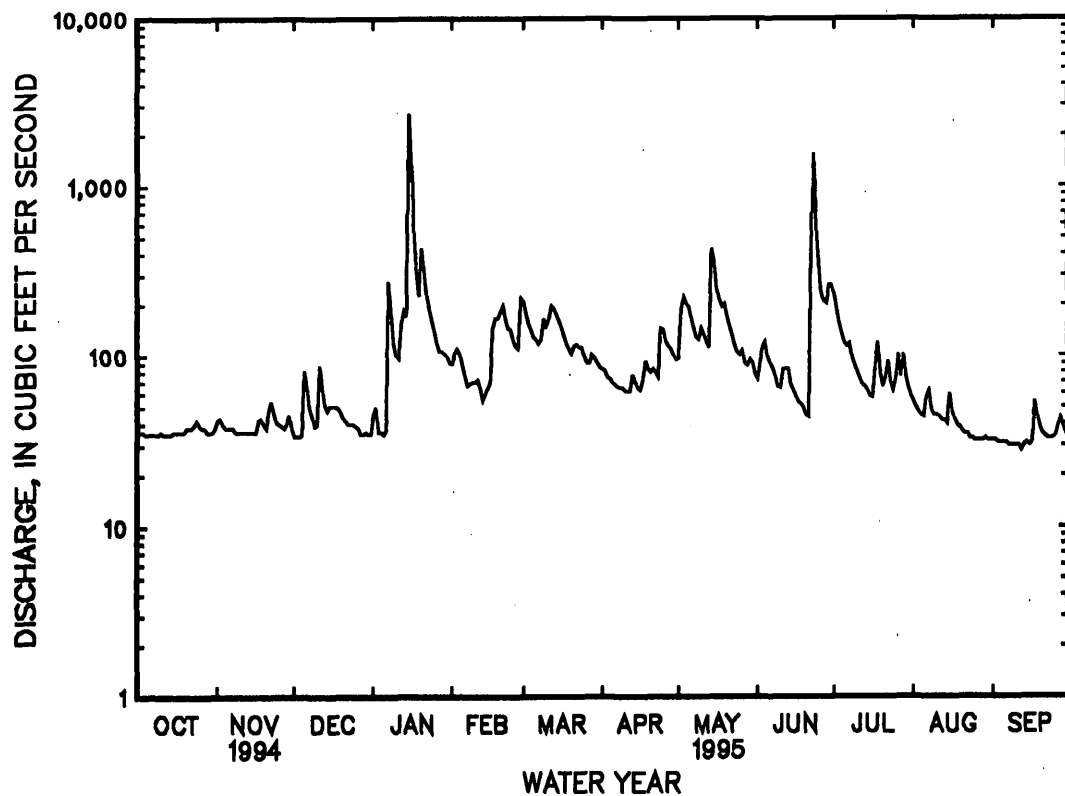
## 02015700 BULLPASTURE RIVER AT WILLIAMSVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	86.5	118	161	184	220	311	227	187	116	66.6	64.6	59.3
MAX	295	746	543	423	497	655	663	431	376	245	272	248
(WY)	1977	1986	1974	1974	1982	1993	1987	1989	1982	1972	1969	1979
MIN	30.1	35.9	31.9	34.7	63.8	62.2	74.9	65.4	41.4	32.9	27.7	28.5
(WY)	1989	1992	1966	1981	1963	1981	1981	1977	1964	1966	1964	1968

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1961 - 1995	
ANNUAL TOTAL	65965		38093		150	
ANNUAL MEAN	181		104		245	
HIGHEST ANNUAL MEAN					71.2	
LOWEST ANNUAL MEAN					1973	
HIGHEST DAILY MEAN	2830	May 8	2700	Jan 15	e7550	Nov 4 1985
LOWEST DAILY MEAN	34	aSep 20	28	Sep 12	23	bSep 8 1964
ANNUAL SEVEN-DAY MINIMUM	35	cSep 15	30	Sep 7	24	Sep 5 1964
INSTANTANEOUS PEAK FLOW			4480	Jan 15	22900	Nov 4 1985
INSTANTANEOUS PEAK STAGE			6.37	Jan 15	d14.39	Nov 4 1985
INSTANTANEOUS LOW FLOW			28	fSep 11	g19	Jan 4 1981
ANNUAL RUNOFF (CFSM)	1.64		.95		1.36	
ANNUAL RUNOFF (INCHES)	22.31		12.88		18.52	
10 PERCENT EXCEEDS	415		187		299	
50 PERCENT EXCEEDS	65		66		80	
90 PERCENT EXCEEDS	36		35		34	

- a Also Sept. 21, Dec. 1-3, 1994.  
b Also Sept. 9, 1964.  
c Also Sept. 16, 17, 1994.  
d From floodmarks.  
e Estimated.  
f Also Sept. 12-13, 1995.  
g Result of freezeup.



## 02016000 COWPASTURE RIVER NEAR CLIFTON FORGE, VA

LOCATION.--Lat 37°47'30", long 79°45'35", Alleghany County, Hydrologic Unit 02080201, on left bank 100 ft downstream from bridge on State Highway 633, 2.5 mi upstream from confluence with Jackson River, and 4.0 mi southeast of Clifton Forge.

DRAINAGE AREA.--461 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1925 to current year. Records for May 1907 to August 1908, published in WSP 242, are unreliable and should not be used.

REVISED RECORDS.--WSP 952: 1925-41. WSP 2104: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,006.93 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to October 1934, nonrecording gage at site 100 ft upstream at present datum.

REMARKS.--No estimated daily discharges. Records good. Low flow affected by springs and by occasional regulation from unknown source. Maximum discharge, 40,900 ft<sup>3</sup>/s, from rating curve extended above 13,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 15.70 ft and 19.15 ft. Minimum gage height, 1.43 ft, Jan. 31, 1981, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 20.8 ft, from floodmarks, discharge, about 45,000 ft<sup>3</sup>/s, from rating curve extended above 13,000 ft<sup>3</sup>/s on basis of records for other stations in James River Basin.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	0230	12,300	11.26	June 23	1730	*17,500	*13.28

Minimum discharge, 66 ft<sup>3</sup>/s, Jan. 5, gage height, 1.49 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	90	104	113	327	902	241	303	219	1630	169	78
2	84	90	96	117	386	782	232	422	221	1100	153	76
3	84	93	92	121	515	654	222	828	338	805	141	75
4	82	93	93	121	516	569	215	888	354	631	132	74
5	83	91	127	109	462	506	203	828	318	522	125	73
6	82	89	209	159	325	478	196	766	280	467	125	73
7	82	88	200	409	291	461	190	656	253	714	127	72
8	83	87	146	1080	330	544	186	564	228	552	132	72
9	85	86	124	659	290	1110	181	496	215	415	132	72
10	85	87	127	486	296	883	177	498	207	342	125	72
11	83	87	269	412	285	748	173	556	560	298	121	71
12	82	86	265	398	247	697	173	554	1140	264	126	70
13	82	86	209	536	229	687	182	520	663	233	121	70
14	86	86	167	626	231	641	185	490	414	211	112	70
15	87	86	154	9280	236	587	188	1330	308	194	106	70
16	86	86	149	8880	265	533	174	1040	247	180	100	73
17	84	87	151	2610	582	482	172	770	205	171	117	90
18	85	88	146	1460	943	432	182	651	180	185	105	100
19	85	90	140	982	882	390	204	765	164	269	100	107
20	86	91	134	1110	869	358	199	708	155	238	97	102
21	86	94	128	1620	891	348	205	558	145	197	95	91
22	84	102	123	1110	793	352	212	472	174	176	93	86
23	101	110	120	825	647	350	210	409	10300	184	92	85
24	98	111	119	664	564	343	246	354	4640	208	89	83
25	96	95	116	552	505	317	433	315	1990	205	86	86
26	93	91	113	465	443	284	441	287	1290	237	85	95
27	90	92	111	405	409	270	402	283	1400	248	84	105
28	87	97	109	376	511	269	373	259	2120	251	84	102
29	86	101	108	371	---	276	346	254	3080	254	83	96
30	86	102	107	342	---	269	319	249	2400	236	82	89
31	86	---	106	326	---	252	---	251	---	193	80	---
TOTAL	2673	2762	4362	36724	13270	15774	7062	17324	34208	11810	3419	2478
MEAN	86.2	92.1	141	1185	474	509	235	559	1140	381	110	82.6
MAX	101	111	269	9280	943	1110	441	1330	10300	1630	169	107
MIN	82	86	92	109	229	252	172	249	145	171	80	70
CFSM	.19	.20	.31	2.57	1.03	1.10	.51	1.21	2.47	.83	.24	.18
IN.	.22	.22	.35	2.96	1.07	1.27	.57	1.40	2.76	.95	.28	.20



## 02016000 COWPASTURE RIVER NEAR CLIFTON FORGE, VA--Continued

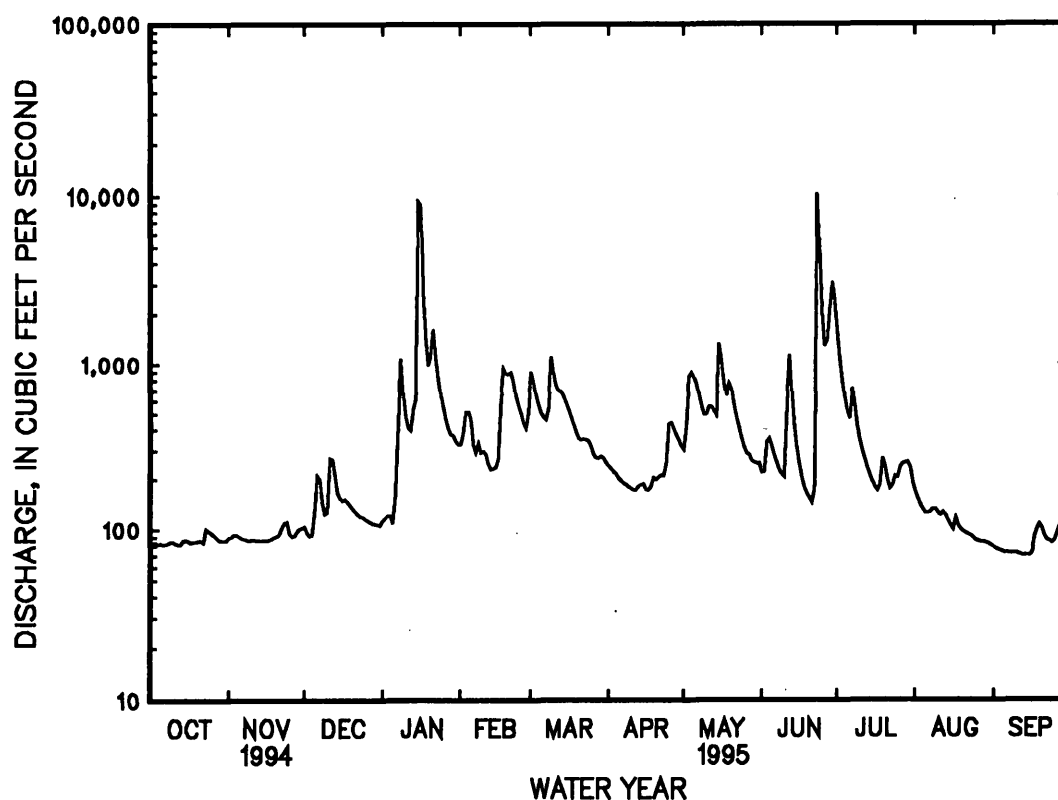
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	282	374	562	715	865	1103	844	642	380	219	233	198
MAX	1474	2745	1883	2154	1844	2531	2878	2342	1484	1213	1531	1244
(WY)	1938	1986	1974	1937	1971	1993	1987	1989	1982	1972	1969	1950
MIN	45.4	62.8	82.9	95.3	89.9	203	235	147	98.1	64.9	64.9	60.3
(WY)	1931	1932	1966	1981	1934	1981	1995	1930	1964	1930	1930	1932

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1925 - 1995	
ANNUAL TOTAL	229056		151866			
ANNUAL MEAN	628		416		535	
HIGHEST ANNUAL MEAN					935	
LOWEST ANNUAL MEAN					248	
HIGHEST DAILY MEAN	6590		10300		33900	
LOWEST DAILY MEAN	82		70		40	
ANNUAL SEVEN-DAY MINIMUM	83		71		43	
INSTANTANEOUS PEAK FLOW			17500		40900	
INSTANTANEOUS PEAK STAGE			13.28		19.15	
INSTANTANEOUS LOW FLOW			66		38	
ANNUAL RUNOFF (CFSM)	1.36		.90		1.16	
ANNUAL RUNOFF (INCHES)	18.48		12.25		15.76	
10 PERCENT EXCEEDS	1560		775		1150	
50 PERCENT EXCEEDS	178		203		258	
90 PERCENT EXCEEDS	87		85		86	

a Also Oct. 6, 7, 12, 13, 1994.

b Also Sept. 13-15, 1995.



## JAMES RIVER BASIN

## 02016500 JAMES RIVER AT LICK RUN, VA

LOCATION.--Lat 37°46'25", long 79°47'05", Botetourt County, Hydrologic Unit 02080201, on right bank at community of Lick Run, 1,000 ft downstream from bridge on U.S. Highway 220, 0.9 mi downstream from confluence of Cowpasture and Jackson Rivers, 1.8 mi south of Iron Gate, and at mile 342.3.

DRAINAGE AREA.--1,373 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 852: 1936-37. WSP 972: 1927, 1930(M), 1932(M), 1935-36. WSP 1303: 1927-28(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 978.30 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to Oct. 26, 1928, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since December 1979 by Lake Moomaw (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. Maximum discharge, 87,500 ft<sup>3</sup>/s, from rating curve extended above 66,000 ft<sup>3</sup>/s. Minimum discharge, 133 ft<sup>3</sup>/s, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of about 33 ft, discharge, about 120,000 ft<sup>3</sup>/s. Flood in March 1913 reached a stage of 30.4 ft, from floodmarks, discharge, about 98,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,400 ft<sup>3</sup>/s, Jan. 15, gage height, 19.26 ft; minimum, 263 ft<sup>3</sup>/s, Jan. 6, gage height, 1.59 ft; minimum daily, 338 ft<sup>3</sup>/s, Nov. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	431	391	379	423	971	2290	852	1020	739	4630	561	427
2	395	364	365	418	1130	2320	825	1450	895	3400	544	399
3	374	345	358	412	1410	2120	804	2790	1600	2740	527	387
4	369	348	369	413	1430	1770	757	2620	1630	2370	532	383
5	360	350	503	350	1330	1650	707	2830	1320	1800	508	381
6	354	348	588	356	1050	1450	692	2850	1120	1420	539	379
7	354	343	575	935	981	1450	685	2510	1010	1800	534	378
8	356	339	485	2210	1040	1620	679	1800	1020	1540	537	378
9	364	338	441	1530	940	2590	683	1630	1080	1230	532	376
10	360	342	463	1210	945	2480	677	1640	1040	1060	522	379
11	352	344	772	1050	902	2320	673	1660	2330	950	520	374
12	348	340	801	1020	799	2390	674	1610	4490	863	555	369
13	353	341	673	1200	717	2550	686	1510	3500	805	529	375
14	375	341	582	1370	703	2420	682	1500	2370	746	503	377
15	373	340	547	25000	788	2230	658	2720	1680	710	487	371
16	369	342	520	18300	896	2000	636	3130	1230	681	478	393
17	364	346	517	6060	2550	1630	644	2590	1050	674	521	471
18	363	346	500	3270	2950	1490	658	2340	940	689	484	465
19	368	346	492	2350	2810	1280	673	2360	840	737	480	457
20	375	346	478	2780	2710	1180	652	2100	793	679	470	434
21	368	376	461	4040	2820	1160	684	1740	746	626	464	416
22	346	406	453	3180	2480	1150	712	1530	783	599	459	417
23	428	387	444	2460	2200	1130	692	1460	11900	615	448	417
24	409	385	437	1960	2020	1120	877	1340	9090	632	442	415
25	394	361	424	1630	1550	1050	1450	1080	6440	665	438	423
26	391	354	411	1390	1420	995	1540	960	5240	748	435	469
27	376	358	412	1260	1340	969	1450	923	5470	713	446	480
28	369	383	401	1140	1540	1190	1340	890	5140	690	456	457
29	362	382	395	1120	---	1200	1110	860	6020	698	446	434
30	365	383	391	1050	---	974	1040	815	4490	649	440	412
31	370	---	395	995	---	917	---	780	---	594	434	---
TOTAL	11535	10715	15032	90882	42422	51085	24892	55038	85996	36753	15271	12293
MEAN	372	357	485	2932	1515	1648	830	1775	2867	1186	493	410
MAX	431	406	801	25000	2950	2590	1540	3130	11900	4630	561	480
MIN	346	338	358	350	703	917	636	780	739	594	434	369
(†)	-122	-84	-50	+690	+16	-5	0	-11	+89	-176	-218	-185
MEAN†	250	273	435	3622	1531	1643	830	1764	2956	1010	275	225
CFSM†	.18	.20	.32	2.64	1.12	1.20	.60	1.28	2.15	.74	.20	.16
IN.†	.21	.22	.37	3.04	1.16	1.38	.67	1.48	2.40	.85	.23	.18
CAL YR 1994	TOTAL 690628	MEAN 1892	MAX 15100	MIN 338	MEAN† 1857	CFSM† 1.35	IN.† 18.37					
WTR YR 1995	TOTAL 451914	MEAN 1238	MAX 25000	MIN 338	MEAN† 1234	CFSM† .90	IN.† 12.20					

† Change in contents, equivalent in cubic feet per second, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## 02016500 JAMES RIVER AT LICK RUN, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1979, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	777	1014	1695	2193	2717	3425	2542	1923	1086	653	685	548
MAX	3670	3988	5458	6362	5613	8393	5307	4882	4349	3346	3949	2839
(WY)	1938	1973	1974	1937	1971	1963	1958	1942	1972	1972	1969	1950
MIN	178	209	265	291	277	1264	832	476	331	209	204	183
(WY)	1931	1932	1966	1956	1934	1940	1942	1941	1964	1930	1930	1930

## SUMMARY STATISTICS

WATER YEARS 1925 - 1979

ANNUAL MEAN	1606
HIGHEST ANNUAL MEAN	2693
LOWEST ANNUAL MEAN	794
HIGHEST DAILY MEAN	50500
LOWEST DAILY MEAN	156
ANNUAL SEVEN-DAY MINIMUM	162
INSTANTANEOUS PEAK FLOW	66600
INSTANTANEOUS PEAK STAGE	27.01
INSTANTANEOUS LOW FLOW	148
ANNUAL RUNOFF (CFSM)	1.17
ANNUAL RUNOFF (INCHES)	15.88
10 PERCENT EXCEEDS	3530
50 PERCENT EXCEEDS	820
90 PERCENT EXCEEDS	260

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	879	1379	1449	1966	2543	3524	3069	2140	1382	704	718	642
MAX	3495	7206	2910	4980	5310	8083	9349	5639	3660	1186	2704	2654
(WY)	1990	1986	1984	1991	1994	1993	1987	1989	1982	1995	1984	1989
MIN	270	326	328	268	949	623	755	940	561	479	264	269
(WY)	1981	1982	1981	1981	1981	1981	1986	1991	1988	1981	1981	1981

## SUMMARY STATISTICS

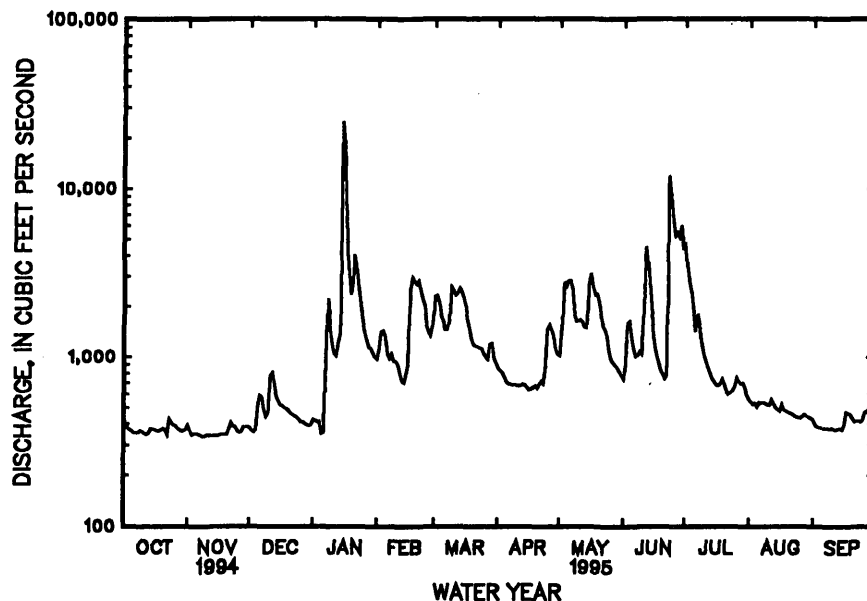
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1980 - 1995

ANNUAL TOTAL	690628	451914	
ANNUAL MEAN	1892	1238	1694
HIGHEST ANNUAL MEAN			2234
LOWEST ANNUAL MEAN			789
HIGHEST DAILY MEAN	15100	Mar 28	25000
LOWEST DAILY MEAN	338	Nov 9	338
ANNUAL SEVEN-DAY MINIMUM	341	Nov 8	341
INSTANTANEOUS PEAK FLOW			35400
INSTANTANEOUS PEAK STAGE			19.26
INSTANTANEOUS LOW FLOW			263
ANNUAL RUNOFF (CFSM)	1.38	.90	1.23
ANNUAL RUNOFF (INCHES)	18.71	12.24	16.75
10 PERCENT EXCEEDS	5380	2480	3650
50 PERCENT EXCEEDS	673	689	818
90 PERCENT EXCEEDS	365	364	386

a Result of freezeup.



## 02017500 JOHNS CREEK AT NEW CASTLE, VA

LOCATION.--Lat 37°30'22", long 80°06'25", Craig County, Hydrologic Unit 02080201, on right bank 20 ft downstream from bridge on State Highway 615 at New Castle and 1,700 ft upstream from mouth.

DRAINAGE AREA.--104 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1926 to current year.

REVISED RECORDS.--WSP 972: 1935-36(M), 1940(M). WSP 1203: 1928, 1935. WSP 1303: 1927(M), 1928, 1929-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,254.30 ft above sea level. Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Oct. 1-3, and July 8-31, and periods with ice effect, Jan. 5, 6, and Feb. 7-10, 12-14, which are fair. Maximum discharge, 8,000 ft<sup>3</sup>/s, from rating curve extended above 3,200 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum discharge, 6.0 ft<sup>3</sup>/s, result of freezeup. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0600	*4,900	*10.57	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 11 ft<sup>3</sup>/s, Sept. 7-12, 14, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e15	20	24	30	96	269	62	55	45	348	18	12
2	e15	19	23	31	160	238	59	210	63	259	17	12
3	e14	19	22	30	234	219	56	229	222	187	16	12
4	15	19	23	28	223	198	53	198	211	148	16	12
5	15	19	32	e24	185	180	50	204	176	120	16	12
6	14	19	37	e27	145	175	48	183	153	102	16	12
7	14	18	35	201	e125	165	47	160	131	127	16	11
8	15	18	32	240	e108	196	46	139	106	e90	16	11
9	15	18	31	177	e94	318	44	125	86	e70	15	11
10	15	19	31	142	e100	291	43	198	91	e59	16	11
11	15	19	75	118	99	319	41	415	167	e52	16	11
12	14	19	62	121	e92	346	42	298	275	e48	18	11
13	15	19	51	122	e82	309	47	248	334	e46	16	12
14	19	18	47	300	e73	275	43	225	251	e38	15	11
15	19	18	48	3240	82	245	39	213	199	e35	15	11
16	18	18	46	1310	281	216	38	183	158	e32	14	13
17	17	19	49	718	524	187	40	163	136	e31	13	20
18	17	19	53	553	456	162	45	149	101	e38	13	20
19	17	19	52	467	401	141	43	159	81	e33	17	15
20	19	19	48	524	360	124	39	139	69	e28	15	14
21	19	19	44	434	322	126	42	118	58	e26	13	13
22	18	20	42	362	277	113	41	102	74	e28	13	13
23	33	20	39	306	245	107	39	86	470	e25	12	13
24	30	19	37	260	207	98	51	75	345	e27	12	14
25	22	19	34	210	177	87	58	64	237	e28	12	17
26	20	19	33	172	154	81	58	57	374	e42	12	17
27	20	20	31	143	133	77	57	52	527	e31	13	18
28	19	26	30	130	230	75	56	55	401	e24	14	14
29	18	28	29	121	---	71	54	62	649	e22	14	12
30	18	25	28	106	---	68	53	55	428	e21	13	12
31	19	---	27	95	---	64	---	47	---	e19	13	---
TOTAL	553	590	1195	10742	5665	5540	1434	4666	6618	2184	455	397
MEAN	17.8	19.7	38.5	347	202	179	47.8	151	221	70.5	14.7	13.2
MAX	33	28	75	3240	524	346	62	415	649	348	18	20
MIN	14	18	22	24	73	64	38	47	45	19	12	11
CFSM	.17	.19	.37	3.33	1.95	1.72	.46	1.45	2.12	.68	.14	.13
IN.	.20	.21	.43	3.84	2.03	1.98	.51	1.67	2.37	.78	.16	.14

e Estimated.

## 02017500 JOHNS CREEK AT NEW CASTLE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	58.6	88.3	132	183	223	277	225	160	87.9	41.4	43.3	38.9
MAX	396	445	514	510	471	730	820	398	471	291	364	353
(WY)	1930	1986	1949	1937	1927	1955	1987	1989	1972	1941	1940	1989
MIN	9.81	14.0	15.7	16.2	18.0	51.9	47.8	33.5	20.2	8.90	9.39	9.07
(WY)	1992	1931	1940	1956	1934	1988	1995	1930	1970	1930	1930	1930

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1927 - 1995

ANNUAL TOTAL	58201		40039									
ANNUAL MEAN	159		110							129		
HIGHEST ANNUAL MEAN										235		1973
LOWEST ANNUAL MEAN										66.1		1981
HIGHEST DAILY MEAN	2000	Aug 17				3240	Jan 15			6040	Jun 21	1972
LOWEST DAILY MEAN	e14	aOct 3				11	bSep 7			6.6	Oct 1	1968
ANNUAL SEVEN-DAY MINIMUM	e15	cOct 1				11	dSep 6			7.1	Sep 27	1968
INSTANTANEOUS PEAK FLOW						4900	Jan 15			8000	Jan 23	1935
INSTANTANEOUS PEAK STAGE						10.57	Jan 15			12.48	Jun 21	1972
INSTANTANEOUS LOW FLOW						11	bSep 7			f6.0	Dec 6	1946
ANNUAL RUNOFF (CFSM)	1.53					1.05				1.24		
ANNUAL RUNOFF (INCHES)	20.82					14.32				16.90		
10 PERCENT EXCEEDS	451					264				296		
50 PERCENT EXCEEDS	38					46				59		
90 PERCENT EXCEEDS	18					14				14		

a Also Oct. 6, 7, 12, 1994.

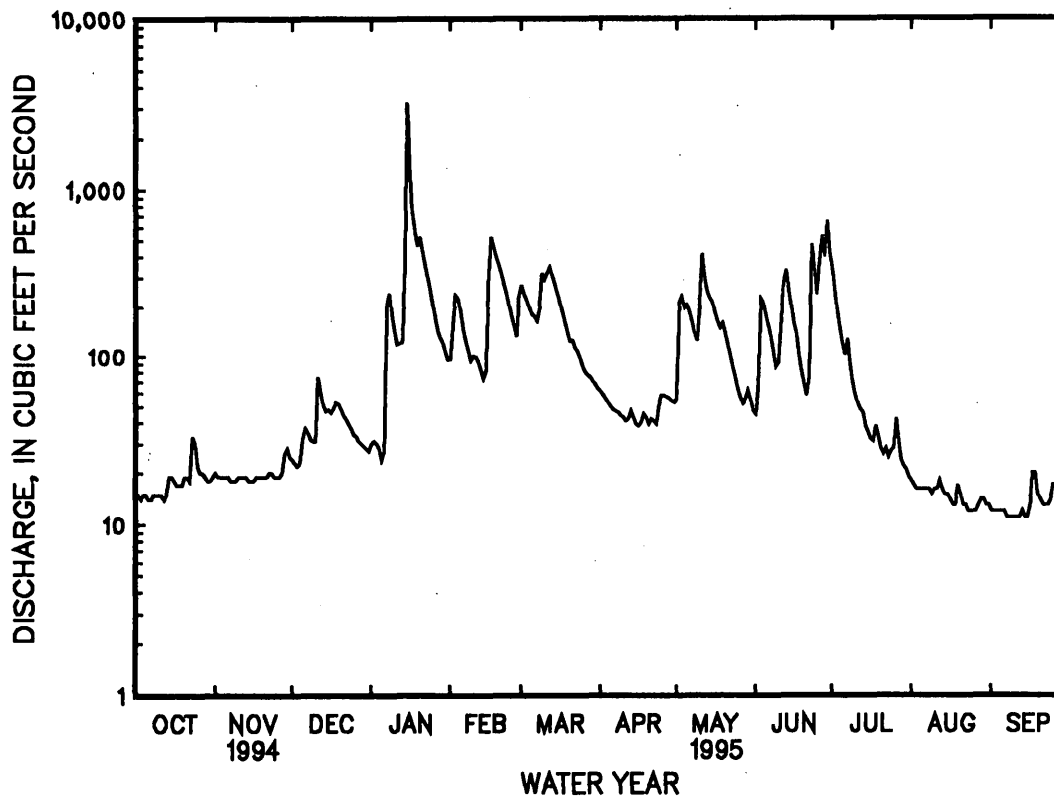
b Also Sept. 8-12, 14, 15, 1995.

c Also Oct. 2-8, 1994.

d Also Sept. 7-10, 1995.

e Estimated.

f Result of freezeup.



## JAMES RIVER BASIN

## 02018000 CRAIG CREEK AT PARR, VA

LOCATION.--Lat 37°39'57", long 79°54'42", Botetourt County, Hydrologic Unit 02080201, on right bank 12 ft upstream from abandoned railway bridge, 700 ft downstream from Stony Run, 0.2 mi northeast of Horton, 0.4 mi northwest of Parr, and at mile 12.0.

DRAINAGE AREA.--329 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1935-36. WSP 1303: 1929-30(M), 1932-35(M), 1937-38(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 992.50 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Maximum discharge, 58,500 ft<sup>3</sup>/s, from rating curve extended above 11,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum discharge, 20 ft<sup>3</sup>/s, probably occurred Dec. 21, 25, 1980, and Jan. 4, 1981, gage height, 3.20 ft, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1830	*19,200	*15.93	June 29	0900	8,320	11.59
June 23	2400	4,580	9.45				

Minimum discharge, 39 ft<sup>3</sup>/s, Sept. 11, 12, 13, gage height, 3.42 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	62	86	94	279	678	188	142	131	1380	79	46
2	51	63	80	95	345	601	181	232	137	978	74	45
3	51	64	75	95	592	526	176	553	283	705	69	44
4	51	63	77	91	624	476	167	499	591	551	71	43
5	51	61	102	80	549	433	160	458	443	448	70	42
6	52	61	148	74	404	413	154	428	366	412	68	41
7	51	61	151	190	405	395	149	374	320	822	65	41
8	51	63	133	852	404	399	146	337	284	535	63	40
9	51	61	115	581	421	917	142	309	285	392	64	40
10	52	61	106	449	385	831	138	339	249	324	65	40
11	52	61	131	374	306	736	134	587	571	280	66	39
12	51	61	224	338	276	711	132	615	1170	244	64	39
13	51	62	201	346	251	660	137	503	1660	213	62	39
14	55	61	180	392	232	591	139	438	976	186	62	40
15	58	61	169	11000	239	533	129	448	644	162	57	40
16	63	61	164	6130	342	483	124	427	478	143	54	42
17	65	61	160	2340	1310	433	126	378	379	141	52	58
18	62	61	163	1530	1300	387	128	346	320	225	51	63
19	59	61	165	1100	1040	350	133	338	270	269	54	68
20	59	61	159	1280	879	322	126	332	238	168	52	59
21	62	63	151	1150	768	313	122	292	211	141	56	53
22	63	63	142	888	643	307	122	261	197	121	51	52
23	88	62	135	732	547	288	118	235	1530	109	49	51
24	113	64	128	612	482	280	130	209	2810	106	47	51
25	108	63	121	513	420	254	150	186	1250	108	46	55
26	82	61	113	433	374	237	155	167	930	132	45	64
27	69	62	106	377	342	227	150	151	975	147	46	66
28	64	71	100	347	381	221	146	147	1430	122	49	64
29	61	80	97	341	---	214	144	158	4690	107	50	59
30	59	93	93	314	---	204	140	168	1790	96	51	53
31	58	---	91	293	---	195	---	145	---	87	49	---
TOTAL	1916	1913	4066	33431	14540	13615	4286	10202	25608	9854	1801	1477
MEAN	61.8	63.8	131	1078	519	439	143	329	854	318	58.1	49.2
MAX	113	93	224	11000	1310	917	188	615	4690	1380	79	68
MIN	51	61	75	74	232	195	118	142	131	87	45	39
CFSM	.19	.19	.40	3.28	1.58	1.33	.43	1.00	2.59	.97	.18	.15
IN.	.22	.22	.46	3.78	1.64	1.54	.48	1.15	2.90	1.11	.20	.17

## 02018000 CRAIG CREEK AT PARR, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	195	285	390	547	655	795	659	459	262	139	163	138
MAX	1093	2112	1519	1642	1466	2116	2427	1202	1134	979	1290	974
(WY)	1938	1986	1949	1937	1927	1993	1987	1942	1972	1941	1940	1928
MIN	34.9	45.9	48.9	51.2	55.6	141	143	93.2	66.2	33.5	35.6	34.1
(WY)	1931	1931	1966	1956	1934	1988	1995	1930	1926	1966	1964	1968

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1925 - 1995

ANNUAL TOTAL	162742		122709									
ANNUAL MEAN	446		336							390		
HIGHEST ANNUAL MEAN										655		1973
LOWEST ANNUAL MEAN										185		1981
HIGHEST DAILY MEAN			5340	Aug 18		11000	Jan 15		21000		Nov 4	1985
LOWEST DAILY MEAN			51	aJul 13		39	bSep 11		25		Sep 4	1966
ANNUAL SEVEN-DAY MINIMUM			51	Oct 2		40	Sep 8		27		Aug 22	1964
INSTANTANEOUS PEAK FLOW						19200	Jan 15		58500		Nov 4	1985
INSTANTANEOUS PEAK STAGE						15.93	Jan 15		c24.76		Nov 4	1985
INSTANTANEOUS LOW FLOW						39	bSep 11		d20		fDec 21	1980
ANNUAL RUNOFF (CFSM)			1.36			1.02			1.19			
ANNUAL RUNOFF (INCHES)			18.40			13.87			16.10			
10 PERCENT EXCEEDS			1210			650			865			
50 PERCENT EXCEEDS			151			146			180			
90 PERCENT EXCEEDS			60			51			49			

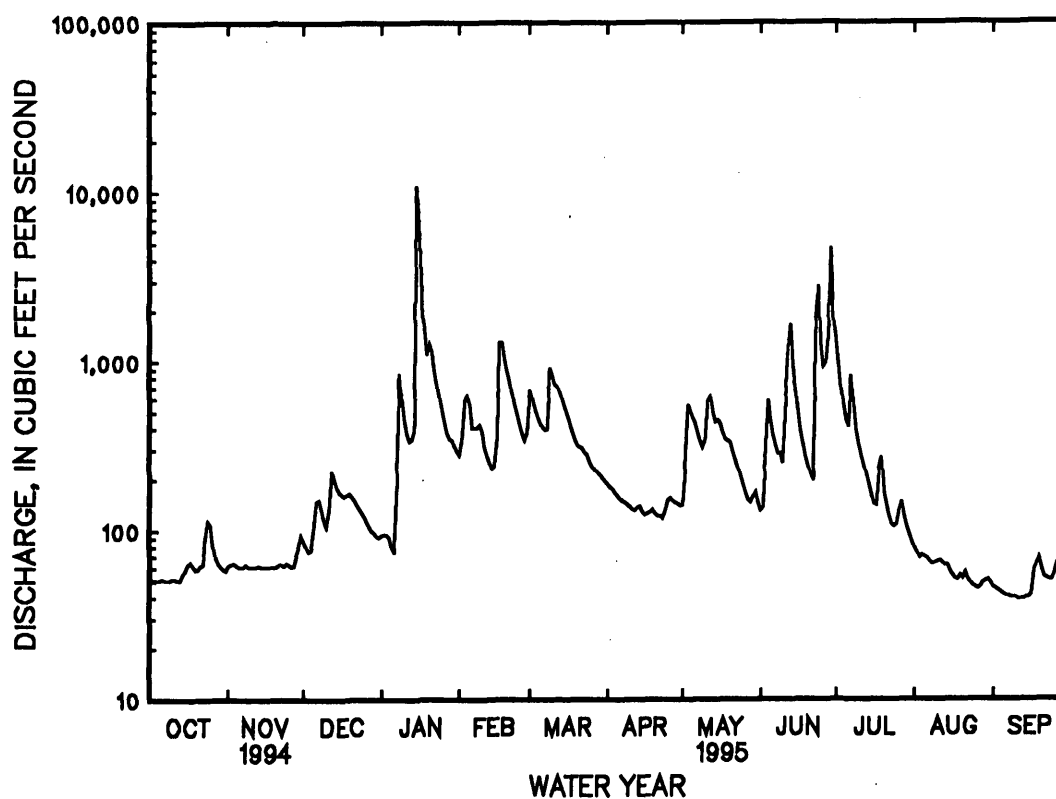
a Also Oct. 2-5, 7-9, 12, 13, 1994.

b Also Sept. 12, 13, 1995.

c From floodmarks.

d Result of freezeup.

f Also probably occurred Dec. 25, 1980, and Jan. 4, 1981.



## 02018500 CATAWBA CREEK NEAR CATAWBA, VA

LOCATION.--Lat 37°28'05", long 80°00'20", Botetourt County, Hydrologic Unit 02080201, on right bank 80 ft upstream from bridge on State Highway 779, 1.0 mi downstream from Little Catawba Creek, 1.9 mi west of Haymakertown, and 8.2 mi northeast of Catawba.

DRAINAGE AREA.--34.3 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1303: 1944-45(M). WSP 2104: Drainage area. WDR VA-72-1: 1954, 1955(P), 1957-58(P), 1959, 1960-62(P), 1963, 1964(M), 1965-67(P), 1968(M), 1969, 1970(M), 1971.

GAGE.--Water-stage recorder. Datum of gage is 1,299.96 ft above sea level. Prior to Aug. 1, 1953, nonrecording gage at site 80 ft downstream at same datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Oct. 1-4, July 3-25, 29-31, Aug. 2-9, 11-18, 20-26, 30, 31, and Sept. 2, 6-12, and periods with ice effect, Jan. 5, and Feb. 6-9, which are fair. At a point 5.3 mi upstream from station, there has been transmountain diversion through a tunnel into Roanoke River Basin for municipal water supply of city of Roanoke since December 1974. From October 1953 to October 1976, monthly means adjusted for pumpage by Citadel Cement Corporation. Maximum discharge, 21,200 ft<sup>3</sup>/s, from rating curve extended above 1,700 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 10.35 ft and 19.19 ft. Minimum discharge, 0.28 ft<sup>3</sup>/s, Aug. 21, 1987; gage height, 0.99 ft, cause 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 Department of Environmental Quality - Water Division.

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, 8,640 ft<sup>3</sup>/s, June 28, gage height, 11.34 ft; minimum daily, 3.4 ft<sup>3</sup>/s, Sept. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.6	6.6	6.7	8.7	11	54	17	9.2	8.7	101	7.1	4.9
2	e5.5	5.7	7.0	8.1	16	49	17	17	9.6	40	e6.6	e4.5
3	e6.0	4.8	6.4	6.3	20	45	16	17	14	e33	e6.3	4.6
4	e6.6	5.6	6.9	6.1	21	42	16	15	12	e25	e6.1	4.5
5	5.7	6.2	13	e4.9	17	39	15	14	11	e21	e6.0	4.4
6	5.0	6.2	11	6.7	e14	40	15	13	11	e20	e5.8	e4.2
7	5.0	6.1	9.4	18	e13	39	15	12	10	e27	e5.8	e4.0
8	5.0	5.8	8.9	15	e12	63	14	12	9.4	e22	e5.9	e3.9
9	5.6	5.9	9.3	11	e12	119	14	13	8.8	e18	e6.3	e3.7
10	6.3	6.3	10	10	13	84	14	14	9.8	e15	6.8	e3.5
11	4.9	6.0	16	8.9	12	68	14	13	10	e13	e6.0	e3.4
12	5.0	5.8	14	8.9	11	59	14	13	20	e13	e5.7	e3.6
13	5.6	5.7	13	9.1	9.9	52	14	12	13	e12	e5.3	4.2
14	7.1	5.7	13	81	9.5	47	13	12	9.7	e13	e5.2	4.8
15	6.4	5.0	12	1710	11	42	13	12	9.0	e16	e5.1	4.4
16	5.9	4.1	12	325	17	39	13	11	8.4	e14	e5.0	5.2
17	5.5	4.5	11	51	57	35	13	11	7.8	e19	e5.0	6.7
18	5.3	5.6	10	32	118	32	13	11	9.3	e25	e5.1	5.9
19	5.5	5.4	9.9	25	100	29	12	12	9.5	e18	6.1	5.3
20	5.5	5.3	9.5	39	89	29	12	12	9.3	e16	e5.3	4.9
21	5.4	6.4	9.0	30	75	30	12	11	9.6	e14	e5.0	4.7
22	6.1	6.2	8.9	23	62	26	12	8.7	17	e13	e4.5	4.9
23	8.2	5.7	8.1	20	55	25	12	7.7	237	e12	e4.4	4.8
24	8.2	5.2	7.5	19	47	23	14	8.1	134	e11	e4.3	5.1
25	7.1	5.2	8.3	17	41	21	13	8.6	57	e12	e4.2	5.1
26	7.1	5.2	8.4	15	38	20	12	8.4	64	45	e4.4	5.5
27	6.7	5.8	8.6	14	36	20	8.8	8.9	137	24	5.6	5.5
28	6.5	7.2	8.4	12	53	19	8.7	10	1520	16	6.1	5.1
29	6.2	6.9	8.0	12	---	19	8.6	9.5	666	e13	5.5	4.6
30	5.9	6.7	7.8	12	---	18	8.7	8.9	189	e11	e4.6	4.5
31	6.2	---	8.2	11	---	17	---	8.7	---	e10	e4.2	---
TOTAL	186.6	172.8	300.2	2569.7	990.4	1244	393.8	353.7	3240.9	662	169.3	140.4
MEAN	6.02	5.76	9.68	82.9	35.4	40.1	13.1	11.4	108	21.4	5.46	4.68
MAX	8.2	7.2	16	1710	118	119	17	17	1520	101	7.1	6.7
MIN	4.9	4.1	6.4	4.9	9.5	17	8.6	7.7	7.8	10	4.2	3.4
(†)	0	0	0	18.8	9.49	0	0	0	19.9	0	0	0
MEAN†	6.02	5.76	9.68	102	44.9	40.1	13.1	11.4	128	21.4	5.46	4.68
CFSM†	.18	.17	.28	2.97	1.31	1.17	.38	.33	3.73	.62	.16	.14
IN.†	.20	.19	.33	3.43	1.36	1.35	.43	.38	4.16	.72	.18	.15
CAL YR 1994	TOTAL	12787.7	MEAN	35.0	MAX	567	MIN	4.1	MEAN†	38.7	CFSM†	1.13
WTR YR 1995	TOTAL	10423.8	MEAN	28.6	MAX	1710	MIN	3.4	MEAN†	32.6	CFSM†	0.95
											IN.†	15.32
												12.90

† Average diversion, equivalent in cubic feet per second, provided by city of Roanoke.

‡ Adjusted for diversion.

e Estimated.



## 02018500 CATAWBA CREEK NEAR CATAWBA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1952, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	23.7	27.4	40.1	52.2	65.6	69.0	67.0	47.1	33.3	24.4	20.0	22.9
MAX	106	93.2	134	104	104	103	152	114	108	107	46.5	62.2
(WY)	1948	1948	1949	1947	1948	1951	1951	1950	1949	1949	1949	1945
MIN	5.00	5.89	7.70	15.1	20.0	35.1	23.1	21.5	7.93	4.95	3.91	5.94
(WY)	1952	1944	1944	1951	1947	1950	1945	1945	1944	1944	1944	1951

## SUMMARY STATISTICS

WATER YEARS 1944 - 1952

ANNUAL MEAN	40.9
HIGHEST ANNUAL MEAN	75.5
LOWEST ANNUAL MEAN	22.3
HIGHEST DAILY MEAN	1540
LOWEST DAILY MEAN	a2.2
ANNUAL SEVEN-DAY MINIMUM	a2.4
INSTANTANEOUS PEAK FLOW	3300
INSTANTANEOUS PEAK STAGE	c5.80
INSTANTANEOUS LOW FLOW	a2.2
ANNUAL RUNOFF (CFSM)	1.19
ANNUAL RUNOFF (INCHES)	16.21
10 PERCENT EXCEEDS	84
50 PERCENT EXCEEDS	21
90 PERCENT EXCEEDS	6.1

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	17.9	28.8	27.7	38.7	56.7	81.7	66.4	40.5	26.5	11.9	12.4	13.1
MAX	82.2	390	127	103	138	278	337	138	160	52.2	75.5	105
(WY)	1990	1986	1973	1991	1957	1993	1987	1958	1972	1989	1985	1979
MIN	2.63	2.01	3.16	3.45	5.82	6.20	6.78	9.75	5.06	2.59	2.28	2.30
(WY)	1964	1982	1982	1981	1981	1981	1981	1963	1966	1966	1981	1981

## SUMMARY STATISTICS

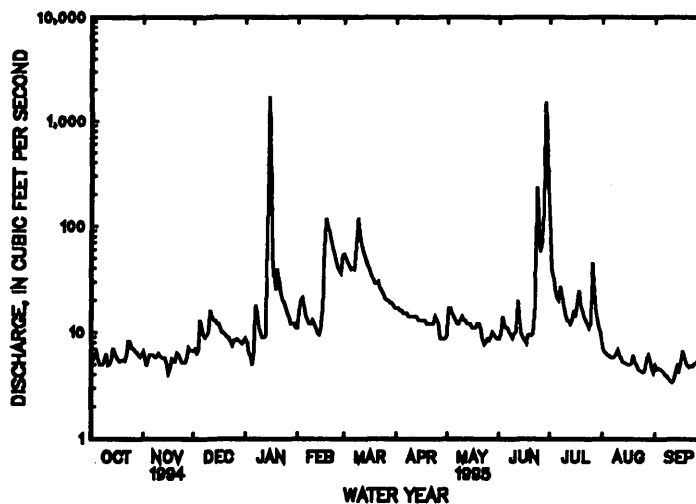
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1953 - 1995

ANNUAL TOTAL	12787.7	10423.8	
ANNUAL MEAN	35.0	28.6	35.1
HIGHEST ANNUAL MEAN			66.6
LOWEST ANNUAL MEAN			6.16
HIGHEST DAILY MEAN	567	Aug 17	1710
LOWEST DAILY MEAN	4.1	Nov 16	e3.4
ANNUAL SEVEN-DAY MINIMUM	5.1	Nov 14	e3.8
INSTANTANEOUS PEAK FLOW			8640
INSTANTANEOUS PEAK STAGE			11.34
INSTANTANEOUS LOW FLOW			(j)
ANNUAL RUNOFF (CFSM)	1.02	.83	(k)
ANNUAL RUNOFF (INCHES)	13.87	11.31	13.89
10 PERCENT EXCEEDS	86	40	72
50 PERCENT EXCEEDS	12	10	14
90 PERCENT EXCEEDS	5.9	5.0	4.2

- a Observed.  
b Also Sept. 10, 1944.  
c From floodmark or crest-stage indicator.  
d Also Sept. 8-11, 1944.  
e Estimated.  
f Also Sept. 7, 1995.  
g Also Nov. 17, 1963.  
h From high-water mark.  
j Not determined.  
k Probably occurred Sept. 11, 1995.  
m Regulation from unknown source.



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

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 sea level. Prior to July 1, 1927, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Feb. 8-11, which is fair. Flow regulated since December 1979 by Lake Moomaw (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. Maximum discharge, 179,000 ft<sup>3</sup>/s, from rating curve extended above 110,000 ft<sup>3</sup>/s. Minimum gage height, 1.44 ft, Sept. 8, 1966. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of 34.9 ft, from floodmark, discharge, about 142,000 ft<sup>3</sup>/s, from rating curve extended above 110,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 64,800 ft<sup>3</sup>/s, Jan. 16, gage height, 22.70 ft; minimum, 444 ft<sup>3</sup>/s, Jan. 6, gage height, 2.11 ft; minimum daily, 489 ft<sup>3</sup>/s, Oct. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	584	546	564	624	1560	3050	1250	1290	1010	9020	893	652
2	579	546	553	635	1700	3540	1170	1560	1000	6810	889	638
3	534	511	533	617	2370	3230	1140	3450	1590	5190	889	598
4	515	502	535	614	2650	2810	1100	3900	2500	4180	849	592
5	512	506	676	573	2400	2460	1020	3890	2070	3390	783	590
6	505	508	826	506	1950	2240	980	3940	1720	2620	779	587
7	500	499	872	938	1660	2110	961	3650	1510	3770	805	585
8	499	490	801	3240	e1600	2160	934	2810	1410	3240	779	585
9	510	490	703	3070	e1550	4630	917	2260	1470	2390	798	584
10	520	498	669	2200	e1500	4660	902	2400	1480	1980	787	585
11	502	495	872	1800	e1450	4030	890	2780	2890	1740	777	585
12	492	495	1090	1600	1360	3840	890	2900	8440	1560	783	577
13	489	493	1090	1640	1220	3980	915	2530	8450	1420	784	583
14	512	495	942	1920	1140	3780	902	2260	5080	1310	758	605
15	528	491	868	33000	1210	3430	889	2810	3340	1220	754	580
16	516	492	821	41900	1400	3080	874	4470	2380	1150	713	585
17	517	495	794	13300	3710	2630	884	3660	1920	1150	709	694
18	512	499	789	7500	5810	2240	891	3200	1640	1180	731	747
19	513	499	769	5270	5240	2010	891	3040	1430	1260	702	719
20	520	494	752	5400	4640	1800	893	3020	1290	1200	697	706
21	518	512	733	6880	4640	1730	891	2430	1200	1080	687	663
22	512	559	709	6040	4100	1700	903	2050	1200	1010	684	645
23	559	558	689	4760	3480	1650	917	1880	10300	948	670	639
24	646	532	674	3880	3120	1640	995	1740	18700	1010	653	639
25	615	531	651	2900	2580	1550	1430	1520	10000	1050	647	655
26	611	514	628	2400	2150	1460	1780	1320	7850	1140	637	673
27	581	521	616	2100	2000	1400	1750	1230	7780	1110	652	753
28	547	545	609	1920	2040	1460	1650	1190	8820	1080	688	713
29	532	564	592	1840	---	1570	1490	1210	18100	1010	676	674
30	523	562	581	1740	---	1480	1330	1150	10800	992	674	635
31	527	---	585	1640	---	1300	---	1080	---	916	666	---
TOTAL	16530	15442	22586	162447	70230	78650	32429	76620	147370	67126	22993	19066
MEAN	533	515	729	5240	2508	2537	1081	2472	4912	2165	742	636
MAX	646	564	1090	41900	5810	4660	1780	4470	18700	9020	893	753
MIN	489	490	533	506	1140	1300	874	1080	1000	916	637	577
(†)	-122	-84	-50	+690	+16	-5	0	-11	+89	-176	-218	-185
MEAN‡	411	431	679	5930	2524	2532	1081	2461	5001	1989	524	451
CFSM‡	.20	.21	.33	2.86	1.22	1.22	.52	1.19	2.41	.96	.25	.22
IN.‡	.23	.23	.38	3.30	1.27	1.41	.58	1.37	2.69	1.11	.29	.24
CAL YR 1994	TOTAL	1072208	MEAN	2938	MAX	22100	MIN	489	MEAN‡	2903	CFSM‡	1.40
WTR YR 1995	TOTAL	731489	MEAN	2004	MAX	41900	MIN	489	MEAN‡	2000	CFSM‡	.96
											IN.‡	19.00
											IN.‡	13.09

† Change in contents, equivalent in cubic feet per second, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

e Estimated.

## 02019500 JAMES RIVER AT BUCHANAN, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1898 - 1979, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
mEAN	1261	1488	2488	3426	4035	5103	3873	2897	1923	1180	1192	921
MAX	6980	5807	8377	10140	8459	11460	8920	7186	7606	5080	6187	4507
(WY)	1907	1973	1949	1937	1927	1955	1901	1942	1972	1905	1940	1979
MIN	294	329	351	371	412	1779	1097	685	525	263	289	281
(WY)	1931	1932	1966	1956	1934	1940	1915	1930	1970	1966	1964	1968

## SUMMARY STATISTICS

## WATER YEARS 1898 - 1979

ANNUAL MEAN	2475
HIGHEST ANNUAL MEAN	4138
LOWEST ANNUAL MEAN	1318
HIGHEST DAILY MEAN	92200
LOWEST DAILY MEAN	207
ANNUAL SEVEN-DAY MINIMUM	212
INSTANTANEOUS PEAK FLOW	115000
INSTANTANEOUS PEAK STAGE	a31.00
INSTANTANEOUS LOW FLOW	202
ANNUAL RUNOFF (CFSM)	1.19
ANNUAL RUNOFF (INCHES)	16.20
10 PERCENT EXCEEDS	5220
50 PERCENT EXCEEDS	1300
90 PERCENT EXCEEDS	410

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1347	2052	2216	3154	3914	5319	4922	3251	2108	1095	1086	996
MAX	5679	10190	4554	7631	8379	12790	16170	8908	5251	2236	3834	4239
(WY)	1990	1986	1984	1991	1994	1993	1987	1989	1982	1989	1984	1989
MIN	419	453	453	396	1260	922	1081	1515	841	651	338	361
(WY)	1981	1982	1981	1981	1981	1981	1995	1991	1994	1981	1981	1981

## SUMMARY STATISTICS

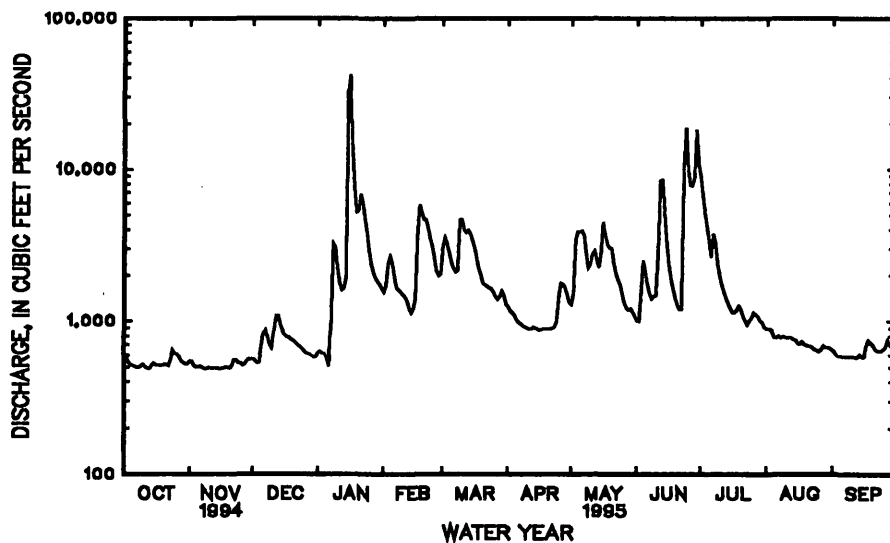
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1980 - 1995

ANNUAL TOTAL	1072208	731489	
ANNUAL MEAN	2938	2004	2613
HIGHEST ANNUAL MEAN			3664
LOWEST ANNUAL MEAN			1092
HIGHEST DAILY MEAN	22100	Mar 28	41900
LOWEST DAILY MEAN	489	Oct 13	489
ANNUAL SEVEN-DAY MINIMUM	494	Nov 8	494
INSTANTANEOUS PEAK FLOW			64800
INSTANTANEOUS PEAK STAGE			22.70
INSTANTANEOUS LOW FLOW			444
ANNUAL RUNOFF (CFSM)	1.42	.97	1.26
ANNUAL RUNOFF (INCHES)	19.22	13.11	17.11
10 PERCENT EXCEEDS	8200	3890	5670
50 PERCENT EXCEEDS	965	1010	1290
90 PERCENT EXCEEDS	519	518	538

- a From floodmarks.  
b Result of freezeup.  
c Also Jan. 12, 1981.



## 02020500 CALFPASTURE RIVER ABOVE MILL CREEK, AT GOSHEN, VA

LOCATION.--Lat 37°59'16", long 79°29'38", Rockbridge County, Hydrologic Unit 02080202, on left bank 20 ft upstream from bridge on State Highway 42 at Goshen and 400 ft upstream from Mill Creek.

DRAINAGE AREA.--144 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,384.84 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 3-5, and Feb. 6-8, 12-14, and periods of doubtful gage-height record, Jan. 24-30, and Feb. 9, 19, 23, which are fair. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 56,300 ft<sup>3</sup>/s, from rating curve extended above 9,200 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 12.78 ft and 20.23 ft. No flow Sept. 5, 6, 1957, Sept. 28, 1959, result of diversion. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2230	7,290	8.58	June 23	0530	*17,600	*12.44

Minimum discharge, 2.5 ft<sup>3</sup>/s, Sept. 4, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	7.7	8.8	14	85	274	50	68	53	707	28	3.9
2	6.0	8.0	8.3	15	94	251	48	83	52	474	24	3.6
3	5.9	7.6	8.2	e15	112	209	46	149	54	309	21	3.2
4	6.1	7.7	8.9	e14	128	179	44	195	48	227	18	2.8
5	6.1	7.6	19	e13	118	154	42	181	46	177	16	3.0
6	5.9	7.6	21	21	e92	140	40	150	42	139	16	3.0
7	5.9	7.7	17	250	e84	124	39	125	39	131	28	2.8
8	5.9	7.6	15	379	e90	123	38	108	36	120	27	2.9
9	6.0	7.6	15	213	e88	209	37	98	32	101	24	3.1
10	5.9	8.1	17	154	88	222	36	101	29	85	22	3.6
11	5.8	8.1	30	124	83	223	35	96	34	72	20	3.1
12	5.7	7.9	32	113	e72	231	35	89	36	63	18	3.0
13	5.8	7.6	27	128	e57	224	37	85	38	55	16	3.0
14	6.5	7.6	27	140	e58	202	36	187	33	48	15	3.0
15	6.7	7.6	31	3340	59	177	34	654	31	42	13	3.0
16	6.4	7.6	27	2630	64	156	33	344	28	35	12	4.2
17	6.4	8.0	25	810	149	134	34	229	26	31	11	9.4
18	6.3	7.9	24	419	277	115	37	179	23	64	10	11
19	6.5	7.8	23	279	e274	103	38	180	21	59	9.0	7.6
20	7.0	7.6	22	484	280	92	40	153	19	40	8.1	5.8
21	6.8	9.2	19	627	299	90	45	130	17	32	7.8	5.1
22	6.8	13	17	395	260	84	44	110	226	30	7.2	5.4
23	8.8	11	17	280	e215	80	43	93	7210	37	6.3	5.6
24	9.1	8.5	16	e218	189	77	56	80	1140	35	5.9	5.9
25	8.5	8.2	15	e169	159	68	71	69	752	37	5.5	6.5
26	8.2	8.1	14	e137	138	63	79	63	565	69	5.0	10
27	7.7	8.0	14	e122	123	60	80	58	866	103	5.1	11
28	7.6	9.8	14	e112	188	58	79	55	1050	68	5.1	8.5
29	7.3	10	13	e107	---	57	74	53	1570	50	4.8	7.2
30	7.1	9.6	13	e99	---	55	69	67	1280	39	4.5	6.2
31	7.2	---	13	90	---	52	---	62	---	32	4.2	---
TOTAL	208.2	250.3	571.2	11911	3923	4286	1419	4294	15396	3511	417.5	156.4
MEAN	6.72	8.34	18.4	384	140	138	47.3	139	513	113	13.5	5.21
MAX	9.1	13	32	3340	299	274	80	654	7210	707	28	11
MIN	5.7	7.6	8.2	13	57	52	33	53	17	30	4.2	2.8
CFSM	.05	.06	.13	2.67	.97	.96	.33	.96	3.56	.79	.09	.04
IN.	.05	.06	.15	3.08	1.01	1.11	.37	1.11	3.98	.91	.11	.04

e Estimated.

## 02020500 CALFPASTURE RIVER ABOVE MILL CREEK, AT GOSHEN, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	77.2	127	191	222	267	363	268	220	136	48.7	58.0	47.0
MAX	469	1540	768	570	651	849	992	638	600	352	458	501
(WY)	1977	1986	1974	1979	1994	1993	1987	1942	1982	1972	1940	1979
MIN	3.90	6.21	9.45	7.82	47.7	50.9	47.3	29.0	10.2	3.77	3.85	2.08
(WY)	1942	1942	1966	1981	1977	1981	1995	1977	1964	1966	1964	1970

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

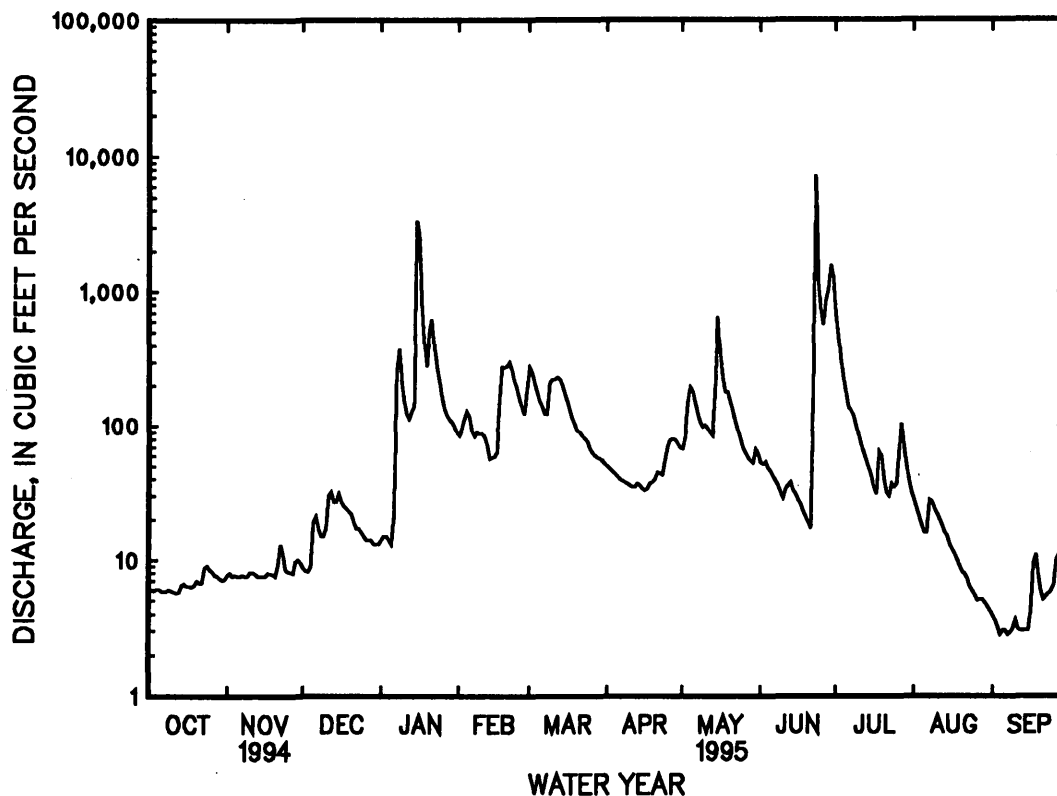
## WATER YEARS 1939 - 1995

ANNUAL TOTAL	80260.7	46343.6	168	
ANNUAL MEAN	220	127	303	1973
HIGHEST ANNUAL MEAN			65.3	1956
LOWEST ANNUAL MEAN			21900	Nov 5 1985
HIGHEST DAILY MEAN	2830 Mar 29	7210 Jun 23	b.00 cSep 5 1957	
LOWEST DAILY MEAN	5.7 Oct 12	2.8 aSep 4	.93 Sep 19 1970	
ANNUAL SEVEN-DAY MINIMUM	5.9 Oct 7	3.0 Sep 3	56300 Nov 4 1985	
INSTANTANEOUS PEAK FLOW		17600 Jun 23	20.23 Nov 4 1985	
INSTANTANEOUS PEAK STAGE		12.44 Jun 23	b.00 cSep 5 1957	
INSTANTANEOUS LOW FLOW		2.5 aSep 4	1.17	
ANNUAL RUNOFF (CFSM)	1.53	.88	15.87	
ANNUAL RUNOFF (INCHES)	20.73	11.97	376	
10 PERCENT EXCEEDS	581	223	63	
50 PERCENT EXCEEDS	35	36	7.6	
90 PERCENT EXCEEDS	7.6	5.9		

a Also Sept. 7, 1995.

b Result of diversion.

c Also Sept. 6, 1957, and Sept. 28, 1959.



## 02021500 MAURY RIVER AT ROCKBRIDGE BATHS, VA

LOCATION.--Lat 37°54'26", long 79°25'20", Rockbridge County, Hydrologic Unit 02080202, on right bank at Rockbridge Baths, 1,200 ft upstream from bridge on State Highway 39, and 1.0 mi upstream from Hays Creek.

DRAINAGE AREA.--329 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River at Rockbridge Baths.

REVISED RECORDS.--WSP 972: 1929-40, 1941(M). WSP 1002: 1930(m). WSP 1553: 1931(m).

GAGE.--Water-stage recorder. Datum of gage is 1,100.33 ft above sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except for period with ice effect, Feb. 7-11, which is fair. Since 1966, some regulation at times by Lake Merriweather on Little Calpasture River. National Weather Service gage-height telemeter at station. Maximum discharge, 87,700 ft<sup>3</sup>/s, from rating curve extended above 16,000 ft<sup>3</sup>/s on basis of slope-area measurement at peak flow. Minimum gage height, 0.79 ft, Sept. 10, 1966. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2230	12,100	9.22	June	1530	8,590	8.20
June 23	0500	*29,500	*12.58				

Minimum discharge, 16 ft<sup>3</sup>/s, Sept. 7, 8, 9, 16, gage height, .88 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	32	34	44	210	728	131	135	96	2010	58	21
2	72	31	32	46	269	656	127	214	93	1440	54	20
3	54	29	32	42	358	548	120	334	108	923	50	20
4	48	28	34	41	378	471	115	434	101	653	46	19
5	75	28	63	59	331	405	109	433	92	530	44	18
6	95	29	67	53	212	376	105	371	87	415	46	17
7	112	28	51	435	e210	336	103	304	82	364	52	17
8	110	27	44	805	e200	338	100	258	76	299	56	16
9	75	28	41	522	e190	730	95	230	76	237	53	17
10	65	29	43	370	e180	719	93	276	67	198	50	24
11	78	29	85	291	e170	678	89	287	74	167	49	22
12	59	28	74	317	157	640	91	259	187	143	48	19
13	83	28	59	336	136	588	100	233	211	125	44	19
14	59	28	54	372	133	529	96	250	140	110	42	18
15	49	27	56	7020	141	468	90	933	103	99	38	17
16	42	27	53	5730	150	414	87	729	86	90	37	19
17	56	28	52	1940	372	360	88	539	75	85	35	36
18	67	28	51	1150	692	309	94	420	67	97	32	42
19	78	27	49	825	706	271	94	576	61	112	31	36
20	69	27	47	1320	719	240	93	491	56	87	30	30
21	69	34	44	1410	732	238	103	386	52	76	29	27
22	76	45	43	996	624	228	102	314	329	68	28	27
23	81	43	42	756	512	218	96	254	16800	70	25	28
24	71	36	42	595	442	215	152	213	3130	69	24	29
25	50	33	41	469	369	186	211	181	1690	72	23	30
26	43	31	40	384	318	166	224	159	1380	89	23	43
27	38	32	38	321	284	157	217	159	2080	151	23	50
28	34	39	37	295	481	156	208	148	5320	108	25	40
29	32	41	37	275	---	154	183	139	5330	87	24	35
30	31	36	36	241	---	148	138	133	3170	73	23	30
31	31	---	37	224	---	138	---	124	---	65	22	---
TOTAL	1976	936	1458	27684	9676	11808	3654	9916	41219	9112	1164	786
MEAN	63.7	31.2	47.0	893	346	381	122	320	1374	294	37.5	26.2
MAX	112	45	85	7020	732	730	224	933	16800	2010	58	50
MIN	31	27	32	41	133	138	87	124	52	65	22	16
CFSM	.19	.09	.14	2.71	1.05	1.16	.37	.97	4.18	.89	.11	.08
IN.	.22	.11	.16	3.13	1.09	1.34	.41	1.12	4.66	1.03	.13	.09

e Estimated.

## 02021500 MAURY RIVER AT ROCKBRIDGE BATHS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	201	271	401	522	612	844	630	467	273	122	141	119
MAX	1254	2689	1450	1540	1416	2017	2245	1463	1374	807	1016	954
(WY)	1980	1986	1974	1937	1982	1936	1987	1989	1995	1972	1969	1950
MIN	16.5	24.1	26.6	32.3	50.9	117	122	81.0	34.7	14.6	14.9	16.1
(WY)	1931	1931	1966	1981	1934	1981	1995	1930	1964	1966	1964	1930

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

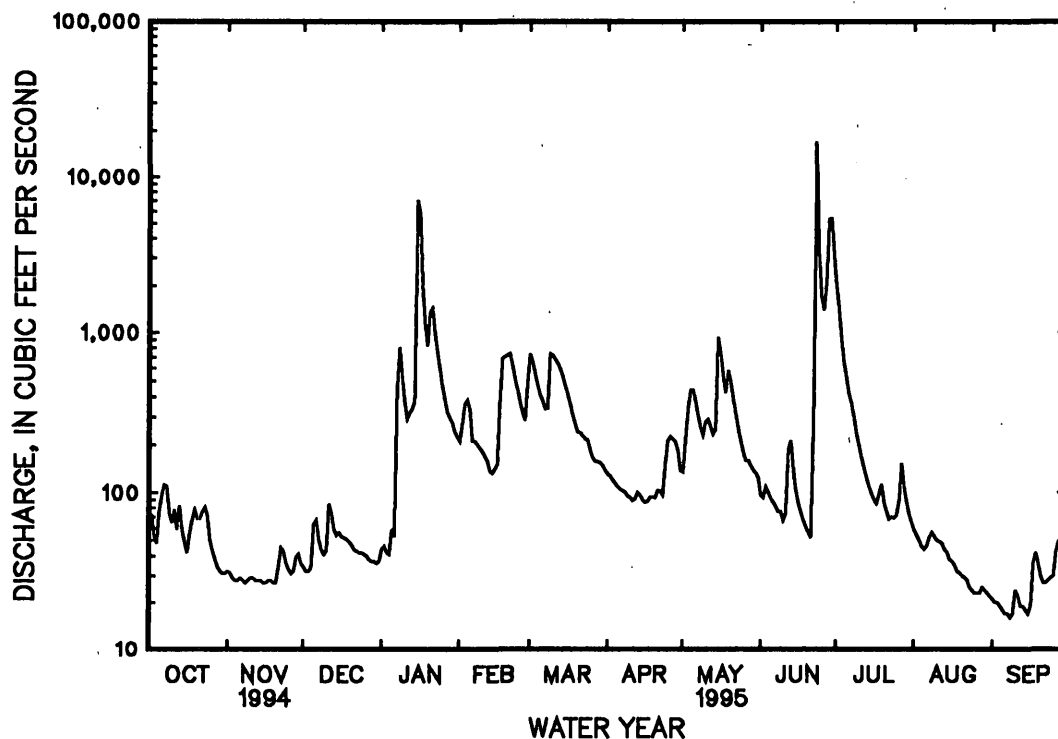
WATER YEARS 1929 - 1995

ANNUAL TOTAL	170230	119389	
ANNUAL MEAN	466	327	383
HIGHEST ANNUAL MEAN			685
LOWEST ANNUAL MEAN			157
HIGHEST DAILY MEAN	5650	Mar 29	16800
LOWEST DAILY MEAN	27	aJul 13	16
ANNUAL SEVEN-DAY MINIMUM	27	Nov 14	18
INSTANTANEOUS PEAK FLOW			29500
INSTANTANEOUS PEAK STAGE			12.58
INSTANTANEOUS LOW FLOW			16
ANNUAL RUNOFF (CFSM)	1.42	.99	1.16
ANNUAL RUNOFF (INCHES)	19.25	13.50	15.80
10 PERCENT EXCEEDS	1190	591	890
50 PERCENT EXCEEDS	93	90	154
90 PERCENT EXCEEDS	34	28	30

a Also July 16 and Nov. 8, 15, 16, 19, 20, 1994.

b From floodmarks.

c Also Sept. 8, 9, 16, 1995.



## 02022500 KERRS CREEK NEAR LEXINGTON, VA

LOCATION.--Lat 37°49'32", long 79°26'36", Rockbridge County, Hydrologic Unit 02080202, on right bank 100 ft upstream from bridge on Interstate Highway 64, 1.4 mi upstream from mouth, and 2.9 mi north of Lexington.

DRAINAGE AREA.--35.0 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1203: 1927-29, 1930-34(M), 1935-40, 1941(M), 1942, 1943-48(M), 1949. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 980.32 ft above sea level (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 except those for periods with ice effect, Jan. 5, 6, and Feb. 6-9, 13, and period of doubtful gage-height record, Sept. 14, 15, which are fair. Maximum discharge, 23,000 ft<sup>3</sup>/s, from rating curve extended above 800 ft<sup>3</sup>/s on basis of contracted-opening and slope-area measurements of peak flow. Minimum discharge, 0.90 ft<sup>3</sup>/s, July 22, 1966, result of temporary dam upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0545	2,800	7.54	June 28	a0450	*21,700	*b15.44
Jan. 15	1100	2,620	7.39	June 28	2245	1,260	6.77
June 22	2330	1,490	6.32	June 29	1000	3,580	9.14
June 23	0215	1,990	6.84				

a About.

b From high-water mark in gage house.

Minimum discharge, 5.6 ft<sup>3</sup>/s, Jan. 5, result of freezeup; minimum daily, 7.5 ft<sup>3</sup>/s, Sept. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	9.1	8.6	11	23	36	16	14	13	227	13	8.8
2	8.6	8.3	8.4	9.6	34	32	16	32	14	142	13	8.7
3	8.6	8.4	8.4	9.0	36	31	15	33	16	103	13	8.7
4	8.6	8.5	8.8	8.9	35	29	15	31	14	83	13	8.6
5	8.5	8.6	19	e7.8	29	27	15	32	13	70	13	8.5
6	8.4	8.6	12	e8.4	e23	28	15	28	13	65	15	8.4
7	8.5	8.4	11	50	e20	25	15	25	12	66	14	8.4
8	8.5	8.4	9.5	36	e21	41	14	22	12	52	13	8.4
9	9.0	8.5	9.1	24	e22	75	14	22	12	47	13	8.4
10	9.4	8.7	10	20	21	53	14	31	12	43	13	8.3
11	8.5	8.6	21	17	21	47	14	29	18	40	13	8.2
12	8.7	8.5	13	17	19	42	14	26	61	32	12	8.2
13	8.6	8.5	11	16	e16	37	15	24	36	27	12	8.5
14	9.2	8.5	11	34	17	34	14	26	22	25	11	e8.2
15	9.0	8.5	10	1370	19	32	13	23	18	23	12	e7.5
16	8.6	8.5	10	292	28	30	13	20	16	22	11	8.2
17	8.5	8.4	10	113	58	28	14	19	15	22	11	12
18	8.6	8.4	9.7	71	53	26	14	18	14	20	10	9.9
19	8.7	8.4	9.4	54	49	24	13	39	13	19	10	9.1
20	8.6	8.2	9.2	154	49	23	13	27	12	18	10	8.9
21	8.5	10	9.0	81	45	24	13	22	12	18	10	8.9
22	8.5	10	8.9	59	37	22	12	19	158	17	9.9	8.9
23	11	8.8	8.8	48	33	23	12	18	619	16	9.5	8.7
24	9.8	8.4	8.6	40	30	21	17	17	129	17	9.4	8.7
25	8.9	8.4	8.4	34	27	19	15	16	72	17	9.1	9.2
26	9.5	8.4	8.4	30	25	19	14	15	59	18	9.1	12
27	9.3	8.6	8.3	28	24	18	14	16	50	15	9.3	11
28	8.9	10	8.3	28	38	18	14	16	2710	16	9.7	9.2
29	8.7	9.7	8.3	25	---	17	13	16	1300	15	9.6	8.7
30	8.7	9.0	8.1	25	---	17	14	14	370	14	9.2	8.4
31	8.8	---	8.7	23	---	16	---	13	---	13	8.9	---
TOTAL	274.3	261.3	312.9	2743.7	852	914	424	703	5835	1322	348.7	267.6
MEAN	8.85	8.71	10.1	88.5	30.4	29.5	14.1	22.7	194	42.6	11.2	8.92
MAX	11	10	21	1370	58	75	17	39	2710	227	15	12
MIN	8.4	8.2	8.1	7.8	16	16	12	13	12	13	8.9	7.5
CFSM	.25	.25	.29	2.53	.87	.84	.40	.65	5.56	1.22	.32	.25
IN.	.29	.28	.33	2.92	.91	.97	.45	.75	6.20	1.41	.37	.28

e Estimated.



## 02022500 KERRS CREEK NEAR LEXINGTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	23.8	24.4	32.6	44.4	54.4	74.0	59.2	39.0	27.7	18.0	24.3	19.1
MAX	141	209	129	163	140	357	306	159	194	99.5	162	188
(WY)	1938	1986	1949	1937	1948	1936	1987	1989	1995	1972	1969	1950
MIN	5.24	6.50	5.88	5.15	8.86	14.5	10.3	12.0	8.59	5.56	5.85	5.31
(WY)	1964	1966	1966	1966	1931	1981	1942	1956	1945	1966	1981	1970

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1927 - 1995	
ANNUAL TOTAL	16187.4		14258.5			
ANNUAL MEAN	44.3		39.1		36.6	
HIGHEST ANNUAL MEAN					75.5	
LOWEST ANNUAL MEAN					14.1	
HIGHEST DAILY MEAN	1500	Aug 17	2710	Jun 28	e4840	Mar 17 1936
LOWEST DAILY MEAN	8.1	Dec 30	e7.5	Sep 15	4.0	cAug 30 1932
ANNUAL SEVEN-DAY MINIMUM	8.3	Dec 24	8.2	Sep 10	4.2	Jan 24 1966
INSTANTANEOUS PEAK FLOW			21700	Jun 28	23000	Sep 10 1950
INSTANTANEOUS PEAK STAGE			b15.44	Jun 28	b15.44	Jun 28 1995
INSTANTANEOUS LOW FLOW			d5.6	Jan 5	f.90	Jul 22 1966
ANNUAL RUNOFF (CFSM)	1.27		1.12		1.05	
ANNUAL RUNOFF (INCHES)	17.20		15.15		14.23	
10 PERCENT EXCEEDS	94		46		68	
50 PERCENT EXCEEDS	15		14		17	
90 PERCENT EXCEEDS	8.6		8.5		7.7	

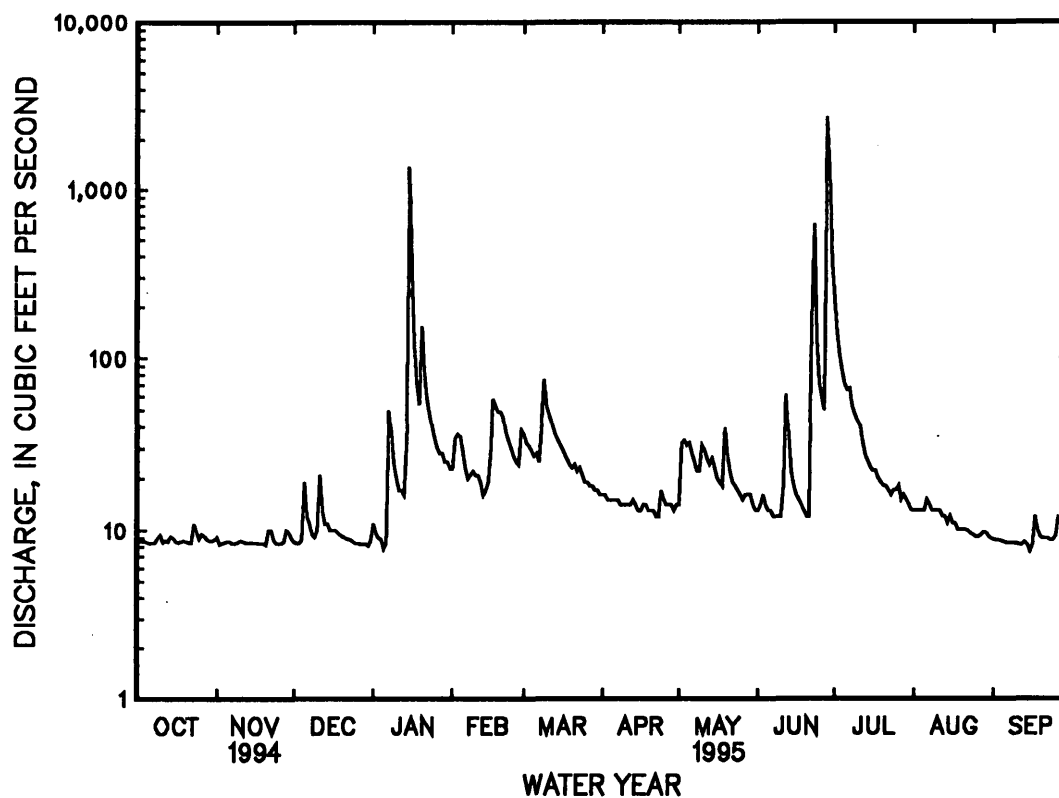
b From high-water mark in gage house.

c Also many days in September 1932, Nov. 21, 1938, and July 22, 1966.

d Result of freezeup.

e Estimated.

f Result of temporary dam upstream.



## JAMES RIVER BASIN

## 02024000 MAURY RIVER NEAR BUENA VISTA, VA

LOCATION.--Lat 37°45'45", long 79°23'30", Rockbridge County, Hydrologic Unit 02080202, on right bank 0.5 mi downstream from South River and 2.8 mi northwest of Buena Vista.

DRAINAGE AREA.--646 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River near Buena Vista.

REVISED RECORDS.--WSP 952: 1940-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 846.58 ft above sea level.

REMARKS.--Records good except for period with ice effect, Feb. 7-11, which is fair. Since 1966, some regulation at times by Lake Merriweather on Little Calpasture River. Maximum discharge, 105,000 ft<sup>3</sup>/s, from rating curve extended above 17,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum discharge, 20 ft<sup>3</sup>/s, occurred during filling of a small reservoir 2 mi upstream. Unqualified minimum discharge, 37 ft<sup>3</sup>/s, Sept. 9, 1966. Minimum gage height, 0.98 ft, Jan. 5, 1981. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of about 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1900	15,400	12.49	June 23	0815	31,900	17.99
June 22	2245	13,100	11.48	June 28	1230	*37,500	*19.48

Minimum discharge, 95 ft<sup>3</sup>/s, Sept. 9, minimum gage height, 1.27, Jan. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	150	125	161	453	945	316	276	239	4220	245	114
2	168	141	119	160	488	915	306	392	226	3150	231	114
3	155	125	117	149	593	804	292	490	281	2310	218	110
4	141	119	119	141	628	724	283	570	260	1760	208	106
5	143	120	171	126	590	650	269	609	222	1480	203	105
6	176	119	210	139	426	617	263	566	210	1300	214	103
7	198	115	185	552	e420	575	259	498	203	1270	225	101
8	211	114	164	1150	e415	619	256	446	191	1030	219	99
9	193	113	148	790	e410	1320	250	418	179	887	211	98
10	175	115	154	584	e400	1260	245	498	186	788	207	101
11	168	118	227	483	e390	1120	242	508	311	706	202	102
12	161	113	253	451	368	1020	246	479	791	631	263	99
13	162	112	212	471	326	932	278	444	860	575	198	106
14	170	110	196	511	332	849	255	446	525	512	185	122
15	156	111	189	9360	352	772	244	929	370	470	172	110
16	141	108	182	9120	373	705	236	959	301	430	166	113
17	130	106	178	3250	597	640	239	766	270	416	160	167
18	150	108	173	1960	886	582	245	622	242	459	153	166
19	163	109	167	1400	954	533	242	735	219	427	150	148
20	165	107	160	1910	946	496	236	740	203	376	146	137
21	161	117	154	2140	970	486	241	578	191	356	139	130
22	159	151	149	1600	878	471	241	469	1940	336	135	133
23	191	145	146	1230	754	463	235	388	19600	313	131	135
24	191	131	145	994	670	453	285	335	5370	304	128	136
25	159	120	141	821	597	415	356	299	2890	314	125	147
26	147	117	137	708	540	383	368	298	2570	373	123	177
27	139	118	133	623	504	367	365	376	3740	375	127	203
28	127	136	130	579	644	363	357	317	19400	363	130	176
29	122	146	129	557	---	356	340	310	11000	312	125	155
30	120	136	127	510	---	342	292	292	6410	285	120	144
31	118	---	131	480	---	325	---	273	---	260	117	---
TOTAL	4919	3650	4971	43110	15904	20502	8282	15326	79400	26788	5376	3857
MEAN	159	122	160	1391	568	661	276	494	2647	864	173	129
MAX	211	151	253	9360	970	1320	368	959	19600	4220	263	203
MIN	118	106	117	126	326	325	235	273	179	260	117	98
CFSM	.25	.19	.25	2.15	.88	1.02	.43	.77	4.10	1.34	.27	.20
IN.	.28	.21	.29	2.48	.92	1.18	.48	.88	4.57	1.54	.31	.22

e Estimated.

## 02024000 MAURY RIVER NEAR BUENA VISTA, VA--Continued

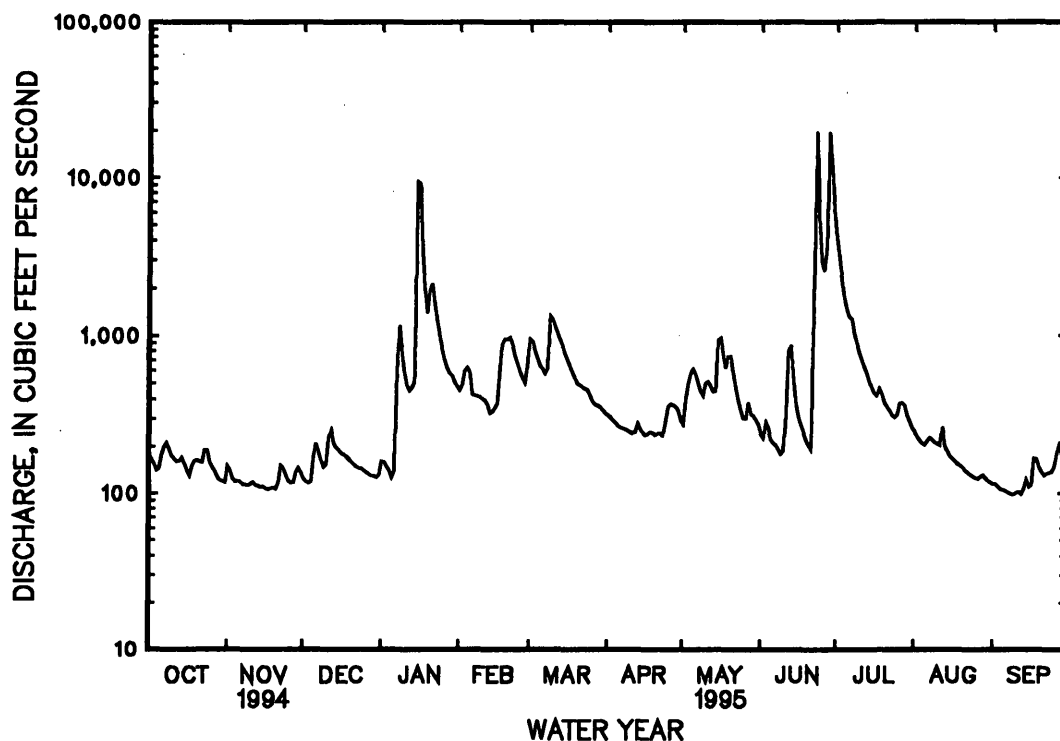
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	372	465	688	854	1041	1357	1069	814	548	282	333	266
MAX	1997	3400	2430	2113	2334	3187	3672	2373	2647	1351	3060	1445
(WY)	1980	1986	1949	1949	1939	1993	1987	1989	1995	1972	1969	1950
MIN	72.1	83.3	76.4	100	273	240	276	224	120	53.7	63.4	75.2
(WY)	1942	1966	1966	1981	1977	1981	1995	1941	1964	1966	1964	1963

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1939 - 1995	
ANNUAL TOTAL	297226		232085			
ANNUAL MEAN	814		636		672	
HIGHEST ANNUAL MEAN					1181	
LOWEST ANNUAL MEAN					269	
HIGHEST DAILY MEAN	8600 Mar 29		19600 Jun 23		56000 Aug 20 1969	
LOWEST DAILY MEAN	106 Nov 17		98 Sep 9		22 Oct 10 1941	
ANNUAL SEVEN-DAY MINIMUM	108 Nov 14		100 Sep 6		40 Sep 7 1966	
INSTANTANEOUS PEAK FLOW			37500 Jun 28		105000 Aug 20 1969	
INSTANTANEOUS PEAK STAGE			19.48 Jun 28		a31.23 Aug 20 1969	
INSTANTANEOUS LOW FLOW			95 Sep 9		b20 Oct 10 1941	
ANNUAL RUNOFF (CFSM)	1.26		.98		1.04	
ANNUAL RUNOFF (INCHES)	17.12		13.36		14.14	
10 PERCENT EXCEEDS	2030		945		1490	
50 PERCENT EXCEEDS	253		253		342	
90 PERCENT EXCEEDS	130		119		107	

a From floodmarks.

b Occurred during the filling of a small reservoir 2 mi upstream.



## JAMES RIVER BASIN

## 02025500 JAMES RIVER AT HOLCOMB ROCK, VA

LOCATION.--Lat 37°30'04", long 79°15'46", Bedford County, Hydrologic Unit 02080203, on right bank at Holcomb Rock, 0.9 mi downstream from Pedlar River, and at mile 268.6.

DRAINAGE AREA.--3,259 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1900 to September 1915 (gage heights only), October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303. Published as "at Salt Creek" December 1926 to June 1931 and as "at Holcombs Rock" June 1931 to September 1990.

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 sea level. 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 fair except those for period with ice effect, Feb. 8-10, and periods of doubtful or no gage height, July 6, 7, 16 to Sept. 30, which are poor. Some diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Lake Moomaw (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. Maximum discharge, 207,000 ft<sup>3</sup>/s, from rating curve extended above 73,000 ft<sup>3</sup>/s on basis of records for other stations in James River Basin. Minimum gage height, 2.80 ft, Oct. 29, 1987. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 31.3 ft, from floodmarks, discharge, 118,000 ft<sup>3</sup>/s, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 25,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	0445	74,700	24.80	June 28	1300	*87,800	*26.87
June 23	1815	46,800	19.71	June 29	0830	49,000	20.18

Minimum discharge, 135 ft<sup>3</sup>/s, Nov. 19, gage height, 3.13 ft; minimum daily, 719 ft<sup>3</sup>/s, Nov. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	883	964	895	1120	2200	3490	1830	1850	1680	17700	e1550	e1030
2	880	931	891	1140	2220	4810	1840	1970	1640	14300	e1500	e1070
3	884	879	1010	1080	2820	4570	1790	2690	1630	11000	e1400	e900
4	877	839	892	1040	3550	4290	1750	4610	2520	8870	e1300	e920
5	841	801	1240	979	3420	3710	1700	4500	2710	7590	e1200	e900
6	835	822	1500	943	2830	3360	1640	4650	2280	e6400	e1300	e840
7	832	799	1360	1680	2300	3200	1620	4470	2090	e6800	e1350	e920
8	843	819	1310	3480	e2250	3070	1450	3860	1770	6660	e1350	e940
9	848	790	1140	4690	e2150	5130	1360	2990	1710	5680	e1350	e830
10	879	828	1100	3220	e2120	6890	1450	3420	1810	4780	e1350	e850
11	860	826	1250	2610	2100	6200	1350	5830	2550	3700	e1350	e1000
12	836	821	1590	2320	2040	5610	1370	4360	7890	3190	e1300	e760
13	828	801	1560	2230	1870	5400	1600	3700	11200	3020	e1250	e790
14	863	780	1520	2400	1730	5300	1620	3170	7340	2770	e1100	e920
15	883	795	1340	30800	1780	4800	1320	3220	4910	2560	e1400	e890
16	859	793	1300	58500	1980	4330	1420	5280	3830	e3100	e1150	e1150
17	836	819	1260	21400	2960	4070	1360	5110	2980	e2800	e1200	e1070
18	829	805	1220	11400	6620	3450	1450	4090	2580	e2600	e1050	e1050
19	838	719	1190	7900	6620	3100	1480	3940	2290	e2400	e1100	e1030
20	859	852	1160	7640	6090	2770	1470	4010	2080	e2100	e1000	e1050
21	858	830	1130	9340	5930	2580	1440	3530	1920	e2200	e1100	e940
22	849	934	1100	8530	5690	2480	1410	2790	4280	e2100	e1000	e1100
23	877	909	1080	6840	4900	2410	1380	2470	39200	e2000	e960	e860
24	951	892	1060	5570	4350	2380	1530	2280	29500	e2200	e1050	e1000
25	977	851	1030	4580	3900	2210	1650	2100	16500	e2400	e980	e1100
26	955	861	959	3860	3180	2110	2080	1900	12900	e2400	e1050	e1200
27	941	848	965	3270	2930	2080	2190	1910	13600	e2200	e1000	e1100
28	838	939	944	2950	3000	2040	2150	1880	45400	e2100	e990	e1050
29	897	924	948	2650	---	2110	1890	1810	43200	e2200	e920	e1000
30	844	924	928	2450	---	2140	1900	1860	25700	e1900	e1000	e980
31	840	---	941	2330	---	1980	---	1750	---	e1700	e1030	---
TOTAL	26920	25395	35813	218942	93530	112070	48490	102000	299690	141420	36630	29240
MEAN	868	846	1155	7063	3340	3615	1616	3290	9990	4562	1182	975
MAX	977	964	1590	58500	6620	6890	2190	5830	45400	17700	1550	1200
MIN	828	719	891	943	1730	1980	1320	1750	1630	1700	920	760
(†)	-122	-84	-50	+690	+16	-5	0	-11	+89	-176	-218	-185
MEAN†	746	762	1105	7753	3356	3610	1616	3279	10079	4386	964	790
CFSM†	.23	.23	.34	2.38	1.03	1.11	.50	1.01	3.09	1.35	.30	.24
IN.†	.26	.26	.39	2.74	1.07	1.28	.55	1.16	3.45	1.55	.35	.27

CAL YR 1994	TOTAL	1496033	MEAN	4099	MAX	33700	MIN	719	MEAN†	4064	CFSM†	1.25	IN.†	16.93
WTR YR 1995	TOTAL	1170140	MEAN	3206	MAX	58500	MIN	719	MEAN†	3202	CFSM†	.98	IN.†	13.34

† Change in contents, equivalent in cubic feet per second, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

## 02025500 JAMES RIVER AT HOLCOMB ROCK, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 1979, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2031	2352	3690	4904	5803	7376	5785	4270	2701	1606	1953	1572
MAX	10050	8975	12750	14490	11260	15510	11840	10020	11320	6610	9834	7414
(WY)	1938	1973	1949	1937	1939	1936	1935	1942	1972	1972	1940	1979
MIN	432	511	580	631	690	2741	1798	1188	910	415	458	421
(WY)	1931	1932	1966	1956	1934	1940	1942	1930	1964	1966	1930	1930

## SUMMARY STATISTICS

## WATER YEARS 1927 - 1979

ANNUAL MEAN	3663
HIGHEST ANNUAL MEAN	6241
LOWEST ANNUAL MEAN	1947
HIGHEST DAILY MEAN	118000
LOWEST DAILY MEAN	223
ANNUAL SEVEN-DAY MINIMUM	306
INSTANTANEOUS PEAK FLOW	150000
INSTANTANEOUS PEAK STAGE	35.50
INSTANTANEOUS LOW FLOW	71
ANNUAL RUNOFF (CFSM)	1.12
ANNUAL RUNOFF (INCHES)	15.26
10 PERCENT EXCEEDS	7910
50 PERCENT EXCEEDS	2100
90 PERCENT EXCEEDS	655

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2100	3145	3242	4375	5274	7299	7001	4469	3164	1657	1579	1424
MAX	7966	17270	6850	10560	11040	16910	21670	12380	9990	4562	5640	5146
(WY)	1980	1986	1984	1991	1994	1993	1987	1989	1995	1995	1984	1989
MIN	690	785	890	730	2139	1472	1616	2205	1234	1009	595	674
(WY)	1992	1992	1981	1981	1981	1981	1995	1991	1988	1986	1981	1983

## SUMMARY STATISTICS

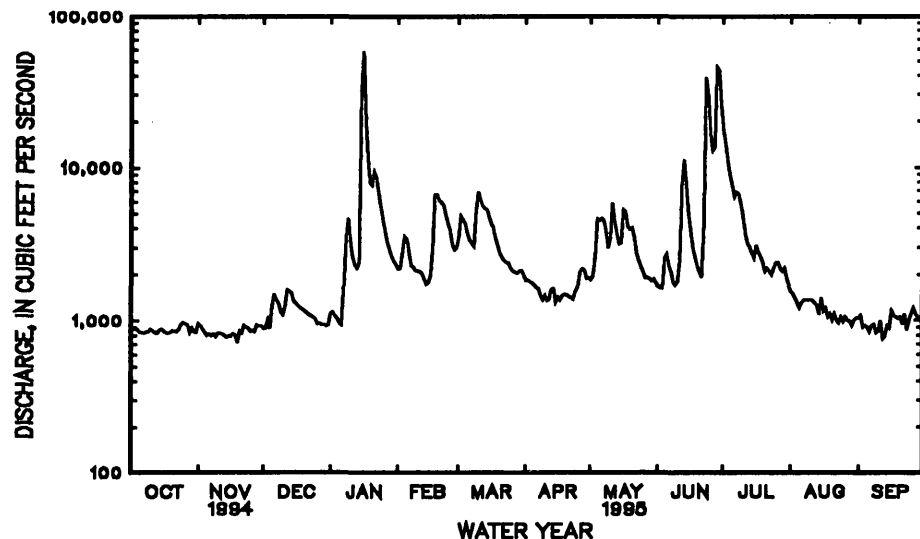
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1980 - 1995

ANNUAL TOTAL	1496033	1170140	
ANNUAL MEAN	4099	3206	3716
HIGHEST ANNUAL MEAN			5048
LOWEST ANNUAL MEAN			1613
HIGHEST DAILY MEAN	33700	Mar 29	58500
LOWEST DAILY MEAN	719	Nov 19	719
ANNUAL SEVEN-DAY MINIMUM	787	Nov 13	787
INSTANTANEOUS PEAK FLOW			87800
INSTANTANEOUS PEAK STAGE			26.87
INSTANTANEOUS LOW FLOW			135
ANNUAL RUNOFF (CFSM)	1.26	.98	1.14
ANNUAL RUNOFF (INCHES)	17.08	13.36	15.49
10 PERCENT EXCEEDS	11200	5680	7900
50 PERCENT EXCEEDS	1490	1680	1930
90 PERCENT EXCEEDS	859	850	819

a From high-water mark in gage house.



## JAMES RIVER BASIN

## 02026000 JAMES RIVER AT BENT CREEK, VA

LOCATION.--Lat 37°32'10", long 78°49'30", Nelson County, Hydrologic Unit 02080203, on left bank at town of Bent Creek, 150 ft downstream from Bent Creek, 525 ft upstream from bridge on U.S. Highway 60, 1.3 mi southeast of Gladstone, and at mile 227.8.

DRAINAGE AREA.--3,683 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303.

Prior to 1926, published as "at Bent Creek, near Gladstone."

REVISED RECORDS.--WSP 742: 1931(m). WSP 972: 1935-36. WSP 1066: 1940. WSP 1203: 1942. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 381.39 ft above sea level. Prior to Sept. 12, 1930, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Large diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Lake Moomaw (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. Maximum discharge, 226,000 ft<sup>3</sup>/s, from rating curve extended above 177,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 2.21 ft, Oct. 13, 14, 1930. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 26,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	1130	*76,400	*17.57	June 28	2045	*76,400	*17.57
June 23	1015	52,300	14.51				

Minimum daily discharge, 828 ft<sup>3</sup>/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1270	977	1210	1370	2960	3970	2200	2120	1850	18500	1820	1100
2	1220	1390	1120	1570	2810	4890	2140	2610	1830	15700	1650	1150
3	1140	1200	1240	1390	3130	5180	2060	2840	2630	11300	1630	1170
4	1200	1220	1370	1360	3940	4850	2210	4620	2930	9050	1590	998
5	1210	1180	1240	1350	4220	4230	2200	4950	3420	7600	1460	1020
6	1170	1030	2020	1310	3870	3960	1820	5090	3110	6960	1350	992
7	1130	1030	1880	2070	3230	3630	1750	4950	3590	7400	1460	923
8	1070	1090	1700	3300	2900	3990	1720	4510	2440	7030	1470	1020
9	1140	974	1590	4910	2550	5310	1700	4190	2330	5910	1480	1040
10	1180	1150	1510	4410	2910	7580	1270	3610	3110	5020	1510	904
11	1220	1090	1640	3640	2660	6840	1410	5830	3600	4410	1400	922
12	1130	1110	1790	2920	2590	6120	1530	4970	6850	3970	1480	1110
13	1090	1030	1960	2760	2410	5710	1760	4600	12200	3630	1420	828
14	1270	1100	2020	3130	2220	5700	1750	3970	8920	3390	1360	885
15	1270	967	1890	13600	2210	5400	1730	3650	6170	2960	1230	1050
16	1200	1000	1700	67600	2490	4990	1600	4620	4790	2940	1540	983
17	1150	1070	1670	29000	3520	4480	1480	5730	3710	3510	1230	1270
18	1120	1120	1660	13800	5510	4110	1590	4790	3340	2990	1310	1210
19	1100	1050	1650	9290	7150	3720	1570	4480	2300	2950	1170	1180
20	1220	883	1620	8510	6640	3330	1580	4420	2310	2770	1210	1150
21	1090	1150	1340	9430	6390	2990	1630	4330	2080	2350	1110	1170
22	1160	1290	1470	9320	5980	3050	1550	3670	2680	2390	1200	1040
23	1230	1170	1430	7680	5420	2900	1430	3050	37200	2310	1110	1240
24	1340	1240	1380	6250	4870	2910	1770	2830	35700	2220	1080	937
25	1050	1110	1370	5260	4470	2700	1870	2400	18200	2470	1160	1110
26	1290	1110	1320	4460	3880	2570	2010	2440	13100	2670	1080	1120
27	1270	1090	1290	4000	3560	2410	2760	2630	13200	2680	1170	1340
28	1240	1320	1230	3800	3820	2340	2520	2490	34700	2380	1130	1230
29	1190	1270	1220	3480	---	2360	2160	2370	50200	2310	1100	1160
30	1160	1270	1260	3030	---	2610	2490	2490	32900	2390	1000	1090
31	1160	---	1190	2910	---	2320	---	2260	---	2000	1130	---
TOTAL	36680	33681	46980	236910	108310	127150	55260	117510	321390	154160	41040	32342
MEAN	1183	1123	1515	7642	3868	4102	1842	3791	10710	4973	1324	1078
MAX	1340	1390	2020	67600	7150	7580	2760	5830	50200	18500	1820	1340
MIN	1050	883	1120	1310	2210	2320	1270	2120	1830	2000	1000	828
(†)	-122	-84	-50	+690	+16	-5	0	-11	+89	-176	-218	-185
MEAN†	1061	1039	1465	8332	3884	4097	1842	3780	10799	4796	1106	893
CFSM†	.29	.28	.40	2.26	1.05	1.11	.50	1.03	2.93	1.30	.30	.24
IN.†	.33	.31	.46	2.61	1.10	1.28	.56	1.18	3.27	1.50	.35	.27

CAL YR 1994	TOTAL	1763259	MEAN	4831	MAX	39900	MIN	879	MEAN†	4796	CFSM†	1.30	IN.†	17.68
WTR YR 1995	TOTAL	1311413	MEAN	3593	MAX	67600	MIN	828	MEAN†	3589	CFSM†	.97	IN.†	13.23

† Change in contents, equivalent in cubic feet per second, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

## 02026000 JAMES RIVER AT BENT CREEK, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1979, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2388	2739	4200	5569	6661	8137	6592	4811	3149	1933	2325	1926
MAX	11180	9718	13990	15920	12630	17410	13490	10790	13360	7286	11930	7642
(WY)	1938	1973	1949	1937	1939	1936	1958	1942	1972	1972	1940	1979
MIN	424	581	710	782	889	3227	1893	1509	1045	419	475	450
(WY)	1931	1931	1966	1956	1934	1940	1942	1930	1964	1966	1966	1930

## SUMMARY STATISTICS

WATER YEARS 1925 - 1979

ANNUAL MEAN	4192
HIGHEST ANNUAL MEAN	7514
LOWEST ANNUAL MEAN	2228
HIGHEST DAILY MEAN	130000
LOWEST DAILY MEAN	222
ANNUAL SEVEN-DAY MINIMUM	256
INSTANTANEOUS PEAK FLOW	176000
INSTANTANEOUS PEAK STAGE	a27.13
INSTANTANEOUS LOW FLOW	222
ANNUAL RUNOFF (CFSM)	1.14
ANNUAL RUNOFF (INCHES)	15.46
10 PERCENT EXCEEDS	8910
50 PERCENT EXCEEDS	2500
90 PERCENT EXCEEDS	831

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2473	3457	3915	5140	6145	8302	7905	5287	3759	2055	1925	1829
MAX	9173	16910	8127	11680	12220	18860	24090	13990	10710	4973	6027	6531
(WY)	1980	1986	1984	1991	1994	1993	1987	1989	1995	1995	1984	1989
MIN	743	967	987	858	2521	1626	1842	2788	1496	1128	725	841
(WY)	1987	1992	1981	1981	1981	1981	1995	1982	1986	1986	1981	1980

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

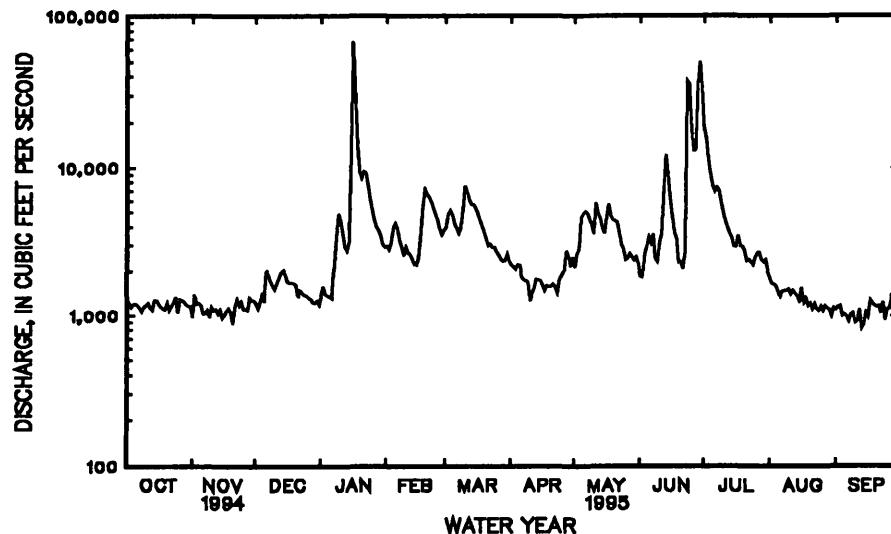
WATER YEARS 1980 - 1995

ANNUAL TOTAL	1763259	1311413	
ANNUAL MEAN	4831	3593	4337
HIGHEST ANNUAL MEAN			5735
LOWEST ANNUAL MEAN			1791
HIGHEST DAILY MEAN	39900	Mar 29	67600
LOWEST DAILY MEAN	879	Jul 8	828
ANNUAL SEVEN-DAY MINIMUM	1030	Nov 14	955
INSTANTANEOUS PEAK FLOW			76400
INSTANTANEOUS PEAK STAGE			17.57
INSTANTANEOUS LOW FLOW			763
ANNUAL RUNOFF (CFSM)	1.31		.98
ANNUAL RUNOFF (INCHES)	17.81		13.25
10 PERCENT EXCEEDS	12300		6040
50 PERCENT EXCEEDS	2060		2020
90 PERCENT EXCEEDS	1150		1100

a From high-water mark.

b Also Oct. 14, 1930.

c Also June 28, 1995



## JAMES RIVER BASIN

## 02027000 TYE RIVER NEAR LOVINGSTON, VA

LOCATION.--Lat 37°42'55", long 78°58'55", Nelson County, Hydrologic Unit 02080203, on right bank at downstream side of bridge on State Highway 158, 3.5 mi downstream from Hat Creek, 4.8 mi upstream from Piney River, and 6.8 mi southwest of Lovingsston.

DRAINAGE AREA.--92.8 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 578.39 ft above sea level. Sept. 15, 1969, to Oct. 15, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 6-9, and periods of doubtful gage-height record, Jan. 24-26, July 28, and July 30 to Aug. 3, which are fair. Maximum discharge, 80,000 ft<sup>3</sup>/s, from rating curve extended above 7,600 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1630	*4,890	*9.05	June 29	0730	2,700	6.35
June 28	0400	4,300	8.36	July 1	1800	1,830	4.86
June 28	1230	4,040	8.05				

Minimum discharge, 16 ft<sup>3</sup>/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	70	66	109	143	154	84	69	118	1250	e70	22
2	23	60	63	86	151	149	82	127	118	984	e62	31
3	23	40	60	76	149	143	80	109	130	735	e58	28
4	23	37	61	73	149	143	80	102	116	591	54	22
5	23	33	290	e57	130	138	78	102	104	496	52	20
6	23	32	213	e60	e118	138	78	98	100	441	57	19
7	24	31	157	338	e112	135	78	92	98	437	64	18
8	26	29	130	234	e109	178	75	90	90	348	57	17
9	28	29	111	190	e105	324	76	88	86	302	52	18
10	33	31	109	157	116	276	73	174	86	260	51	19
11	30	32	138	138	106	245	73	157	111	224	48	17
12	28	30	111	130	100	210	80	130	357	193	45	17
13	27	30	106	118	96	193	105	123	296	169	43	17
14	33	29	109	171	92	178	78	146	200	151	47	20
15	41	29	104	2710	94	163	75	138	163	135	44	20
16	33	28	100	1590	104	143	75	120	141	128	41	20
17	29	28	96	884	135	133	75	116	133	149	37	56
18	28	30	94	631	118	120	78	111	116	157	34	41
19	28	32	90	492	113	116	76	118	106	118	31	28
20	27	31	84	653	116	111	73	102	100	111	30	25
21	26	71	78	540	125	113	73	94	94	172	29	24
22	26	94	75	453	120	106	73	90	118	128	28	27
23	35	66	73	387	116	109	69	86	480	109	26	34
24	40	57	68	e320	113	106	86	80	398	106	24	30
25	32	54	66	e265	104	98	80	78	846	102	23	35
26	31	49	61	e210	111	94	75	102	808	146	22	41
27	34	51	58	190	104	94	71	192	937	104	25	51
28	32	82	57	175	181	92	69	130	3130	e93	33	34
29	30	82	55	160	---	90	66	186	2150	102	29	27
30	31	73	52	154	---	88	71	169	1600	e82	26	25
31	30	---	54	149	---	84	---	135	---	e76	22	---
TOTAL	900	1370	2989	11900	3330	4464	2305	3654	13330	8599	1264	803
MEAN	29.0	45.7	96.4	384	119	144	76.8	118	444	277	40.8	26.8
MAX	41	94	290	2710	181	324	105	192	3130	1250	70	56
MIN	23	28	52	57	92	84	66	69	86	76	22	17
CFSM	.31	.49	1.04	4.14	1.28	1.55	.83	1.27	4.79	2.99	.44	.29
IN.	.36	.55	1.20	4.77	1.33	1.79	.92	1.46	5.34	3.45	.51	.32

e Estimated.



## 02027000 TYE RIVER NEAR LOVINGSTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	104	130	167	182	210	261	240	183	137	80.8	111	82.6
MAX	550	765	461	392	433	568	692	492	676	382	1541	556
(WY)	1943	1986	1949	1978	1973	1993	1987	1989	1972	1972	1969	1979
MIN	8.69	15.3	23.7	14.7	69.7	64.0	63.1	53.1	30.8	15.1	7.07	6.87
(WY)	1942	1942	1981	1981	1963	1981	1966	1941	1956	1966	1966	1954

## SUMMARY STATISTICS

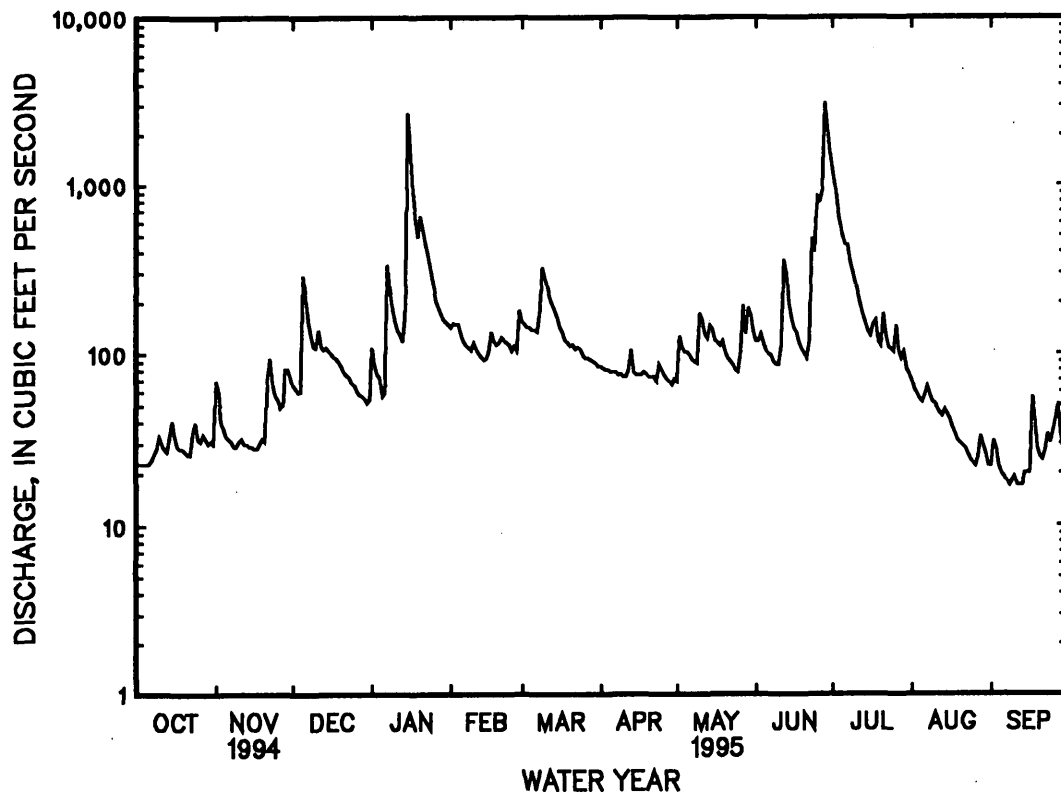
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1939 - 1995

ANNUAL TOTAL	57108	54908	
ANNUAL MEAN	156	150	157
HIGHEST ANNUAL MEAN			280
LOWEST ANNUAL MEAN			61.7
HIGHEST DAILY MEAN	1200	Mar 29	3130
LOWEST DAILY MEAN	21	aJul 16	17
ANNUAL SEVEN-DAY MINIMUM	23	dJul 12	18
INSTANTANEOUS PEAK FLOW			4890
INSTANTANEOUS PEAK STAGE			9.05
INSTANTANEOUS LOW FLOW			16
ANNUAL RUNOFF (CFSM)	1.69	1.62	1.69
ANNUAL RUNOFF (INCHES)	22.89	22.01	22.98
10 PERCENT EXCEEDS	396	238	318
50 PERCENT EXCEEDS	82	90	102
90 PERCENT EXCEEDS	27	27	23

- a Also Sept. 21, 22, 1994.  
b Also Sept. 11-13, 1995.  
c Also Sept. 10, 11, 1966.  
d Also July 13, 14, 1994.  
e Estimated.  
f Also Sept. 8, 9, 1995.  
g From floodmarks.  
h Also Sept. 11, 1966.



## 02027500 PINEY RIVER AT PINEY RIVER, VA

LOCATION.--Lat 37°42'08", long 79°01'40", Nelson County, Hydrologic Unit 02080203, on left bank at upstream side of bridge on State Highway 151, 0.2 mi southwest of Piney River Post Office, 1.7 mi downstream from Indian Creek, and 2.5 mi southeast of Lowesville.

DRAINAGE AREA.--47.6 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-72-1: 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 633.58 ft above sea level. 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 except those for periods of doubtful gage-height record, Oct. 8-10, 14-16, 21, 22, Nov. 8-10, 13-20, Dec. 6-10, Jan. 8-13, Jan. 28 to Feb. 1, Feb. 19, 20, 22-27, Mar. 2-7, 11-16, May 6-9, 13, 18, 29, and June 4, 5, 15-18, and periods with ice effect, Jan. 5, 6, and Feb. 7-9, 13, which are fair. Periodic dewatering of upstream quarries adds small amount of inflow. Maximum discharge, 38,000 ft<sup>3</sup>/s, from rating curve extended above 6,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1949 reached a stage of 9.9 ft, from floodmarks.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1700	2,710	6.01	June 29	0615	2,860	6.18
June 28	1230	*3,050	*6.41				

Minimum discharge, 6.7 ft<sup>3</sup>/s, Sept. 12, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	31	36	77	e82	95	54	43	76	830	35	11
2	13	31	36	64	94	e86	54	84	74	524	32	16
3	13	23	35	62	92	e81	52	74	87	363	30	12
4	13	20	36	61	91	e79	50	73	e80	284	29	10
5	13	19	159	e54	84	e76	47	76	e74	233	27	10
6	13	17	e125	e60	74	e74	48	e71	72	205	29	10
7	13	17	e100	162	e71	e73	47	e67	68	183	30	9.6
8	e14	e16	e90	e135	e67	107	46	e61	59	152	29	9.1
9	e15	e15	e82	e115	e63	138	45	e59	55	135	26	9.2
10	e16	e17	e80	e100	68	130	44	162	53	124	26	9.1
11	15	18	100	e95	65	e120	42	204	57	118	25	9.1
12	14	15	86	e92	61	e115	48	162	115	105	24	8.3
13	14	e15	82	e88	e53	e110	68	e120	112	95	22	7.6
14	e16	e15	85	107	56	e102	53	140	100	86	25	11
15	e19	e14	85	1480	57	e100	51	122	e85	78	25	9.9
16	e17	e14	83	1400	66	e98	50	108	e77	73	22	11
17	15	e15	83	674	75	92	53	100	e72	80	19	33
18	14	e16	82	408	68	86	54	e84	e67	82	17	20
19	13	e20	77	302	e63	83	51	90	65	65	16	16
20	13	e15	72	367	e64	79	48	76	59	59	16	15
21	e12	34	68	286	69	78	48	69	55	61	16	14
22	e12	44	65	251	e65	73	46	63	57	59	15	14
23	17	33	61	220	e63	76	44	58	168	52	14	15
24	19	30	57	191	e61	71	58	53	164	49	13	14
25	16	30	55	168	e60	66	48	49	251	47	13	17
26	15	29	52	148	e62	64	45	55	308	63	12	20
27	17	30	50	133	e60	62	43	90	591	46	14	21
28	16	43	48	e120	104	61	43	71	2450	44	16	17
29	15	38	46	e102	---	59	41	e96	2230	49	15	15
30	15	36	44	e93	---	57	42	91	1350	42	13	13
31	15	---	46	e87	---	55	---	83	---	38	12	---
TOTAL	455	710	2206	7702	1958	2646	1463	2754	9131	4424	657	406.9
MEAN	14.7	23.7	71.2	248	69.9	85.4	48.8	88.8	304	143	21.2	13.6
MAX	19	44	159	1480	104	138	68	204	2450	830	35	33
MIN	12	14	35	54	53	55	41	43	53	38	12	7.6
CFSM	.31	.50	1.49	5.22	1.47	1.79	1.02	1.87	6.39	3.00	.45	.28
IN.	.36	.55	1.72	6.02	1.53	2.07	1.14	2.15	7.14	3.46	.51	.32

e Estimated.

## 02027500 PINEY RIVER AT PINEY RIVER, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	65.1	90.1	106	111	127	161	148	110	89.9	41.4	63.4	42.7
MAX	313	644	272	249	278	311	417	352	541	213	1239	362
(WY)	1991	1986	1974	1978	1973	1993	1987	1989	1972	1972	1969	1979
MIN	4.75	10.7	14.2	7.94	34.4	37.8	38.4	35.8	15.9	9.04	4.92	4.37
(WY)	1964	1954	1981	1981	1977	1981	1966	1963	1956	1964	1987	1954

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

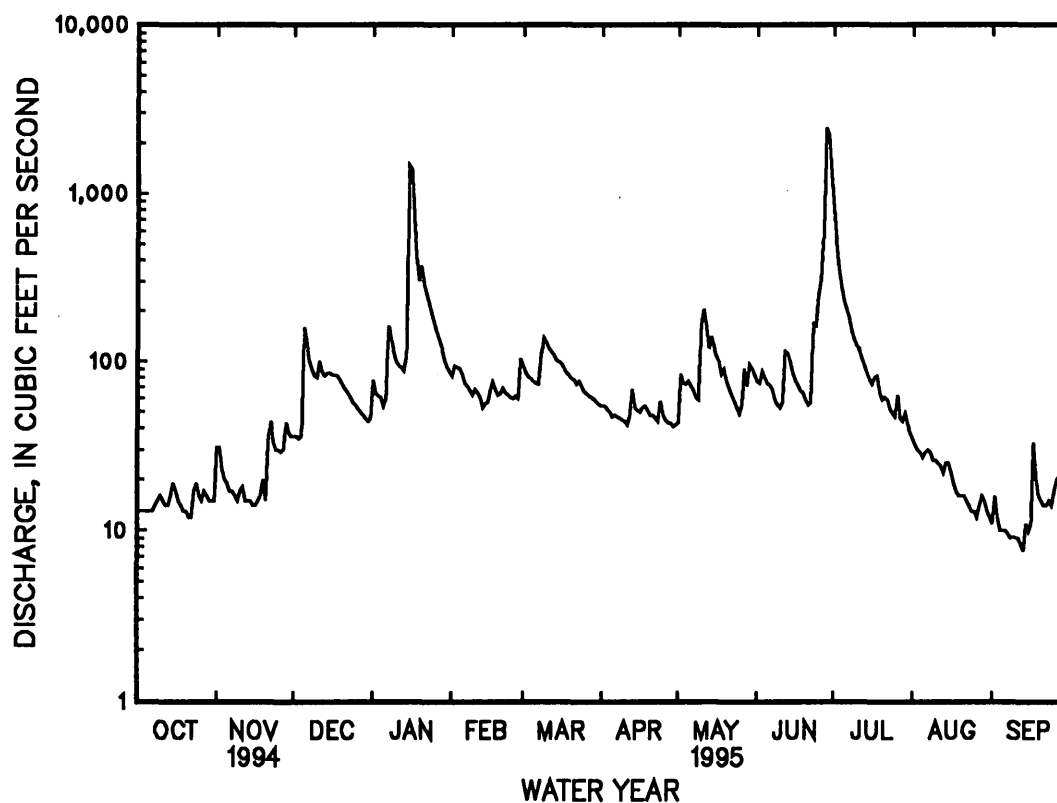
WATER YEARS 1950 - 1995

ANNUAL TOTAL	34665.9	34512.9	
ANNUAL MEAN	95.0	94.6	96.1
HIGHEST ANNUAL MEAN			188
LOWEST ANNUAL MEAN			35.9
HIGHEST DAILY MEAN	720	Mar 29	25000
LOWEST DAILY MEAN	7.4	Jul 16	a1.4
ANNUAL SEVEN-DAY MINIMUM	9.3	Jul 11	a1.7
INSTANTANEOUS PEAK FLOW		3050	Jun 28
INSTANTANEOUS PEAK STAGE		6.41	Jun 28
INSTANTANEOUS LOW FLOW		6.7	cSep 12
ANNUAL RUNOFF (CFSM)	2.00	1.99	a1.1
ANNUAL RUNOFF (INCHES)	27.09	26.97	27.43
10 PERCENT EXCEEDS	229	135	200
50 PERCENT EXCEEDS	58	57	60
90 PERCENT EXCEEDS	15	14	11

a Dewatering of upstream quarry at a rate of 300 gallons per minute or 0.67 ft<sup>3</sup>/s included in flow.

b From floodmarks.

c Also Sept. 13, 1995.



## 02027800 BUFFALO RIVER NEAR TYE RIVER, VA

LOCATION.--Lat 37°36'20", long 78°55'25", Nelson County, Hydrologic Unit 02080203, on right bank 35 ft upstream from bridge on State Highway 657, 2.1 mi upstream from mouth, and 3.5 mi southeast of town of Tye River.

DRAINAGE AREA.--147 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1960 to September 1995 (discontinued).

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 444.39 ft above sea level.

REMARKS.--Records good except those for periods with ice effect Jan. 5, 6 and Feb. 7-12, and period of no gage-height record, Aug. 8 to Sept. 27, which are fair. Maximum discharge, 45,000 ft<sup>3</sup>/s, from rating curve extended above 1,800 ft<sup>3</sup>/s on basis of computation of flow over dam at gage height 11.03 ft and slope-area measurement at gage height 27.95 ft. Minimum gage height, 0.28 ft, Sept. 9-13, 1964. Several measurements of water temperature were made during the year.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2215	2,050	6.59	June 29	1515	2,190	6.79
June 23	0745	*2,210	*6.83				

Minimum daily, 25 ft<sup>3</sup>/s, Sept. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	65	68	84	150	172	100	98	107	819	88	e38
2	50	78	66	80	151	157	97	152	109	647	86	e46
3	50	64	64	73	150	151	95	132	146	480	83	e42
4	50	61	66	71	152	150	94	114	260	399	81	e37
5	51	60	121	e63	146	150	93	114	158	339	79	e34
6	50	60	119	e70	130	145	91	109	142	274	78	e31
7	49	59	97	229	e125	126	91	102	170	279	83	e28
8	49	58	89	163	e120	139	91	97	132	241	e85	e26
9	50	58	83	127	e115	285	91	96	122	211	e80	e26
10	56	63	82	114	e110	194	89	177	148	194	e74	e27
11	54	66	104	104	e105	173	89	704	183	183	e70	e25
12	51	61	91	99	e120	163	91	275	548	161	e66	e26
13	51	59	85	95	128	152	110	198	324	136	e62	e26
14	61	59	88	93	123	144	98	176	204	127	e70	e30
15	64	59	91	868	116	139	92	165	177	119	e65	e38
16	57	58	85	1230	144	135	90	143	153	113	e62	e50
17	55	58	83	518	198	129	90	133	150	142	e58	e60
18	54	58	82	336	169	124	97	132	137	153	e54	e45
19	54	60	80	262	158	121	94	136	127	122	e50	e38
20	54	59	77	467	151	118	90	123	121	110	e47	e35
21	55	64	75	319	150	118	89	112	114	124	e45	e36
22	55	87	74	250	150	115	89	106	112	142	e43	e40
23	66	70	73	221	150	116	85	102	1110	109	e40	e51
24	72	64	72	203	149	119	105	99	454	102	e37	e45
25	61	62	69	186	146	109	99	96	295	104	e35	e55
26	59	62	67	173	144	106	91	107	284	134	e33	e66
27	62	64	67	163	142	105	88	359	433	114	e37	e76
28	60	83	66	157	173	105	86	175	511	105	e48	64
29	58	77	66	157	---	103	83	170	1450	106	e41	58
30	58	71	64	152	---	102	89	144	1260	98	e36	54
31	58	---	64	152	---	101	---	119	---	92	e33	---
TOTAL	1724	1927	2478	7279	3965	4266	2777	4965	9641	6479	1849	1253
MEAN	55.6	64.2	79.9	235	142	138	92.6	160	321	209	59.6	41.8
MAX	72	87	121	1230	198	285	110	704	1450	819	88	76
MIN	49	58	64	63	105	101	83	96	107	92	33	25
CFSM	.38	.44	.54	1.60	.96	.94	.63	1.09	2.19	1.42	.41	.28
IN.	.44	.49	.63	1.84	1.00	1.08	.70	1.26	2.44	1.64	.47	.32

e Estimated.

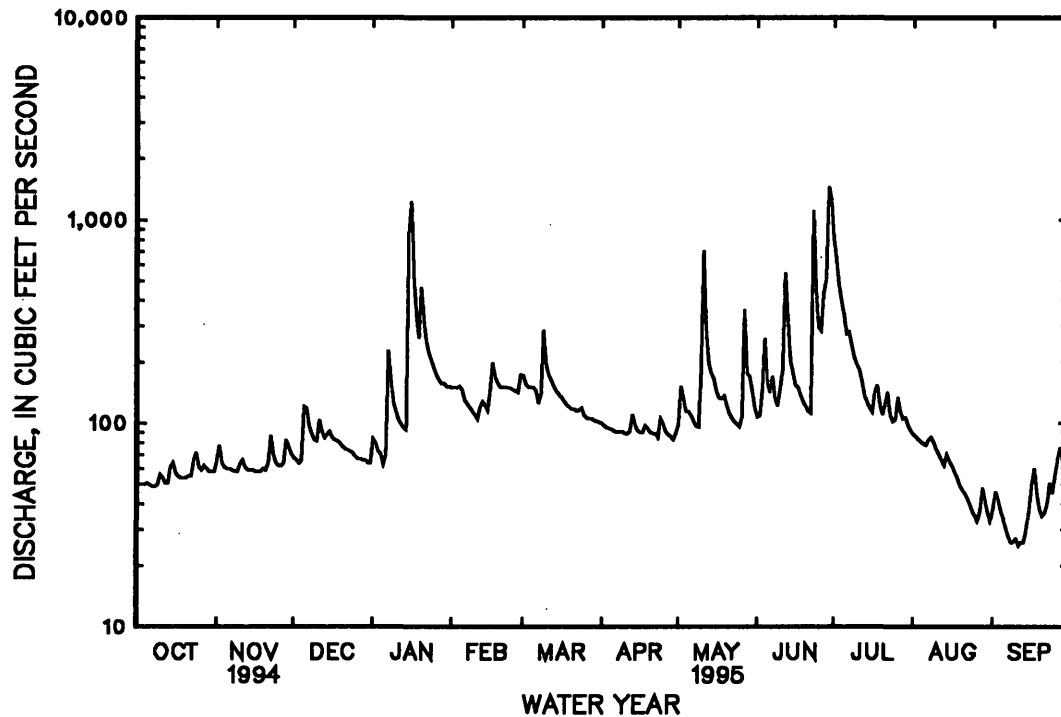
## 02027800 BUFFALO RIVER NEAR TYE RIVER, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	134	139	171	197	233	282	240	193	173	99.9	104	97.5
MAX	758	731	455	492	482	752	658	568	1161	463	1023	774
(WY)	1973	1986	1973	1978	1984	1993	1987	1989	1972	1972	1969	1979
MIN	17.7	41.3	35.5	43.9	89.1	78.3	76.9	52.4	39.1	20.8	11.9	9.17
(WY)	1964	1992	1966	1966	1977	1981	1966	1981	1964	1977	1964	1964

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1960 - 1995	
ANNUAL TOTAL	71243		48603			
ANNUAL MEAN	195		133		172	
HIGHEST ANNUAL MEAN					340	
LOWEST ANNUAL MEAN					70.3	
HIGHEST DAILY MEAN	2910		Mar 28		22500	
LOWEST DAILY MEAN	49		aOct 7		3.2	
ANNUAL SEVEN-DAY MINIMUM	50		Oct 2		3.3	
INSTANTANEOUS PEAK FLOW			2210		45000	
INSTANTANEOUS PEAK STAGE			6.83		c27.95	
INSTANTANEOUS LOW FLOW					3.2	
ANNUAL RUNOFF (CFSM)	1.33		.91		1.17	
ANNUAL RUNOFF (INCHES)	18.03		12.30		15.86	
10 PERCENT EXCEEDS	426		200		320	
50 PERCENT EXCEEDS	108		96		112	
90 PERCENT EXCEEDS	58		50		34	

- a Also Oct. 8, 1994.  
b Also Sept. 10-12, 1966.  
c From floodmarks.  
d Unknown.  
f Also Sept. 9-13, 1966.



## 02028500 ROCKFISH RIVER NEAR GREENFIELD, VA

LOCATION.--Lat 37°52'10", long 78°49'25", Nelson County, Hydrologic Unit 02080203, on left bank 50 ft downstream from bridge on State Highway 634, 2.8 mi downstream from confluence of North and South Forks, and 4.1 mi south of Greenfield.

DRAINAGE AREA.--94.6 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 530.29 ft above sea level. Prior to Aug. 21, 1943, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 7-9, and periods of doubtful gage-height record, June 28, 29, July 21-23, and July 26 to Aug. 3, which are fair. Maximum discharge, 70,000 ft<sup>3</sup>/s, from rating curve extended above 8,500 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 18.11 ft, slope-area measurements at gage heights 17.2 ft, 23.4 ft, and 31.2 ft, and peak runoff comparison with nearby stations. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.4 ft, from floodmarks, discharge, about 30,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1300	3,740	7.98	June 28	0130	*a5,600	*Unknown
June 22	2100	1,550	4.93	June 29	1100	a4,670	Unknown
June 27	1630	2,110	5.87	July 2	0100	1,630	5.08

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

Minimum daily discharge, 12 ft<sup>3</sup>/s, Sept. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	47	54	130	112	118	72	70	134	1220	e70	17
2	21	41	53	92	130	110	72	137	128	1180	e64	20
3	20	32	53	77	130	104	69	118	124	798	e60	18
4	20	30	53	74	126	102	69	110	106	606	51	15
5	20	28	286	e58	110	96	67	110	92	482	47	14
6	20	27	188	e67	94	96	69	102	86	525	61	14
7	19	27	148	384	e88	94	69	92	84	450	66	13
8	20	24	122	238	e80	190	67	84	70	341	57	12
9	22	24	104	195	e75	356	67	82	94	286	53	30
10	27	28	104	165	82	241	66	136	202	243	51	31
11	20	31	140	148	81	215	66	114	256	212	46	15
12	19	27	110	134	79	193	85	98	784	188	41	14
13	19	26	100	126	66	179	132	90	516	165	38	13
14	36	25	100	146	64	165	98	173	338	151	36	14
15	38	25	102	2060	70	155	86	155	249	136	33	13
16	27	25	96	1530	81	144	82	128	202	132	30	13
17	24	26	92	724	110	138	81	120	170	184	28	75
18	22	37	88	470	98	126	81	114	144	168	25	36
19	20	43	81	351	92	118	79	122	128	126	24	26
20	20	34	74	548	94	114	72	102	112	112	24	20
21	19	95	70	377	92	112	72	88	102	e160	23	19
22	19	100	70	307	86	106	67	81	448	e130	22	21
23	26	67	69	252	84	104	64	70	707	e110	19	28
24	29	57	67	212	84	100	94	64	545	108	19	23
25	24	50	64	179	77	92	79	78	936	108	19	27
26	24	46	60	161	77	88	72	98	1000	e135	18	39
27	24	46	58	146	77	86	67	330	1240	e110	19	43
28	23	70	57	140	138	84	70	186	e5600	e95	26	29
29	23	70	55	128	---	77	70	203	e4670	e100	25	23
30	23	62	51	120	---	77	69	190	1610	e83	21	20
31	23	---	51	114	---	74	---	153	---	e78	18	---
TOTAL	714	1270	2820	9853	2577	4054	2273	3798	20877	8922	1134	695
MEAN	23.0	42.3	91.0	318	92.0	131	75.8	123	696	288	36.6	23.2
MAX	38	100	286	2060	138	356	132	330	5600	1220	70	75
MIN	19	24	51	58	64	74	64	64	70	78	18	12
CFSM	.24	.45	.96	3.36	.97	1.38	.80	1.30	7.36	3.04	.39	.24
IN.	.28	.50	1.11	3.87	1.01	1.59	.89	1.49	8.21	3.51	.45	.27

e Estimated.

## 02028500 ROCKFISH RIVER NEAR GREENFIELD, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	95.5	125	149	164	188	246	224	162	125	75.1	90.2	80.5
MAX	394	733	445	358	458	629	698	369	696	327	1246	506
(WY)	1991	1986	1951	1949	1973	1993	1983	1990	1995	1972	1969	1979
MIN	8.65	17.9	18.5	23.1	62.0	55.9	52.5	44.7	23.1	8.82	4.10	3.34
(WY)	1964	1954	1966	b1966	1944	1981	1981	1981	1956	1966	1966	1954

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1943 - 1995

ANNUAL TOTAL	53624	58987	144	
ANNUAL MEAN	147	162	290	1973
HIGHEST ANNUAL MEAN			45.9	1981
LOWEST ANNUAL MEAN				
HIGHEST DAILY MEAN	1480	Mar 29	e5600	Jun 28
LOWEST DAILY MEAN	15	cJul 12	12	Sep 8
ANNUAL SEVEN-DAY MINIMUM	17	Jul 10	15	Sep 2
INSTANTANEOUS PEAK FLOW			(f)	(g)
INSTANTANEOUS PEAK STAGE			(f)	(g)
INSTANTANEOUS LOW FLOW			12	Sep 8
ANNUAL RUNOFF (CFSM)	1.55	1.71		1.52
ANNUAL RUNOFF (INCHES)	21.09	23.20		20.63
10 PERCENT EXCEEDS	330	245		298
50 PERCENT EXCEEDS	70	81		87
90 PERCENT EXCEEDS	23	21		19

b Also 1981.

c Also July 13-15, 1994.

d Also Sept. 9-11, 1966.

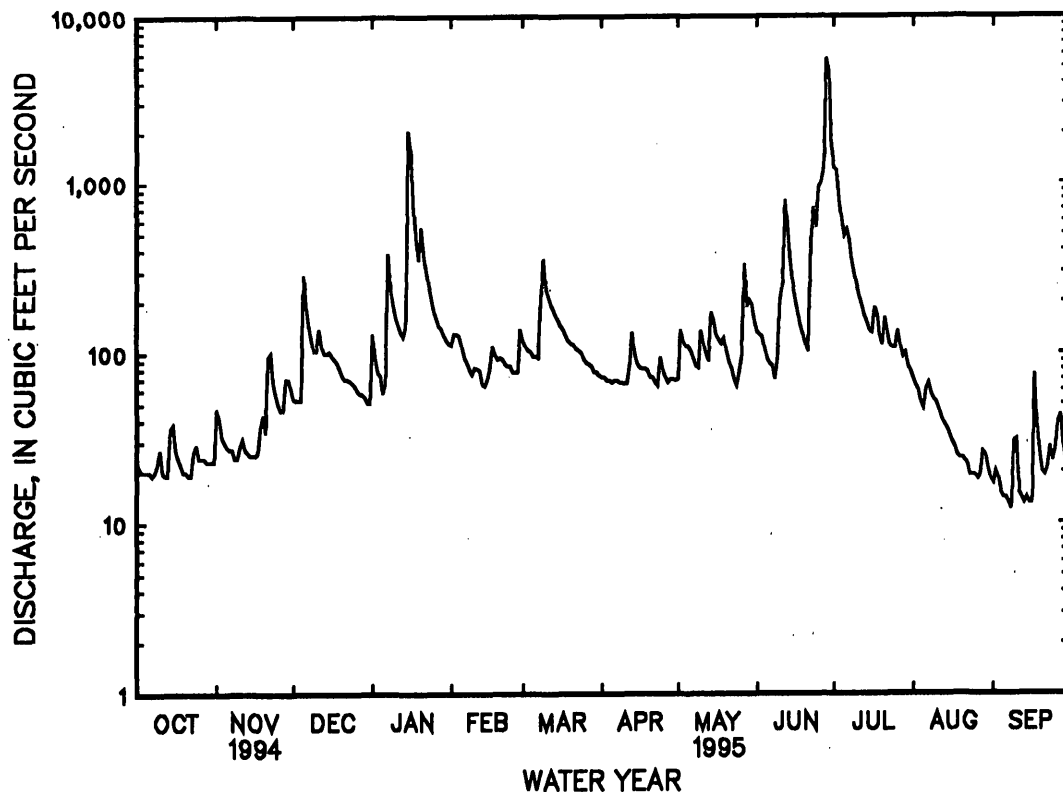
e Estimated.

f Not determined.

g Probably occurred June 28, 1995.

h From floodmarks.

j Also Sept. 9-12, 1966.



## 02029000 JAMES RIVER AT SCOTTSVILLE, VA

LOCATION.--Lat 37°47'50", long 78°29'30", Albemarle County, Hydrologic Unit 02080203, on left bank 900 ft downstream from bridge on State Highway 20 at Scottsville, 6.8 mi upstream from Hardware River, and at mile 188.6.

DRAINAGE AREA.--4,584 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303. REVISED RECORDS.--WSP 727: 1931(M). WSP 972: 1936(M), 1940(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 253.18 ft above sea level. Prior to Nov. 28, 1928, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Large diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Lake Moomaw (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. Maximum discharge, 301,000 ft<sup>3</sup>/s, from rating curve extended above 120,000 ft<sup>3</sup>/s on basis of slope-conveyance study. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1870 reached a stage of 30.7 ft, discharge, about 215,000 ft<sup>3</sup>/s, and flood in November 1877 reached a stage of 27.9 ft, discharge, about 160,000 ft<sup>3</sup>/s, from information by local resident. Flood in March 1913 reached a stage of 25.16 ft, from floodmarks, discharge, 121,000 ft<sup>3</sup>/s. EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 35,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	2045	*84,300	*21.71	June 29	0715	84,200	21.70
June 23	1815	54,000	17.87				

Minimum discharge, 803 ft<sup>3</sup>/s, Sept. 8, 14, gage height, 2.65 ft; minimum daily, 821 ft<sup>3</sup>/s, Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1400	1440	1690	1610	4230	5870	3190	3100	3120	28300	2320	1240		
2	1430	1360	1620	1980	4000	5780	2810	3300	3030	24000	1990	1300		
3	1370	1780	1480	2050	4280	6980	2920	4410	4310	17400	1940	1330		
4	1310	1500	1600	1790	5070	6560	2720	4640	5240	13500	1890	1290		
5	1340	1530	2060	1750	5640	6140	3070	6680	5460	11500	1850	1050		
6	1370	1440	2660	1690	5340	5300	2670	6420	4810	9990	1630	1060		
7	1340	1280	3210	2750	4800	5030	2410	6560	6350	10300	1730	1020		
8	1280	1300	2660	4790	3960	5380	2360	6220	4500	9780	1780	912		
9	1220	1350	2510	5270	3880	8450	2310	5760	3940	8450	1770	1060		
10	1310	1290	2150	6670	3560	9640	2230	5050	4520	6970	1750	1220		
11	1360	1470	2260	5360	3660	9810	1760	7990	5180	6480	1850	985		
12	1390	1390	2420	4440	3520	8380	1970	8200	9680	5340	1490	996		
13	1280	1390	2630	3990	3260	7980	2320	6630	16100	4880	1680	1170		
14	1320	1300	2680	3930	3010	7450	2560	6090	14500	4210	1630	821		
15	1570	1360	2830	8980	2870	7430	2370	5610	10300	3780	1520	884		
16	1540	1220	2540	68600	3200	6830	2300	5140	7720	3210	1440	1140		
17	1420	1280	2290	50200	4680	6260	2230	7530	6170	3760	1660	1240		
18	1340	1320	2260	20800	5470	5790	2220	6930	5420	4270	1290	1820		
19	1310	1410	2230	13800	9130	5290	2120	6100	4640	3750	1330	1530		
20	1270	1350	2170	12400	8890	4720	2190	5950	3230	3140	1230	1380		
21	1400	1190	2090	12700	7950	4280	2140	5900	3480	3050	1270	1310		
22	1260	1730	1820	12900	8030	4160	2090	5130	3300	2650	1150	1370		
23	1400	1770	1910	11100	7330	4100	2040	4550	26700	3160	1250	1290		
24	1510	1610	1860	9050	6520	3980	2140	3770	47100	2630	1120	1470		
25	1610	1570	1790	7710	5940	3850	2660	3450	27900	2680	1080	1140		
26	1290	1460	1770	6570	5510	3480	2500	3580	19100	3030	1180	1410		
27	1540	1470	1670	5780	4740	3500	3000	4470	17800	3450	1090	1570		
28	1520	1600	1690	5320	5140	3270	3340	4470	28500	3060	1280	1670		
29	1480	1830	1590	5190	---	3210	3180	4010	74100	2880	1310	1520		
30	1410	1800	1560	4510	---	3200	2970	3950	55100	2950	1120	1360		
31	1400	---	1590	4010	---	3320	---	3810	---	2620	1030	---		
TOTAL	42990	43790	65290	307690	143610	175420	74790	165400	431300	215170	46650	37558		
MEAN	1387	1460	2106	9925	5129	5659	2493	5335	14380	6941	1505	1252		
MAX	1610	1830	3210	68600	9130	9810	3340	8200	74100	28300	2320	1820		
MIN	1220	1190	1480	1610	2870	3200	1760	3100	3030	2620	1030	821		
(†)	-122	-84	-50	+690	+16	-5	0	-11	+89	-176	-218	-185		
MEAN†	1265	1376	2056	10615	5145	5654	2493	5324	14469	6765	1287	1067		
CFSM†	.28	.30	.45	2.32	1.12	1.23	.54	1.16	3.16	1.48	.28	.23		
IN.†	.32	.33	.52	2.67	1.17	1.42	.61	1.34	3.52	1.70	.32	.26		
CAL YR 1994	TOTAL	2262480	MEAN	6199	MAX	55200	MIN	1190	MEAN†	6164	CFSM†	1.34	IN.†	18.26
WTR YR 1995	TOTAL	1749658	MEAN	4794	MAX	74100	MIN	821	MEAN†	4790	CFSM†	1.04	IN.†	14.19

† Change in contents, equivalent in cubic feet per second, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.



## 02029000 JAMES RIVER AT SCOTTSVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1979, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3139	3440	5208	6854	8040	9495	7988	5805	4024	2453	2992	2521
MAX	14550	12920	18620	19350	15810	20320	16600	12480	18960	9225	15330	11690
(WY)	1938	1973	1949	1937	1939	1936	1935	1942	1972	1972	1940	1979
MIN	499	792	844	1002	1335	3942	2571	2007	1202	527	594	502
(WY)	1931	1931	1966	1956	1934	1925	1942	1930	1964	1966	1930	1930

## SUMMARY STATISTICS

WATER YEARS 1925 - 1979

ANNUAL MEAN	5149
HIGHEST ANNUAL MEAN	9317
LOWEST ANNUAL MEAN	2477
HIGHEST DAILY MEAN	208000
LOWEST DAILY MEAN	300
ANNUAL SEVEN-DAY MINIMUM	321
INSTANTANEOUS PEAK FLOW	301000
INSTANTANEOUS PEAK STAGE	a34.02
INSTANTANEOUS LOW FLOW	b302
ANNUAL RUNOFF (CFSM)	1.12
ANNUAL RUNOFF (INCHES)	15.26
10 PERCENT EXCEEDS	10600
50 PERCENT EXCEEDS	3190
90 PERCENT EXCEEDS	1000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3137	4579	4942	6362	7583	10280	10080	6753	4783	2683	2516	2324
MAX	11990	25090	10230	14550	15540	23820	28930	18230	14380	6941	7934	8432
(WY)	1980	1986	1984	1991	1994	1993	1987	1989	1995	1995	1984	1989
MIN	963	1251	1318	1165	3198	1961	2493	3610	1799	1262	934	843
(WY)	1987	1992	1981	1981	1981	1981	1995	1982	1986	1986	1987	1983

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

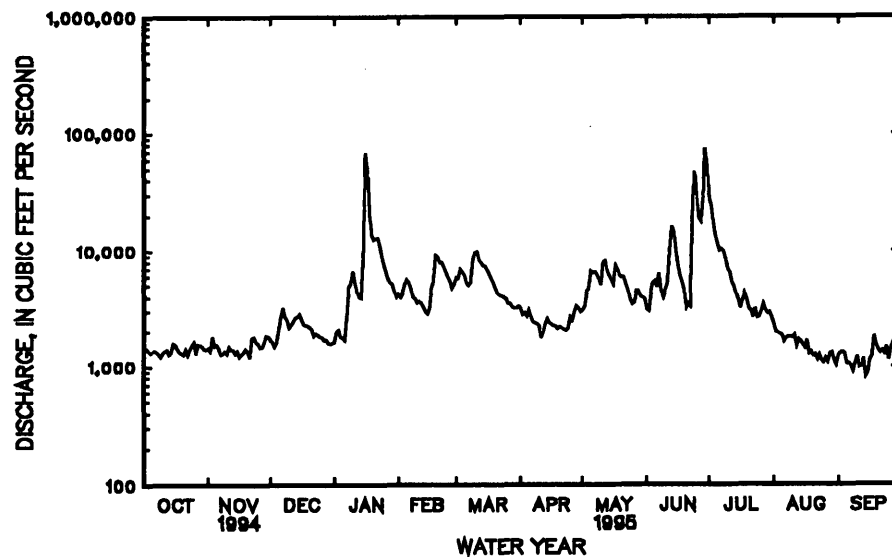
WATER YEARS 1980 - 1995

ANNUAL TOTAL	2262480	1749658	
ANNUAL MEAN	6199	4794	
HIGHEST ANNUAL MEAN			5487
LOWEST ANNUAL MEAN			7483
HIGHEST DAILY MEAN	55200	Mar 29	74100
LOWEST DAILY MEAN	1190	Jul 9	821
ANNUAL SEVEN-DAY MINIMUM	1300	Nov 15	1020
INSTANTANEOUS PEAK FLOW			84300
INSTANTANEOUS PEAK STAGE			21.71
INSTANTANEOUS LOW FLOW			803
ANNUAL RUNOFF (CFSM)	1.35	1.05	
ANNUAL RUNOFF (INCHES)	18.36	14.20	
10 PERCENT EXCEEDS	16600	8410	11700
50 PERCENT EXCEEDS	2680	2720	3200
90 PERCENT EXCEEDS	1400	1290	1150

a From floodmarks.

b Probably lower during period of doubtful record in September 1966.

c Also Sept. 14, 1995.



## 02030000 HARDWARE RIVER BELOW BRIERY CREEK, 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 Creek, 2.4 mi northeast of Scottsville, and 10.8 mi upstream from mouth.

DRAINAGE AREA.--116 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1938 to September 1995 (discontinued). Monthly discharge only for some periods, published in WSP 1303. Published as "below Briery Run" prior to October 1990.

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 sea level.

REMARKS.--Records good except for period with ice effect, Feb. 7-10, which is fair. Maximum discharge, 52,000 ft<sup>3</sup>/s, from rating curve extended above 18,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 23.8 ft and 31.0 ft. Minimum gage height, 0.81 ft, Sept. 8, 1966. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2230	*2,900	*11.88	June 23	0830	2,470	10.94

Minimum discharge, 25 ft<sup>3</sup>/s, Sept. 7-10, 15-16, gage height, 1.56 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	43	46	61	116	164	82	78	99	373	68	29
2	39	59	45	59	141	135	82	193	198	389	63	45
3	39	45	44	52	167	119	81	145	301	233	60	35
4	38	43	45	50	158	112	81	100	131	199	58	30
5	38	40	117	45	141	108	77	92	97	180	55	28
6	37	40	94	55	111	108	76	79	92	312	58	28
7	37	40	69	271	e107	103	75	68	99	626	69	26
8	38	38	62	183	e105	314	75	62	92	311	62	26
9	37	38	56	128	e100	759	73	58	81	196	58	26
10	42	44	55	101	e98	252	71	137	81	172	57	42
11	39	51	72	88	97	193	71	352	163	167	56	32
12	37	43	65	80	100	170	81	145	773	146	53	28
13	39	41	60	77	88	156	107	100	328	134	49	28
14	50	41	63	73	86	148	80	235	185	125	48	27
15	62	41	67	1030	91	141	68	235	163	112	45	27
16	47	41	64	1140	114	137	66	144	127	104	43	26
17	43	41	64	303	194	130	68	114	105	106	42	74
18	41	42	65	207	155	121	76	110	91	150	39	58
19	39	48	64	172	137	115	71	105	83	104	37	39
20	40	42	62	335	131	110	66	86	78	91	35	34
21	38	47	62	223	120	109	65	71	70	98	35	33
22	42	67	62	175	104	103	62	64	488	101	34	37
23	48	50	58	154	104	107	58	58	1510	89	32	45
24	55	45	53	141	92	111	98	75	410	83	31	36
25	45	43	55	131	86	95	85	71	245	79	30	41
26	45	43	53	122	85	92	68	173	274	87	30	49
27	43	44	50	111	82	89	62	227	287	79	32	54
28	41	60	51	110	183	102	63	171	515	78	38	42
29	41	57	50	116	---	92	57	151	734	82	35	36
30	40	50	48	111	---	87	66	173	697	113	32	33
31	41	---	49	114	---	84	---	124	---	75	29	---
TOTAL	1302	1367	1870	6018	3293	4666	2211	3996	8597	5194	1413	1094
MEAN	42.0	45.6	60.3	194	118	151	73.7	129	287	168	45.6	36.5
MAX	62	67	117	1140	194	759	107	352	1510	626	69	74
MIN	37	38	44	45	82	84	57	58	70	75	29	26
CFSM	.36	.39	.52	1.67	1.01	1.30	.64	1.11	2.47	1.44	.39	.31
IN.	.42	.44	.60	1.93	1.06	1.50	.71	1.28	2.76	1.67	.45	.35

e Estimated.

## 02030000 HARDWARE RIVER BELOW BRIERY CREEK, NEAR SCOTTSVILLE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	91.3	99.6	132	151	182	214	184	137	110	78.2	101	83.2
MAX	370	514	514	443	380	613	604	398	560	273	1155	749
(WY)	1977	1986	1949	1978	1952	1993	1983	1989	1972	1975	1969	1944
MIN	11.4	17.5	20.5	25.0	50.3	35.1	39.5	36.0	24.2	9.45	4.71	7.93
(WY)	1942	1942	1966	1966	1954	1981	1981	1981	1956	1966	1966	1954

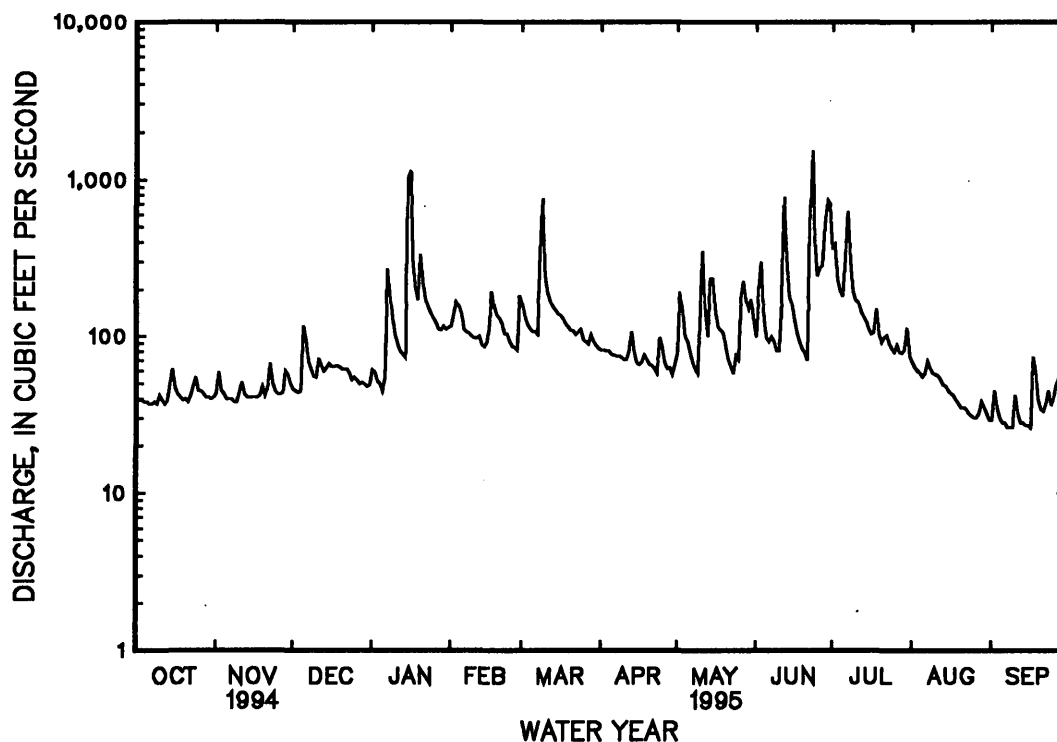
SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1939 - 1995	
ANNUAL TOTAL	58380		41021			
ANNUAL MEAN	160		112		130	
HIGHEST ANNUAL MEAN					249	
LOWEST ANNUAL MEAN					39.0	
HIGHEST DAILY MEAN	3200	Mar 28	1510	Jun 23	28400	Aug 20 1969
LOWEST DAILY MEAN	34	Sep 21	26	aSep 7	.10	Sep 5 1966
ANNUAL SEVEN-DAY MINIMUM	37	Sep 15	28	Sep 3	.16	Sep 1 1966
INSTANTANEOUS PEAK FLOW			2900	Jan 15	52000	Aug 20 1969
INSTANTANEOUS PEAK STAGE			11.88	Jan 15	b31.00	Aug 20 1969
INSTANTANEOUS LOW FLOW			25	cSep 7	.10	dSep 5 1966
ANNUAL RUNOFF (CFSM)	1.38		.97		1.12	
ANNUAL RUNOFF (INCHES)	18.72		13.16		15.23	
10 PERCENT EXCEEDS	354		193		236	
50 PERCENT EXCEEDS	65		75		82	
90 PERCENT EXCEEDS	40		38		26	

a Also Sept. 8, 9, 16, 1995.

b From floodmarks.

c Also Sept. 8, 9, 10, 15, 16, 1995.

d Also Sept. 6-8, 1966.



## 02030500 SLATE RIVER NEAR ARVONIA, VA

LOCATION.--Lat 37°42'10", long 78°22'40", Buckingham County, Hydrologic Unit 02080203, on left bank 250 ft upstream from bridge on State Highway 676, 1.8 mi northwest of Arvonias, 2.9 mi upstream from Hunts Creek, and 3.8 mi upstream from mouth.

DRAINAGE AREA.--226 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1926 to September 1995 (discontinued). 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 sea level (levels by U.S. Army Corps of Engineers). Prior to Feb. 15, 1936, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Feb. 8-10, which is fair. Maximum discharge, 42,200 ft<sup>3</sup>/s, from rating curve extended above 5,900 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 1.35 ft, Sept. 12, 1966. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	0430	2,160	8.62	July 11	0230	*5,360	*12.63
Mar. 9	0530	2,740	9.50				

Minimum discharge, 24 ft<sup>3</sup>/s, Aug. 26-27, gage height, 2.14 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	75	93	75	153	283	106	130	109	248	63	37
2	64	75	83	80	214	219	104	466	111	1190	59	51
3	63	75	77	76	238	178	101	498	317	384	57	65
4	63	74	76	75	232	161	98	253	492	204	55	53
5	63	74	98	73	262	154	96	191	255	159	52	43
6	63	74	121	80	197	150	92	181	224	154	51	37
7	63	74	109	287	160	147	92	156	982	456	53	35
8	62	73	93	331	e150	495	101	134	425	264	56	33
9	62	73	83	202	e145	2100	92	120	335	162	56	32
10	64	75	80	148	e140	594	94	144	223	127	56	38
11	64	87	91	124	135	336	87	243	192	2370	55	45
12	62	85	99	110	134	254	89	174	971	572	54	49
13	61	76	90	104	121	213	151	135	600	256	50	41
14	77	79	88	98	112	190	165	131	331	172	48	37
15	132	75	95	523	118	175	121	155	226	131	44	34
16	118	74	93	1620	164	165	103	134	171	110	42	32
17	83	74	88	507	319	156	99	113	140	97	39	60
18	74	75	86	266	293	148	106	104	123	118	37	96
19	73	79	87	199	224	141	103	113	112	129	35	65
20	72	77	83	409	195	136	96	124	105	100	33	53
21	73	81	78	413	175	138	98	104	99	81	31	48
22	73	127	76	251	151	137	87	89	117	76	30	47
23	73	121	76	193	137	135	85	81	109	76	29	51
24	79	92	76	168	130	154	138	75	107	75	27	57
25	79	79	75	150	120	142	177	72	105	75	26	54
26	75	75	81	137	115	125	132	212	99	71	24	57
27	76	77	74	128	111	119	105	210	156	70	26	74
28	75	106	74	127	190	119	93	187	183	72	37	70
29	79	129	74	138	---	115	84	241	149	96	46	57
30	74	109	74	136	---	118	91	194	399	74	44	50
31	74	---	74	142	---	110	---	140	---	68	38	---
TOTAL	2281	2519	2645	7370	4835	7807	3186	5304	7967	8237	1353	1501
MEAN	73.6	84.0	85.3	238	173	252	106	171	266	266	43.6	50.0
MAX	132	129	121	1620	319	2100	177	498	982	2370	63	96
MIN	61	73	74	73	111	110	84	72	99	68	24	32
CFSM	.33	.37	.38	1.05	.76	1.11	.47	.76	1.18	1.18	.19	.22
IN.	.38	.41	.44	1.21	.80	1.29	.52	.87	1.31	1.36	.22	.25

e Estimated.

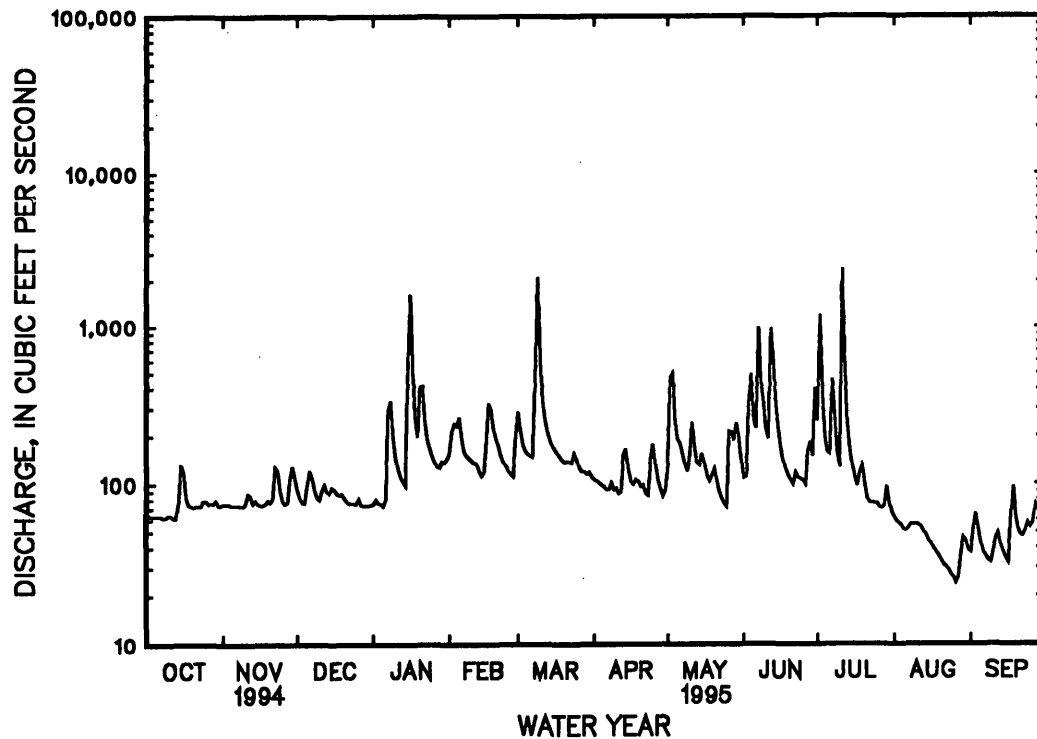
## 02030500 SLATE RIVER NEAR ARVONIA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	148	180	237	281	337	374	332	224	179	130	141	144
MAX	778	867	998	992	969	1035	895	912	2009	498	800	872
(WY)	1977	1986	1949	1978	1979	1994	1937	1971	1972	1975	1955	1944
MIN	11.7	38.8	36.7	47.2	67.0	80.2	91.8	67.6	37.6	19.7	14.7	7.43
(WY)	1931	1966	1966	1966	1931	1981	1981	1981	1981	1966	1930	1930

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1927 - 1995	
ANNUAL TOTAL	97981		55005			
ANNUAL MEAN	268		151		226	
HIGHEST ANNUAL MEAN					511	
LOWEST ANNUAL MEAN					78.9	
HIGHEST DAILY MEAN	5020		2370		33100	
LOWEST DAILY MEAN	47		24		2.0	
ANNUAL SEVEN-DAY MINIMUM	51		28		2.4	
INSTANTANEOUS PEAK FLOW			5360		42200	
INSTANTANEOUS PEAK STAGE			12.63		b25.10	
INSTANTANEOUS LOW FLOW			24		2.0	
ANNUAL RUNOFF (CFSM)	1.19		.67		1.00	
ANNUAL RUNOFF (INCHES)	16.13		9.05		13.57	
10 PERCENT EXCEEDS	528		253		395	
50 PERCENT EXCEEDS	122		99		126	
90 PERCENT EXCEEDS	68		51		41	

- a Also Sept. 30 to Oct. 2, 1930.  
b From high-water mark.  
c Also Aug. 27, 1995.  
d Also Sept. 29 to Oct. 2, 1930.



## 02031000. MECHUMS RIVER NEAR WHITE HALL, VA

LOCATION.--Lat 38°06'09", long 78°35'35", Albemarle County, Hydrologic Unit 02080204, on right bank 20 ft downstream from bridge on State Highway 614, 1.5 mi downstream from Rocky Run, 4.0 mi southeast of White Hall, and 4.9 mi upstream from confluence with Moormans River.

DRAINAGE AREA.--95.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1942 to September 1951, October 1979 to current year. Prior to September 1951, published as Mechum River near Ivy.

GAGE.--Water-stage recorder. Datum of gage is 429.75 ft above sea level. 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, Oct. 1 to Dec. 1, Dec. 16-31, Feb. 6-16, 21-27, and Mar. 8-22, and period with ice effect, Jan. 5, 6, which are fair. Maximum discharge, 20,000 ft<sup>3</sup>/s, from rating curve extended above 8,000 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 6, 1979, reached a stage of 24.5 ft, from floodmarks, discharge, about 13,500 ft<sup>3</sup>/s, from rating curve extended above 8,300 ft<sup>3</sup>/s.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1200	2,940	12.14	June 28	0730	3,000	12.24
June 22	2300	1,250	8.85	June 29	1330	*3,930	*13.73
June 26	0200	1,910	10.24				

Minimum discharge, 18 ft<sup>3</sup>/s, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e21	e41	e36	72	89	81	56	48	84	441	64	22
2	e20	e37	34	62	100	74	56	87	81	327	58	43
3	e20	e29	34	51	105	68	54	75	81	233	51	25
4	e19	e27	32	49	104	67	56	66	67	191	48	22
5	e19	e25	121	e45	94	66	50	67	59	164	45	21
6	e19	e24	100	e54	e88	71	51	62	55	216	54	21
7	e20	e24	77	258	e80	67	51	56	62	195	55	20
8	e20	e23	62	152	e73	e130	51	53	54	147	49	19
9	e23	e22	55	110	e69	e240	51	51	46	125	46	19
10	e27	e24	55	92	e76	e160	49	87	98	120	48	54
11	e22	e28	80	81	e74	e145	49	72	144	121	45	26
12	e20	e25	64	74	e70	e130	57	59	376	100	43	24
13	e19	e24	58	70	e58	e120	94	54	239	94	40	23
14	e30	e23	57	71	e56	e110	62	170	149	84	37	26
15	e33	e22	57	1490	e63	e95	56	150	110	78	36	23
16	e24	e22	e52	670	e73	e86	54	107	89	72	34	23
17	e22	e24	e50	324	104	e77	55	90	80	148	34	89
18	e21	e27	e47	216	92	e74	56	83	70	118	31	48
19	e20	e33	e57	174	87	e72	55	105	64	84	30	35
20	e20	e29	e52	325	86	e70	51	78	58	72	28	30
21	e19	e48	e49	228	e84	e69	54	64	55	70	28	29
22	e19	e57	e47	174	e80	e66	54	56	510	67	27	31
23	e35	e55	e44	149	e75	62	48	50	495	64	25	33
24	e37	e47	e42	132	e70	62	68	45	256	99	24	29
25	e24	e42	e40	114	e67	61	58	47	218	206	23	36
26	e23	e38	e39	104	e68	62	50	118	867	233	22	47
27	e22	e38	e38	95	e67	62	48	194	612	146	23	51
28	e21	e56	e37	94	90	61	47	134	1900	173	28	38
29	e21	e54	e37	97	---	59	43	143	1930	109	27	33
30	e22	e42	e36	89	---	59	45	147	766	92	24	29
31	e23	---	e35	90	---	57	---	104	---	74	22	---
TOTAL	705	1010	1624	5806	2242	2683	1629	2722	9675	4463	1149	969
MEAN	22.7	33.7	52.4	187	80.1	86.5	54.3	87.8	322	144	37.1	32.3
MAX	37	57	121	1490	105	240	94	194	1930	441	64	89
MIN	19	22	32	45	56	57	43	45	46	64	22	19
CFSM	.24	.35	.55	1.96	.84	.91	.57	.92	3.38	1.51	.39	.34
IN.	.27	.39	.63	2.26	.87	1.05	.64	1.06	3.77	1.74	.45	.38

e Estimated.

## 02031000 MECHUMS RIVER NEAR WHITE HALL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1951, 1979 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	91.6	103	116	115	137	167	176	121	88.9	64.2	60.7	77.5
MAX	606	636	329	250	338	473	703	289	322	192	245	422
(WY)	1943	1986	1949	1991	1984	1993	1983	1989	1995	1991	1949	1987
MIN	8.65	19.7	20.7	24.0	55.4	45.2	37.1	34.9	23.9	8.95	13.2	8.29
(WY)	1944	1944	1944	1981	1947	1981	1981	1981	1944	1944	1943	1943

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1942 - 1951  
1979 - 1995

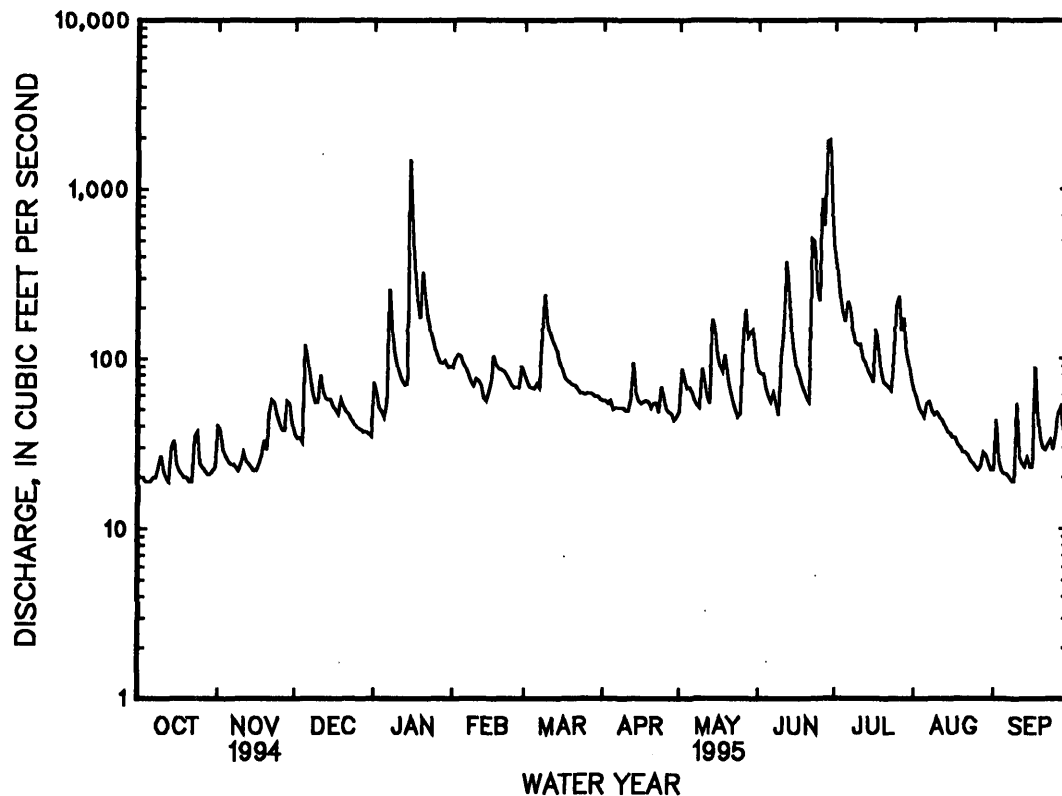
ANNUAL TOTAL	36753	34677	
ANNUAL MEAN	101	95.0	110
HIGHEST ANNUAL MEAN			176
LOWEST ANNUAL MEAN			41.6
HIGHEST DAILY MEAN	984	Mar 29	1930
LOWEST DAILY MEAN	e17	Sep 21	e19
ANNUAL SEVEN-DAY MINIMUM	e20	bOct 2	e20
INSTANTANEOUS PEAK FLOW			3930
INSTANTANEOUS PEAK STAGE			13.73
INSTANTANEOUS LOW FLOW			18
ANNUAL RUNOFF (CFSM)	1.06	1.00	1.15
ANNUAL RUNOFF (INCHES)	14.33	13.52	15.60
10 PERCENT EXCEEDS	211	149	193
50 PERCENT EXCEEDS	54	57	69
90 PERCENT EXCEEDS	23	23	22

a Also Oct. 5, 6, 13, 21, 22, 1994, and Sept. 8, 9, 1995.

b Also Oct. 3, 1994.

c From floodmarks, datum then in use.

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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 403.11 ft above sea level.

REMARKS.--Records good except those for periods of doubtful gage-height record, Oct. 11, Nov. 30 to Dec. 1, Jan. 8-13, 21-23, June 13-15, 20, 21, and July 1-5, and periods with ice effect, Jan. 5, 6, and Feb. 7-9, 14, 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 ft<sup>3</sup>/s is diverted for industrial use. Maximum discharge, 19,100 ft<sup>3</sup>/s, from rating curve extended above 8,200 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 20.41 ft. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 20.2 ft, from floodmarks, discharge, 15,100 ft<sup>3</sup>/s, and flood of Sept. 6, 1979, reached a stage of 21.55 ft, from floodmarks, discharge, about 16,500 ft<sup>3</sup>/s, from rating curve extended as explained above.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0900	3,580	10.95	June 26	0100	1,140	6.84
Jan. 15	1700	4,810	12.51	June 28	0130	*19,100	*22.28
June 22	1100	2,060	8.62	June 29	1100	4,050	11.57

Minimum discharge, 2.7 ft<sup>3</sup>/s, Sept. 8, gage height, 2.78 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	29	e18	37	66	69	33	25	106	e550	36	4.5
2	5.0	28	15	40	72	62	32	62	93	e335	30	6.6
3	4.7	17	14	32	77	58	31	69	87	e230	25	5.9
4	4.7	14	15	28	78	57	31	62	72	e175	21	5.0
5	4.7	13	71	e24	68	56	30	64	61	e145	19	4.2
6	4.7	12	56	e26	52	57	26	58	54	188	24	4.0
7	4.5	12	42	163	e50	56	26	49	60	178	29	3.5
8	4.5	11	36	e130	e46	91	26	44	69	134	25	3.1
9	5.0	13	30	e105	e42	322	26	41	46	117	22	3.1
10	5.9	17	29	e78	47	223	25	61	44	106	20	3.1
11	e4.7	22	45	e68	45	183	24	53	54	112	20	3.8
12	4.5	20	38	e62	45	156	27	41	190	90	17	3.8
13	4.5	19	34	e58	37	132	49	37	e150	77	16	3.5
14	6.2	18	32	81	e35	114	36	226	e125	65	14	4.0
15	8.4	18	32	2550	40	102	30	174	e100	57	13	4.5
16	7.9	18	31	1110	47	97	27	126	80	48	12	4.7
17	7.0	18	30	516	77	83	29	106	62	52	11	31
18	5.9	20	34	338	72	74	33	92	51	66	9.8	20
19	5.5	29	41	244	68	66	31	122	42	53	8.4	12
20	5.5	26	37	368	69	64	29	90	e35	41	7.9	8.8
21	7.0	42	34	e250	72	62	27	74	e29	39	7.5	7.5
22	7.5	58	32	e175	72	56	27	62	618	36	7.0	8.4
23	13	36	31	e130	69	54	24	52	490	31	6.2	11
24	13	29	31	108	69	53	36	46	341	61	5.5	10
25	7.9	27	29	99	62	45	36	40	328	158	5.5	13
26	8.4	23	24	102	61	41	30	54	427	112	4.7	22
27	9.3	22	22	90	58	39	27	146	790	108	4.7	34
28	9.8	29	20	85	69	40	29	114	7390	120	4.7	20
29	9.8	30	20	85	---	38	24	141	2600	66	5.0	14
30	9.8	e24	19	72	---	37	23	170	1220	62	5.0	11
31	10	---	19	69	---	36	---	130	---	45	4.7	---
TOTAL	214.3	694	961	7323	1665	2623	884	2631	15814	3657	440.6	290.0
MEAN	6.91	23.1	31.0	236	59.5	84.6	29.5	84.9	527	118	14.2	9.67
MAX	13	58	71	2550	78	322	49	226	7390	550	36	34
MIN	4.5	11	14	24	35	36	23	25	29	31	4.7	3.1
CFSM	.09	.31	.42	3.17	.80	1.13	.39	1.14	7.07	1.58	.19	.13
IN.	.11	.35	.48	3.65	.83	1.31	.44	1.31	7.89	1.82	.22	.14

e Estimated.



JAMES RIVER BASIN  
02032250 MOORMANS RIVER NEAR FREE UNION, VA--Continued

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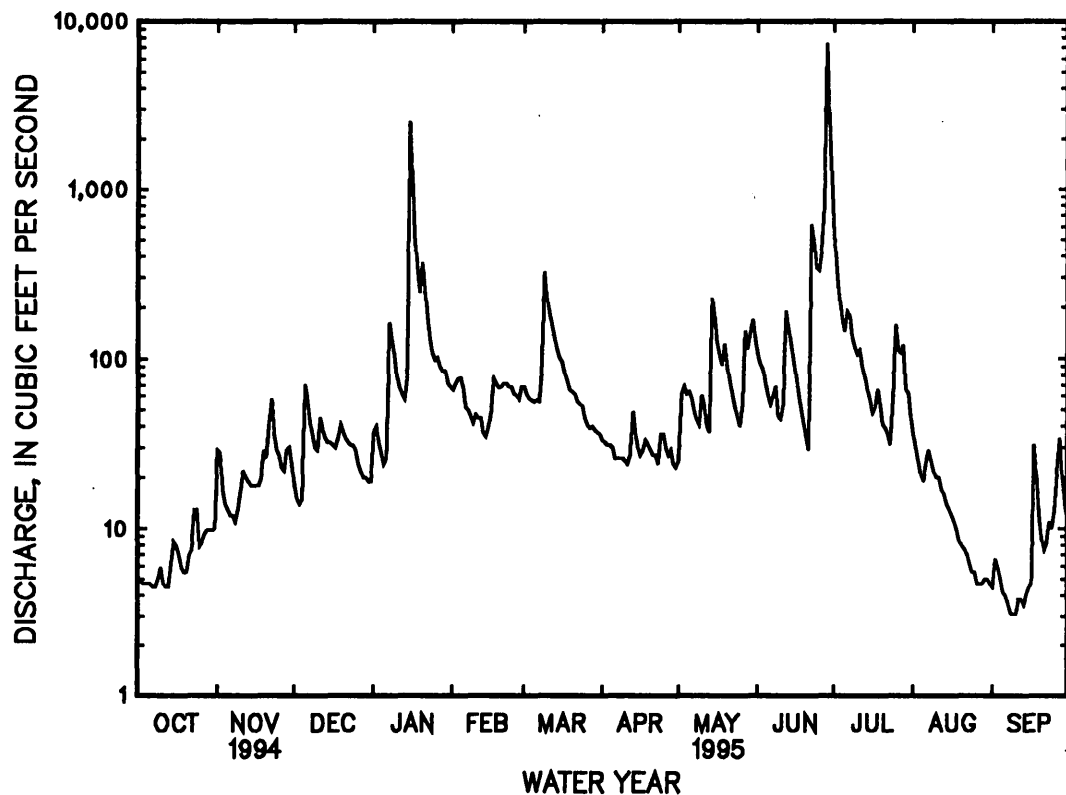
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	69.0	128	96.2	108	128	186	212	118	91.8	43.3	35.1	40.1
MAX	319	814	260	238	348	513	641	399	527	172	97.6	214
(WY)	1991	1986	1984	1991	1984	1993	1987	1989	1995	1991	1989	1987
MIN	4.86	13.0	13.1	6.64	45.0	23.9	20.2	36.6	9.52	7.49	1.02	2.71
(WY)	1992	1992	1981	1981	1989	1981	1981	1986	1986	1987	1987	1980

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1980 - 1995
ANNUAL TOTAL	29009.4	37196.9	
ANNUAL MEAN	79.5	102	104
HIGHEST ANNUAL MEAN			170
LOWEST ANNUAL MEAN			28.1
HIGHEST DAILY MEAN	982 Mar 29	7390 Jun 28	9620 Nov 4 1985
LOWEST DAILY MEAN	4.1 Jul 14	3.1 aSep 8	.61 Sep 4 1987
ANNUAL SEVEN-DAY MINIMUM	4.7 bOct 2	3.4 Sep 7	.72 Aug 30 1987
INSTANTANEOUS PEAK FLOW		19100 Jun 28	19100 Jun 28 1995
INSTANTANEOUS PEAK STAGE		22.28 Jun 28	22.28 Jun 28 1995
INSTANTANEOUS LOW FLOW		2.7 Sep 8	.58 Sep 5 1987
ANNUAL RUNOFF (CFSM)	1.07	1.37	1.40
ANNUAL RUNOFF (INCHES)	14.47	18.55	19.00
10 PERCENT EXCEEDS	194	143	225
50 PERCENT EXCEEDS	29	36	42
90 PERCENT EXCEEDS	7.0	5.7	6.4

a Also Sept. 9, 10, 1995.

b Also Oct. 3, 1994.



## 02032400 BUCK MOUNTAIN CREEK NEAR FREE UNION, VA

LOCATION.--Lat 38°09'16", long 78°32'22", Albemarle County, Hydrologic Unit 02080204, on left bank at downstream side of bridge on State Highway 665, 0.2 mi downstream from Piney Creek, 1.6 mi east of Free Union, and 2.0 mi upstream from mouth.

DRAINAGE AREA.--37.0 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 408.71 ft above sea level.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 1-17, Feb. 17 to Mar. 2, 5-7, May 21, 22, July 28, 29, and Aug. 2-5, 8-11, and periods with ice effect, Jan. 4, 5, 29, 30, and Feb. 6-9, 11-14, which are fair. Maximum discharge, 6,920 ft<sup>3</sup>/s, from rating curve extended above 1,500 ft<sup>3</sup>/s on basis of contracted-opening measurements at gage heights 9.30 ft and 9.61 ft. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 22, 1979, reached a stage of 11.12 ft, from floodmarks, discharge, about 6,600 ft<sup>3</sup>/s.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1000	3,510	8.71	June 28	0830	1,040	5.91
Jan. 15	1600	*3,580	*8.76	June 29	1045	1,120	6.09

Minimum discharge, 2.6 ft<sup>3</sup>/s, Sept. 6, gage height, 0.22 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.8	21	14	19	29	e33	16	13	16	203	7.8	4.1
2	e3.7	15	13	13	38	e30	15	31	15	143	e7.4	8.5
3	e3.4	10	12	11	38	27	15	26	16	97	e7.0	3.9
4	e3.3	8.9	12	e10	36	30	15	23	15	69	e6.6	3.1
5	e3.3	8.5	71	e9.2	32	e27	14	24	12	58	e6.2	3.0
6	e3.2	8.6	38	13	e25	e31	14	18	11	55	13	2.8
7	e3.1	7.9	26	107	e22	e26	14	16	11	58	14	2.9
8	e3.1	7.5	19	63	e19	73	13	15	10	40	e11	2.9
9	e4.0	7.5	16	39	e17	152	13	15	8.7	29	e8.3	3.0
10	e5.6	11	16	28	20	96	13	25	10	25	e8.4	3.4
11	e4.2	9.5	28	23	e19	75	13	19	19	22	e8.0	3.3
12	e3.9	8.2	19	20	e18	60	16	15	75	17	6.0	3.3
13	e4.1	7.9	16	17	e17	50	25	13	50	16	7.2	3.6
14	e5.4	7.6	16	18	e16	43	17	97	29	14	7.9	5.1
15	e8.5	7.5	14	1500	18	37	15	54	23	12	5.4	4.6
16	e7.9	7.5	13	393	23	34	15	30	19	11	4.9	4.2
17	e7.0	7.5	13	162	e40	31	16	24	16	11	4.6	17
18	6.6	8.6	13	107	e35	28	17	23	15	17	4.3	6.3
19	6.5	10	14	84	e32	26	15	40	13	11	4.0	4.2
20	6.4	8.7	12	182	e31	25	14	23	12	9.0	4.0	3.4
21	5.9	20	11	119	e45	25	14	e18	11	8.8	3.8	3.3
22	6.5	23	11	90	e40	23	13	e14	26	8.6	3.7	3.8
23	10	16	11	70	e36	24	12	11	27	8.1	3.4	5.4
24	10	13	9.6	57	e33	23	21	10	20	15	3.3	4.1
25	7.8	13	10	45	e31	19	17	9.4	18	41	3.2	5.5
26	7.8	11	9.3	36	e30	18	14	9.8	24	22	3.1	15
27	8.2	12	9.1	32	e29	18	13	45	104	17	3.3	11
28	7.3	19	8.8	33	e37	19	12	21	618	e14	3.8	6.1
29	7.3	17	8.8	e32	---	19	12	28	603	e10	3.7	4.7
30	7.6	15	8.0	e28	---	19	12	36	330	12	3.2	4.2
31	7.6	---	8.8	26	---	16	---	20	---	9.8	3.0	---
TOTAL	183.0	347.9	500.4	3386.2	806	1157	445	766.2	2176.7	1083.3	183.5	155.7
MEAN	5.90	11.6	16.1	109	28.8	37.3	14.8	24.7	72.6	34.9	5.92	5.19
MAX	10	23	71	1500	45	152	25	97	618	203	14	17
MIN	3.1	7.5	8.0	9.2	16	16	12	9.4	8.7	8.1	3.0	2.8
CFSM	.16	.31	.44	2.95	.78	1.01	.40	.67	1.96	.94	.16	.14
IN.	.18	.35	.50	3.40	.81	1.16	.45	.77	2.19	1.09	.18	.16

e Estimated.

## 02032400 BUCK MOUNTAIN CREEK NEAR FREE UNION, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	33.2	52.9	42.0	47.6	57.0	71.3	80.5	48.9	33.9	20.6	18.5	24.1
MAX	144	264	104	109	144	191	238	208	147	55.1	83.1	169
(WY)	1991	1986	1984	1995	1984	1993	1983	1989	1982	1989	1984	1987
MIN	3.91	6.11	8.45	7.23	20.1	15.2	12.0	14.0	4.61	4.93	1.33	1.33
(WY)	1987	1992	1981	1981	1989	1981	1981	1986	1986	1985	1987	1991

## SUMMARY STATISTICS

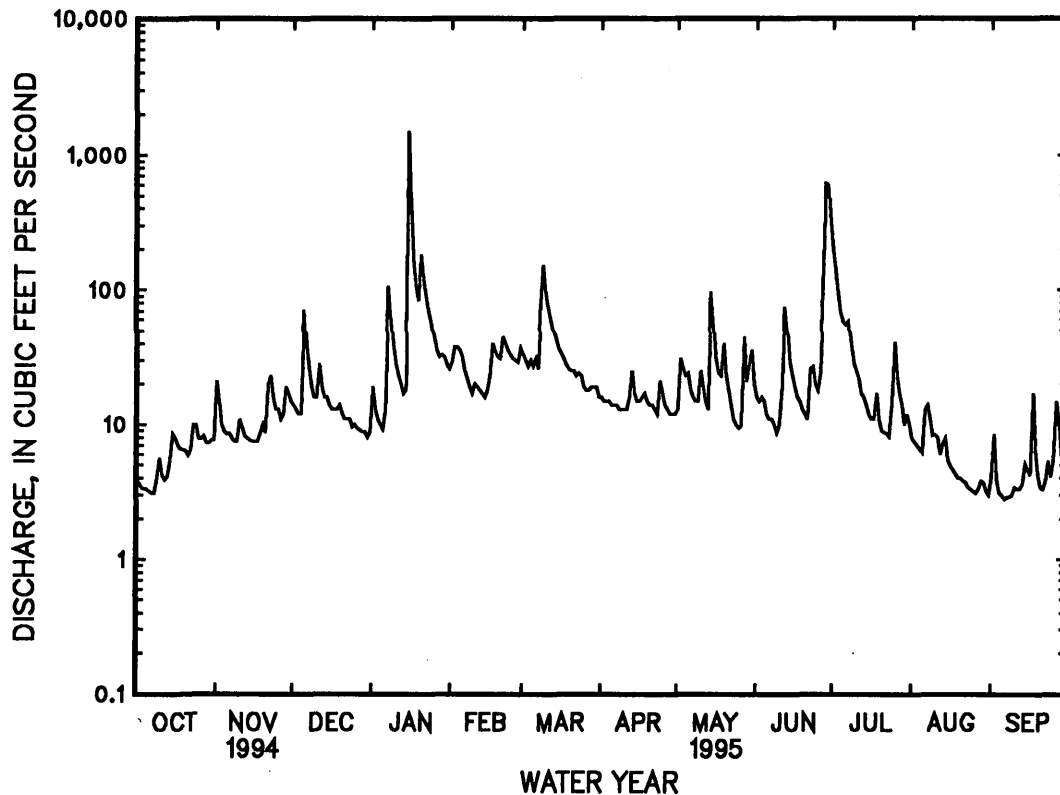
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1980 - 1995

ANNUAL TOTAL	14157.4	11190.9	
ANNUAL MEAN	38.8	30.7	44.1
HIGHEST ANNUAL MEAN			73.5
LOWEST ANNUAL MEAN			16.1
HIGHEST DAILY MEAN	480	Mar 29	1500
LOWEST DAILY MEAN	e3.1	aOct 7	2.8
ANNUAL SEVEN-DAY MINIMUM	e3.3	bOct 2	3.0
INSTANTANEOUS PEAK FLOW			3580
INSTANTANEOUS PEAK STAGE			8.76
INSTANTANEOUS LOW FLOW			2.6
ANNUAL RUNOFF (CFSM)	1.05	.83	1.19
ANNUAL RUNOFF (INCHES)	14.23	11.25	16.19
10 PERCENT EXCEEDS	97	45	85
50 PERCENT EXCEEDS	15	14	22
90 PERCENT EXCEEDS	6.2	4.0	4.4

a Also Oct. 8, 1994.  
b Also Oct. 3, 1994.  
c Also Sept. 5, 1995.  
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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Elevation of gage is 330 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good. 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 17.2 ft<sup>3</sup>/s is diverted for industrial and municipal use. Maximum discharge, 15,200 ft<sup>3</sup>/s, from rating curve extended above 12,000 ft<sup>3</sup>/s. Minimum discharge, 1.1 ft<sup>3</sup>/s, result of regulation. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,000 ft<sup>3</sup>/s, June 28, gage height, 20.41 ft; minimum, 8.4 ft<sup>3</sup>/s, Nov. 5, result of regulation; minimum daily, 13 ft<sup>3</sup>/s, Oct. 22, Aug. 21, 31, result of regulation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	184	94	162	193	220	137	103	243	1770	167	57
2	28	108	55	194	283	131	127	227	243	1330	152	76
3	105	90	33	98	266	217	135	198	266	916	134	27
4	14	84	63	115	287	170	145	149	209	677	131	70
5	17	58	334	97	255	178	102	197	152	560	118	14
6	34	62	267	79	206	213	103	186	181	552	59	34
7	40	69	215	667	129	176	106	108	144	709	142	33
8	41	55	139	534	241	228	154	163	225	468	123	14
9	48	60	115	380	136	1130	104	105	144	331	130	53
10	49	70	129	296	218	669	101	222	127	310	126	15
11	45	91	190	225	164	494	101	220	319	470	115	61
12	53	70	162	246	201	423	109	118	455	246	100	38
13	41	50	137	184	133	359	268	111	598	243	89	40
14	107	97	127	216	150	327	130	592	468	232	116	33
15	98	42	152	4590	180	231	103	557	256	215	84	48
16	78	78	111	3340	185	326	105	345	291	197	73	14
17	41	68	154	1350	281	253	160	246	170	245	51	202
18	57	66	107	825	258	231	117	222	154	337	57	139
19	66	98	131	591	219	211	135	325	160	179	57	43
20	60	55	121	1040	244	213	117	240	162	177	67	52
21	49	138	111	866	230	205	117	173	104	183	13	25
22	13	192	109	625	208	216	103	172	1250	179	54	94
23	115	190	107	481	210	163	103	130	1610	154	54	25
24	102	116	109	320	210	182	152	134	864	189	56	58
25	49	64	109	366	165	170	135	130	650	517	14	84
26	62	89	109	348	182	148	129	247	1870	837	14	49
27	58	90	59	258	187	157	101	474	1530	330	20	126
28	52	157	100	259	286	158	103	406	8540	554	83	77
29	56	109	111	259	---	144	103	352	5260	271	16	56
30	14	108	65	252	---	146	103	512	3100	280	71	45
31	89	---	95	254	---	145	---	334	---	193	13	---
TOTAL	1765	2808	3920	19517	5907	8234	3708	7698	29745	13851	2499	1702
MEAN	56.9	93.6	126	630	211	266	124	248	991	447	80.6	56.7
MAX	115	192	334	4590	287	1130	268	592	8540	1770	167	202
MIN	13	42	33	79	129	131	101	103	104	154	13	14
†FT <sup>3</sup> /S	17.1	16.6	15.4	15.0	16.1	15.7	17.6	17.0	17.1	18.5	20.2	19.6
CAL YR 1994	TOTAL	105217	MEAN	288	MAX	2950	MIN	11	†FT <sup>3</sup> /S	17.5		
WTR YR 1995	TOTAL	101354	MEAN	278	MAX	8540	MIN	13	†FT <sup>3</sup> /S	17.2		

† Average diversion, in cubic feet per second, at South Fork Rivanna and Sugar Hollow Reservoirs; provided by Rivanna Water and Sewer Authority.

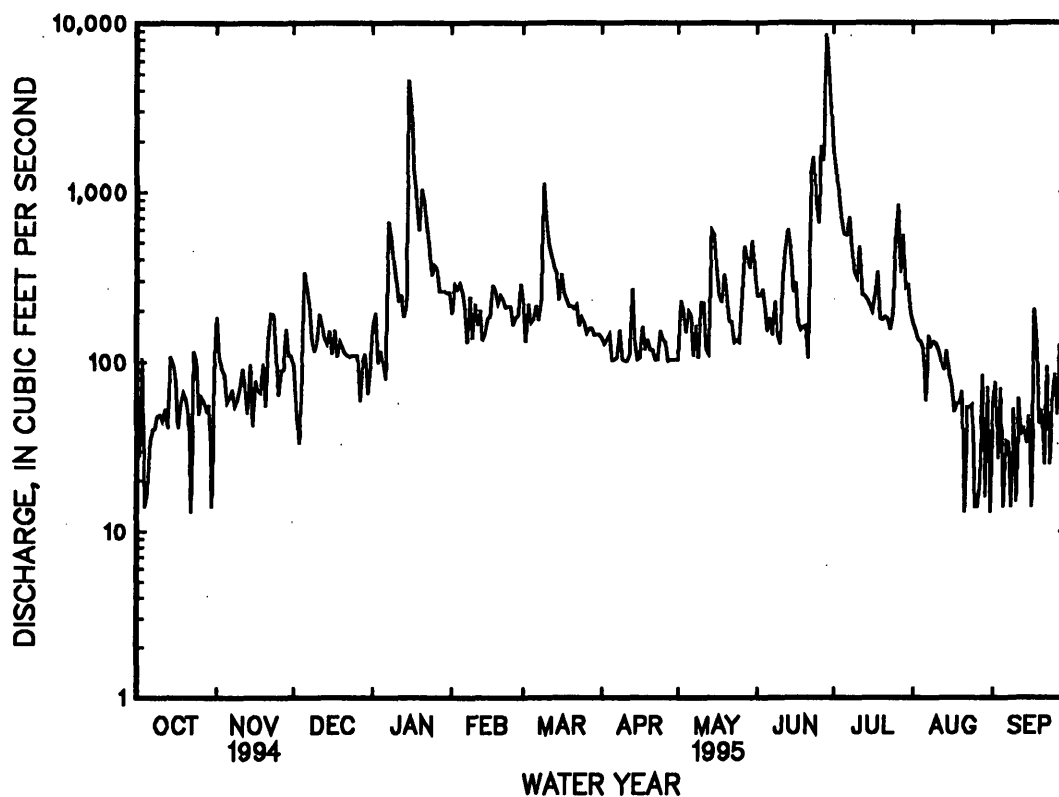
## 02032515 SOUTH FORK RIVANNA RIVER NEAR CHARLOTTESVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	202	314	290	334	390	511	538	329	256	171	137	197
MAX	790	1483	723	705	903	1290	1517	856	991	505	423	1209
(WY)	1991	1986	1984	1991	1984	1993	1983	1989	1995	1991	1984	1979
MIN	23.6	59.7	61.7	52.4	144	106	85.8	121	58.8	48.4	9.86	25.7
(WY)	1989	1989	1989	1981	1989	1981	1981	1981	1986	1987	1987	1988

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1979 - 1995	
ANNUAL TOTAL	105217		101354			
ANNUAL MEAN	288		278		300	
HIGHEST ANNUAL MEAN					480	
LOWEST ANNUAL MEAN					104	
HIGHEST DAILY MEAN	2950		8540		11600	
LOWEST DAILY MEAN	a11		a13		a3.6	
ANNUAL SEVEN-DAY MINIMUM	a35		a32		a5.7	
INSTANTANEOUS PEAK FLOW			12000		15200	
INSTANTANEOUS PEAK STAGE			20.41		d23.50	
INSTANTANEOUS LOW FLOW			a8.4		a1.1	
ANNUAL RUNOFF (CFSM)	1.11		1.07		1.15	
ANNUAL RUNOFF (INCHES)	15.05		14.50		15.66	
10 PERCENT EXCEEDS	646		486		610	
50 PERCENT EXCEEDS	127		144		170	
90 PERCENT EXCEEDS	47		49		37	

- a Result of regulation.  
b Also Aug. 21, 31, 1995..  
c During year of partial record.  
d From floodmarks.



## 02032640 NORTH FORK RIVANNA RIVER NEAR EARLYSVILLE, VA

LOCATION.---Lat 38°09'48", long 78°25'30", Albemarle County, Hydrologic Unit 02080204, on right bank at downstream side of bridge on State Highway 606, 0.4 mi upstream from mouth of Jacobs Run, 1.9 mi downstream from mouth of Marsh Run, and 2.1 mi southeast of Advance Mills.

DRAINAGE AREA.---108 mi<sup>2</sup>.

PERIOD OF RECORD.---October 1993 to current year.

GAGE.---Water-stage recorder. Elevation of gage is 365 ft above sea level, from topographic map.

REMARKS.---Records good except those for periods of doubtful or no gage-height record, Oct. 1-12, Mar. 10-15, and Aug. 8, 9, and periods with ice effect, Jan. 5, 6, and Feb. 6-10, 12-14, which are fair. Maximum discharge, 6,210 ft<sup>3</sup>/s, from rating curve extended above 2,150 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year.

COOPERATION.---Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.---Flood in April 1992 reached a stage of 19.92 ft, from floodmark, by the Virginia Department of Highways, discharge unknown.

EXTREMES FOR CURRENT YEAR.---Peak discharges equal to or greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1930	*6,210	*12.12	June 27	2030	3,400	8.82
June 27	0630	3,620	9.10	June 29	1630	2,750	7.93

Minimum daily discharge, 9.4 ft<sup>3</sup>/s, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e17	71	55	78	96	97	61	60	50	872	45	34
2	e17	67	51	67	105	88	59	107	50	601	41	242
3	e16	46	48	59	99	84	58	108	58	384	39	46
4	e16	39	48	56	101	83	57	94	64	278	37	26
5	e15	36	241	e47	91	80	55	92	48	251	36	21
6	e15	35	183	e51	e82	81	54	83	44	225	46	18
7	e14	33	133	350	e75	77	54	74	44	334	63	16
8	e14	31	104	255	e65	187	53	68	40	285	e42	15
9	e16	31	86	179	e62	515	53	64	36	193	e36	14
10	e21	39	82	139	e73	e360	53	83	38	336	36	14
11	e19	39	119	116	68	e250	53	79	70	264	35	13
12	e18	34	91	103	e67	e200	54	66	263	319	30	12
13	19	33	80	93	e60	e170	90	60	169	213	38	12
14	23	32	77	91	e55	e160	69	242	89	118	65	14
15	26	31	76	2540	61	e145	61	209	67	87	34	13
16	22	31	70	1610	68	129	58	145	54	72	29	14
17	21	31	67	623	116	116	59	117	47	67	25	63
18	20	32	65	380	98	105	68	102	41	72	22	41
19	20	37	75	282	88	97	63	140	37	59	19	27
20	20	36	67	562	88	94	59	94	35	49	18	22
21	19	61	62	413	87	95	59	75	31	51	17	20
22	21	105	60	308	81	84	57	66	73	47	16	22
23	30	72	59	242	78	82	54	62	122	44	14	28
24	32	60	56	198	75	79	73	57	138	55	13	24
25	26	54	54	161	71	71	71	54	93	189	12	29
26	25	50	52	137	69	68	62	65	647	218	11	73
27	24	49	49	117	66	67	60	82	2270	94	12	84
28	23	69	48	108	99	68	59	67	1810	72	12	46
29	22	68	47	107	---	66	58	77	1770	67	12	33
30	22	60	45	98	---	64	58	81	1190	73	11	28
31	22	---	46	94	---	63	---	58	---	49	10	---
TOTAL	635	1412	2396	9664	2244	3925	1802	2831	9488	6038	876	1064
MEAN	20.5	47.1	77.3	312	80.1	127	60.1	91.3	316	195	28.3	35.5
MAX	32	105	241	2540	116	515	90	242	2270	872	65	242
MIN	14	31	45	47	55	63	53	54	31	44	10	12
CFSM	.19	.44	.71	2.88	.74	1.17	.56	.84	2.92	1.80	.26	.33
IN.	.22	.49	.82	3.32	.77	1.35	.62	.97	3.26	2.08	.30	.37

e Estimated.

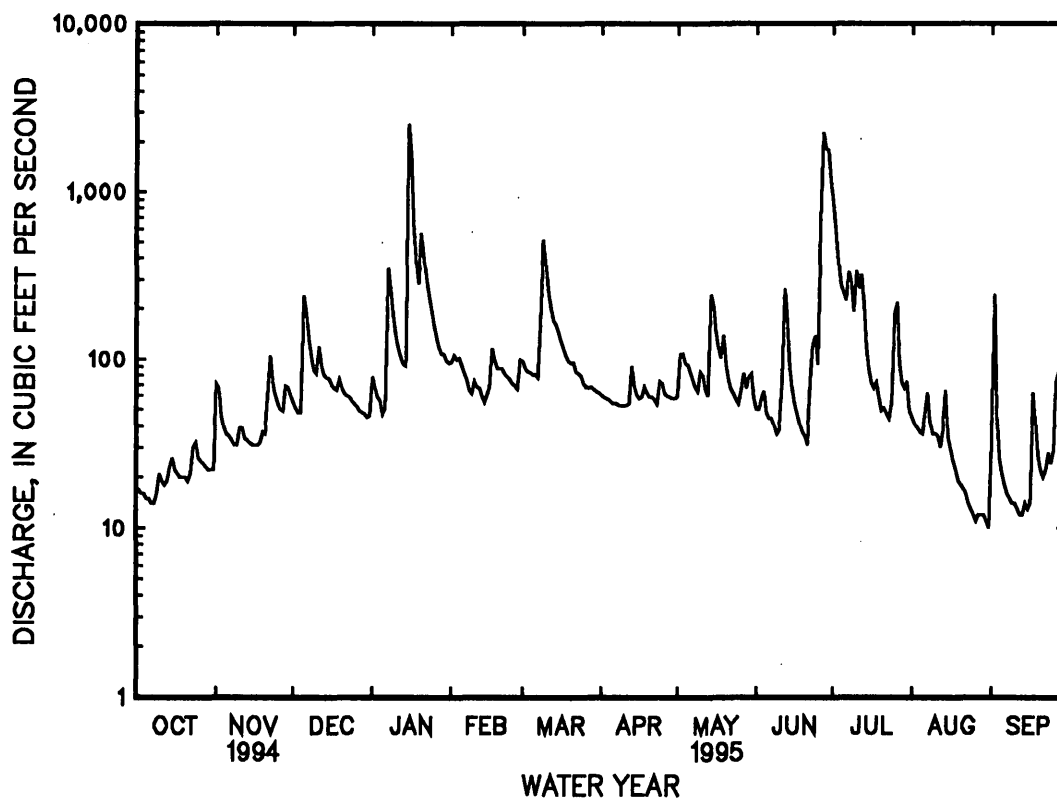
## 02032640 NORTH FORK RIVANNA RIVER NEAR EARLYSVILLE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	19.7	90.3	117	263	181	267	111	76.1	174	134	70.1	32.6
MAX	20.5	133	157	312	282	406	161	91.3	316	195	112	35.5
(WY)	1995	1994	1994	1995	1994	1994	1994	1995	1995	1995	1994	1995
MIN	18.9	47.1	77.3	214	80.1	127	60.1	60.8	31.4	73.6	28.3	29.7
(WY)	1994	1995	1995	1994	1995	1995	1995	1994	1994	1994	1995	1994

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1994 - 1995	
ANNUAL TOTAL	45884		42375			
ANNUAL MEAN	126		116		128	
HIGHEST ANNUAL MEAN					139	
LOWEST ANNUAL MEAN					116	
HIGHEST DAILY MEAN	1610	Mar 29	2540	Jan 15	2540	Jan 15 1995
LOWEST DAILY MEAN	e10	Jul 14	10	Aug 31	e10	Jul 14 1994
ANNUAL SEVEN-DAY MINIMUM	e15	Oct 3	11	Aug 25	11	Aug 25 1995
INSTANTANEOUS PEAK FLOW			6210	Jan 15	6210	Jan 15 1995
INSTANTANEOUS PEAK STAGE			12.12	Jan 15	12.12	Jan 15 1995
INSTANTANEOUS LOW FLOW			9.4	Sep 1	9.4	Sep 1 1995
ANNUAL RUNOFF (CFSM)	1.16		1.07		1.18	
ANNUAL RUNOFF (INCHES)	15.78		14.57		16.05	
10 PERCENT EXCEEDS	283		211		264	
50 PERCENT EXCEEDS	59		62		61	
90 PERCENT EXCEEDS	21		19		20	

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 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1933 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1936(M). WSP 852: 1937. WSP 892: 1934-35. WSP 1303: 1945-46(M). WSP 1503: 1956. WSP 2104: Drainage area. WDR VA-72-1: 1969(M).

GAGE.--Water-stage recorder. Datum of gage is 210.39 ft above sea level. 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.--No estimated daily discharges. Records good. Some diurnal fluctuation at times mostly at low and medium flow by South Fork Rivanna River Reservoir. Combined diversion of water supply and discharge from waste-water treatment plant upstream at Charlottesville results in an average gain of about 1.3 ft<sup>3</sup>/s upstream from the gage. National Weather Service, gage-height telemeter at station. Maximum discharge, 86,000 ft<sup>3</sup>/s, from rating curve extended above 76,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow and velocity-area study. Minimum gage height, 2.13 ft, Sept. 9-11, 1966. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	0730	13,500	19.24	June 29	0030	*13,700	*19.36
Mar. 9	0330	6,010	11.23	June 30	0330	9,480	16.03
June 27	2230	11,100	17.58				

Minimum discharge, 66 ft<sup>3</sup>/s, Sept. 12, gage height, 2.48 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	161	218	290	290	508	713	367	351	459	3310	331	83
2	183	397	329	362	538	470	357	635	434	2630	292	148
3	147	287	286	344	674	446	355	711	1110	1550	270	298
4	207	243	266	273	661	469	352	484	570	1140	257	138
5	129	223	739	272	617	423	357	461	424	923	236	136
6	119	199	976	245	499	453	318	408	373	925	239	96
7	133	205	615	1280	420	460	321	381	372	1400	255	84
8	144	199	535	1410	447	786	327	330	374	984	302	89
9	144	181	391	890	423	4360	350	347	364	686	267	85
10	182	202	367	691	404	1770	309	460	292	551	268	86
11	174	260	453	565	432	1230	302	612	358	2590	254	86
12	159	244	463	465	416	1030	308	466	1440	834	244	92
13	159	206	396	465	401	856	432	347	1670	660	213	87
14	197	183	365	406	372	731	493	1300	929	492	263	96
15	334	225	376	2370	386	647	336	1890	595	429	263	90
16	245	167	361	9680	440	616	322	963	457	389	203	97
17	208	213	330	3030	779	558	324	685	414	372	179	199
18	159	207	363	1660	702	511	375	533	320	688	148	370
19	174	213	323	1220	597	482	350	532	309	448	139	223
20	185	234	347	2080	545	443	348	649	297	349	136	137
21	177	212	317	1910	532	481	327	431	281	335	150	132
22	180	473	298	1330	502	432	326	372	731	405	89	120
23	155	383	293	1080	463	448	299	367	2520	343	110	198
24	301	364	292	849	452	416	386	299	1260	322	116	128
25	251	267	287	659	430	411	423	294	819	477	129	164
26	193	227	281	676	385	387	367	414	3140	1050	82	213
27	201	248	277	568	405	381	332	820	6330	635	75	263
28	192	324	225	506	569	389	303	785	10100	603	79	276
29	184	390	273	548	---	375	304	613	8570	506	138	201
30	185	315	276	524	---	372	305	877	6860	434	94	166
31	139	---	227	521	---	372	---	643	---	385	120	---
TOTAL	5701	7709	11617	37169	13999	21918	10375	18460	52172	26845	5941	4581
MEAN	184	257	375	1199	500	707	346	595	1739	866	192	153
MAX	334	473	976	9680	779	4360	493	1890	10100	3310	331	370
MIN	119	167	225	245	372	372	299	294	281	322	75	83
CFSM	.28	.39	.56	1.81	.75	1.06	.52	.90	2.62	1.30	.29	.23
IN.	.32	.43	.65	2.08	.78	1.23	.58	1.03	2.92	1.50	.33	.26



## 02034000 RIVANNA RIVER AT PALMYRA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	566	580	760	909	1023	1202	1060	757	592	401	482	434
MAX	3535	3521	2667	2620	2314	3415	3662	2472	4473	1524	3404	2915
(WY)	1943	1986	1949	1936	1984	1993	1937	1989	1972	1975	1969	1979
MIN	46.4	79.8	88.9	104	302	225	214	212	121	39.0	20.2	19.1
(WY)	1942	1942	1966	1966	1954	1981	1981	1956	1956	1966	1966	1954

## SUMMARY STATISTICS

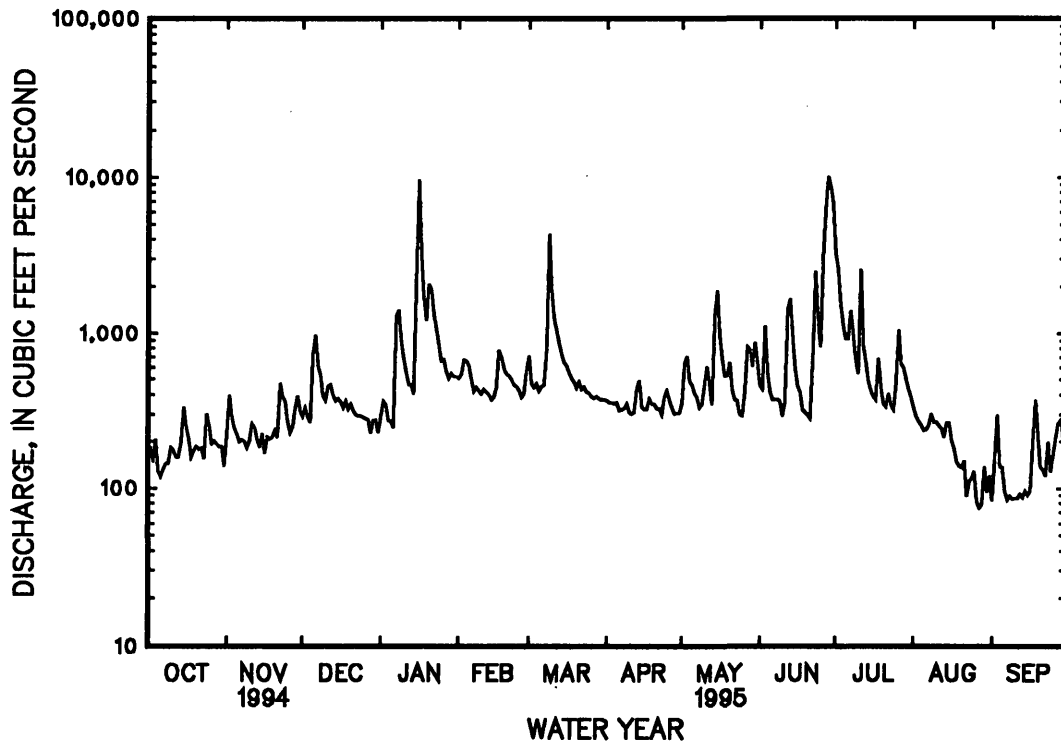
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1934 - 1995

ANNUAL TOTAL	278422	216487	
ANNUAL MEAN	763	593	
HIGHEST ANNUAL MEAN			1401 1973
LOWEST ANNUAL MEAN			241 1981
HIGHEST DAILY MEAN	11900 Mar 28	10100 Jun 28	68000 Jun 22 1972
LOWEST DAILY MEAN	81 Jul 14	75 Aug 27	5.2 aSep 9 1966
ANNUAL SEVEN-DAY MINIMUM	120 Jul 8	87 Sep 7	5.6 Sep 7 1966
INSTANTANEOUS PEAK FLOW		13700 Jun 29	86000 Aug 20 1969
INSTANTANEOUS PEAK STAGE		19.36 Jun 29	39.85 Aug 20 1969
INSTANTANEOUS LOW FLOW		66 Sep 12	5.2 aSep 9 1966
ANNUAL RUNOFF (CFSM)	1.15	.89	1.10
ANNUAL RUNOFF (INCHES)	15.60	12.13	14.92
10 PERCENT EXCEEDS	1540	968	1400
50 PERCENT EXCEEDS	364	364	417
90 PERCENT EXCEEDS	157	146	110

a Also Sept. 10, 11, 1966.



## 02035000 JAMES RIVER AT CARTERSVILLE, VA

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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1898 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1203: 1901-2(M), 1923-25(M), 1928(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 163.90 ft above sea level. Prior to June 4, 1927, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Moderate diurnal fluctuation caused by powerplants upstream from station. National Weather Service gage-height telemeter at station. Maximum discharge, 362,000 ft<sup>3</sup>/s, from rating curve extended above 160,000 ft<sup>3</sup>/s on basis of slope-conveyance study. Minimum gage height, 0.02 ft, Sept. 13, 14, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 40,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 17	0700	*82,500	*21.96	June 29	2000	80,800	21.68
June 24	1430	55,400	17.20				

Minimum discharge, 905 ft<sup>3</sup>/s, Sept. 15, gage height, 0.63 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1980	1800	2530	2080	5230	7690	3930	4010	4850	43900	3190	1250
2	1790	1930	2320	2350	5720	7270	3690	5570	4390	32000	2950	1530
3	1810	2120	2280	2680	5980	7650	3460	7910	7080	24100	2540	1690
4	1710	2240	2040	2640	6360	7820	3450	6660	7780	17300	2490	1690
5	1770	1930	2500	2290	7300	7320	3530	7570	6740	14000	2350	1450
6	1660	2010	4140	2180	7000	6640	3600	7810	6400	12300	2300	1240
7	1640	1780	4320	3770	6140	6360	3130	7610	7190	15600	2090	1180
8	1610	1690	3990	7190	5500	6390	2980	7240	7670	14000	2420	1120
9	1590	1720	3400	7040	5080	21000	2930	6650	5670	10900	2300	1020
10	1530	1720	3210	7740	4640	14900	2890	6520	4970	8600	2270	1150
11	1660	1850	2980	7000	4860	13700	2780	7720	6080	16700	2270	1330
12	1720	1940	3330	5870	4660	11600	2360	10800	10300	12700	2380	1050
13	1670	1860	3200	5080	4540	10000	2630	8120	18100	9230	2000	1190
14	1710	1810	3530	4610	4130	9090	3300	7540	19200	7710	2190	1160
15	2110	1760	3510	6340	4030	8770	3890	10100	13500	6190	2190	913
16	2240	1760	3510	57200	4140	8220	3310	7640	9840	4940	1950	969
17	2100	1630	3180	75500	5690	7700	3010	7610	7950	4420	1880	1430
18	1840	1770	3060	32200	7310	6970	2960	8550	6450	5620	1880	1880
19	1710	1750	3020	18700	9200	6430	3020	7580	5770	5040	1590	2370
20	1710	1850	2960	15700	10400	5930	3060	7280	4980	4520	1550	1780
21	1620	2240	2870	17500	9530	5400	2860	6840	4190	3940	1510	1580
22	1780	3060	2660	16000	9130	5020	2910	6510	4470	3850	1470	1480
23	1680	3490	2520	14200	8390	4960	2890	5570	14000	3700	1350	1540
24	1880	2740	2510	11600	7710	4940	3030	4840	53100	3790	1380	1710
25	2040	2440	2450	9570	7010	4840	3840	4500	37300	3440	1250	1620
26	2050	2070	2360	8250	6480	4550	3690	5250	24000	4130	1250	1590
27	1770	2040	2320	7220	5840	4190	3460	5900	32700	4660	1270	1890
28	1960	2170	2160	6520	5850	4160	4030	6970	45600	4360	1300	2130
29	1930	2710	2140	6370	---	3950	4070	6120	70700	4330	1420	1990
30	1870	2640	2120	6020	---	3950	3900	6040	77400	3880	1590	1870
31	1820	---	2070	5580	---	4060	---	5940	---	3830	1200	---
TOTAL	55960	62520	89190	376990	177850	231470	98590	214970	528370	313680	59770	44792
MEAN	1805	2084	2877	12160	6352	7467	3286	6935	17610	10120	1928	1493
MAX	2240	3490	4320	75500	10400	21000	4070	10800	77400	43900	3190	2370
MIN	1530	1630	2040	2080	4030	3950	2360	4010	4190	3440	1200	913
CFSM	.29	.33	.46	1.94	1.02	1.19	.53	1.11	2.81	1.62	.31	.24
IN.	.33	.37	.53	2.24	1.06	1.38	.59	1.28	3.14	1.86	.36	.27

## 02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

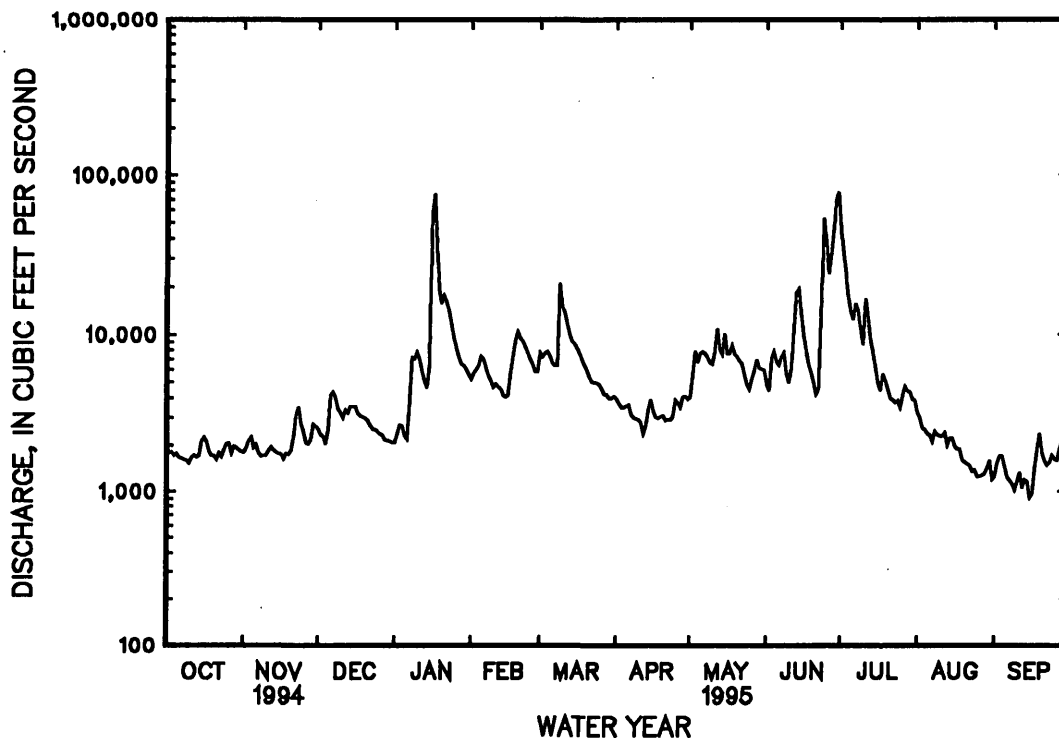
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4250	4740	6950	9412	10710	13090	11120	7944	6068	3845	4078	3405
MAX	20830	28210	25990	26480	22400	31810	33500	23530	30330	15070	20490	16070
(WY)	1907	1986	1949	1936	1899	1993	1987	1989	1972	1919	1969	1979
MIN	528	924	1054	1353	2055	2646	3286	2710	1620	605	652	561
(WY)	1931	1931	1966	1956	1934	1981	1995	1930	1964	1966	1930	1930

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1899 - 1995	
ANNUAL TOTAL	3020430		2254152			
ANNUAL MEAN	8275		6176		7087	
HIGHEST ANNUAL MEAN					12410	
LOWEST ANNUAL MEAN					2981	
HIGHEST DAILY MEAN	81900		Mar 29		77400	
LOWEST DAILY MEAN	1530		Oct 10		913	
ANNUAL SEVEN-DAY MINIMUM	1630		Oct 6		1110	
INSTANTANEOUS PEAK FLOW					82500	
INSTANTANEOUS PEAK STAGE					21.96	
INSTANTANEOUS LOW FLOW					905	
ANNUAL RUNOFF (CFSM)	1.32		.99		1.13	
ANNUAL RUNOFF (INCHES)	17.96		13.40		15.39	
10 PERCENT EXCEEDS	20900		10600		15000	
50 PERCENT EXCEEDS	3530		3770		4450	
90 PERCENT EXCEEDS	1820		1620		1440	

a From floodmarks.

b Also Sept. 14, 1966.



## JAMES RIVER BASIN

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued  
(National stream-quality accounting network station)

## 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, October 1991 to current year.

WATER TEMPERATURE: April 1968 to January 1976, October 1980 to May 1981, October 1991 to current year.

SUSPENDED-SEDIMENT DISCHARGE: October 1980 to May 1981.

COOPERATION.--Chemical data as noted were provided by the Virginia Division of Consolidated Laboratory Services (VDCLS) and reviewed by the U.S. Geological Survey.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	TUR- BID- IDTY (NTU) (00076)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
OCT											
26...	1030	2120	285	7.4	9.5	14.0	764	VDCLS	2.8	9.4	91
NOV											
10...	1000	1750	258	7.6	9.0	13.0	760	USGS	--	9.6	91
29...	0930	2380	242	7.0	4.5	7.0	764	USGS	1.4	12.0	99
29...	0931	2380	242	7.0	4.5	7.0	764	VDCLS	4.0	12.0	99
DEC											
28...	0900	2070	223	6.9	0.0	5.5	761	VDCLS	2.0	12.8	102
JAN											
17...	1000	82000	102	7.8	9.0	10.0	757	VDCLS	310	9.8	87
19...	0930	19100	242	7.4	7.0	9.0	763	VDCLS	70	9.9	86
FEB											
01...	0930	5240	146	6.6	6.0	3.0	755	USGS	3.6	13.4	100
01...	0931	5240	146	6.6	6.0	3.0	755	VDCLS	7.6	13.4	100
22...	0900	8740	212	7.7	3.5	6.0	763	USGS	3.5	12.2	98
22...	0901	8740	212	7.7	3.5	6.0	763	VDCLS	12	12.2	98
MAR											
10...	0900	14100	101	6.5	2.0	8.0	775	VDCLS	70	11.0	91
11...	1200	13800	141	6.8	16.5	7.0	771	VDCLS	30	11.5	94
12...	0830	12100	152	6.8	14.0	8.0	773	VDCLS	20	11.1	92
APR											
04...	0930	3640	178	7.1	16.0	14.0	756	VDCLS	3.2	10.4	102
24...	1000	2770	211	7.1	9.0	17.0	753	USGS	0.80	9.3	97
24...	1001	2770	211	7.1	9.0	17.0	753	VDCLS	3.0	9.3	97
MAY											
03...	0900	8060	179	7.0	12.0	15.0	762	VDCLS	17	9.4	93
03...	0915	8060	179	7.0	12.0	15.0	762	VDCLS	18	9.4	93
12...	1100	11900	127	7.0	22.0	21.0	756	VDCLS	33	8.2	93
22...	0900	6700	152	7.1	20.5	23.0	764	VDCLS	8.8	8.6	100
22...	0915	6700	152	7.1	20.5	23.0	764	VDCLS	6.3	8.6	100

## 02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	TUR- BID- IDY (NTU) (00076)	OXYGEN, DIS- SOLVED OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
JUN											
14...	0945	20400	194	7.1	25.0	22.0	754	USGS	--	7.3	84
14...	0946	20400	194	7.1	25.0	22.0	754	VDCLS	120	7.3	84
15...	0910	13900	182	7.4	22.0	19.5	767	VDCLS	37	7.8	84
23...	1445	11000	106	6.8	26.0	25.0	760	VDCLS	85	7.7	94
24...	0930	54200	104	7.0	23.0	22.0	759	VDCLS	590	7.7	88
25...	0830	40600	158	7.6	26.0	21.5	758	VDCLS	400	7.7	87
28...	1000	44200	84	6.7	23.0	23.0	764	USGS	98	7.7	90
28...	1001	44200	84	7.0	23.0	23.0	764	VDCLS	190	7.7	90
29...	0915	70700	120	6.9	22.0	20.0	763	VDCLS	330	8.7	96
30...	0915	80000	115	7.1	24.5	24.0	756	VDCLS	310	8.5	102
JUL											
11...	1200	21000	87	7.3	29.0	27.0	762	VDCLS	390	--	--
24...	0900	3840	183	7.5	26.5	30.0	758	VDCLS	10	7.5	100
AUG											
16...	1000	2070	254	7.6	31.5	31.0	759	USGS	1.5	6.6	89
16...	1001	2070	254	7.6	31.5	31.0	759	VDCLS	2.3	6.6	89
SEP											
28...	1030	1930	305	6.7	19.0	20.0	764	VDCLS	5.0	9.4	103

## JAMES RIVER BASIN

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL AS (MG/L CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT MG/L AS CO3 (00452)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)
OCT											
26...	--	--	--	--	--	--	--	--	--	--	--
NOV											
10...	--	--	--	--	--	--	--	--	--	--	--
29...	34	20	76	23	4.5	17	3.3	88	0	72	30
29...	--	--	--	--	--	--	--	--	--	--	--
DEC											
28...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
FEB											
01...	22	K8	51	15	3.2	7.4	1.4	51	0	42	11
01...	--	--	--	--	--	--	--	--	--	--	--
22...	27	14	71	22	3.9	14	2.0	61	0	50	24
22...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
APR											
04...	--	--	--	--	--	--	--	--	--	--	--
24...	24	45	65	19	4.3	14	2.5	64	0	52	19
24...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
JUN											
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	32	9.5	2.1	2.6	1.9	--	--	19	7.0
28...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
JUL											
11...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
AUG											
16...	K16	K9	86	25	5.7	16	3.1	83	0	68	19
16...	--	--	--	--	--	--	--	--	--	--	--
SEP											
28...	--	--	--	--	--	--	--	--	--	--	--

K Results based on colony count outside the acceptance range (non-ideal colony count).

## 02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530) (*)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535) (*)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540) (*)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618) (*)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) (*)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) (*)
OCT											
26...	--	--	6.0	--	--	<3	<3	<3	0.110	<0.002	0.110
NOV											
10...	--	--	--	--	--	--	--	--	--	--	--
29...	16	<0.10	7.2	148	146	8	4	4	--	<0.010	0.140
29...	--	--	7.6	--	--	<3	<3	<3	0.146	0.003	0.149
DEC											
28...	--	--	4.9	--	--	<3	<3	<3	0.091	<0.002	0.091
JAN											
17...	--	--	5.9	--	--	358	43	315	0.272	0.005	0.277
19...	--	--	7.5	--	--	79	9	70	0.376	0.003	0.379
FEB											
01...	8.6	<0.10	9.0	89	83	4	3	1	--	<0.010	0.390
01...	--	--	10	--	--	4	<3	3	0.397	0.004	0.401
22...	14	<0.10	7.6	131	120	4	<1	--	--	<0.010	0.290
22...	--	--	6.8	--	--	14	<3	12	0.291	0.004	0.295
MAR											
10...	--	--	7.7	--	--	84	11	73	0.182	0.004	0.186
11...	--	--	7.1	--	--	41	7	34	0.228	0.003	0.231
12...	--	--	6.6	--	--	24	4	20	0.173	0.003	0.176
APR											
04...	--	--	3.7	--	--	3	<3	<3	0.049	0.002	0.051
24...	15	0.10	3.3	120	110	2	<1	--	--	<0.010	0.220
24...	--	--	3.8	--	--	3	<3	<3	0.200	0.007	0.207
MAY											
03...	--	--	8.4	--	--	32	5	27	0.247	0.005	0.252
03...	--	--	8.5	--	--	32	5	27	0.246	0.005	0.251
12...	--	--	7.6	--	--	52	9	43	0.257	0.009	0.266
22...	--	--	7.8	--	--	13	<3	11	0.251	0.008	0.259
22...	--	--	7.8	--	--	13	<3	11	0.252	0.008	0.260
JUN											
14...	--	--	6.4	--	--	150	38	112	0.200	0.010	0.210
14...	--	--	7.2	--	--	166	23	143	0.244	0.014	0.258
15...	--	--	8.4	--	--	70	9	61	0.315	0.010	0.325
23...	--	--	8.6	--	--	125	15	110	0.325	0.006	0.331
24...	--	--	5.4	--	--	632	76	556	0.208	0.008	0.216
25...	--	--	6.0	--	--	417	42	375	0.250	0.005	0.255
28...	2.6	<0.10	6.6	66	49	148	22	126	0.180	0.020	0.200
28...	--	--	7.0	--	--	127	16	111	0.231	0.005	0.236
29...	--	--	7.5	--	--	428	43	385	0.280	0.005	0.285
30...	--	--	7.3	--	--	291	31	260	0.272	0.004	0.276
JUL											
11...	--	--	8.1	--	--	615	54	561	0.358	0.008	0.366
24...	--	--	6.3	--	--	9	<3	7	0.056	<0.002	0.056
AUG											
16...	18	0.10	8.1	147	137	5	<1	--	--	<0.010	0.140
16...	--	--	8.4	--	--	<3	<3	<3	0.094	0.002	0.096
SEP											
28...	--	--	6.5	--	--	<3	<3	<3	0.289	0.003	0.292

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

\* For these constituents, there are differences in the minimum constituent reporting levels between the analyzing agencies.

## 02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) (*)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) (*)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671) (*)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)
OCT											
26...	0.110	0.010	0.20	0.100	0.140	0.096	--	--	--	--	--
NOV											
10...	--	--	--	--	--	--	--	--	--	--	--
29...	0.140	<0.015	0.20	0.100	0.100	0.080	30	30	<3	260	<4
29...	0.149	0.014	0.20	0.090	0.090	0.083	--	--	--	--	--
DEC											
28...	0.091	<0.004	0.10	0.090	0.100	0.082	--	--	--	--	--
JAN											
17...	0.277	0.046	1.3	0.410	0.090	0.030	--	--	--	--	--
19...	0.379	0.028	0.60	0.130	0.050	0.028	--	--	--	--	--
FEB											
01...	0.390	0.050	<0.20	0.060	0.040	0.050	--	--	--	--	--
01...	0.401	0.054	0.10	0.070	--	0.050	--	--	--	--	--
22...	0.290	0.030	<0.20	0.220	0.200	0.190	110	33	<3	190	<4
22...	0.295	0.030	0.10	0.210	0.220	0.196	--	--	--	--	--
MAR											
10...	0.186	0.021	0.40	0.100	0.050	0.020	--	--	--	--	--
11...	0.231	0.033	0.30	0.060	0.050	0.026	--	--	--	--	--
12...	0.176	0.028	0.30	0.100	0.070	0.054	--	--	--	--	--
APR											
04...	0.051	0.015	0.80	0.110	0.110	0.107	--	--	--	--	--
24...	0.220	0.020	0.30	0.140	0.130	0.130	<10	32	<3	150	4
24...	0.207	0.018	0.20	0.140	0.140	0.141	--	--	--	--	--
MAY											
03...	0.252	0.034	0.40	0.140	0.100	0.084	--	--	--	--	--
03...	0.251	0.036	0.50	0.150	0.090	0.082	--	--	--	--	--
12...	0.266	0.070	0.50	0.160	0.080	0.072	--	--	--	--	--
22...	0.259	0.018	0.30	0.120	0.090	0.081	--	--	--	--	--
22...	0.260	0.018	0.20	0.110	0.090	0.082	--	--	--	--	--
JUN											
14...	0.210	0.040	0.30	0.100	--	0.080	--	--	--	--	--
14...	0.258	0.041	0.70	0.370	0.130	0.090	--	--	--	--	--
15...	0.325	0.056	0.50	0.210	0.110	0.095	--	--	--	--	--
23...	0.331	0.028	0.60	0.240	0.060	0.037	--	--	--	--	--
24...	0.216	0.049	1.7	1.10	0.060	0.032	--	--	--	--	--
25...	0.255	0.025	1.2	0.500	0.060	0.047	--	--	--	--	--
28...	0.200	0.030	0.40	0.060	0.050	0.020	--	--	--	--	--
28...	0.236	0.032	0.80	0.320	0.040	0.023	--	--	--	--	--
29...	0.285	0.038	0.60	0.100	0.050	0.041	--	--	--	--	--
30...	0.276	0.020	0.90	0.470	0.040	0.034	--	--	--	--	--
JUL											
11...	0.366	0.025	0.50	0.080	0.030	0.026	--	--	--	--	--
24...	0.056	0.019	0.30	0.070	0.050	0.035	--	--	--	--	--
AUG											
16...	0.140	<0.015	0.20	0.050	0.060	0.060	30	36	<3	87	5
16...	0.096	0.013	0.20	0.080	0.080	0.063	--	--	--	--	--
SEP											
28...	0.292	<0.004	0.10	0.210	0.230	0.234	--	--	--	--	--

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

\* For these constituents, there are differences in the minimum constituent reporting levels between the analyzing agencies.



## 02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
26...	--	--	--	--	--	--	--	--	--	--
NOV										
10...	--	--	--	--	--	--	--	--	6	47
29...	11	<10	<1	<1	<1.0	91	<6	4.8	7	66
29...	--	--	--	--	--	--	--	--	--	--
DEC										
28...	--	--	--	--	--	--	--	--	--	--
JAN										
17...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
FEB										
01...	--	--	--	--	--	--	--	14	13	62
01...	--	--	--	--	--	--	--	--	--	--
22...	9	<10	<1	<1	<1.0	86	<6	6.2	12	62
22...	--	--	--	--	--	--	--	--	--	--
MAR										
10...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
APR										
04...	--	--	--	--	--	--	--	--	--	--
24...	12	<10	<1	<1	<1.0	87	<6	4.4	6	100
24...	--	--	--	--	--	--	--	--	--	--
MAY										
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUN										
14...	--	--	--	--	--	--	--	11	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	12	206	84
28...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
JUL										
11...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
AUG										
16...	11	<10	<1	<1	<1.0	100	<6	4.3	621	--
16...	--	--	--	--	--	--	--	--	--	--
SEP										
28...	--	--	--	--	--	--	--	--	--	--

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

## JAMES RIVER BASIN

## 02036500 FINE CREEK AT FINE CREEK MILLS, VA

LOCATION.--Lat 37°35'52", long 77°49'12", Powhatan County, Hydrologic Unit 02080205, on right bank 75 ft downstream from bridge on State Highway 711 at Fine Creek Mills, 0.8 mi upstream from mouth, and 6.7 mi northeast of Powhatan.

DRAINAGE AREA.--22.1 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1944 to current year.

REVISED RECORDS.--WSP 1203: 1948. WSP 1303: 1945(M). WSP 1383: 1954. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 156.59 ft above sea level. Prior to Oct. 28, 1953, nonrecording gage and crest-stage gage at site 75 ft upstream at same datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, and Feb. 8-9, which are fair, and those for period of no gage-height record, June 6 to Sept. 30, which are poor. Maximum discharge, 4,180 ft<sup>3</sup>/s, from rating curve extended above 2,600 ft<sup>3</sup>/s. Minimum gage height, 1.53 ft, Sept. 30, Oct. 1, 1970. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 9	1400	*284	*3.13	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 0.63 ft<sup>3</sup>/s, Sept. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	5.2	10	8.3	18	30	9.9	22	8.2	e34	e2.6	e1.0
2	1.5	5.1	9.0	8.3	20	34	9.4	99	9.1	e53	e2.4	e1.2
3	1.4	4.5	8.2	7.9	19	24	9.1	98	22	e36	e2.2	e1.3
4	1.4	4.5	7.9	7.7	19	22	8.8	36	21	e28	e2.1	e1.2
5	1.3	4.6	11	e5.3	19	19	8.5	26	14	e21	e1.9	e1.7
6	1.3	6.9	11	6.7	14	19	7.8	21	e11	e27	e1.8	e1.4
7	1.3	6.4	10	40	11	17	7.8	15	e10	e36	e1.7	e1.9
8	1.2	6.1	8.7	40	e10	55	8.2	12	e16	e26	e1.7	e1.3
9	1.3	6.0	7.9	23	e9.2	233	8.0	9.9	e13	e16	e1.8	e1.0
10	1.5	6.7	7.7	17	11	114	8.1	19	e11	e47	e2.2	e.90
11	1.9	6.5	8.2	14	13	54	7.9	27	e8.8	e160	e1.9	e.80
12	2.0	6.0	7.8	12	13	36	9.5	18	e9.3	e97	e2.1	e.72
13	2.1	5.9	7.4	11	11	28	28	13	e13	e30	e4.6	e.68
14	7.4	5.7	8.2	11	9.7	23	21	26	e11	e16	e3.2	e.65
15	9.6	6.0	8.5	45	11	20	13	42	e8.6	e17	e3.9	e.63
16	6.8	5.8	7.8	99	19	18	10	24	e7.5	e19	e2.8	e.73
17	4.5	7.1	8.2	55	27	17	9.6	17	e6.0	e14	e2.4	e1.5
18	3.2	9.0	8.5	28	23	21	9.9	15	e5.5	e11	e2.2	e1.3
19	2.3	8.9	9.6	21	19	19	9.7	21	e5.0	e8.4	e1.9	e1.8
20	2.1	7.8	8.9	31	17	14	8.7	19	e4.6	e7.0	e1.7	e1.6
21	2.9	37	8.4	33	16	13	7.9	15	e5.0	e9.6	e1.5	e1.8
22	2.7	67	8.3	22	14	12	7.0	11	e4.5	e7.8	e1.4	e3.2
23	5.4	40	8.3	17	13	14	6.0	8.2	e5.2	e7.0	e1.2	e2.6
24	6.4	21	7.8	14	12	15	18	6.8	e7.2	e8.4	e1.1	e2.2
25	5.3	15	8.3	12	11	13	19	8.1	e6.0	e6.5	e1.0	e2.8
26	5.8	12	7.9	15	10	11	11	13	e8.0	e5.4	e.92	e3.9
27	6.1	12	7.9	16	10	11	8.5	12	e17	e4.6	e.98	e3.0
28	5.5	17	7.8	16	14	11	7.1	13	e110	e5.8	e1.1	e2.1
29	4.5	15	7.5	17	---	11	6.1	18	e52	e4.6	e1.4	e1.6
30	4.2	12	7.4	15	---	11	14	15	e29	e3.7	e1.3	e1.4
31	4.1	---	7.2	16	---	10	---	11	---	e3.0	e1.1	---
TOTAL	108.6	372.7	261.3	684.2	412.9	949	317.5	711.0	458.5	769.8	60.10	47.91
MEAN	3.50	12.4	8.43	22.1	14.7	30.6	10.6	22.9	15.3	24.8	1.94	1.60
MAX	9.6	67	11	99	27	233	28	99	110	160	4.6	3.9
MIN	1.2	4.5	7.2	5.3	9.2	10	6.0	6.8	4.5	3.0	.92	.63
CFSM	.16	.56	.38	1.00	.67	1.39	.48	1.04	.69	1.12	.09	.07
IN.	.18	.63	.44	1.15	.70	1.60	.53	1.20	.77	1.30	.10	.08

e Estimated.

## 02036500 FINE CREEK AT FINE CREEK MILLS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	14.8	17.5	21.7	26.8	30.9	34.5	29.7	21.0	12.1	8.30	11.9	8.10
MAX	119	104	53.9	92.5	92.7	99.1	84.1	54.1	60.8	25.7	83.3	42.9
(WY)	1973	1986	1949	1978	1979	1994	1983	1978	1972	a1949	1955	1975
MIN	.47	3.15	5.60	6.38	8.76	11.4	7.63	3.21	2.87	1.34	.74	.31
(WY)	1969	1992	1966	1955	1991	1985	1985	1991	1970	1993	1977	1968

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1945 - 1995

ANNUAL TOTAL	8384.0	5153.51	
ANNUAL MEAN	23.0	14.1	
HIGHEST ANNUAL MEAN			19.7
LOWEST ANNUAL MEAN			40.7
HIGHEST DAILY MEAN	553 Mar 3	233 Mar 9	1880 Oct 21 1961
LOWEST DAILY MEAN	1.1 bSep 6	e.63 Sep 15	.08 Oct 1 1968
ANNUAL SEVEN-DAY MINIMUM	1.2 cSep 3	e.73 Sep 10	.10 Sep 25 1968
INSTANTANEOUS PEAK FLOW		284 Mar 9	4180 Oct 6 1972
INSTANTANEOUS PEAK STAGE		3.13 Mar 9	9.02 Oct 6 1972
INSTANTANEOUS LOW FLOW		(d) (f)	.08 Oct 1 1968
ANNUAL RUNOFF (CFSM)	1.04	.64	.89
ANNUAL RUNOFF (INCHES)	14.11	8.67	12.11
10 PERCENT EXCEEDS	45	27	38
50 PERCENT EXCEEDS	9.0	8.8	11
90 PERCENT EXCEEDS	2.0	1.5	2.4

a Also 1975.

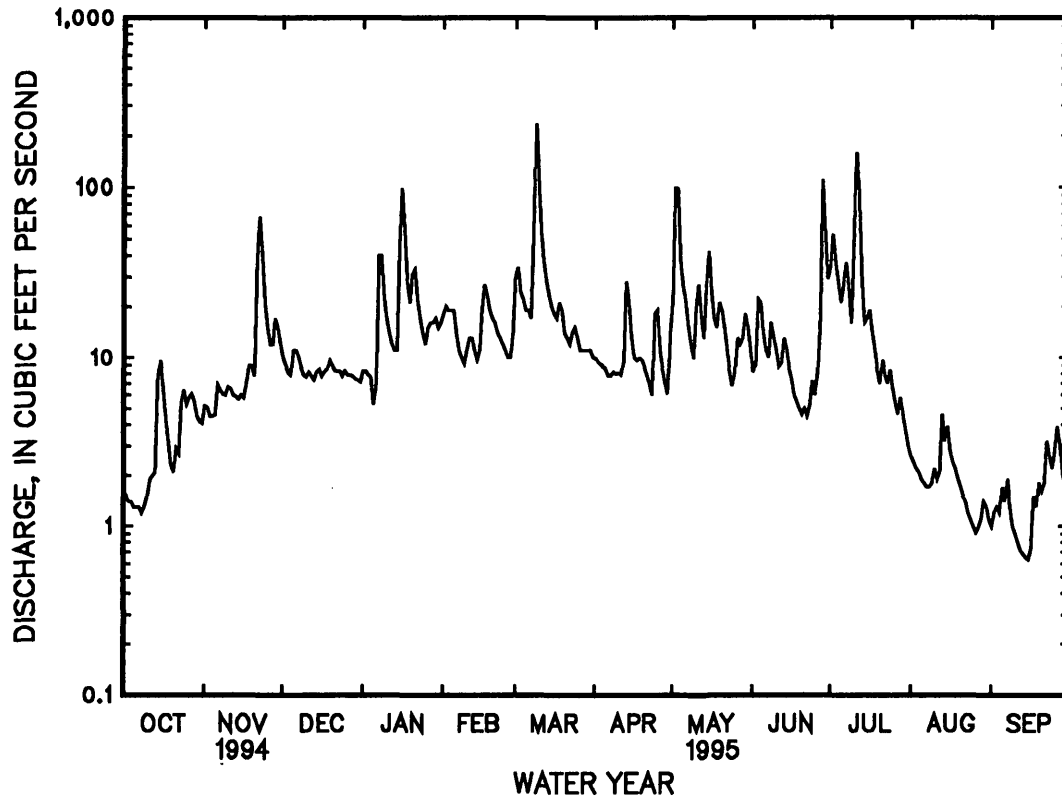
b Also Sept. 15, 1994.

c Also Sept. 4, 1994.

d Not determined.

e Estimated.

f Probably occurred Sept. 15, 1995.



## JAMES RIVER BASIN

## 02037000 JAMES RIVER AND KANAWHA CANAL NEAR RICHMOND, VA

LOCATION.--Lat 37°33'52", long 77°34'28", Henrico County, Hydrologic Unit 02080205, on left bank 75 ft downstream from Canal bridge, 400 ft downstream from head gates, 1,200 ft north of north end of Boshier Dam on James River, 1.6 mi upstream from Huguenot Memorial Bridge, and 2.0 mi west of Richmond city limits.

PERIOD OF RECORD.--September 1936 to current year.

GAGE.--Water-stage recorder. Datum of gage is 106.07 ft above sea level. Prior to Oct. 1, 1938, at datum 3.06 ft higher.

REMARKS.--No estimated daily discharges. Records good. Canal diverts from James River 1,200 ft upstream from Boshier Dam and discharges into river at several points downstream from gaging station near Richmond. Beginning with the 1969 water year, the descriptive statement that above 2,540 ft<sup>3</sup>/s, gage height, 14.5 ft, there is interchange of flow with the James River and that discharge above 2,540 ft<sup>3</sup>/s is included in discharge for the James River near Richmond (station 02037500) has been used. Daily discharges in excess of 2,540 ft<sup>3</sup>/s for water years 1937-68 should be used with caution until historical records of canal construction and modifications can be reviewed. Figures given show flow in canal only. Probably no flow at times when head gates were closed. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 647 ft<sup>3</sup>/s, Nov. 21; maximum gage height, 7.51 ft, Nov. 21; minimum discharge, 19 ft<sup>3</sup>/s, Dec. 10-17, result of head gates being closed.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	286	155	21	161	144	85	160	145	133	453	187	223
2	284	162	21	124	143	83	160	127	131	374	184	225
3	230	166	20	125	131	83	159	95	138	285	193	227
4	128	167	20	126	111	85	159	145	137	303	177	227
5	115	167	20	125	104	86	193	144	135	250	176	226
6	121	168	20	125	116	88	239	144	134	148	176	222
7	165	174	20	180	147	89	188	142	133	150	123	209
8	191	177	20	152	149	113	143	141	135	148	35	197
9	194	177	20	157	136	151	142	140	132	143	35	197
10	198	182	20	156	104	113	142	145	129	140	98	196
11	200	185	20	162	100	108	141	142	131	145	201	236
12	203	187	19	160	100	109	160	146	147	168	170	281
13	205	189	19	156	100	110	236	146	408	173	168	212
14	222	189	19	144	99	112	169	169	459	168	167	210
15	216	186	19	172	100	113	143	152	378	164	168	210
16	217	183	19	60	101	113	141	148	240	162	168	209
17	217	185	20	57	91	112	140	143	228	161	168	215
18	214	189	23	79	90	111	140	145	224	159	168	216
19	213	191	23	53	90	110	252	150	220	160	168	222
20	214	189	42	104	94	109	259	142	219	158	167	224
21	224	321	65	52	93	109	137	140	214	156	166	220
22	228	273	66	44	91	124	136	138	216	156	166	215
23	268	231	66	102	87	146	136	136	220	155	177	191
24	261	246	68	179	70	150	148	134	337	155	204	188
25	244	270	70	158	70	154	140	140	385	154	208	189
26	218	279	71	153	71	153	140	174	277	154	221	185
27	217	286	72	149	73	154	140	140	178	159	222	185
28	215	304	100	145	75	155	138	141	181	179	224	171
29	199	221	181	144	---	173	138	140	220	160	226	147
30	171	27	185	144	---	199	178	135	438	155	226	138
31	153	---	182	145	---	162	---	134	---	164	227	---
TOTAL	6431	6026	1551	3993	2880	3762	4897	4403	6657	5759	5364	6213
MEAN	207	201	50.0	129	103	121	163	142	222	186	173	207
MAX	286	321	185	180	149	199	259	174	459	453	227	281
MIN	115	27	19	44	70	83	136	95	129	140	35	138

## 02037000 JAMES RIVER AND KANAWHA CANAL NEAR RICHMOND, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	618	650	675	695	712	702	718	694	698	628	614	593
MAX	1078	1014	1220	1145	1086	1094	1108	1086	1061	956	1108	937
(WY)	1949	1948	1949	1949	1979	1951	1951	1952	1951	1940	1940	1949
MIN	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60
(WY)	a1981	a1980	a1980	a1980	a1980	a1980	a1980	a1980	a1980	a1980	a1980	a1980

## SUMMARY STATISTICS

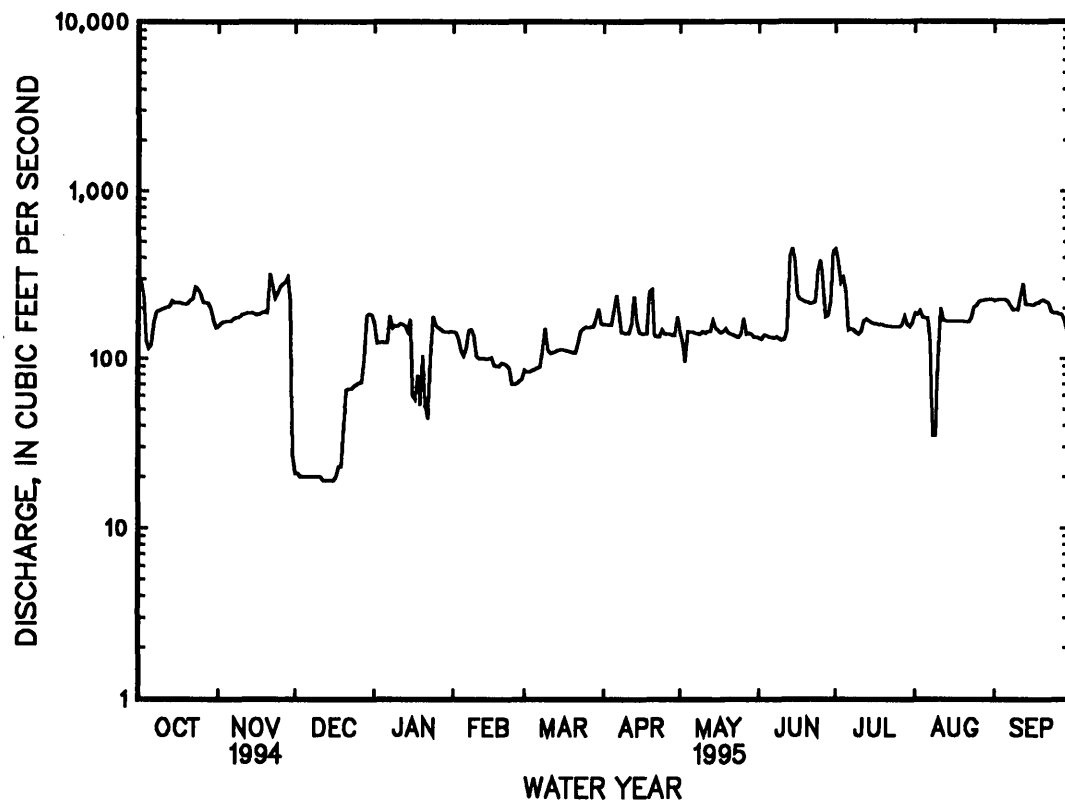
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1937 - 1995

ANNUAL TOTAL	71080	57936	
ANNUAL MEAN	195	159	666
HIGHEST ANNUAL MEAN			1023
LOWEST ANNUAL MEAN			1.48
HIGHEST DAILY MEAN	964	Mar 30	459
LOWEST DAILY MEAN	c19	dDec 12	c19
ANNUAL SEVEN-DAY MINIMUM	c19	hDec 10	c19
INSTANTANEOUS PEAK FLOW			647
INSTANTANEOUS PEAK STAGE			7.51
INSTANTANEOUS LOW FLOW			c19
10 PERCENT EXCEEDS	345	227	990
50 PERCENT EXCEEDS	177	155	810
90 PERCENT EXCEEDS	94	71	20

- a Estimated, leakage through head gates; also 1983.  
b See REMARKS.  
c Result of headgates being closed.  
d Also Dec. 13-16, 1994.  
f Probably no flow at times when head gates were closed prior to 1958.  
g Many days in 1937-38, 1949-50, 1952, 1954-55, and 1957.  
h Also Dec. 11-13, 1994.  
j Interchange of flow with James River makes maximum discharge indeterminate.  
k From floodmarks.  
m Also Dec. 12-17, 1994.



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

PERIOD OF RECORD.--October 1934 to current year. Gage-height records collected in vicinity of Mayo's Bridge, at mile 109.5, 1876-1956, and at mile 108.7 since 1957, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Control is Williams Island dams which divert flow for city of Richmond water supply.

Datum of gage is 98.82 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. City of Richmond takes from 40 ft<sup>3</sup>/s to 90 ft<sup>3</sup>/s for water supply from river 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. Maximum discharge, 313,000 ft<sup>3</sup>/s, includes canal flow. Minimum daily discharge of James River and James River and Kanawha Canal combined, 214 ft<sup>3</sup>/s, Oct. 5, 1941, caused by recharging of the pool above Bosher Dam after the canal gates were closed. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 50,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 18	0030	*81,800	*16.42	June 30	2200	80,000	16.26
June 24	2300	50,400	13.25				

Minimum discharge, 1,060 ft<sup>3</sup>/s, Sept. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2340	1700	2600	2100	6370	7040	4340	4280	5100	64600	3630	1520
2	2050	1660	2480	2080	6570	8100	4230	5690	4430	32100	3200	1440
3	1830	1670	2310	2240	6330	7470	4080	8110	4650	26200	2920	1590
4	1700	1830	2280	2520	6830	7990	3950	7270	7260	18000	2630	1700
5	1600	2030	2170	2490	7230	7500	3860	6330	6380	13900	2530	1760
6	1530	1920	2800	2240	6900	7080	3850	7290	5760	11700	2490	1640
7	1470	1860	4030	3270	6130	6600	3870	6800	5340	13500	2480	1460
8	1410	1800	4140	5990	5560	6620	3540	6660	6790	14500	2410	1390
9	1360	1700	3730	7460	4960	17600	3340	6230	5410	11300	2520	1320
10	1310	1640	3260	6780	4680	19100	3270	6030	4780	8930	2590	1200
11	1260	1620	3100	7320	4560	14000	3200	6050	4500	13500	2470	1250
12	1260	1660	2980	6100	5230	12200	3040	9030	5520	16300	2400	1350
13	1300	1820	3260	5250	4550	10200	3030	8310	12600	10100	2420	1310
14	1360	1780	3170	4700	4220	9250	3580	7080	17300	7930	2220	1350
15	1540	1740	3420	5250	4100	8410	3990	8820	13300	6440	2310	1320
16	1960	1690	3460	28400	5510	8130	3490	8200	9530	5280	2290	1110
17	1910	1690	3430	72900	5980	7460	3190	6430	7140	4630	2190	1340
18	1790	1640	3160	57500	7250	6890	3140	7600	6030	4510	2100	1640
19	1630	1640	3060	21800	7590	6380	3140	7220	5280	5240	2060	2140
20	1490	1650	3010	16400	9880	5930	3090	6610	4760	4750	1890	2220
21	1470	2080	2920	17100	9530	5530	3030	6380	4020	4280	1830	1840
22	1440	3820	2850	15800	8460	5240	2980	5980	3790	3950	1750	1810
23	1540	3660	2680	14400	8360	5090	2930	5450	4450	3770	1710	1770
24	1560	3400	2560	12000	7580	5160	2980	4980	37900	3690	1620	1730
25	1620	2580	2530	9700	6820	5010	3350	4380	41800	3700	1580	1920
26	1770	2320	2470	8200	6320	4930	3820	5520	23900	3490	1520	1790
27	1790	2030	2400	7160	5910	4770	3800	6000	24000	3870	1490	1870
28	1690	2210	2340	6540	5530	4640	3690	5920	42900	4390	1540	2040
29	1690	2560	2180	6280	---	4500	3880	6130	53000	4290	1500	2230
30	1710	2850	2120	6340	---	4330	4030	5530	75900	4110	1560	2080
31	1720	---	2110	6350	---	4280	---	5450	---	3760	1630	---
TOTAL	50100	62250	89010	372660	178940	237430	105710	201760	453520	336710	67480	49130
MEAN	1616	2075	2871	12020	6391	7659	3524	6508	15120	10860	2177	1638
MAX	2340	3820	4140	72900	9880	19100	4340	9030	75900	64600	3630	2230
MIN	1260	1620	2110	2080	4100	4280	2930	4280	3790	3490	1490	1110
(†)	207	201	50	129	103	121	163	142	222	186	173	207
MEAN†	1823	2276	2921	12149	6494	7780	3687	6650	15342	11046	2350	1845
CFSM†	.27	.34	.43	1.80	.96	1.15	.55	.98	2.27	1.63	.35	.27
IN.†	.31	.38	.50	2.07	1.00	1.33	.61	1.13	2.53	1.88	.40	.30

CAL YR	TOTAL	MEAN	MAX	MIN	MEAN†	CFSM†	IN.†
1994	3004600	8232	93300	1190	8427	1.25	16.93
1995	2204700	6040	75900	1110	6199	.92	12.45

† Average diversion, in cubic feet per second, by James River and Kanawha Canal.

‡ Adjusted for diversion.

## 02037500 JAMES RIVER NEAR RICHMOND, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4040	4647	6694	8852	10560	12790	10950	7738	5551	3225	3754	2999
MAX	19090	30480	26480	25300	20990	32740	35900	24280	30910	11300	21710	16730
(WY)	1938	1986	1949	1937	1994	1993	1987	1989	1972	1972	1969	1979
MIN	177	338	450	837	3243	2988	2766	2137	904	76.1	149	125
(WY)	1942	1942	1966	1966	1959	1981	1966	1941	1964	1966	1966	1963

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1937 - 1995	
ANNUAL TOTAL	3004600		2204700			
ANNUAL MEAN	8232		6040		6796	
HIGHEST ANNUAL MEAN					13540	
LOWEST ANNUAL MEAN					2666	
HIGHEST DAILY MEAN	93300	Mar 30	75900	Jun 30	a296000	Jun 23 1972
LOWEST DAILY MEAN	1190	Sep 18	1110	Sep 16	b10	cSep 8 1966
ANNUAL SEVEN-DAY MINIMUM	1320	Oct 8	1270	Sep 10	b10	dSep 8 1966
INSTANTANEOUS PEAK FLOW			81800	Jan 18	a313000	Jun 23 1972
INSTANTANEOUS PEAK STAGE			16.42	Jan 18	28.62	Jun 23 1972
INSTANTANEOUS LOW FLOW			1060	Sep 16	(f)	(g)
ANNUAL RUNOFF (CFSM)	1.22		.89		1.01	
ANNUAL RUNOFF (INCHES)	16.54		12.14		13.66	
10 PERCENT EXCEEDS	21800		9970		14800	
50 PERCENT EXCEEDS	3430		3820		4080	
90 PERCENT EXCEEDS	1620		1610		922	

a Includes canal flow.

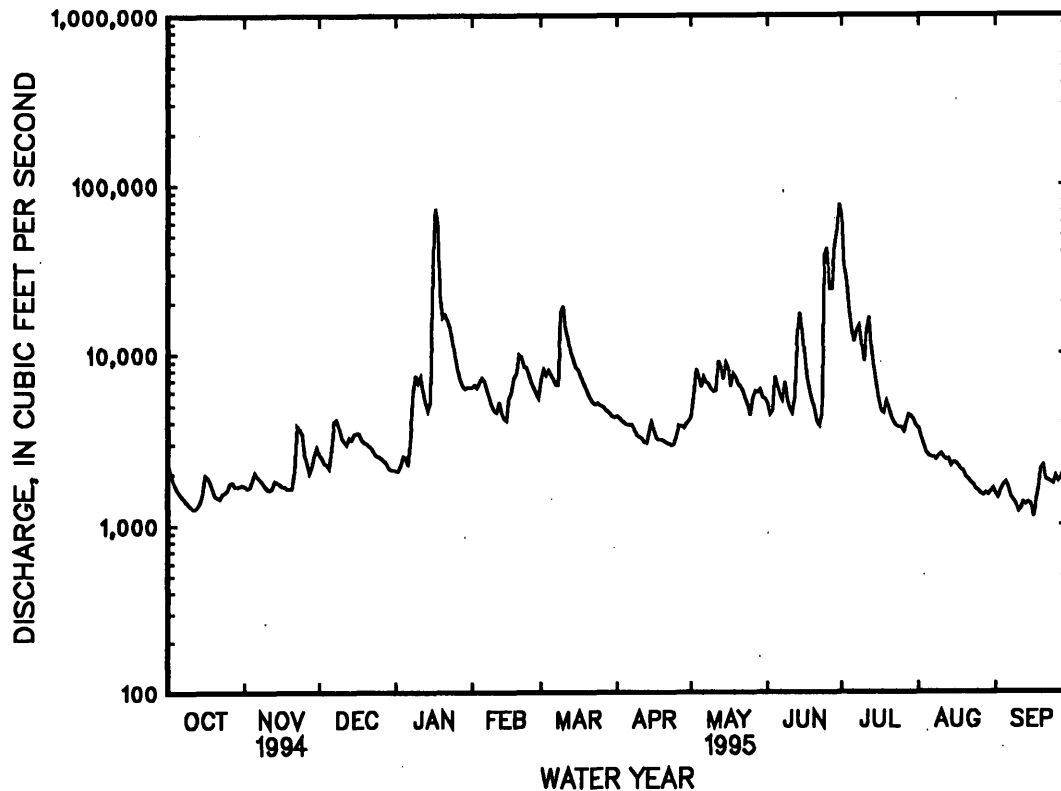
b Result of diversion by Boshier Dam construction.

c Also Sept. 9-15, 1966, Sept. 30, Oct. 5, 6, 1968, and Oct. 8-10, 1970.

d Also Sept. 9, 1966.

f Not determined.

g Probably occurred Sept. 8-15, 1966.



02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA  
(Hydrologic bench-mark station)

LOCATION.--Lat 37°24'55", long 78°38'10", Appomattox County, Hydrologic Unit 02080207, on right bank 350 ft downstream from culvert on State Highway 614, 1.0 mi upstream from Holiday Lake, and 5.2 mi southwest of Andersonville.

DRAINAGE AREA.--8.53 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1966 to current year.

REVISED RECORDS.--WDR VA-72-1: 1967-71(M), 1966-69(P), 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 472.97 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 5-9, and period of no gage-height record, July 21-Sept. 12, which are fair. Recording rain gage at station. Maximum discharge, 9,640 ft<sup>3</sup>/s, from rating curve extended above 4,200 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. 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 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1500	*296	*3.30	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 1.5 ft<sup>3</sup>/s, Aug. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	4.2	4.2	3.8	8.1	9.8	6.1	9.0	5.0	13	e3.2	e3.0
2	3.4	4.2	4.1	3.4	9.5	8.6	6.1	39	7.4	17	e3.0	e3.6
3	3.5	3.9	4.1	3.1	9.0	7.9	5.6	15	16	10	e2.9	e3.5
4	3.3	3.9	4.2	3.2	10	8.0	5.6	10	12	8.6	e2.7	e3.0
5	3.2	3.9	5.8	e3.5	e9.2	7.7	5.5	8.9	8.0	7.7	e2.6	e2.8
6	3.2	4.2	5.0	e5.0	e8.3	7.9	5.5	8.2	24	12	e2.5	e2.5
7	3.2	3.9	4.6	20	e7.5	7.5	5.5	6.9	33	13	e2.6	e2.1
8	3.2	3.9	4.1	9.9	e6.6	28	5.5	6.1	12	8.6	e2.7	e1.9
9	3.4	3.9	3.9	7.0	e7.4	38	5.5	5.8	8.6	6.9	e2.8	e2.1
10	3.5	5.0	4.4	5.1	6.2	14	5.5	19	8.3	6.1	e2.8	e2.2
11	3.2	4.7	5.4	4.3	6.2	11	5.5	11	11	8.7	e2.8	e2.4
12	3.3	4.1	4.6	3.9	5.9	9.3	5.8	8.5	25	6.3	e2.8	e2.5
13	3.4	4.1	4.3	3.7	6.1	8.7	11	6.9	17	5.5	e2.8	2.4
14	7.3	4.0	4.9	3.6	6.3	8.2	7.3	7.4	10	4.9	e2.7	2.3
15	6.2	4.0	4.7	112	7.1	8.0	6.0	7.5	8.3	4.5	e2.6	2.1
16	4.5	4.1	4.1	34	11	7.7	5.6	5.9	6.7	4.3	e2.5	2.5
17	4.0	4.3	4.2	14	14	7.4	5.7	5.6	5.9	4.3	e2.4	9.1
18	3.7	4.7	4.1	9.4	10	7.1	5.8	5.4	5.4	11	e2.2	4.3
19	3.6	4.4	4.0	8.3	8.8	7.0	5.5	7.6	5.1	5.9	e2.1	3.1
20	3.8	4.0	3.7	20	8.3	7.0	5.2	5.8	4.9	4.6	e2.0	2.7
21	3.7	6.7	3.6	12	7.8	7.3	5.2	4.7	4.5	e4.0	e1.9	2.7
22	3.7	6.3	3.6	9.0	7.0	6.8	5.0	4.2	4.7	e3.7	e1.8	5.8
23	4.6	4.6	3.4	7.9	6.5	8.1	4.5	4.0	5.2	e3.5	e1.7	6.5
24	4.3	4.1	3.3	6.8	6.3	8.1	11	3.9	5.2	e3.4	e1.6	3.8
25	4.0	4.1	3.3	6.3	6.0	7.1	8.4	3.7	4.6	e3.4	e1.5	3.9
26	4.4	3.9	3.1	5.9	6.1	6.4	6.4	3.8	18	e3.3	e1.7	5.1
27	4.4	5.2	3.1	5.7	6.0	6.7	5.7	12	12	e3.2	e2.0	4.9
28	4.1	6.8	3.3	6.2	11	7.0	5.3	9.9	9.1	e3.9	e2.3	3.5
29	3.9	5.2	3.3	6.2	---	6.3	5.0	9.7	32	e4.5	e2.6	2.9
30	3.9	4.6	3.1	6.7	---	6.1	8.5	8.3	23	e4.0	e2.5	2.8
31	4.0	---	3.2	7.0	---	6.1	---	5.8	---	e3.4	e2.4	---
TOTAL	121.3	134.9	124.7	356.9	222.2	294.8	184.8	269.5	351.9	203.2	74.7	102.0
MEAN	3.91	4.50	4.02	11.5	7.94	9.51	6.16	8.69	11.7	6.55	2.41	3.40
MAX	7.3	6.8	5.8	112	14	38	11	39	33	17	3.2	9.1
MIN	3.2	3.9	3.1	3.1	5.9	6.1	4.5	3.7	4.5	3.2	1.5	1.9
CFGM	.46	.53	.47	1.35	.93	1.11	.72	1.02	1.38	.77	.28	.40
IN.	.53	.59	.54	1.56	.97	1.29	.81	1.18	1.53	.89	.33	.44

e Estimated.



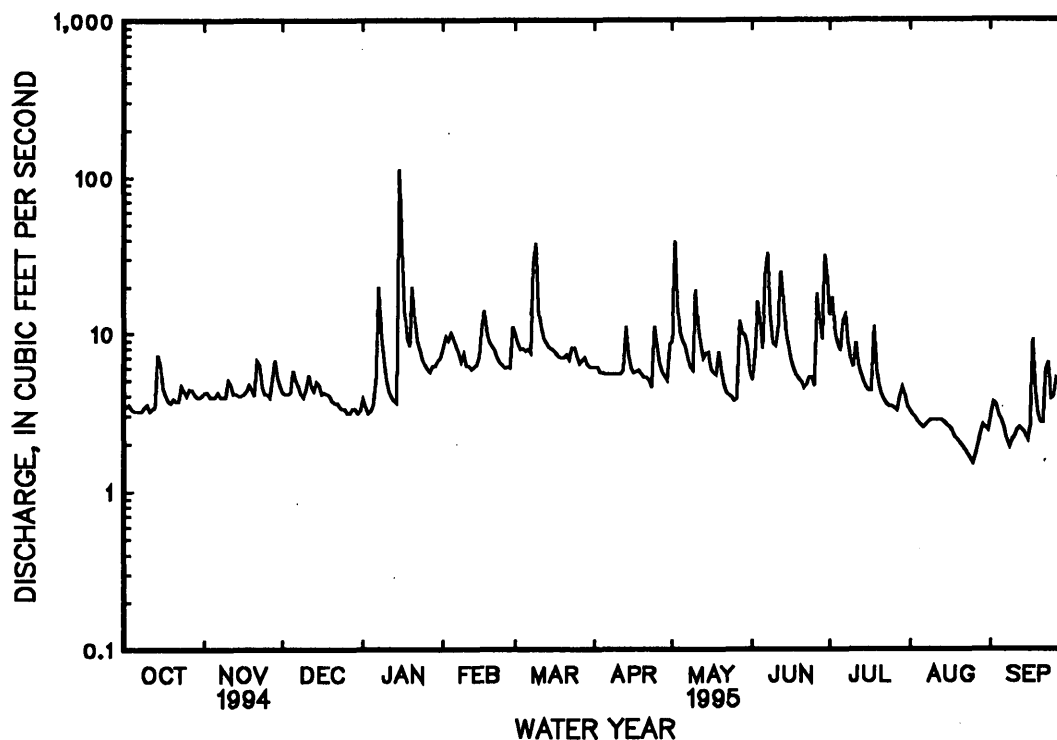
## 02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.09	7.65	8.73	10.5	12.1	14.0	11.5	9.90	8.80	4.75	4.75	5.59
MAX	25.6	32.3	25.6	30.5	33.9	37.9	32.6	36.0	70.1	15.3	24.9	28.8
(WY)	1972	1986	1974	1978	1994	1994	1973	1971	1972	1972	1973	1975
MIN	1.23	2.40	2.16	2.40	5.38	4.12	4.37	2.93	1.63	.61	.58	.80
(WY)	1987	1982	1989	1989	1989	1981	1967	1981	1966	1966	1987	1970

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1966 - 1995	
ANNUAL TOTAL	4712.0		2440.9			
ANNUAL MEAN	12.9		6.69		8.74	
HIGHEST ANNUAL MEAN					18.6	
LOWEST ANNUAL MEAN					3.28	
HIGHEST DAILY MEAN	254 Mar 28		112 Jan 15		1740 Jun 21 1972	
LOWEST DAILY MEAN	3.0 Sep 16		e1.5 Aug 25		.20 aJul 25 1966	
ANNUAL SEVEN-DAY MINIMUM	3.2 Dec 25		e1.7 Aug 20		.20 Sep 6 1966	
INSTANTANEOUS PEAK FLOW			296 Jan 15		9640 Jun 21 1972	
INSTANTANEOUS PEAK STAGE			3.30 Jan 15		14.64 Jun 21 1972	
INSTANTANEOUS LOW FLOW			(b) (c)		.10 dSep 11 1966	
ANNUAL RUNOFF (CFSM)	1.51		.78		1.02	
ANNUAL RUNOFF (INCHES)	20.55		10.64		13.92	
10 PERCENT EXCEEDS	24		11		14	
50 PERCENT EXCEEDS	6.4		5.1		5.2	
90 PERCENT EXCEEDS	3.6		2.8		1.9	

- a And 11 other days in July and September 1966.  
b Not determined.  
c Probably occurred during period of estimated record.  
d Also Sept. 12, 1966.  
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 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00301)
JAN										
24...	1130	7.0	30	6.0	1.0	4.0	2.8	747	12.7	99
APR										
27...	1130	5.8	33	5.7	24.0	15.0	1.3	752	10.1	101
JUL										
20...	1130	5.0	33	6.9	29.0	22.0	3.5	751	8.9	103

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)
JAN										
24...	460	49	9	1.9	0.97	2.3	0.60	0	11	9
APR										
27...	K39	230	9	2.0	1.0	2.4	0.40	0	14	11
JUL										
20...	40	180	10	2.3	1.1	2.4	0.50	0	19	15

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
JAN										
24...	1.5	2.0	<0.10	11	34	26	0.020	<0.050	<0.015	<0.20
APR										
27...	1.0	1.9	<0.10	11	33	27	<0.010	<0.050	<0.015	<0.20
JUL										
20...	0.80	1.5	<0.10	12	26	31	<0.010	<0.050	0.020	<0.20

&lt; 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).

## 02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)
JAN 24...	<0.010	0.010	<0.010	80	10	<3	320	<4	12	<10
APR 27...	<0.010	<0.010	<0.010	50	9	<3	340	<4	7	<10
JUL 20...	0.010	<0.010	<0.010	50	11	<3	690	<4	14	<10

DATE	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L) (09511)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. & FINER THAN .062 MM (70331)
JAN 24...	<1	<1	<1.0	17	<6	0.27	0.02	2	100
APR 27...	<1	<1	<1.0	18	<6	--	--	5	86
JUL 20...	<1	<1	<1.0	19	<6	<0.02	<0.01	--	--

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

## 02039000 BUFFALO CREEK NEAR HAMPDEN SYDNEY, VA

LOCATION.--Lat 37°15'25", long 78°29'12", Prince Edward County, Hydrologic Unit 02080207, on left bank 100 ft upstream from bridge on State Highway 658, 0.8 mi upstream from Locket Creek, 2.0 mi northwest of Hampden Sydney, and 6.0 mi southwest of Farmville.

DRAINAGE AREA.--69.7 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1303: 1948-50(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 339.19 ft above sea level (levels by Virginia Department of Transportation). Prior to Aug. 19, 1953, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 6-9, which are fair. Maximum discharge, 9,160 ft<sup>3</sup>/s, from rating curve extended above 1,600 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 11.96 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 15 ft, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	0200	*687	*5.99	June 13	0800	572	5.65
Mar. 9	1100	555	5.59				

Minimum discharge, 14 ft<sup>3</sup>/s, Aug. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	34	46	36	54	114	39	48	40	78	27	31
2	25	35	44	35	60	121	39	306	41	332	25	46
3	25	33	43	34	58	81	38	243	61	228	23	26
4	25	33	43	34	60	70	39	94	83	93	22	21
5	24	32	45	e33	57	62	38	70	63	65	21	20
6	24	33	44	e40	e50	61	37	59	58	84	21	19
7	24	34	42	105	e45	57	38	51	75	169	22	19
8	24	31	41	87	e43	102	38	46	59	86	22	18
9	24	31	39	65	e41	471	37	43	53	61	22	18
10	25	35	40	53	43	285	37	59	93	50	22	22
11	24	37	41	47	44	143	36	86	308	46	21	20
12	24	34	39	45	43	93	38	65	473	41	21	19
13	25	32	39	44	41	74	59	54	525	37	20	19
14	45	31	39	42	40	64	48	51	320	34	21	18
15	50	30	38	155	50	58	43	48	171	32	20	18
16	40	30	38	384	99	54	41	44	96	30	19	18
17	35	31	39	228	150	51	40	42	68	30	18	35
18	32	32	39	120	100	49	39	41	55	31	18	32
19	31	32	38	80	76	47	39	57	49	30	17	27
20	31	30	37	132	65	46	37	51	45	27	17	24
21	32	227	37	106	58	48	37	45	42	26	16	22
22	31	491	37	76	53	46	36	41	40	27	16	30
23	35	164	37	64	49	46	35	38	40	26	16	44
24	35	81	36	57	47	45	44	36	42	29	15	33
25	33	61	36	51	45	43	43	35	41	38	15	32
26	34	52	35	48	44	42	39	34	43	33	15	35
27	35	52	35	46	43	41	37	53	59	29	17	32
28	34	61	35	46	51	41	35	60	47	47	25	28
29	32	54	35	47	---	41	34	57	161	44	22	25
30	32	49	35	47	---	40	42	49	128	35	20	24
31	32	---	35	50	---	40	---	43	---	30	19	---
TOTAL	948	1942	1207	2437	1609	2576	1182	2049	3379	1948	615	775
MEAN	30.6	64.7	38.9	78.6	57.5	83.1	39.4	66.1	113	62.8	19.8	25.8
MAX	50	491	46	384	150	471	59	306	525	332	27	46
MIN	24	30	35	33	40	40	34	34	40	26	15	18
CFSM	.44	.93	.56	1.13	.82	1.19	.57	.95	1.62	.90	.28	.37
IN.	.51	1.04	.64	1.30	.86	1.37	.63	1.09	1.80	1.04	.33	.41

e Estimated.

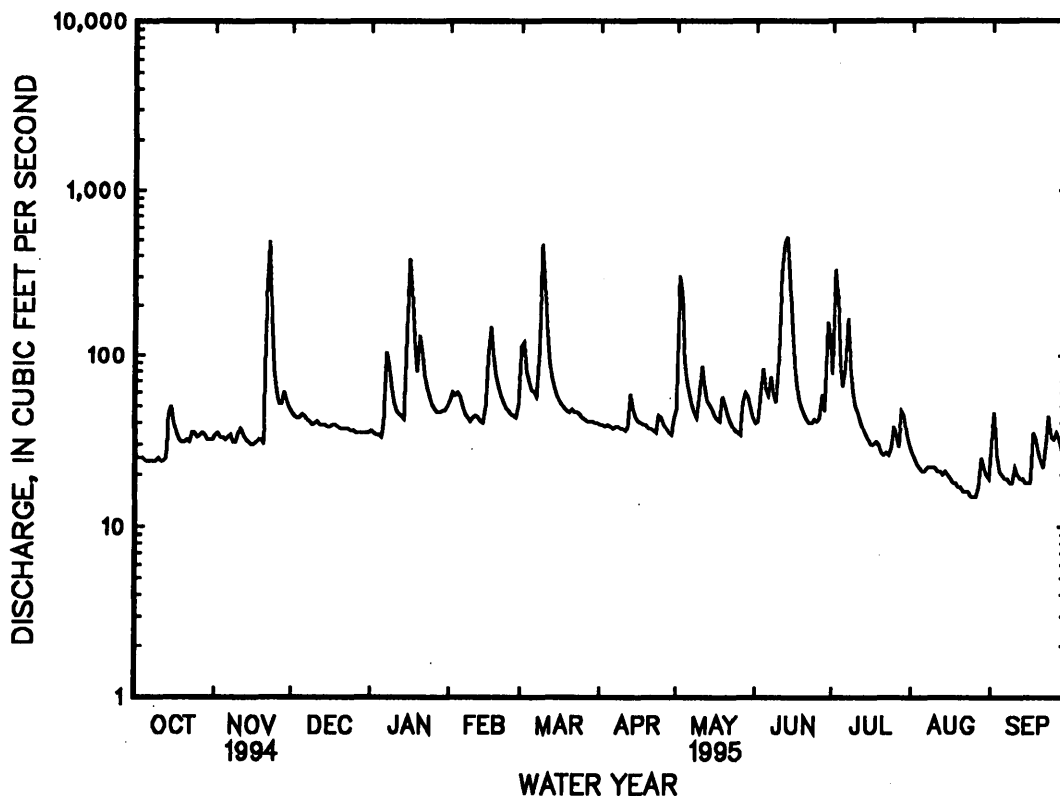
## 02039000 BUFFALO CREEK NEAR HAMPDEN SYDNEY, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	50.2	65.2	72.4	87.9	97.8	112	92.6	65.9	51.1	40.4	41.8	39.9
MAX	365	315	156	313	295	324	256	173	294	129	260	168
(WY)	1972	1986	1952	1978	1979	1993	1983	1978	1972	1989	1955	1979
MIN	9.94	14.6	18.7	25.3	36.9	37.5	29.4	23.4	11.2	14.0	9.02	6.67
(WY)	1971	1970	1966	1966	1968	1981	1967	1969	1970	1970	1977	1970

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1947 - 1995	
ANNUAL TOTAL	30141		20667			
ANNUAL MEAN	82.6		56.6		67.9	
HIGHEST ANNUAL MEAN					134	
LOWEST ANNUAL MEAN					28.5	
HIGHEST DAILY MEAN	1460	Mar 3	525	Jun 13	4940	Aug 18 1955
LOWEST DAILY MEAN	24	aOct 5	15	bAug 24	e2.7	cOct 7 1970
ANNUAL SEVEN-DAY MINIMUM	24	dOct 5	16	fAug 20	2.9	Oct 4 1970
INSTANTANEOUS PEAK FLOW			687	Nov 22	9160	Jun 21 1972
INSTANTANEOUS PEAK STAGE			5.99	Nov 22	12.38	Jun 21 1972
INSTANTANEOUS LOW FLOW			14	Aug 26	(g)	(h)
ANNUAL RUNOFF (CFSM)	1.18		.81		.97	
ANNUAL RUNOFF (INCHES)	16.09		11.03		13.24	
10 PERCENT EXCEEDS	140		89		119	
50 PERCENT EXCEEDS	47		40		43	
90 PERCENT EXCEEDS	33		22		18	

- a Also Oct. 6-9, 11, 12, 1994.  
b Also Aug. 25, 26, 1995.  
c Also Oct. 8, 1970.  
d Also Oct. 6, 7, 1994.  
e Estimated.  
f Also Aug. 21, 1995.  
g Not determined.  
h Probably occurred Oct. 7, 8, 1970.



## 02039500 APPOMATTOX RIVER AT FARMVILLE, VA

LOCATION.--Lat 37°18'25", long 78°23'20", Cumberland County, Hydrologic Unit 02080207, on left bank at downstream side of bridge on State Highway 45 at north town limits of Farmville and 1.1 mi downstream from Buffalo Creek.

DRAINAGE AREA.--303 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1926 to current year.

REVISED RECORDS.--WSP 972: 1927-37, 1938(M). WSP 1303: 1927(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 281.93 ft above sea level. Prior to Nov. 29, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 7-10, and periods of doubtful or no gage-height record, Mar. 13 to May 3, and May 28, 29, which are fair. Maximum discharge, 33,100 ft<sup>3</sup>/s, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow. 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.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	1500	*3,080	*14.09	June 12	2200	2,420	13.04
Mar. 9	1830	2,590	13.38	July 7	1830	2,320	12.82

Minimum discharge, 56 ft<sup>3</sup>/s, Aug. 26, 27, gage height, 3.47 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	126	178	124	267	506	e175	e250	204	547	125	78
2	102	132	163	128	324	510	e173	e1300	191	1070	113	131
3	102	127	153	124	334	359	e170	e845	393	685	107	123
4	102	121	150	120	325	308	e178	503	374	397	100	88
5	99	120	166	e100	348	284	e170	354	290	274	94	75
6	98	123	178	e102	269	283	e168	337	223	345	91	70
7	98	129	164	494	e200	275	e170	254	758	1780	94	70
8	97	128	151	524	e185	394	e172	213	435	722	98	67
9	97	121	143	316	e180	2190	e166	188	255	325	95	65
10	100	128	141	245	e195	1240	e170	421	723	248	99	77
11	101	146	149	212	200	618	e165	532	1100	1180	120	103
12	96	146	154	195	202	440	e190	352	1900	330	96	78
13	96	133	144	187	187	e364	e260	256	1610	222	90	71
14	141	129	141	178	178	e280	e210	225	852	187	94	69
15	232	128	144	548	210	e260	e195	222	510	164	87	65
16	185	127	143	2440	367	e250	e185	198	343	154	81	67
17	139	130	144	934	684	e230	e180	172	259	147	76	103
18	123	136	147	488	536	e220	e175	162	216	185	73	146
19	119	139	143	350	376	e215	e180	261	191	206	71	105
20	116	134	136	689	317	e205	e165	259	178	145	68	89
21	120	710	133	658	282	e220	e168	186	164	132	65	83
22	118	1090	132	391	253	e210	e162	157	155	128	63	102
23	119	629	132	307	229	e205	e160	141	153	128	63	183
24	130	317	130	269	218	e200	e200	130	164	122	60	155
25	129	221	126	240	205	e190	e190	124	159	168	58	116
26	126	189	122	221	194	e185	e180	122	159	161	57	124
27	133	187	120	208	196	e180	e170	330	337	138	61	128
28	130	246	120	206	242	e182	e160	e295	241	197	84	115
29	127	240	122	218	---	e184	e155	e270	282	260	95	99
30	124	200	120	219	---	e180	e190	584	823	173	80	90
31	125	---	119	242	---	e178	---	312	---	158	72	---
TOTAL	3732	6632	4408	11677	7703	11545	5352	9955	13642	11078	2630	2935
MEAN	120	221	142	377	275	372	178	321	455	357	84.8	97.8
MAX	232	1090	178	2440	684	2190	260	1300	1900	1780	125	183
IN	96	120	119	100	178	178	155	122	153	122	57	65
CFSM	.40	.73	.47	1.24	.91	1.23	.59	1.06	1.50	1.18	.28	.32
IN.	.46	.81	.54	1.43	.95	1.42	.66	1.22	1.67	1.36	.32	.36

e Estimated.

## 02039500 APPOMATTOX RIVER AT FARMVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	192	247	301	391	432	479	407	273	212	164	199	186
MAX	1190	1287	864	1430	1402	1518	1155	872	1866	518	1783	971
(WY)	1972	1986	1949	1978	1979	1993	1983	1978	1972	1972	1940	1975
MIN	30.3	51.0	61.6	96.3	114	126	107	95.2	29.5	40.5	19.6	16.7
(WY)	1931	1932	1966	1966	1934	1981	1966	1969	1970	1966	1930	1968

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

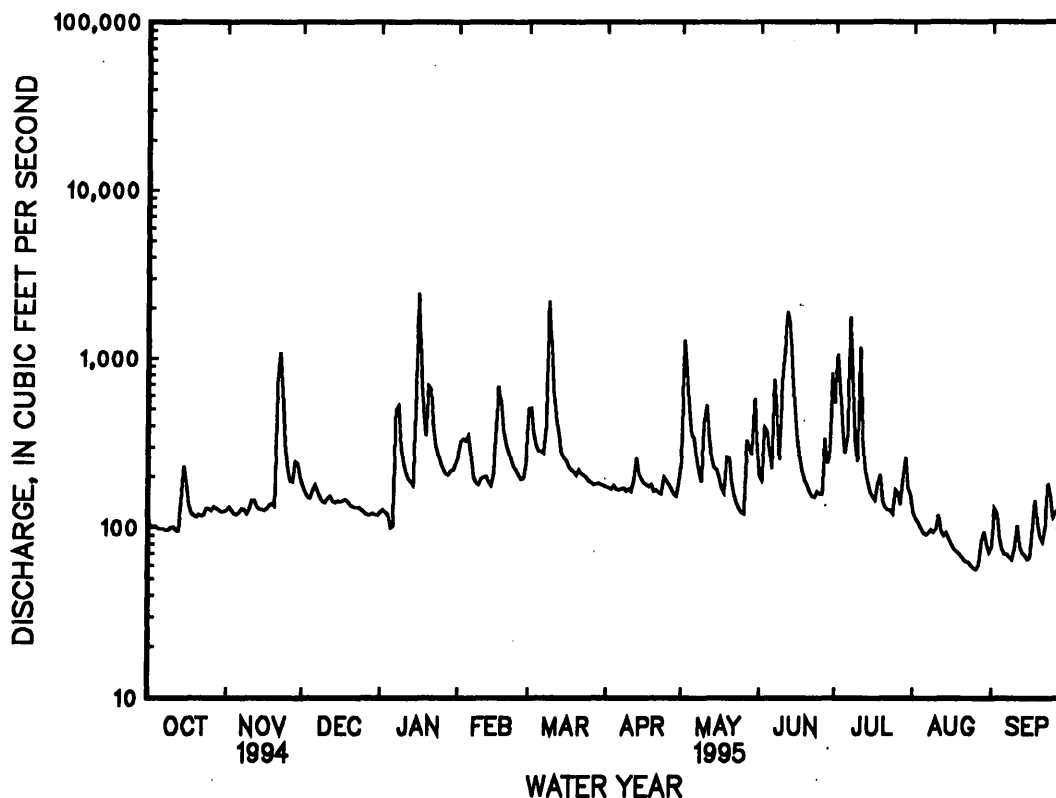
WATER YEARS 1926 - 1995

ANNUAL TOTAL	151019	91289	
ANNUAL MEAN	414	250	290
HIGHEST ANNUAL MEAN			584
LOWEST ANNUAL MEAN			115
HIGHEST DAILY MEAN	7230	Mar 3	2440
LOWEST DAILY MEAN	92	Sep 21	57
ANNUAL SEVEN-DAY MINIMUM	97	aSep 11	61
INSTANTANEOUS PEAK FLOW			3080
INSTANTANEOUS PEAK STAGE			14.09
INSTANTANEOUS LOW FLOW			56
ANNUAL RUNOFF (CFSM)	1.37	.83	3.8
ANNUAL RUNOFF (INCHES)	18.54	11.21	13.02
10 PERCENT EXCEEDS	730	490	523
50 PERCENT EXCEEDS	223	172	165
90 PERCENT EXCEEDS	117	94	61

a Also Sept. 12, 1994.

b From floodmarks.

c Also Aug. 27, 1995.



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

PERIOD OF RECORD.--August 1900 to December 1905, March 1926 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 972: 1928, 1932, 1934-38. WSP 1303: 1901(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 174.51 ft above sea level. 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 or no gage-height record, Dec. 11 to Jan. 24, Aug. 23 to Sept. 14, and Sept. 18-23, 26-28, and period with ice effect, Feb. 9, 10, which are fair. National Weather Service gage-height telemeter at station. Maximum discharge, 35,000 ft<sup>3</sup>/s, from rating curve extended above 20,000 ft<sup>3</sup>/s on basis of records for stations at Farmville and near Petersburg. Minimum gage height, 3.52 ft, Oct. 2, 1930. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
July 14	0030	*5,380	*20.84	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 80 ft<sup>3</sup>/s, Aug. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	212	448	e290	455	588	346	361	546	1250	257	e108
2	203	213	409	e300	535	1210	337	1030	377	1910	234	e100
3	186	215	384	e285	614	1180	329	2280	1040	2670	226	e210
4	177	216	368	e270	625	842	324	2450	1990	1630	228	e195
5	172	211	366	e240	620	706	318	1240	1300	929	178	e155
6	168	209	374	e255	587	647	312	803	901	676	155	e125
7	164	215	383	e350	480	633	307	725	623	1220	150	e115
8	161	221	374	e1250	398	768	301	561	883	2240	155	e105
9	161	220	346	e1100	e380	2900	301	463	779	2130	155	e96
10	159	218	332	e850	e365	3050	299	452	517	828	156	e92
11	164	220	e350	e650	390	3120	293	675	744	2300	171	e115
12	162	233	e360	e430	372	1850	290	1020	1510	3980	189	e160
13	161	242	e355	e335	359	972	375	788	2470	5040	182	e110
14	181	234	e335	e380	340	785	537	648	2770	4560	175	e95
15	247	224	e340	e570	332	671	522	633	2300	896	192	90
16	334	221	e345	e1200	404	600	416	528	976	585	162	88
17	316	223	e355	e2500	917	546	369	444	676	576	146	114
18	253	228	e360	e1800	1370	503	351	387	522	765	133	e165
19	220	235	e350	e1200	1040	465	346	415	436	555	123	e255
20	205	239	e335	e970	769	437	335	517	386	511	117	e195
21	199	396	e320	e1250	645	428	324	504	358	400	111	e165
22	198	1310	e315	e980	563	429	310	390	362	352	107	e140
23	206	2140	e310	e800	501	431	297	329	318	315	e100	e195
24	209	1240	e305	e626	455	429	334	297	306	289	e95	289
25	213	677	e300	526	422	418	380	275	311	268	e87	339
26	222	513	e290	467	394	398	402	792	319	267	e82	e235
27	220	448	e285	426	372	378	370	350	344	294	e80	e250
28	220	466	e280	406	379	368	327	349	2400	534	e90	e170
29	219	524	e295	402	---	364	301	582	3340	351	e130	164
30	215	508	e290	412	---	361	327	490	947	358	e145	147
31	211	---	e280	424	---	353	---	764	---	302	e115	---
TOTAL	6360	12671	10539	21944	15083	26830	10380	21542	30751	38981	4626	4782
MEAN	205	422	340	708	539	865	346	695	1025	1257	149	159
MAX	334	2140	448	2500	1370	3120	537	2450	3340	5040	257	339
MIN	159	209	280	240	332	353	290	275	306	267	80	88
CFSM	.28	.58	.47	.98	.74	1.19	.48	.96	1.41	1.73	.21	.22
IN.	.33	.65	.54	1.12	.77	1.37	.53	1.10	1.58	2.00	.24	.25

e Estimated.



## 02040000 APPOMATTOX RIVER AT MATTOAX, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	469	544	736	1009	1107	1227	1066	660	495	384	440	375
MAX	3932	2728	2620	3650	2404	3566	2975	1889	4369	1918	4566	2294
(WY)	1972	1986	1994	1978	1979	1993	1983	1978	1972	1938	1940	1975
MIN	32.7	107	123	207	248	309	273	208	95.0	56.5	35.6	30.0
(WY)	1931	1931	1966	1966	1931	1981	1966	1926	1970	1966	1930	1932

## SUMMARY STATISTICS

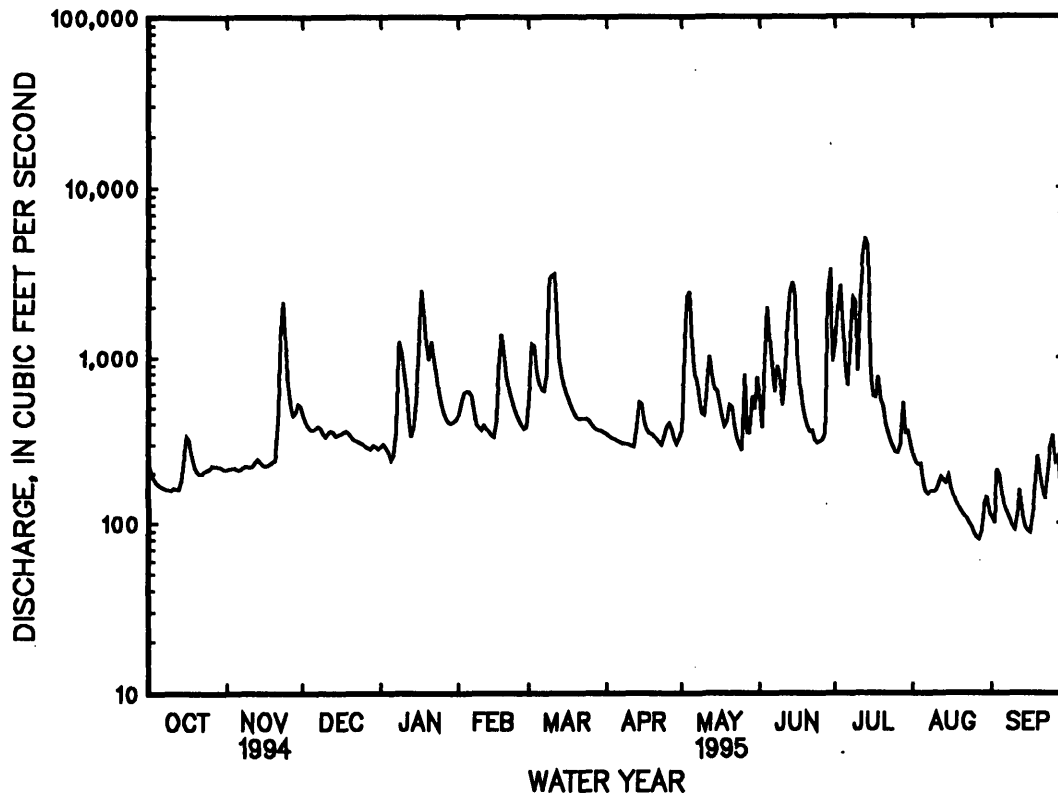
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1926 - 1995

ANNUAL TOTAL	318336	204489	
ANNUAL MEAN	872	560	710
HIGHEST ANNUAL MEAN			1553
LOWEST ANNUAL MEAN			285
HIGHEST DAILY MEAN	8820	5040	e34300
LOWEST DAILY MEAN	123	e80	13
ANNUAL SEVEN-DAY MINIMUM	127	92	16
INSTANTANEOUS PEAK FLOW		5380	35000
INSTANTANEOUS PEAK STAGE		20.84	b35.30
INSTANTANEOUS LOW FLOW		(c)	11
ANNUAL RUNOFF (CFSM)	1.20	.77	.98
ANNUAL RUNOFF (INCHES)	16.31	10.48	13.28
10 PERCENT EXCEEDS	2150	1200	1580
50 PERCENT EXCEEDS	368	355	383
90 PERCENT EXCEEDS	181	158	116

- a Also Sept. 14, 1994.  
b From floodmark in gage house.  
c Unknown.  
d Probably occurred Aug. 27, 1995.  
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 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1203: 1948 (calendar year figures only). WSP 2104: Drainage area. WDR VA-79-1: 1973-76(P), 1978.

GAGE.--Water-stage recorder. Datum of gage is 177.20 ft above sea level. Prior to Sept. 2, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 7-9, which are fair. Maximum discharge, 15,000 ft<sup>3</sup>/s, from rating curve extended above 3,900 ft<sup>3</sup>/s. Minimum gage height, 0.29 ft, Aug. 9-12, 1957. Several measurements of water temperature were made during the year. Water-quality records for some periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 14.8 ft, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 23	0130	1,600	7.99	July 12	2000	1,670	8.09
Mar. 10	0500	*2,010	*8.50				

Minimum discharge, 4.1 ft<sup>3</sup>/s, Sept. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	53	100	44	106	137	61	47	182	183	23	7.1
2	16	55	83	46	122	241	59	166	92	293	20	7.3
3	13	56	73	44	121	212	57	379	145	451	17	7.8
4	11	58	67	44	132	153	55	331	234	372	16	7.6
5	10	58	68	e39	144	131	53	163	389	179	14	8.9
6	9.6	58	68	e42	117	125	52	126	215	121	12	8.2
7	9.0	58	67	207	e96	122	51	107	133	136	12	9.7
8	8.9	55	64	428	e83	154	51	88	105	231	12	9.9
9	8.8	53	58	380	e71	768	50	71	250	173	12	8.6
10	8.4	56	56	174	75	1590	48	83	189	109	14	7.4
11	8.8	69	63	121	74	573	47	223	109	274	19	6.4
12	9.3	70	60	99	78	248	47	333	99	1100	21	5.8
13	9.0	69	55	88	73	180	73	231	137	1080	29	5.3
14	24	67	53	81	66	148	95	163	175	265	35	4.7
15	84	63	52	223	69	125	86	181	135	133	33	4.5
16	115	59	50	659	122	111	67	145	90	112	33	4.3
17	104	62	50	857	212	100	58	102	64	113	26	5.4
18	68	72	50	307	224	91	54	80	49	92	21	9.9
19	46	78	50	175	172	83	54	76	40	72	17	10
20	36	77	49	182	135	78	52	74	35	58	15	12
21	32	262	48	210	112	84	49	68	32	48	13	11
22	28	920	46	190	97	88	46	59	33	61	11	14
23	59	1270	48	136	86	90	42	49	31	49	10	21
24	83	405	49	107	77	92	54	41	42	49	9.1	19
25	94	159	49	92	69	83	73	36	50	54	8.4	17
26	88	110	48	83	65	76	79	37	43	48	7.7	24
27	78	93	45	77	63	69	63	54	61	41	7.4	25
28	69	123	43	74	65	67	52	56	261	36	7.4	22
29	59	137	43	79	---	65	45	64	673	34	7.9	18
30	60	129	41	83	---	64	43	117	454	30	7.5	17
31	54	---	41	93	---	64	---	277	---	26	7.3	---
TOTAL	1324.8	4854	1737	5464	2926	6212	1716	4027	4547	6023	497.7	338.8
MEAN	42.7	162	56.0	176	104	200	57.2	130	152	194	16.1	11.3
MAX	115	1270	100	857	224	1590	95	379	673	1100	35	25
MIN	8.4	53	41	39	63	64	42	36	31	26	7.3	4.3
CFM	.27	1.02	.35	1.12	.66	1.27	.36	.82	.96	1.23	.10	.07
IN.	.31	1.14	.41	1.29	.69	1.46	.40	.95	1.07	1.42	.12	.08

e Estimated.

## 02041000 DEEP CREEK NEAR MANNBORO, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	102	138	152	214	250	277	214	133	85.1	68.9	61.1	71.1
MAX	859	821	443	800	793	718	632	406	449	301	309	1002
(WY)	1973	1986	1958	1978	1979	1993	1987	1971	1972	1975	1978	1979
MIN	3.55	26.0	26.4	48.5	52.4	74.8	51.2	36.4	15.4	7.26	3.43	2.19
(WY)	1971	1966	1966	1966	1968	1981	1985	1985	1985	1991	1987	1968

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

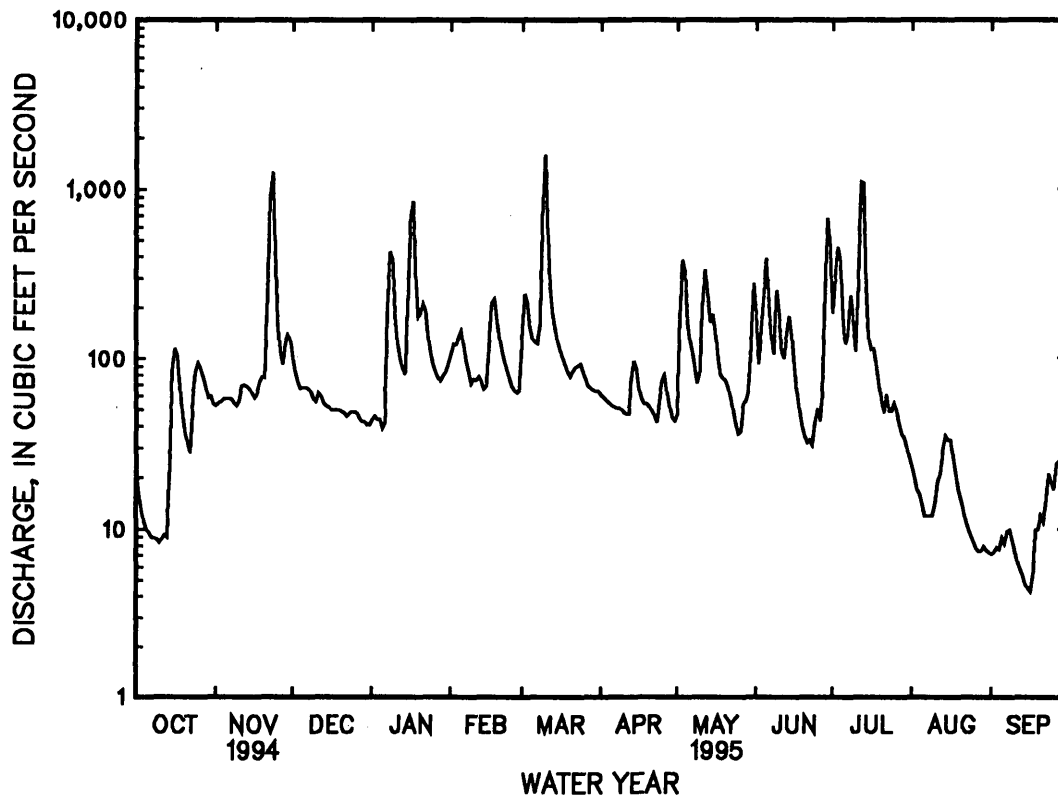
FOR 1995 WATER YEAR

WATER YEARS 1947 - 1995

ANNUAL TOTAL	56959.6	39667.3	
ANNUAL MEAN	156	109	147
HIGHEST ANNUAL MEAN			319
LOWEST ANNUAL MEAN			67.5
HIGHEST DAILY MEAN	5040	Mar 3	12000
LOWEST DAILY MEAN	7.9	Sep 17	.04
ANNUAL SEVEN-DAY MINIMUM	8.8	Sep 12	.16
INSTANTANEOUS PEAK FLOW		2010	15000
INSTANTANEOUS PEAK STAGE		8.50	a24.04
INSTANTANEOUS LOW FLOW		4.1	.03
ANNUAL RUNOFF (CFSM)	.99	.69	.93
ANNUAL RUNOFF (INCHES)	13.41	9.34	12.61
10 PERCENT EXCEEDS	298	218	285
50 PERCENT EXCEEDS	67	64	74
90 PERCENT EXCEEDS	18	10	17

a From floodmarks.

b Also Oct. 5, 1968.



## 02041650 APPOMATTOX RIVER AT MATOACA, VA

LOCATION.--Lat 37°13'28", long 77°28'32", Chesterfield County, Hydrologic Unit 02080207, on left bank at upstream side of bridge on State Highway 600, 0.2 mi south of Matoaca, 2.0 mi upstream from Rohoic Creek, 2.8 mi downstream from Lake Chesdin, 3.5 mi west of Petersburg, and at mile 15.9.

DRAINAGE AREA.--1,344 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 68.30 ft above sea level.

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 35.7 ft<sup>3</sup>/s is diverted for industrial and municipal use. Records do not include flow of Upper Appomattox Canal of city of Petersburg which diverts around station. National Weather Service gage-height telemeter at station.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,510 ft<sup>3</sup>/s, July 14, gage height, 7.77 ft; minimum, 57 ft<sup>3</sup>/s, Sept. 1, result of regulation; minimum daily, 59 ft<sup>3</sup>/s, Aug. 31, result of regulation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	299	443	830	386	853	1010	595	507	1230	2880	326	61
2	214	320	699	444	922	1450	564	1200	952	2950	279	155
3	215	276	570	364	1080	2060	494	2510	1080	4170	221	94
4	210	312	519	444	1160	1980	587	3510	1740	4320	234	72
5	124	333	552	341	1180	1610	467	3280	2610	3120	229	66
6	111	345	531	315	1100	1390	507	2040	2360	1900	101	67
7	97	319	552	548	1060	1260	525	1490	1710	1690	95	77
8	98	292	513	1390	773	1330	479	1270	1300	2160	101	83
9	103	321	494	2240	631	3550	458	859	1300	2910	128	88
10	124	378	497	2050	660	6020	445	949	1320	2420	178	91
11	118	318	494	1480	666	6300	462	1190	1120	1800	225	85
12	104	343	455	1160	670	4990	471	1560	1230	3930	267	83
13	88	365	480	708	662	2830	808	1760	2090	5480	257	82
14	387	389	475	581	650	1890	818	1600	2980	6120	241	72
15	545	353	451	893	754	1540	908	1830	3260	5740	239	70
16	512	364	464	2210	873	1340	767	1610	2500	2370	241	74
17	508	391	461	3660	1090	1230	637	1290	1580	1760	232	101
18	461	424	507	4090	1620	1060	568	957	1200	1630	200	95
19	338	342	457	3090	2010	828	585	716	633	1400	167	114
20	286	374	476	2060	1740	827	467	792	414	1160	166	215
21	258	754	448	1960	1470	916	536	824	389	633	167	212
22	226	2390	452	2210	1190	814	506	706	576	723	140	221
23	449	3460	458	1910	1060	820	366	534	592	828	105	214
24	405	3600	514	1490	1010	865	716	444	536	470	102	205
25	344	2100	356	1200	619	776	684	394	435	411	97	206
26	407	1310	440	998	669	708	668	1130	440	400	83	215
27	341	907	436	706	679	662	562	1220	465	344	78	214
28	331	755	389	663	618	691	563	834	1210	489	74	214
29	330	784	374	670	---	636	450	768	3330	743	67	214
30	332	859	359	918	---	643	514	897	4580	441	63	216
31	352	---	379	894	---	625	---	1040	---	429	59	---
TOTAL	8717	23921	15082	42073	27469	52651	17177	39711	45162	65821	5162	3976
MEAN	281	797	487	1357	981	1698	573	1281	1505	2123	167	133
MAX	545	3600	830	4090	2010	6300	908	3510	4580	6120	326	221
MIN	88	276	356	315	618	625	366	394	389	344	59	61
†FT <sup>3</sup> /S	39.9	32.7	32.8	29.6	27.5	28.3	42.3	35.6	38.8	38.7	43.2	39.0
CAL YR 1994	TOTAL	527385	MEAN	1445	MAX	11700	MIN	88	†FT <sup>3</sup> /S	37.3		
WTR YR 1995	TOTAL	346922	MEAN	950	MAX	6300	MIN	59	†FT <sup>3</sup> /S	35.7		

† Average diversion, in cubic feet per second, at Lake Chesdin, provided by Appomattox Water Authority.

## 02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

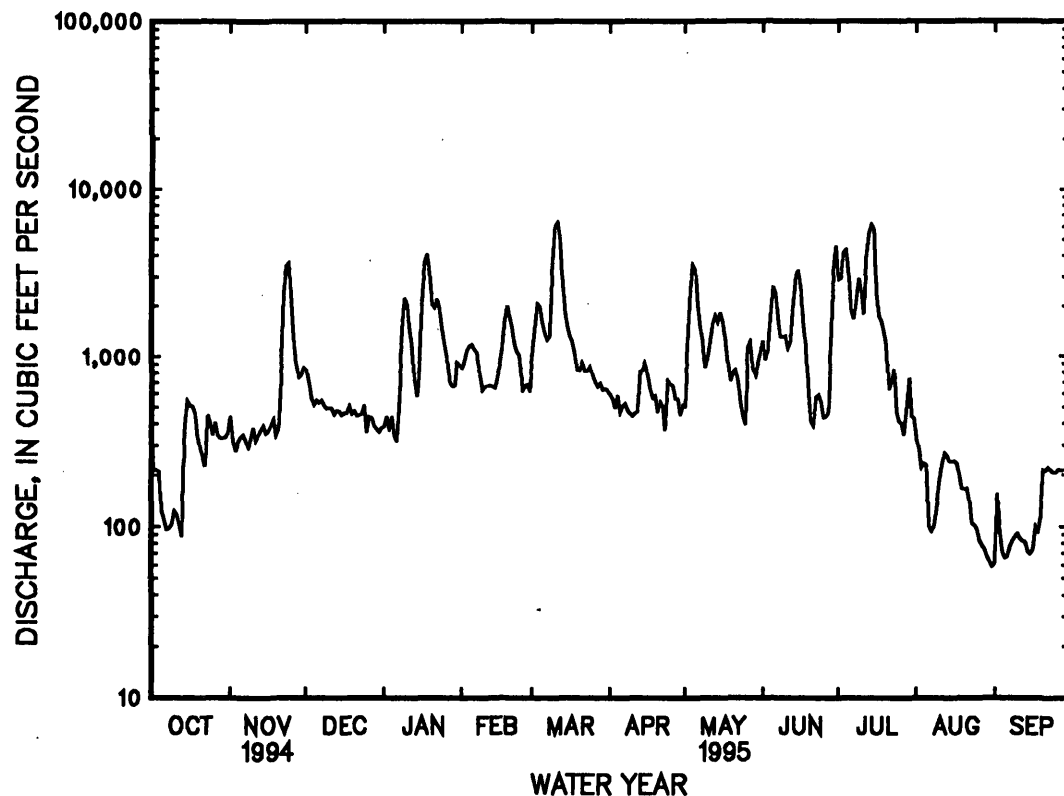
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1101	1105	1409	2028	2150	2544	2163	1342	975	602	522	659
MAX	6869	5648	3797	5868	3931	6098	5003	4452	5293	2123	1818	5312
(WY)	1973	1986	1994	1978	1979	1993	1983	1978	1972	1995	1978	1979
MIN	87.8	200	398	384	889	478	498	411	161	99.2	84.5	85.1
(WY)	1994	1970	1981	1981	1977	1981	1985	1985	1970	1986	1987	1993

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1970 - 1995
ANNUAL TOTAL	527385	346922	
ANNUAL MEAN	1445	950	1379
HIGHEST ANNUAL MEAN			2559
LOWEST ANNUAL MEAN			460
HIGHEST DAILY MEAN	11700	aMar 4	6300 Mar 11
LOWEST DAILY MEAN	88	Oct 13	b59 Aug 31
ANNUAL SEVEN-DAY MINIMUM	99	Sep 15	b69 Aug 26
INSTANTANEOUS PEAK FLOW			6510 Jul 14
INSTANTANEOUS PEAK STAGE			7.77 Jul 14
INSTANTANEOUS LOW FLOW			b57 Sep 1
ANNUAL RUNOFF (CFSM)	1.08	.71	1.03
ANNUAL RUNOFF (INCHES)	14.60	9.60	13.94
10 PERCENT EXCEEDS	3530	2180	3430
50 PERCENT EXCEEDS	552	568	690
90 PERCENT EXCEEDS	161	116	167

a Also Mar. 5, 1994.

b Result of regulation.



## 02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1991 to current year.

WATER TEMPERATURE: October 1991 to current year.

COOPERATION.--Chemical data as noted were provided by the Virginia Division of Consolidated Laboratory Services (VDCLS) and reviewed by the U.S. Geological Survey.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	TUR- BID- ITY (NTU) (00076)
OCT									
06...	1000	119	86	7.3	16.0	18.0	769	VDCLS	2.6
20...	1030	238	86	7.0	18.0	14.5	762	VDCLS	3.1
NOV									
03...	0830	242	89	7.1	13.0	13.0	770	VDCLS	3.0
30...	1300	865	83	7.0	13.0	11.5	768	VDCLS	27
DEC									
08...	1230	572	78	7.2	8.0	11.0	774	VDCLS	24
28...	1200	363	84	7.2	14.0	8.0	762	VDCLS	9.7
JAN									
10...	1000	1990	90	6.8	6.0	5.5	774	VDCLS	12
17...	1330	3790	89	7.2	13.0	7.5	760	VDCLS	27
19...	1230	3080	82	7.1	9.0	10.0	763	VDCLS	39
24...	0900	1540	73	6.9	4.0	8.0	762	VDCLS	42
FEB									
07...	1400	1110	77	6.8	2.0	5.0	760	VDCLS	22
07...	1415	1110	77	6.8	2.0	5.0	760	USGS	--
21...	1000	1440	88	7.6	15.0	5.0	754	VDCLS	12
MAR									
03...	0930	2050	83	7.3	1.0	7.5	774	VDCLS	18
10...	1300	6150	85	6.8	6.5	9.0	778	VDCLS	22
11...	0830	6460	83	6.8	9.5	9.0	776	VDCLS	22
12...	1130	5100	69	6.8	20.0	9.5	776	VDCLS	85
14...	0915	1960	69	6.9	19.0	10.0	768	VDCLS	74
23...	1345	939	70	6.9	11.0	12.5	748	VDCLS	26
APR									
05...	0901	339	76	6.7	6.0	12.5	768	VDCLS	7.5
18...	1230	577	89	6.5	15.0	13.0	768	VDCLS	11
MAY									
03...	1200	2550	89	7.4	22.5	18.0	765	VDCLS	12
03...	1215	2570	89	7.4	22.5	18.0	765	VDCLS	9.3
04...	1000	3510	93	6.5	16.0	17.0	768	VDCLS	6.0
05...	1330	3350	96	6.6	21.0	17.5	761	VDCLS	4.4
09...	1200	589	81	6.5	23.0	17.5	767	VDCLS	10
15...	1115	1870	77	6.7	27.0	19.5	761	VDCLS	12
15...	1130	1870	77	6.7	27.0	19.5	761	USGS	--
23...	1300	550	77	6.6	30.0	23.0	771	VDCLS	5.8

## 02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	TUR- BID- ITY (NTU) (00076)
JUN									
05...	1100	2650	78	7.1	27.0	25.0	765	VDCLS	13
06...	1000	2400	82	6.8	22.0	24.0	756	VDCLS	10
08...	1000	1330	80	6.9	28.0	24.5	760	VDCLS	11
14...	0945	2960	81	7.2	20.0	22.0	763	VDCLS	15
15...	0915	3300	79	7.1	27.0	24.0	765	VDCLS	16
16...	0900	2700	79	6.5	25.0	24.0	774	VDCLS	21
20...	1330	380	75	7.3	29.0	24.0	761	VDCLS	5.3
29...	1030	3200	77	7.0	29.0	24.5	765	VDCLS	17
30...	0945	4880	80	7.1	27.0	26.0	764	VDCLS	14
JUL									
07...	0930	1640	64	7.0	24.0	25.0	765	VDCLS	30
12...	1100	3910	72	7.3	26.5	26.0	761	VDCLS	21
14...	1100	6460	69	7.3	32.0	24.0	761	VDCLS	35
18...	1300	1590	56	6.7	34.0	28.5	758	VDCLS	33
AUG									
11...	1050	181	75	6.5	29.0	24.0	763	VDCLS	14
22...	1215	136	78	6.7	32.0	26.0	763	VDCLS	12
SEP									
07...	1330	77	90	6.6	29.0	25.5	763	VDCLS	5.0
19...	1230	92	101	6.7	26.0	23.0	768	VDCLS	4.1

## JAMES RIVER BASIN

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530) (*)	RESIDUE VOLATILE, TILE, SUS- PENDED (MG/L) (00535) (*)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540) (*)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613) (*)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618) (*)
OCT								
06...	9.4	98	17	<3	<3	<3	0.003	0.153
20...	10.3	101	16	<3	<3	<3	0.004	0.135
NOV								
03...	10.5	99	17	<3	<3	<3	0.003	0.116
30...	11.0	100	15	9	<3	7	0.005	0.172
DEC								
08...	11.3	101	15	4	<3	3	0.006	0.188
28...	12.2	103	17	3	<3	<3	0.005	0.198
JAN								
10...	12.8	100	19	8	<3	6	<0.002	0.178
17...	10.7	89	17	18	4	14	0.003	0.254
19...	11.2	99	16	18	3	15	0.004	0.264
24...	10.6	89	15	9	<3	8	0.005	0.213
FEB								
07...	13.3	104	16	7	<3	5	0.003	0.205
07...	13.3	104	16	5	1	4	0.040	0.220
21...	13.0	103	23	6	<3	5	<0.002	0.234
MAR								
03...	11.8	97	15	9	<3	7	0.002	0.216
10...	11.9	101	15	15	4	11	0.002	0.166
11...	11.6	98	15	18	4	14	<0.002	0.160
12...	11.2	96	12	41	7	34	0.004	0.187
14...	10.8	95	12	32	6	26	0.004	0.172
23...	10.7	102	13	11	3	8	0.004	0.096
APR								
05...	11.2	104	13	4	<3	3	0.002	0.047
18...	8.8	83	9.2	10	<3	8	0.002	0.041
MAY								
03...	9.6	101	14	16	4	12	<0.002	0.020
03...	9.6	101	13	16	3	13	<0.002	0.020
04...	9.4	96	13	8	<3	6	<0.002	0.020
05...	8.8	92	15	7	<3	5	0.002	0.042
09...	9.6	100	14	5	<3	4	0.005	0.162
15...	8.7	95	14	6	<3	5	0.004	0.090
15...	8.7	95	12	7	9	0	0.020	0.070
23...	9.0	104	15	3	<3	<3	0.006	0.121
JUN								
05...	8.0	97	16	10	<3	7	0.008	0.111
06...	7.8	93	17	9	<3	7	0.011	0.164
08...	7.8	94	17	6	<3	5	0.015	0.215
14...	8.2	94	16	10	<3	8	0.009	0.099
15...	8.0	95	17	9	<3	7	0.009	0.117
16...	8.1	95	17	11	3	8	0.012	0.186
20...	8.0	95	16	3	<3	<3	0.017	0.266
29...	7.4	88	--	12	<3	10	0.007	0.065
30...	8.1	100	17	13	3	10	0.006	0.052
JUL								
07...	7.9	95	15	7	<3	6	0.008	0.165
12...	7.5	92	16	11	<3	9	0.004	0.086
14...	7.9	94	15	18	3	15	0.006	0.170
18...	6.9	90	12	11	3	8	0.006	0.126
AUG								
11...	6.3	75	14	<3	<3	<3	0.025	0.423
22...	7.6	94	--	<3	<3	<3	0.017	0.433
SEP								
07...	7.8	95	17	<3	<3	<3	0.009	0.578
19...	8.4	97	17	<3	<3	<3	0.006	0.431

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

\* For these constituents, there are differences in the minimum constituent reporting levels between the analyzing agencies.



## 02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630) (*)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) (*)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608) (*)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671) (*)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT								
06...	0.156	0.156	0.007	0.30	0.020	0.020	0.008	--
20...	0.139	0.139	0.020	0.30	0.010	0.010	0.007	--
NOV								
03...	0.119	0.119	0.018	0.30	0.010	<0.010	0.005	--
30...	0.177	0.177	0.076	0.60	0.080	0.040	0.022	--
DEC								
08...	0.194	0.194	0.066	0.50	0.050	0.050	0.023	--
28...	0.203	0.203	0.044	0.40	0.060	0.050	0.016	--
JAN								
10...	0.178	0.178	0.009	0.40	0.050	0.020	0.008	--
17...	0.257	0.257	0.038	0.60	0.080	0.030	0.013	--
19...	0.268	0.268	0.051	0.60	0.090	0.050	0.026	--
24...	0.218	0.218	0.069	0.60	0.100	0.060	0.025	--
FEB								
07...	0.208	0.208	0.032	0.30	0.060	0.040	0.015	--
07...	0.260	0.260	0.040	0.30	<0.010	--	0.020	7.8
21...	0.234	0.234	0.010	0.20	0.030	0.020	0.012	--
MAR								
03...	0.218	0.218	0.015	0.30	0.050	0.040	0.020	--
10...	0.168	0.168	0.006	0.40	0.050	0.030	0.010	--
11...	0.160	0.160	0.011	0.40	0.060	0.040	0.010	--
12...	0.191	0.191	0.029	0.70	0.120	0.050	0.017	--
14...	0.176	0.176	0.037	0.70	0.120	0.050	0.020	--
23...	0.100	0.100	0.047	0.50	0.070	0.050	0.016	--
APR								
05...	0.049	0.049	0.020	0.30	0.030	0.030	0.006	--
18...	0.043	0.043	0.040	0.30	0.050	0.030	0.011	--
MAY								
03...	0.020	0.020	0.037	0.40	0.050	0.020	0.006	--
03...	0.020	0.020	0.040	0.40	0.050	0.020	0.007	--
04...	0.020	0.020	0.049	0.40	0.050	0.030	0.005	--
05...	0.044	0.044	0.038	0.50	0.040	0.030	0.007	--
09...	0.167	0.167	0.042	0.40	0.050	0.040	0.014	--
15...	--	0.094	0.063	0.50	0.040	0.030	0.009	--
15...	0.090	0.090	0.050	0.50	0.030	--	<0.010	7.3
23...	0.127	0.127	0.030	0.30	0.040	0.030	0.016	--
JUN								
05...	0.119	0.119	0.060	0.50	0.050	0.030	0.012	--
06...	0.175	0.175	0.087	0.50	0.060	0.040	0.015	--
08...	0.230	0.230	0.050	0.40	0.050	0.050	0.018	--
14...	0.108	0.108	0.084	2.8	0.060	0.030	0.033	--
15...	0.126	0.126	0.094	0.50	0.070	0.050	0.019	--
16...	0.198	0.198	0.084	0.50	0.060	0.050	0.021	--
20...	0.283	0.283	0.029	0.50	0.050	0.050	0.033	--
29...	0.072	0.072	0.056	0.60	0.050	0.030	0.011	--
30...	0.058	0.058	0.056	0.50	0.060	0.020	0.010	--
JUL								
07...	0.173	0.173	0.066	0.60	2.40	0.040	--	--
12...	0.090	0.090	0.049	0.50	0.050	0.030	0.015	--
14...	0.176	0.176	0.062	0.50	0.060	0.040	0.020	--
18...	0.132	0.132	0.066	0.60	0.070	0.060	0.036	--
AUG								
11...	0.448	0.448	0.034	0.10	0.100	0.080	0.060	--
22...	0.450	0.450	0.025	--	0.090	--	0.082	--
SEP								
07...	0.587	0.587	0.020	0.50	0.060	0.060	0.052	--
19...	0.437	0.437	0.012	0.30	0.050	0.040	0.019	--

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

\* For these constituents, there are differences in the minimum constituent reporting levels between the analyzing agencies.

## 02042287 CHICKAHOMINY RIVER NEAR ATLEE, VA

LOCATION.--Lat 37°38'30", long 77°25'19", Hanover County, Hydrologic Unit 02080206, on left bank at upstream side of bridge on U.S. Highway 301, 1.3 mi southwest of Atlee, and 2.5 mi upstream from Upham Brook.

DRAINAGE AREA.--62.2 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1990 to current year.

REVISED RECORDS.--WDR VA-93-1: 1990(M).

GAGE.--Water-stage recorder. Elevation of gage is 95 ft above sea level, from topographic map.

REMARKS.--Records good except those for periods of no gage-height record, Jan. 5, 6, and Feb. 5-10, which are fair. Maximum discharge, 4,220 ft<sup>3</sup>/s, from rating curve extended above 2,900 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 832 ft<sup>3</sup>/s, Mar. 10; no flow part or all of each day Aug. 29 to Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	14	24	9.4	71	64	18	116	16	7.4	4.2	.21
2	2.5	13	19	11	82	107	16	204	12	6.0	2.9	1.8
3	2.2	13	16	10	78	77	16	437	34	5.0	2.2	2.3
4	1.8	13	14	9.7	110	58	15	251	49	10	1.8	1.2
5	1.6	13	16	e7.8	e107	51	14	96	31	34	1.4	.66
6	1.2	14	18	e8.5	e80	47	13	70	20	29	1.1	.35
7	1.1	13	18	102	e56	45	13	48	16	37	1.3	.23
8	.82	13	16	166	e46	59	12	33	14	23	1.3	.18
9	.75	14	13	71	e39	346	13	24	11	12	1.1	.17
10	.76	16	15	40	e32	604	13	27	8.1	7.4	1.6	.17
11	.50	15	17	28	35	183	12	74	6.9	5.8	1.9	.12
12	.38	15	19	23	35	100	13	95	9.5	4.5	1.9	.27
13	.32	14	17	19	28	79	53	50	21	2.6	2.0	.11
14	5.7	14	15	18	24	64	97	59	19	1.6	2.0	.08
15	26	13	13	45	25	54	56	145	13	1.3	1.8	.05
16	25	13	12	188	47	47	33	113	7.8	1.2	1.5	.03
17	13	16	13	159	86	41	25	50	5.2	1.1	1.2	.32
18	8.0	21	15	65	90	35	23	31	3.7	.76	.87	.14
19	5.7	24	16	45	65	31	21	42	2.9	1.0	.44	.26
20	5.0	21	15	119	51	29	19	72	2.1	.94	.20	.35
21	12	92	14	276	44	32	16	42	1.8	.70	.12	.29
22	11	377	13	141	36	34	14	25	1.3	.69	.11	.91
23	27	325	12	74	30	31	12	16	1.3	1.7	.10	4.1
24	42	68	11	54	26	32	46	12	1.3	1.9	.08	5.3
25	32	35	11	42	23	31	105	15	1.3	1.9	.06	6.0
26	20	25	11	34	21	26	67	73	14	1.5	.04	5.8
27	15	23	9.6	29	20	23	35	49	35	1.2	.02	6.0
28	13	43	9.4	30	26	22	23	30	27	5.8	.01	6.5
29	13	49	9.1	34	---	22	17	35	16	15	.00	5.0
30	12	34	9.0	42	---	21	71	38	10	12	.00	3.3
31	12	---	8.7	54	---	20	---	26	---	7.1	.00	---
TOTAL	314.53	1373	438.8	1954.4	1413	2415	901	2398	411.2	241.09	33.25	52.20
MEAN	10.1	45.8	14.2	63.0	50.5	77.9	30.0	77.4	13.7	7.78	1.07	1.74
MAX	42	377	24	276	110	604	105	437	49	37	4.2	6.5
MIN	.32	13	8.7	7.8	20	20	12	12	1.3	.69	.00	.03
CFSM	.16	.74	.23	1.01	.81	1.25	.48	1.24	.22	.13	.02	.03
IN.	.19	.82	.26	1.17	.85	1.44	.54	1.43	.25	.14	.02	.03

e Estimated.

## 02042287 CHICKAHOMINY RIVER NEAR ATLEE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.78	30.8	51.9	84.1	96.5	189	91.7	66.5	16.2	9.48	14.0	6.18
MAX	10.1	66.7	105	122	235	415	165	144	37.5	19.0	28.9	14.7
(WY)	1995	1994	1994	1993	1994	1994	1993	1990	1992	1992	1992	1994
MIN	3.08	6.52	14.2	33.1	23.8	67.4	30.0	5.88	6.90	1.84	1.07	.11
(WY)	1994	1992	1995	1992	1991	1990	1995	1991	1994	1993	1995	1993

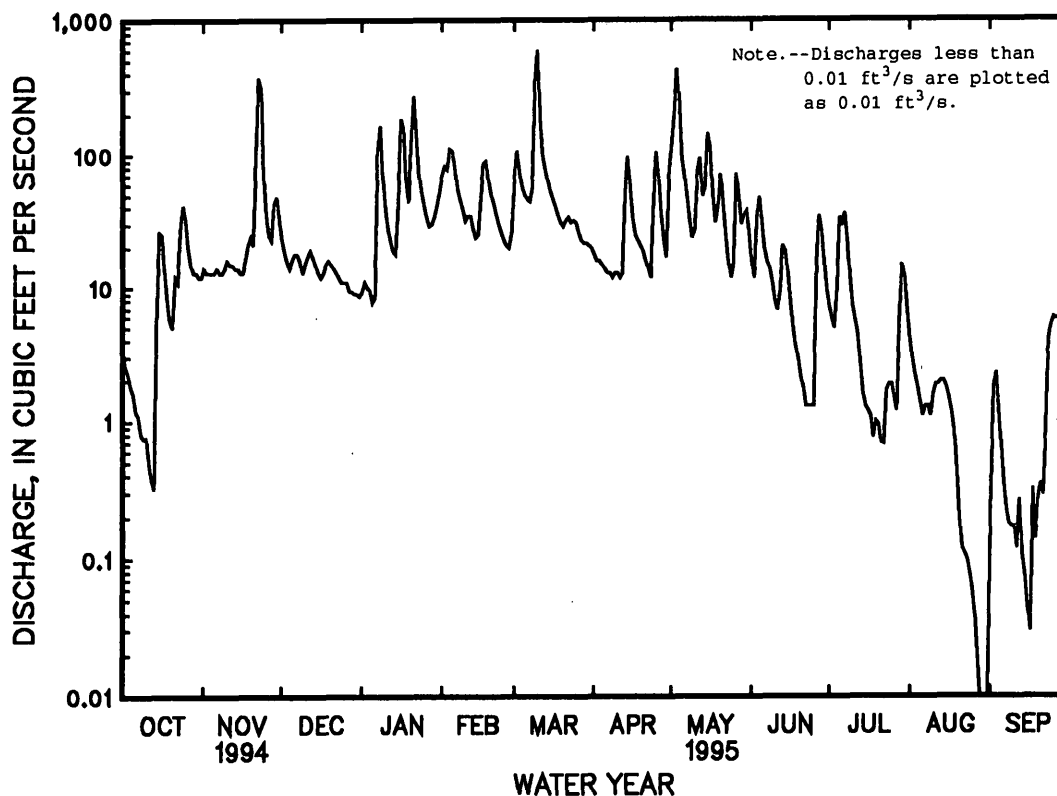
SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1990 - 1995
ANNUAL TOTAL	32569.82	11945.47	
ANNUAL MEAN	89.2	32.7	54.2
HIGHEST ANNUAL MEAN			98.1 1994
LOWEST ANNUAL MEAN			31.5 1991
HIGHEST DAILY MEAN	2850 Mar 3	604 Mar 10	2960 Mar 5 1993
LOWEST DAILY MEAN	.19 Sep 11	.00 aAug 29	.00 bAug 2 1993
ANNUAL SEVEN-DAY MINIMUM	.21 Sep 11	.02 Aug 25	.00 Jul 30 1993
INSTANTANEOUS PEAK FLOW		832 Mar 10	4220 Mar 5 1993
INSTANTANEOUS PEAK STAGE		6.48 Mar 10	8.60 Mar 5 1993
INSTANTANEOUS LOW FLOW		.00 (c)	.00 (d)
ANNUAL RUNOFF (CFSM)	1.43	.53	.87
ANNUAL RUNOFF (INCHES)	19.48	7.14	11.83
10 PERCENT EXCEEDS	223	73	128
50 PERCENT EXCEEDS	20	15	17
90 PERCENT EXCEEDS	1.8	.73	1.0

a Also Aug. 30, 31, 1995.

b Also Aug. 3-5, 1993 and Aug. 29-31, 1995.

c No flow part or all of each day Aug. 29 to Sept. 1, 1995.

d No flow part or all of each day Aug. 1-6, 1993 and Aug. 29 to Sept. 1, 1995.



## 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.--252 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1553: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 6.07 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 5-6, and Feb. 5-9, and period of no gage-height record, Sept. 25-29, which are fair. Maximum discharge, 7,710 ft<sup>3</sup>/s, from rating curve extended above 5,520 ft<sup>3</sup>/s. Minimum gage height, 1.53 ft, Sept. 13, 1965. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,040 ft<sup>3</sup>/s, Mar. 11, gage height, 8.25 ft; minimum, .30 ft<sup>3</sup>/s, Sept. 1, gage height, 1.66 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	275	134	276	92	199	144	105	128	152	69	7.6	.68
2	207	150	236	99	202	171	102	167	139	67	9.5	.76
3	162	143	219	97	204	190	102	253	131	59	8.9	.53
4	100	141	200	92	222	208	93	395	131	54	7.1	7.9
5	50	128	184	e85	e245	223	87	597	115	52	5.6	29
6	30	114	165	e87	e225	251	83	681	102	48	5.3	33
7	18	102	153	171	e215	246	80	673	97	53	4.7	20
8	12	91	141	229	e212	229	77	573	99	63	3.6	11
9	8.0	83	129	296	e218	529	73	427	105	80	3.3	5.6
10	8.1	76	133	319	246	903	74	309	97	100	4.6	3.4
11	8.7	69	153	347	217	989	71	269	81	116	6.0	2.4
12	8.1	63	171	412	193	898	67	233	71	118	14	1.6
13	7.6	59	183	372	168	948	98	190	72	106	24	1.1
14	13	56	172	282	151	879	108	164	72	68	19	.84
15	31	53	162	233	142	672	112	172	66	41	12	.83
16	47	51	147	273	167	439	111	179	65	27	7.8	2.7
17	56	63	134	293	188	300	116	206	66	23	5.3	4.1
18	60	82	128	321	202	230	130	205	67	43	3.9	4.9
19	70	99	126	331	213	193	132	216	59	40	3.1	7.8
20	77	110	125	510	224	173	117	249	45	28	2.7	9.4
21	81	153	123	707	245	162	99	231	33	21	2.4	9.7
22	75	324	120	640	241	151	84	192	26	18	2.4	12
23	82	515	115	491	210	145	71	146	22	14	1.9	30
24	107	695	109	451	179	152	97	117	18	11	1.4	32
25	112	692	105	486	153	151	121	108	16	8.5	1.0	e24
26	125	805	101	425	135	148	125	144	16	7.6	.78	e22
27	142	703	99	321	120	140	121	134	27	8.8	.68	e32
28	156	584	93	237	120	134	124	120	42	6.8	.90	e45
29	174	439	89	203	---	126	142	121	52	6.8	.87	e35
30	175	342	85	188	---	118	142	121	64	9.7	.61	26
31	149	---	82	201	---	111	---	141	---	8.8	.42	---
TOTAL	2626.5	7119	4458	9291	5456	10353	3064	7861	2148	1376.0	171.36	415.24
MEAN	84.7	237	144	300	195	334	102	254	71.6	44.4	5.53	13.8
MAX	275	805	276	707	246	989	142	681	152	118	24	45
MIN	7.6	51	82	85	120	111	67	108	16	6.8	.42	.53
CFSM	.34	.94	.57	1.19	.77	1.33	.41	1.01	.28	.18	.02	.05
IN.	.39	1.05	.66	1.37	.81	1.53	.45	1.16	.32	.20	.03	.06

e Estimated.

## 02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	140	205	283	373	413	474	383	240	167	146	167	104
MAX	794	768	1043	1214	844	1025	1152	676	757	1081	1445	737
(WY)	1980	1986	1958	1978	1961	1993	1984	1978	1972	1945	1955	1979
MIN	3.81	17.5	28.0	58.7	94.4	108	102	34.9	14.1	12.5	5.53	5.78
(WY)	1969	1966	1966	1955	1942	1981	1995	1985	1977	1968	1995	1983

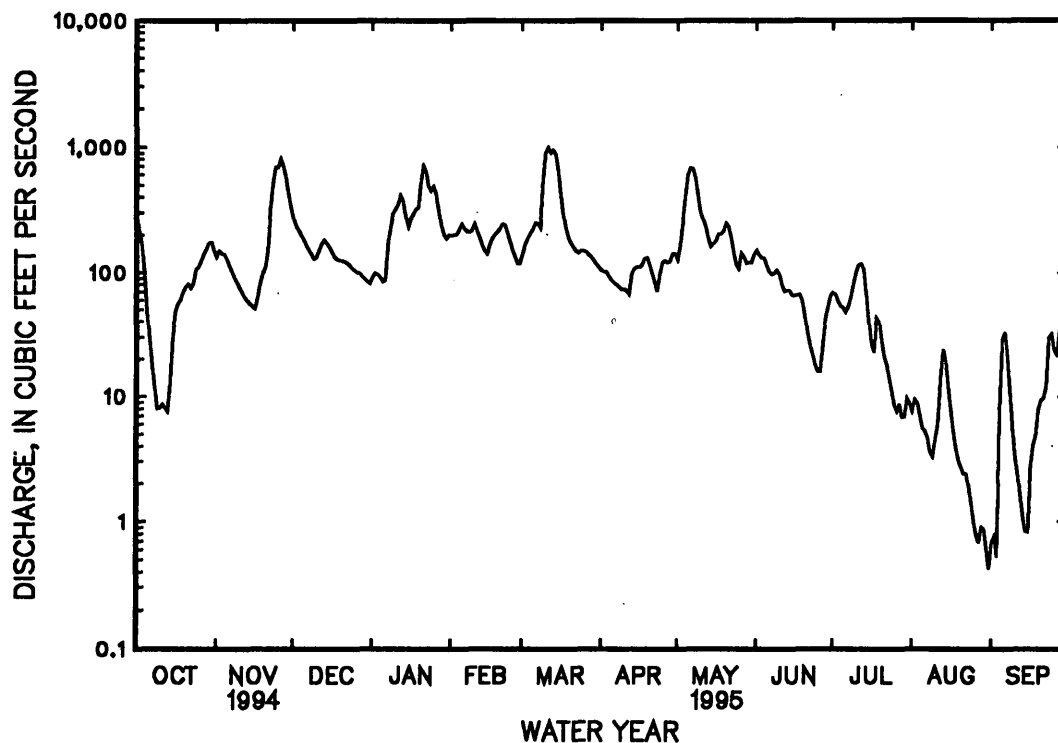
## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1942 - 1995

ANNUAL TOTAL	106438.8	54339.10	
ANNUAL MEAN	292	149	259
HIGHEST ANNUAL MEAN			482
LOWEST ANNUAL MEAN			91.4
HIGHEST DAILY MEAN	2740	Mar 6	6680
LOWEST DAILY MEAN	1.2	Sep 14	.42
ANNUAL SEVEN-DAY MINIMUM	2.3	Sep 8	.68
INSTANTANEOUS PEAK FLOW			1040
INSTANTANEOUS PEAK STAGE			8.25
INSTANTANEOUS LOW FLOW			.30
ANNUAL RUNOFF (CFSM)	1.16		.59
ANNUAL RUNOFF (INCHES)	15.71		8.02
10 PERCENT EXCEEDS	757		320
50 PERCENT EXCEEDS	145		110
90 PERCENT EXCEEDS	20		6.8



## JAMES RIVER BASIN

02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April to September 1995.

## WATER-QUALITY DATA, APRIL TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
APR									
19...	1330	132	136	6.9	28.0	17.5	756	8.5	89
JUN									
12...	1245	71	124	6.7	25.0	24.5	757	5.3	64
AUG									
21...	1230	2.1	138	6.9	30.0	25.0	761	5.0	61

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT DIS TOT FET FIELD MG/L AS CACO3 (00418)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
APR									
19...	26	7.5	1.8	13	2.3	21	6.3	18	0.10
JUN									
12...	34	9.8	2.3	11	1.1	13	1.3	12	0.10
AUG									
21...	37	11	2.4	10	1.9	27	15	13	<0.10

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

## 02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA--Continued

## WATER-QUALITY DATA, APRIL TO SEPTEMBER 1995

DATE	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	H-2 / H-1 STABLE ISOTOPE RATIO PER MIL (82082)	O-18 / O-16 STABLE ISOTOPE RATIO PER MIL (82085)
APR 19...	<0.010	3.0	84	68	1300	84	--	--
JUN 12...	<0.010	8.4	78	69	920	150	--	--
AUG 21...	<0.010	11	84	81	190	520	-18.5	-3.26

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

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

PERIOD OF RECORD.---October 1953 to September 1971, March 1978 to current year.

GAGE.---Water-stage recorder. Datum of gage is 28.65 ft above sea level. October 1953 to September 1971, recording gage on right bank 30 ft upstream at same datum.

REMARKS.---Records fair. Maximum discharge, 1,330 ft<sup>3</sup>/s, from rating curve extended above 1,100 ft<sup>3</sup>/s. No flow at times each year. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 17	1230	*318	*4.69	No other peak equal to or greater than base discharge.			

No flow many days October, November and May to September.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	e9.0	e2.7	13	51	11	3.1	.00	.11	.00	.00
2	.00	.00	e8.2	e2.6	10	104	10	11	.00	.20	.00	.00
3	.00	.00	e7.4	e2.4	7.7	79	9.2	19	.00	.31	.00	.00
4	.00	.00	e6.6	e2.3	7.9	56	8.2	18	.03	.25	.00	.00
5	.00	.00	e15	e2.2	12	59	8.2	11	.00	.07	.00	.00
6	.00	.00	e11	e2.0	13	45	7.4	7.3	.03	.04	.00	.00
7	.00	.00	e8.2	e2.5	11	54	6.3	4.1	.12	.04	.00	.00
8	.00	.00	e7.1	e3.5	8.6	58	6.3	2.7	.02	.02	.00	.00
9	.00	.00	e6.1	e4.6	9.3	104	6.1	5.9	.00	.02	.00	.00
10	.00	.00	e5.0	e4.4	10	122	5.4	3.1	.00	.01	.00	.00
11	.00	.00	e5.4	e4.0	8.6	69	13	3.5	.00	.00	.00	.00
12	.00	.00	e4.8	e3.5	6.3	50	6.9	2.4	.00	.00	.00	.00
13	.00	.00	e4.5	e3.2	3.5	41	15	1.2	.10	.00	.00	.00
14	.00	.00	e4.2	3.2	3.2	34	22	.74	.05	.00	.00	.00
15	.00	.00	e3.8	4.3	6.6	32	18	1.2	.04	.00	.00	.00
16	.00	.00	e3.5	29	77	28	11	.85	.04	.00	.00	.00
17	.00	.00	e3.2	50	289	29	8.0	.35	.02	.00	.00	.00
18	.00	.00	e3.0	33	234	22	7.7	.31	.02	.00	.00	.00
19	.00	e5.0	e3.6	23	161	17	9.2	.29	.01	.00	.00	.00
20	.00	e32	e3.8	22	110	16	4.0	.81	.01	.00	.00	.00
21	.00	e28	e3.4	37	74	20	3.4	.22	.01	.00	.00	.00
22	.00	e23	e3.2	37	56	31	3.6	.06	.03	.00	.00	.00
23	.00	e19	e2.9	23	45	29	3.1	.03	.02	.00	.00	.00
24	.00	e17	e2.7	19	39	30	4.5	.01	.02	.00	.00	.00
25	.00	e14	e3.3	18	31	34	5.8	.00	.01	.00	.00	.00
26	.00	e12	e3.0	13	26	25	5.3	.02	.03	.00	.00	.00
27	.00	e20	e2.9	8.7	25	19	3.6	.04	.02	.00	.00	.00
28	.00	e17	e2.7	9.3	26	19	3.3	.02	.00	.00	.00	.00
29	.00	e14	e2.6	6.2	---	16	4.4	.02	.00	.00	.00	.00
30	.00	e11	e2.4	6.5	---	12	4.4	.01	.00	.00	.00	.00
31	.00	---	e2.9	14	---	11	---	.00	---	.00	.00	---
TOTAL	0.00	212.00	155.4	396.1	1323.7	1316	234.3	97.28	0.63	1.07	0.00	0.00
MEAN	.000	7.07	5.01	12.8	47.3	42.5	7.81	3.14	.021	.035	.000	.000
MAX	.00	32	15	50	289	122	22	19	.12	.31	.00	.00
MIN	.00	.00	2.4	2.0	3.2	11	3.1	.00	.00	.00	.00	.00
CFSM	.00	.30	.21	.54	1.99	1.78	.33	.13	.00	.00	.00	.00
IN.	.00	.33	.24	.62	2.07	2.06	.37	.15	.00	.00	.00	.00

e Estimated.



## 02043500 CYPRESS SWAMP AT CYPRESS CHAPEL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1971, 1978 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	14.6	15.6	27.2	45.9	57.3	54.0	32.3	17.8	10.6	5.93	17.1	13.2
MAX	122	69.5	87.2	108	135	148	84.0	120	56.6	26.4	116	138
(WY)	1965	1986	1958	1962	1957	1994	1984	1958	1963	1962	1967	1955
MIN	.000	.000	.000	2.31	3.87	6.62	3.68	.013	.000	.000	.000	.000
(WY)	(a)	(a)	1991	1981	1991	1981	1967	1963	(a)	(a)	(a)	(a)

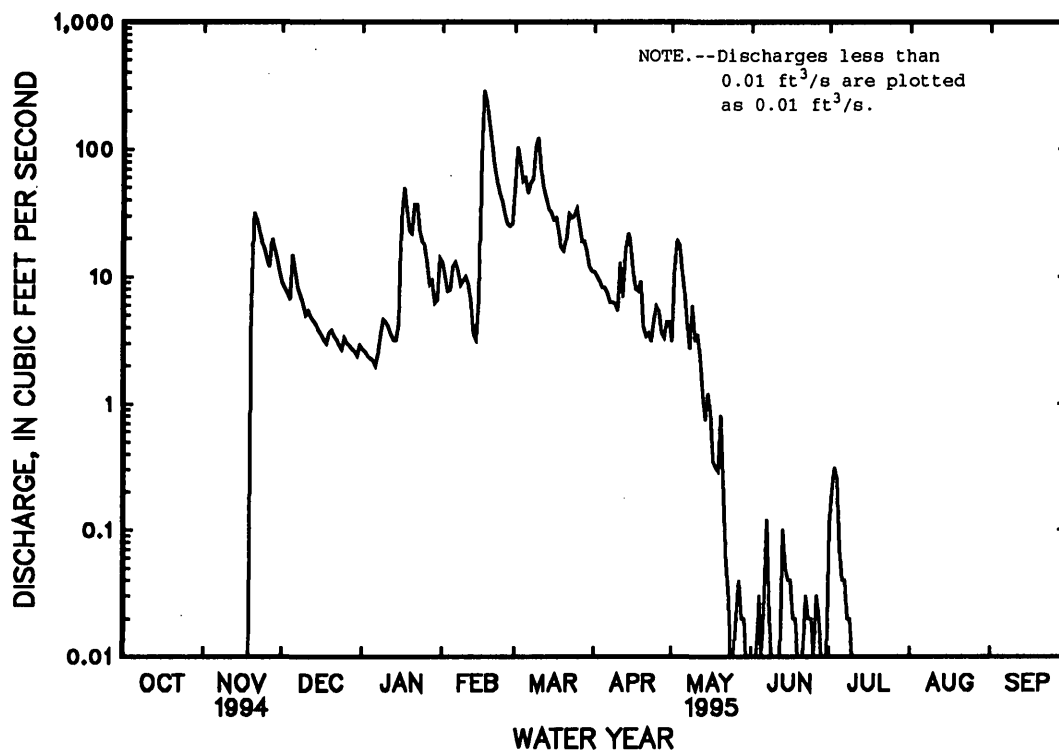
SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1954 - 1971 1978 - 1995
ANNUAL TOTAL	7424.46	3736.48	
ANNUAL MEAN	20.3	10.2	25.7
HIGHEST ANNUAL MEAN			46.1
LOWEST ANNUAL MEAN			6.44
HIGHEST DAILY MEAN	830 Mar 11	289 Feb 17	1100 May 7 1958
LOWEST DAILY MEAN	.00 bJun 2	.00 cOct 1	.00 (d)
ANNUAL SEVEN-DAY MINIMUM	.00 bJun 23	.00 cOct 1	.00 (d)
INSTANTANEOUS PEAK FLOW		318 Feb 17	1330 Aug 11 1967
INSTANTANEOUS PEAK STAGE		4.69 Feb 17	6.85 Aug 11 1967
INSTANTANEOUS LOW FLOW		.00 cOct 1	.00 (d)
ANNUAL RUNOFF (CFSM)	.85	.43	1.08
ANNUAL RUNOFF (INCHES)	11.60	5.84	14.67
10 PERCENT EXCEEDS	40	28	67
50 PERCENT EXCEEDS	.68	.31	5.8
90 PERCENT EXCEEDS	.00	.00	.00

a Monthly mean flow is 0.0 ft<sup>3</sup>/s many years.

b No flow many days June to November 1994.

c No flow many days October, November 1994, and May to September 1995.

d No flow at times each year.



## 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 sea level. 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. Maximum gage height, 6.68 ft, Sept. 17, 1960. Minimum gage height, -0.67 ft, Nov. 3, 1952.

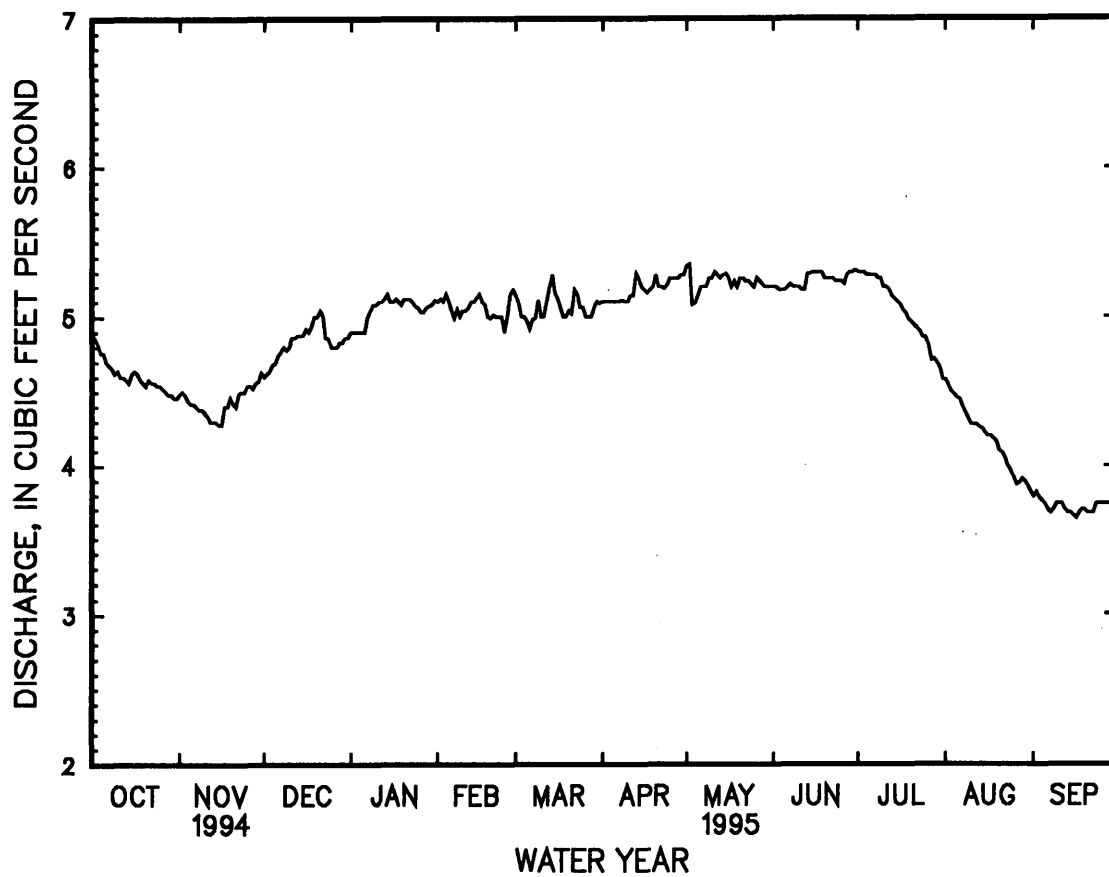
EXTREMES FOR CURRENT YEAR.--Maximum instantaneous gage height, 5.40 ft, May 2; minimum instantaneous gage height, 3.64 ft, Sept. 16.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.90	4.48	4.60	4.90	5.10	5.14	5.10	5.34	5.20	5.30	4.58	3.79
2	4.86	4.50	4.62	4.90	5.12	5.09	5.10	5.35	5.20	5.30	4.54	3.82
3	4.82	4.48	4.64	4.90	5.10	5.00	5.10	5.08	5.18	5.30	4.50	3.78
4	4.76	4.44	4.68	4.90	5.15	5.00	5.10	5.09	5.18	5.28	4.48	3.76
5	4.76	4.42	4.69	4.90	5.10	4.97	5.10	5.14	5.18	5.28	4.46	3.74
6	4.70	4.42	4.74	4.90	5.04	4.92	5.10	5.20	5.20	5.28	4.45	3.70
7	4.68	4.40	4.77	5.00	4.99	4.98	5.10	5.20	5.22	5.28	4.40	3.68
8	4.66	4.38	4.80	5.04	5.05	4.99	5.11	5.20	5.20	5.26	4.36	3.70
9	4.62	4.38	4.78	5.08	5.00	5.11	5.10	5.26	5.20	5.26	4.32	3.74
10	4.64	4.36	4.80	5.08	5.04	5.00	5.10	5.26	5.20	5.20	4.28	3.74
11	4.60	4.34	4.86	5.10	5.04	5.00	5.14	5.30	5.18	5.20	4.28	3.74
12	4.60	4.30	4.86	5.10	5.06	5.10	5.14	5.28	5.18	5.18	4.28	3.70
13	4.58	4.30	4.88	5.12	5.10	5.20	5.29	5.26	5.29	5.14	4.26	3.68
14	4.56	4.30	4.88	5.15	5.10	5.28	5.25	5.28	5.29	5.12	4.25	3.68
15	4.62	4.28	4.88	5.10	5.13	5.16	5.20	5.29	5.30	5.10	4.22	3.66
16	4.64	4.28	4.92	5.10	5.15	5.12	5.18	5.26	5.30	5.08	4.20	3.64
17	4.62	4.40	4.90	5.12	5.10	5.06	5.16	5.20	5.30	5.04	4.20	3.68
18	4.58	4.40	4.94	5.10	5.08	5.00	5.18	5.24	5.30	5.02	4.18	3.70
19	4.56	4.46	5.00	5.08	5.00	5.00	5.20	5.20	5.26	4.98	4.16	3.70
20	4.54	4.42	5.00	5.12	4.99	5.04	5.28	5.26	5.26	4.96	4.10	3.68
21	4.58	4.40	5.04	5.12	5.01	5.02	5.20	5.26	5.26	4.94	4.09	3.68
22	4.56	4.49	5.01	5.12	5.00	5.18	5.20	5.24	5.26	4.92	4.05	3.68
23	4.56	4.50	4.86	5.10	5.00	5.15	5.19	5.24	5.24	4.90	4.00	3.74
24	4.54	4.50	4.86	5.07	5.00	5.06	5.21	5.22	5.24	4.86	3.97	3.74
25	4.54	4.54	4.80	5.06	4.90	5.06	5.26	5.20	5.24	4.86	3.92	3.74
26	4.52	4.54	4.80	5.03	5.00	5.00	5.26	5.26	5.22	4.80	3.87	3.74
27	4.50	4.52	4.80	5.03	5.15	5.00	5.26	5.24	5.28	4.71	3.88	3.74
28	4.48	4.56	4.83	5.06	5.18	5.00	5.26	5.22	5.30	4.72	3.91	3.74
29	4.48	4.57	4.83	5.07	---	5.06	5.28	5.20	5.30	4.69	3.89	3.72
30	4.46	4.63	4.86	5.08	---	5.10	5.28	5.20	5.31	4.66	3.86	3.72
31	4.46	---	4.86	5.11	---	5.09	---	5.20	---	4.58	3.82	---
MEAN	4.61	4.43	4.83	5.05	5.06	5.06	5.18	5.23	5.24	5.04	4.19	3.72
MAX	4.90	4.63	5.04	5.15	5.18	5.28	5.29	5.35	5.31	5.30	4.58	3.82
MIN	4.46	4.28	4.60	4.90	4.90	4.92	5.10	5.08	5.18	4.58	3.82	3.64

CAL YR 1994 MEAN 5.04 MAX 5.65 MIN 4.04  
WTR YR 1995 MEAN 4.80 MAX 5.35 MIN 3.64

02043600 LAKE DRUMMOND IN GREAT DISMAL SWAMP, VA--Continued



## 02044500 NOTTOWAY RIVER NEAR RAWLINGS, VA

LOCATION.--Lat 36°59'00", long 77°48'00", Brunswick County, Hydrologic Unit 03010201, on right bank at downstream side of bridge on State Highway 612 at Harpers Bridge, 0.1 mi upstream from Beaver Pond Creek, and 2.6 mi northwest of Rawlings.

DRAINAGE AREA.--309 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 184.88 ft above sea level.

REMARKS.--Records good except those for period with ice effect, Feb. 8, 9, and periods of doubtful or no gage-height record, June 26 to Aug. 7, and Aug. 16-23, which are fair. Maximum discharge, 29,900 ft<sup>3</sup>/s, from rating curve extended above 16,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 1.83 ft, Oct. 15, 1954. Several measurements of water temperature were made during the year. Water-quality records for some periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 20.8 ft, discharge, about 19,000 ft<sup>3</sup>/s, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 10	1130	*1,990	*6.78			No peak equal to or greater than base discharge.	
Minimum discharge, 15 ft <sup>3</sup> /s, Sept. 16.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	68	157	100	228	215	154	121	94	e490	e36	29
2	38	78	141	108	249	435	152	309	83	e890	e34	44
3	36	72	130	105	247	418	145	847	169	e700	e33	62
4	34	70	125	101	231	304	143	500	681	e400	e32	44
5	33	66	127	97	231	268	139	312	579	e380	e32	34
6	32	63	132	89	221	270	138	254	333	e290	e31	28
7	31	64	146	303	179	294	136	226	240	e370	e30	25
8	30	62	128	852	e160	301	134	185	207	e430	31	23
9	31	61	120	466	e150	1050	131	155	179	e330	31	22
10	35	62	108	291	156	1780	133	216	174	e285	34	22
11	32	68	114	226	162	645	130	342	156	e710	48	20
12	29	71	116	194	165	443	127	371	189	e630	69	18
13	29	70	111	175	156	364	155	260	383	e440	61	17
14	41	67	109	163	145	313	199	205	423	e330	49	17
15	74	65	110	302	149	280	174	227	265	e180	40	17
16	105	65	109	1000	235	263	146	203	179	e130	e35	16
17	84	68	110	854	455	242	135	173	139	e110	e30	19
18	63	77	113	426	503	220	131	154	118	e94	e27	27
19	53	83	115	308	369	207	132	149	105	e84	e24	29
20	49	82	109	296	298	193	129	172	97	e75	e23	29
21	49	98	105	372	260	202	120	152	91	e67	e21	28
22	47	924	118	318	228	219	114	130	85	e63	e20	30
23	53	1180	127	248	204	211	107	120	96	e58	e19	34
24	84	378	113	215	191	197	134	111	140	e54	18	36
25	104	238	109	195	173	189	178	95	136	e52	17	39
26	89	185	105	178	162	176	168	89	e130	e48	16	39
27	73	162	100	167	156	172	138	82	e150	e46	17	39
28	66	174	97	163	160	165	122	87	e465	e43	26	39
29	62	197	95	181	---	161	111	129	e800	e60	35	37
30	60	184	92	194	---	159	103	130	e530	e45	33	33
31	61	---	91	215	---	157	---	110	---	e39	29	---
TOTAL	1648	5102	3582	8902	6223	10513	4158	6616	7416	7923	981	896
MEAN	53.2	170	116	287	222	339	139	213	247	256	31.6	29.9
MAX	105	1180	157	1000	503	1780	199	847	800	890	69	62
MIN	29	61	91	89	145	157	103	82	83	39	16	16
CFSM	.17	.55	.37	.93	.72	1.10	.45	.69	.80	.83	.10	.10
IN.	.20	.61	.43	1.07	.75	1.27	.50	.80	.89	.95	.12	.11

e Estimated.

## 02044500 NOTTOWAY RIVER NEAR RAWLINGS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	229	248	291	413	491	551	461	301	212	156	134	147
MAX	2024	1560	893	1289	1248	1309	1201	893	1359	965	650	1436
(WY)	1973	1986	1958	1978	1979	1993	1987	1958	1972	a1949	1955	1979
MIN	13.0	50.5	65.0	95.0	123	126	124	98.3	55.8	25.2	8.60	3.62
(WY)	1964	1968	1966	1966	1968	1981	1966	1991	1964	1966	1963	1954

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1951 - 1995

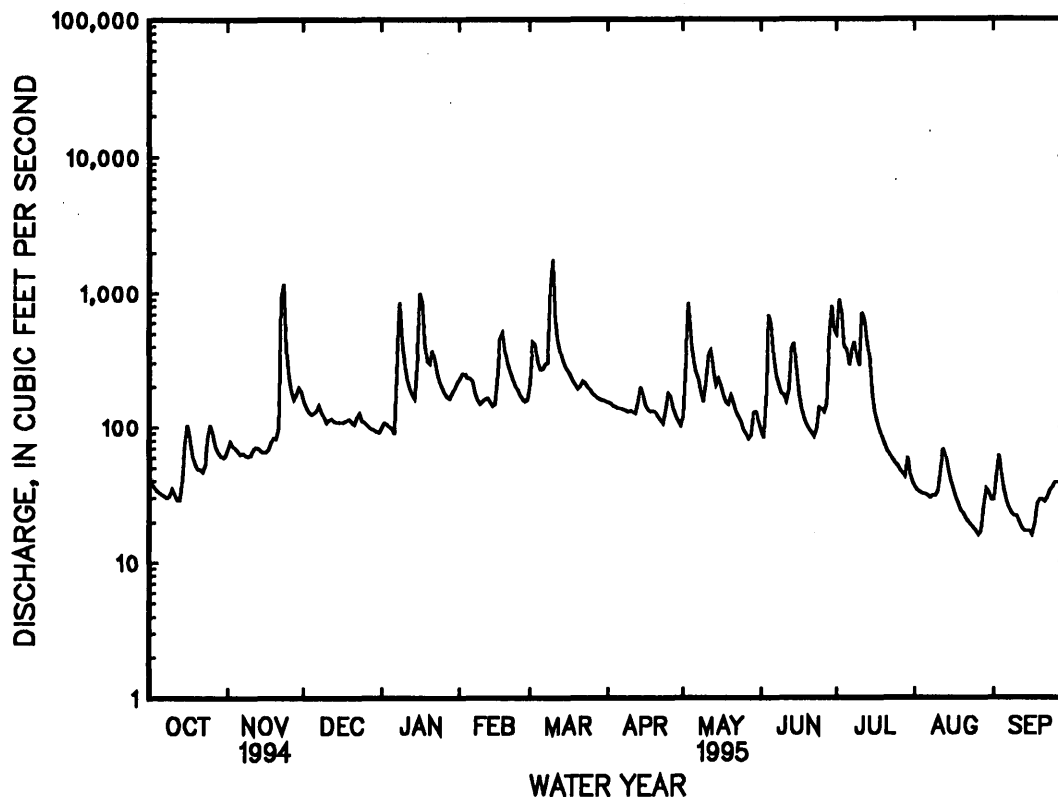
ANNUAL TOTAL	100065	63960	
ANNUAL MEAN	274	175	302
HIGHEST ANNUAL MEAN			619
LOWEST ANNUAL MEAN			144
HIGHEST DAILY MEAN	5260	Mar 4	1780
LOWEST DAILY MEAN	29	bOct 12	16
ANNUAL SEVEN-DAY MINIMUM	31	Oct 7	18
INSTANTANEOUS PEAK FLOW			1990
INSTANTANEOUS PEAK STAGE			6.78
INSTANTANEOUS LOW FLOW			15
ANNUAL RUNOFF (CFSM)	.89		.57
ANNUAL RUNOFF (INCHES)	12.05		7.70
10 PERCENT EXCEEDS	506		370
50 PERCENT EXCEEDS	152		128
90 PERCENT EXCEEDS	59		31

a Also 1975.

b Also Oct. 13, 1994.

c Also Sept. 16, 1995.

d Also Oct. 15, 1954.



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

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1935(M). WSP 972: 1931(M), 1932, 1934-35, 1939. WSP 2104: Drainage area. WDR VA-74-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 58.42 ft above sea level. Prior to Oct. 11, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 6, and Feb. 7-9, and period of no gage-height record, Sept. 6-30, which are fair. Diurnal fluctuation at low flow caused by Baskerville Mill, 33 mi upstream. Maximum discharge, 25,200 ft<sup>3</sup>/s, from rating curve extended above 13,000 ft<sup>3</sup>/s. Minimum gage height, 0.62 ft, Sept. 2, '5, 1932. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 9	1500	*3,230	*12.69			No peak equal to or greater than base discharge.	

Minimum discharge, 11 ft<sup>3</sup>/s, Aug. 30, gage height 2.08 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	77	241	111	498	461	266	155	147	750	58	31
2	63	161	199	115	457	809	258	275	124	653	51	33
3	53	175	176	123	447	855	248	895	111	1090	46	26
4	48	145	162	124	435	677	238	1110	336	1070	42	54
5	45	128	157	124	448	561	231	592	981	813	37	59
6	42	115	157	e109	424	525	224	406	683	551	35	e52
7	40	105	163	201	e340	638	219	336	410	375	34	e41
8	38	99	173	903	e300	703	217	292	318	619	28	e33
9	37	97	162	1150	e280	2830	211	231	284	664	29	e29
10	37	94	152	667	298	2910	206	196	248	367	38	e26
11	36	96	153	483	280	2340	200	285	247	301	35	e21
12	38	102	149	372	292	1020	199	428	220	782	35	e17
13	38	111	147	322	288	749	211	424	306	1360	66	e16
14	43	111	144	296	268	622	247	326	559	641	84	e14
15	49	109	140	313	260	543	295	349	491	351	68	e12
16	81	107	136	914	371	490	266	342	329	257	55	e11
17	112	111	136	1650	763	461	227	285	233	200	45	e12
18	124	119	136	1060	980	423	209	229	172	176	40	e14
19	101	130	141	628	833	388	202	197	146	159	38	e16
20	91	136	143	553	640	361	195	184	130	137	33	e17
21	82	142	140	621	534	369	189	207	120	120	28	e17
22	70	345	135	619	472	428	180	185	122	109	23	e18
23	68	1680	131	504	403	418	168	156	114	97	19	e21
24	66	1250	145	414	363	387	174	140	159	94	17	e30
25	75	473	144	362	331	359	210	131	160	100	14	e26
26	140	303	138	327	303	329	266	124	165	86	12	e24
27	125	233	131	301	285	307	241	120	169	79	12	e22
28	109	216	124	290	282	298	198	111	496	50	14	e25
29	97	248	118	301	---	284	177	125	1160	71	13	e24
30	89	266	114	347	---	278	169	186	723	71	12	e22
31	85	---	111	465	---	275	---	173	---	73	21	---
TOTAL	2194	7484	4598	14769	11875	22098	6541	9195	9863	12266	1082	763
MEAN	70.8	249	148	476	424	713	218	297	329	396	34.9	25.4
MAX	140	1680	241	1650	980	2910	295	1110	1160	1360	84	59
MIN	36	77	111	109	260	275	168	111	111	50	12	11
CFSM	.12	.43	.26	.82	.73	1.23	.38	.51	.57	.68	.06	.04
IN.	.14	.48	.30	.95	.76	1.42	.42	.59	.63	.79	.07	.05

e Estimated.

## 02045500 NOTTOWAY RIVER NEAR STONY CREEK, VA --Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	304	407	516	819	927	1025	860	530	335	357	308	265
MAX	2666	2800	1783	2578	2355	2565	2261	1878	1612	2423	3057	2191
(WY)	1973	1986	1958	1936	1979	1975	1987	1958	1938	1938	1940	1979
MIN	14.0	43.1	65.7	109	176	196	192	129	74.6	46.6	14.9	9.40
(WY)	1931	1942	1966	1966	1931	1981	1966	1942	1942	1966	1963	1932

## SUMMARY STATISTICS

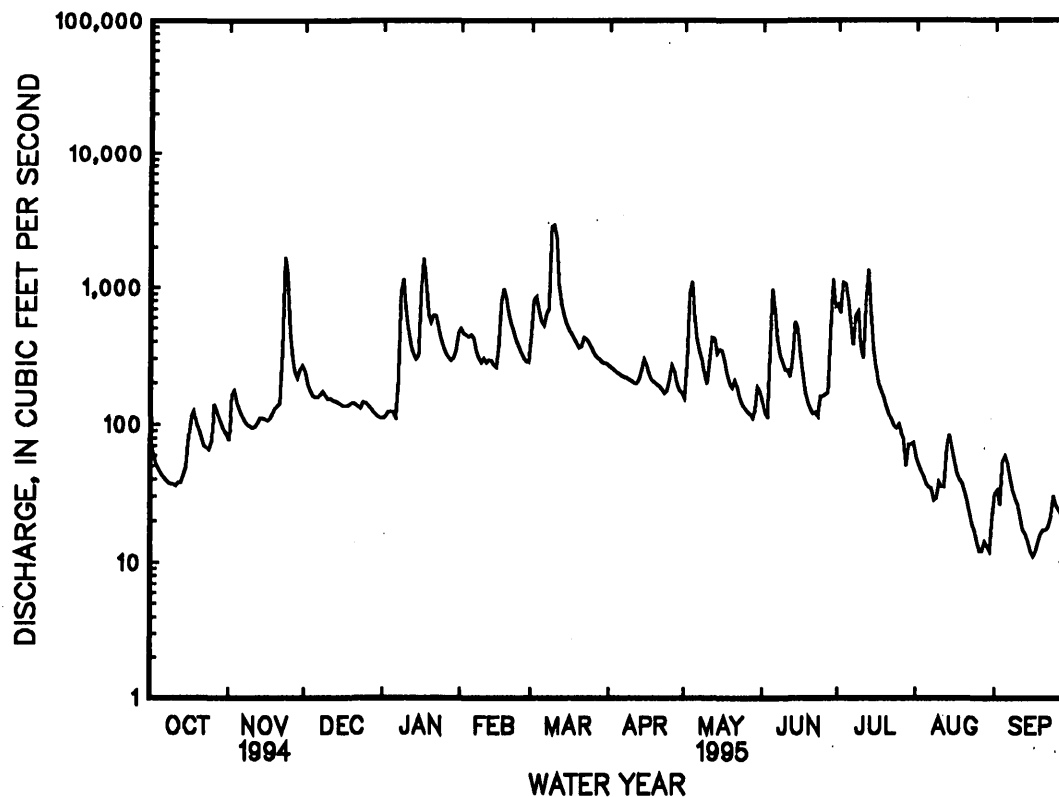
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1931 - 1995

ANNUAL TOTAL	171450	102728	552
ANNUAL MEAN	470	281	1100
HIGHEST ANNUAL MEAN			1973
LOWEST ANNUAL MEAN			191
HIGHEST DAILY MEAN	7570	Mar 5	24000
LOWEST DAILY MEAN	36	Sep 19	4.3
ANNUAL SEVEN-DAY MINIMUM	38	aOct 7	6.0
INSTANTANEOUS PEAK FLOW			25200
INSTANTANEOUS PEAK STAGE			23.66
INSTANTANEOUS LOW FLOW			3.4
ANNUAL RUNOFF (CFSM)	.81	.49	.95
ANNUAL RUNOFF (INCHES)	11.02	6.60	12.96
10 PERCENT EXCEEDS	953	639	1160
50 PERCENT EXCEEDS	178	173	300
90 PERCENT EXCEEDS	68	31	61

- a Also Oct. 8, 1994.  
b Also Sept. 16, 1995  
c Also Aug. 16, 1977.  
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 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1946 to current year. Published as "at Dinwiddie" September 1946 to September 1947 and October 1949 to September 1950.

REVISED RECORDS.--WSP 1303: 1947(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 129.94 ft above sea level. Prior to June 12, 1957, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Oct. 1-10, Aug. 17-31, and Sept. 5-30, and period with ice effect, Feb. 8, 9, which are fair. Maximum discharge, 11,400 ft<sup>3</sup>/s, from rating curve extended above 5,800 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow. No flow part of Oct. 13, 1954. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 9	1000	*1,010	*7.29			No peak equal to or greater than base discharge.	

Minimum discharge, 1.2 ft<sup>3</sup>/s, Oct. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.5	58	46	21	99	64	35	26	29	104	3.7	4.3
2	e4.1	91	38	22	81	133	33	203	24	419	3.5	10
3	e3.2	51	33	22	66	101	30	258	50	266	3.1	5.6
4	e2.6	32	31	22	66	85	29	144	297	144	2.8	3.5
5	e2.1	23	30	21	74	79	28	96	188	143	2.3	e2.7
6	e1.8	20	31	19	60	74	27	73	119	91	2.0	e2.3
7	e1.7	18	31	183	46	81	26	55	100	144	2.0	e2.1
8	e1.6	16	28	212	e38	113	26	43	69	180	1.8	e1.9
9	e1.4	14	25	123	e34	880	26	35	54	128	1.9	e1.8
10	e1.6	14	24	85	37	528	25	148	49	87	2.2	e1.7
11	1.4	15	28	63	37	255	24	150	43	299	2.2	e1.6
12	1.4	16	28	50	39	161	24	93	57	256	2.4	e1.6
13	1.8	16	28	44	38	118	38	60	91	184	2.5	e1.5
14	4.1	16	28	39	35	94	50	61	86	119	3.4	e1.4
15	6.1	15	27	79	37	79	44	110	94	69	3.9	e1.4
16	7.4	15	26	210	92	69	37	83	69	47	3.4	e1.3
17	7.6	20	25	147	200	60	32	58	43	35	e2.9	e2.0
18	6.3	26	25	123	153	53	30	44	31	26	e2.6	e5.9
19	5.1	27	26	89	111	49	29	41	24	20	e2.3	e5.5
20	4.6	24	25	133	89	46	26	44	20	15	e2.1	e6.5
21	4.7	62	23	149	76	51	27	39	17	12	e1.9	e6.0
22	4.7	433	23	99	62	68	27	32	19	15	e1.8	e7.8
23	7.0	217	23	74	54	62	20	26	17	28	e1.7	e11
24	18	123	23	61	48	56	41	21	18	13	e1.6	e9.6
25	20	84	23	51	42	48	60	18	17	10	e1.5	e8.6
26	16	60	23	45	39	43	50	23	14	8.3	e1.4	e13
27	15	48	22	41	37	39	37	22	16	7.0	e1.8	e14
28	14	62	21	40	36	38	29	22	274	6.1	e2.1	e10
29	13	65	20	46	---	37	24	39	338	5.2	e2.8	e8.5
30	12	55	20	54	---	36	22	41	138	4.6	e2.6	e7.6
31	12	---	20	106	---	36	---	37	---	4.1	e2.4	---
TOTAL	207.8	1736	824	2473	1826	3636	956	2145	2405	2889.3	74.6	160.7
MEAN	6.70	57.9	26.6	79.8	65.2	117	31.9	69.2	80.2	93.2	2.41	5.36
MAX	20	433	46	212	200	880	60	258	338	419	3.9	14
MIN	1.4	14	20	19	34	36	20	18	14	4.1	1.4	1.3
CFSM	.06	.52	.24	.71	.58	1.05	.28	.62	.72	.83	.02	.05
IN.	.07	.58	.27	.82	.61	1.21	.32	.71	.80	.96	.02	.05

e Estimated.



## 02046000 STONY CREEK NEAR DINWIDDIE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	65.3	88.8	106	165	195	215	162	94.6	60.2	49.6	47.9	53.3
MAX	554	510	426	549	541	538	377	351	156	560	288	774
(WY)	1973	1986	1958	1978	1979	1975	1952	1958	1981	1975	1955	1979
MIN	.12	2.99	5.68	15.5	37.5	27.7	27.0	20.9	14.1	2.62	.97	.18
(WY)	1955	1966	1966	1966	1968	1981	1966	1991	1994	1986	1963	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1947 - 1995
ANNUAL TOTAL	31735.0	19333.4	
ANNUAL MEAN	86.9	53.0	108
HIGHEST ANNUAL MEAN			231
LOWEST ANNUAL MEAN			34.1
HIGHEST DAILY MEAN	2840 Mar 3	880 Mar 9	7050 Oct 6 1972
LOWEST DAILY MEAN	e1.4 aOct 9	e1.3 Sep 16	e.04 bOct 7 1993
ANNUAL SEVEN-DAY MINIMUM	e1.6 cOct 6	e1.5 dSep 10	e.05 fOct 6 1993
INSTANTANEOUS PEAK FLOW		1010 Mar 9	11400 Oct 6 1972
INSTANTANEOUS PEAK STAGE		7.29 Mar 9	20.84 Oct 6 1972
INSTANTANEOUS LOW FLOW		1.2 Oct 12	g.00 Oct 13 1954
ANNUAL RUNOFF (CFSM)	.78	.47	.97
ANNUAL RUNOFF (INCHES)	10.54	6.42	13.12
10 PERCENT EXCEEDS	197	123	240
50 PERCENT EXCEEDS	26	28	49
90 PERCENT EXCEEDS	5.4	2.3	5.6

a Also Oct. 11, 12, 1994.

b Also Oct. 8, 9, 1993.

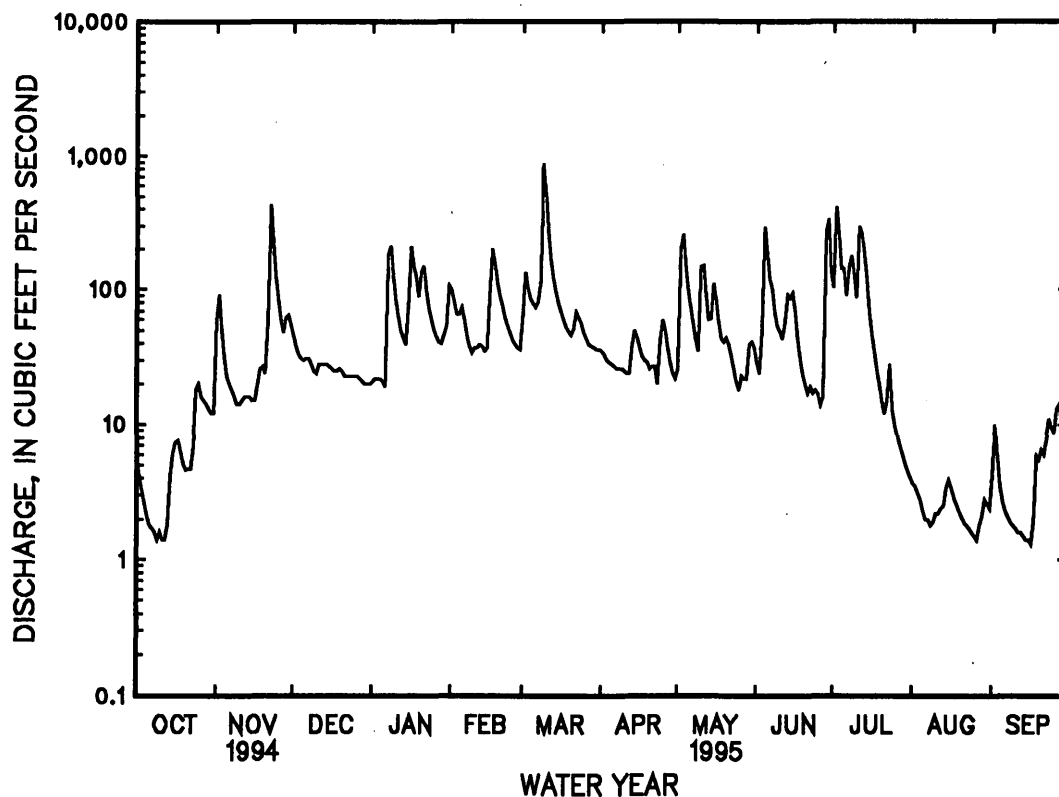
c Also Oct. 7, 1994.

d Also Sept. 11, 1995.

e Estimated.

f Also Oct. 7, 8, 1993.

g Observed.



## CHOWAN RIVER BASIN

## 02047000 NOTTOWAY RIVER NEAR SEBRELL, VA

LOCATION.--Lat 36°46'13", long 77°09'59", Southampton County, Hydrologic Unit 03010201, on right bank 1,000 ft upstream from bridge on State Highway 653, 1 mi downstream from Three Creek, 2.5 mi southwest of Sebrell, and 5.5 mi upstream from Assamoosick Swamp.

DRAINAGE AREA.--1,421 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1942, 1944, 1948-49. WSP 2104: Drainage area. WDR-91-1: 1982(m).

GAGE.--Water-stage recorder. Datum of gage is 5.94 ft above sea level. Prior to Aug. 23, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Aug. 24 to Sept. 3, and Sept. 11-24, which are fair. Maximum discharge, 26,000 ft<sup>3</sup>/s, from rating curve extended above 25,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,300 ft<sup>3</sup>/s, Mar. 13, gage height, 16.08 ft; minimum daily, 23 ft<sup>3</sup>/s, Sept. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156	132	577	235	909	913	694	406	400	1270	94	e27
2	128	122	556	231	1050	1360	663	519	338	1080	91	e26
3	107	124	504	233	1010	1880	626	885	283	1240	80	e26
4	91	316	445	241	961	2100	593	1580	239	1720	71	71
5	78	329	404	246	934	2160	560	2030	288	2920	66	68
6	71	278	373	248	940	2020	532	1760	1100	3650	62	67
7	65	237	360	280	906	1810	511	1270	1200	3500	60	74
8	61	207	360	378	818	1780	483	989	952	2690	56	61
9	58	182	355	1070	718	2530	469	786	738	1980	54	52
10	56	168	353	1570	633	3580	453	641	596	1720	54	46
11	54	158	334	1280	640	4350	440	542	515	1240	59	e38
12	53	149	327	944	608	5460	426	664	483	958	73	e35
13	51	146	313	737	600	6210	486	912	515	1330	66	e32
14	55	156	312	623	586	5830	559	907	672	1730	63	e29
15	59	170	308	596	566	4300	618	779	937	1510	78	e27
16	60	170	298	739	645	2770	677	751	970	921	93	e26
17	61	176	292	1260	907	1900	646	796	762	632	78	e25
18	96	177	290	1980	1440	1460	567	713	566	477	67	e25
19	146	191	298	2110	1900	1250	507	593	410	381	59	e24
20	159	217	301	1720	1950	1110	474	503	312	329	53	e24
21	138	248	309	1620	1690	1040	451	457	255	283	50	e23
22	124	295	306	1640	1430	1040	415	454	218	249	48	e25
23	110	472	299	1530	1240	1100	378	423	196	219	45	e35
24	97	1410	284	1290	1070	1120	393	355	191	193	e40	53
25	91	1830	282	1050	932	1060	438	297	527	178	e36	75
26	89	1260	295	884	819	989	521	273	723	170	e34	94
27	108	803	288	774	736	917	626	254	677	156	e32	93
28	181	614	277	696	688	851	606	255	502	135	e30	77
29	171	535	264	660	---	803	516	264	527	118	e29	71
30	152	547	251	662	---	760	439	283	1230	94	e28	67
31	140	---	241	746	---	722	---	386	---	93	e27	---
TOTAL	3066	11819	10456	28273	27326	65175	15767	21727	17322	33166	1776	1416
MEAN	98.9	394	337	912	976	2102	526	701	577	1070	57.3	47.2
MAX	181	1830	577	2110	1950	6210	694	2030	1230	3650	94	94
MIN	51	122	241	231	566	722	378	254	191	93	27	23
CFSM	.07	.28	.24	.64	.69	1.48	.37	.49	.41	.75	.04	.03
IN.	.08	.31	.27	.74	.72	1.71	.41	.57	.45	.87	.05	.04

e Estimated.

## 02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	634	858	1317	2050	2437	2774	2106	1311	772	736	628	523
MAX	4491	4854	4310	6115	4710	5867	5127	5180	2246	5782	2831	4631
(WY)	1973	1986	1958	1978	1957	1975	1987	1978	1972	1975	1955	1979
MIN	27.4	59.5	98.8	196	516	389	427	300	131	48.9	43.3	27.8
(WY)	1955	1942	1966	1966	1981	1981	1966	1942	1942	1966	1963	1954

## SUMMARY STATISTICS

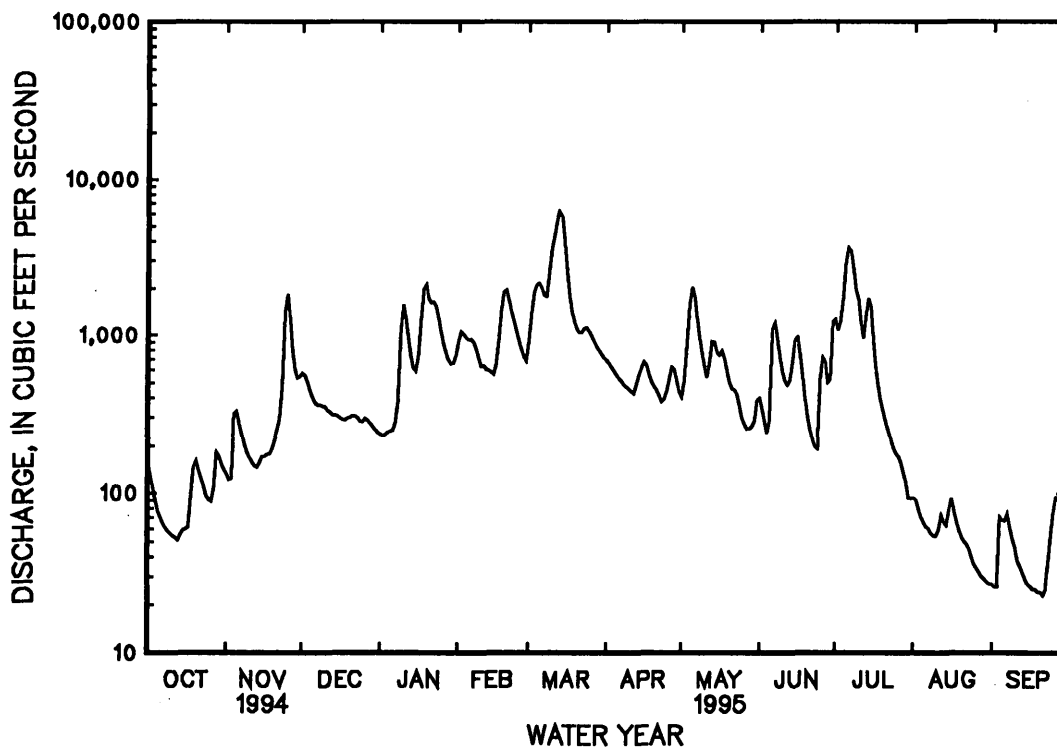
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1941 - 1995

ANNUAL TOTAL	411179	237289	
ANNUAL MEAN	1127	650	1340
HIGHEST ANNUAL MEAN			2671
LOWEST ANNUAL MEAN			366
HIGHEST DAILY MEAN	12100	Mar 7	25500
LOWEST DAILY MEAN	43	Sep 21	14
ANNUAL SEVEN-DAY MINIMUM	49	Sep 15	15
INSTANTANEOUS PEAK FLOW			26000
INSTANTANEOUS PEAK STAGE			24.43
INSTANTANEOUS LOW FLOW			b12
ANNUAL RUNOFF (CFSM)	.79	.46	.94
ANNUAL RUNOFF (INCHES)	10.76	6.21	12.81
10 PERCENT EXCEEDS	2870	1550	3340
50 PERCENT EXCEEDS	355	406	733
90 PERCENT EXCEEDS	92	55	102

- a Not determined.  
b Observed.  
e Estimated.



02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued  
(National water-quality assessment station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947, 1978 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1946 to September 1947.

REMARKS.--These data are a part of the Albemarle-Pamlico National Water-Quality Assessment (NAWQA) program.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED CENT SATUR- ATION (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
OCT											
20...	0900	163	100	7.1	14.5	11.5	765	10.2	93	29	7.3
DEC											
12...	1100	328	136	7.2	5.5	8.0	775	10.7	89	45	14
JAN											
18...	1015	1960	74	6.6	16.5	11.0	769	10.1	91	19	4.7
FEB											
23...	0900	1260	77	6.6	11.0	7.0	760	11.0	91	20	5.2
MAY											
23...	0930	432	79	5.9	23.0	21.0	775	6.7	74	25	6.1
JUL											
18...	1200	476	70	6.7	31.0	28.5	756	5.0	65	22	5.7

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3 (00453)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
OCT										
20...	2.6	7.4	34	0.6	1.9	34	28	5.6	7.2	<0.10 11
DEC										
12...	2.4	5.4	20	0.4	2.7	23	19	17	15	<0.10 12
JAN										
18...	1.8	5.4	35	0.5	2.3	13	11	5.4	6.3	<0.10 14
FEB										
23...	1.8	5.6	35	0.5	1.7	15	12	7.4	7.1	<0.10 12
MAY										
23...	2.3	5.5	31	0.5	1.6	28	23	2.6	4.8	<0.10 14
JUL										
18...	2.0	3.9	26	0.4	1.8	--	--	3.4	3.8	<0.10 14

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

## 02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRATE TOTAL (MG/L) AS N) (00620)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N) (00613)	NITRO- GEN, NO2+NO3 TOTAL (MG/L) AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608)	NITRO- GEN, ORGANIC TOTAL (MG/L) AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L) AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L) AS N) (00623)
OCT 20...	64	60	--	<0.010	--	<0.050	0.020	--	0.18	<0.20	0.20
DEC 12...	117	82	0.060	<0.010	0.060	0.060	<0.015	0.30	--	0.30	0.30
JAN 18...	71	48	0.120	0.020	0.140	0.140	0.040	0.56	0.36	0.60	0.40
FEB 23...	67	49	0.090	<0.010	0.090	0.090	<0.015	0.30	--	0.30	0.20
MAY 23...	73	53	0.180	0.010	0.190	0.190	0.040	0.26	0.26	0.30	0.30
JUL 18...	95	50	0.170	<0.010	0.170	0.170	0.040	0.46	0.46	0.50	0.50

DATE	NITRO- GEN, TOTAL (MG/L) AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L) AS N) (00602)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L) AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L) AS P) (00671)	IRON, DIS- SOLVED (UG/L) AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L) AS MN) (01056)	CARBON, ORGANIC DIS- SOLVED (MG/L) AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L) AS C) (00689)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 20...	--	--	0.020	<0.010	0.010	260	28	3.7	0.10	2	71
DEC 12...	0.36	0.36	0.040	0.020	0.020	1300	72	6.7	0.20	3	93
JAN 18...	0.74	0.54	0.100	0.020	0.020	760	16	8.1	1.9	41	95
FEB 23...	0.39	0.29	0.050	0.020	0.010	600	26	6.9	0.50	11	100
MAY 23...	0.49	0.49	0.030	0.030	0.030	1300	58	8.2	<0.10	--	--
JUL 18...	0.67	0.67	0.060	0.060	0.050	1600	93	10	0.50	--	--

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

## 02047500 BLACKWATER RIVER NEAR DENDRON, VA

LOCATION.--Lat 37°01'30", long 76°52'30", Surry County, Hydrologic Unit 03010202, on left bank 10 ft upstream from Walls Bridge on State Highway 617, 1.2 mi downstream from Cypress Swamp, and 3.5 mi southeast of Dendron.

DRAINAGE AREA.--294 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1941 to December 1986, July 1988 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 30.99 ft above sea level (U.S. Army Corps of Engineers bench mark). Prior to Aug. 13, 1980, at site 25 ft upstream at same datum.

REMARKS.--Records good except for period with ice effect, Feb. 6-8, which is fair. Maximum discharge, 5,850 ft<sup>3</sup>/s, from rating curve extended above 4,900 ft<sup>3</sup>/s. No flow at times most years. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.1 ft, from U.S. Army Corps of Engineers floodmarks, discharge, 10,000 ft<sup>3</sup>/s, from rating curve extended above 4,900 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,950 ft<sup>3</sup>/s, Mar. 10, gage height, 5.98 ft; no flow part or all of each day Oct. 13, 14, and Aug. 6 to Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	37	245	66	210	184	114	88	57	106	.06	.00
2	2.1	39	212	65	204	226	107	161	50	114	.12	.00
3	1.4	39	175	63	193	244	100	257	56	135	.11	.00
4	.54	39	148	61	197	247	95	339	60	186	.06	.00
5	.21	39	135	58	210	231	90	332	61	184	.03	.00
6	.12	39	126	58	e210	225	84	278	62	384	.00	.00
7	.08	40	121	107	e195	245	80	250	69	787	.00	.00
8	.05	41	117	160	e180	296	77	267	68	670	.00	.00
9	.04	44	112	175	168	1090	74	259	66	501	.00	.00
10	.03	46	112	152	178	1880	71	225	65	373	.00	.00
11	.02	49	105	122	168	1580	69	180	65	281	.00	.00
12	.01	50	96	107	155	1230	69	152	83	210	.00	.00
13	.00	50	91	121	138	1320	100	146	116	189	.00	.00
14	.08	50	86	137	127	1320	104	140	115	177	.00	.00
15	1.5	52	81	167	125	1090	110	160	113	134	.00	.00
16	3.1	56	77	208	157	846	106	206	103	91	.00	.00
17	3.4	70	74	222	219	616	96	235	100	86	.00	.00
18	2.7	81	73	236	282	458	89	222	184	86	.00	.00
19	2.0	102	77	229	305	357	82	190	235	91	.00	.00
20	4.8	119	77	267	296	295	76	161	185	80	.00	.00
21	7.1	148	76	319	290	277	72	139	117	60	.00	.00
22	8.4	324	76	341	304	263	68	119	81	49	.00	.00
23	8.8	332	77	355	312	243	64	99	61	48	.00	.00
24	8.5	284	76	433	284	231	93	82	52	42	.00	.00
25	8.0	234	75	500	248	220	111	69	50	35	.00	.00
26	9.4	193	74	469	205	201	104	86	49	27	.00	.00
27	26	212	73	388	170	178	97	87	76	17	.00	.00
28	30	265	71	317	149	159	88	82	80	9.0	.00	.00
29	30	270	69	258	---	143	80	87	105	3.8	.00	.00
30	31	262	67	220	---	131	78	77	125	1.4	.00	.00
31	34	---	66	220	---	123	---	66	---	.13	.00	---
TOTAL	227.68	3606	3140	6601	5879	16149	2648	5241	2709	5157.33	0.38	0.00
MEAN	7.34	120	101	213	210	521	88.3	169	90.3	166	.012	.000
MAX	34	332	245	500	312	1880	114	339	235	787	.12	.00
MIN	.00	37	66	58	125	123	64	66	49	.13	.00	.00
CFSM	.02	.41	.34	.72	.71	1.77	.30	.58	.31	.57	.00	.00
IN.	.03	.46	.40	.84	.74	2.04	.34	.66	.34	.65	.00	.00

e Estimated.

## 02047500 BLACKWATER RIVER NEAR DENDRON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1986, 1989 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	142	203	313	490	559	652	456	258	150	144	170	136
MAX	1128	1108	1240	1473	1205	1501	1271	879	988	1364	912	1329
(WY)	1973	1980	1958	1978	1957	1975	1989	1958	1963	1945	1969	1979
MIN	.000	.000	2.65	21.1	70.8	79.5	87.2	25.8	2.62	.32	.000	.000
(WY)	(a)	(b)	1981	1981	1942	1981	1981	1991	1944	1957	(c)	(d)

## SUMMARY STATISTICS

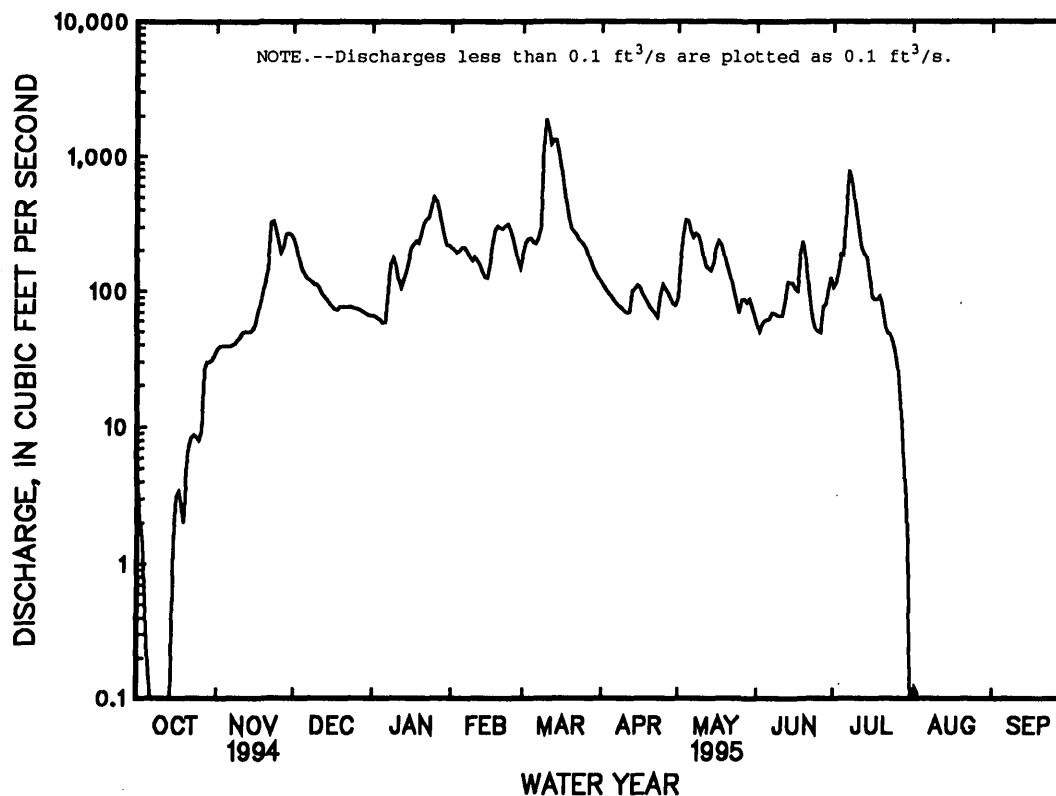
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1942 - 1986,  
1989 - 1995

ANNUAL TOTAL	91886.65	51358.39	
ANNUAL MEAN	252	141	306
HIGHEST ANNUAL MEAN			622
LOWEST ANNUAL MEAN			57.5
HIGHEST DAILY MEAN	4260	Mar 4	1880
LOWEST DAILY MEAN	.00	fJun 24	.00
ANNUAL SEVEN-DAY MINIMUM	.00	jJun 24	.00
INSTANTANEOUS PEAK FLOW			1950
INSTANTANEOUS PEAK STAGE			5.98
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (CFSM)	.86		.48
ANNUAL RUNOFF (INCHES)	11.63		6.50
10 PERCENT EXCEEDS	712		284
50 PERCENT EXCEEDS	67		84
90 PERCENT EXCEEDS	.00		.00

- a Monthly mean flow is 0.0 ft<sup>3</sup>/s in 1955, 1969, 1981, 1984, 1994.  
b Monthly mean flow is 0.0 ft<sup>3</sup>/s in 1955, 1981.  
c Monthly mean flow is 0.0 ft<sup>3</sup>/s in 1976, 1980, 1993.  
d Monthly mean flow is 0.0 ft<sup>3</sup>/s in 1944, 1954, 1980, 1983, 1993, 1995.  
f Also June 25 to July 20, Aug. 31 to Sept. 23, and Oct. 13, 1994.  
g Also Aug. 6 to Sept. 30, 1995.  
h No flow at times most years.  
j Also June 25 to July 14, and Aug. 31 to Sept. 17, 1994.  
k Also Aug. 7 to Sept. 24, 1995.  
m No flow part or all of each day Oct. 13, 14, 1994, and Aug. 6 to Sept. 30, 1995.



## 02049500 BLACKWATER RIVER NEAR FRANKLIN, VA

LOCATION.--Lat 36°45'45", long 76°53'55", Southampton County, Hydrologic Unit 03010202, on right bank 0.4 mi south of Burdette, 0.5 mi upstream from Black Creek, 3.3 mi downstream from Corrowaugh Swamp, and 6.0 mi north of Franklin.

DRAINAGE AREA.--617 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1944 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.56 ft above sea level.

REMARKS.--Records fair except those for periods of doubtful or no gage-height record, Feb. 10-12, Mar. 21 to Apr. 6, and periods of tidal effect below 20 ft<sup>3</sup>/s October, November, and June 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. Maximum discharge, 9,420 ft<sup>3</sup>/s, from rating curve extended above 9,400 ft<sup>3</sup>/s.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 22 ft, discharge, 21,000 ft<sup>3</sup>/s, from rating curve extended above 9,400 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,940 ft<sup>3</sup>/s, Mar. 12, gage height, 10.65 ft; minimum daily, 1.3 ft<sup>3</sup>/s, Aug. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	4.8	348	94	493	567	e170	80	35	141	1.4	3.3
2	3.3	5.9	334	98	469	845	e155	117	26	140	1.4	3.0
3	4.2	7.3	327	101	454	992	e145	242	20	136	1.5	1.9
4	4.6	6.7	319	95	424	980	e140	343	15	122	1.5	1.7
5	5.0	5.9	313	85	417	853	e138	430	10	155	1.6	1.7
6	4.7	5.6	306	79	404	752	e132	441	10	223	1.6	1.7
7	4.5	5.5	291	115	376	720	125	409	14	248	1.7	2.3
8	4.2	6.1	266	188	355	728	115	360	16	243	1.7	3.0
9	4.2	6.5	235	228	323	1350	106	303	16	252	1.7	3.0
10	4.2	7.6	208	246	e325	2190	94	259	14	339	2.0	2.6
11	4.1	6.3	200	260	e330	2750	69	239	10	431	3.2	2.1
12	4.1	5.4	201	273	e325	2930	54	226	10	422	2.9	2.0
13	4.1	5.2	197	277	310	2830	78	212	41	353	2.8	2.1
14	4.9	5.6	188	264	295	2520	129	194	123	289	2.8	2.3
15	7.3	6.8	175	262	285	2190	136	186	163	224	2.1	2.1
16	5.1	8.2	160	359	350	1900	132	183	190	182	1.6	2.3
17	4.7	6.5	146	418	538	1650	127	175	191	170	1.5	3.0
18	5.2	13	141	434	685	1370	117	171	151	191	1.4	2.1
19	6.3	44	151	456	734	1050	105	178	105	201	1.4	1.7
20	6.5	83	166	480	738	760	93	196	73	178	1.3	1.4
21	9.3	129	171	502	717	e570	78	203	65	126	1.5	1.6
22	9.3	428	172	503	666	e460	64	193	86	80	1.8	2.9
23	10	624	177	482	595	e430	47	158	101	49	2.0	2.9
24	11	544	163	469	542	e400	47	123	96	31	2.1	1.7
25	6.4	470	172	464	498	e365	81	94	74	20	2.3	1.4
26	6.4	461	164	457	464	e315	107	86	67	11	2.6	1.6
27	8.0	464	136	460	436	e265	112	98	64	5.6	3.3	2.3
28	9.0	454	122	482	410	e240	113	77	64	4.1	3.8	2.1
29	6.9	418	114	505	---	e220	107	64	60	2.7	2.7	1.7
30	5.3	375	103	505	---	e200	93	54	126	1.8	2.1	1.4
31	4.7	---	93	503	---	e190	---	45	---	1.5	3.3	---
TOTAL	180.2	4612.9	6259	10144	12958	33582	3209	6139	2036	4972.7	64.6	64.9
MEAN	5.81	154	202	327	463	1083	107	198	67.9	160	2.08	2.16
MAX	11	624	348	505	738	2930	170	441	191	431	3.8	3.3
MIN	2.7	4.8	93	79	285	190	47	45	10	1.5	1.3	1.4
(†)	12.6	22.0	32.7	37.0	28.9	3.18	25.2	15.5	35.2	34.4	1.09	1.33
MEAN†	18.4	176	235	364	492	1086	132	214	103	194	3.17	3.49
CFSM†	.03	.28	.38	.59	.80	1.76	.21	.35	.17	.31	.01	.01
IN.†	.03	.32	.44	.68	.83	2.03	.24	.40	.19	.36	.01	.01
CAL YR 1994	TOTAL	186059.62	MEAN	512	MAX	5670	MIN	.62	MEAN†	534	CFSM†	.86
WTR YR 1995	TOTAL	84222.3	MEAN	231	MAX	2930	MIN	1.3	MEAN†	251	CFSM†	.41

† Average diversion, in cubic feet per second, by city of Norfolk.

‡ Adjusted for diversion.

e Estimated.



## 02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

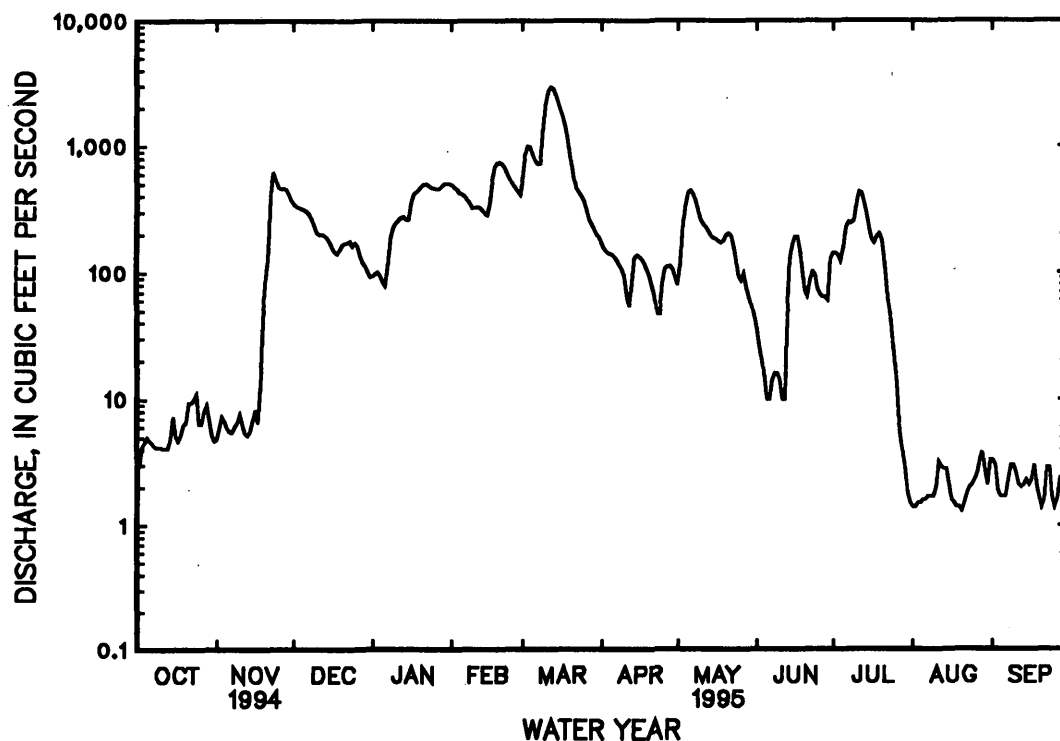
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1995, BY WATER YEAR (WY) [UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	275	373	625	1000	1150	1284	927	556	354	294	351	270
MAX	1795	1713	2082	2271	2502	2915	2783	1890	1925	2003	1481	2490
(WY)	1973	1980	1958	1978	1957	1989	1989	1958	1963	1945	1969	1960
MIN	.94	1.69	2.12	12.5	152	158	107	51.4	15.0	3.02	2.08	2.16
(WY)	1988	1981	1981	1981	1981	1981	1995	1985	1986	1986	1995	1995

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1944 - 1995
ANNUAL TOTAL	187059.62	84222.3	
ANNUAL MEAN	512	231	619
HIGHEST ANNUAL MEAN			1155
LOWEST ANNUAL MEAN			133
HIGHEST DAILY MEAN	5670 Mar 5	2930 Mar 12	9420 Sep 14 1960
LOWEST DAILY MEAN	.62 aJul 9	1.3 Aug 20	.07 Oct 16 1981
ANNUAL SEVEN-DAY MINIMUM	.70 Jul 6	1.5 Jul 31	.26 Oct 10 1987
INSTANTANEOUS PEAK FLOW		2940 Mar 12	9420 Sep 14 1960
INSTANTANEOUS PEAK STAGE		10.65 Mar 12	b17.14 Sep 14 1960
INSTANTANEOUS LOW FLOW		(c)	(c)
ANNUAL RUNOFF (CFSM)	.83	.37	1.00
ANNUAL RUNOFF (INCHES)	11.28	5.08	13.64
10 PERCENT EXCEEDS	1700	500	1620
50 PERCENT EXCEEDS	129	117	370
90 PERCENT EXCEEDS	2.1	2.1	8.9

a Also July 10, 1994.

b From floodmarks.

c Not determined, tidally affected most years during periods of extreme low flows; minimum measured flow, 2.4 ft<sup>3</sup>/s (reverse flow), Sept. 17, 1952.

## CHOWAN RIVER BASIN

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued  
(National water-quality assessment station)

## 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.

REMARKS.--These data are a part of the Albemarle-Pimlico National Water-Quality Assessment (NAWQA) program.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED SATUR- ATION (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT UM-MF (COLS./ 100 ML) (31625)	COLI- FORM, FECAL, 0.7 KF AGAR (COLS. PER 100 ML) (31673)
OCT											
20...	1200	6.6	135	6.7	24.0	13.0	766	--	7.4	70	--
NOV											
16...	1000	9.1	159	6.4	16.0	12.0	770	2.1	4.8	44	30
DEC											
12...	1400	201	86	6.9	6.0	9.5	775	--	7.3	63	--
JAN											
18...	1245	435	120	6.6	15.0	11.0	770	--	6.9	62	--
FEB											
23...	1145	596	109	6.6	18.0	7.0	769	--	10.0	82	--
APR											
06...	0930	141	112	6.4	11.0	13.0	768	4.8	9.4	88	29
MAY											
23...	1215	159	103	5.9	25.0	20.0	775	--	4.5	49	--
JUN											
27...	0900	63	100	6.7	26.0	24.0	763	7.0	4.1	49	240
AUG											
17...	1000	0.0	129	6.4	30.0	27.0	--	4.7	5.4	--	55

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA- LINITY WAT DIS TOT IT MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT											
20...	46	14	2.6	4.9	18	0.3	2.2	24	--	20	20
NOV											
16...	56	17	3.3	5.1	15	0.3	4.2	34	0	28	14
DEC											
12...	24	5.9	2.2	5.9	32	0.5	2.8	15	--	12	5.6
JAN											
18...	39	12	2.1	5.1	21	0.4	2.4	13	--	11	14
FEB											
23...	36	11	2.0	4.5	20	0.3	1.9	13	--	11	13
APR											
06...	41	13	2.0	4.3	18	0.3	2.2	30	0	25	7.6
MAY											
23...	40	13	1.9	4.0	17	0.3	2.3	30	--	25	2.3
JUN											
27...	40	13	1.7	3.8	16	0.3	1.9	28	0	23	3.4
AUG											
17...	54	18	2.1	3.9	13	0.2	2.5	48	0	40	4.2

K Results based on colony count outside the acceptance range (non-ideal colony count).

## 02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, ORGANIC DIS- SOLVED TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED TOTAL (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT												
20...	<0.10	7.6	107	77	0.260	<0.010	0.260	0.260	0.040	0.56	0.46	0.60
NOV												
16...	0.10	8.5	117	87	0.140	<0.010	0.140	0.140	<0.015	0.70	--	0.70
DEC												
12...	<0.10	16	66	54	0.070	<0.010	0.070	0.070	0.020	0.68	0.78	0.70
JAN												
18...	<0.10	8.6	97	66	0.110	0.010	0.120	0.120	0.020	0.48	0.48	0.50
FEB												
23...	<0.10	5.6	87	57	0.280	<0.010	0.280	0.280	<0.015	0.40	--	0.40
APR												
06...	<0.10	2.0	92	60	0.140	0.030	0.170	0.170	0.040	0.56	--	0.60
MAY												
23...	0.10	6.1	101	57	0.200	0.020	0.220	0.220	0.060	0.74	0.74	0.80
JUN												
27...	0.20	8.5	102	58	0.180	0.010	0.190	0.190	0.040	0.86	--	0.90
AUG												
17...	<0.10	9.1	104	74	--	<0.010	--	<0.050	0.070	0.83	--	0.90

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

## 02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, DIS- TOTAL (MG/L AS N) (00600)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)
OCT 20...	0.50	0.86	0.76	0.030	0.020	0.010	--	--	--	1000	--
NOV 16...	--	0.84	--	0.040	0.030	0.010	80	58	10	1700	<4
DEC 12...	0.80	0.77	0.87	0.030	0.030	0.020	--	--	--	1000	--
JAN 18...	0.50	0.62	0.62	0.020	<0.010	0.010	--	--	--	870	--
FEB 23...	0.30	0.68	0.58	0.040	<0.010	<0.010	--	--	--	520	--
APR 06...	--	0.77	--	0.040	0.040	0.020	250	49	4	1400	<4
MAY 23...	0.80	1.0	1.0	0.040	0.050	0.030	--	--	--	2200	--
JUN 27...	--	1.1	--	0.090	0.050	0.040	120	51	<3	2000	8
AUG 17...	--	0.90	--	0.070	0.020	0.020	40	80	30	2100	<4

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

## 02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT											
20...	180	--	--	--	--	--	--	12	0.50	6	77
NOV											
16...	160	<10	1	<1	<1.0	87	<6	--	--	5	90
DEC											
12...	39	--	--	--	--	--	--	16	0.50	4	100
JAN											
18...	38	--	--	--	--	--	--	12	0.50	6	96
FEB											
23...	21	--	--	--	--	--	--	8.4	--	5	100
APR											
06...	91	<10	1	<1	<1.0	69	<6	--	--	7	96
MAY											
23...	98	--	--	--	--	--	--	17	0.20	--	--
JUN											
27...	150	<10	1	<1	<1.0	70	<6	--	--	9	81
AUG											
17...	1100	<10	<1	<1	<1.0	97	<6	--	--	12	97

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

## 02051000 NORTH MEHERRIN RIVER NEAR LUNENBURG, VA

LOCATION.--Lat 36°59'53", long 78°21'03", Lunenburg County, Hydrologic Unit 03010204, on right bank at upstream side of bridge on State Highway 40, 0.5 mi downstream from Tusekiah Creek, 4.6 mi upstream from Juniper Creek, and 5.2 mi northwest of Lunenburg.

DRAINAGE AREA.--55.6 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1946 to September 1980, October 1981 to current year.

REVISED RECORDS.--WSP 1303: 1947(M), 1949(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 333.7 ft above sea level (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 those for periods of doubtful gage-height record, Oct. 19 to Nov. 21, Dec. 2-4, and periods with with ice effect, Jan. 5, and Feb. 7-9, which are fair. Maximum discharge, 14,400 ft<sup>3</sup>/s, from rating curve extended above 1,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 48 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 29	1100	*819	*6.87	No peak equal to or greater than base discharge.			

Minimum discharge, 1.0 ft<sup>3</sup>/s, Sept. 16, gage height, 0.28 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	e7.8	16	10	51	177	14	26	7.2	55	3.2	1.8
2	3.2	e14	e13	10	48	107	14	235	7.6	308	2.8	4.3
3	3.2	e9.3	e11	9.0	33	57	14	88	72	69	2.6	2.6
4	3.1	e8.0	e12	8.7	36	50	14	42	82	35	2.3	1.9
5	2.8	e7.3	13	e8.3	36	47	13	30	28	26	2.2	1.6
6	2.8	e7.0	13	7.7	25	59	13	24	19	115	1.9	1.5
7	2.8	e6.8	12	260	e23	57	13	18	23	206	2.1	1.4
8	2.8	e6.6	11	81	e19	111	14	15	15	56	2.3	1.4
9	2.7	e6.5	10	41	e17	270	13	13	12	26	2.1	1.4
10	2.7	e7.4	10	30	18	86	12	57	20	19	3.4	1.4
11	2.8	e8.4	11	24	19	53	13	43	126	37	7.7	1.3
12	2.8	e10	10	22	19	42	13	26	142	21	4.5	1.2
13	2.8	e9.0	9.5	21	16	35	46	19	119	15	3.2	1.2
14	15	e8.0	9.7	20	15	31	25	19	36	12	8.9	1.2
15	21	e7.8	10	194	33	28	17	21	21	10	6.3	1.1
16	10	e7.7	9.5	167	148	26	15	16	15	9.2	3.8	1.1
17	7.5	e7.6	9.7	63	140	24	14	14	12	9.2	2.8	4.1
18	6.1	e8.6	10	40	68	22	14	13	10	8.7	2.2	4.7
19	e5.8	e9.5	10	33	52	20	14	16	9.2	8.2	1.9	3.5
20	e5.3	e8.2	9.0	172	43	20	13	15	8.7	6.3	1.6	2.8
21	e5.2	e40	9.0	68	37	24	12	12	8.0	5.7	1.5	2.3
22	e5.1	123	9.0	39	32	24	12	10	7.7	5.9	1.4	4.3
23	e5.0	36	10	29	29	20	13	9.0	8.0	5.7	1.3	13
24	e9.0	22	10	24	27	20	24	8.5	44	5.3	1.3	12
25	e11	17	9.7	21	23	18	21	8.0	18	6.1	1.2	14
26	e8.0	15	9.5	19	23	16	15	7.2	75	7.0	1.1	21
27	e7.0	14	9.0	18	22	17	12	9.2	51	5.9	1.4	22
28	e6.3	15	9.0	18	29	16	11	10	45	5.3	7.5	20
29	e6.0	21	9.2	21	---	15	10	14	286	5.1	3.8	17
30	e5.7	18	9.0	21	---	15	12	11	87	4.5	2.6	17
31	e6.6	---	8.7	30	---	15	---	8.5	---	3.7	2.0	---
TOTAL	183.8	486.5	321.5	1529.7	1081	1522	460	857.4	1414.4	1111.8	92.9	184.1
MEAN	5.93	16.2	10.4	49.3	38.6	49.1	15.3	27.7	47.1	35.9	3.00	6.14
MAX	21	123	16	260	148	270	46	235	286	308	8.9	22
MIN	2.7	6.5	8.7	7.7	15	15	10	7.2	7.2	3.7	1.1	1.1
CFSM	.11	.29	.19	.89	.69	.88	.28	.50	.85	.65	.05	.11
IN.	.12	.33	.22	1.02	.72	1.02	.31	.57	.95	.74	.06	.12

e Estimated.

## 02051000 NORTH MEHERRIN RIVER NEAR LUNENBURG, VA--Continued

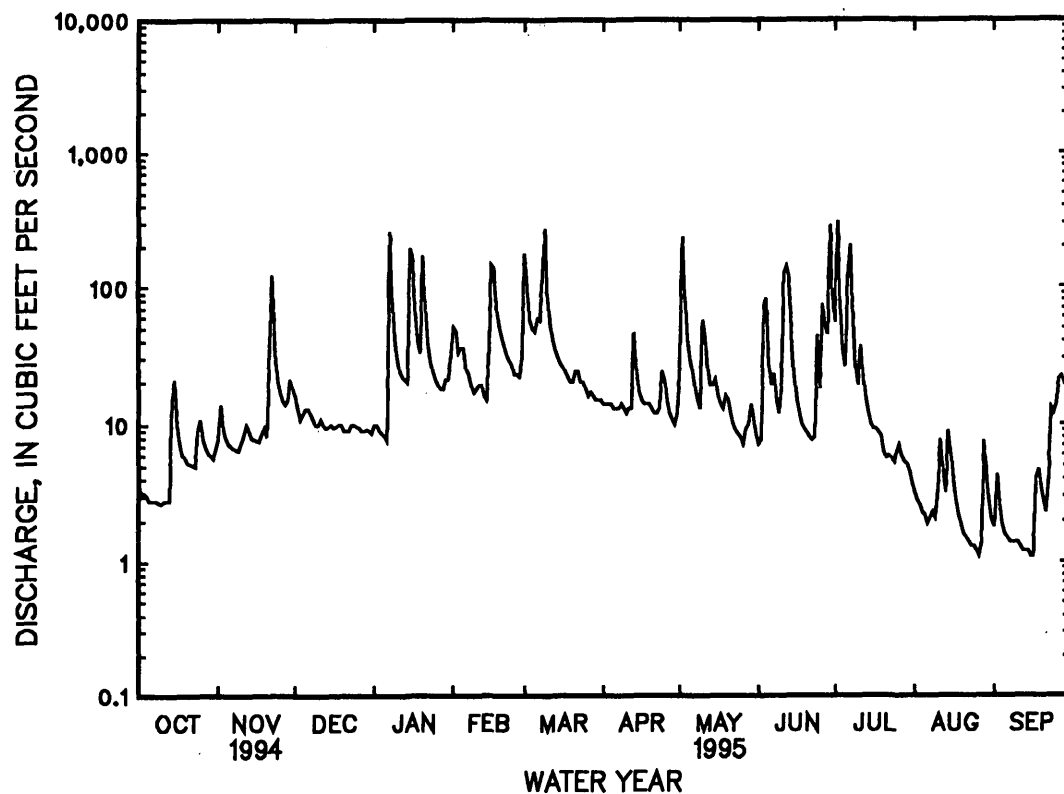
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	34.2	46.5	53.6	71.2	89.6	95.7	76.8	45.9	27.4	20.7	19.6	25.7
MAX	442	299	186	194	249	293	223	161	154	98.6	138	292
(WY)	1972	1986	1949	1978	1979	1975	1978	1971	1968	1975	1955	1979
MIN	1.70	4.37	7.22	12.7	18.7	32.8	15.3	11.2	3.97	2.72	1.83	.16
(WY)	1994	1992	1966	1955	1968	1985	1995	1964	1964	1957	1977	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1947 - 1995	
ANNUAL TOTAL	13994.5		9245.1		50.3	
ANNUAL MEAN	38.3		25.3		98.8	
HIGHEST ANNUAL MEAN					21.2	
LOWEST ANNUAL MEAN					1972	
HIGHEST DAILY MEAN	482	Mar 2	308	Jul 2	6710	Oct 23 1971
LOWEST DAILY MEAN	2.1	Sep 17	1.1	aAug 26	.00	bSep 5 1954
ANNUAL SEVEN-DAY MINIMUM	2.5	Sep 11	1.2	Sep 10	.00	bSep 5 1954
INSTANTANEOUS PEAK FLOW			819	Jun 29	14400	Oct 23 1971
INSTANTANEOUS PEAK STAGE			6.87	Jun 29	28.30	Oct 23 1971
INSTANTANEOUS LOW FLOW			1.0	Sep 16	.00	bSep 5 1954
ANNUAL RUNOFF (CFSM)	.69		.46		.91	
ANNUAL RUNOFF (INCHES)	9.36		6.19		12.30	
10 PERCENT EXCEEDS	92		54		93	
50 PERCENT EXCEEDS	13		13		20	
90 PERCENT EXCEEDS	4.7		2.7		3.8	

a Also Sept. 15, 16, 1995.

b Also Sept. 6-21 and Oct. 8-14, 1954.



## 02051500 MEHERRIN RIVER NEAR LAWRENCEVILLE, VA

LOCATION.--Lat 36°43'00", long 77°49'55", Brunswick County, Hydrologic Unit 03010204, on right bank 50 ft upstream from Gholson Bridge on State Highway 715, 0.6 mi upstream from Allen Creek, and 3.0 mi southeast of Lawrenceville.

DRAINAGE AREA.--552 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1932(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 136.56 ft above sea level. Prior to Nov. 17, 1931, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Feb. 7-9, which is fair. Maximum discharge, 38,000 ft<sup>3</sup>/s, from rating curve extended above 13,000 ft<sup>3</sup>/s on basis of velocity-area studies and records for Nottoway River near Stony Creek. Minimum gage height, 0.72 ft, Sept. 23, 24, 1932. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 10	0200	*4,510	*15.47	No other peak equal to or greater than base discharge.			

Minimum discharge, 12 ft<sup>3</sup>/s, Sept. 15-16, gage height, 1.27 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	79	158	99	391	632	192	137	97	763	51	31
2	51	120	138	104	469	1230	187	242	86	637	47	34
3	48	92	127	102	394	840	184	1120	113	1230	43	42
4	47	77	120	99	343	561	181	545	291	488	40	43
5	45	72	122	93	326	476	178	315	539	565	37	39
6	44	71	125	80	334	461	173	243	279	235	34	31
7	43	72	122	451	e265	653	172	200	175	515	40	26
8	42	71	118	1490	e240	672	171	167	162	941	35	25
9	43	70	111	598	e225	3120	169	144	142	379	33	23
10	43	73	111	361	235	3070	167	138	908	213	35	20
11	43	84	115	273	235	921	161	263	791	1300	46	18
12	41	92	112	233	213	644	160	322	1050	1820	47	16
13	41	88	109	217	200	516	179	198	2630	446	44	16
14	53	86	107	203	190	436	216	159	1300	248	41	14
15	84	85	106	633	195	387	256	164	469	168	39	13
16	80	82	103	2560	465	349	196	152	273	137	37	12
17	88	82	105	1190	1530	320	177	138	190	119	37	15
18	78	88	109	584	1250	294	168	122	150	114	37	17
19	65	90	110	413	755	272	165	114	128	101	29	19
20	59	85	106	380	586	255	160	113	116	91	25	19
21	56	96	101	866	476	270	154	122	108	85	22	21
22	55	1220	107	578	393	303	148	114	100	84	20	36
23	56	796	102	388	334	301	142	100	98	81	19	60
24	65	309	103	305	294	279	169	90	92	79	17	44
25	71	198	103	261	263	256	232	93	274	72	16	32
26	89	156	102	233	244	232	225	84	335	68	14	29
27	81	139	99	213	233	221	183	81	320	68	14	34
28	70	161	95	210	236	210	159	87	471	67	25	35
29	66	169	95	249	---	211	144	162	298	64	36	30
30	64	180	93	269	---	205	136	145	1690	58	33	28
31	66	---	92	351	---	199	---	114	---	55	31	---
TOTAL	1834	5083	3426	14086	11314	18796	5304	6188	13675	11291	1024	822
MEAN	59.2	169	111	454	404	606	177	200	456	364	33.0	27.4
MAX	89	1220	158	2560	1530	3120	256	1120	2630	1820	51	60
MIN	41	70	92	80	190	199	136	81	86	55	14	12
CFSM	.11	.31	.20	.82	.73	1.10	.32	.36	.83	.66	.06	.05
IN.	.12	.34	.23	.95	.76	1.27	.36	.42	.92	.76	.07	.06

e Estimated.



## 02051500 MEHERRIN RIVER NEAR LAWRENCEVILLE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1995, BY WATER YEAR (WY)

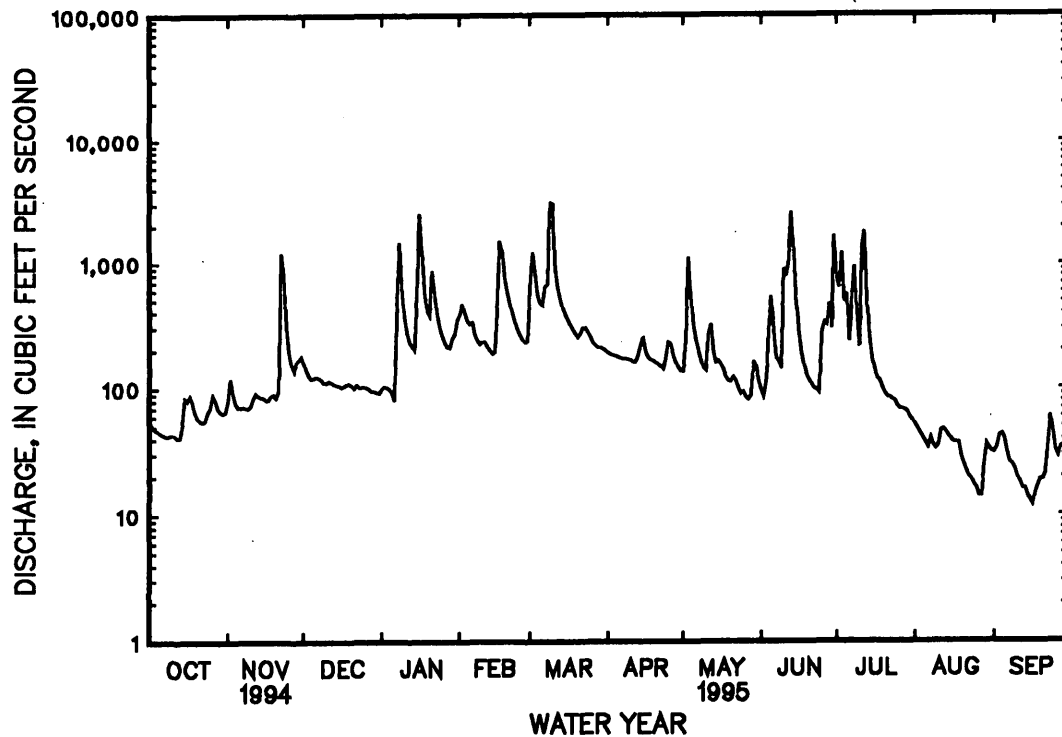
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	302	377	467	721	822	903	746	450	317	317	298	230
MAX	2266	2853	1315	2391	1811	2315	2067	1571	1555	2358	4199	1532
(WY)	1972	1986	1958	1936	1960	1993	1987	1958	1938	1945	1940	1979
MIN	17.1	44.1	64.6	88.8	175	190	162	128	96.5	42.8	33.0	9.70
(WY)	1931	1934	1966	1934	1931	1981	1966	1942	1959	1932	1995	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1929 - 1995	
ANNUAL TOTAL	156473		92843			
ANNUAL MEAN	429		254		494	
HIGHEST ANNUAL MEAN					916	
LOWEST ANNUAL MEAN					202	
HIGHEST DAILY MEAN	9900	Mar 4	3120	Mar 9	35300	Aug 17 1940
LOWEST DAILY MEAN	41	aOct 12	12	Sep 16	4.2	bOct 7 1954
ANNUAL SEVEN-DAY MINIMUM	42	Oct 7	15	Sep 12	4.6	Oct 4 1954
INSTANTANEOUS PEAK FLOW			4510	Mar 10	38000	Aug 17 1940
INSTANTANEOUS PEAK STAGE			15.47	Mar 10	42.00	Aug 17 1940
INSTANTANEOUS LOW FLOW			12	cSep 15	4.2	bOct 7 1954
ANNUAL RUNOFF (CFSM)	.78		.46		.90	
ANNUAL RUNOFF (INCHES)	10.54		6.26		12.17	
10 PERCENT EXCEEDS	848		570		955	
50 PERCENT EXCEEDS	145		127		248	
90 PERCENT EXCEEDS	63		34		65	

a Also Oct. 13, 1994.

b Also Oct. 8, 1954.

c Also Sept. 16, 1995.



## 02052000 MEHERRIN RIVER AT EMPORIA, VA

LOCATION.--Lat 36°41'24", long 77°32'27", Emporia City, Hydrologic Unit 03010204, on left bank at downstream side of bridge on U.S. Highway 301 and 1.2 mi upstream from Falling Run.

DRAINAGE AREA.--747 mi<sup>2</sup>.

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 sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for periods of doubtful gage-height record, Aug. 1-3, 7, which are fair. Prior to November 1965 and since April 1986, low and medium flow regulated by powerplant 0.8 mi upstream from station. Minimum discharge, 5.0 ft<sup>3</sup>/s, Nov. 11, 1954, gage height, 1.00 ft, result of regulation. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 31.5 ft, from floodmarks, discharge, about 40,000 ft<sup>3</sup>/s, from rating curve extended above 18,000 ft<sup>3</sup>/s on basis of record for station near Lawrenceville.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,250 ft<sup>3</sup>/s, Mar. 10, gage height, 17.47 ft; minimum, 19 ft<sup>3</sup>/s, Sept. 22, result of regulation; minimum daily, 21 ft<sup>3</sup>/s, Sept. 21, 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	240	206	109	442	1220	248	155	122	1690	e74	70
2	52	120	201	114	490	1860	247	229	99	550	e67	37
3	98	82	193	132	463	1680	246	1010	94	1340	e62	23
4	99	112	171	133	424	1080	245	1130	175	973	55	36
5	84	121	127	131	383	528	217	450	566	584	47	48
6	94	96	123	133	370	657	183	335	522	619	42	90
7	79	165	161	210	395	758	184	290	186	275	e56	29
8	61	183	165	1660	267	1210	210	225	194	1180	44	31
9	50	91	158	1120	207	3940	209	173	206	589	47	34
10	76	95	136	589	247	5020	208	192	348	358	51	33
11	89	91	181	299	265	2750	206	203	1440	344	63	75
12	86	92	159	230	263	1220	204	492	919	2860	43	28
13	89	92	135	249	253	713	278	236	2070	1090	41	28
14	93	104	148	232	187	663	299	189	2790	395	82	30
15	76	105	155	287	300	568	240	211	752	204	55	30
16	87	114	155	2190	479	550	266	266	455	170	44	32
17	123	168	141	2750	1380	504	297	226	255	192	45	32
18	120	171	114	925	2140	336	230	178	290	113	44	29
19	112	102	174	576	1310	399	176	152	57	90	40	28
20	106	98	174	590	835	399	184	130	124	107	37	28
21	104	112	151	648	710	327	194	117	155	119	54	21
22	102	499	129	966	458	445	178	174	143	99	38	22
23	79	1730	115	544	421	428	157	148	103	105	26	60
24	87	583	118	386	436	389	181	98	114	95	38	142
25	102	236	151	262	287	336	238	103	134	101	24	37
26	107	227	127	230	217	303	317	110	420	84	24	21
27	109	209	132	250	323	319	264	116	227	85	26	32
28	104	201	144	239	328	300	215	106	621	86	49	59
29	107	217	138	268	---	283	186	104	305	88	25	71
30	90	235	127	309	---	261	123	191	1280	87	30	58
31	108	---	135	393	---	248	---	183	---	80	61	---
TOTAL	2839	6691	4644	17154	14280	29694	6630	7922	15166	14752	1434	1294
MEAN	91.6	223	150	553	510	958	221	256	506	476	46.3	43.1
MAX	123	1730	206	2750	2140	5020	317	1130	2790	2860	82	142
MIN	50	82	114	109	187	248	123	98	57	80	24	21
CFSM	.12	.30	.20	.74	.68	1.28	.30	.34	.68	.64	.06	.06
IN.	.14	.33	.23	.85	.71	1.48	.33	.39	.76	.73	.07	.06

e Estimated.

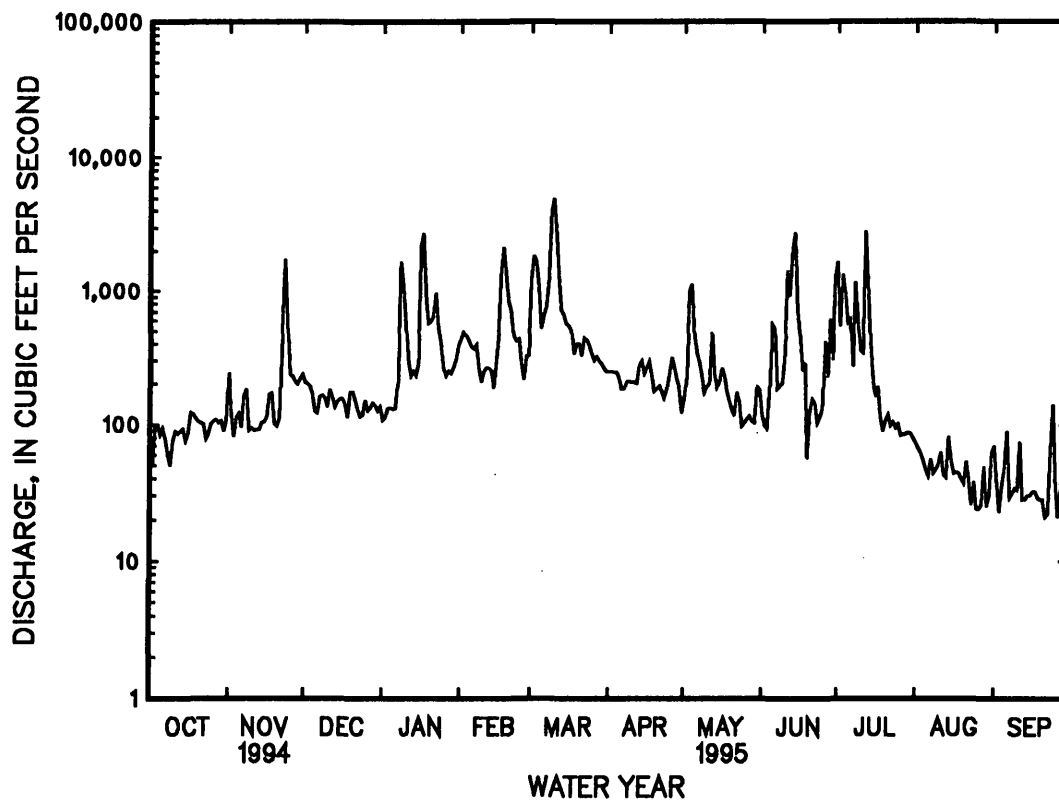
## 02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	412	534	669	1045	1217	1348	1067	649	430	340	294	258
MAX	3057	3711	1772	3063	2730	3235	3077	2244	1399	2647	1536	1810
(WY)	1973	1986	1973	1978	1979	1993	1987	1958	1972	1975	1955	1979
MIN	37.7	60.0	89.9	159	298	261	221	256	137	62.9	46.3	18.7
(WY)	1969	1955	1966	1966	1968	1981	1995	1995	1986	1954	1995	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1952 - 1995	
ANNUAL TOTAL	207511		122500			
ANNUAL MEAN	569		336		686	
HIGHEST ANNUAL MEAN					1297	
LOWEST ANNUAL MEAN					248	
HIGHEST DAILY MEAN	9950	Mar 5	5020	Mar 10	20700	Oct 8 1972
LOWEST DAILY MEAN	50	Oct 9	a21	bSep 21	a7.1	Jul 20 1986
ANNUAL SEVEN-DAY MINIMUM	e71	Jul 11	a27	Sep 16	a9.1	Nov 4 1954
INSTANTANEOUS PEAK FLOW			5250	Mar 10	21100	Oct 8 1972
INSTANTANEOUS PEAK STAGE			17.47	Mar 10	27.38	Oct 8 1972
INSTANTANEOUS LOW FLOW			a19	Sep 22	a5.0	Nov 11 1954
ANNUAL RUNOFF (CFSM)			.45		.92	
ANNUAL RUNOFF (INCHES)	10.33		6.10		12.48	
10 PERCENT EXCEEDS	1340		711		1420	
50 PERCENT EXCEEDS	200		174		353	
90 PERCENT EXCEEDS	87		44		68	

a Result of regulation.  
b Also Sept. 26, 1994.  
e Estimated.



## 02052500 FOUNTAINS CREEK NEAR BRINK, VA

LOCATION.--Lat 36°36'55", long 77°42'00", Greenville County, Hydrologic Unit 03010204, on left bank 30 ft upstream from bridge on State Highway 603, 0.3 mi downstream from Quarrel Creek, 3.6 mi west of Brink, and 10 mi southwest of Emporia.

DRAINAGE AREA.--65.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1953 to current year. Prior to October 1980, published as Fontaine Creek near Brink.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 152.59 ft above sea level.

REMARKS.--Records good except for period with ice effect, Feb. 8, 9, which is fair. Maximum discharge, 16,000 ft<sup>3</sup>/s, from rating curve extended above 3,000 ft<sup>3</sup>/s. No flow at times most years. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 9	1230	*2,260	*15.28	No other peak equal to or greater than base discharge.			

No flow part or all of each day Sept. 14-16, 19-22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	4.2	8.8	7.8	27	293	18	6.6	14	21	1.1	.70
2	1.1	4.4	6.9	8.5	23	388	18	53	12	28	.92	.69
3	1.0	3.9	6.2	7.7	19	143	17	69	12	17	.83	.64
4	.89	3.4	5.4	7.2	22	89	17	42	12	10	.68	.58
5	.87	3.1	5.9	6.9	26	78	16	32	11	23	.58	.53
6	.80	3.0	6.5	6.4	21	76	16	33	11	16	.52	.48
7	.74	3.2	6.1	45	16	93	15	26	11	18	.46	.49
8	.69	3.0	5.5	51	e14	188	15	21	10	16	.28	.42
9	.67	3.1	4.7	32	e12	1820	15	17	30	9.3	.19	.22
10	.64	4.0	5.2	22	13	606	14	18	57	6.3	2.4	.11
11	.53	6.0	11	17	14	160	13	20	22	49	3.9	.01
12	.52	5.7	6.0	14	15	88	14	18	34	70	2.5	.01
13	.50	5.3	6.3	13	13	65	48	16	263	26	1.6	.01
14	1.9	4.5	11	12	12	53	40	17	90	14	1.2	.00
15	4.6	4.3	12	39	18	45	25	26	32	8.3	.95	.00
16	4.0	4.0	9.7	57	107	39	19	25	18	5.6	.83	.00
17	2.7	6.2	8.9	42	219	35	16	20	11	3.9	.76	.01
18	2.1	9.5	10	31	155	31	14	16	7.8	3.1	.69	.01
19	1.7	8.8	9.9	23	104	28	14	15	6.7	2.7	.61	.00
20	1.4	6.5	8.6	31	69	26	13	14	6.7	2.2	.55	.00
21	1.4	6.7	7.5	33	51	39	11	12	5.7	3.5	.50	.00
22	1.6	16	7.3	25	39	49	9.6	11	5.0	17	.47	.02
23	1.6	13	8.5	20	31	37	8.4	10	4.8	8.7	.42	.20
24	2.0	8.1	9.2	17	26	32	18	9.5	4.2	5.1	.28	1.6
25	1.9	5.8	8.8	14	23	27	25	8.8	8.8	5.8	.17	1.3
26	2.0	4.8	7.9	13	20	24	19	11	12	3.8	.07	1.0
27	2.2	5.7	7.1	12	19	22	16	17	12	2.7	.21	.82
28	2.5	15	6.8	13	22	21	12	21	23	2.1	.62	.74
29	2.2	14	6.7	22	---	20	9.3	37	15	1.6	.77	.75
30	2.2	11	6.2	24	---	20	7.4	27	11	1.4	.76	.69
31	2.5	---	6.5	31	---	19	---	18	---	1.2	.71	---
TOTAL	50.85	196.2	237.1	697.5	1150	4654	512.7	686.9	772.7	402.3	26.53	12.03
MEAN	1.64	6.54	7.65	22.5	41.1	150	17.1	22.2	25.8	13.0	.86	.40
MAX	4.6	16	12	57	219	1820	48	69	263	70	3.9	1.6
MIN	.50	3.0	4.7	6.4	12	19	7.4	6.6	4.2	1.2	.07	.00
CFSM	.03	.10	.12	.35	.63	2.30	.26	.34	.40	.20	.01	.01
IN.	.03	.11	.14	.40	.66	2.66	.29	.39	.44	.23	.02	.01

e Estimated.

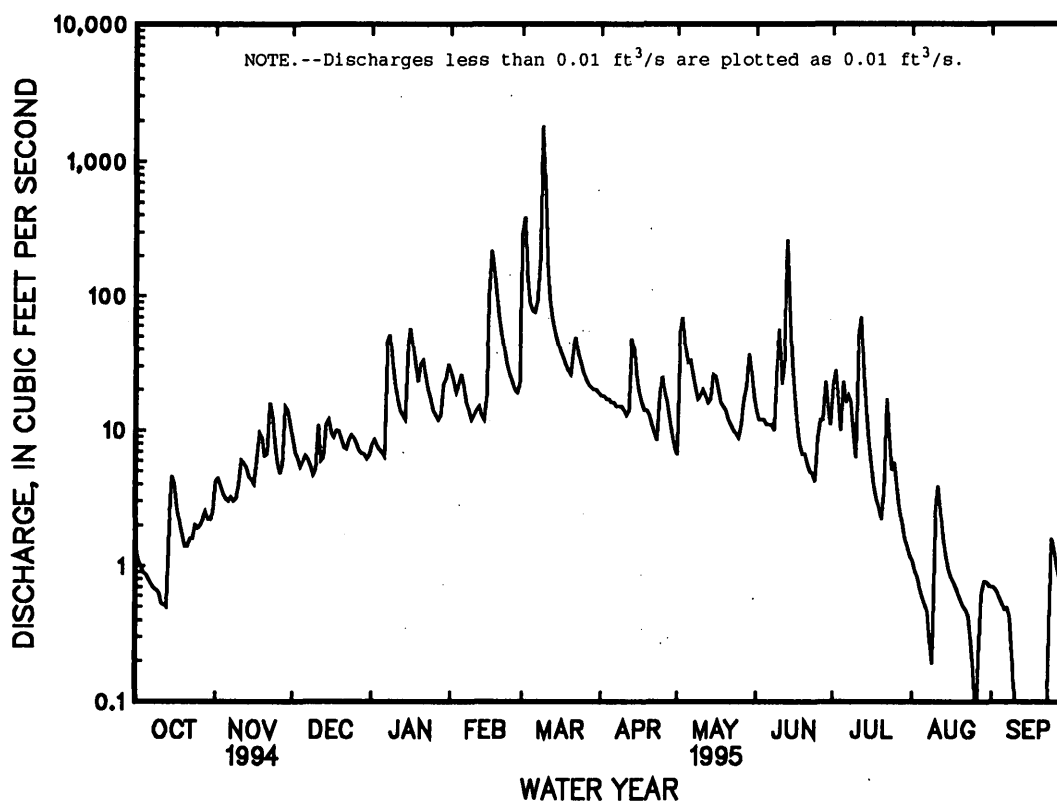
## 02052500 FOUNTAINS CREEK NEAR BRINK, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	42.6	45.4	68.3	106	134	146	96.5	55.4	33.1	22.4	32.9	18.7
MAX	735	430	208	312	333	389	284	250	175	300	188	223
(WY)	1973	1986	1973	1987	1984	1993	1987	1958	1972	1975	1967	1975
MIN	.000	.000	5.45	8.43	34.5	30.4	17.1	10.7	3.79	.39	.010	.000
(WY)	(a)	1955	1955	1955	1991	1981	1995	1991	1991	1981	1987	1980

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1954 - 1995	
ANNUAL TOTAL	17665.52		9398.81			
ANNUAL MEAN	48.4		25.8		66.5	
HIGHEST ANNUAL MEAN					173	
LOWEST ANNUAL MEAN					12.4	
HIGHEST DAILY MEAN	2940	Mar 3	1820	Mar 9	e13500	Oct 6 1972
LOWEST DAILY MEAN	.28	Jul 10	.00	bSep 14	.00	(c)
ANNUAL SEVEN-DAY MINIMUM	.53	Jul 7	.00	dSep 14	.00	(f)
INSTANTANEOUS PEAK FLOW			2260	Mar 9	16000	Oct 6 1972
INSTANTANEOUS PEAK STAGE			15.28	Mar 9	g24.14	Oct 6 1972
INSTANTANEOUS LOW FLOW			.00	hSep 14	.00	(j)
ANNUAL RUNOFF (CFSM)	.74		.39		1.02	
ANNUAL RUNOFF (INCHES)	10.08		5.36		13.85	
10 PERCENT EXCEEDS	95		39		144	
50 PERCENT EXCEEDS	7.8		9.9		24	
90 PERCENT EXCEEDS	1.3		.60		1.6	

- a Monthly mean flow is 0.0 ft<sup>3</sup>/s in 1955 and 1982.  
b Also Sept. 15-16, 19-21, 1995.  
c Many days in 1954-55, 1957, 1959, 1966, 1968-71, 1977, 1980-83, and 1987.  
d Also Sept. 15, 1995.  
e Estimated.  
f Occurred in 1954-55, 1957, 1966, 1968-71, and 1980-83.  
g From floodmarks.  
h Also Sept. 15-16, 19-22, 1995.  
j At times most years.



## ROANOKE RIVER BASIN

## 02053800 SOUTH FORK ROANOKE RIVER NEAR SHAWSVILLE, VA

LOCATION.--Lat 37°08'24", long 80°16'00", Montgomery County, Hydrologic Unit 03010101, on right bank 95 ft downstream from bridge on State Highway 637, 0.3 mi downstream from Georges Run, 1.3 mi downstream from Elliott Creek, and 2.0 mi southwest of Shawsville.

DRAINAGE AREA.--110 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,361.87 ft above sea level. Prior to Aug. 26, 1974, water-stage recorder, and Aug. 26, 1974, to July 24, 1975, nonrecording gage at site 95 ft upstream at same datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 4-6, and Feb. 6-9, 13, which are fair. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 14,200 ft<sup>3</sup>/s, from rating curve extended above 3,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 30, 1959, reached a stage of 9.89 ft, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0630	*5,790	*6.75	June 28	2330	1,130	2.96

Minimum discharge, 21 ft<sup>3</sup>/s, Sept. 10-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	67	46	60	106	141	77	58	75	208	39	44
2	38	57	44	57	124	133	75	134	119	182	38	38
3	39	48	43	51	142	128	73	98	187	144	37	27
4	41	45	44	e48	158	127	72	84	136	124	35	25
5	40	43	96	e45	135	124	70	80	106	110	34	24
6	39	43	74	e50	e130	127	69	73	97	99	33	24
7	38	42	63	250	e125	120	68	66	90	120	34	23
8	38	40	56	140	e112	230	68	63	85	87	34	23
9	41	39	51	113	e95	428	67	63	89	77	35	22
10	45	43	59	96	103	299	66	226	80	71	37	22
11	40	45	145	87	103	233	64	188	137	65	36	22
12	38	41	110	94	90	193	69	135	374	61	34	22
13	39	40	93	88	e80	167	75	110	280	58	32	22
14	65	39	89	554	82	150	65	109	177	55	31	22
15	61	38	96	3420	116	139	62	97	134	53	30	22
16	46	38	82	1010	253	130	61	83	116	53	29	24
17	42	38	86	490	359	122	62	77	102	70	29	40
18	40	41	82	335	296	115	63	74	92	86	32	32
19	43	43	76	256	251	108	61	112	84	56	34	27
20	47	40	71	310	228	104	59	83	80	51	30	25
21	44	45	67	232	206	117	59	71	71	50	29	25
22	42	53	65	195	172	103	58	65	186	46	28	26
23	69	44	64	170	155	104	58	62	361	44	27	27
24	59	41	61	150	141	97	79	59	291	44	27	29
25	47	40	59	132	127	89	66	57	208	49	26	27
26	50	39	56	123	120	85	59	58	170	109	26	31
27	50	47	55	114	115	84	57	102	152	54	39	33
28	45	62	54	124	158	83	57	97	233	51	48	27
29	42	53	53	119	---	80	55	99	538	46	34	25
30	41	50	52	111	---	79	56	86	270	43	31	24
31	43	---	51	105	---	77	---	73	---	40	29	---
TOTAL	1391	1344	2143	9129	4282	4316	1950	2842	5120	2406	1017	804
MEAN	44.9	44.8	69.1	294	153	139	65.0	91.7	171	77.6	32.8	26.8
MAX	69	67	145	3420	359	428	79	226	538	208	48	44
MIN	38	38	43	45	80	77	55	57	71	40	26	22
CFSM	.41	.41	.63	2.68	1.39	1.27	.59	.83	1.55	.71	.30	.24
IN.	.47	.45	.72	3.09	1.45	1.46	.66	.96	1.73	.81	.34	.27

e Estimated.

## 02053800 SOUTH FORK ROANOKE RIVER NEAR SHAWSVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	75.3	92.8	100	134	159	214	191	136	101	59.5	54.7	56.6
MAX	294	407	232	294	381	571	750	334	483	205	174	347
(WY)	1972	1986	1973	1995	1994	1993	1987	1978	1972	1972	1994	1989
MIN	21.4	24.4	22.1	18.9	70.1	55.6	51.0	50.7	35.2	20.6	17.4	17.8
(WY)	1992	1982	1966	1966	1981	1981	1966	1963	1966	1966	1963	1968

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1961 - 1995	
ANNUAL TOTAL	56301		36744			
ANNUAL MEAN	154		101		114	
HIGHEST ANNUAL MEAN					205	
LOWEST ANNUAL MEAN					46.5	
HIGHEST DAILY MEAN	1920	Mar 28	3420	Jan 15	6840	Jun 21 1972
LOWEST DAILY MEAN	38	aOct 2	22	bSep 9	7.5	Jul 28 1966
ANNUAL SEVEN-DAY MINIMUM	39	cOct 2	22	dSep 9	8.9	Jul 23 1966
INSTANTANEOUS PEAK FLOW			5790	Jan 15	14200	Jun 21 1972
INSTANTANEOUS PEAK STAGE			6.75	Jan 15	f11.12	Jun 21 1972
INSTANTANEOUS LOW FLOW			21	gSep 10	7.5	hJul 27 1966
ANNUAL RUNOFF (CFSM)	1.40		.92		1.04	
ANNUAL RUNOFF (INCHES)	19.04		12.43		14.12	
10 PERCENT EXCEEDS	342		174		220	
50 PERCENT EXCEEDS	84		65		70	
90 PERCENT EXCEEDS	42		31		29	

a Also Oct. 7, 8, 12, Nov. 15-17, 1994.

b Also Sept. 10-15, 1995.

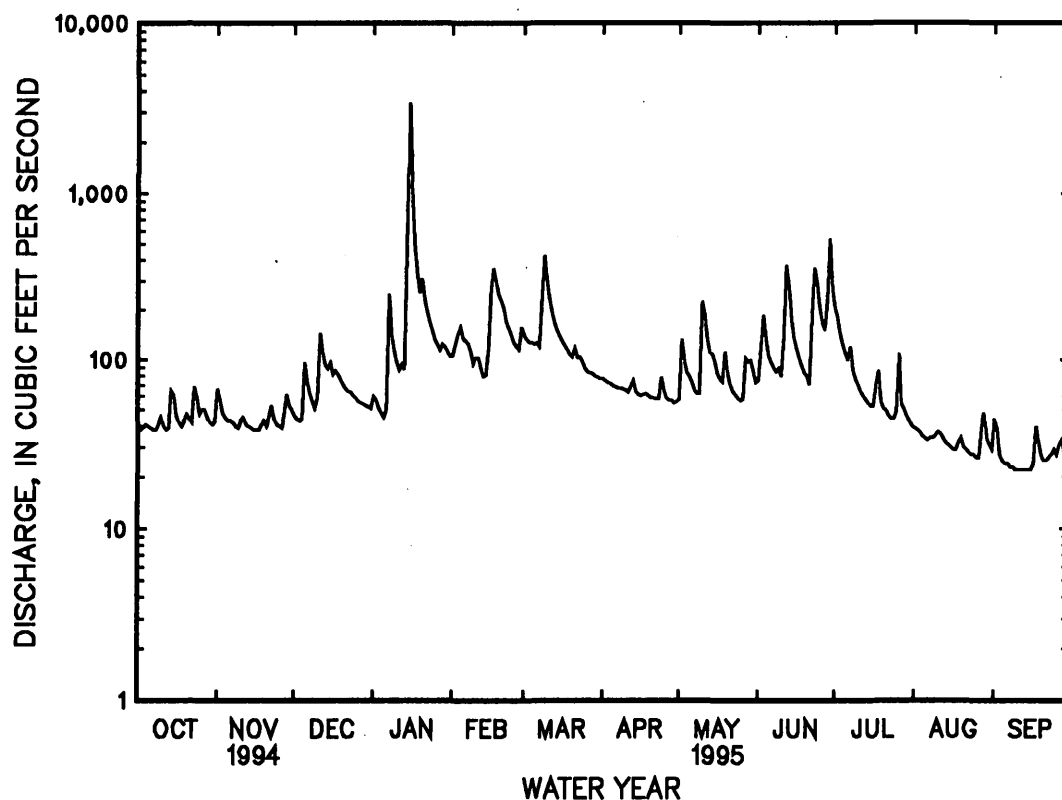
c Also Oct. 3, 1994.

d Also Sept. 10, 1995.

f From high-water mark in well.

g Also Sept. 11-16, 1995.

h Also July 28, 29, 1966.



## ROANOKE RIVER BASIN

## 02054500 ROANOKE RIVER AT LAFAYETTE, VA

LOCATION.--Lat 37°14'11", long 80°12'34", Montgomery County, Hydrologic Unit 03010101, on right bank 120 ft upstream from bridge on State Highway 603 at Lafayette, 0.4 mi downstream from confluence of North and South Forks, and 1.1 mi upstream from Cove Hollow.

DRAINAGE AREA.--257 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1333: 1944-47(M), 1948-49.

GAGE.--Water-stage recorder. Datum of gage is 1,174.47 ft above sea level. Prior to July 30, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Feb. 7, 8, and periods of doubtful gage-height record, Apr. 24, and May 4-6, which are fair. Occasional diurnal fluctuation caused by meat-processing plant upstream from station. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 24,500 ft<sup>3</sup>/s, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum discharge, 8.0 ft<sup>3</sup>/s, Jan. 19, 1959, gage height, 0.60 ft, result of freezeup. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 12.2 ft, from information by local residents, discharge, 19,000 ft<sup>3</sup>/s, from rating curve extended above 12,000 ft<sup>3</sup>/s.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0900	*6,930	*8.90	No other peak equal to or greater than base discharge.			

Minimum discharge, 37 ft<sup>3</sup>/s, Sept. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	82	79	82	214	460	127	94	111	385	86	57
2	63	88	76	80	312	377	125	216	186	326	82	77
3	64	76	74	74	422	332	121	200	550	258	79	53
4	65	72	76	72	412	306	119	e135	318	220	77	47
5	65	70	120	55	345	285	116	e120	217	197	73	45
6	64	70	122	61	260	282	115	e110	179	200	72	44
7	63	69	105	340	e240	268	112	124	163	288	74	43
8	63	66	96	286	e220	383	112	117	141	201	74	42
9	64	66	89	206	207	859	111	113	150	168	75	41
10	72	70	93	172	222	583	110	351	134	149	74	40
11	67	75	194	152	216	463	108	312	417	138	72	39
12	65	70	150	156	195	385	109	236	1390	128	69	39
13	66	68	124	154	170	328	119	191	875	120	65	39
14	85	67	114	417	181	286	110	184	499	114	63	39
15	95	66	119	4510	226	259	104	173	356	109	60	39
16	80	66	108	1890	565	237	101	149	315	101	58	42
17	71	65	108	924	946	220	101	135	288	135	57	71
18	69	67	106	668	725	202	102	127	231	327	56	69
19	70	71	98	493	591	188	100	174	206	144	78	54
20	79	67	94	510	523	178	96	142	194	118	63	49
21	75	70	91	432	462	189	96	122	175	109	58	47
22	70	86	88	369	387	173	96	111	258	102	55	47
23	91	75	87	324	341	169	93	104	592	95	53	50
24	94	69	85	287	305	162	e103	100	586	94	51	53
25	77	68	82	252	272	150	110	95	421	102	51	52
26	76	68	80	236	254	143	98	95	354	271	50	56
27	80	75	78	218	242	140	94	133	387	142	58	65
28	73	102	77	229	506	139	92	137	502	122	87	53
29	70	90	76	234	---	133	90	152	1030	108	68	48
30	69	84	75	215	---	131	90	128	495	99	59	46
31	69	---	74	207	---	128	---	113	---	92	56	---
TOTAL	2237	2198	3038	14305	9961	8538	3180	4693	11720	5162	2053	1486
MEAN	72.2	73.3	98.0	461	356	275	106	151	391	167	66.2	49.5
MAX	95	102	194	4510	946	859	127	351	1390	385	87	77
MIN	63	65	74	55	170	128	90	94	111	92	50	39
CFSM	.28	.29	.38	1.80	1.38	1.07	.41	.59	1.52	.65	.26	.19
IN.	.32	.32	.44	2.07	1.44	1.24	.46	.68	1.70	.75	.30	.22

e Estimated.



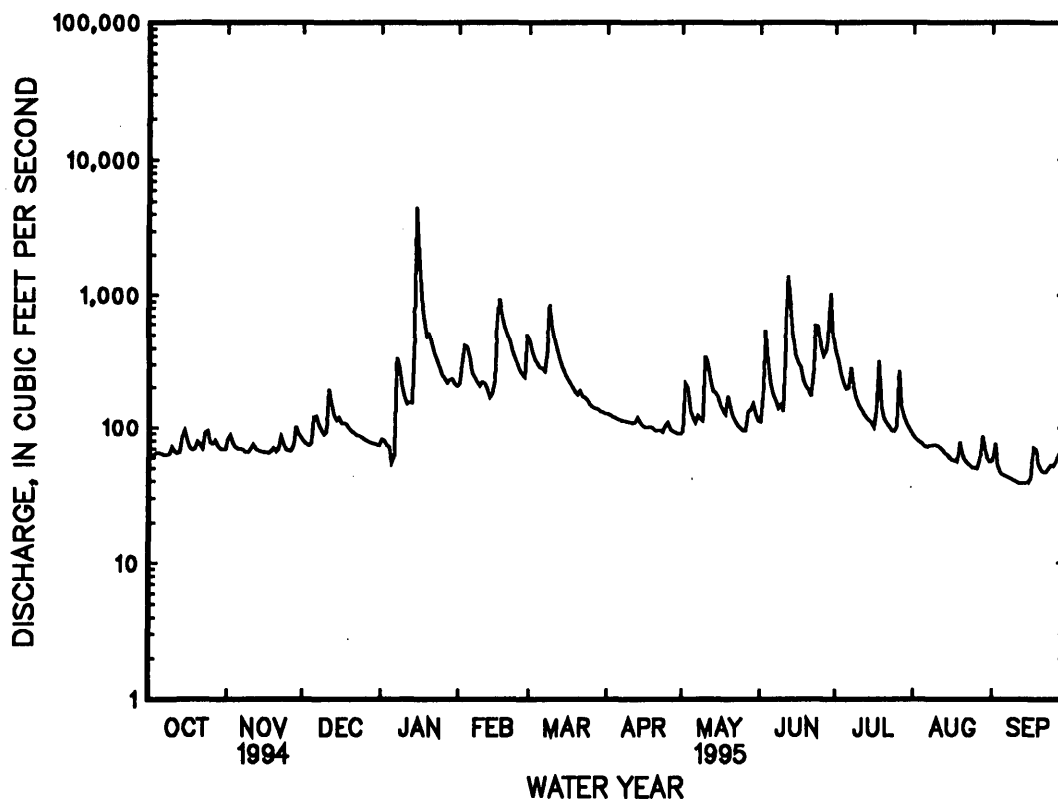
## 02054500 ROANOKE RIVER AT LAFAYETTE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	140	173	227	304	385	471	420	286	183	116	112	116
MAX	603	770	913	682	869	1309	1497	716	791	590	551	570
(WY)	1977	1978	1949	1947	1957	1993	1987	1978	1972	1949	1948	1989
MIN	36.7	44.1	47.0	52.0	83.4	103	102	99.1	61.6	43.2	37.0	29.4
(WY)	1954	1954	1964	1981	1959	1981	1966	1963	1963	1963	1963	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1944 - 1995	
ANNUAL TOTAL	111409		68571			
ANNUAL MEAN	305		188		244	
HIGHEST ANNUAL MEAN					442	
LOWEST ANNUAL MEAN					87.0	
HIGHEST DAILY MEAN	3800		4510		11700	
LOWEST DAILY MEAN	63		39		10'	
ANNUAL SEVEN-DAY MINIMUM	64		39		11	
INSTANTANEOUS PEAK FLOW			6930		24500	
INSTANTANEOUS PEAK STAGE			8.90		f15.60	
INSTANTANEOUS LOW FLOW			37		h8.0	
ANNUAL RUNOFF (CFSM)	1.19		.73		.95	
ANNUAL RUNOFF (INCHES)	16.13		9.93		12.88	
10 PERCENT EXCEEDS	706		384		490	
50 PERCENT EXCEEDS	149		109		134	
90 PERCENT EXCEEDS	70		58		51	

- a Also Oct. 2, 7, 8, 1994.  
b Also Sept. 12-15, 1995.  
c Also Jan. 15, 18, 19, 1959.  
d Also Oct. 2, 3, 1994.  
f From high-water mark in gage house.  
g Also Sept. 16, 1995.  
h Result of freezeup.



## ROANOKE RIVER BASIN

## 02054510 ROANOKE RIVER NEAR WABUN, VA

LOCATION.--Lat 37°14'48", long 87°09'55", Roanoke County, Hydrologic Unit 03010101, on right bank 150 ft downstream from mouth of Dry Hollow, 0.7 mi downstream from bridge on State Highway 5800, 3 mi upstream from Dry Branch, and 5.9 mi southwest of Salem.

DRAINAGE AREA.--273 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1994 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,140 ft above sea level, from topographic map.

REMARKS.--Records good except those for period with ice effect, Feb. 7, 8, and Period of no gage-height record July 5 to Aug. 1, which are fair. Roanoke County gage-height transmitter at station. Maximum discharge, 9,860 ft<sup>3</sup>/s, from rating curve extended above 1,660 ft<sup>3</sup>/s. Minimum discharge, 35 ft<sup>3</sup>/s, July 21, 1994, result of water withdrawal by Roanoke County for Spring Hollow Reservoir. Several observations of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 21, 1992, reached a stage of 13.69 ft, from high-water marks in the gage vicinity, from information by local resident, discharge not determined.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0830	*9,860	*9.91	No other peak equal to or greater than base discharge.			

Minimum discharge, 39 ft<sup>3</sup>/s, Dec. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	90	80	86	159	441	130	87	81	441	e100	53
2	93	114	78	87	240	365	128	158	103	381	99	88
3	96	93	78	82	392	325	127	156	533	303	97	64
4	98	81	78	75	384	301	125	115	284	259	93	57
5	80	78	112	55	309	283	124	94	174	e200	87	53
6	66	77	113	59	240	280	124	101	156	e180	83	52
7	65	78	95	342	e235	269	119	108	127	e280	82	50
8	64	75	90	302	e215	394	116	101	106	e235	83	50
9	65	72	80	197	186	968	111	102	139	e200	83	49
10	71	77	93	142	193	638	109	311	138	e160	83	49
11	69	85	208	119	183	502	106	262	423	e145	83	49
12	67	81	158	122	167	410	107	211	1590	e130	81	49
13	65	77	135	121	144	359	119	187	1010	e125	77	48
14	85	73	123	449	152	309	107	163	506	e118	74	47
15	109	72	117	5940	180	278	99	151	341	e115	71	47
16	90	70	111	2220	538	254	97	120	282	e112	69	49
17	79	69	128	889	1050	232	95	98	264	e140	66	76
18	74	69	130	546	769	214	94	105	201	e320	66	83
19	73	74	104	418	595	201	91	141	155	e185	91	64
20	83	72	103	495	514	192	87	155	122	e130	76	58
21	83	74	89	416	442	199	86	134	105	e120	70	56
22	77	87	90	355	365	185	85	104	162	e110	67	55
23	98	83	95	303	314	177	83	99	554	e102	62	57
24	128	74	94	261	276	171	96	91	579	e100	60	61
25	92	71	92	222	243	158	101	93	363	e115	59	61
26	88	70	88	206	222	150	101	92	284	e270	59	64
27	94	74	85	190	209	145	95	138	314	e190	64	74
28	86	99	84	192	471	141	92	140	415	e150	96	65
29	80	91	81	203	---	137	89	161	1150	e130	73	58
30	77	81	81	179	---	134	87	96	523	e120	64	55
31	76	---	78	155	---	130	---	102	---	e112	58	---
TOTAL	2564	2381	3171	15428	9387	8942	3130	4176	11184	5678	2376	1741
MEAN	82.7	79.4	102	498	335	288	104	135	373	183	76.6	58.0
MAX	128	114	208	5940	1050	968	130	311	1590	441	100	88
MIN	64	69	78	55	144	130	83	87	81	100	58	47

e Estimated.

## 02054510 ROANOKE RIVER NEAR WABUN, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 1994 - 1995, BY WATER YEAR (wy)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	82.7	79.4	102	498	335	288	104	190	243	166	178	73.2
MAX	82.7	79.4	102	498	335	288	104	244	373	183	280	88.4
(WY)	1995	1995	1995	1995	1995	1995	1995	1994	1995	1995	1994	1994
MIN	82.7	79.4	102	498	335	288	104	135	112	148	76.6	58.0
(WY)	1995	1995	1995	1995	1995	1995	1995	1995	1994	1994	1995	1995

## SUMMARY STATISTICS

## FOR 1995 WATER YEAR

## WATER YEARS 1994 - 1995

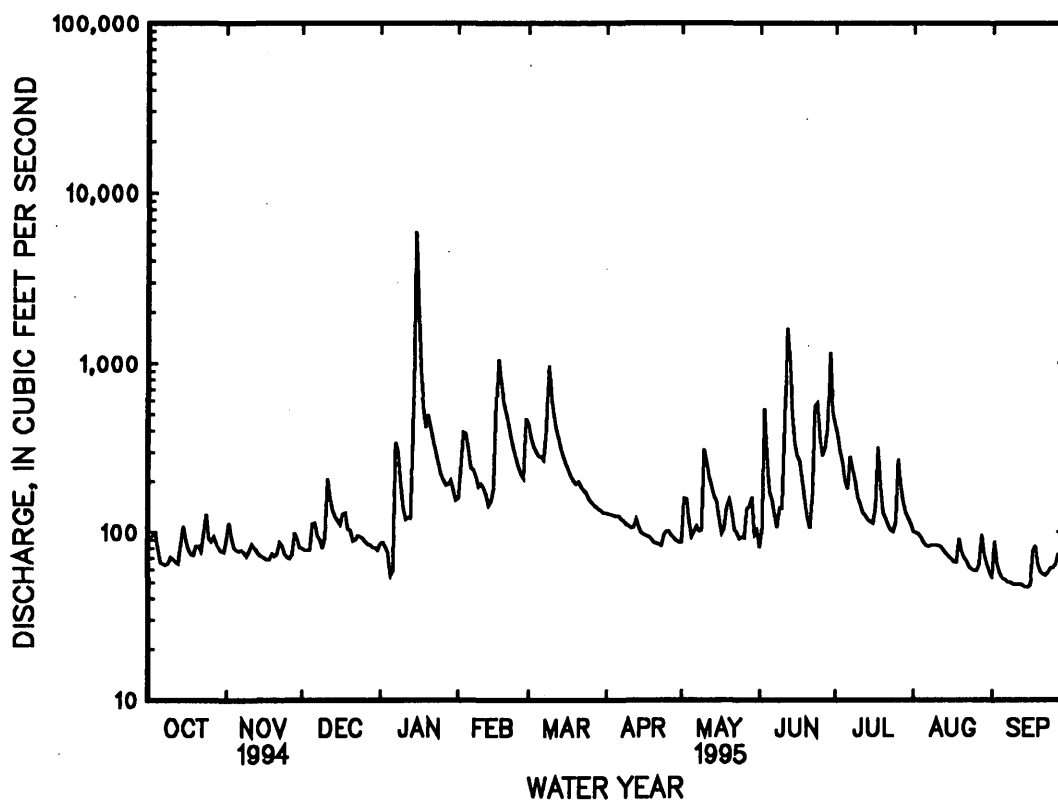
ANNUAL TOTAL	70158		
ANNUAL MEAN	192		192
HIGHEST ANNUAL MEAN			192
LOWEST ANNUAL MEAN			192
HIGHEST DAILY MEAN	5940	Jan 15	5940
LOWEST DAILY MEAN	47	aSep 14	47
ANNUAL SEVEN-DAY MINIMUM	48	bSep 9	48
INSTANTANEOUS PEAK FLOW	9860	Jan 15	9860
INSTANTANEOUS PEAK STAGE	9.91	Jan 15	9.91
INSTANTANEOUS LOW FLOW	c39	Dec 9	d35
10 PERCENT EXCEEDS	365		350
50 PERCENT EXCEEDS	106		108
90 PERCENT EXCEEDS	65		48

a Also Sept. 15, 1995.

b Also Sept. 10, 1995.

c Result of freezup.

d Result of water diversion by Roanoke County.



## ROANOKE RIVER BASIN

## 02054530 ROANOKE RIVER AT GLENVAR, VA

LOCATION.--Lat 37°16'04", long 80°08'23", Roanoke County, Hydrologic Unit 03010101, on left bank 150 ft downstream from bridge on State Highway 1154, 0.2 mi downstream from mouth of Callahan Branch, 0.3 mi south of Glenvar, and 2.5 mi upstream from mouth of Mill Creek.

DRAINAGE AREA.--284 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,100 ft above sea level, from topographic map.

REMARKS.--Records good except for period with ice effect, Feb 7, 8, which is fair. Roanoke County gage-height transmitter at station. Maximum discharge, 19,800 ft<sup>3</sup>/s, from rating curve extended above 10,900 ft<sup>3</sup>/s. Minimum discharge, 42 ft<sup>3</sup>/s, July 21, 1994, gage height, 1.77 ft, result of water withdrawal by Roanoke County for Spring Hollow Reservoir. Several observations of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of about 20.2 ft, from information by local resident, discharge, about 25,000 ft<sup>3</sup>/s, from rating curve extended above 10,900 ft<sup>3</sup>/s.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1015	*10,200	*12.22	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 53 ft<sup>3</sup>/s, Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	84	87	90	179	473	149	103	107	477	98	62
2	91	104	85	91	251	388	146	167	103	397	99	93
3	92	87	83	85	413	344	142	177	551	320	94	72
4	94	81	84	81	407	315	138	128	316	274	90	63
5	80	78	112	65	335	298	135	113	198	214	87	61
6	64	77	125	71	261	293	132	116	177	205	85	59
7	62	76	104	326	e240	280	130	120	154	314	86	57
8	62	73	99	320	e220	364	129	116	128	252	86	56
9	63	72	92	218	194	1030	126	118	153	214	88	55
10	71	76	104	162	215	689	124	323	154	159	87	55
11	68	83	208	133	206	537	122	296	408	136	85	54
12	64	79	167	135	189	446	124	240	1670	123	82	54
13	63	76	143	134	158	384	135	217	1120	118	77	54
14	80	74	130	488	170	341	125	188	557	124	74	53
15	100	72	124	6500	190	309	116	180	377	132	71	54
16	83	72	116	2530	519	285	114	142	309	126	68	57
17	72	72	128	995	1100	263	113	125	302	151	65	81
18	69	74	130	599	824	245	114	124	235	364	64	93
19	69	77	108	456	638	230	112	155	190	184	86	73
20	77	75	110	533	546	218	109	176	147	145	74	66
21	75	77	97	460	477	224	108	148	131	131	68	63
22	71	86	99	387	394	213	107	120	176	124	64	63
23	83	86	104	338	343	202	104	117	663	115	61	65
24	115	77	100	296	306	200	114	111	719	113	59	69
25	88	75	96	255	271	181	117	111	426	119	58	69
26	84	75	93	237	251	171	112	107	334	302	58	72
27	91	79	89	215	236	165	106	153	358	196	64	83
28	83	101	88	218	479	163	104	157	398	156	97	72
29	79	97	87	231	---	159	100	187	1320	134	82	65
30	76	88	84	208	---	155	100	123	569	123	70	62
31	76	---	83	178	---	151	---	115	---	109	64	---
TOTAL	2437	2403	3359	17035	10012	9716	3607	4773	12450	6051	2391	1955
MEAN	78.6	80.1	108	550	358	313	120	154	415	195	77.1	65.2
MAX	115	104	208	6500	1100	1030	149	323	1670	477	99	93
MIN	62	72	83	65	158	151	100	103	103	109	58	53

e Estimated.

## 02054530 ROANOKE RIVER AT GLENVAR, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 1992 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	73.3	128	246	505	533	832	516	331	342	163	137	78.7
MAX	78.6	190	413	550	1029	1667	839	610	660	195	293	91.4
(WY)	1995	1993	1994	1995	1994	1993	1992	1992	1992	1995	1994	1994
MIN	65.6	80.1	108	437	339	313	120	154	116	138	68.5	65.2
(WY)	1994	1995	1995	1993	1992	1995	1995	1995	1994	1993	1993	1995

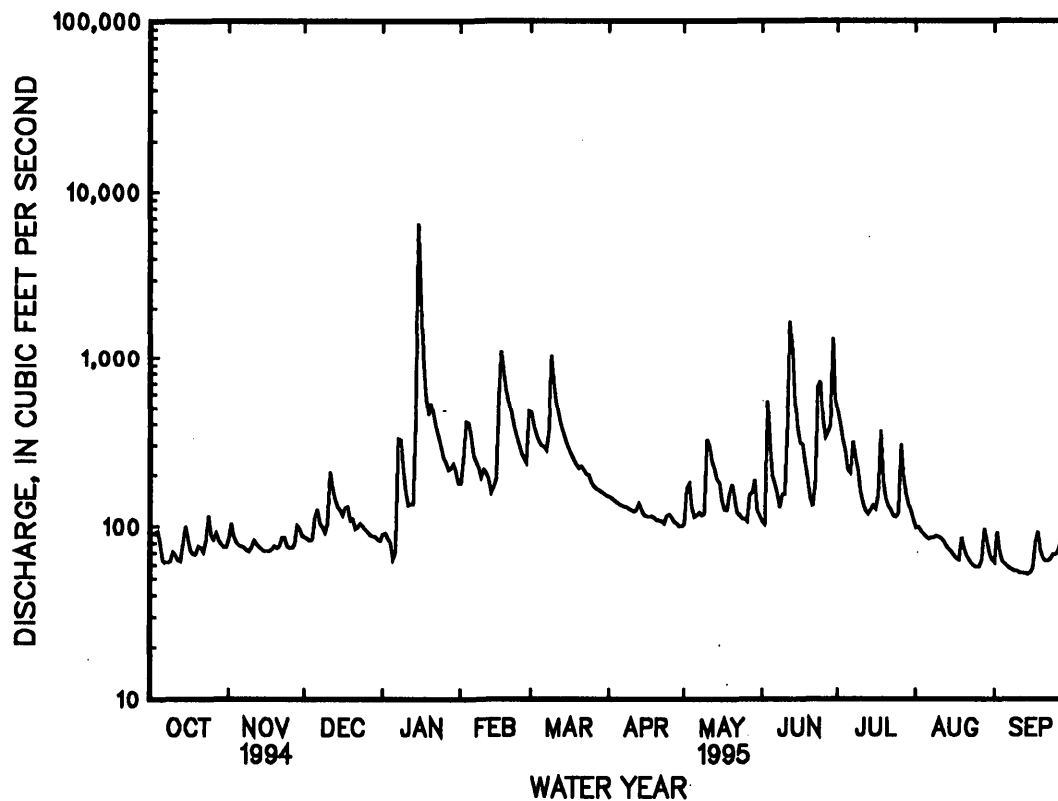
SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1992 - 1995	
ANNUAL TOTAL	125717		76189			
ANNUAL MEAN	344		209		315	
HIGHEST ANNUAL MEAN					372	
LOWEST ANNUAL MEAN					209	
HIGHEST DAILY MEAN	5120	Mar 28	6500	Jan 15	8380	Apr 22 1992
LOWEST DAILY MEAN	62	aOct 7	53	Sep 14	51	Sep 15 1993
ANNUAL SEVEN-DAY MINIMUM	65	Oct 7	54	bSep 9	54	bSep 9 1995
INSTANTANEOUS PEAK FLOW			10200	Jan 15	19800	Apr 21 1992
INSTANTANEOUS PEAK STAGE			12.22	Jan 15	17.73	Apr 21 1992
INSTANTANEOUS LOW FLOW			53	cSep 13	d42	Jul 21 1994
10 PERCENT EXCEEDS	844		390		654	
50 PERCENT EXCEEDS	136		118		154	
90 PERCENT EXCEEDS	75		67		69	

a Also Oct. 8, 1994.

b Also Sept. 10, 1995.

c Also Sept. 14, 16, 1995.

d Result of water diversion by Roanoke County.



## 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 Avenue bridge, 3.2 mi upstream from Tinker Creek, and at mile 360.6.

DRAINAGE AREA.--395 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1899 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for July 1896 to January 1899 published in WSP 11, 15, 27, and 20th Annual Report, Part 4, are unreliable, due to doubtful gage-height record, and should not be used.

REVISED RECORDS.--WSP 972: 1928, 1930, 1933. WSP 1433: 1899-1904, 1914-17(M), 1918-24, 1925-27(M), 1929-34(M), 1935, 1936-39(M). WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1940(M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 906.84 ft above sea level (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 of doubtful gage-height record, Jan. 23-27, which is fair. Prior to 1949, diurnal fluctuation at low flow caused by powerplants upstream from station. Since March 1994, water withdrawn upstream for municipal use by the city of Roanoke, amount unknown. Appalachian Power Company and Virginia Department of Emergency Services gage-height radio transmitters at station. Maximum discharge, 32,300 ft<sup>3</sup>/s, from rating curve extended above 26,000 ft<sup>3</sup>/s. Practically no flow Dec. 23, 1909, Dec. 19, 1963, when flow was retarded by freezing, gage height, 0.0 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0730	*10,800	*11.66	June 23	1730	2,700	5.00
June 12	1830	2,950	5.28	June 28	2230	7,840	9.53

Minimum discharge, 50 ft<sup>3</sup>/s, Sept. 15, gage height, 0.47 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	118	102	128	345	606	191	126	165	892	126	72
2	111	112	101	129	429	504	188	286	187	652	116	85
3	112	108	98	120	608	439	182	288	525	557	115	93
4	112	96	143	114	617	403	176	216	452	459	112	76
5	111	92	210	102	586	377	172	185	295	389	107	70
6	80	90	182	108	480	370	167	169	252	438	104	67
7	76	88	149	379	433	351	163	160	221	610	105	65
8	76	86	128	475	443	499	162	168	176	465	105	64
9	81	84	121	326	342	1200	160	148	172	356	105	62
10	82	101	178	266	369	914	157	469	265	297	104	61
11	86	93	277	211	353	709	154	421	495	230	102	59
12	78	95	258	202	335	583	163	335	1940	203	99	60
13	76	90	209	198	292	498	169	309	1620	180	93	59
14	134	86	205	554	291	438	160	269	820	170	88	58
15	119	84	188	8180	344	395	148	276	540	180	84	56
16	112	84	173	3220	599	365	144	210	412	178	80	84
17	94	83	173	1440	1350	338	142	181	387	179	77	121
18	86	88	183	903	1130	317	141	166	312	401	75	108
19	89	86	168	690	884	298	138	211	270	272	82	92
20	89	89	148	963	751	282	132	222	210	203	95	80
21	93	134	148	764	644	288	130	196	179	178	80	74
22	88	103	135	621	592	280	128	168	458	168	75	84
23	120	102	138	e540	489	266	125	144	1540	154	72	78
24	127	93	141	e470	400	261	166	137	1580	169	71	90
25	113	90	136	e430	356	238	151	132	815	189	68	82
26	116	88	131	e390	326	224	131	133	589	418	65	107
27	102	120	124	e370	310	217	128	174	588	263	88	93
28	101	121	123	396	524	212	123	262	1710	226	99	90
29	94	124	120	414	---	206	119	258	3020	178	105	78
30	91	109	118	378	---	201	118	221	1190	158	85	72
31	102	---	124	350	---	194	---	141	---	141	76	---
TOTAL	3063	2937	4832	23831	14622	12473	4528	6781	21385	9553	2858	2340
MEAN	98.8	97.9	156	769	522	402	151	219	713	308	92.2	78.0
MAX	134	134	277	8180	1350	1200	191	469	3020	892	126	121
MIN	76	83	98	102	291	194	118	126	165	141	65	56
CFSM	.25	.25	.39	1.95	1.32	1.02	.38	.55	1.80	.78	.23	.20
IN.	.29	.28	.46	2.24	1.38	1.17	.43	.64	2.01	.90	.27	.22

e Estimated

## 02055000 ROANOKE RIVER AT ROANOKE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	235	248	349	470	560	695	589	421	303	222	228	197
MAX	1080	1626	1425	1353	1423	2521	2558	1466	1206	1190	2140	1569
(WY)	1907	1986	1902	1937	1902	1899	1987	1901	1972	1905	1940	1928
MIN	47.9	43.8	55.2	65.5	52.5	119	108	112	75.3	45.6	43.5	42.6
(WY)	1992	1932	1918	1981	1934	1981	1942	1941	1926	1930	1981	1930

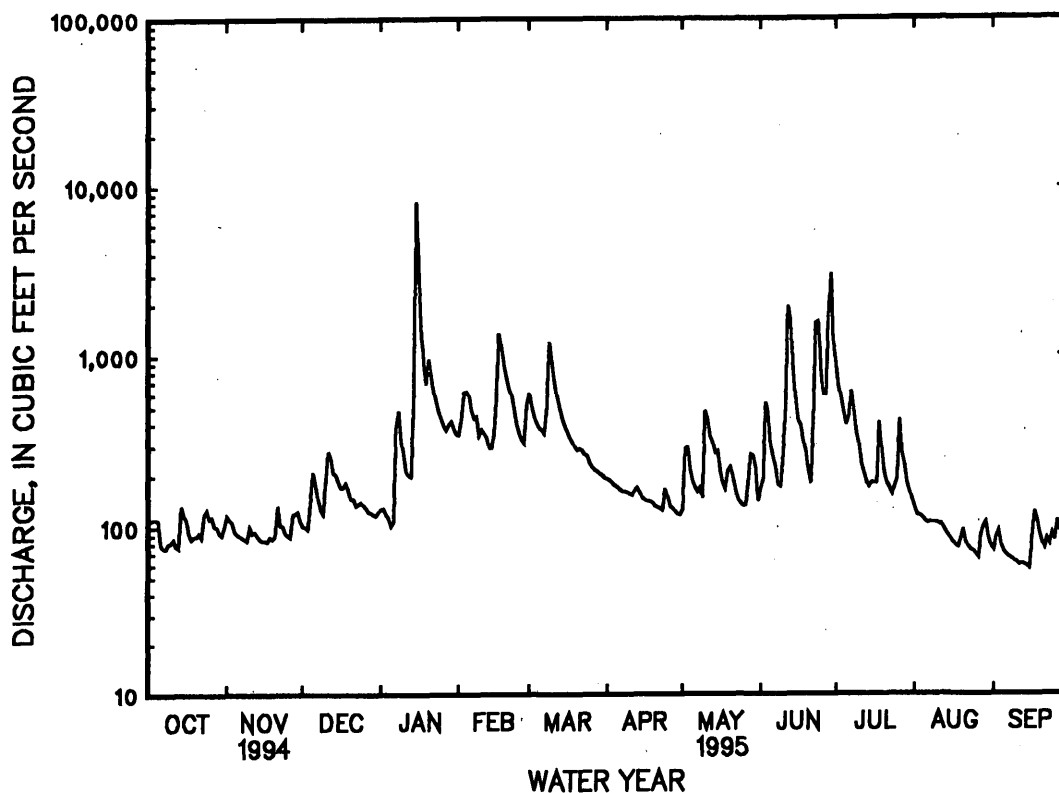
SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1899 - 1995	
ANNUAL TOTAL	166059		109203			
ANNUAL MEAN	455		299		374	
HIGHEST ANNUAL MEAN					836	
LOWEST ANNUAL MEAN					113	
HIGHEST DAILY MEAN	4890	Mar 28	8180	Jan 15	18200	Aug 15 1940
LOWEST DAILY MEAN	76	aOct 7	56	Sep 15	19	Aug 29 1981
ANNUAL SEVEN-DAY MINIMUM	79	Oct 7	59	Sep 9	22	Aug 24 1981
INSTANTANEOUS PEAK FLOW			10800	Jan 15	32300	Nov 4 1985
INSTANTANEOUS PEAK STAGE			11.66	Jan 15	b23.35	Nov 4 1985
INSTANTANEOUS LOW FLOW			50	Sep 15	(c)	dDec 23 1909
ANNUAL RUNOFF (CFSM)	1.15		.76		.95	
ANNUAL RUNOFF (INCHES)	15.64		10.28		12.86	
10 PERCENT EXCEEDS	1080		584		713	
50 PERCENT EXCEEDS	195		166		201	
90 PERCENT EXCEEDS	92		82		70	

a Also Oct. 8, 13, 1994.

b From floodmark.

c Practically no flow; retarded by freezing.

d Also Dec. 19, 1963.



## ROANOKE RIVER BASIN

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

PERIOD OF RECORD.--April 1956 to current year.

REVISED RECORDS.--WSP 1904: 1958-60(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,217.47 ft above sea level (Norfolk Southern Railway bench mark).

REMARKS.--No estimated daily discharges. Records good. Withdrawal of water 1,000 ft downstream of gage by city of Roanoke for Carvins Cove Reservoir. Virginia Department of Emergency Services radio transmitter at station. Maximum discharge, 10,400 ft<sup>3</sup>/s, from rating curve extended above 130 ft/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 discharge, 0.20 ft<sup>3</sup>/s, result of freezeup. Minimum gage height, 0.99 ft, June 12, 24, 1970. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1940 reached a stage of 9.0 ft, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0445	*727	5.60	No other peak equal to or greater than base discharge.			

Minimum discharge, 2.0 ft<sup>3</sup>/s, Sept. 28, 30; minimum gage height, 1.05 ft, Sept. 4, 5, 7-9, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	5.3	2.9	5.2	11	12	6.7	3.8	3.8	34	4.5	2.6
2	3.5	4.9	2.8	4.2	17	11	6.5	10	4.7	24	4.5	2.5
3	3.4	4.7	2.8	4.0	17	11	6.4	6.8	7.6	18	4.4	2.5
4	3.5	4.7	3.9	3.6	17	11	6.1	5.9	4.9	15	4.3	2.4
5	3.3	4.6	12	3.2	15	10	5.9	5.8	4.3	13	4.2	2.5
6	3.3	4.7	6.7	5.2	13	10	5.9	5.2	4.0	41	4.3	2.5
7	3.2	4.8	5.4	20	12	9.8	5.8	4.8	3.8	29	4.3	2.3
8	3.2	4.6	4.7	11	12	26	5.6	4.6	3.5	20	4.2	2.3
9	3.7	4.7	4.4	7.6	11	29	5.5	4.8	3.4	16	4.2	2.2
10	3.9	5.6	6.0	6.1	11	21	5.4	6.4	4.8	13	4.3	2.5
11	3.5	5.1	9.4	5.4	11	18	5.3	5.7	4.8	12	4.1	2.5
12	3.4	4.7	6.4	6.1	9.8	16	5.7	5.0	11	11	3.9	2.3
13	3.3	3.8	5.6	5.5	9.1	15	5.6	4.8	7.4	9.9	3.6	2.5
14	4.7	3.6	5.7	16	8.9	14	5.1	4.8	5.3	9.0	3.5	3.1
15	4.0	3.3	5.7	201	12	13	4.9	5.2	4.5	8.5	3.3	2.8
16	3.6	3.3	5.2	45	22	12	4.9	4.6	4.0	8.1	3.3	3.7
17	3.4	3.3	5.1	27	24	12	5.1	4.5	3.8	10	3.2	5.4
18	3.3	3.6	4.8	20	20	11	4.9	4.5	3.6	10	3.2	3.6
19	3.9	3.4	4.4	18	18	11	4.7	4.6	3.5	8.0	3.2	3.2
20	4.1	3.2	4.2	36	17	10	4.5	4.2	3.3	7.3	3.1	2.9
21	4.6	5.8	4.1	22	15	11	4.5	4.0	3.1	6.9	3.0	2.8
22	4.5	4.0	3.7	18	14	9.6	4.3	3.9	5.2	6.5	2.9	3.1
23	7.2	3.1	3.7	16	13	9.7	4.2	3.8	52	6.2	2.8	2.9
24	5.5	3.1	3.8	14	12	9.0	5.6	3.7	23	6.9	2.8	3.0
25	4.6	3.1	4.0	13	11	8.2	4.6	3.7	14	6.6	2.4	2.8
26	5.5	3.1	3.9	12	11	8.0	4.2	3.6	11	7.4	2.5	3.5
27	5.1	4.7	3.6	11	11	8.0	3.4	4.0	9.5	6.1	3.3	2.9
28	4.8	5.7	3.6	12	14	7.8	3.8	5.3	32	5.9	3.4	2.5
29	4.3	3.8	3.6	11	---	7.5	3.3	4.7	67	5.4	3.1	2.2
30	4.3	3.1	3.6	11	---	7.3	3.9	4.0	29	5.0	3.0	2.2
31	4.6	---	4.2	10	---	6.8	---	3.7	---	4.8	2.4	---
TOTAL	126.6	125.4	149.9	600.1	388.8	375.7	152.3	150.4	341.8	384.5	109.2	84.2
MEAN	4.08	4.18	4.84	19.4	13.9	12.1	5.08	4.85	11.4	12.4	3.52	2.81
MAX	7.2	5.8	12	201	24	29	6.7	10	67	41	4.5	5.4
MIN	3.2	3.1	2.8	3.2	8.9	6.8	3.3	3.6	3.1	4.8	2.4	2.2
CFSM	.35	.36	.41	1.65	1.19	1.04	.43	.41	.97	1.06	.30	.24
IN.	.40	.40	.48	1.91	1.24	1.19	.48	.48	1.09	1.22	.35	.27



## 02055100 TINKER CREEK NEAR DALEVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	8.37	11.4	10.5	13.7	17.8	22.6	20.2	12.9	8.80	6.92	6.54	6.59
MAX	34.2	118	32.6	29.1	36.6	69.3	87.9	33.8	39.0	21.8	29.8	50.4
(WY)	1980	1986	1973	1991	1971	1993	1987	1958	1972	1973	1984	1979
MIN	2.09	1.76	2.00	1.78	3.78	3.16	3.21	3.44	2.01	1.13	2.01	1.36
(WY)	1987	1982	1966	1966	1981	1981	1981	1981	1988	1966	1981	1968

## SUMMARY STATISTICS

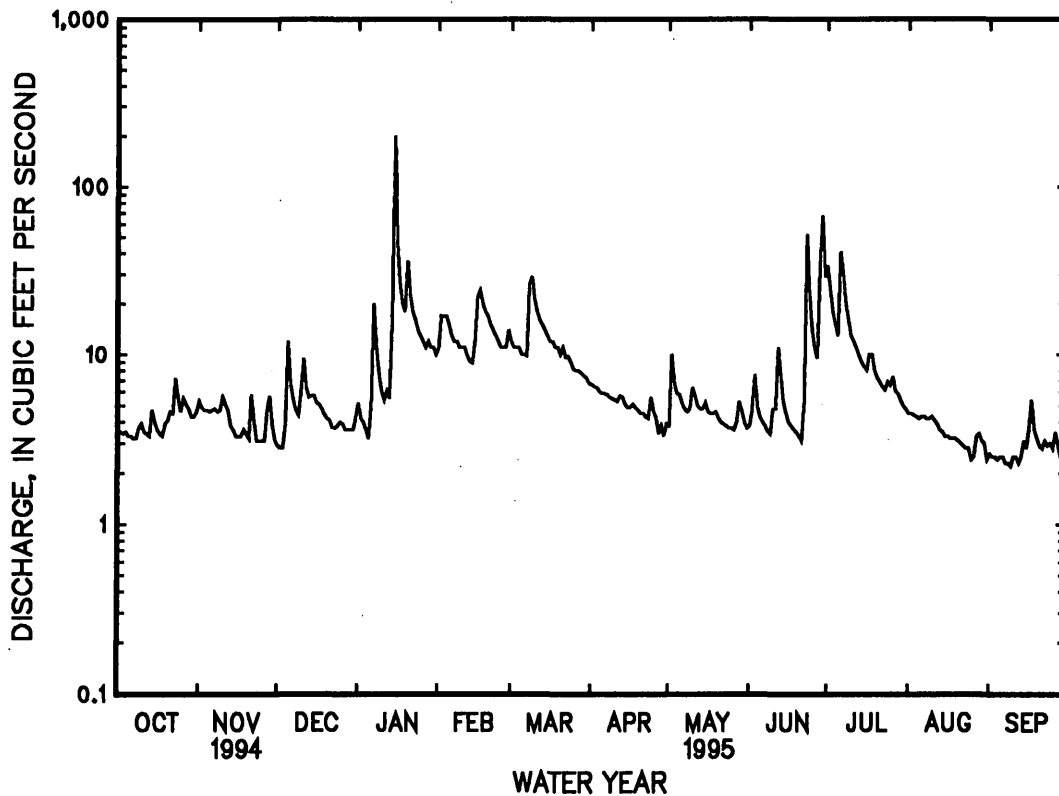
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1956 - 1995

ANNUAL TOTAL	4487.9	2988.9	
ANNUAL MEAN	12.3	8.19	
HIGHEST ANNUAL MEAN			12.2
LOWEST ANNUAL MEAN			21.6
HIGHEST DAILY MEAN	84 Mar 28	201 Jan 15	2560 Nov 4 1985
LOWEST DAILY MEAN	2.8 aDec 2	b2.2 Sep 9	.90 Jul 26 1966
ANNUAL SEVEN-DAY MINIMUM	3.3 Jul 6	2.4 Sep 6	.99 Jul 21 1966
INSTANTANEOUS PEAK FLOW		727 Jan 15	10400 Nov 4 1985
INSTANTANEOUS PEAK STAGE		5.60 Jan 15	c13.36 Nov 4 1985
INSTANTANEOUS LOW FLOW		2.0 dSep 28	f.20 Jan 24 1961
ANNUAL RUNOFF (CFSM)	1.05	.70	1.04
ANNUAL RUNOFF (INCHES)	14.27	9.50	14.16
10 PERCENT EXCEEDS	29	15	24
50 PERCENT EXCEEDS	6.4	4.8	6.9
90 PERCENT EXCEEDS	3.5	3.1	2.5

- a Also Dec. 3, 1994.  
b Also Sept. 29, 30, 1995.  
c From floodmarks.  
d Also Sept. 30, 1995.  
f Result of freezeup.



## ROANOKE RIVER BASIN

## 02056000 ROANOKE RIVER AT NIAGARA, VA

LOCATION.--Lat 37°15'18", long 79°52'18", Roanoke County, Hydrologic Unit 03010101, on right bank 200 ft downstream from powerplant of Appalachian Power Company at Niagara, 2 mi downstream from Tinker Creek, 2.1 mi southeast of Vinton, and at mile 355.3.

DRAINAGE AREA.--512 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1926 to current year.

REVISED RECORDS.--WSP 972: 1927(M), 1929(M), 1934(M), 1937(M). WSP 1303: 1928, 1930, 1933-38, 1940. WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1930(M), 1933(M), 1935-36(M), 1938(M), 1940, 1944-45(M), 1948-49(M), 1951(M), 1955(M), 1960(M), 1967(M), 1969(M).

GAGE.--Water-stage recorder. Datum of gage is 820.15 ft above sea level (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. Maximum discharge, 52,300 ft<sup>3</sup>/s, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 18.98 ft and 25.30 ft. Minimum gage height, 0.17 ft, Aug. 25, 1971. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0700	*16,100	*14.70	June 23	1830	3,700	7.89
June 12	1930	3,790	7.97	June 28	2345	11,700	12.88

Minimum discharge, 52 ft<sup>3</sup>/s, June 3, gage height, 1.21 ft; minimum daily, 128 ft<sup>3</sup>/s, Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	188	235	178	201	407	778	283	209	249	1390	219	154
2	187	192	176	199	501	653	280	476	324	1020	205	155
3	186	188	175	188	780	589	277	398	621	793	215	177
4	188	176	258	185	809	550	269	313	553	625	206	153
5	185	168	397	171	685	517	268	277	376	538	197	143
6	156	168	283	207	530	515	257	264	339	756	196	140
7	150	160	237	536	485	486	258	251	293	1230	198	141
8	150	163	212	607	496	742	263	243	246	805	199	139
9	162	161	206	445	393	1530	255	244	245	561	190	133
10	158	192	302	359	426	1180	254	745	452	464	201	131
11	164	172	397	300	405	942	241	564	773	373	195	132
12	146	170	361	293	382	814	270	442	2500	330	188	131
13	155	164	290	281	333	678	257	408	2000	295	175	132
14	247	158	311	646	333	613	256	359	989	287	179	128
15	196	156	270	11300	448	553	234	367	703	282	184	131
16	186	159	263	4260	686	520	227	291	518	291	167	183
17	172	164	251	1820	1700	482	226	260	482	285	161	251
18	164	162	258	1140	1470	457	231	242	409	510	166	192
19	172	160	243	883	1150	428	226	309	357	382	157	171
20	166	164	225	1300	988	417	215	290	307	305	182	154
21	171	252	225	986	872	411	215	260	270	274	163	156
22	158	186	207	794	724	404	211	244	601	281	153	172
23	236	181	203	656	626	387	209	217	2150	249	152	155
24	212	169	209	571	557	372	284	216	2100	279	146	180
25	191	159	195	510	500	351	232	205	1040	309	147	153
26	215	163	200	460	471	335	216	242	742	637	144	198
27	180	229	189	431	448	322	211	246	827	372	186	192
28	181	213	190	461	675	310	202	376	2590	331	180	173
29	174	206	185	469	---	301	199	357	5910	271	193	173
30	166	191	181	421	---	297	198	304	1970	250	166	144
31	190	---	207	408	---	289	---	217	---	237	155	---
TOTAL	5552	5381	7484	31488	18280	17223	7224	9836	30936	15012	5565	4767
MEAN	179	179	241	1016	653	556	241	317	1031	484	180	159
MAX	247	252	397	11300	1700	1530	284	745	5910	1390	219	251
MIN	146	156	175	171	333	289	198	205	245	237	144	128
CFSM	.35	.35	.47	1.98	1.28	1.09	.47	.62	2.01	.95	.35	.31
IN.	.40	.39	.54	2.29	1.33	1.25	.52	.71	2.25	1.09	.40	.35

## 02056000 ROANOKE RIVER AT NIAGARA, VA--Continued

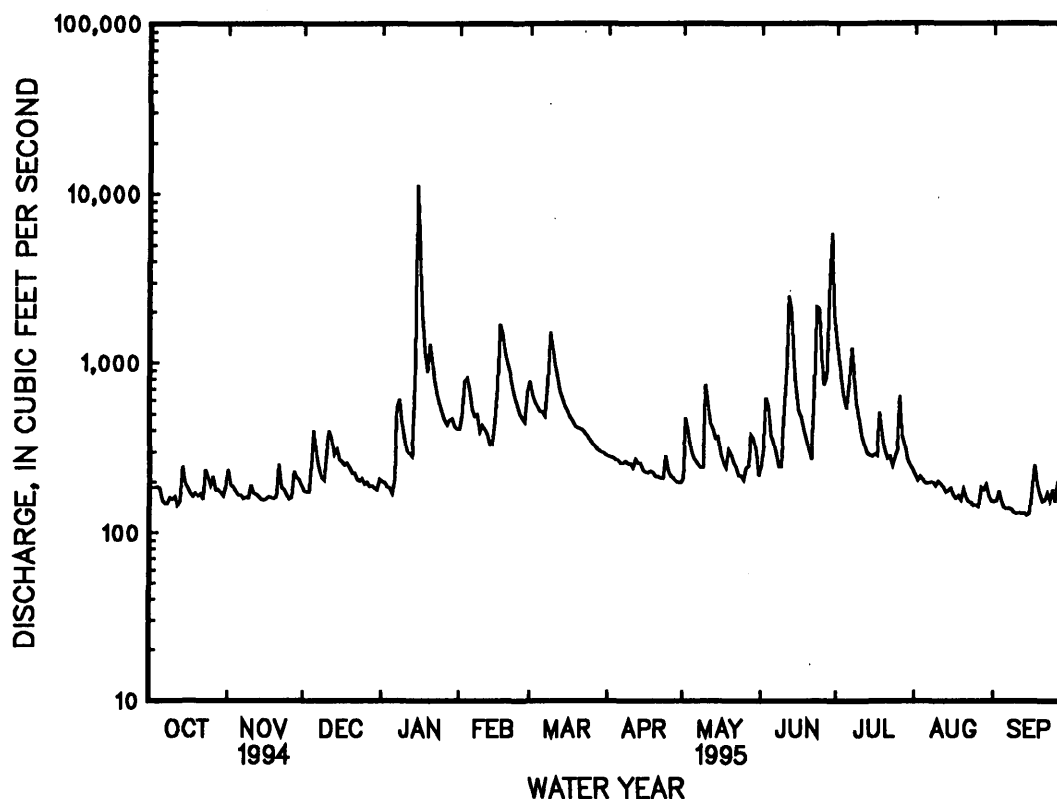
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	359	372	473	624	757	912	836	566	414	294	343	308
MAX	1722	2100	2065	1941	1756	2846	3661	1447	1550	1396	2456	2051
(WY)	1938	1986	1949	1937	1994	1993	1987	1958	1972	1949	1940	1928
MIN	86.0	101	115	110	117	210	157	193	158	109	92.2	84.0
(WY)	1931	1942	1966	1966	1934	1981	1942	1930	1966	1930	1956	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1927 - 1995	
ANNUAL TOTAL	230371		158748			
ANNUAL MEAN	631		435		521	
HIGHEST ANNUAL MEAN					984	1949
LOWEST ANNUAL MEAN					198	1981
HIGHEST DAILY MEAN	6600	Mar 28	11300	Jan 15	19700	Nov 4 1985
LOWEST DAILY MEAN	146	Oct 12	128	Sep 14	8.0	Oct 9 1954
ANNUAL SEVEN-DAY MINIMUM	155	Oct 7	131	Sep 9	67	Jan 28 1966
INSTANTANEOUS PEAK FLOW			16100	Jan 15	52300	Nov 4 1985
INSTANTANEOUS PEAK STAGE			14.70	Jan 15	25.30	Nov 4 1985
INSTANTANEOUS LOW FLOW			52	Jun 3	1.0	Oct 16 1956
ANNUAL RUNOFF (CFSM)	1.23		.85		1.02	
ANNUAL RUNOFF (INCHES)	16.74		11.53		13.82	
10 PERCENT EXCEEDS	1440		763		984	
50 PERCENT EXCEEDS	283		254		310	
90 PERCENT EXCEEDS	170		159		136	

a From floodmark.

b Also Oct. 20, 1956, and Nov. 25, 26, 1990.



## ROANOKE RIVER BASIN

## 02056650 BACK CREEK NEAR DUNDEE, VA

LOCATION.--Lat 37°13'39", long 79°52'06", Roanoke County, Hydrologic Unit 03010101, on right bank 65 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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 822.67 ft above sea level. 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 those for periods with ice effect, Feb. 7, 12, 13, which are fair. Maximum discharge, 20,000 ft<sup>3</sup>/s, from rating curve extended above 5,900 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of May 30, 1971, and June 21, 1972, reached a stage of 17.5 ft and 20.0 ft, respectively, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0600	3,100	11.01	June 18	2115	*6,390	*14.97
June 23	1800	1,010	7.10				

Minimum discharge, 3.8 ft<sup>3</sup>/s, Sept. 15-16; minimum gage height, 2.47 ft, Aug 16, Sept. 15-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	29	21	29	51	57	36	22	24	247	18	10
2	7.0	27	19	23	71	53	36	66	35	169	17	14
3	6.3	18	18	20	87	50	34	45	60	118	15	8.6
4	7.1	16	21	19	87	49	34	37	39	95	14	6.2
5	8.1	15	97	16	70	48	33	35	31	82	14	5.6
6	7.2	16	52	15	63	50	33	31	29	98	13	5.3
7	6.9	14	39	82	e59	48	33	27	31	104	12	5.0
8	6.9	13	32	71	57	92	33	25	25	67	13	4.7
9	7.9	13	27	50	57	188	32	24	21	57	13	4.5
10	10	14	29	43	50	117	31	104	22	53	14	4.5
11	9.6	18	74	38	47	94	30	59	59	49	14	4.5
12	8.5	15	46	38	e47	81	32	46	130	44	13	4.5
13	8.7	14	38	36	e44	72	37	40	77	42	10	4.7
14	25	14	41	114	42	66	32	37	50	39	9.4	4.5
15	30	13	55	1310	49	62	29	36	39	37	8.7	4.4
16	14	13	44	393	76	58	29	31	33	33	8.2	5.0
17	10	13	40	219	129	55	29	28	30	33	7.7	25
18	9.2	16	38	145	99	52	29	27	25	34	7.6	17
19	11	20	34	108	87	49	28	35	23	29	7.4	7.5
20	14	16	30	254	80	48	25	28	23	27	7.8	6.0
21	12	22	28	156	72	51	26	22	20	26	7.6	5.4
22	11	36	27	113	63	47	25	20	95	25	7.2	7.0
23	16	22	26	90	58	47	22	19	356	23	6.2	9.1
24	21	18	24	74	54	45	34	18	260	24	5.4	8.6
25	14	17	22	63	50	42	31	17	135	31	5.4	9.3
26	15	16	21	57	48	40	25	17	91	56	5.4	12
27	18	20	20	53	47	40	24	34	88	30	7.9	18
28	14	40	19	55	66	40	23	46	885	27	23	9.4
29	13	29	19	57	---	38	21	48	1100	26	13	6.7
30	13	25	17	52	---	38	21	34	325	21	9.6	6.2
31	12	---	18	50	---	37	---	26	---	20	7.8	---
TOTAL	373.6	572	1036	3843	1810	1854	887	1084	4161	1766	335.3	243.2
MEAN	12.1	19.1	33.4	124	64.6	59.8	29.6	35.0	139	57.0	10.8	8.11
MAX	30	40	97	1310	129	188	37	104	1100	247	23	25
MIN	6.3	13	17	15	42	37	21	17	20	20	5.4	4.4
CFSM	.21	.34	.59	2.18	1.14	1.05	.52	.62	2.44	1.00	.19	.14
IN.	.24	.37	.68	2.52	1.19	1.21	.58	.71	2.73	1.16	.22	.16

e Estimated

## 02056650 BACK CREEK NEAR DUNDEE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1995, BY WATER YEAR (WY).

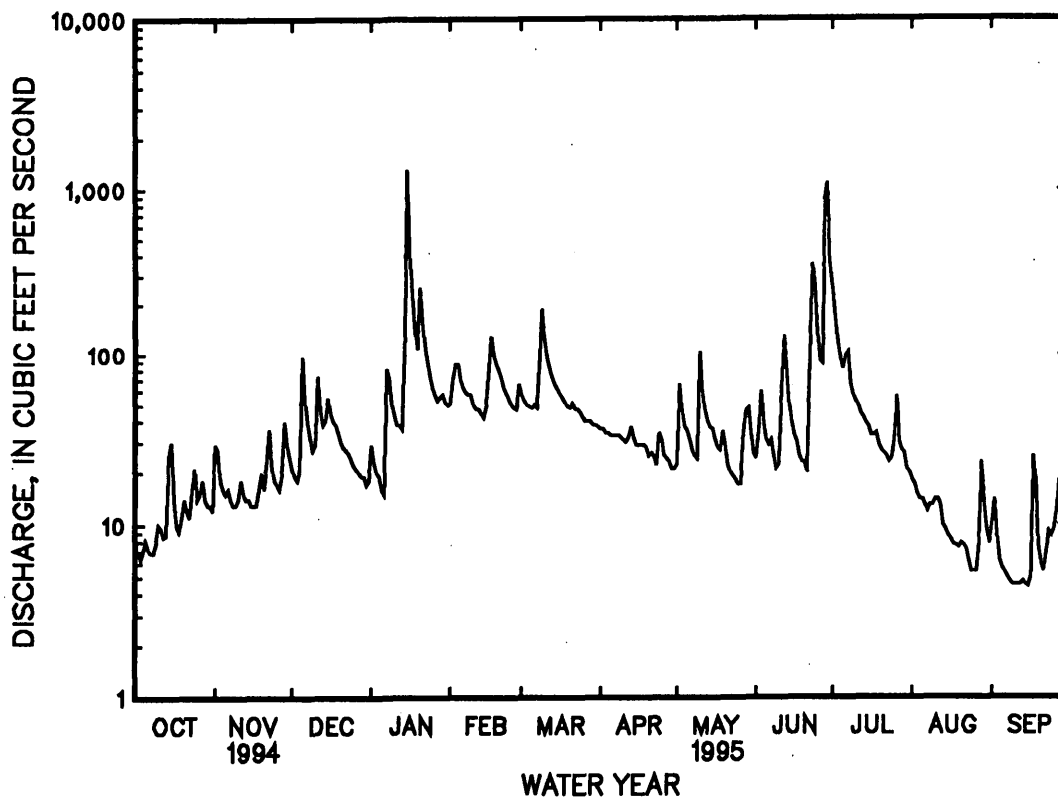
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	36.6	51.2	48.4	65.7	75.1	113	119	68.2	51.6	29.9	25.8	39.1
MAX	154	292	117	132	143	265	396	190	173	110	121	314
(WY)	1977	1986	1987	1978	1994	1993	1987	1978	1992	1989	1985	1979
MIN	5.61	6.58	13.9	11.6	21.6	20.5	22.4	20.8	11.1	6.96	3.47	6.06
(WY)	1992	1982	1981	1981	1989	1981	1981	1981	1986	1981	1981	1983

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1974 - 1995	
ANNUAL TOTAL	21440.2		17965.1			
ANNUAL MEAN	58.7		49.2		60.2	
HIGHEST ANNUAL MEAN					108	
LOWEST ANNUAL MEAN					15.9	
HIGHEST DAILY MEAN	526	Mar 28	1310	Jan 15	4000	Nov 4 1985
LOWEST DAILY MEAN	6.3	Oct 3	4.4	Sep 15	.90	Aug 30 1981
ANNUAL SEVEN-DAY MINIMUM	7.1	Oct 2	4.5	Sep 9	1.1	Aug 26 1981
INSTANTANEOUS PEAK FLOW			6390	Jun 28	20000	Nov 4 1985
INSTANTANEOUS PEAK STAGE			14.97	Jun 28	a25.10	Nov 4 1985
INSTANTANEOUS LOW FLOW			3.8	bSep 15	(c)	
ANNUAL RUNOFF (CFSM)	1.03		.87		1.06	
ANNUAL RUNOFF (INCHES)	14.04		11.77		14.39	
10 PERCENT EXCEEDS	146		87		113	
50 PERCENT EXCEEDS	34		29		32	
90 PERCENT EXCEEDS	11		7.8		10	

a From floodmark, present site.

b Also Sept. 16, 1995.

c Not determined.



## 02056900 BLACKWATER RIVER NEAR ROCKY MOUNT, VA

LOCATION.--Lat 37°02'42", long 79°50'40", Franklin County, Hydrologic Unit 03010101, on right bank 45 ft downstream from bridge on State Highway 122, 3.0 mi northeast of Rocky Mount, and 4.1 mi upstream from Maggodee Creek.

DRAINAGE AREA.--115 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.45 ft above sea level.

REMARKS.--Records good except for period with ice effect, Feb. 7-9, which is fair. Appalachian Power Company gage-height transmitter, at station with recorder at Roanoke. Maximum discharge, 20,800 ft<sup>3</sup>/s, from rating curve extended above 7,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 1.13 ft, July 21, 1986. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0830	*4,520	*11.06	June 29	0530	1,750	6.38
June 22	2300	1,680	6.26				

Minimum discharge, 24 ft<sup>3</sup>/s, Aug. 24-26, gage height, 1.56 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	83	58	84	127	129	83	62	77	369	56	337
2	41	89	55	71	141	120	83	152	89	241	54	121
3	40	60	54	61	139	112	80	110	143	186	51	46
4	42	56	58	59	156	114	79	85	164	164	50	35
5	42	54	187	51	141	113	77	78	109	154	48	32
6	40	53	121	62	104	116	76	73	101	140	45	31
7	40	51	86	179	e100	111	76	67	101	139	44	30
8	42	50	74	139	e94	144	75	63	84	119	47	30
9	43	50	66	100	e87	408	74	62	78	107	49	29
10	47	55	71	86	125	222	73	214	73	100	48	29
11	47	64	186	79	112	184	72	193	126	95	47	29
12	45	56	112	83	103	163	78	119	184	88	43	29
13	46	52	88	81	87	148	99	98	130	83	40	29
14	63	52	86	117	98	139	78	91	100	78	36	29
15	80	51	102	2270	121	132	72	86	85	75	37	27
16	57	52	88	864	197	126	70	76	80	73	39	30
17	50	51	84	433	259	121	71	71	85	221	33	61
18	48	52	80	280	190	115	70	74	73	115	31	60
19	52	52	74	214	165	110	69	125	68	86	32	42
20	61	50	69	581	153	107	66	84	69	74	33	38
21	52	69	67	323	143	115	64	68	64	71	31	37
22	49	100	65	243	131	107	64	64	261	67	30	37
23	66	64	64	203	123	100	61	60	726	64	28	44
24	77	56	61	177	119	101	83	58	467	62	26	45
25	58	53	59	157	111	94	77	55	410	70	26	45
26	59	52	58	146	108	91	66	55	192	208	26	50
27	69	56	58	136	105	90	62	103	539	84	33	66
28	59	78	57	137	138	89	61	132	265	74	66	47
29	56	71	57	146	---	87	58	131	972	76	46	39
30	54	62	56	133	---	86	59	102	532	64	37	37
31	55	---	58	129	---	84	---	84	---	59	33	---
TOTAL	1622	1794	2459	7824	3677	3978	2176	2895	6447	3606	1245	1541
MEAN	52.3	59.8	79.3	252	131	128	72.5	93.4	215	116	40.2	51.4
MAX	80	100	187	2270	259	408	99	214	972	369	66	337
MIN	40	50	54	51	87	84	58	55	64	59	26	27
CFSM	.45	.52	.69	2.19	1.14	1.12	.63	.81	1.87	1.01	.35	.45
IN.	.52	.58	.80	2.53	1.19	1.29	.70	.94	2.09	1.17	.40	.50

e Estimated.

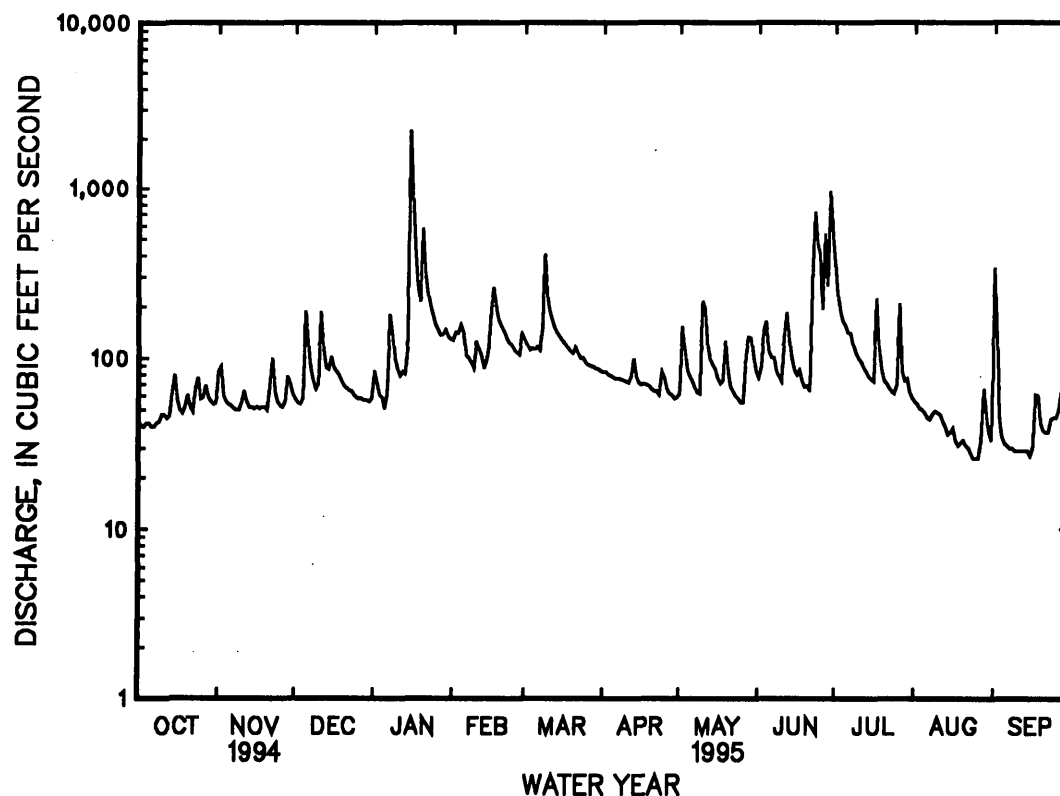
## 02056900 BLACKWATER RIVER NEAR ROCKY MOUNT, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	109	123	114	151	157	234	259	145	125	89.7	70.4	90.6
MAX	544	584	204	272	285	585	821	346	416	261	205	375
(WY)	1977	1986	1987	1978	1979	1993	1987	1978	1992	1989	1985	1979
MIN	26.5	29.1	47.9	47.0	66.1	60.1	65.3	53.6	38.2	24.6	12.4	23.0
(WY)	1992	1982	1982	1981	1989	1981	1981	1981	1981	1977	1981	1983

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1977 - 1995	
ANNUAL TOTAL	49857		39264			
ANNUAL MEAN	137		108		139	
HIGHEST ANNUAL MEAN					234	
LOWEST ANNUAL MEAN					46.1	
HIGHEST DAILY MEAN	2410	Mar 28	2270	Jan 15	5410	Nov 5 1985
LOWEST DAILY MEAN	40	aJul 11	26	bAug 24	7.4	cAug 28 1981
ANNUAL SEVEN-DAY MINIMUM	41	dOct 1	29	fAug 20	7.8	Aug 25 1981
INSTANTANEOUS PEAK FLOW			4520	Jan 15	20800	Nov 5 1985
INSTANTANEOUS PEAK STAGE			11.06	Jan 15	21.92	Nov 5 1985
INSTANTANEOUS LOW FLOW			24	gAug 24	6.6	Jul 21 1986
ANNUAL RUNOFF (CFSM)	1.19		.94		1.21	
ANNUAL RUNOFF (INCHES)	16.13		12.70		16.39	
10 PERCENT EXCEEDS	258		178		235	
50 PERCENT EXCEEDS	86		74		89	
90 PERCENT EXCEEDS	52		40		37	

- a Also July 16 and Oct. 3, 6, 7, 1994.  
b Also Aug. 25, 26, 1995.  
c Also Aug. 29, 1981.  
d Also Oct. 2, 3, 1994.  
f Also Aug. 21, 1995.  
g Also Aug. 25, 26, 1995.



## 02057400 SMITH MOUNTAIN LAKE NEAR PENHOOK, VA

LOCATION.--Lat 37°02'28", long 79°32'09", Pittsylvania County, Hydrologic Unit 03010101, at dam on Roanoke (Staunton) River 6.5 mi northeast of Penhook and at mile 314.0.

DRAINAGE AREA.--1,024 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to July 19, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete dam. Two ungated spillways, one near each end of dam, with crests at elevation 795 ft, are each 105 ft long. Initial filling began in September 1963 during construction; water in reservoir first reached minimum power pool, elevation, 787 ft, in May 1965. Total capacity at maximum pool elevation, 811 ft, is 1,517,000 acre-ft of which 375,000 acre-ft is above the spillway crest; 157,800 acre-ft is normally used for power between elevation 787 ft, minimum power pool, and the spillway crest. Capacity at invert of lowest penstock, elevation, 601 ft, is 100 acre-ft. Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (pumped storage) which is used for hydroelectric power, flood control, low-water regulation for pollution abatement and water supply, water releases for downstream fish spawning, and recreation.

COOPERATION.--Records 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.

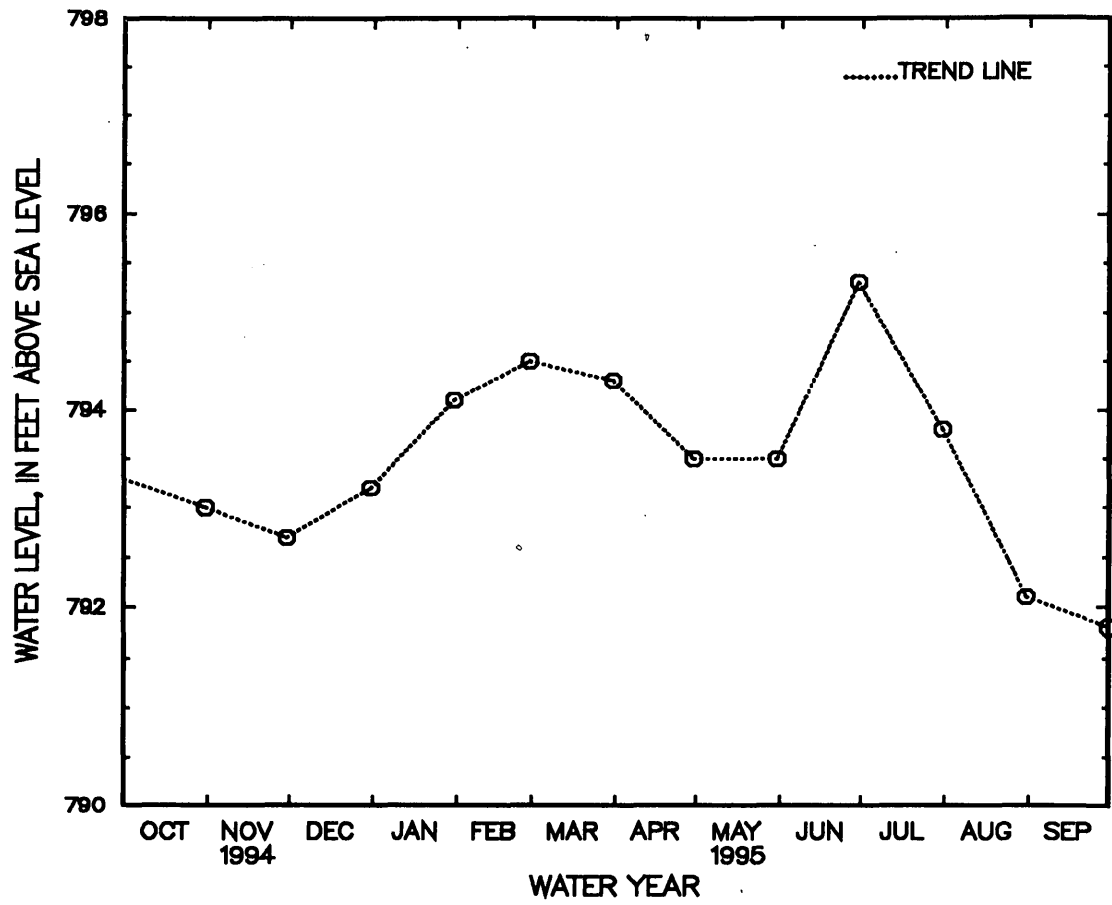
EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,171,300 acre-ft, June 29, elevation, 796.3 ft; minimum, 1,066,500 acre-ft, Sept. 28, elevation, 791.3 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	793.3	1,107,300	-
Oct. 31.....	793.0	1,101,200	-6,100
Nov. 30.....	792.7	1,095,100	-6,100
Dec. 31.....	793.2	1,105,300	+10,200
CAL YR 1994.....			-26,500
Jan. 31.....	794.1	1,123,600	+18,300
Feb. 28.....	794.5	1,131,800	+8,200
Mar. 31.....	794.3	1,127,700	-4,100
Apr. 30.....	793.5	1,111,400	-16,300
May 31.....	793.5	1,111,400	-
June 30.....	795.3	1,148,800	+37,400
July 31.....	793.8	1,117,500	-31,300
Aug. 31.....	792.1	1,082,800	-34,700
Sept. 30.....	791.8	1,076,700	-6,100
WTR YR 1995.....			-30,600



02057400 SMITH MOUNTAIN LAKE NEAR PENHOOK, VA--Continued



## 02058400 PIGG RIVER NEAR SANDY LEVEL, VA

LOCATION.--Lat 36°56'45", long 79°31'30", Pittsylvania County, Hydrologic Unit 03010101, on left bank 300 ft downstream from Harpen Creek, 0.5 mi upstream from bridge on State Highway 40, and 1.1 mi south of Sandy Level.

DRAINAGE AREA.--350 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 617.00 ft above sea level (U.S. Army Corps of Engineers bench mark). Prior to Nov. 18, 1963, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Feb. 7-9, which is fair. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Maximum discharge, 65,600 ft<sup>3</sup>/s, from rating curve extended above 25,500 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 1.95 ft, Aug. 29, 30, 1981. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2400	6,380	11.68	June 29	0500	*28,300	*26.00

Minimum discharge, 122 ft<sup>3</sup>/s, Aug. 26-27, gage height, 2.36 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	207	230	283	345	569	253	210	177	841	203	177
2	161	256	216	297	394	539	254	465	217	656	198	434
3	160	227	212	240	395	403	245	433	340	458	191	220
4	160	198	220	220	464	374	245	316	410	390	187	171
5	161	193	439	201	455	365	242	267	313	351	183	159
6	161	195	494	167	354	367	237	240	269	321	180	154
7	158	193	335	689	e330	355	242	217	354	327	175	152
8	158	184	298	613	e310	379	240	202	279	286	177	151
9	161	182	262	385	e300	973	234	197	232	257	181	145
10	168	206	255	334	352	577	231	329	233	244	181	144
11	176	257	386	314	320	434	227	523	721	236	180	142
12	169	233	402	314	311	381	238	358	412	226	174	144
13	162	205	326	317	283	363	293	285	345	217	169	144
14	172	200	317	314	281	346	278	258	269	210	164	142
15	249	197	320	3620	332	336	236	254	220	205	169	137
16	232	195	313	2670	566	329	226	223	196	210	181	141
17	190	196	295	888	662	322	226	205	189	229	162	199
18	176	205	287	583	530	315	222	204	183	297	154	217
19	174	207	265	450	420	310	219	284	175	221	148	182
20	190	196	248	869	377	308	214	304	179	197	145	168
21	210	244	239	721	357	315	208	211	182	225	145	167
22	188	406	232	488	337	314	206	188	265	304	142	185
23	213	313	229	408	326	301	199	175	2440	213	138	212
24	309	246	223	377	320	288	239	167	1390	200	127	188
25	231	221	211	357	310	272	268	163	1560	327	125	187
26	202	217	210	347	304	264	223	161	502	627	122	188
27	229	222	206	338	304	266	204	208	380	394	146	189
28	217	278	205	341	415	273	197	322	513	312	213	184
29	197	287	203	373	---	273	188	326	17000	335	196	171
30	195	250	201	352	---	261	197	250	1580	240	167	166
31	196	---	202	343	---	262	---	198	---	216	157	---
TOTAL	5888	6816	8481	18213	10454	11434	6931	8143	31525	9772	5180	5360
MEAN	190	227	274	588	373	369	231	263	1051	315	167	179
MAX	309	406	494	3620	662	973	293	523	17000	841	213	434
MIN	158	182	201	167	281	261	188	161	175	197	122	137
CFSM	.54	.65	.78	1.68	1.07	1.05	.66	.75	3.00	.90	.48	.51
IN.	.63	.72	.90	1.94	1.11	1.22	.74	.87	3.35	1.04	.55	.57

e Estimated.

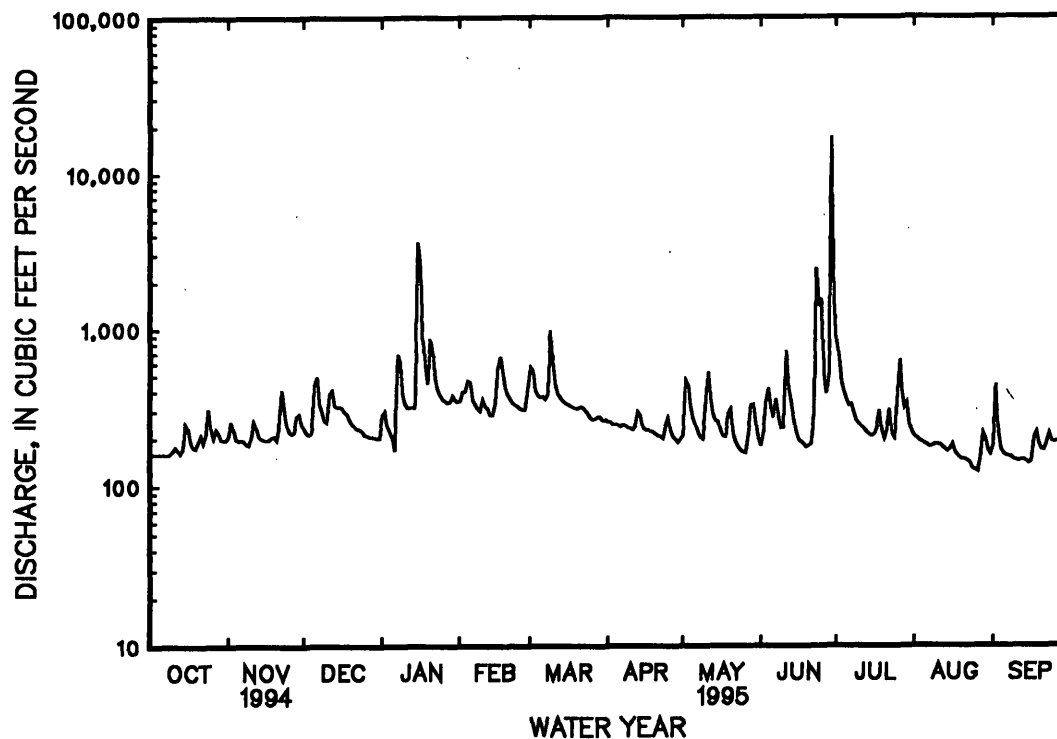
## 02058400 PIGG RIVER NEAR SANDY LEVEL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	303	314	356	465	494	604	549	412	339	267	245	276
MAX	1220	995	836	1054	1032	1578	2265	989	1200	814	867	1864
(WY)	1991	1986	1974	1978	1979	1993	1987	1978	1972	1972	1985	1987
MIN	110	103	143	160	228	203	201	165	114	85.4	49.3	70.0
(WY)	1982	1982	1966	1981	1968	1981	1985	1981	1981	1967	1981	1968

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1963 - 1995	
ANNUAL TOTAL	158277		128197			
ANNUAL MEAN	434		351		386	
HIGHEST ANNUAL MEAN					709	
LOWEST ANNUAL MEAN					155	
HIGHEST DAILY MEAN	6250		17000		34900	
LOWEST DAILY MEAN	158		122		25	
ANNUAL SEVEN-DAY MINIMUM	160		135		29	
INSTANTANEOUS PEAK FLOW			28300		65600	
INSTANTANEOUS PEAK STAGE			26.00		b31.12	
INSTANTANEOUS LOW FLOW			122		24	
ANNUAL RUNOFF (CFSM)	1.24		1.00		1.10	
ANNUAL RUNOFF (INCHES)	16.82		13.63		15.00	
10 PERCENT EXCEEDS	735		434		594	
50 PERCENT EXCEEDS	294		236		256	
90 PERCENT EXCEEDS	182		164		123	

- a Also July 12 and Oct. 7, 8, 1994.  
b From high-water marks.  
c Also Aug. 27, 1995.  
d Also Aug. 30, 1981.



## 02059400 LEESVILLE LAKE NEAR LEESVILLE, VA

LOCATION.--Lat 37°05'35", long 79°24'09", Campbell County, Hydrologic Unit 03010101, at Leesville Dam on Roanoke (Staunton) River, 2.0 mi south of Leesville, 3.5 mi upstream from Goose Creek, and at mile 296.

DRAINAGE AREA.--1,505 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is at sea level. 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, 614 ft, is 98,180 acre-ft of which 78,670 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.

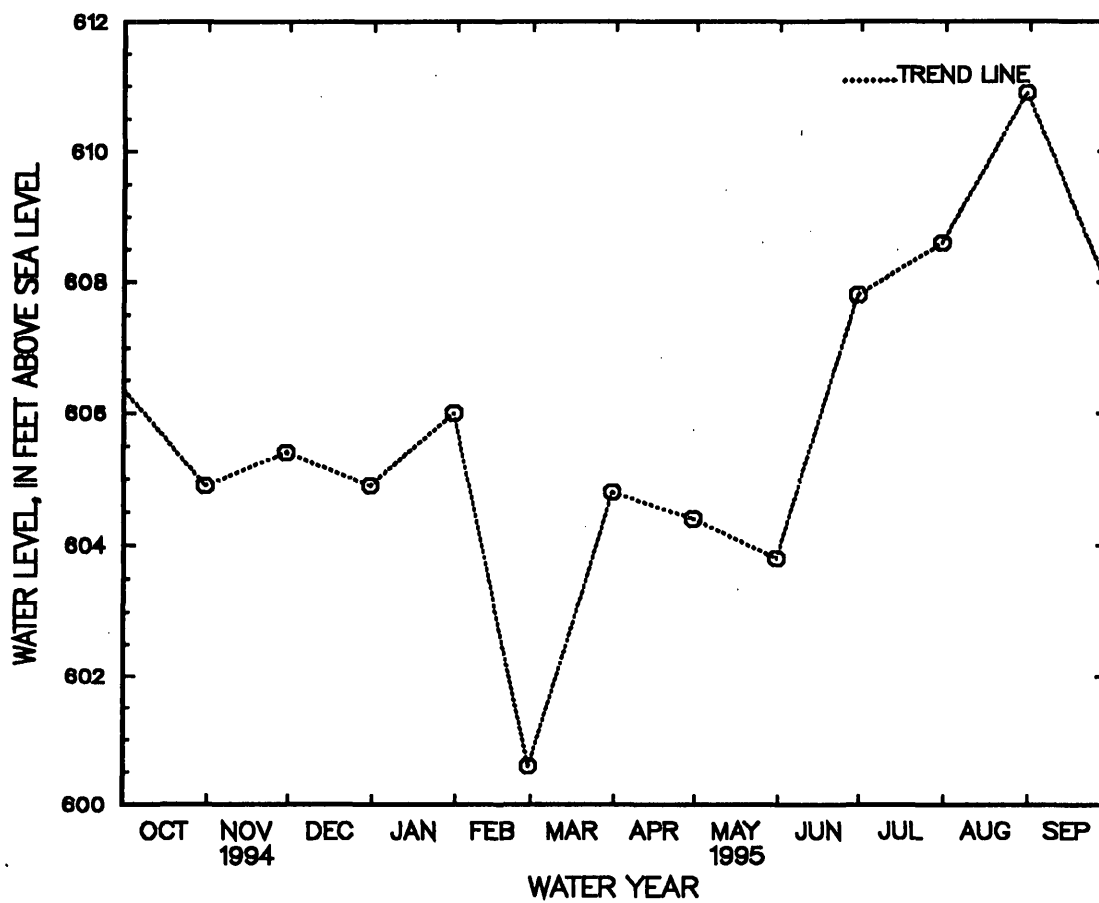
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 98,180 acre-ft, Feb. 1, 1965, elevation, 614.0 ft; minimum (after first filling to minimum power pool), 39,880 acre-ft, Mar. 19, 1963, elevation, 592.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 94,320 acre-ft, June 29, elevation, 612.8 ft; minimum, 57,200 acre-ft, Aug. 14, elevation, 600.0 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	606.4	74,720	-
Oct. 31.....	604.9	70,330	-4,390
Nov. 30.....	605.4	71,780	+1,450
Dec. 31.....	604.9	70,330	-1,450
CAL YR 1994.....			+3,210
Jan. 31.....	606.0	73,540	+3,210
Feb. 28.....	600.6	58,810	-14,730
Mar. 31.....	604.8	70,060	+11,250
Apr. 30.....	604.4	68,990	-1,070
May 31.....	603.8	67,380	-1,610
June 30.....	607.8	78,830	+11,450
July 31.....	608.6	81,180	+2,350
Aug. 31.....	610.9	88,200	+7,020
Sept. 30.....	607.9	79,130	-9,070
WTR YR 1995.....			+4,410

02059400 LEESVILLE LAKE NEAR LEESVILLE, VA--Continued



## 02059500 GOOSE CREEK NEAR HUDDLESTON, VA

LOCATION.--Lat 37°10'23", long 79°31'14", Bedford County, Hydrologic Unit 03010101, on left bank 0.3 mi upstream from Haden Bridge on State Highway 732, 0.4 mi upstream from Rockcastle Creek, and 3.5 mi northwest of Huddleston.

DRAINAGE AREA.--188 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1925 to August 1928 (gage heights only), September 1930 to current year.

REVISED RECORDS.--WSP 892: 1933, 1935(M), 1939. WSP 972: 1931-32(M), 1934(M), 1935-38, 1940, 1941(M). WSP 1082: 1940(P). WSP 1142: 1938-40(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 592.91 ft above sea level. 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, Jan. 5, June 28 to July 31, and Aug. 2, and periods with ice effect, Feb. 7-9, 13, 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 with recorder at Roanoke. Maximum discharge, 53,200 ft<sup>3</sup>/s, from rating curve extended above 11,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 19.25 ft, 24.1 ft, 24.89 ft, and 37.49 ft. Minimum discharge, 3.0 ft<sup>3</sup>/s, Aug. 31, 1932, and Jan. 30, 1934, result of freezeup. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1515	4,950	10.01	June 29	Unknown	*20,400	*a25.80
June 23	0345	3,440	7.18				

a From high-water mark in gage house.

Minimum discharge, 41 ft<sup>3</sup>/s, Aug. 26, Sept. 11, 12, 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	105	88	115	171	220	107	87	88	e865	88	51
2	66	103	84	104	215	201	107	199	107	e528	e89	290
3	65	81	84	92	305	184	102	148	151	e328	89	81
4	66	80	88	89	334	181	101	117	156	e254	85	57
5	65	80	182	e84	288	175	100	127	106	e218	80	53
6	64	79	156	242	206	181	98	122	102	e273	77	50
7	63	78	116	237	e180	173	99	111	113	e340	84	51
8	64	77	102	199	e170	197	99	105	124	e198	80	51
9	64	78	94	149	e150	398	97	101	218	e144	78	48
10	73	85	99	128	243	292	97	281	130	e138	80	47
11	67	85	179	114	203	246	94	258	350	e138	82	45
12	62	81	132	116	156	221	100	199	586	e120	74	44
13	63	78	113	112	e135	203	130	159	372	e114	66	46
14	72	78	116	115	144	187	103	142	239	e112	61	44
15	78	77	127	2620	185	178	94	137	183	e103	154	43
16	67	78	114	1550	337	170	95	120	168	e103	99	49
17	65	77	110	557	447	164	95	113	266	e93	70	102
18	64	79	108	326	328	154	99	113	157	e129	64	82
19	63	80	102	265	272	147	97	152	135	e97	61	62
20	66	78	96	543	246	145	91	115	121	e83	57	56
21	65	106	93	344	225	156	90	97	109	e111	53	56
22	64	124	93	264	200	141	90	91	415	e124	53	63
23	80	91	94	231	187	132	86	85	2260	e76	49	76
24	79	82	91	207	175	135	119	82	934	e144	46	66
25	67	81	85	183	161	124	108	82	523	e203	45	65
26	70	82	87	172	156	118	92	81	341	e462	44	82
27	76	90	86	160	153	118	88	97	282	e164	59	98
28	67	118	85	166	211	117	85	121	e6420	e126	93	69
29	67	104	87	182	---	112	82	130	e7630	e109	63	58
30	67	94	85	177	---	114	84	122	e1260	e93	54	55
31	68	---	86	176	---	111	---	98	---	e90	51	---
TOTAL	2093	2609	3262	10019	6183	5395	2929	3992	24046	6080	2228	2040
MEAN	67.5	87.0	105	323	221	174	97.6	129	802	196	71.9	68.0
MAX	80	124	182	2620	447	398	130	281	7630	865	154	290
MIN	62	77	84	84	135	111	82	81	88	76	44	43
CFSM	.36	.46	.56	1.72	1.17	.93	.52	.68	4.26	1.04	.38	.36
IN.	.41	.52	.65	1.98	1.22	1.07	.58	.79	4.76	1.20	.44	.40

e Estimated.

## 02059500 GOOSE CREEK NEAR HUDDLESTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	135	138	172	222	243	289	264	201	153	118	136	127
MAX	719	642	616	772	536	909	1319	780	802	466	822	1229
(WY)	1938	1986	1949	1936	1979	1975	1987	1989	1995	1949	1940	1987
MIN	27.9	32.9	45.2	46.6	48.5	80.1	73.2	56.8	50.7	26.3	22.9	28.8
(WY)	1932	1932	1966	1966	1934	1981	1942	1981	1932	1966	1932	1933

## SUMMARY STATISTICS

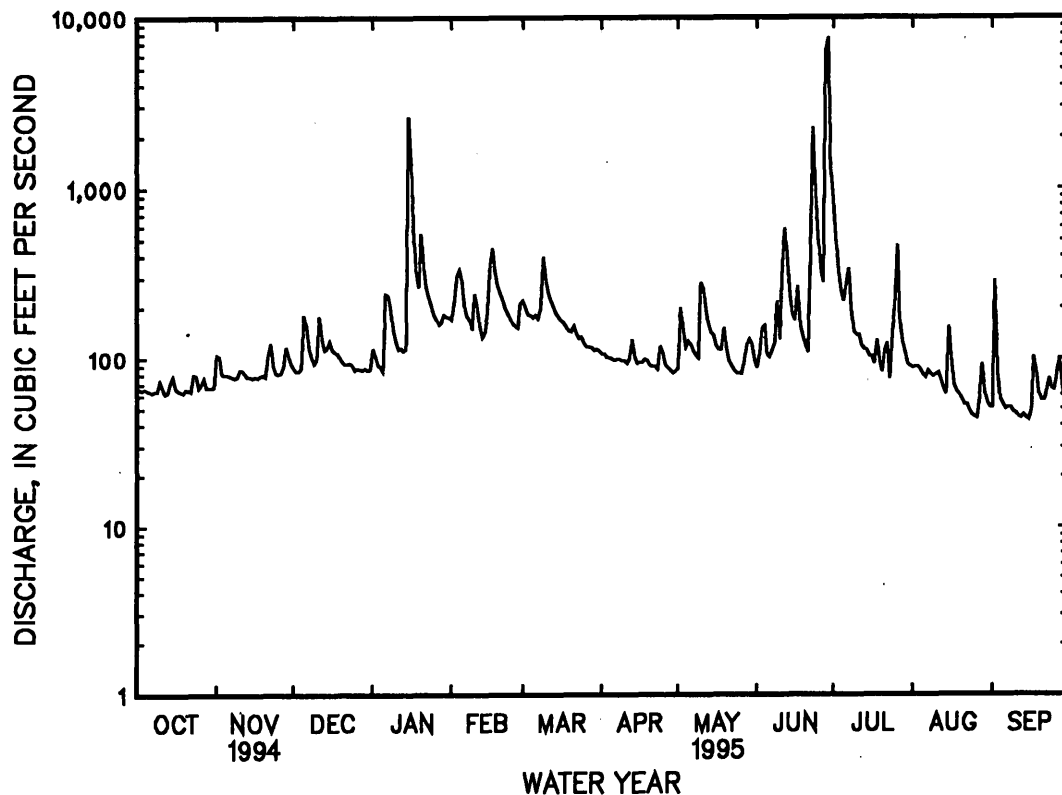
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1931 - 1995

ANNUAL TOTAL	66616	70876	183	
ANNUAL MEAN	183	194	183	
HIGHEST ANNUAL MEAN			393	1987
LOWEST ANNUAL MEAN			66.8	1981
HIGHEST DAILY MEAN	2530	Mar 28	7630	Jun 29
LOWEST DAILY MEAN	62	Oct 12	43	Sep 15
ANNUAL SEVEN-DAY MINIMUM	64	Oct 3	45	bSep 9
INSTANTANEOUS PEAK FLOW			20400	Jun 29
INSTANTANEOUS PEAK STAGE			a25.80	Jun 29
INSTANTANEOUS LOW FLOW			41	Aug 26
ANNUAL RUNOFF (CFSM)	.97		1.03	
ANNUAL RUNOFF (INCHES)	13.18		14.02	
10 PERCENT EXCEEDS	329		265	
50 PERCENT EXCEEDS	122		103	
90 PERCENT EXCEEDS	77		63	

- a From high-water mark in gage house.  
b Also Sept. 10, 1995.  
c From floodmarks.  
d Also Jan. 30, 1934, result of freezeup.  
e Estimated.



## ROANOKE RIVER BASIN

## 02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA

LOCATION.--Lat 37°06'16", long 79°17'44", Pittsylvania County, Hydrologic Unit 03010101, on right bank 12 ft upstream from bridge on alternate U.S. Highway 29, 0.3 mi south of Altavista, 0.3 mi downstream from Sycamore Creek, 3.5 mi upstream from Big Otter River, and at mile 286.5.

DRAINAGE AREA.--1,789 mi<sup>2</sup>.

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 sea level. Prior to Feb. 21, 1951, on left bank 50 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 9.5 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 27.5 mi upstream. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Appalachian Power Company gage-height transmitter at station with recorder at Roanoke. Hadson Power Company gage-height telemeter at station. Maximum discharge, 105,000 ft<sup>3</sup>/s, from rating curve extended above 52,000 ft<sup>3</sup>/s on basis of unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers and records for other stations in Roanoke River Basin. Minimum gage height, 1.53 ft, Jan. 2, 1977, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,700 ft<sup>3</sup>/s, Jun. 23, gage height, 28.42 ft; minimum daily, 290 ft<sup>3</sup>/s, Sept. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	791	842	832	822	1350	2550	858	1810	826	17300	809	772		
2	835	890	838	897	1340	2320	854	1600	853	7490	814	983		
3	792	842	840	880	1730	2000	858	1340	907	2770	818	836		
4	800	880	841	876	2810	1740	867	1260	911	2260	825	770		
5	815	829	909	827	2320	1630	869	1220	864	1970	838	768		
6	833	834	969	817	1130	1370	866	1240	899	1700	802	765		
7	837	867	885	1090	1480	1260	856	1220	921	2040	859	834		
8	825	838	864	1110	1790	3670	855	1220	878	2210	805	778		
9	803	826	854	1030	1470	4650	850	1230	956	1820	782	796		
10	807	852	856	920	1300	2500	829	1320	928	1460	789	787		
11	827	847	914	892	1100	2220	806	1440	1050	1030	783	1320		
12	835	833	901	892	921	1810	809	1350	1440	868	790	1820		
13	827	835	960	871	949	1630	846	1320	1680	855	812	485		
14	819	820	880	971	1080	1040	837	1310	1570	862	778	481		
15	825	821	899	11800	1970	1010	845	1300	1000	981	2580	472		
16	835	827	896	12500	4300	983	1570	1240	848	842	5090	507		
17	1020	841	885	11500	5160	1000	2300	1230	889	831	1000	581		
18	814	861	849	7610	4990	1120	1860	1250	820	828	778	524		
19	836	856	860	1770	3130	1100	1420	1320	827	882	760	290		
20	840	806	862	4920	1980	1190	1260	1260	877	926	748	296		
21	827	845	857	4000	1780	1180	1210	1210	840	839	759	900		
22	826	910	836	2260	1740	1210	1200	1210	1690	854	767	1980		
23	854	859	840	1020	1760	1130	1450	1210	27100	815	767	870		
24	864	838	824	1070	1490	1040	1820	794	12000	808	762	829		
25	850	858	822	1670	1380	981	1450	783	10300	919	734	807		
26	841	852	844	1710	1330	971	1210	760	4610	2650	729	790		
27	854	870	844	1560	1150	962	1200	775	6060	2670	785	794		
28	840	884	832	1420	1840	895	1210	805	4280	2560	804	821		
29	818	916	846	1830	---	878	1210	857	24500	1290	786	778		
30	800	839	836	1580	---	852	1560	858	21000	829	772	795		
31	826	---	819	1480	---	853	---	840	---	784	767	---		
TOTAL	25816	25518	26794	82595	54770	47745	34635	36582	132324	64943	30692	24229		
MEAN	833	851	864	2664	1956	1540	1154	1180	4411	2095	990	808		
MAX	1020	916	969	12500	5160	4650	2300	1810	27100	17300	5090	1980		
MIN	791	806	819	817	921	852	806	760	820	784	729	290		
(†)	-170	-79	+142	+350	-117	+116	-292	-26	+821	+71	-450	-255		
MEAN‡	663	772	1006	3014	1839	1656	862	1154	5232	1624	540	553		
CFSM‡	.37	.43	.56	1.68	1.03	.93	.48	.65	2.92	.91	.30	.31		
IN.‡	.43	.48	.65	1.94	1.07	1.07	.54	.74	3.26	1.05	.35	.34		
CAL YR 1994	TOTAL	731013	MEAN	2003	MAX	16200	MIN	791	MEAN‡	1970	CFSM‡	1.10	IN.‡	14.95
WTR YR 1995	TOTAL	586643	MEAN	1607	MAX	27100	MIN	290	MEAN‡	1571	CFSM‡	.88	IN.‡	11.92

† 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.



## 02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1962, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1431	1366	1845	2321	2615	2949	2831	2042	1592	1388	1630	1307
MAX	6570	3335	5971	7148	5338	5313	4818	4825	3056	5354	10210	3461
(WY)	1938	1948	1949	1936	1960	1936	1951	1958	1950	1949	1940	1945
MIN	324	388	528	543	517	1260	815	827	653	442	314	284
(WY)	1931	1932	1932	1956	1934	1940	1942	1934	1956	1932	1932	1954

## SUMMARY STATISTICS

WATER YEARS 1931 - 1962

ANNUAL MEAN	1940
HIGHEST ANNUAL MEAN	3424
LOWEST ANNUAL MEAN	915
HIGHEST DAILY MEAN	98300
LOWEST DAILY MEAN	156
ANNUAL SEVEN-DAY MINIMUM	181
INSTANTANEOUS PEAK FLOW	105000
INSTANTANEOUS PEAK STAGE	a40.08
INSTANTANEOUS LOW FLOW	94
ANNUAL RUNOFF (CFSM)	1.08
ANNUAL RUNOFF (INCHES)	14.73
10 PERCENT EXCEEDS	3590
50 PERCENT EXCEEDS	1310
90 PERCENT EXCEEDS	542

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1176	1333	1381	2048	2173	2837	2554	1936	1512	1118	1025	1135
MAX	4811	6190	3576	4643	4760	7795	10930	4716	5684	3363	3108	5246
(WY)	1991	1986	1973	1978	1979	1993	1987	1978	1972	1972	1985	1987
MIN	189	396	351	620	581	338	604	484	220	504	311	439
(WY)	1964	1982	1964	1965	1981	1981	1964	1964	1964	1981	1963	1963

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

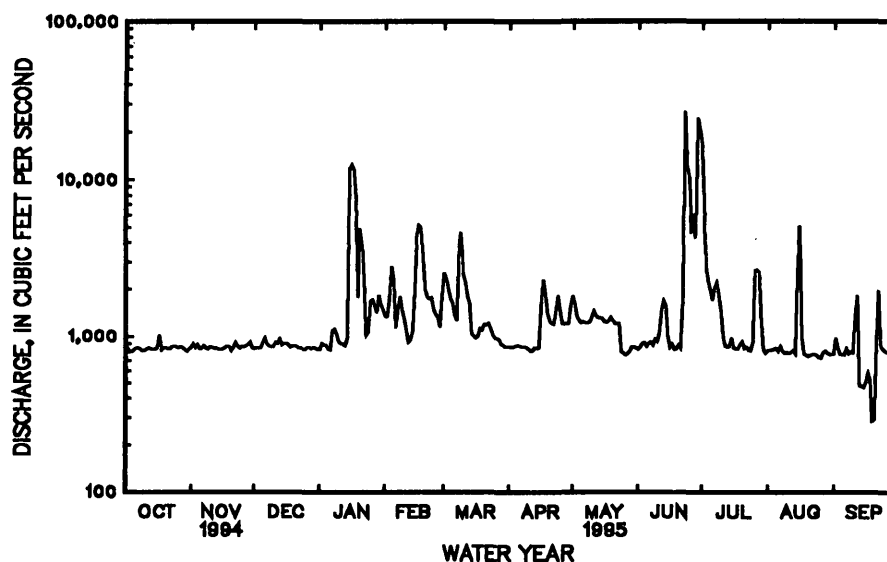
FOR 1995 WATER YEAR

WATER YEARS 1963 - 1995

ANNUAL TOTAL	731013	586643	
ANNUAL MEAN	2003	1607	1683
HIGHEST ANNUAL MEAN			2903
LOWEST ANNUAL MEAN			645
HIGHEST DAILY MEAN	16200	Mar 28	27100
LOWEST DAILY MEAN	791	Oct 1	290
ANNUAL SEVEN-DAY MINIMUM	801	Jul 8	450
INSTANTANEOUS PEAK FLOW			38700
INSTANTANEOUS PEAK STAGE			28.42
INSTANTANEOUS LOW FLOW			252
ANNUAL RUNOFF (CFSM)	1.12	.90	.94
ANNUAL RUNOFF (INCHES)	15.20	12.20	12.78
10 PERCENT EXCEEDS	4430	2240	3370
50 PERCENT EXCEEDS	977	880	1020
90 PERCENT EXCEEDS	825	790	253

a From floodmarks.

b Result of regulation.



## ROANOKE RIVER BASIN

## 02061500 BIG OTTER RIVER NEAR EVINGTON, VA

LOCATION.--Lat 37°12'30", long 79°18'14", Campbell County, Hydrologic Unit 03010101, on right bank 60 ft upstream from bridge on State Highway 682, 2.0 mi southwest of Evington, and 2.1 mi upstream from Flat Creek.

DRAINAGE AREA.--320 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1936 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1965, published as Otter River near Evington.

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1938-39(M). WSP 972: 1937-39. WSP 1032: 1940. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 544.02 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, and Feb. 7, 8, and periods of doubtful gage-height record, July 9-16, 27, 28, and July 30 to Aug. 3, which are fair. Maximum discharge, prior to June 23, 1995, flood, 41,900 ft<sup>3</sup>/s, from rating curve extended above 24,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Flood of June 23, 1995, reached a stage of 29.93 ft, maximum discharge not determined. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in October 1937 and August 1939 reached a stage of 23.1 ft, discharge, 27,500 ft<sup>3</sup>/s, from rating curve extended above 7,000 ft<sup>3</sup>/s on basis of unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers, and records for other stations in Roanoke River Basin.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1930	5,190	11.52	June 29	1000	19,200	20.46
June 23	0600	*a45,900	*29.93				

a Daily mean discharge: actual peak is known to be higher than value shown.

Minimum discharge, 78 ft<sup>3</sup>/s, Sept. 15, 16, gage height, 0.25 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	156	153	182	297	425	185	154	150	1550	e190	95
2	103	236	142	175	350	362	183	311	165	1160	e180	295
3	102	147	139	146	467	323	211	273	283	753	e165	159
4	103	134	140	139	488	317	229	200	500	625	155	110
5	104	133	331	e105	503	308	190	188	214	553	148	101
6	103	133	330	113	344	318	163	179	184	520	144	96
7	100	132	216	438	e285	319	164	160	215	535	154	94
8	101	128	181	446	e245	326	163	151	172	479	152	92
9	105	127	163	270	215	712	162	147	396	e380	145	90
10	119	142	160	224	308	476	158	382	204	e350	142	87
11	116	160	286	199	281	404	156	333	556	e285	140	85
12	107	137	227	197	262	360	162	245	859	e265	134	84
13	108	131	184	193	213	331	197	213	510	e245	127	84
14	121	130	197	190	232	310	176	201	336	e235	119	83
15	137	129	233	2490	265	292	157	197	261	e220	183	80
16	124	129	202	2050	561	278	153	177	243	e215	167	84
17	115	127	189	905	768	265	158	165	375	262	125	139
18	115	128	183	637	557	252	165	162	230	381	116	136
19	113	129	171	528	456	242	159	228	191	245	111	104
20	114	125	163	992	409	237	151	199	173	207	108	96
21	115	156	155	676	374	242	151	153	157	267	106	94
22	114	267	154	533	331	232	151	141	3350	621	104	98
23	142	171	150	453	307	219	143	132	45900	265	98	112
24	174	147	144	400	292	232	188	127	2150	260	96	107
25	132	138	139	355	273	209	199	123	968	436	95	103
26	129	139	137	329	265	201	158	170	729	786	93	118
27	150	146	132	302	256	203	148	535	831	e290	103	146
28	135	212	132	300	385	202	145	284	874	e235	143	112
29	126	199	132	322	---	196	139	268	10500	273	120	98
30	126	173	130	304	---	193	143	239	2250	e220	106	93
31	130	---	129	312	---	188	---	177	---	e205	99	---
TOTAL	3688	4541	5524	14905	9989	9174	5007	6614	73926	13323	4068	3275
MEAN	119	151	178	481	357	296	167	213	2464	430	131	109
MAX	174	267	331	2490	768	712	229	535	45900	1550	190	295
MIN	100	125	129	105	213	188	139	123	150	205	93	80
CFSM	.37	.47	.56	1.50	1.11	.92	.52	.67	7.70	1.34	.41	.34
IN.	.43	.53	.64	1.73	1.16	1.07	.58	.77	8.59	1.55	.47	.38

e Estimated.

## 02061500 BIG OTTER RIVER NEAR EVINGTON, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	231	256	334	400	480	541	487	380	321	220	247	194
MAX	1163	1200	1192	921	895	1332	2062	1335	2464	925	1412	1027
(WY)	1991	1986	1949	1978	1979	1993	1987	1989	1995	1949	1940	1987
MIN	52.5	68.7	68.6	95.7	193	153	127	106	71.0	27.9	33.3	29.9
(WY)	1964	1966	1966	1966	1968	1981	1966	1981	1966	1966	1963	1968

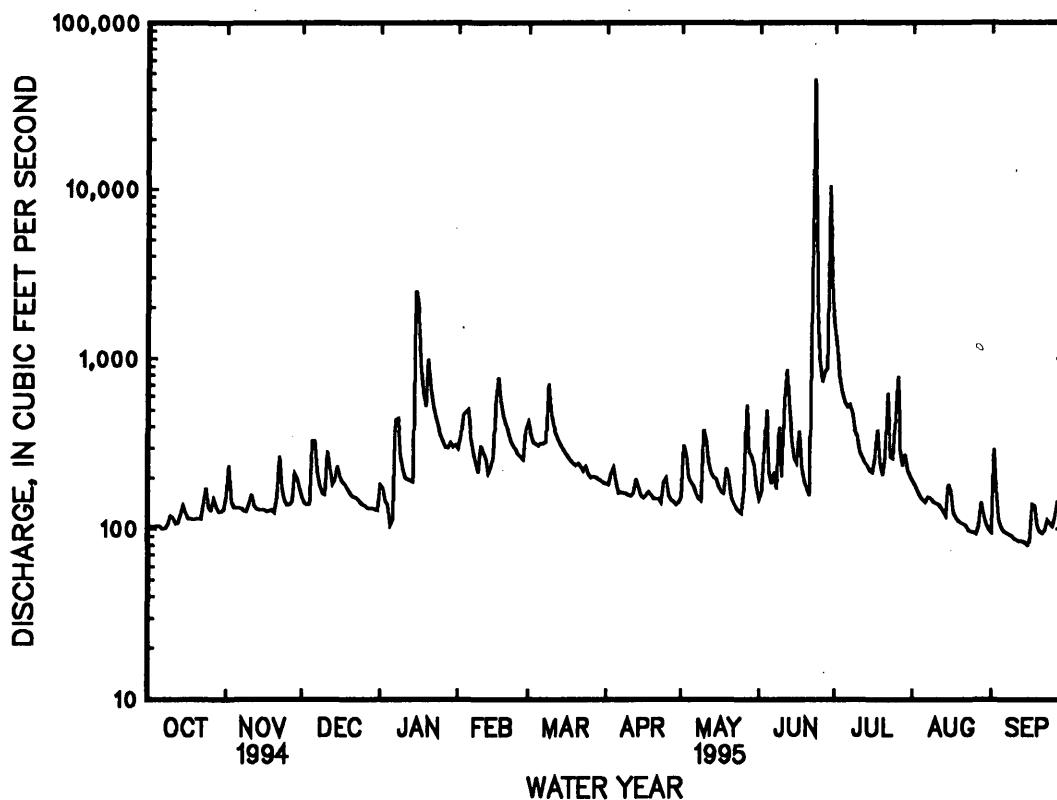
SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1937 - 1995	
ANNUAL TOTAL	139614		154034			
ANNUAL MEAN	383		422		340	
HIGHEST ANNUAL MEAN					635	
LOWEST ANNUAL MEAN					139	
HIGHEST DAILY MEAN	6950	Mar 28	45900	Jun 23	45900	Jun 23 1995
LOWEST DAILY MEAN	100	Oct 7	80	Sep 15	12	bJul 28 1966
ANNUAL SEVEN-DAY MINIMUM	102	Oct 2	84	Sep 10	13	Sep 7 1966
INSTANTANEOUS PEAK FLOW			(c)	Jun 23	(c)	Jun 23 1995
INSTANTANEOUS PEAK STAGE			29.93	Jun 23	29.93	Jun 23 1995
INSTANTANEOUS LOW FLOW			78	dSep 15	12	fJul 28 1966
ANNUAL RUNOFF (CFSM)	1.20		1.32		1.06	
ANNUAL RUNOFF (INCHES)	16.23		17.91		14.43	
10 PERCENT EXCEEDS	715		493		616	
50 PERCENT EXCEEDS	236		182		218	
90 PERCENT EXCEEDS	118		105		82	

b Also Sept. 12, 13, 1966.

c Maximum discharge not determined.

d Also Sept. 16, 1995.

f Also Sept. 12-14, 1966.



## ROANOKE RIVER BASIN

## 02062500 ROANOKE (STAUNTON) RIVER AT BROOKNEAL, VA

LOCATION.--Lat 37°02'28", long 78°57'02", Campbell County, Hydrologic Unit 03010102, on left bank 1,600 ft upstream from bridge on U.S. Highway 501 at Brookneal, 2.9 mi upstream from Felling River, and at mile 255.9.

DRAINAGE AREA.--2,415 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1923 to current year.

REVISED RECORDS.--WSP 892: 1928(M). WSP 972: 1928-34. WSP 1303: 1924-27(M), 1929(M), 1941(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 351.96 ft above sea level. Apr. 30, 1923, to Aug. 29, 1929, nonrecording gage, Aug. 30, 1929, to Aug. 15, 1940, water-stage recorder, and Aug. 16 to Oct. 1, 1940, nonrecording gage at site 1,800 ft downstream at same datum. Oct. 2, 1940, to Sept. 30, 1941, nonrecording gage at site 1,600 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 40.1 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 58.1 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Maximum discharge, 130,000 ft<sup>3</sup>/s, at present site, from gage-height relation curve, from rating curve extended above 55,000 ft<sup>3</sup>/s on basis of slope-area measurement by Geological Survey, unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers, and records for other stations in Roanoke River Basin. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 73,100 ft<sup>3</sup>/s, June 23, gage height, 37.39 ft; minimum daily, 451 ft<sup>3</sup>/s, Sept. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1090	1150	1200	1160	2180	3380	1320	2220	1240	26100	1220	1060		
2	1070	1220	1190	1270	2150	3370	1310	2700	1310	13700	1210	1220		
3	1090	1250	1180	1270	2270	2890	1300	2240	2110	4720	1200	1440		
4	1060	1170	1190	1230	3100	2520	1360	1880	1910	3170	1190	1090		
5	1070	1190	1220	1200	3660	2450	1360	1730	1620	2790	1210	1020		
6	1090	1140	1540	1140	2180	2190	1320	1680	1690	2620	1190	1010		
7	1090	1170	1410	1660	1920	2090	1300	1660	2960	2580	1200	1000		
8	1100	1170	1290	2150	2330	2720	1300	1610	1630	2860	1200	1030		
9	1080	1150	1240	1690	2330	6270	1290	1610	2060	2580	1160	1000		
10	1080	1180	1230	1520	1960	4080	1280	1800	1700	2070	1150	992		
11	1090	1210	1280	1380	1970	3100	1240	2230	3410	1780	1150	977		
12	1100	1190	1440	1350	1590	2770	1250	1980	3720	1470	1130	1880		
13	1100	1160	1310	1340	1500	2500	1340	1840	2860	1430	1140	1350		
14	1130	1150	1380	1320	1580	1980	1340	1770	2870	1400	1100	633		
15	1130	1140	1330	6850	1780	1680	1270	1750	1990	1440	1080	619		
16	1130	1140	1350	13700	3940	1610	1400	1700	1530	1400	4540	617		
17	1320	1150	1310	13300	6030	1570	2480	1640	1430	1530	2910	771		
18	1100	1170	1290	11500	5910	1620	2570	1640	1540	1490	1100	868		
19	1100	1180	1240	3820	4830	1660	2070	1890	1310	1510	1040	706		
20	1120	1160	1240	4230	3180	1710	1730	1870	1330	1370	1020	461		
21	1110	1270	1230	6120	2400	1660	1610	1660	1310	1330	1010	451		
22	1110	1440	1220	3670	2670	1820	1590	1570	1580	1690	1030	1710		
23	1150	1340	1200	2360	2240	1670	1590	1590	51200	1600	1030	1630		
24	1200	1210	1210	1760	2320	1620	2170	1390	35000	1300	1020	1100		
25	1200	1180	1170	2060	1980	1520	2250	1140	13400	1400	1020	1050		
26	1160	1180	1180	2430	1960	1460	1660	1120	8630	2420	987	1060		
27	1150	1200	1190	2320	1790	1450	1590	1400	6420	3370	1070	1060		
28	1160	1270	1180	2150	2210	1440	1580	1540	6190	2940	1170	1110		
29	1140	1330	1190	2300	---	1370	1570	1490	26200	2330	1140	1060		
30	1110	1300	1190	2470	---	1350	1650	1410	35500	1480	1070	1030		
31	1110	---	1180	2220	---	1320	---	1340	---	1230	1040	---		
TOTAL	34740	36160	39000	102940	73960	68840	47090	53090	225650	99100	39727	31005		
MEAN	1121	1205	1258	3321	2641	2221	1570	1713	7522	3197	1282	1033		
MAX	1320	1440	1540	13700	6030	6270	2570	2700	51200	26100	4540	1880		
MIN	1060	1140	1170	1140	1500	1320	1240	1120	1240	1230	987	451		
(†)	-170	-79	+142	+350	-117	+116	-292	-26	+821	-471	-450	-255		
MEAN†	951	1126	1400	3671	2524	2337	1278	1687	8343	2726	832	778		
CFSM†	.39	.47	.58	1.52	1.04	.97	.53	.70	3.45	1.13	.34	.32		
IN.†	.45	.52	.67	1.75	1.09	1.12	.59	.81	3.86	1.30	.40	.36		
CAL YR 1994	TOTAL	1041610	MEAN	2854	MAX	31500	MIN	1020	MEAN†	2821	CFSM†	1.17	IN.†	15.86
WTR YR 1995	TOTAL	851302	MEAN	2332	MAX	51200	MIN	451	MEAN†	2296	CFSM†	.95	IN.†	12.91

† 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.

## 02062500 ROANOKE (STAUNTON) RIVER AT BROOKNEAL, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1962, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1884	1762	2417	3019	3349	3603	3521	2512	1991	1726	2133	1731
MAX	8561	3861	7776	9381	6272	7071	6407	5789	4320	7125	14270	7430
(WY)	1938	1949	1949	1936	1960	1936	1935	1958	1929	1949	1940	1928
MIN	415	527	805	821	754	1666	1083	1132	714	489	384	371
(WY)	1931	1932	1932	1956	1934	1940	1942	1956	1926	1930	1932	1930

## SUMMARY STATISTICS

## WATER YEARS 1924 - 1962

ANNUAL MEAN	2466
HIGHEST ANNUAL MEAN	4386
LOWEST ANNUAL MEAN	1172
HIGHEST DAILY MEAN	113000
LOWEST DAILY MEAN	e191
ANNUAL SEVEN-DAY MINIMUM	207
INSTANTANEOUS PEAK FLOW	130000
INSTANTANEOUS PEAK STAGE	46.50
INSTANTANEOUS LOW FLOW	(a)
ANNUAL RUNOFF (CFSM)	1.02
ANNUAL RUNOFF (INCHES)	13.88
10 PERCENT EXCEEDS	4450
50 PERCENT EXCEEDS	1720
90 PERCENT EXCEEDS	744

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1626	1853	2025	2914	3151	4061	3632	2704	2143	1539	1409	1552
MAX	6446	8961	5564	7695	7291	11760	14410	7039	7522	4775	4675	7620
(WY)	1991	1986	1973	1978	1979	1993	1987	1978	1995	1972	1985	1987
MIN	325	553	637	867	953	561	921	836	405	683	411	512
(WY)	1964	1982	1964	1981	1981	1981	1981	1964	1964	1963	1964	1965

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1963 - 1995

ANNUAL TOTAL	1041610	851302	
ANNUAL MEAN	2854	2332	2379
HIGHEST ANNUAL MEAN			4440
LOWEST ANNUAL MEAN			853
HIGHEST DAILY MEAN	31500	Mar 29	51200
LOWEST DAILY MEAN	1020	Jul 10	c451
ANNUAL SEVEN-DAY MINIMUM	1040	Jul 8	c642
INSTANTANEOUS PEAK FLOW			73100
INSTANTANEOUS PEAK STAGE			37.39
INSTANTANEOUS LOW FLOW			c428
ANNUAL RUNOFF (CFSM)	1.18	.97	.99
ANNUAL RUNOFF (INCHES)	16.04	13.11	13.39
10 PERCENT EXCEEDS	5850	3020	4710
50 PERCENT EXCEEDS	1430	1380	1400
90 PERCENT EXCEEDS	1100	1080	515

a Probably less than 191 ft<sup>3</sup>/s.

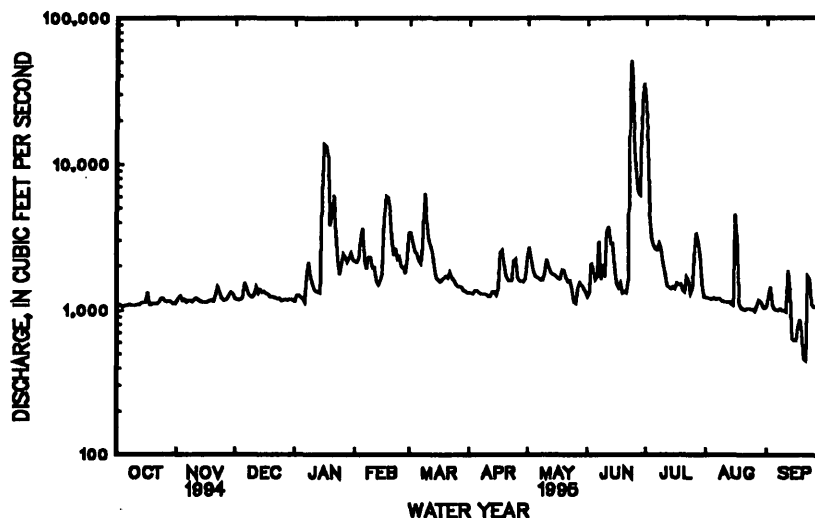
b Probably occurred Sept. 1, 2, 1932.

c Result of regulation.

d Lowest recorded discharge; may have been lower during period of no gage-height record, July 25, 26, 1966.

e Estimated.

f Also July 26, 1966.



## ROANOKE RIVER BASIN

## 02064000 FALLING RIVER NEAR NARUNA, VA

LOCATION.--Lat 37°07'36", long 78°57'36", Campbell County, Hydrologic Unit 03010102, on left bank at upstream side of bridge on State Highway 643, 2.7 mi northeast of Naruna, and 3.2 mi upstream from Little Falling River.

DRAINAGE AREA.--173 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1929 to January 1935, September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1930, 1931-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 412.32 ft above sea level. Prior to Jan. 15, 1935, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 5 and Feb. 7-9, and period of doubtful gage-height record, Aug. 1, 2, which are fair. Small diurnal fluctuation caused by gristmill at Spring Mills. Maximum discharge, 32,600 ft<sup>3</sup>/s, from rating curve extended above 7,100 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 2.18 ft, Oct. 9, 1932. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 26.5 ft, from floodmarks, discharge, 22,000 ft<sup>3</sup>/s, by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 6	2130	*3,780	*12.28	June 30	0045	2,560	9.73

Minimum daily discharge, 29 ft<sup>3</sup>/s, Sept. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	58	70	132	111	244	73	104	86	396	e82	38
2	49	59	66	79	150	191	73	427	318	885	e75	80
3	49	57	65	60	155	158	71	236	947	356	68	58
4	49	55	65	59	172	149	69	148	335	254	65	42
5	49	55	78	e54	178	143	67	120	190	215	62	38
6	49	56	81	104	127	148	65	102	990	219	61	36
7	48	57	73	271	e115	139	66	88	1290	448	68	36
8	48	55	68	176	e100	191	66	80	316	219	65	36
9	48	55	65	110	e88	473	65	75	281	158	63	34
10	50	64	65	89	107	235	65	189	556	132	62	34
11	50	74	81	79	92	177	65	166	983	124	59	34
12	48	64	81	77	90	150	70	113	1330	132	56	32
13	48	59	71	76	e75	134	115	91	621	120	53	32
14	64	59	77	75	82	122	89	84	287	115	50	32
15	84	58	80	425	119	113	75	85	234	136	48	30
16	62	58	73	413	262	107	70	77	180	150	46	30
17	56	58	71	194	361	101	70	72	152	137	44	70
18	54	60	71	137	233	95	72	72	132	118	42	57
19	53	59	68	116	185	91	71	126	120	97	40	42
20	52	57	65	496	162	89	67	97	112	88	38	37
21	54	94	64	244	145	94	65	75	104	96	37	37
22	51	127	64	159	129	89	65	68	112	166	37	56
23	61	80	64	127	118	85	62	64	1170	118	35	112
24	76	68	62	109	112	87	92	63	373	110	34	51
25	60	65	61	96	104	81	94	60	222	138	33	46
26	59	64	61	91	101	78	74	61	180	203	33	50
27	59	69	60	86	98	78	68	437	413	137	48	52
28	56	101	60	87	221	79	65	195	215	183	67	45
29	55	88	60	95	---	78	62	196	1490	122	47	39
30	55	76	59	96	---	77	85	158	1450	100	41	37
31	57	---	59	102	---	75	---	102	---	91	38	---
TOTAL	1703	2009	2108	4514	3992	4151	2176	4031	15189	5963	1597	1353
MEAN	54.9	67.0	68.0	146	143	134	72.5	130	506	192	51.5	45.1
MAX	84	127	81	496	361	473	115	437	1490	885	82	112
MIN	48	55	59	54	75	75	62	60	86	88	33	30
CFSM	.32	.39	.39	.84	.82	.77	.42	.75	2.93	1.11	.30	.26
IN.	.37	.43	.45	.97	.86	.89	.47	.87	3.27	1.28	.34	.29

e Estimated.

## 02064000 FALLING RIVER NEAR NARUNA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	101	124	157	194	230	259	215	163	122	91.3	82.1	102
MAX	399	639	482	636	683	844	552	606	898	334	400	691
(WY)	1973	1986	1949	1978	1979	1975	1987	1971	1972	1972	1985	1987
MIN	24.5	32.2	44.0	47.9	56.5	62.9	60.2	50.7	25.4	29.9	23.9	20.1
(WY)	1970	1970	1966	1966	1931	1981	1966	1981	1970	1970	1932	1970

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1930 - 1995

ANNUAL TOTAL	66561	48786	
ANNUAL MEAN	182	134	153
HIGHEST ANNUAL MEAN			287
LOWEST ANNUAL MEAN			60.9
HIGHEST DAILY MEAN	3790	Mar 28	14600
LOWEST DAILY MEAN	48	aOct 7	5.0
ANNUAL SEVEN-DAY MINIMUM	49	dOct 3	7.7
INSTANTANEOUS PEAK FLOW			32600
INSTANTANEOUS PEAK STAGE			29.21
INSTANTANEOUS LOW FLOW			3.0
ANNUAL RUNOFF (CFSM)	1.05	.77	.88
ANNUAL RUNOFF (INCHES)	14.31	10.49	12.00
10 PERCENT EXCEEDS	314	233	262
50 PERCENT EXCEEDS	94	77	93
90 PERCENT EXCEEDS	55	48	37

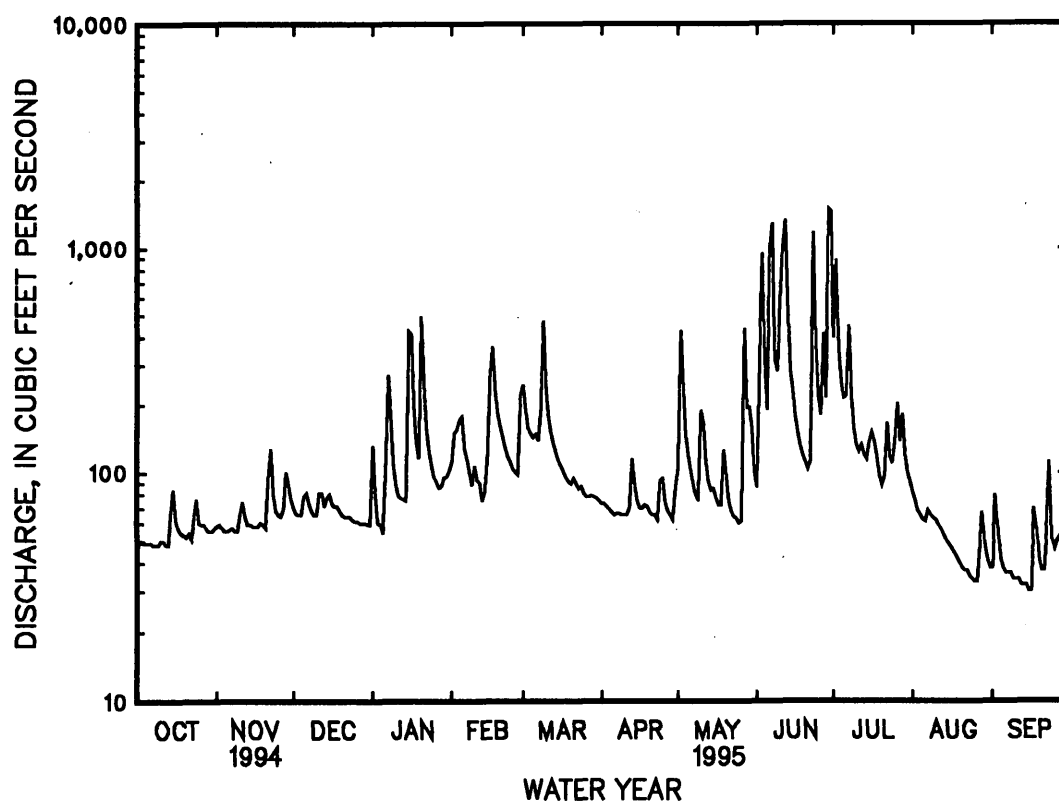
a Also Oct. 8, 9, 12, 13, 1994.

b Also Sept. 16, 1995.

c Also Oct. 9, 14, 1932.

d Also Oct. 4-7, 1994.

f Also Sept. 16, 1995.



## ROANOKE RIVER BASIN

## 02065500 CUB CREEK AT PHENIX, VA

LOCATION.--Lat 37°04'45", long 78°45'50", Charlotte County, Hydrologic Unit 03010102, on right bank 5 ft upstream from bridge on State Highway 40, 0.9 mi west of Phenix, 1.9 mi downstream from Rough Creek, and 6.4 mi upstream from Louse Creek.

DRAINAGE AREA.--98.0 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1333: 1947(M), 1948, 1949(M). WSP 2104: Drainage area. WDR VA-76-1: 1975.

GAGE.--Water-stage recorder. Datum of gage is 370.19 ft above sea level. Prior to July 14, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, Jan. 1-23, Feb. 9, and Apr. 2-26, and period with ice effect, Feb. 7, 8, which are fair. Maximum discharge, 10,600 ft<sup>3</sup>/s, from rating curve extended above 5,400 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow. Minimum gage height, 0.74 ft, Oct. 6, 1970. 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 Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of August 1940 reached a stage of 17.5 ft, from floodmarks, discharge not determined.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 28	0400	1,090	7.48	June 13	0100	*1,200	*7.89

Minimum discharge, 25 ft<sup>3</sup>/s, Aug. 26, 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	39	53	e65	76	141	54	89	72	138	39	31
2	30	39	50	e56	88	134	e52	216	76	117	38	41
3	30	37	49	e47	88	99	e52	342	188	101	36	41
4	31	36	49	e44	88	91	e53	118	181	80	35	33
5	30	36	52	e42	92	87	e51	90	134	72	34	31
6	31	39	54	e70	70	90	e51	77	94	68	33	31
7	30	40	50	e130	e63	87	e52	67	156	230	36	31
8	30	37	49	e115	e57	101	e52	62	110	220	36	31
9	30	37	47	e90	e53	306	e51	58	80	80	36	31
10	31	43	47	e72	65	345	e51	115	170	66	35	30
11	32	50	50	e65	58	128	e50	138	409	60	36	30
12	30	42	50	e58	59	103	e55	87	850	58	35	30
13	31	39	47	e57	53	90	e80	69	942	54	33	31
14	43	38	48	e55	51	82	e68	64	407	50	35	31
15	72	37	51	e190	68	77	e61	64	146	47	34	30
16	43	37	48	e450	137	75	e58	58	117	46	32	30
17	36	38	48	e310	190	71	e57	55	104	45	31	54
18	34	40	50	e170	138	68	e55	55	93	47	30	56
19	34	39	47	e110	105	65	e54	110	88	46	29	41
20	34	37	45	e160	93	64	e52	96	84	40	28	38
21	35	117	45	e130	86	69	e52	62	80	40	28	37
22	35	190	46	e100	78	68	e50	55	79	56	28	44
23	37	77	45	e81	73	63	e50	51	172	48	27	70
24	40	57	45	73	71	64	e60	49	120	44	26	52
25	37	52	44	65	67	59	e57	47	96	79	26	48
26	37	51	44	62	66	58	e52	50	92	51	25	57
27	40	52	43	59	65	58	50	281	195	47	34	53
28	38	75	43	59	89	57	48	787	128	72	56	48
29	37	65	43	63	---	57	46	200	398	78	38	44
30	37	56	43	63	---	56	56	116	291	50	32	43
31	37	---	44	72	---	55	---	86	---	43	31	---
TOTAL	1102	1572	1469	3183	2287	2968	1636	3814	6152	2273	1032	1198
MEAN	35.5	52.4	47.4	103	81.7	95.7	54.3	123	205	73.3	33.3	39.9
MAX	72	190	54	450	190	345	80	787	942	230	56	70
MIN	30	36	43	42	51	55	46	47	72	40	25	30
CFSM	.36	.53	.48	1.05	.83	.98	.55	1.26	2.09	.75	.34	.41
IN.	.42	.60	.56	1.21	.87	1.13	.62	1.45	2.34	.86	.39	.45

e Estimated.



## 02065500 CUB CREEK AT PHENIX, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	67.5	92.6	102	127	145	161	142	101	77.6	57.6	52.4	60.7
MAX	293	429	273	478	447	443	354	261	518	192	257	322
(WY)	1972	1986	1949	1978	1979	1975	1983	1971	1972	1972	1985	1987
MIN	14.0	22.7	27.9	35.1	56.4	51.7	50.4	37.8	15.7	19.5	16.2	8.03
(WY)	1971	1970	1966	1966	1968	1981	1966	1981	1970	1966	1964	1968

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1947 - 1995	
ANNUAL TOTAL	40233		28680			
ANNUAL MEAN	110		78.6		98.7	
HIGHEST ANNUAL MEAN					188	
LOWEST ANNUAL MEAN					36.1	
HIGHEST DAILY MEAN	1780	Mar 29	942	Jun 13	e6300	Jun 22 1972
LOWEST DAILY MEAN	30	aOct 1	25	Aug 26	2.8	bOct 6 1970
ANNUAL SEVEN-DAY MINIMUM	30	cOct 1	27	Aug 20	3.2	Oct 5 1970
INSTANTANEOUS PEAK FLOW			1200	Jun 13	10600	Sep 8 1987
INSTANTANEOUS PEAK STAGE			7.89	Jun 13	d20.37	Jun 22 1972
INSTANTANEOUS LOW FLOW			25	fAug 26	2.6	Oct 6 1970
ANNUAL RUNOFF (CFSM)	1.12		.80		1.01	
ANNUAL RUNOFF (INCHES)	15.27		10.89		13.69	
10 PERCENT EXCEEDS	181		132		170	
50 PERCENT EXCEEDS	69		54		64	
90 PERCENT EXCEEDS	38		32		26	

a Also Oct. 2, 3, 5, 7-9, 12, 1994.

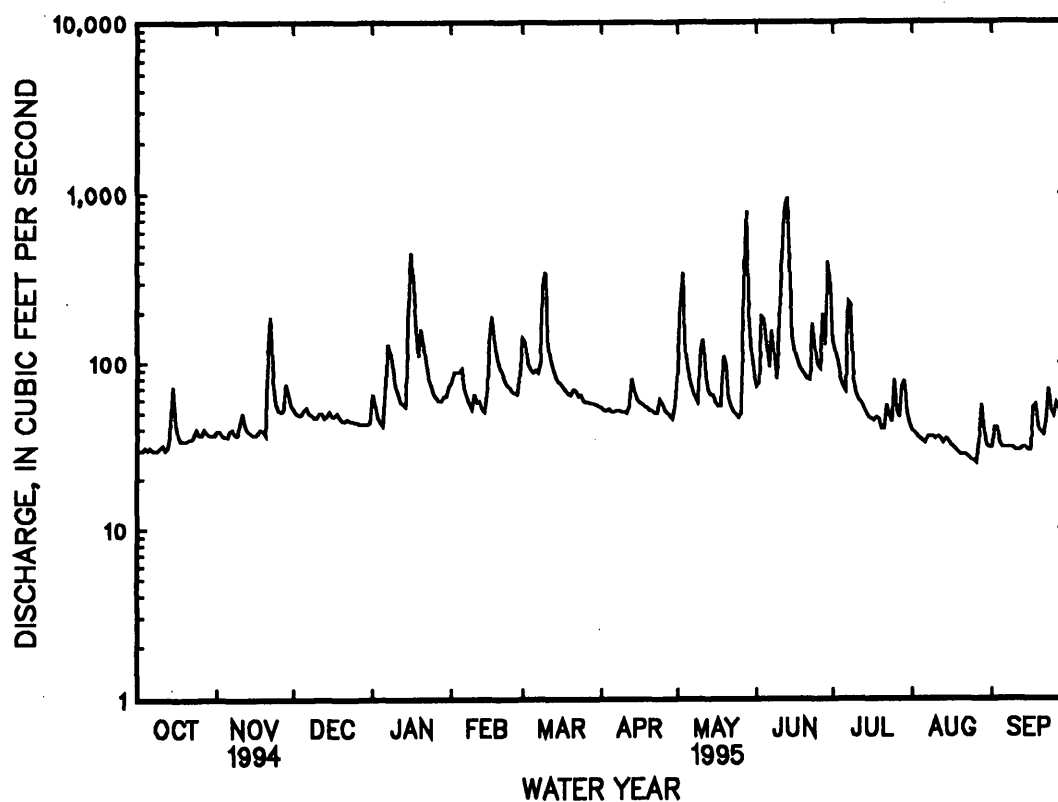
b Also Oct. 7, 1970.

c Also Oct. 2-4, 1994.

d From high-water mark in gage house, peak discharge, 7,380 ft<sup>3</sup>/s, result of backwater.

e Estimated.

f Also Aug. 27, 1995.



## ROANOKE RIVER BASIN

## 02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA

LOCATION.--Lat 36°54'54", long 78°44'28", Halifax County, Hydrologic Unit 03010102, on right bank 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 mi<sup>2</sup>.

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 sea level. 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 for period of doubtful gage-height record, Sept. 14-20, which is 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. Maximum discharge, 97,000 ft<sup>3</sup>/s, from graph based on gage readings, site and datum then in use. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 16, 1940, reached a stage of 41.6 ft, present site and datum, discharge, 150,000 ft<sup>3</sup>/s, from information by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 53,600 ft<sup>3</sup>/s, June 24, gage height, 29.93 ft; minimum daily, 578 ft<sup>3</sup>/s, Sept. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1320	1350	1470	1270	2450	3680	1450	2180	1550	37100	1530	1140
2	1280	1380	1370	1320	2360	4400	1450	3410	1430	29500	1510	1330
3	1270	1480	1350	1420	2450	3710	1430	3930	3200	14000	1460	1600
4	1260	1400	1340	1350	3040	3210	1440	2840	3270	6210	1430	1510
5	1230	1370	1370	1310	4310	2860	1480	2230	2710	4810	1400	1190
6	1240	1370	1480	1210	3500	2760	1460	2040	1930	4080	1400	1120
7	1270	1340	1790	1630	1940	2460	1420	1960	4870	4310	1360	1110
8	1270	1370	1540	2800	2300	2720	1420	1880	3140	4580	1400	1120
9	1280	1340	1430	2380	2540	7510	1420	1830	2590	4050	1370	1120
10	1250	1340	1390	1900	2230	6980	1400	1970	2780	3180	1340	1100
11	1240	1440	1400	1680	2050	4320	1380	2700	5490	2580	1350	1080
12	1260	1440	1530	1580	1880	3670	1350	2660	6750	2120	1320	1360
13	1270	1370	1570	1560	1580	3100	1550	2230	7340	1890	1290	2260
14	1340	1330	1480	1550	1490	2800	1660	2090	4990	1800	1290	e1000
15	1460	1320	1530	4500	1720	2070	1510	2020	3640	1730	1230	e720
16	1430	1300	1520	18300	3560	1940	1410	1980	2410	1830	3070	e670
17	1370	1300	1500	18500	7080	1870	2020	1880	1920	1890	5170	e850
18	1550	1310	1470	14400	7260	1820	3020	1830	1890	1840	1810	e1000
19	1280	1350	1420	7580	6370	1890	2600	1970	1750	1810	1220	e930
20	1310	1350	1380	4270	4250	1870	2110	2450	1580	1690	1160	e720
21	1330	2030	1370	7710	3190	1980	1870	2060	1600	1600	1120	578
22	1310	2660	1350	5360	2910	1940	1780	1840	1560	1690	1120	734
23	1330	1920	1330	3560	2650	2010	1750	1750	14700	2110	1120	2700
24	1420	1570	1310	2210	2670	1860	1990	1770	47600	1700	1090	1540
25	1460	1420	1290	2020	2340	1770	2620	1360	40400	1650	1080	1280
26	1410	1380	1260	2590	2130	1640	2260	1240	18900	1890	1050	1240
27	1370	1380	1280	2630	2090	1610	1810	1520	10400	4270	1070	1240
28	1360	1470	1270	2430	1970	1610	1760	2620	9910	4050	1440	1220
29	1370	1580	1270	2300	---	1570	1750	2490	13400	3790	1380	1220
30	1350	1560	1270	2740	---	1500	1750	2040	32100	2410	1270	1120
31	1330	---	1270	2550	---	1470	---	1720	---	1730	1180	---
TOTAL	41220	44220	43600	126610	84310	84600	52320	66490	255800	157890	46030	35802
MEAN	1330	1474	1406	4084	3011	2729	1744	2145	8527	5093	1485	1193
MAX	1550	2660	1790	18500	7260	7510	3020	3930	47600	37100	5170	2700
MIN	1230	1300	1260	1210	1490	1470	1350	1240	1430	1600	1050	578
(†)	-170	-79	+142	+350	-117	+116	-292	-26	+821	-471	-450	-255
MEAN‡	1160	1395	1548	4434	2894	2845	1452	2119	9348	4622	1035	938
CFSM‡	.39	.47	.52	1.49	.97	.96	.49	.71	3.14	1.55	.35	.32
IN.‡	.45	.52	.60	1.72	1.01	1.10	.54	.82	3.50	1.79	.40	.35

CAL YR 1994 TOTAL 1248470 MEAN 3420 MAX 34700 MIN 1220 MEAN‡ 3387 CFSM‡ 1.14 IN.‡ 15.45  
WTR YR 1995 TOTAL 1038892 MEAN 2846 MAX 47600 MIN 578 MEAN‡ 2810 CFSM‡ .94 IN.‡ 12.82

† 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.

## 02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1901-1906, 1928-1930, 1951-1962, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2434	2112	3590	3457	4788	5322	4969	3197	2755	1970	2530	2181
MAX	6861	4104	9620	6419	11120	11010	9620	8793	4829	6484	13185	8928
(WY)	1930	1958	1902	1902	1902	1903	1901	1901	1929	1905	1901	1928
MIN	782	844	1125	1026	2047	2633	2220	1435	1037	620	450	410
(WY)	1954	1954	1956	1956	1959	1956	1930	1956	1956	1930	1930	1930

## SUMMARY STATISTICS

WATER YEARS 1901 - 1906,  
1928 - 1930,  
1951 - 1962

ANNUAL MEAN	3357
HIGHEST ANNUAL MEAN	5727
LOWEST ANNUAL MEAN	1501
HIGHEST DAILY MEAN	75100
LOWEST DAILY MEAN	256
ANNUAL SEVEN-DAY MINIMUM	284
INSTANTANEOUS PEAK FLOW	97000
INSTANTANEOUS PEAK STAGE	35.00
INSTANTANEOUS LOW FLOW	256
ANNUAL RUNOFF (CFSM)	1.13
ANNUAL RUNOFF (INCHES)	15.31
10 PERCENT EXCEEDS	6030
50 PERCENT EXCEEDS	2230
90 PERCENT EXCEEDS	1040

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2064	2337	2533	3623	3901	5016	4394	3376	2625	1912	1680	1929
MAX	7906	11230	6163	9532	9131	13970	17570	10060	10260	5635	5988	9952
(WY)	1991	1986	1973	1978	1979	1975	1987	1978	1972	1972	1985	1987
MIN	428	789	1054	1085	1549	769	1270	1038	491	859	493	662
(WY)	1964	1982	1966	1966	1981	1981	1981	1964	1964	1964	1964	1963

## SUMMARY STATISTICS

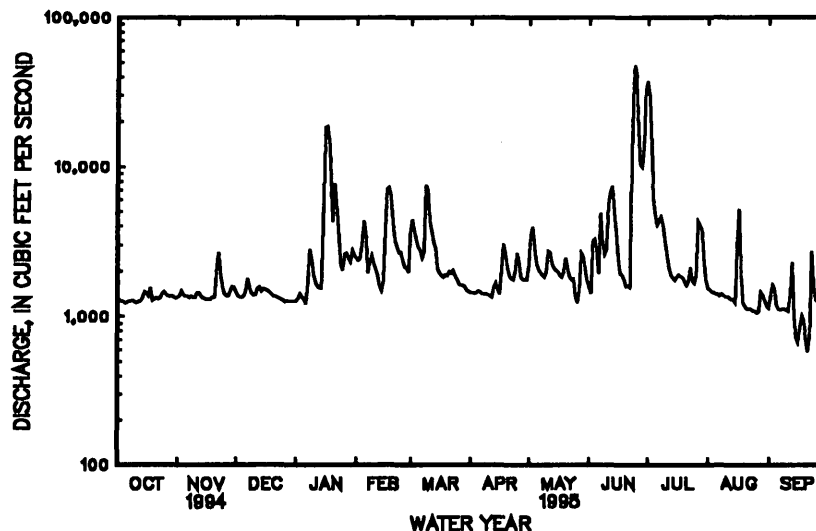
FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1963 - 1995

ANNUAL TOTAL	1248470	1038892	
ANNUAL MEAN	3420	2846	2943
HIGHEST ANNUAL MEAN			5102
LOWEST ANNUAL MEAN			1151
HIGHEST DAILY MEAN	34700	Mar 30	47600
LOWEST DAILY MEAN	1220	aSep 15	b578
ANNUAL SEVEN-DAY MINIMUM	1250	Sep 12	b781
INSTANTANEOUS PEAK FLOW			53600
INSTANTANEOUS PEAK STAGE			29.93
INSTANTANEOUS LOW FLOW			b559
ANNUAL RUNOFF (CFSM)	1.15	.96	.99
ANNUAL RUNOFF (INCHES)	15.60	12.98	13.43
10 PERCENT EXCEEDS	7000	4290	5650
50 PERCENT EXCEEDS	1900	1610	1770
90 PERCENT EXCEEDS	1310	1240	820

- a Also Sept. 16, 1994.  
b Result of regulation.  
c Also July 7, 1970.  
d Also Sept. 9, 1965.



## ROANOKE RIVER BASIN

## 02067800; 02067820 TALBOTT AND TOWNES RESERVOIRS NEAR KIBLER, VA

LOCATION.--Talbot Dam: Lat 36°40'39", long 80°23'52", Patrick County, Hydrologic Unit 03010103, on Dan River 4.5 mi northeast of Kibler. Townes Dam: Lat 36°41'10", long 80°25'50", Patrick County, Hydrologic Unit 03010103, on Dan River about 4 mi north of Kibler.

DRAINAGE AREA.--Talbot Dam, 20.2 mi<sup>2</sup>; Townes Dam, 32.9 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1939 to December 1945, January 1948 to September 1960 (published in WSP 1723), and October 1960 to current year.

REMARKS.--The two reservoirs are operated as a unit for storage of water for Pinnacles hydroelectric plant. Total capacity of Talbot Reservoir, 8,040 acre-ft, and Townes Reservoir, 1,380 acre-ft. Storage began in Talbot Reservoir on Feb. 13, 1939, and in Townes Reservoir several months earlier.

COOPERATION.--Records were provided by the city of Danville.

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MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

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Date	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	6,290	-
Oct. 31.....	6,420	+130
Nov. 30.....	7,680	+1,260
Dec. 31.....	7,130	-550
CAL YR 1994.....		+1,470
Jan. 31.....	7,670	+540
Feb. 28.....	5,090	-2,580
Mar. 31.....	5,190	+100
Apr. 30.....	5,700	+510
May 31.....	5,580	-120
June 30.....	6,020	+440
July 31.....	4,810	-1,210
Aug. 31.....	3,900	-910
Sept. 30.....	3,580	-320
WTR YR 1995.....		-2,710

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## ROANOKE RIVER BASIN

## 02068500 DAN RIVER NEAR FRANCISCO, NC

LOCATION.--Lat 3630'53", long 8018'11", Stokes County, Hydrologic Unit 03010103, on left bank 200 ft upstream from bridge on State Highway 704, 700 ft downstream of remains of Georges Mill, 0.2 mi downstream of Elk Creek, 3 mi east of Francisco, and 7.9 mi downstream of Little Dan River.

DRAINAGE AREA.--129 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1924 to September 1987. December 1991 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1303: 1938-50 (monthly runoff). WSP 1433: 1925-26, 1928-29, 1931, 1942, 1948. WDR NC-80-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 831.99 ft above sea level. Prior to Nov. 15, 1929, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good except those for discharges above 1,000 ft<sup>3</sup>/s, which are fair. Since 1938, considerable diurnal fluctuation and regulation by Talbott and Townes Reservoirs (stations 02067800 and 02067820, respectively) and Pinnacles Hydroelectric Plant in Virginia, 28 mi upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1916 reached a stage of about 15 ft, from information by local residents, discharge, 16,000 ft<sup>3</sup>/s.

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

## DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	129	116	148	264	296	140	141	111	196	169	150
2	117	118	112	135	251	236	135	213	136	172	158	105
3	117	110	112	131	247	247	151	161	166	161	158	87
4	116	109	126	132	271	255	127	137	140	153	132	87
5	114	110	234	149	265	213	123	129	121	142	127	87
6	113	110	187	182	275	213	130	125	121	165	95	84
7	112	107	278	368	284	208	129	121	120	157	93	83
8	110	106	360	213	250	282	128	125	151	130	93	80
9	112	106	349	189	335	386	128	136	162	115	92	77
10	121	117	213	179	312	313	132	284	115	114	93	82
11	115	116	261	170	311	247	126	327	129	158	93	79
12	109	108	186	154	308	219	127	235	126	164	90	81
13	108	107	159	151	304	263	144	147	129	161	88	79
14	112	108	163	367	308	260	126	157	137	163	96	76
15	103	106	164	1870	348	258	123	152	109	167	162	74
16	95	105	200	612	374	238	121	220	111	168	127	80
17	97	104	220	453	316	219	123	144	124	143	102	101
18	103	104	213	366	268	216	122	183	107	181	117	81
19	131	103	198	307	250	215	120	261	124	174	126	76
20	127	102	192	407	232	212	189	132	129	124	93	73
21	114	156	140	337	225	222	145	142	110	120	89	73
22	109	142	134	322	217	186	115	115	129	123	89	76
23	427	119	134	297	215	182	113	112	250	100	80	83
24	214	111	131	267	212	163	124	124	291	104	79	80
25	132	108	129	258	189	152	118	169	263	154	79	81
26	126	107	130	273	187	144	114	182	199	151	78	80
27	116	119	131	311	189	137	132	154	265	146	183	78
28	111	133	114	309	330	137	150	120	198	145	185	72
29	110	130	125	299	---	141	156	118	331	164	104	72
30	110	123	118	281	---	139	158	115	214	169	95	72
31	112	---	125	255	---	136	---	107	---	118	94	---
TOTAL	3932	3433	5454	9892	7537	6735	3969	4988	4818	4602	3459	2489
MEAN	127	114	176	319	269	217	132	161	161	148	112	83.0
MAX	427	156	360	1870	374	386	189	327	331	196	185	150
MIN	95	102	112	131	187	136	113	107	107	100	78	72
†	+2	+21	-9	+9	-46	+2	+8	-1	+7	-20	-15	-5
‡	129	135	167	328	223	219	140	160	168	128	97	78.0

† Change in contents, equivalent in cubic feet per second, in Talbott and Townes Reservoirs provided by City of Danville, Virginia.

‡ Adjusted for change in contents.

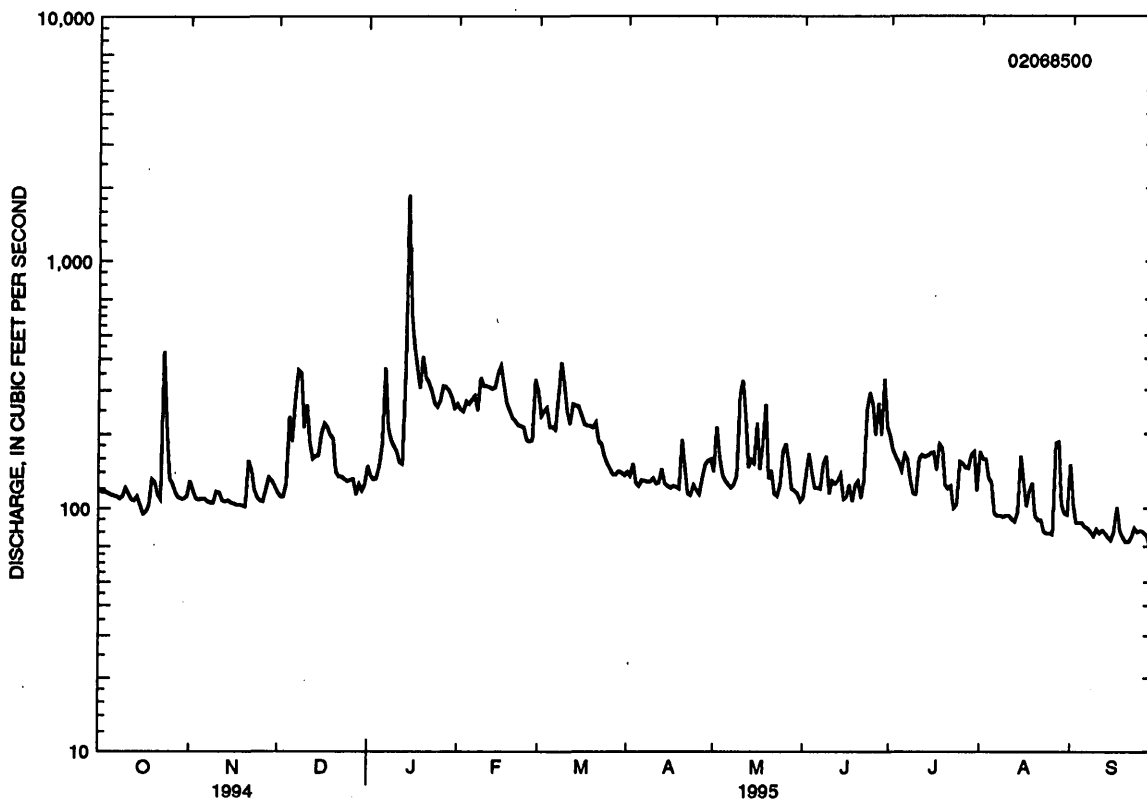
## 02068500 DAN RIVER NEAR FRANCISCO, NC--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1995\*, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	153	159	177	198	222	263	272	221	199	171	168	150
MAX	543	327	337	424	463	571	677	405	438	373	514	630
(WY)	1938	1980	1974	1978	1960	1993	1980	1949	1972	1938	1940	1979
MIN	49.7	61.3	85.6	76.2	94.9	94.2	120	109	78.3	54.8	52.5	50.4
(WY)	1964	1954	1961	1956	1956	1981	1967	1986	1967	1986	1981	1968

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1938 - 1995*	
ANNUAL TOTAL	85049		61308			
ANNUAL MEAN	233		168		196	
HIGHEST ANNUAL MEAN	†225		†164		300	
LOWEST ANNUAL MEAN					97.5	
HIGHEST DAILY MEAN	2260		1870		6830	
LOWEST DAILY MEAN	91		72		27	
ANNUAL SEVEN-DAY MINIMUM	104		76		28	
INSTANTANEOUS PEAK FLOW			4280		21200	
INSTANTANEOUS PEAK STAGE			6.73		19.50	
INSTANTANEOUS LOW FLOW			68		7.1	
ANNUAL RUNOFF (CFSM)	1.81		1.30		1.52	
ANNUAL RUNOFF (INCHES)	24.53		17.68		20.69	
10 PERCENT EXCEEDS	386		281		317	
50 PERCENT EXCEEDS	171		133		157	
90 PERCENT EXCEEDS	111		93		85	

- † Adjusted for change in contents.  
 \* Regulated period only (1938-1995).  
 • See PERIOD OF RECORD.



## 02069700 SOUTH MAYO RIVER NEAR NETTLERIDGE, VA

LOCATION.--Lat 36°34'15", long 80°07'47", Patrick County, Hydrologic Unit 03010103, on right bank 60 ft downstream from bridge on State Highway 700, 1.2 mi southeast of Nettleridge, 1.4 mi downstream from Russell Creek, and 3.6 mi upstream from Spoon Creek.

DRAINAGE AREA.--84.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-74-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 871.60 ft above sea level. Prior to Oct. 9, 1964, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except those for period of doubtful gage-height record, Jan. 17-19, and period with ice effect, Feb. 7-9, which are fair. Maximum discharge, 20,600 ft<sup>3</sup>/s, from rating curve extended above 2,900 ft<sup>3</sup>/s on basis of contracted-opening measurements at gage heights 18.32 ft and 22.00 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0800	*1,710	*8.01	No other peak equal to or greater than base discharge.			

Minimum discharge, 34 ft<sup>3</sup>/s, Aug. 26, Sept. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	90	77	101	131	193	101	83	80	120	52	45
2	67	80	74	86	129	174	100	198	95	97	51	57
3	68	75	73	79	125	162	99	108	106	85	49	43
4	68	73	74	77	147	159	98	95	86	84	48	41
5	66	73	216	74	130	155	96	91	79	82	46	40
6	65	73	153	80	124	157	96	86	82	77	46	40
7	65	71	120	228	e120	151	96	82	83	80	45	39
8	65	70	103	151	e110	229	95	80	74	70	47	38
9	68	70	94	122	e100	242	93	80	70	65	47	37
10	72	80	92	107	114	176	93	193	70	63	46	37
11	65	81	157	99	113	160	92	198	96	62	45	38
12	65	72	127	101	109	149	95	126	93	60	43	38
13	65	71	112	96	105	141	107	110	78	59	41	37
14	82	70	109	205	105	137	93	121	70	57	40	36
15	73	69	112	1100	139	133	91	102	67	55	39	35
16	66	69	102	556	197	129	90	92	68	55	38	39
17	65	69	99	e280	175	125	90	90	75	82	36	61
18	64	69	96	e200	156	122	89	89	66	63	67	44
19	66	69	91	e173	145	119	88	122	70	55	110	41
20	71	67	87	274	137	118	87	92	78	53	50	39
21	66	122	85	187	131	130	88	85	69	53	43	39
22	65	120	83	165	123	118	85	81	82	52	41	43
23	170	85	83	153	120	115	84	79	160	51	38	45
24	101	76	80	144	117	112	94	77	176	50	36	42
25	82	73	78	136	112	108	88	75	130	57	36	43
26	82	72	77	132	111	106	84	106	95	84	36	43
27	79	75	76	127	112	107	82	122	225	57	117	41
28	75	92	75	154	211	106	81	107	142	87	99	39
29	74	89	75	150	---	104	79	97	331	75	55	37
30	74	81	74	138	---	103	82	89	135	69	48	37
31	77	---	75	136	---	102	---	80	---	57	44	---
TOTAL	2299	2346	3029	5811	3648	4342	2736	3236	3131	2116	1579	1234
MEAN	74.2	78.2	97.7	187	130	140	91.2	104	104	68.3	50.9	41.1
MAX	170	122	216	1100	211	242	107	198	331	120	117	61
MIN	64	67	73	74	100	102	79	75	66	50	36	35
CFSM	.88	.92	1.15	2.22	1.54	1.66	1.08	1.23	1.23	.81	.60	.49
IN.	1.01	1.03	1.33	2.56	1.60	1.91	1.20	1.42	1.38	.93	.69	.54

e Estimated.



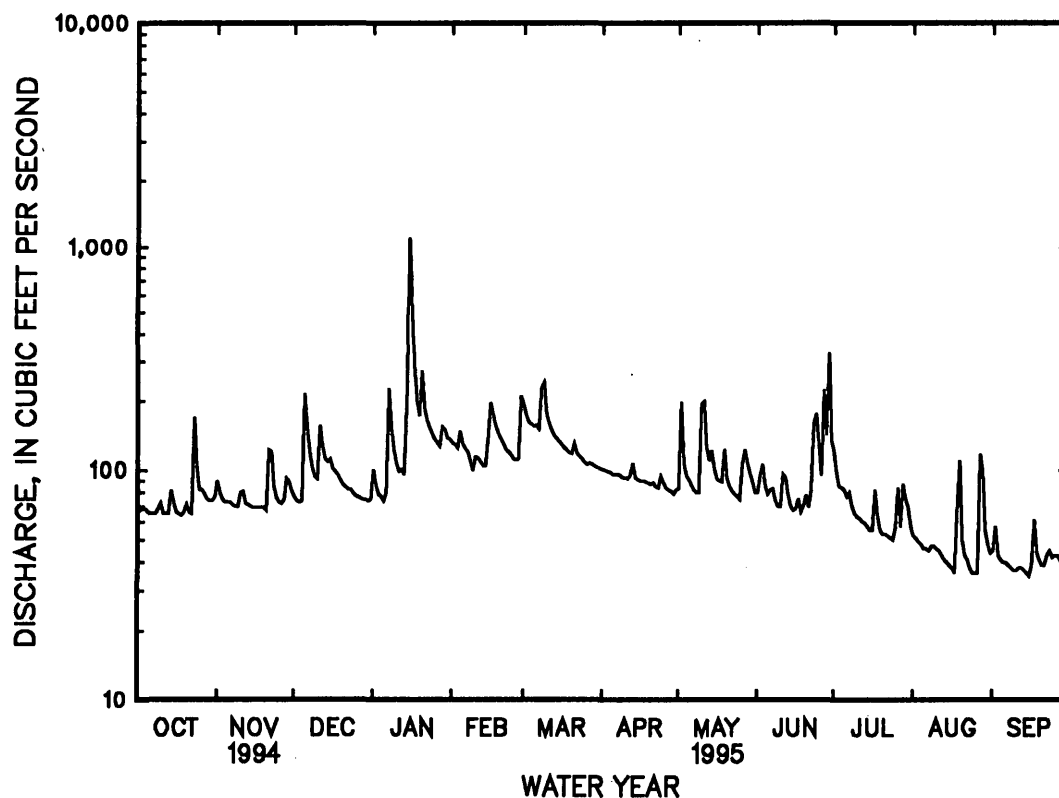
## 02069700 SOUTH MAYO RIVER NEAR NETTLERIDGE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	104	109	119	142	154	190	185	150	130	113	101	93.2
MAX	304	339	232	261	351	423	497	295	435	303	407	417
(WY)	1990	1986	1973	1993	1990	1993	1987	1990	1972	1989	1985	1979
MIN	37.1	45.0	55.5	48.6	77.6	65.0	69.7	56.5	45.4	43.2	28.0	40.2
(WY)	1964	1982	1981	1981	1981	1981	1967	1981	1986	1977	1981	1968

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1963 - 1995	
ANNUAL TOTAL	56200		35507			
ANNUAL MEAN	154		97.3		132	
HIGHEST ANNUAL MEAN					206	
LOWEST ANNUAL MEAN					59.3	
HIGHEST DAILY MEAN	1500		1100		6820	
LOWEST DAILY MEAN	64		35		21	
ANNUAL SEVEN-DAY MINIMUM	66		37		22	
INSTANTANEOUS PEAK FLOW			1710		20600	
INSTANTANEOUS PEAK STAGE			8.01		22.00	
INSTANTANEOUS LOW FLOW			34		20	
ANNUAL RUNOFF (CFSM)	1.82		1.15		1.56	
ANNUAL RUNOFF (INCHES)	24.71		15.61		21.25	
10 PERCENT EXCEEDS	260		153		218	
50 PERCENT EXCEEDS	117		83		100	
90 PERCENT EXCEEDS	73		43		52	

a Also Aug. 30, 1981.  
b Also Sept. 10, 1995.  
c Also Sept. 15, 16, 1995.



## 02070000 NORTH MAYO RIVER NEAR SPENCER, VA

LOCATION.--Lat 36°34'05", long 79°59'15", Henry County, Hydrologic Unit 03010103, on left bank 800 ft downstream from bridge on State Highway 629 at Moores Mill, 2.1 mi downstream from Horse Pasture Creek, and 3.8 mi southeast of Spencer.

DRAINAGE AREA.--108 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1303: 1929-32(M), 1934(M).

GAGE.--Water-stage recorder. Datum of gage is 730.94 ft above sea level (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 except those for period with ice effect, Feb. 7-9, and period of no gage-height record, Mar. 30 to Apr. 25, which are fair. Maximum discharge, 17,200 ft<sup>3</sup>/s, from rating curve extended above 7,200 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 13.41 ft and velocity-area study. Minimum gage height, 1.08 ft, Oct. 8, 1954. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1130	1,760	5.30	June 29	0730	*2,790	*6.65

Minimum discharge, 42 ft<sup>3</sup>/s, Aug. 26, gage height, 1.34 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	89	87	103	125	205	e83	71	75	185	74	57
2	70	88	85	92	123	185	e82	202	111	156	70	86
3	71	82	84	85	116	146	e81	109	150	124	68	59
4	71	81	86	83	134	137	e80	87	108	117	66	54
5	70	81	212	79	123	130	e79	80	88	111	63	52
6	69	82	158	108	108	130	e78	75	87	103	61	51
7	71	81	116	287	e102	124	e77	71	93	152	60	50
8	73	78	103	178	e98	189	e76	69	80	114	61	49
9	71	80	96	128	e94	390	e74	69	74	92	62	48
10	76	86	96	111	110	188	e75	142	84	86	61	48
11	69	97	135	104	103	154	e77	222	257	83	60	47
12	68	84	117	103	100	138	e80	124	207	79	57	48
13	70	82	104	99	93	127	e90	99	119	76	55	47
14	93	81	103	110	97	122	e82	99	94	74	54	46
15	84	81	108	1060	119	116	e81	91	83	74	53	45
16	73	81	100	419	192	112	e80	83	82	72	52	50
17	71	81	98	213	177	109	e79	80	79	91	50	83
18	70	81	96	161	147	105	e78	80	74	120	49	61
19	72	80	92	143	135	103	e77	114	74	78	49	55
20	84	78	89	293	125	102	e75	89	81	72	50	53
21	76	114	88	188	118	111	e78	79	73	70	48	52
22	73	134	88	150	110	103	e75	75	87	479	48	58
23	121	94	87	134	108	98	e74	73	155	183	46	63
24	106	86	85	124	105	96	e80	71	206	94	44	56
25	87	84	83	117	101	92	e76	69	163	97	44	55
26	86	83	83	112	100	91	71	72	111	125	43	57
27	88	88	82	107	99	92	70	168	289	93	74	55
28	83	102	82	123	161	92	69	108	192	90	112	52
29	82	98	83	147	---	90	67	104	1450	92	64	49
30	82	91	82	125	---	e88	69	86	302	109	57	49
31	83	---	82	125	---	e85	---	77	---	80	54	---
TOTAL	2434	2628	3090	5411	3323	4050	2313	3038	5128	3571	1809	1635
MEAN	78.5	87.6	99.7	175	119	131	77.1	98.0	171	115	58.4	54.5
MAX	121	134	212	1060	192	390	90	222	1450	479	112	86
MIN	68	78	82	79	93	85	67	69	73	70	43	45
CFSM	.73	.81	.92	1.62	1.10	1.21	.71	.91	1.58	1.07	.54	.50
IN.	.84	.91	1.06	1.86	1.14	1.39	.80	1.05	1.77	1.23	.62	.56

e Estimated.

## 02070000 NORTH MAYO RIVER NEAR SPENCER, VA--Continued

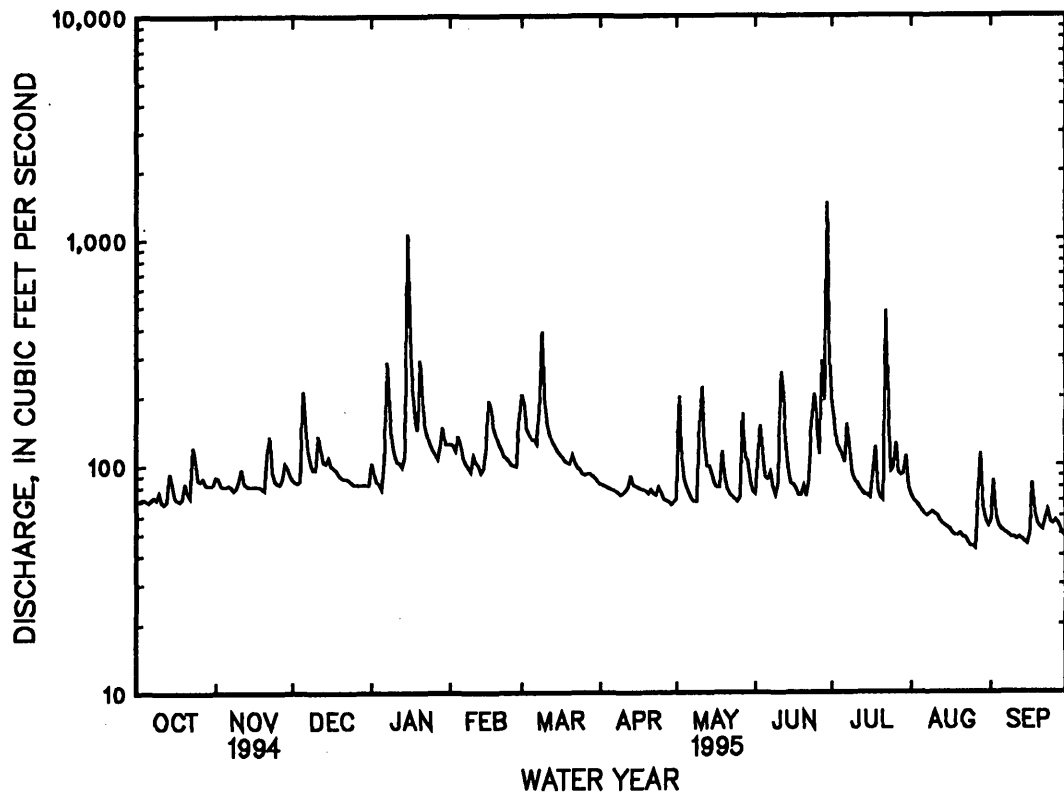
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	118	109	127	147	161	186	171	138	125	109	102	105
MAX	498	391	426	368	414	479	570	329	470	320	446	462
(WY)	1938	1986	1951	1937	1951	1993	1951	1972	1972	1989	1985	1987
MIN	30.4	33.8	43.5	40.6	49.6	85.5	67.1	58.0	45.0	35.2	26.0	25.7
(WY)	1932	1932	1956	1956	1931	1981	1967	1956	1956	1956	1981	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1929 - 1995	
ANNUAL TOTAL	57482		38430			
ANNUAL MEAN	157		105		133	
HIGHEST ANNUAL MEAN					299	
LOWEST ANNUAL MEAN					62.6	
HIGHEST DAILY MEAN	2070		1450		7460	
LOWEST DAILY MEAN	68		43		15	
ANNUAL SEVEN-DAY MINIMUM	70		46		18	
INSTANTANEOUS PEAK FLOW			2790		17200	
INSTANTANEOUS PEAK STAGE			6.65		15.80	
INSTANTANEOUS LOW FLOW			42		15	
ANNUAL RUNOFF (CFSM)	1.46		.97		1.23	
ANNUAL RUNOFF (INCHES)	19.80		13.24		16.74	
10 PERCENT EXCEEDS	241		151		210	
50 PERCENT EXCEEDS	111		86		96	
90 PERCENT EXCEEDS	81		56		51	

a Also Oct. 1, 1994.

b Also Aug. 15, 1956.



## ROANOKE RIVER BASIN

02071510 SMITH RIVER ABOVE ROUTE 615, NEAR WOOLWINE, VA

LOCATION.--Lat 36°45'48", long 80°16'22", Patrick County, Hydrologic Unit 03010103, 100 ft upstream from bridge on State Highway 615, 200 ft south of Jacks Creek Church, and 1.8 mi south of Woolwine.

PERIOD OF RECORD.--October 1994 to August 1995.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	HARD- NESS TOTAL (MG/L AS CaCO3) (00900)
OCT										
17...	1500	13.2	51	7.0	19.0	12.5	734	9.8	95	17
NOV										
14...	1500	11.6	47	7.5	18.0	11.5	734	9.6	91	15
DEC										
14...	0930	33.7	44	7.0	8.0	6.5	735	12	100	15
MAR										
29...	1400	21.1	42	6.6	21.0	14.0	725	12	127	14
MAY										
23...	1300	17.6	43	7.0	24.0	17.5	734	9.4	102	15
JUN										
20...	1400	13.4	46	6.5	26.5	18.5	727	8.7	97	18
JUL										
18...	1430	14.3	47	6.9	30.0	23.0	726	8.1	99	15
AUG										
15...	1300	7.71	51	6.7	23.5	23.5	731	8.0	98	17

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)
OCT									
17...	4.1	1.6	<1	--	<1	<1	<1	<1	<0.1
NOV									
14...	3.7	1.5	<1	--	9	<1	<1	<1	<0.1
DEC									
14...	3.5	1.4	10	0	13	<1	<1	<1	<0.1
MAR									
29...	3.5	1.3	1	0	5	<1	<1	<1	<0.1
MAY									
23...	3.4	1.5	9	3	6	1	<1	<1	<0.1
JUN									
20...	4.8	1.4	8	0	8	<1	<1	<1	<0.1
JUL									
18...	3.5	1.5	11	3	8	<1	<1	<1	<0.1
AUG									
15...	4.3	1.6	3	--	<1	<1	<1	<1	<0.1

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

02071510 SMITH RIVER ABOVE ROUTE 615, NEAR WOOLWINE, VA

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR) (01032)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)
OCT 17...	<1	<0.5	<1	<1	0.9	<1	<0.5	<0.10	<0.1
NOV 14...	<1	0.6	<1	<1	<0.5	<1	<0.5	<0.10	<0.1
DEC 14...	1.4	<0.5	<1	<1	<0.5	<1	<0.5	<0.10	<0.1
MAR 29...	<1	<0.5	<1	<1	<0.5	<1	<0.5	<0.10	<0.1
MAY 23...	<1	0.6	<1	<1	<0.5	<1	<0.5	<0.10	<0.1
JUN 20...	<1	<0.5	<1	<1	<0.5	<1	<0.5	<0.10	<0.1
JUL 18...	1	<0.5	<1	1	<0.5	<1	<0.5	<0.10	<0.1
AUG 15...	<1	<0.5	1	<1	<0.5	<1	<0.5	<0.10	<0.1

DATE	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 17...	<1	<1	<1	<1	<1	<1.0	<10	1.7	1.0
NOV 14...	<1	<1	<1	<1	<1	<1.0	<10	2.0	1.1
DEC 14...	<1	<1	<1	<1	<1	<1.0	10	2.5	1.8
MAR 29...	<1	<1	<1	<1	<1	<0.2	<10	1.0	0.8
MAY 23...	<1	<1	<1	<1	<1	<0.2	<10	1.9	1.4
JUN 20...	<1	<1	<1	<1	<1	<0.2	<10	1.2	1.8
JUL 18...	<1	<1	<1	<1	<1	<0.2	<10	1.1	2.6
AUG 15...	<1	<1	<1	<1	<1	<0.2	<10	0.7	1.5

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

## 02071530 SMITH RIVER AT SMITH RIVER CHURCH NEAR WOOLWINE, VA

LOCATION.--Lat 36°46'42", long 80°14'58", Patrick County, Hydrologic Unit 03010103, on left bank 10 ft downstream from bridge on State Highway 708, 119 miles southeast of Woolwine, and 29 miles upstream from Philpott Dam.

DRAINAGE AREA.--26.7 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1994 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 210 ft above sea level, from topographic map.

REMARKS.--Records good except for period of no gage-height record, Oct. 1-21, and period of ice effect Feb. 6-9, which is fair. Several observations of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October to September, 1,340 ft<sup>3</sup>/s Jan.15, gage height 8.23 ft; minimum, 4.6 ft<sup>3</sup>/s, Aug. 22, gage height, 2.60 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e21	50	32	50	60	72	37	30	26	33	17	16
2	e21	33	30	39	60	63	36	73	31	29	16	15
3	e21	29	30	36	57	61	35	36	33	27	16	13
4	e21	27	80	34	69	59	35	33	27	28	15	12
5	e21	25	130	34	59	57	34	31	25	25	14	12
6	e20	24	68	45	e57	56	34	29	27	23	14	12
7	e20	24	54	94	e53	53	34	28	25	22	15	11
8	e20	24	47	56	e49	92	33	28	22	21	16	11
9	e21	23	43	48	e46	90	33	28	22	21	15	10
10	e22	32	60	43	49	72	33	107	21	20	15	10
11	e23	28	70	41	47	64	33	97	23	19	14	11
12	e23	25	54	42	44	59	43	54	26	18	13	11
13	e21	24	48	39	44	57	38	46	22	18	11	9.8
14	e22	23	54	209	43	54	34	43	20	17	11	8.8
15	e32	23	51	466	61	52	33	37	20	17	11	8.4
16	e29	23	47	184	80	50	32	34	21	17	11	21
17	e25	23	45	130	70	48	32	33	20	28	9.2	24
18	e23	27	41	106	61	46	31	32	19	26	9.9	15
19	e22	23	38	103	57	44	30	37	20	18	13	14
20	e24	23	37	124	54	43	29	29	21	17	12	13
21	e25	68	36	95	52	47	29	28	24	16	11	13
22	23	42	35	83	50	41	28	27	48	16	9.6	15
23	54	32	34	76	47	41	30	26	40	15	8.6	15
24	30	30	31	70	45	40	34	26	27	18	8.3	15
25	26	28	31	66	43	38	30	24	24	26	8.1	14
26	32	27	30	63	42	38	29	24	33	48	9.6	15
27	28	35	30	60	48	38	28	26	52	20	43	14
28	26	42	29	72	94	38	27	33	66	42	23	13
29	25	36	27	65	---	38	26	28	75	23	15	12
30	24	34	27	62	---	37	28	28	42	20	14	12
31	28	---	47	60	---	37	---	25	---	18	13	---
TOTAL	773	907	1416	2695	1541	1625	968	1160	902	706	431.3	396.0
MEAN	24.9	30.2	45.7	86.9	55.0	52.4	32.3	37.4	30.1	22.8	13.9	13.2
MAX	54	68	130	466	94	92	43	107	75	48	43	24
MIN	20	23	27	34	42	37	26	24	19	15	8.1	8.4

e Estimated.

## 02071530 SMITH RIVER AT SMITH RIVER CHURCH NEAR WOOLWINE, VA--Continued

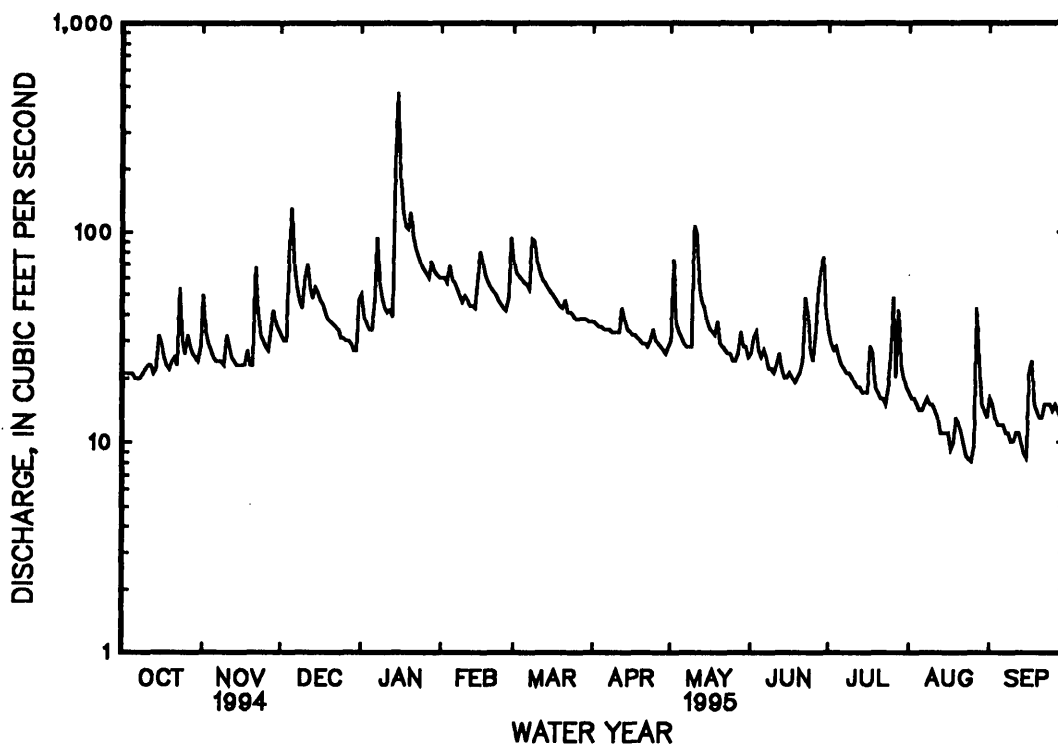
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	24.9	30.2	45.7	86.9	55.0	52.4	32.3	37.4	30.1	22.8	13.9	13.2
MAX	24.9	30.2	45.7	86.9	55.0	52.4	32.3	37.4	30.1	22.8	13.9	13.2
(WY)	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995
MIN	24.9	30.2	45.7	86.9	55.0	52.4	32.3	37.4	30.1	22.8	13.9	13.2
(WY)	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995

## SUMMARY STATISTICS

FOR 1995 WATER YEAR

ANNUAL TOTAL	13520.3	
ANNUAL MEAN	37.0	
HIGHEST DAILY MEAN	466	Jan 15
LOWEST DAILY MEAN	8.1	Aug 25
ANNUAL SEVEN-DAY MINIMUM	9.6	Aug 20
INSTANTANEOUS PEAK FLOW	1340	Jan 15
INSTANTANEOUS PEAK STAGE	8.23	Jan 15
INSTANTANEOUS LOW FLOW	4.6	Aug 22
10 PERCENT EXCEEDS	62	
50 PERCENT EXCEEDS	30	
90 PERCENT EXCEEDS	14	



## 02071900 PHILPOTT LAKE NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'52", long 80°01'40", Henry County, Hydrologic Unit 03010103, at Philpott Dam on Smith River, 1.5 mi west of Philpott, 12.0 mi upstream from Reed Creek, and at mile 44.3.

DRAINAGE AREA.--216 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is at sea level.

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 above the spillway crest; 34,200 acre-ft is controlled flood storage between elevations 974 ft, maximum power pool, and 985 ft; 57,800 acre-ft is available for power between elevations 951 ft, minimum power pool, and 974 ft; and 108,400 acre-ft is inactive and dead storage below elevation 951 ft. Usable capacity is 92,000 acre-ft between elevations 951 ft and 985 ft. Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, water supply, 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.

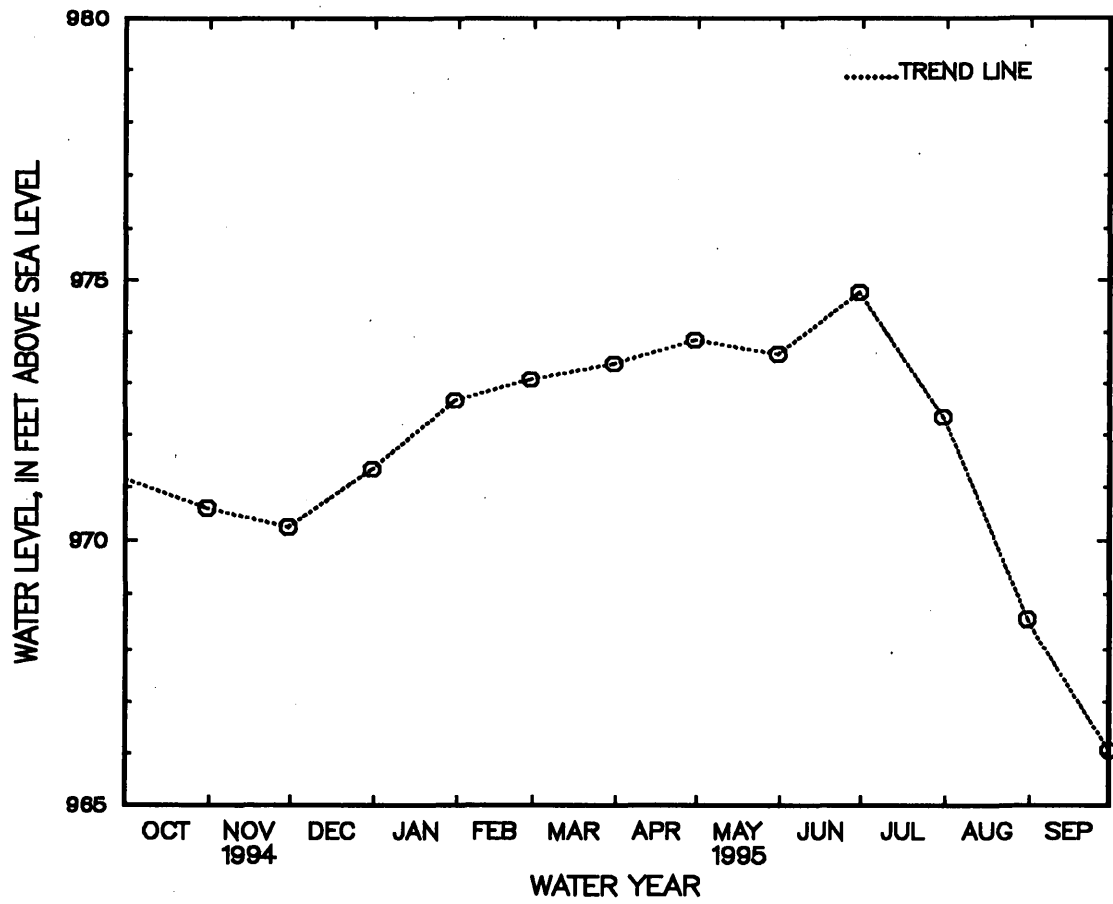
EXTREMES FOR CURRENT YEAR.--Maximum contents, 170,000 acre-ft, Jan. 16, elevation, 975.30 ft; minimum, 144,190 acre-ft, Sept. 29, elevation, 966.05 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	971.17	158,110	-
Oct. 31.....	970.61	156,540	-1,570
Nov. 30.....	970.25	155,540	-1,000
Dec. 31.....	971.35	158,610	+3,070
CAL YR 1994.....			+470
Jan. 31.....	972.67	162,360	+3,750
Feb. 28.....	973.08	163,530	+1,170
Mar. 31.....	973.39	164,430	+900
Apr. 30.....	973.85	165,760	+1,330
May 31.....	973.58	164,980	-780
June 30.....	974.77	168,440	+3,460
July 31.....	972.35	161,440	-7,000
Aug. 31.....	968.54	150,840	-10,600
Sept. 30.....	966.07	144,250	-6,590
WTR YR 1995.....			-13,860



02071900 PHILPOTT LAKE NEAR PHILPOTT, VA--Continued



## ROANOKE RIVER BASIN

## 02072000 SMITH RIVER NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'50", long 80°01'30", Franklin County, Hydrologic Unit 03010103, on left bank 900 ft down-stream from Philpott Dam, 1.3 mi southwest of Philpott (corrected), 11.6 mi upstream from Reed Creek, and at mile 44.1.

DRAINAGE AREA.--216 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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 sea level (U.S. Army Corps of Engineers bench mark). Prior to Oct. 8, 1952, at site 1.9 mi downstream at different datum.

REMARKS.--Records good except for period of doubtful gage-height record Sept. 4-30, which is fair. Since August 1950, flow regulated by Philpott Lake (station 02071900), 0.2 mi upstream. Maximum discharge, 17,000 ft<sup>3</sup>/s, at site then in use, from rating curve extended above 9,700 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 18.2 ft and 20.3 ft. Minimum discharge observed, 2.3 ft<sup>3</sup>/s, result of repairs at dam, but may have been less during periods of estimated record. Minimum daily discharge, 20 ft<sup>3</sup>/s, caused by turbines being shut down for repair at Philpott Dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,510 ft<sup>3</sup>/s, Jan. 19, gage height, 5.22 ft; 1.93 ft; minimum daily, 47 ft<sup>3</sup>/s, Sept. 17, 23, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	53	210	210	53	466	311	54	207	206	770	309	336		
2	53	210	210	210	466	311	54	463	207	55	310	56		
3	210	209	53	209	467	311	206	463	53	464	310	56		
4	210	211	53	209	52	53	206	464	53	464	311	e265		
5	210	53	210	262	52	52	206	465	258	465	54	e265		
6	210	53	209	262	364	414	206	53	258	466	55	e270		
7	210	211	209	53	364	414	206	53	257	465	209	e261		
8	53	210	105	53	363	414	53	207	258	57	261	e262		
9	53	210	105	208	468	414	53	206	257	57	365	e55		
10	211	210	53	208	364	413	206	206	52	312	365	e55		
11	211	210	53	207	53	54	206	205	53	305	366	e257		
12	210	53	208	312	52	54	206	209	257	302	55	e253		
13	210	53	207	260	308	514	206	53	359	300	55	e255		
14	210	210	208	53	205	514	207	53	360	305	315	e255		
15	53	210	206	221	309	523	53	307	361	53	315	e256		
16	53	210	206	1120	308	516	53	308	361	54	315	e48		
17	211	210	53	1480	308	515	206	308	52	309	316	e47		
18	209	210	53	1490	53	53	206	300	52	311	317	e254		
19	211	53	208	1390	52	53	206	309	258	310	55	e255		
20	209	53	210	771	307	363	206	53	259	310	57	e254		
21	210	210	209	51	307	109	206	53	259	311	318	e255		
22	53	211	208	50	308	362	53	308	260	53	318	e255		
23	54	210	208	666	309	362	53	308	258	53	318	e47		
24	210	210	53	668	310	361	206	309	59	313	319	e47		
25	210	210	53	672	53	54	206	309	53	314	319	e255		
26	210	53	210	620	53	53	207	312	257	312	56	e257		
27	209	53	263	673	310	206	207	53	257	312	57	e262		
28	210	210	263	52	310	103	206	53	457	312	320	e264		
29	53	210	262	52	---	207	53	205	463	54	319	e264		
30	53	210	263	467	---	310	53	206	773	54	320	e55		
31	209	---	53	467	---	206	---	207	---	311	320	---		
TOTAL	4941	5046	5074	13469	7341	8599	4655	7215	7327	8533	7699	5976		
MEAN	159	168	164	434	262	277	155	233	244	275	248	199		
MAX	211	211	263	1490	468	523	207	465	773	770	366	336		
MIN	53	53	53	50	52	52	53	53	52	53	54	47		
(†)	-25	-17	+50	+61	+21	+15	+22	-13	+58	-114	-172	-111		
MEAN†	134	151	214	495	283	292	177	220	302	161	76	88		
CFSM†	.62	.70	.99	2.29	1.31	1.35	.82	1.02	1.40	.75	.35	.41		
IN.†	.72	.78	1.14	2.64	1.36	1.56	.91	1.17	1.56	.86	.41	.45		
CAL YR 1994	TOTAL	110376	MEAN	302	MAX	2220	MIN	43	MEAN†	303	CFSM†	1.40	IN.†	19.05
WTR YR 1995	TOTAL	85875	MEAN	235	MAX	1490	MIN	47	MEAN†	216	CFSM†	1.00	IN.†	13.58

† Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

e Estimated.

## 02072000 SMITH RIVER NEAR PHILPOTT, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1950, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	326	318	292	324	339	397	381	442	381	385	338	331
MAX	522	371	507	403	406	474	490	631	562	915	759	531
(WY)	1948	1948	1949	1949	1948	1949	1948	1949	1949	1949	1949	1949
MIN	183	202	166	238	209	303	244	195	284	158	141	166
(WY)	1949	1947	1947	1948	1947	1950	1950	1947	1948	1947	1947	1947

## SUMMARY STATISTICS

WATER YEARS 1947 - 1950

ANNUAL MEAN	354
HIGHEST ANNUAL MEAN	517
LOWEST ANNUAL MEAN	237
HIGHEST DAILY MEAN	a4500
LOWEST DAILY MEAN	93
ANNUAL SEVEN-DAY MINIMUM	104
INSTANTANEOUS PEAK FLOW	17000
INSTANTANEOUS PEAK STAGE	20.30
INSTANTANEOUS LOW FLOW	21
ANNUAL RUNOFF (CFSM)	1.64
ANNUAL RUNOFF (INCHES)	22.30
10 PERCENT EXCEEDS	560
50 PERCENT EXCEEDS	274
90 PERCENT EXCEEDS	148

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	241	230	249	272	261	335	388	309	278	243	254	257
MAX	755	835	498	526	717	946	1194	796	827	646	479	724
(WY)	1990	1986	1958	1991	1973	1993	1983	1978	1972	1972	1970	1979
MIN	96.1	70.5	88.5	71.1	58.2	60.5	69.2	61.3	67.2	82.2	77.4	126
(WY)	1952	1953	1992	1953	1953	1953	1969	1964	1964	1964	1964	1956

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1951 - 1995

ANNUAL TOTAL	110376	85875	
ANNUAL MEAN	302	235	276
HIGHEST ANNUAL MEAN			441
LOWEST ANNUAL MEAN			123
HIGHEST DAILY MEAN	2220	Mar 30	1490
LOWEST DAILY MEAN	43	bJan 29	47
ANNUAL SEVEN-DAY MINIMUM	134	Dec 8	134
INSTANTANEOUS PEAK FLOW			1510
INSTANTANEOUS PEAK STAGE			5.22
INSTANTANEOUS LOW FLOW			(f)
ANNUAL RUNOFF (CFSM)	1.40		1.09
ANNUAL RUNOFF (INCHES)	19.01		14.79
10 PERCENT EXCEEDS	758		414
50 PERCENT EXCEEDS	211		210
90 PERCENT EXCEEDS	50		53

a No gage-height record; discharge computed on basis of records for stations at Bassett and at Martinsville.

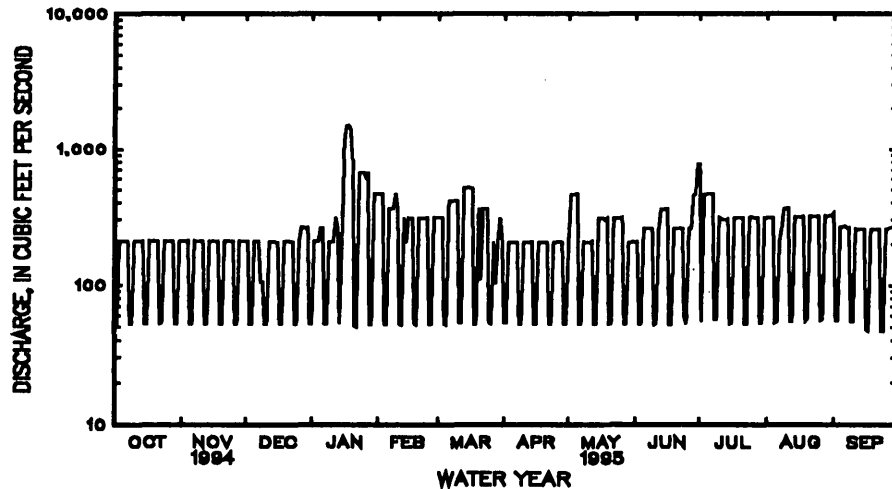
b Also Jan. 30, 1994.

c Also Sept. 23, 24, 1995.

d Caused by turbines being shut down for repair at Philpott Dam.

f Probably occurred during estimated record.

g Result of repair at dam, but may have been less during periods of estimated record.



## ROANOKE RIVER BASIN

02072000 SMITH RIVER NEAR PHILPOTT, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1994 to August 1995.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
OCT										
18...	1030	48.8	62	6.4	8.0	13.5	745	4.6	45	19
NOV										
15...	1200	52.6	56	7.0	21.0	14.0	746	4.2	42	20
DEC										
14...	1630	53.4	53	6.4	6.0	11.0	748	6.2	57	19
MAR										
30...	1230	52.4	53	7.3	8.0	7.0	738	9.8	83	19
MAY										
24...	0800	49.3	53	7.3	17.5	7.5	746	9.0	77	18
JUN										
21...	0800	54.1	54	6.6	20.0	8.0	741	8.5	74	20
JUL										
19...	0800	54.8	55	6.7	23.5	7.5	741	8.0	69	19
AUG										
15...	0900	56.2	56	6.6	16.0	8.5	744	8.8	77	19

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)
OCT									
18...	4.5	1.9	<1	--	<1	<1	<1	<1	<0.1
NOV									
15...	4.8	2.0	1	0	13	<1	<1	<1	<0.1
DEC									
14...	4.6	1.9	<1	--	<1	<1	<1	<1	<0.1
MAR									
30...	4.3	1.9	<1	--	2	<1	<1	<1	<0.1
MAY									
24...	4.2	1.9	5	1	4	1	<1	<1	<0.1
JUN									
21...	4.8	1.9	2	0	6	<1	<1	<1	<0.1
JUL									
19...	4.1	2.1	10	6	4	<1	<1	<1	<0.1
AUG									
15...	4.5	2.0	1	--	<1	<1	<1	<1	<0.1

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

## 02072000 SMITH RIVER NEAR PHILPOTT, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR) (01032)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)
OCT 18...	<1	<0.5	<1	<1	0.5	<1	<0.5	<0.10	<0.1
NOV 15...	<1	<0.5	<1	<1	<0.5	<1	<0.5	<0.10	<0.1
DEC 14...	<1	<0.5	<1	<1	2.0	<1	<0.5	<0.10	<0.1
MAR 30...	<1	<0.5	<1	<1	<0.5	<1	<0.5	0.10	<0.1
MAY 24...	<1	<0.5	<1	<1	<0.5	<1	<0.5	<0.10	<0.1
JUN 21...	<1	<0.5	<1	<1	<0.5	<1	<0.5	<0.10	<0.1
JUL 19...	<1	<0.5	1	<1	<0.5	<1	<0.5	<0.10	<0.1
AUG 15...	<1	<0.5	<1	<1	<0.5	<1	<0.5	<0.10	<0.1

DATE	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 18...	<1	<1	<1	<1	<1	<1.0	<10	3.0	1.1
NOV 15...	<1	<1	<1	<1	<1	<1.0	<10	1.1	1.4
DEC 14...	<1	<1	<1	<1	<1	<1.0	<10	10	1.4
MAR 30...	<1	<1	<1	<1	<1	<0.2	<10	1.3	1.7
MAY 24...	<1	<1	<1	<1	<1	<0.2	<10	2.7	1.3
JUN 21...	<1	<1	<1	<1	<1	<0.2	<10	3.2	1.4
JUL 19...	<1	<1	<1	<1	<1	<0.2	<10	2.5	1.3
AUG 15...	<1	<1	<1	<1	<1	<0.2	<10	1.2	1.3

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

## ROANOKE RIVER BASIN

## 02072500 SMITH RIVER AT BASSETT, VA

LOCATION.--Lat 36°46'12", long 80°00'04", Henry County, Hydrologic Unit 03010103, on left bank 25 ft upstream from bridge on State Highway 666 at north edge of North Bassett, 1.0 mi northwest of Bassett, 3.0 mi downstream from Town Creek, 5.6 mi upstream from Reed Creek, 6.2 mi downstream from Philpott Dam, and at mile 38.1.

DRAINAGE AREA.--259 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 753.09 ft above sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharge. 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 ft<sup>3</sup>/s. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Minimum gage height, 1.06 ft, Sept. 18, 26, 1953. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 19, 1937, reached a stage of about 22.9 ft, from information by local residents, discharge, 38,000 ft<sup>3</sup>/s, from rating curve extended above 23,000 ft<sup>3</sup>/s on basis of backwater studies and records for station at Martinsville.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,610 ft<sup>3</sup>/s, Jan. 15, gage height, 6.45 ft; minimum, 47 ft<sup>3</sup>/s, July 14; minimum daily, 61 ft<sup>3</sup>/s, Sept. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	69	235	231	86	537	391	88	240	234	923	354	364		
2	69	225	231	238	542	382	88	567	246	145	353	79		
3	247	224	72	235	538	374	243	525	92	540	355	71		
4	253	231	77	235	118	106	245	518	98	536	355	288		
5	231	72	292	287	108	102	242	516	292	533	156	289		
6	232	72	252	291	420	477	242	91	297	530	76	288		
7	235	230	241	147	419	475	242	82	296	529	226	289		
8	68	229	125	106	419	529	86	237	289	92	274	288		
9	69	230	124	250	523	574	84	240	288	89	427	63		
10	232	238	82	243	418	505	240	283	103	355	401	63		
11	250	237	108	240	93	115	243	273	121	339	402	273		
12	244	73	246	359	90	109	246	256	299	335	74	271		
13	251	72	241	298	355	587	250	89	400	329	72	270		
14	268	230	244	102	246	585	240	90	399	349	342	272		
15	78	230	244	1400	381	594	83	351	401	78	342	271		
16	70	230	241	1230	400	585	83	350	405	85	343	66		
17	254	230	79	1660	403	583	239	349	84	416	342	75		
18	231	230	78	1650	117	97	240	344	75	367	344	276		
19	237	70	236	1650	108	95	240	363	289	355	70	274		
20	235	70	235	1000	368	416	240	82	296	352	69	273		
21	228	260	235	133	366	154	239	80	289	354	344	274		
22	71	250	235	114	362	415	81	344	349	84	350	278		
23	100	236	233	754	361	415	83	345	391	77	343	63		
24	239	233	73	752	360	414	248	346	159	318	343	61		
25	232	233	73	752	92	91	240	343	194	497	345	275		
26	237	73	235	696	91	90	239	346	319	450	68	277		
27	235	77	289	748	359	247	239	84	365	372	87	283		
28	232	240	289	106	395	139	237	89	580	370	362	284		
29	72	235	288	104	---	244	80	240	1320	99	347	285		
30	72	232	289	534	---	355	82	235	941	89	347	65		
31	231	---	77	533	---	246	---	233	---	283	347	---		
TOTAL	5772	5727	5995	16933	8989	10491	5672	8531	9911	10270	8660	6548		
MEAN	186	191	193	546	321	338	189	275	330	331	279	218		
MAX	268	260	292	1660	542	594	250	567	1320	923	427	364		
MIN	68	70	72	86	90	90	80	80	75	77	68	61		
(†)	-25	-17	+50	+61	+21	+15	+22	-13	+58	-114	-172	-111		
MEAN‡	161	174	243	607	342	353	211	262	388	217	107	107		
CFSM‡	.62	.67	.94	2.34	1.32	1.36	.81	1.01	1.50	.84	.41	.41		
IN.‡	.72	.75	1.08	2.70	1.38	1.57	.91	1.17	1.67	.97	.48	.46		
CAL YR 1994	TOTAL	133829	MEAN	367	MAX	2540	MIN	68	MEAN‡	368	CFSM‡	1.42	IN.‡	19.29
WTR YR 1995	TOTAL	103499	MEAN	284	MAX	1660	MIN	61	MEAN‡	265	CFSM‡	1.02	IN.‡	13.89

† 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--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1950, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	283	280	324	364	397	415	394	423	352	403	386	370
MAX	616	474	579	752	599	566	593	764	656	1071	1262	970
(WY)	1948	1948	1949	1946	1946	1944	1949	1949	1949	1949	1940	1945
MIN	103	124	157	182	223	201	183	171	160	183	129	133
(WY)	1942	1942	1940	1940	1941	1940	1942	1941	1941	1944	1944	1939

## SUMMARY STATISTICS

## WATER YEARS 1940 - 1950

ANNUAL MEAN	371
HIGHEST ANNUAL MEAN	604
LOWEST ANNUAL MEAN	270
HIGHEST DAILY MEAN	11600
LOWEST DAILY MEAN	82
ANNUAL SEVEN-DAY MINIMUM	85
INSTANTANEOUS PEAK FLOW	26600
INSTANTANEOUS PEAK STAGE	18.28
INSTANTANEOUS LOW FLOW	58
ANNUAL RUNOFF (CFSM)	1.43
ANNUAL RUNOFF (INCHES)	19.47
10 PERCENT EXCEEDS	601
50 PERCENT EXCEEDS	264
90 PERCENT EXCEEDS	147

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	284	274	299	331	328	412	465	369	328	284	293	302
MAX	944	996	587	655	817	1197	1474	902	1004	759	568	912
(WY)	1990	1986	1951	1991	1973	1993	1987	1978	1992	1972	1994	1979
MIN	121	98.4	127	107	110	114	98.6	86.7	84.4	138	124	157
(WY)	1952	1953	1989	1989	1989	1982	1969	1964	1964	1981	1953	1967

## SUMMARY STATISTICS

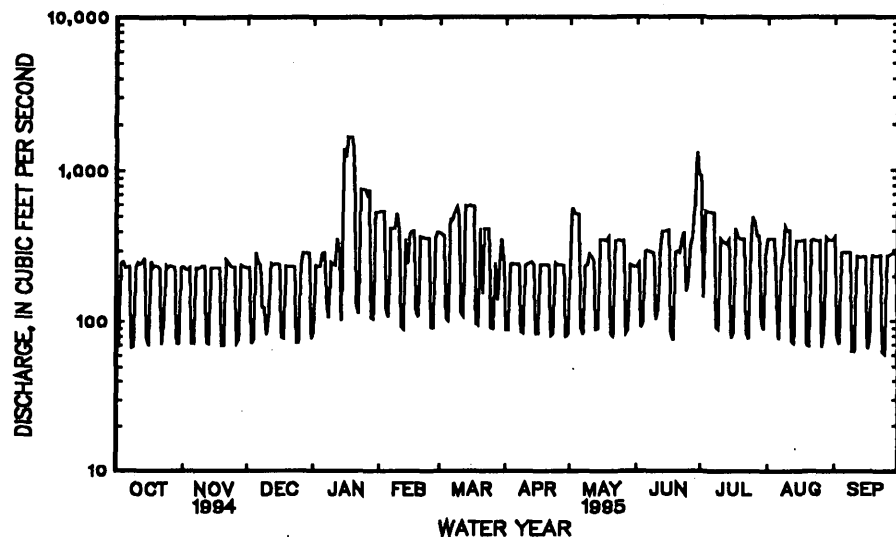
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1951 - 1995

ANNUAL TOTAL	133829	103499	
ANNUAL MEAN	367	284	331
HIGHEST ANNUAL MEAN			523
LOWEST ANNUAL MEAN			150
HIGHEST DAILY MEAN	2540	Mar 30	1660
LOWEST DAILY MEAN	68	Oct 8	61
ANNUAL SEVEN-DAY MINIMUM	167	Dec 7	167
INSTANTANEOUS PEAK FLOW			3610
INSTANTANEOUS PEAK STAGE			6.45
INSTANTANEOUS LOW FLOW			47
ANNUAL RUNOFF (CFSM)	1.42	1.09	1.28
ANNUAL RUNOFF (INCHES)	19.22	14.87	17.35
10 PERCENT EXCEEDS	855	517	722
50 PERCENT EXCEEDS	274	244	247
90 PERCENT EXCEEDS	77	77	75

a Also Sept. 9, 1944.



## 02073000 SMITH RIVER AT MARTINSVILLE, VA

LOCATION.--Lat 36°39'40", long 79°52'51", Henry County, Hydrologic Unit 03010103, on right bank at south edge of Martinsville, 800 ft downstream from bridge on U.S. Highways 58 and 220, and 5.0 mi downstream from Beaver Creek.

DRAINAGE AREA.--380 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1929 to current year.

REVISED RECORDS.--WSP 1032: 1933-35(M), 1936-39, 1940-41(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 657.22 ft above sea level.

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. Maximum discharge, 39,000 ft<sup>3</sup>/s, from rating curve extended above 17,000 ft<sup>3</sup>/s on basis of computations of flow over dam at gage heights 16.76 ft and 21.50 ft. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,740 ft<sup>3</sup>/s, Jan. 15, gage height, 7.99 ft; minimum, 20 ft<sup>3</sup>/s, Jan. 4, result of regulation; minimum daily, 58 ft<sup>3</sup>/s, Oct. 22, result of regulation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	183	396	350	215	659	591	94	384	384	1320	459	523
2	162	363	362	346	690	557	176	779	395	544	471	323
3	389	351	111	368	673	512	336	686	280	679	421	149
4	311	437	192	366	265	173	356	649	232	737	450	325
5	306	78	720	321	240	218	307	652	411	755	360	364
6	335	171	441	389	573	656	334	382	445	714	112	358
7	335	389	372	560	520	594	367	167	455	725	281	357
8	163	354	229	310	535	772	83	387	439	265	262	355
9	169	321	245	405	597	1060	175	342	377	202	592	175
10	400	372	185	391	532	711	343	530	400	488	500	125
11	350	370	288	366	144	219	313	672	641	470	494	295
12	321	177	400	526	186	237	376	436	631	474	216	355
13	298	173	376	438	436	716	351	179	548	438	134	343
14	410	390	406	157	329	739	376	216	562	466	401	342
15	185	348	382	3320	604	710	96	451	549	263	458	335
16	173	298	380	1450	630	708	177	476	545	128	423	204
17	366	392	135	1980	615	689	332	479	284	575	417	194
18	332	354	187	1900	223	187	344	525	171	516	359	311
19	361	111	392	1920	239	190	372	587	386	473	201	352
20	370	164	339	1560	539	510	330	259	433	468	133	352
21	492	500	343	428	473	264	395	176	417	721	401	329
22	58	452	339	250	458	559	76	433	513	958	375	414
23	283	465	288	814	451	501	177	470	768	137	414	164
24	388	230	170	879	449	504	395	441	319	283	473	94
25	381	355	165	869	124	128	359	499	449	879	362	300
26	370	174	326	846	185	178	337	493	467	841	199	339
27	374	197	392	840	471	369	333	247	554	524	318	326
28	349	383	392	341	610	202	393	228	888	526	375	342
29	176	369	411	238	---	349	62	335	2940	275	438	302
30	176	398	434	693	---	446	176	395	1320	206	427	174
31	351	---	126	666	---	362	---	382	---	319	427	---
TOTAL	9317	9532	9878	24152	12450	14611	8341	13337	17203	16369	11353	8921
MEAN	301	318	319	779	445	471	278	430	573	528	366	297
MAX	492	500	720	3320	690	1060	395	779	2940	1320	592	523
MIN	58	78	111	157	124	128	62	167	171	128	112	94
(†)	-25	-17	50	61	21	15	22	-13	58	-114	-172	-111
MEAN†	276	301	369	840	466	486	300	417	631	414	194	186
CFSM†	.73	.79	.97	2.21	1.23	1.28	.79	1.10	1.66	1.09	.51	.49
IN.†	.84	.88	1.12	2.55	1.28	1.47	.88	1.27	1.85	1.26	.59	.55
CAL YR 1994	TOTAL	209107	MEAN	573	MAX	3760	MIN	58	MEAN†	574	CFSM†	1.51
WTR YR 1995	TOTAL	155464	MEAN	426	MAX	3320	MIN	58	MEAN†	407	CFSM†	1.07
											IN.†	20.51
											IN.†	14.54

† 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--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1950, BY WATER YEAR (WY) [UNREGULATED]a

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	459	394	446	567	517	569	539	483	410	443	435	393
MAX	1828	940	975	1415	1048	907	953	964	788	1205	1778	1258
(WY)	1938	1933	1933	1937	1939	1936	1936	1949	1949	1949	1940	1945
MIN	107	113	188	200	160	309	275	227	211	123	111	83.1
(WY)	1932	1932	1934	1934	1931	1940	1942	1934	1931	1930	1932	1932

## SUMMARY STATISTICS

## WATER YEARS 1930 - 1950

ANNUAL MEAN	471
HIGHEST ANNUAL MEAN	752
LOWEST ANNUAL MEAN	264
HIGHEST DAILY MEAN	18500
LOWEST DAILY MEAN	b19
ANNUAL SEVEN-DAY MINIMUM	b63
INSTANTANEOUS PEAK FLOW	39000
INSTANTANEOUS PEAK STAGE	21.50
INSTANTANEOUS LOW FLOW	c5.0
ANNUAL RUNOFF (CFSM)	1.24
ANNUAL RUNOFF (INCHES)	16.85
10 PERCENT EXCEEDS	760
50 PERCENT EXCEEDS	346
90 PERCENT EXCEEDS	164

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	404	393	435	495	511	624	651	526	474	415	402	423
MAX	1389	1266	788	1000	1104	1735	2206	1138	1467	1174	1032	1624
(WY)	1990	1986	1973	1991	1973	1993	1987	1978	1992	1989	1985	1987
MIN	163	162	207	206	233	233	206	164	144	195	165	205
(WY)	1952	1953	1957	1957	1968	1981	1969	1964	1964	1981	1953	1951

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

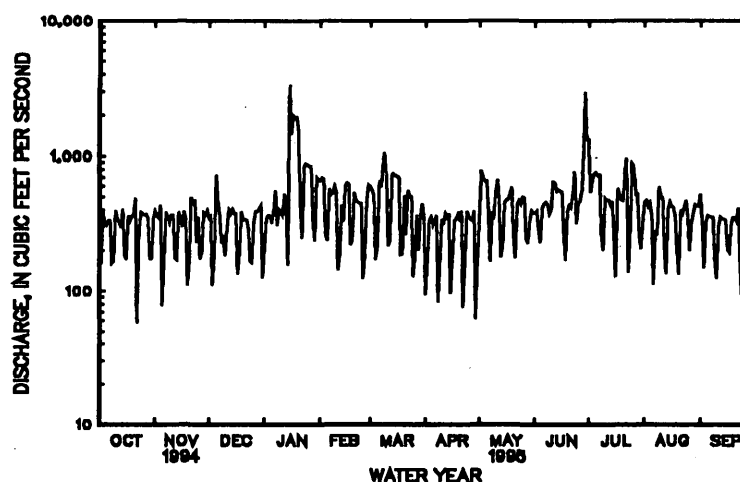
## WATER YEARS 1951 - 1995

ANNUAL TOTAL	209107	155464	
ANNUAL MEAN	573	426	479
HIGHEST ANNUAL MEAN			817
LOWEST ANNUAL MEAN			243
HIGHEST DAILY MEAN	3760	Mar 28	3320
LOWEST DAILY MEAN	c58	Oct 22	c58
ANNUAL SEVEN-DAY MINIMUM	c281	Dec 20	c267
INSTANTANEOUS PEAK FLOW			7740
INSTANTANEOUS PEAK STAGE			7.99
INSTANTANEOUS LOW FLOW			c20
ANNUAL RUNOFF (CFSM)	1.51		1.12
ANNUAL RUNOFF (INCHES)	20.47		15.22
10 PERCENT EXCEEDS	1080		687
50 PERCENT EXCEEDS	434		372
90 PERCENT EXCEEDS	186		174

a Prior to regulation from Philpott Lake.

b Result of regulation from powerplant upstream.

c Result of regulation at powerplant 1,000 ft upstream.



## ROANOKE RIVER BASIN

## 02073600 SMITH RIVER NEAR IRISBURG, VA

LOCATION.--Lat 36°36'07", long 79°46'38", Henry County, Hydrologic Unit 03010103, 100 ft upstream from bridge on State Highway 636 and 1.7 mi southwest of Irisburg.

PERIOD OF RECORD.--October 1994 to August 1995.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) SATUR- ATION (00300)	OXYGEN, DIS- SOLVED (MG/L) SATUR- ATION (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
OCT										
18...	1800	482	225	7.0	16.0	12.0	748	9.8	93	25
NOV										
15...	0830	136	194	7.5	13.0	9.0	752	11	100	24
DEC										
15...	0930	136	175	6.5	11.5	7.0	756	12	96	25
MAR										
30...	0830	144	152	6.3	11.5	10.5	745	10	96	26
MAY										
24...	1300	163	152	8.0	26.0	19.0	752	9.6	105	23
JUN										
21...	1300	177	135	7.4	23.0	18.5	748	8.5	92	22
JUL										
19...	1300	200	147	7.5	27.0	22.0	747	8.6	100	25
AUG										
14...	1400	172	432	7.0	33.0	24.0	750	8.3	100	26

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)
OCT									
18...	6.2	2.3	11	7	4	1	2	<1	<0.1
NOV									
15...	5.5	2.5	2	0	10	2	2	<1	<0.1
DEC									
15...	5.9	2.5	<1	--	<1	<1	1	<1	<0.1
MAR									
30...	6.4	2.4	2	0	2	2	2	<1	<0.1
MAY									
24...	5.7	2.2	7	2	5	2	<1	<1	<0.1
JUN									
21...	5.0	2.2	10	0	11	<1	<1	<1	<0.1
JUL									
19...	5.9	2.5	8	0	8	<1	<1	<1	<0.1
AUG									
14...	6.3	2.5	<1	--	<1	<1	<1	<1	<0.1

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

## 02073600 SMITH RIVER NEAR IRISBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	CHRO- MIUM, HEXA- VALENT, DIS. (UG/L AS CR) (01032)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)
OCT 18...	<1	<0.5	<1	3	2.1	<1	<0.5	<0.10	<0.1
NOV 15...	1.7	<0.5	<1	20	1.5	2	<0.5	<0.10	<0.1
DEC 15...	<1	<0.5	<1	1	1.6	<1	<0.5	<0.10	<0.1
MAR 30...	<1	<0.5	<1	2	1.5	<1	<0.5	<0.10	<0.1
MAY 24...	<1	<0.5	<1	2	2.2	<1	<0.5	<0.10	<0.1
JUN 21...	<1	<0.5	<1	2	1.7	<1	<0.5	<0.10	<0.1
JUL 19...	<1	<0.5	1	3	2.2	<1	<0.5	<0.10	<0.1
AUG 14...	<1	<0.5	<1	2	2.7	<1	<0.5	<0.10	<0.1

DATE	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 18...	1	<1	<1	<1	<1	<1.0	<10	3.9	2.6
NOV 15...	3	<1	<1	<1	2	<1.0	60	2.2	2.2
DEC 15...	<1	<1	<1	<1	<1	<1.0	10	4.3	2.0
MAR 30...	<1	<1	<1	<1	<1	<0.2	<10	3.2	2.7
MAY 24...	<1	<1	<1	<1	<1	<0.2	10	2.6	2.1
JUN 21...	<1	<1	<1	<1	<1	<0.2	<10	2.2	2.6
JUL 19...	<1	<1	<1	<1	<1	<0.2	<10	4.9	3.1
AUG 14...	<1	<1	<1	<1	<1	<0.2	<10	4.0	3.6

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

## ROANOKE RIVER BASIN

## 02074000 SMITH RIVER AT EDEN, NC

LOCATION.--Lat 3631'31", long 7945'57", Rockingham County, Hydrologic Unit 03010103, on right bank at Eden, 0.3 mi downstream of 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 of Stuart Creek, and 3.9 mi upstream from mouth.

DRAINAGE AREA.--538 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1970, published as "at Spray".

REVISED RECORDS.--WSP 1433: 1946.

GAGE.--Water-stage recorder. Datum of gage is 539.56 ft above sea level.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated since August 1950 by Philpott Lake, 40 mi upstream (usable capacity, 6,325,000,000 ft<sup>3</sup>). Additional regulation by hydroelectric plant at Martinsville, Virginia, 18 mi upstream. Maximum discharge prior to regulation: 45,600 ft<sup>3</sup>/s, Aug. 15, 1940, from rating curve extended above 12,000 ft<sup>3</sup>/s on the basis of computation of peak flow over dam 1.5 mi downstream; gage height: 19.28 ft. Minimum discharge for current water year also occurred Sept. 24.

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

## DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	493	440	444	294	854	1060	381	298	476	1770	560	512
2	223	496	446	396	855	933	258	1220	983	1440	542	637
3	392	431	260	422	843	779	405	1040	1230	510	529	261
4	422	451	246	432	647	571	465	892	481	933	532	216
5	409	310	712	409	378	350	431	843	452	832	596	471
6	429	203	687	459	559	666	467	838	665	850	155	423
7	403	422	540	1060	663	789	460	219	718	849	265	418
8	288	429	412	614	682	931	361	330	634	837	416	412
9	245	395	344	577	698	1670	233	471	564	259	449	374
10	432	494	214	503	710	1010	399	706	666	309	600	191
11	400	480	371	502	458	619	446	1030	1700	614	586	190
12	429	281	540	573	277	407	468	662	1320	541	617	395
13	425	254	474	603	454	620	491	602	925	559	158	393
14	421	428	513	428	515	888	472	267	856	535	250	395
15	380	435	498	4990	672	891	352	383	802	605	596	391
16	261	400	478	2180	983	875	235	633	735	168	529	410
17	429	446	256	2350	960	857	372	628	779	436	504	322
18	403	430	279	2160	592	695	442	642	245	660	503	249
19	401	256	481	2130	428	258	464	867	322	561	438	422
20	420	224	422	1950	594	499	457	728	571	532	209	454
21	493	895	442	1140	662	609	442	226	578	538	233	416
22	411	778	427	407	614	486	372	340	647	1600	494	423
23	270	541	366	612	617	668	207	615	1290	287	474	601
24	489	358	272	1060	606	660	441	599	1050	303	468	143
25	505	521	241	1040	478	519	489	536	653	793	484	213
26	460	274	348	1030	245	242	462	613	486	972	416	470
27	474	276	435	956	475	424	446	778	682	733	328	436
28	371	491	490	930	900	451	441	350	779	659	594	470
29	322	484	504	358	---	361	365	354	7620	698	499	415
30	256	491	420	637	---	514	194	506	2020	298	506	470
31	383	---	322	851	---	534	---	524	---	352	504	---
TOTAL	12139	12814	12884	32053	17419	20836	11918	18740	30929	21033	14034	11593
MEAN	392	427	416	1034	622	672	397	605	1031	678	453	386
MAX	505	895	712	4990	983	1670	491	1220	7620	1770	617	637
MIN	223	203	214	294	245	242	194	219	245	168	155	143
†	-25	-17	+50	+61	+21	+15	+22	-13	+58	-114	-172	-111
‡	367	410	466	1095	643	687	419	592	1089	564	281	275

† 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--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1995\*, BY WATER YEAR (WY)

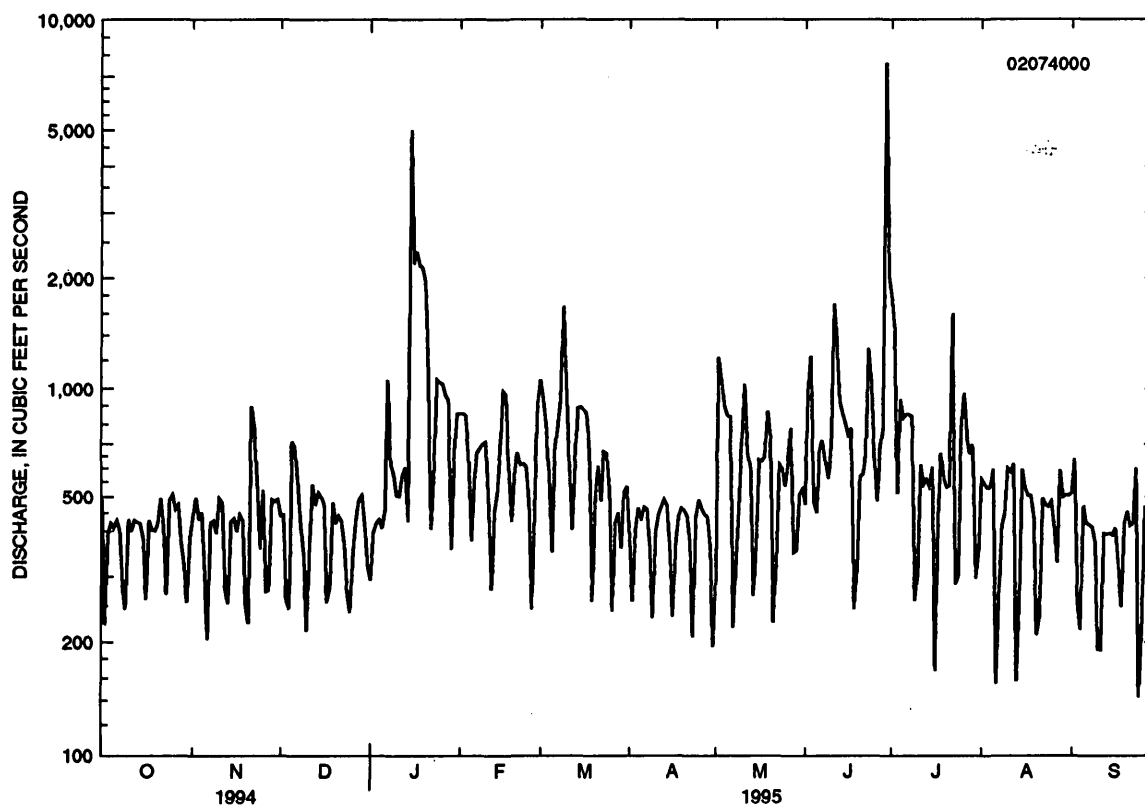
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	516	509	595	684	727	881	868	718	630	544	517	537
MAX	1572	1530	1237	1453	1521	2519	3016	1567	2026	1477	2434	1794
(WY)	1990	1986	1949	1979	1960	1993	1987	1978	1972	1949	1940	1979
MIN	167	203	273	291	325	331	294	266	213	214	194	239
(WY)	1942	1942	1981	1989	1968	1967	1967	1964	1964	1981	1953	1941

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1951 - 1995*	
ANNUAL TOTAL	284131		216392			
ANNUAL MEAN	778		593		643	
HIGHEST ANNUAL MEAN	778		593		1010	
LOWEST ANNUAL MEAN					309	
HIGHEST DAILY MEAN	7500		7620		23300	
LOWEST DAILY MEAN	183		143		46	
ANNUAL SEVEN-DAY MINIMUM	360		333		119	
INSTANTANEOUS PEAK FLOW			14900		24800	
INSTANTANEOUS PEAK STAGE			12.36		16.24	
INSTANTANEOUS LOW FLOW			129*		38	
ANNUAL RUNOFF (CFSM)	1.45		1.10		1.20	
ANNUAL RUNOFF (INCHES)	19.65		14.96		16.25	
10 PERCENT EXCEEDS	1420		927		1150	
50 PERCENT EXCEEDS	584		478		457	
90 PERCENT EXCEEDS	290		261		232	

‡ Adjusted for change in contents.

• For regulated period (1951-1995) only. See REMARKS.

\* See REMARKS.



## ROANOKE RIVER BASIN

## 02074500 SANDY RIVER NEAR DANVILLE, VA

LOCATION.--Lat 36°37'10", long 79°30'16", Pittsylvania County, Hydrologic Unit 03010103, on right bank 200 ft downstream from Hickory Forest Creek, 400 ft upstream from bridge on State Highway 863 between Callahans Store and Mount Cross, 5.5 mi northwest of western city limits of Danville, and 5.8 mi upstream from mouth.

DRAINAGE AREA.--112 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1930-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 460.38 ft above sea level. Prior to June 26, 1942, at site 1,200 ft downstream at datum 5.57 ft lower.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, 6, and Feb. 7-9, and period of doubtful or no gage-height record, Sept. 24-30, which are fair. Diurnal fluctuation at low flow caused by small mill upstream from station. Maximum discharge, 23,000 ft<sup>3</sup>/s, from rating curve extended above 11,000 ft<sup>3</sup>/s. Minimum gage height, 0.40 ft, Sept. 29, 1930. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1400	3,090	5.84	June 29	0100	*11,200	*10.26
June 28	0400	2,950	5.74				

Minimum discharge, 35 ft<sup>3</sup>/s, Sept. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	50	59	64	77	377	66	54	46	295	68	52
2	43	49	56	58	75	268	66	236	325	291	63	53
3	43	47	55	53	71	152	65	114	409	168	60	48
4	42	47	58	53	86	125	65	81	129	155	58	44
5	42	48	75	e48	79	113	64	72	81	133	57	43
6	42	49	69	e46	66	114	63	65	139	162	55	43
7	42	49	63	271	e62	105	64	60	223	220	54	42
8	42	48	60	153	e60	255	63	57	96	135	55	42
9	43	49	57	99	e58	378	63	56	90	106	55	41
10	45	54	57	83	66	167	61	102	108	96	55	40
11	43	59	65	74	63	130	60	106	469	89	54	38
12	42	50	60	77	61	114	64	77	300	85	51	39
13	45	50	57	73	55	105	78	65	199	80	50	38
14	50	50	65	72	58	98	64	65	110	76	48	37
15	49	49	65	2410	92	94	60	64	85	74	47	36
16	45	50	60	609	200	89	60	58	73	78	46	42
17	44	50	62	209	191	86	60	57	69	92	44	62
18	44	50	62	137	134	84	59	56	62	75	43	50
19	44	50	58	112	110	81	59	84	60	70	43	45
20	49	48	55	267	96	80	58	65	62	66	42	42
21	48	487	56	154	87	88	61	54	57	66	41	43
22	46	186	56	110	76	81	57	51	139	118	41	54
23	54	87	56	94	73	76	55	49	1060	76	39	58
24	55	70	54	84	69	74	70	48	271	74	38	e50
25	49	64	53	77	65	70	64	47	132	134	37	e52
26	47	61	53	73	64	69	57	49	102	96	36	e53
27	48	64	53	68	63	70	54	62	93	78	63	e50
28	47	72	53	78	175	69	53	61	631	154	104	e47
29	47	66	53	87	---	68	52	60	5000	127	57	e45
30	48	62	53	78	---	68	53	52	598	84	50	e45
31	49	---	53	80	---	66	---	47	---	72	47	---
TOTAL	1420	2215	1811	5951	2432	3814	1838	2174	11218	3625	1601	1374
MEAN	45.8	73.8	58.4	192	86.9	123	61.3	70.1	374	117	51.6	45.8
MAX	55	487	75	2410	200	378	78	236	5000	295	104	62
MIN	42	47	53	46	55	66	52	47	46	66	36	36
CFSM	.41	.66	.52	1.71	.78	1.10	.55	.63	3.34	1.04	.46	.41
IN.	.47	.74	.60	1.98	.81	1.27	.61	.72	3.73	1.20	.53	.46

e Estimated.

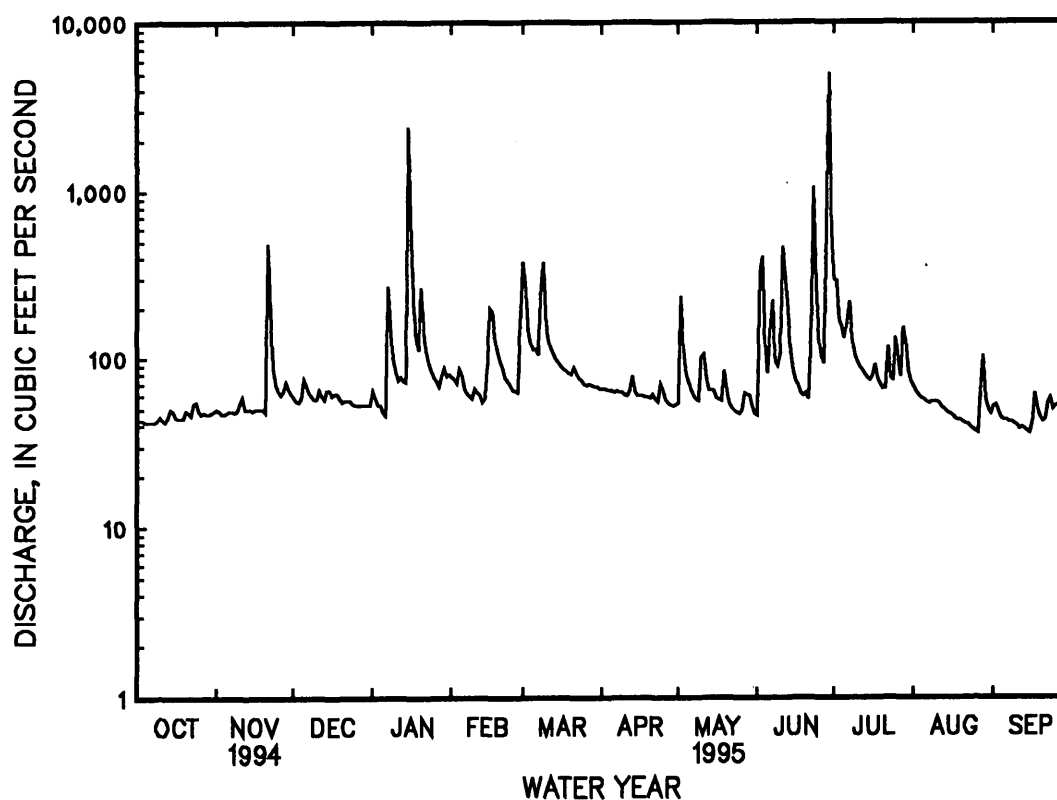
## 02074500 SANDY RIVER NEAR DANVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	82.6	83.9	107	137	146	175	148	107	88.7	76.5	82.5	76.4
MAX	366	281	249	409	369	738	591	279	376	265	556	512
(WY)	1938	1958	1974	1936	1979	1975	1987	1971	1972	1989	1940	1944
MIN	22.6	32.2	35.2	31.5	40.2	63.9	53.1	52.8	34.1	26.0	17.0	14.2
(WY)	1932	1932	1934	1934	1934	1967	1967	1986	1986	1986	1932	1930

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1930 - 1995	
ANNUAL TOTAL	39987		39473		109	
ANNUAL MEAN	110		108		175	
HIGHEST ANNUAL MEAN					58.5	
LOWEST ANNUAL MEAN					7490	
HIGHEST DAILY MEAN	2980	Mar 2	5000	Jun 29	1975	1981
LOWEST DAILY MEAN	29	Sep 16	36	aAug 26	8.0	bAug 29 1932
ANNUAL SEVEN-DAY MINIMUM	31	cSep 11	38	Sep 9	8.6	Aug 27 1932
INSTANTANEOUS PEAK FLOW			11200	Jun 29	23000	Aug 14 1940
INSTANTANEOUS PEAK STAGE			10.26	Jun 29	d14.80	Aug 14 1940
INSTANTANEOUS LOW FLOW			35	fSep 15	3.0	Sep 29 1930
ANNUAL RUNOFF (CFSM)	.98		.97		.97	
ANNUAL RUNOFF (INCHES)	13.28		13.11		13.23	
10 PERCENT EXCEEDS	183		152		165	
50 PERCENT EXCEEDS	63		62		72	
90 PERCENT EXCEEDS	42		44		35	

- a Also Sept. 15, 1995.  
b Also Aug. 31 to Sept. 2, 1932.  
c Also Sept. 12, 1994.  
d From floodmarks, present datum.  
f Also Sept. 16, 1995.



## ROANOKE RIVER BASIN

## 02075000 DAN RIVER AT DANVILLE, VA

LOCATION.--Lat 36°35'15", long 79°22'55", Danville City, Hydrologic Unit 03010104, on left bank 50 ft downstream from Norfolk Southern Railway bridge, 1,000 ft upstream from Fall Creek, and at mile 62.7.

DRAINAGE AREA.--2,050 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--August 1934 to September 1995 (discontinued). 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 sea level.

REMARKS.--Records fair except for period of ice effect, Feb. 7-9, and period of doubtful gage-height record Aug. 3-27, which are poor. Diurnal fluctuation caused by mills and hydroelectric generating facility at Schoolfield Dam 3.3 mi 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. Maximum discharge, 75,000 ft<sup>3</sup>/s, from rating curve extended above 56,000 ft<sup>3</sup>/s on the basis of computation of flow over Schoolfield Dam at 80,000 ft<sup>3</sup>/s. Maximum gage height, 21.34 ft, result of backwater from debris. Minimum gage height, 1.18 ft, Sept. 5, 1966. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 41,500 ft<sup>3</sup>/s, June 29, gage height, 16.60 ft; minimum, 654 ft<sup>3</sup>/s, Oct. 18, but may have been lower during periods of doubtful gage-height record; minimum daily, 660 ft<sup>3</sup>/s, Aug. 8, 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	911	1010	1320	1070	2340	4850	1580	1090	1380	5510	1460	1180		
2	921	1130	1210	1090	2240	5250	1230	2010	3280	4600	1570	1110		
3	907	1120	1180	1170	2180	3380	1340	3140	5730	2940	e1200	1220		
4	904	1110	993	1170	2250	2850	1580	2180	3090	2910	e1300	904		
5	909	1250	1120	1130	1960	2560	1620	2060	2220	2820	e1200	857		
6	915	916	2170	1130	1870	2280	1400	2020	1970	2580	e1100	798		
7	923	823	1780	2520	e1800	2610	1360	1450	2520	2820	e800	824		
8	925	1030	1470	3800	e1750	2970	1480	1070	1990	3810	e660	831		
9	920	1040	1390	2230	e1820	6880	1310	1340	1480	2320	e900	779		
10	908	1050	1350	1810	1940	4650	1080	1770	1550	1820	e1000	793		
11	917	1160	1280	1590	2070	3250	1520	2570	3670	1720	e1100	754		
12	1000	1180	1390	1500	1570	2410	1470	2760	5150	1760	e1000	732		
13	1070	947	1490	1590	1550	2190	1570	2110	4000	1780	e860	735		
14	912	966	1360	1570	1840	2360	1550	1950	2430	1750	e760	735		
15	977	1090	1380	9500	1960	2350	1550	1550	1830	1550	e720	765		
16	1160	1070	1380	16500	3370	2280	1200	1610	1610	1730	e940	744		
17	822	1020	1340	5930	5510	2240	1070	1470	1460	1280	e880	830		
18	892	1080	1220	4570	4450	2160	1420	1530	1560	1790	e1000	911		
19	1050	1060	1200	3940	3060	1610	1580	1610	983	1990	e900	919		
20	933	974	1280	4380	2620	1750	1390	1880	1170	1580	e800	995		
21	1120	1760	1250	4190	2500	1950	1400	1690	1450	1630	e860	931		
22	1070	3270	1230	2570	2220	1950	1380	1200	1910	1770	e660	861		
23	989	1970	1200	2230	2080	1950	1290	1030	5350	2290	e800	925		
24	1230	1440	1130	2520	2020	1690	1100	1280	4540	1610	e720	1120		
25	1480	1150	1090	2400	1980	1980	1440	1230	3520	1340	e840	929		
26	1200	1200	1030	2320	1400	1500	1600	1230	2880	2300	e750	838		
27	1090	1090	1060	2250	1680	1320	1280	2200	2730	2050	e850	878		
28	1090	1190	1130	2360	2000	1670	1360	2010	3130	2200	3190	890		
29	1010	1430	1140	2450	---	1530	1370	1630	33400	2000	2540	890		
30	964	1360	1150	2310	---	1390	1090	1570	16400	1870	1480	813		
31	945	---	1150	2460	---	1750	---	1270	---	1060	1100	---		
TOTAL	31064	36886	39863	96250	64030	79560	41610	53510	124383	69180	33940	26491		
MEAN	1002	1230	1286	3105	2287	2566	1387	1726	4146	2232	1095	883		
MAX	1480	3270	2170	16500	5510	6880	1620	3140	33400	5510	3190	1220		
MIN	822	823	993	1070	1400	1320	1070	1030	983	1060	660	732		
(†)	-25	-17	+50	+61	+21	+15	+22	-13	+58	-114	-172	-111		
MEAN†	977	1213	1336	3166	2308	2581	1409	1713	4204	2118	923	772		
CFSM†	.48	.59	.65	1.54	1.13	1.26	.69	.84	2.05	1.03	.45	.38		
IN.†	.55	.66	.75	1.78	1.17	1.45	.77	.96	2.29	1.19	.52	.42		
CAL YR 1994	TOTAL	835132	MEAN	2288	MAX	33300	MIN	760	MEAN†	2289	CFSM†	1.12	IN.†	15.16
WTR YR 1995	TOTAL	696767	MEAN	1909	MAX	33400	MIN	660	MEAN†	1890	CFSM†	.92	IN.†	12.52

† 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.



## 02075000 DAN RIVER AT DANVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 1950, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2062	1897	2168	3384	3215	3062	2808	2428	1985	2215	2130	2079
MAX	8519	3689	4400	8648	5845	5341	4859	4655	3059	4595	7505	6258
(WY)	1938	1938	1949	1936	1939	1944	1936	1949	1943	1949	1940	1945
MIN	625	736	1085	1184	1503	1825	1129	1197	1079	1126	840	768
(WY)	1942	1942	1944	1942	1947	1940	1942	1941	1941	1936	1944	1936

## SUMMARY STATISTICS

WATER YEARS 1934 - 1950

ANNUAL MEAN	2447
HIGHEST ANNUAL MEAN	3344
LOWEST ANNUAL MEAN	1816
HIGHEST DAILY MEAN	64800
LOWEST DAILY MEAN	338
ANNUAL SEVEN-DAY MINIMUM	426
INSTANTANEOUS PEAK FLOW	75000
INSTANTANEOUS PEAK STAGE	20.96
INSTANTANEOUS LOW FLOW	40
ANNUAL RUNOFF (CFSM)	1.19
ANNUAL RUNOFF (INCHES)	16.22
10 PERCENT EXCEEDS	3990
50 PERCENT EXCEEDS	1700
90 PERCENT EXCEEDS	870

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1712	1719	2175	2615	3051	3836	3421	2379	2045	1586	1475	1481
MAX	6272	5870	4110	6245	8280	11030	10610	5281	7732	4058	4534	6838
(WY)	1960	1958	1973	1978	1960	1975	1987	1972	1972	1989	1985	1979
MIN	624	711	859	808	1453	1243	1070	1050	743	661	550	458
(WY)	1952	1968	1956	1956	1968	1985	1985	1986	1986	1986	1981	1954

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

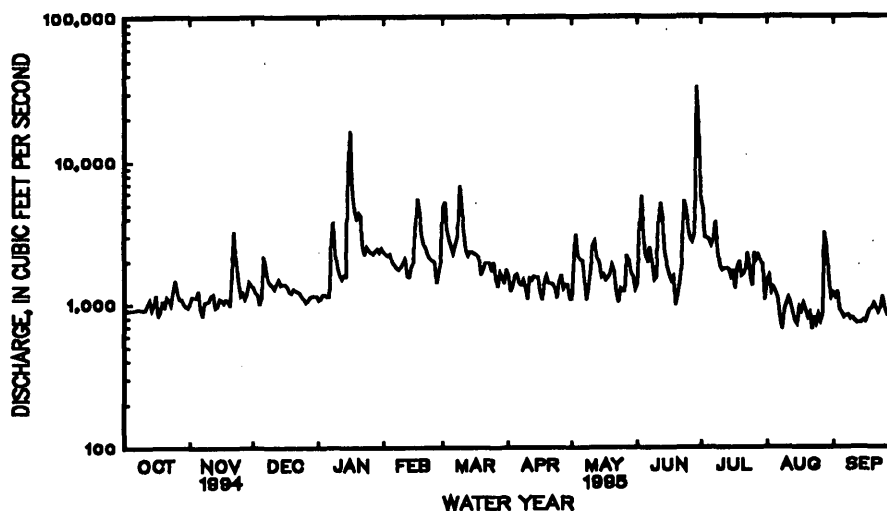
WATER YEARS 1951 - 1995

ANNUAL TOTAL	835132	696767	
ANNUAL MEAN	2288	1909	2287
HIGHEST ANNUAL MEAN			3583
LOWEST ANNUAL MEAN			1102
HIGHEST DAILY MEAN	33300	Mar 29	33400
LOWEST DAILY MEAN	e760	Jul 11	660
ANNUAL SEVEN-DAY MINIMUM	913	Oct 1	751
INSTANTANEOUS PEAK FLOW			41500
INSTANTANEOUS PEAK STAGE			16.60
INSTANTANEOUS LOW FLOW			654
ANNUAL RUNOFF (CFSM)	1.12	.93	1.12
ANNUAL RUNOFF (INCHES)	15.15	12.64	15.16
10 PERCENT EXCEEDS	3440	3010	4000
50 PERCENT EXCEEDS	1480	1440	1530
90 PERCENT EXCEEDS	984	897	784

a Also Aug. 22, 1995.

b Result of backwater from debris.

e Estimated.



## ROANOKE RIVER BASIN

## 02075045 DAN RIVER AT SEWAGE TREATMENT PLANT, NEAR DANVILLE, VA

LOCATION.--Lat 36°33'45", long 79°22'12", Pittsylvania County, Hydrologic Unit 03010104, at pedestrian bridge at Danville sewage treatment plant and 0.7 mi southeast of Danville.

PERIOD OF RECORD.--October 1993 to November 1994.

## WATER-QUALITY DATA, OCTOBER 1994 TO NOVEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, (PER- CENT SATUR- ATION) (00301)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)
OCT 19...	1100	1010	194	7.0	21.0	15.0	753	9.6	96	<1
NOV 09...	1100	996	168	8.5	17.5	15.0	752	12	118	5

DATE	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
OCT 19...	<1	<1	<1	<0.1	<1	<0.5	<1	<0.5	<1	<0.5
NOV 09...	<1	<1	<1	<0.1	<1	<0.5	2	1.4	<1	<0.5

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

02075045 DAN RIVER AT SEWAGE TREATMENT PLANT, NEAR DANVILLE, VA--Continued

## WATER-QUALITY DATA, OCTOBER 1994 TO NOVEMBER 1994

DATE	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL SOLVED (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT										
19...	<0.10	<0.1	<1	<1	<1	<1	<1	<1.0	<10	1.1
NOV										
09...	<0.10	<0.1	<1	<1	<1	<1	<1	<1.0	<10	1.9

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

## ROANOKE RIVER BASIN

## 02075046 DAN RIVER AND SEWAGE TREATMENT PLANT EFFLUENT, NEAR DANVILLE, VA

LOCATION.--Lat 36°33'45", long 79°22'10", Pittsylvania County, Hydrologic Unit 03010104, at Danville sewage treatment plant outfall and 0.7 mi southeast of Danville.

PERIOD OF RECORD.--October 1993 to November 1994.

## WATER-QUALITY DATA, OCTOBER 1994 TO NOVEMBER 1994

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)
OCT									
19...	1130	320	7.1	21.0	9	1	2	<1	0.2
19...	1135	320	7.1	21.0	10	2	1	<1	<0.1
NOV									
09...	1130	360	7.3	17.5	8	1	<1	<1	<0.1
09...	1135	360	7.3	17.5	9	<1	1	<1	<0.1

DATE	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)
OCT								
19...	<1	<0.5	4	4.2	<1	<0.5	<0.10	<0.1
19...	<1	<0.5	4	3.7	1	<0.5	<0.10	<0.1
NOV								
09...	<1	<0.5	5	2.4	<1	<0.5	<0.10	<0.1
09...	<1	<0.5	3	2.5	<1	<0.5	<0.10	<0.1

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

02075046 DAN RIVER AND SEWAGE TREATMENT PLANT EFFLUENT,  
NEAR DANVILLE, VA--Continued

WATER-QUALITY DATA, OCTOBER 1994 TO NOVEMBER 1994

DATE	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT								
19...	<1	<1	<1	<1	<1	<1.0	20	22
19...	<1	<1	<1	<1	<1	<1.0	20	23
NOV								
09...	1	<1	<1	<1	<1	<1.0	20	5.6
09...	1	<1	<1	<1	<1	<1.0	20	7.2

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

## ROANOKE RIVER BASIN

## 02075500 DAN RIVER AT PACES, VA

LOCATION.--Lat 36°38'32", long 79°05'23", Halifax County, Hydrologic Unit 03010104, on right bank 100 ft upstream from bridge on State Highway 658, 0.5 mi southeast of Paces, 0.5 mi upstream from Big Toby Creek, 2.7 mi upstream from Birch Creek, and at mile 36.0.

DRAINAGE AREA.--2,550 mi<sup>2</sup>, approximately.

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

GAGE.--Water-stage recorder. Datum of gage is 322.48 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation caused 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. Maximum discharge, 64,800 ft<sup>3</sup>/s, from rating curve extended above 32,000 ft<sup>3</sup>/s. Minimum gage height, 1.71 ft, Sept. 4, 1956. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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, 36,800 ft<sup>3</sup>/s, June 30, gage height, 26.65 ft; minimum, 600 ft<sup>3</sup>/s, Aug. 22-23, gage height, 2.57 ft; minimum daily, 672 ft<sup>3</sup>/s, Aug. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1130	1110	1550	1260	2910	4770	1630	1130	1450	22100	1190	1490
2	1080	1230	1450	1160	2680	7730	1850	1530	1320	7600	1730	1290
3	1070	1330	1370	1230	2560	5410	1300	3330	7780	4900	1330	1490
4	1060	1280	1280	1280	2570	3880	1520	2890	5930	5780	1390	1060
5	1060	1390	1160	1260	2520	3640	1710	2230	3110	5540	1310	1060
6	1070	1400	1830	1200	2140	2980	1670	2080	2370	4230	1300	759
7	1070	808	2380	2470	2030	3290	1570	1950	3020	4110	1100	1100
8	1070	997	1810	5640	2170	3860	1520	1210	2750	4430	674	1110
9	1060	1220	1630	3730	2150	8970	1710	1160	1960	3680	1050	889
10	1050	1240	1580	2380	2050	8700	1300	1740	1750	2230	1080	1010
11	1040	1320	1520	2000	2260	4880	1390	2360	3170	1850	1320	726
12	1060	1420	1480	1860	2090	3700	1630	3340	6130	2040	1180	776
13	1290	1290	1710	1810	1720	2950	1680	2540	6720	1790	966	786
14	1160	1130	1590	1890	1790	2790	1690	2150	3700	1810	879	861
15	1170	1160	1550	5960	2200	2920	1640	1650	2600	1720	767	974
16	1310	1260	1580	18100	4020	2810	1560	1660	2060	1650	1020	739
17	1200	1260	1550	13200	7370	2690	1180	1900	1760	2080	984	1070
18	854	1210	1530	6060	7560	2600	1210	1460	1850	1710	1080	1160
19	1210	1260	1400	4870	5110	2450	1620	1650	1440	2130	948	1060
20	1110	1230	1390	5340	4010	1710	1530	1720	1240	1740	868	1250
21	1170	1510	1450	5450	3440	2240	1400	1930	1600	1550	955	996
22	1400	4530	1390	3930	2930	2230	1540	1550	1830	2380	672	925
23	1260	3110	1370	2830	2640	2180	1410	1140	8470	3120	879	1240
24	1180	1880	1340	2730	2450	2000	1240	1120	11100	2020	774	1380
25	1760	1530	1230	2900	2300	2120	1240	1470	7180	1590	992	1070
26	1530	1360	1160	2720	2240	2120	1620	1150	5460	2460	837	877
27	1340	1320	1120	2620	1740	1410	1570	1510	5400	2610	935	1150
28	1290	1320	1190	2590	1880	1630	1190	2650	5790	2300	5060	1130
29	1240	1610	1260	3080	---	1980	1390	1850	18900	2630	8220	1110
30	1180	1650	1260	3120	---	1490	1380	1640	34200	2190	2740	920
31	1110	---	1260	2860	---	1890	---	1500	---	1440	1480	---
TOTAL	36584	44365	45370	117530	81530	104020	44890	57190	162040	107410	45710	31458
MEAN	1180	1479	1464	3791	2912	3355	1496	1845	5401	3465	1475	1049
MAX	1760	4530	2380	18100	7560	8970	1850	3340	34200	22100	8220	1490
MIN	854	808	1120	1160	1720	1410	1180	1120	1240	1440	672	726
(†)	-25	-17	+50	+61	+21	+15	+22	-13	+58	-114	-172	-111
MEAN‡	1155	1462	1514	3852	2933	3370	1518	1832	5459	3351	1303	938
CFSM‡	.45	.57	.59	1.51	1.15	1.32	.60	.72	2.14	1.31	.51	.37
IN.‡	.52	.64	.68	1.74	1.20	1.52	.66	.83	2.39	1.52	.59	.41
CAL YR 1994	TOTAL	1052265	MEAN	2883	MAX	33400	MEAN‡	2884	CFSM‡	1.13	IN.‡	15.36
WTR YR 1995	TOTAL	878097	MEAN	2406	MAX	34200	MEAN‡	2387	CFSM‡	.94	IN.‡	12.71

† Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

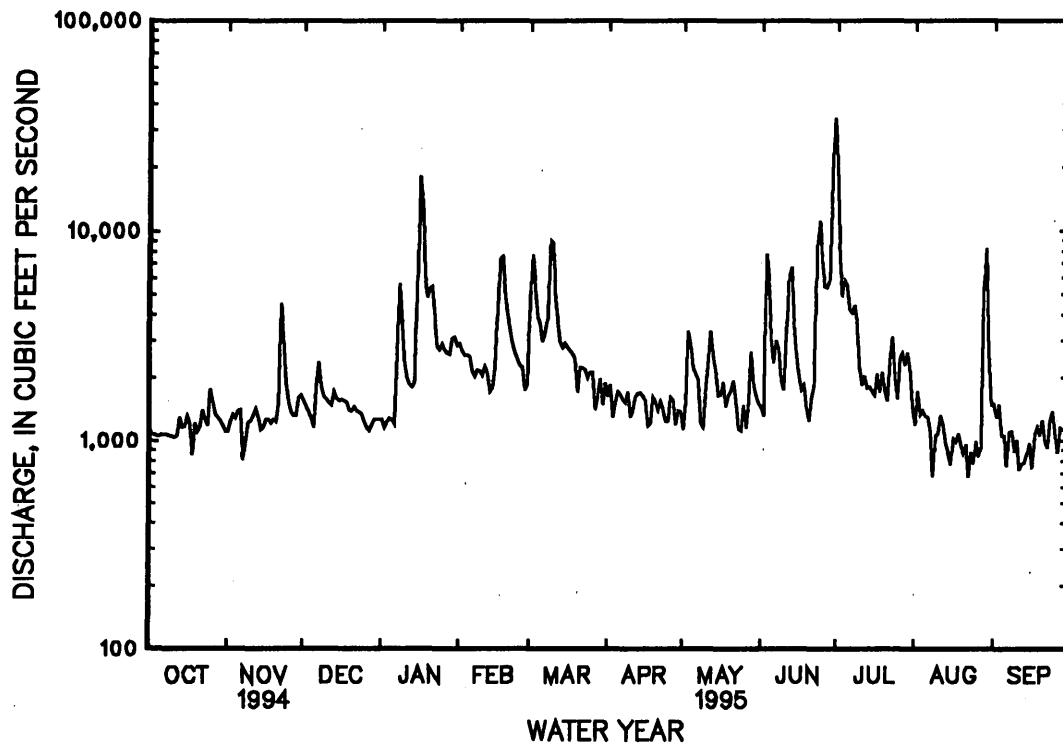
## 02075500 DAN RIVER AT PACES, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2023	2071	2667	3360	3870	4534	4035	2796	2383	1895	1744	1738
MAX	7253	6184	5166	8407	9141	11190	11500	6505	8987	5091	4833	8269
(WY)	1960	1958	1973	1978	1960	1975	1987	1978	1972	1975	1985	1979
MIN	616	778	1083	1015	1756	1580	1318	1184	860	788	647	452
(WY)	1954	1954	1981	1981	1977	1981	1967	1986	1986	1977	1977	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1951 - 1995	
ANNUAL TOTAL	1052265		878097			
ANNUAL MEAN	2883		2406		2754	
HIGHEST ANNUAL MEAN					4050	
LOWEST ANNUAL MEAN					1310	
HIGHEST DAILY MEAN	33400		34200		63400	
LOWEST DAILY MEAN	808		672		244	
ANNUAL SEVEN-DAY MINIMUM	1060		839		311	
INSTANTANEOUS PEAK FLOW			36800		64800	
INSTANTANEOUS PEAK STAGE			26.65		33.15	
INSTANTANEOUS LOW FLOW			600		193	
ANNUAL RUNOFF (CFSM)	1.13		.94		1.08	
ANNUAL RUNOFF (INCHES)	15.35		12.81		14.67	
10 PERCENT EXCEEDS	4890		4630		4930	
50 PERCENT EXCEEDS	1830		1590		1860	
90 PERCENT EXCEEDS	1170		1060		909	

a Also Aug. 23, 1995.



## ROANOKE RIVER BASIN

## 02076500 GEORGES CREEK NEAR GRETN, VA

LOCATION.--Lat 36°56'11", long 79°18'42", Pittsylvania County, Hydrologic Unit 03010105, on left bank 15 ft downstream from bridge on State Highway 40, 2.8 mi southeast of Gretna, and 5.8 mi upstream from Whitethorn Creek.

DRAINAGE AREA.--9.24 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1703: 1950-52. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 629.54 ft above sea level.

REMARKS.--Records good except those for periods of doubtful gage-height record, Nov. 10-20, Mar. 7, 8, Apr. 19, 21-23, Aug. 20-26, and Sept. 5-15, and periods with ice effect, Jan. 5, and Feb. 6-9, 11-13, which are fair. Occasional regulation at low flow from unknown source. Maximum discharge, 1,480 ft<sup>3</sup>/s, from rating curve extended above 640 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 4.93 ft and 6.22 ft and contracted-opening measurements at gage heights 7.75 ft and 8.50 ft. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 150 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
June 23	0330	*1,030	*6.92	June 29	2045	200	3.06
June 24	0030	174	2.86	July 21	2130	289	3.65

Minimum daily discharge, 3.8 ft<sup>3</sup>/s, Aug. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	5.5	4.8	6.5	7.7	22	5.3	5.2	4.7	17	5.6	6.3
2	4.3	5.7	4.9	6.4	7.7	14	5.5	21	6.8	19	5.6	15
3	4.6	5.9	4.8	5.6	6.9	11	5.9	9.2	14	10	5.5	6.9
4	4.6	5.7	5.0	5.6	8.6	9.7	5.4	7.6	6.8	8.8	5.4	6.3
5	4.5	5.1	5.7	e5.2	7.3	9.1	5.5	6.8	5.5	8.2	5.3	5.9
6	4.3	5.3	5.5	7.7	e7.0	9.7	5.4	6.1	13	12	5.4	e5.7
7	4.2	5.5	5.7	24	e6.5	e8.8	5.3	5.7	18	11	5.5	e5.5
8	4.2	5.5	5.6	11	e5.8	e9.8	5.1	5.5	8.1	9.2	5.4	e5.4
9	4.5	5.5	5.2	8.7	e5.2	15	5.2	5.3	6.2	8.2	5.2	e5.4
10	4.7	e6.8	5.2	8.0	6.1	9.3	5.1	8.6	8.2	7.8	5.2	e5.2
11	4.3	e6.0	6.2	7.7	e5.9	8.0	5.1	10	11	7.2	5.1	e5.1
12	4.5	e5.6	5.8	8.6	e5.6	7.3	5.2	6.8	18	6.2	5.0	e5.0
13	4.6	e5.3	5.4	7.7	e5.4	7.1	6.9	5.9	8.9	6.2	5.0	e4.9
14	5.6	e5.6	5.9	7.4	6.1	7.1	5.9	5.7	6.5	5.9	5.0	e4.8
15	5.3	e5.4	5.9	36	10	7.2	5.6	5.6	5.6	5.8	4.8	e4.7
16	5.1	e5.2	5.7	16	13	7.4	5.2	5.4	5.2	7.1	4.8	6.1
17	4.8	e4.8	6.1	10	12	6.9	5.1	5.4	4.9	8.4	4.9	8.3
18	4.6	e5.0	5.9	8.7	9.2	6.5	4.8	5.4	4.7	6.0	4.7	6.5
19	4.9	e4.7	5.5	8.0	8.3	6.8	4.7	12	4.7	5.7	4.5	6.1
20	5.3	e4.6	5.4	16	7.5	6.9	4.6	6.6	5.0	5.6	e4.4	6.3
21	5.2	21	5.4	9.6	7.1	7.9	4.9	5.3	4.8	38	e4.3	6.3
22	5.3	9.4	5.3	8.1	6.8	6.7	4.8	4.8	44	18	e4.2	9.0
23	7.6	6.4	5.3	7.6	6.7	7.0	4.7	4.5	253	8.0	e4.1	7.2
24	5.8	5.3	5.4	7.3	6.3	6.5	5.9	4.4	46	9.1	e4.0	6.5
25	5.2	5.2	5.5	7.1	6.2	6.2	4.9	4.3	14	7.6	e3.9	6.8
26	5.2	5.0	5.6	7.0	6.1	6.2	4.6	4.3	11	8.9	e3.8	6.7
27	5.3	5.7	5.5	6.7	6.1	6.2	4.5	7.3	8.6	6.7	7.4	6.4
28	5.2	6.2	6.0	7.2	20	6.0	4.4	7.8	8.5	6.4	6.9	6.3
29	5.3	5.2	6.2	7.5	---	5.9	4.3	7.0	72	6.3	5.6	6.2
30	5.3	5.0	5.7	7.8	---	5.9	5.5	5.4	33	6.1	5.4	6.1
31	5.5	---	5.8	7.6	---	5.7	---	4.6	---	5.8	5.2	---
TOTAL	154.1	183.1	171.9	298.3	217.1	259.8	155.3	209.5	660.7	296.2	157.1	192.9
MEAN	4.97	6.10	5.55	9.62	7.75	8.38	5.18	6.76	22.0	9.55	5.07	6.43
MAX	7.6	21	6.2	36	20	22	6.9	21	253	38	7.4	15
MIN	4.2	4.6	4.8	5.2	5.2	5.7	4.3	4.3	4.7	5.6	3.8	4.7
CFSM	.54	.66	.60	1.04	.84	.91	.56	.73	2.38	1.03	.55	.70
IN.	.62	.74	.69	1.20	.87	1.05	.63	.84	2.66	1.19	.63	.78

e Estimated.



## 02076500 GEORGES CREEK NEAR GRETN, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	8.08	8.83	9.66	11.1	12.8	14.6	13.7	10.4	8.41	7.32	6.98	6.97
MAX	28.1	28.9	20.7	29.4	36.1	37.2	45.7	23.3	24.5	17.4	27.7	32.5
(WY)	1991	1986	1962	1978	1979	1975	1987	1958	1972	1989	1985	1979
MIN	3.51	3.23	2.95	3.78	7.06	6.69	5.18	4.18	2.64	2.69	2.78	2.06
(WY)	1952	1982	1956	1956	1968	1981	1995	1981	1970	1977	1977	1954

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1950 - 1995

ANNUAL TOTAL	3749.3	2956.0	
ANNUAL MEAN	10.3	8.10	9.88
HIGHEST ANNUAL MEAN			15.4
LOWEST ANNUAL MEAN			5.51
HIGHEST DAILY MEAN	210	Mar 28	503
LOWEST DAILY MEAN	4.2	aOct 7	1.0
ANNUAL SEVEN-DAY MINIMUM	4.4	cOct 2	1.4
INSTANTANEOUS PEAK FLOW			1030
INSTANTANEOUS PEAK STAGE			6.92
INSTANTANEOUS LOW FLOW			(d)
ANNUAL RUNOFF (CFSM)	1.11		.88
ANNUAL RUNOFF (INCHES)	15.09		11.90
10 PERCENT EXCEEDS	14		10
50 PERCENT EXCEEDS	7.1		5.9
90 PERCENT EXCEEDS	5.2		4.7

a Also Oct. 8, 1994.

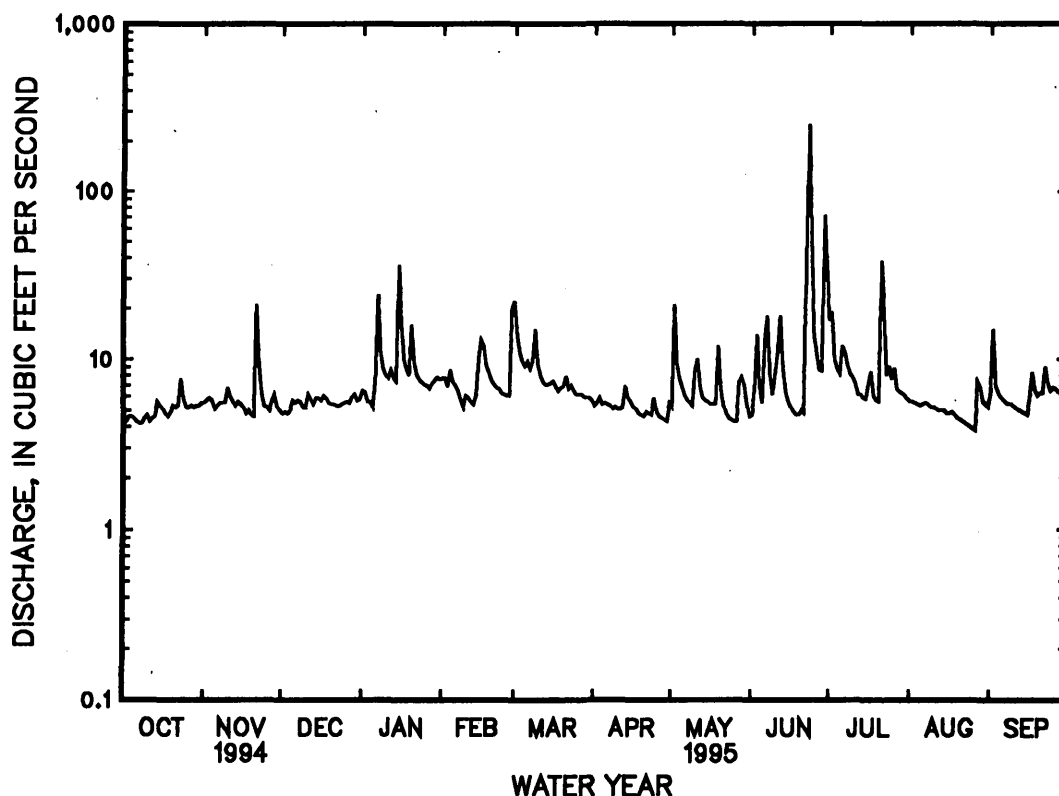
b Also Apr. 5, 1956, and July 28, 1966.

c Also Oct. 3-7, 1994.

d Not determined.

e Estimated.

f Probably occurred Aug. 26, 1995.



## ROANOKE RIVER BASIN

## 02077000 BANISTER RIVER AT HALIFAX, VA

LOCATION.--Lat 36°46'35", long 78°54'58", Halifax County, Hydrologic Unit 03010105, on left bank 10 ft downstream from bridge on U.S. Highway 360, 1,700 ft downstream from Terrible Creek, 1 mi northeast of Halifax, and 10 mi upstream from mouth

DRAINAGE AREA.--547 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1904 to December 1905, October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 892: 1929-30, 1932-35. WSP 972: 1938(M), 1940. WSP 1112: 1943(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 318.54 ft above sea level (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.--No estimated daily discharges. Records good. Flow regulated by a reservoir and hydroelectric generating facility 0.5 mi upstream from station. Maximum discharge, 50,000 ft<sup>3</sup>/s, from rating curve extended above 13,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow and velocity-area study. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,100 ft<sup>3</sup>/s, June 24, gage height, 23.35 ft; minimum daily, 91 ft<sup>3</sup>/s, Oct. 8-12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	162	206	194	394	677	281	206	185	7260	259	141
2	93	162	171	144	463	1090	242	464	202	3630	240	327
3	93	141	171	156	369	1120	267	894	1340	1260	223	422
4	92	105	170	155	430	571	263	538	1180	906	198	221
5	92	149	202	155	422	557	235	332	552	921	194	169
6	106	163	172	109	341	562	245	258	340	936	183	122
7	163	161	210	463	279	630	232	239	635	1600	182	160
8	91	106	170	822	332	584	257	205	950	1790	182	108
9	91	171	169	508	264	1390	227	188	573	918	182	108
10	91	147	170	350	347	1350	244	268	446	593	182	169
11	91	210	170	273	325	916	233	501	1720	247	141	122
12	91	204	170	250	305	535	244	352	1750	331	181	106
13	106	198	170	261	302	528	376	334	2260	397	178	106
14	188	129	167	240	272	478	305	229	1430	264	128	106
15	201	173	215	734	391	451	275	243	717	252	112	106
16	191	187	178	1750	808	338	254	187	447	239	114	107
17	114	120	178	1580	1140	454	247	193	256	594	150	116
18	93	186	196	1000	908	297	240	191	256	529	112	164
19	177	142	190	501	677	361	227	196	266	279	112	146
20	138	208	175	820	573	326	232	254	249	242	112	144
21	139	558	174	955	473	346	219	227	229	248	112	107
22	134	1080	173	672	459	353	214	183	291	577	148	144
23	159	844	147	460	281	335	213	181	3550	1580	109	210
24	142	358	165	414	443	331	243	163	9150	862	108	226
25	211	235	195	371	302	289	277	98	5660	487	107	181
26	136	215	153	334	325	295	242	148	1720	655	107	171
27	115	189	117	310	304	290	209	280	809	491	113	185
28	206	230	147	355	389	272	214	216	757	375	260	136
29	130	257	194	341	---	296	197	240	2910	496	246	162
30	109	202	132	410	---	265	202	206	5590	722	180	108
31	159	---	115	416	---	270	---	196	---	334	128	---
TOTAL	4056	7392	5332	15503	12318	16557	7356	8410	46420	30015	4983	4800
MEAN	131	246	172	500	440	534	245	271	1547	968	161	160
MAX	211	1080	215	1750	1140	1390	376	894	9150	7260	260	422
MIN	91	105	115	109	264	265	197	98	185	239	107	106
CFSM	.24	.45	.31	.91	.80	.98	.45	.50	2.83	1.77	.29	.29
IN.	.28	.50	.36	1.05	.84	1.13	.50	.57	3.16	2.04	.34	.33

## 02077000 BANISTER RIVER AT HALIFAX, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 1906, 1929 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	352	396	501	672	754	843	730	481	392	310	330	347
MAX	1691	1431	1211	2125	1857	2738	2121	1374	1588	1065	2898	3717
(WY)	1938	1973	1949	1937	1979	1975	1983	1978	1972	1938	1940	1944
MIN	34.9	86.1	163	170	185	270	196	178	94.0	80.1	48.8	29.4
(WY)	1931	1932	1966	1981	1934	1981	1967	1981	1970	1986	1977	1954

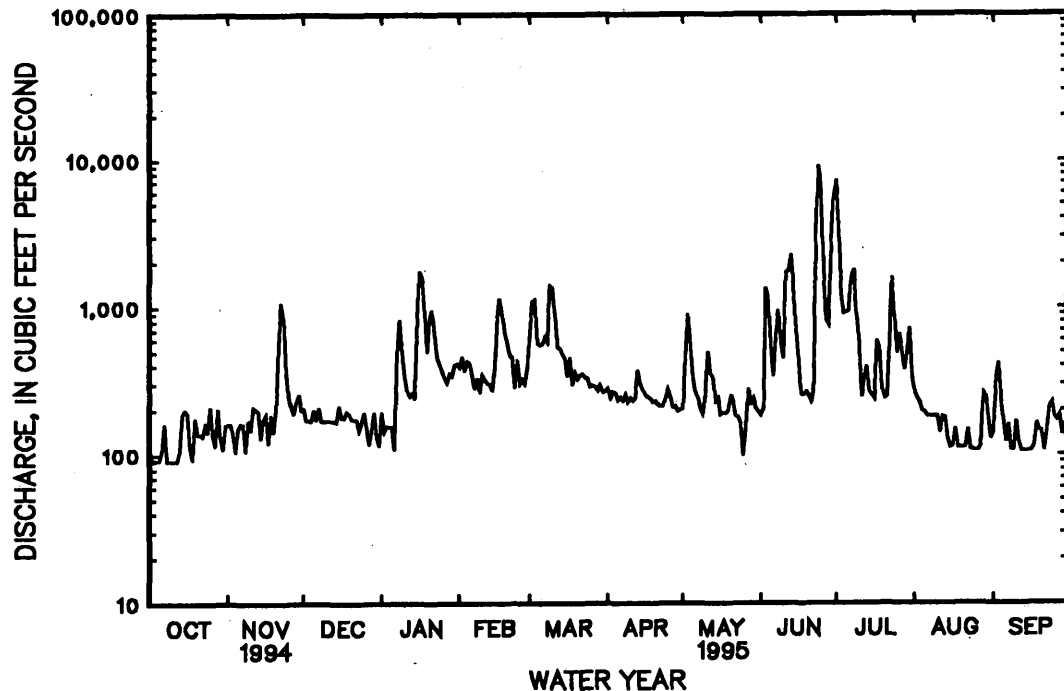
SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1905 - 1906 1929 - 1995	
ANNUAL TOTAL	189760		163142			
ANNUAL MEAN	520		447		508	
HIGHEST ANNUAL MEAN					814	
LOWEST ANNUAL MEAN					225	
HIGHEST DAILY MEAN	7820		9150		44700	
LOWEST DAILY MEAN	91		91		6.0	
ANNUAL SEVEN-DAY MINIMUM	103		103		18	
INSTANTANEOUS PEAK FLOW			10100		50000	
INSTANTANEOUS PEAK STAGE			23.35		b40.80	
INSTANTANEOUS LOW FLOW			90		6.0	
ANNUAL RUNOFF (CFSM)	.95		.82		.93	
ANNUAL RUNOFF (INCHES)	12.91		11.09		12.63	
10 PERCENT EXCEEDS	976		875		951	
50 PERCENT EXCEEDS	257		239		304	
90 PERCENT EXCEEDS	121		114		112	

a Also Oct. 9-12, 1994.

b From floodmarks.

c Also Oct. 20-22, 1994.

d Many days in August and September 1932.



## ROANOKE RIVER BASIN

## 02077500 HYCO RIVER NEAR DENNISTON, VA

LOCATION.--Lat 36°35'16", long 78°53'56", Halifax County, Hydrologic Unit 03010104, on left bank 60 ft upstream from bridge on U.S. Highway 501, 0.8 mi upstream from Mayo Creek, 2.5 mi northeast of Denniston, and 7.3 mi south of South Boston.

DRAINAGE AREA.--289 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to September 1934, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1383: Drainage area, 1930. WSP 1503: 1930(M). WSP 1723: 1930(m). WDR VA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 315.24 ft above sea level. July 10, 1929, to Mar. 14, 1934, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Small diurnal fluctuation at low flow in some years caused by mill upstream from station. Since September 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. Maximum discharge, 10,800 ft<sup>3</sup>/s, from rating curve extended above 8,200 ft<sup>3</sup>/s. Minimum gage height, 3.58 ft, Sept. 14, 1932. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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, 6,330 ft<sup>3</sup>/s, Aug. 29, gage height, 20.25 ft; minimum, 19 ft<sup>3</sup>/s, Oct. 2, 4, 8, 9; minimum gage height, 4.45 ft, June 1-2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	27	32	30	175	440	99	30	27	5410	43	524
2	19	32	33	31	208	580	99	65	28	2600	41	133
3	22	29	32	29	202	1210	97	56	59	932	40	65
4	20	27	31	29	209	699	98	40	38	1230	39	49
5	21	26	30	31	209	636	98	36	30	1220	38	43
6	21	26	32	38	202	259	96	34	33	522	36	41
7	20	25	30	258	200	222	81	32	38	136	36	40
8	20	27	29	129	200	498	76	30	34	81	37	38
9	20	28	29	71	193	1810	75	31	35	65	36	37
10	20	30	29	57	113	2100	73	39	37	57	36	34
11	21	41	29	50	107	1910	73	43	123	52	36	33
12	21	33	29	45	104	1200	74	35	175	47	35	34
13	22	29	29	44	99	192	83	31	95	42	33	35
14	25	28	30	41	99	160	76	30	49	40	32	36
15	47	28	32	496	158	147	72	30	39	37	33	32
16	28	29	31	888	494	138	44	31	35	38	33	32
17	23	28	31	226	984	130	36	31	32	43	112	35
18	22	28	32	190	1400	125	36	30	29	37	33	36
19	23	27	29	174	1570	121	37	31	28	33	31	32
20	24	26	30	251	1480	117	35	31	30	31	30	31
21	25	33	30	215	1060	124	35	29	30	31	30	31
22	27	88	30	180	221	123	33	27	36	240	31	32
23	25	42	32	169	187	115	32	28	1610	82	30	40
24	30	33	33	163	171	112	38	28	1720	45	30	35
25	26	29	29	155	159	109	43	28	348	362	30	31
26	26	27	28	150	152	107	36	28	237	102	30	35
27	26	28	28	147	146	105	34	28	734	66	53	34
28	26	42	29	150	154	106	33	29	964	56	1600	32
29	26	36	29	182	---	104	31	31	1440	52	5610	30
30	25	34	29	167	---	103	30	29	4680	47	3170	30
31	26	---	29	171	---	101	---	28	---	44	1610	---
TOTAL	747	966	935	4957	10656	13903	1803	1029	12793	13780	13014	1670
MEAN	24.1	32.2	30.2	160	381	448	60.1	33.2	426	445	420	55.7
MAX	47	88	33	888	1570	2100	99	65	4680	5410	5610	524
MIN	19	25	28	29	99	101	30	27	27	31	30	30
CFSM	.08	.11	.10	.55	1.32	1.55	.21	.11	1.48	1.54	1.45	.19
IN.	.10	.12	.12	.64	1.37	1.79	.23	.13	1.65	1.77	1.68	.21

## 02077500 HYCO RIVER NEAR DENNISTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1934, 1951 - 1964, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	131	182	268	383	537	532	456	216	134	81.7	133	103
MAX	882	758	847	1113	1363	1000	800	767	360	226	600	890
(WY)	1930	1963	1933	1962	1960	1963	1934	1958	1934	1930	1931	1934
MIN	3.67	8.29	28.6	34.2	59.6	119	106	45.3	33.8	14.5	5.65	.71
(WY)	1934	1954	1934	1934	1934	1930	1963	1964	1963	1932	1953	1954

## SUMMARY STATISTICS

WATER YEARS 1929 - 1934,  
1951 - 1964

ANNUAL MEAN	262
HIGHEST ANNUAL MEAN	390
LOWEST ANNUAL MEAN	160
HIGHEST DAILY MEAN	7490
LOWEST DAILY MEAN	.10
ANNUAL SEVEN-DAY MINIMUM	.10
INSTANTANEOUS PEAK FLOW	7630
INSTANTANEOUS PEAK STAGE	21.88
INSTANTANEOUS LOW FLOW	.004
ANNUAL RUNOFF (CFSM)	c.93
ANNUAL RUNOFF (INCHES)	c12.65
10 PERCENT EXCEEDS	c748
50 PERCENT EXCEEDS	c89
90 PERCENT EXCEEDS	c14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	100	121	203	461	492	590	361	209	118	142	105	120
MAX	805	786	815	1692	1247	1683	1048	1332	647	1492	420	935
(WY)	1972	1973	1973	1978	1979	1993	1983	1978	1982	1975	1995	1974
MIN	11.7	14.8	21.1	28.5	62.1	44.6	38.7	26.2	17.2	15.8	13.1	11.8
(WY)	1969	1968	1966	1966	1991	1981	1981	1986	1986	1966	1977	1967

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1965 - 1995

ANNUAL TOTAL	85061	76253	
ANNUAL MEAN	233	209	251
HIGHEST ANNUAL MEAN			536
LOWEST ANNUAL MEAN			37.1
HIGHEST DAILY MEAN	4670	Mar 4	5610
LOWEST DAILY MEAN	19	dSep 12	19
ANNUAL SEVEN-DAY MINIMUM	20	Sep 12	20
INSTANTANEOUS PEAK FLOW			6330
INSTANTANEOUS PEAK STAGE			20.25
INSTANTANEOUS LOW FLOW			19
ANNUAL RUNOFF (CFSM)	.81		.72
ANNUAL RUNOFF (INCHES)	10.95		9.82
10 PERCENT EXCEEDS	553		354
50 PERCENT EXCEEDS	43		36
90 PERCENT EXCEEDS	22		27

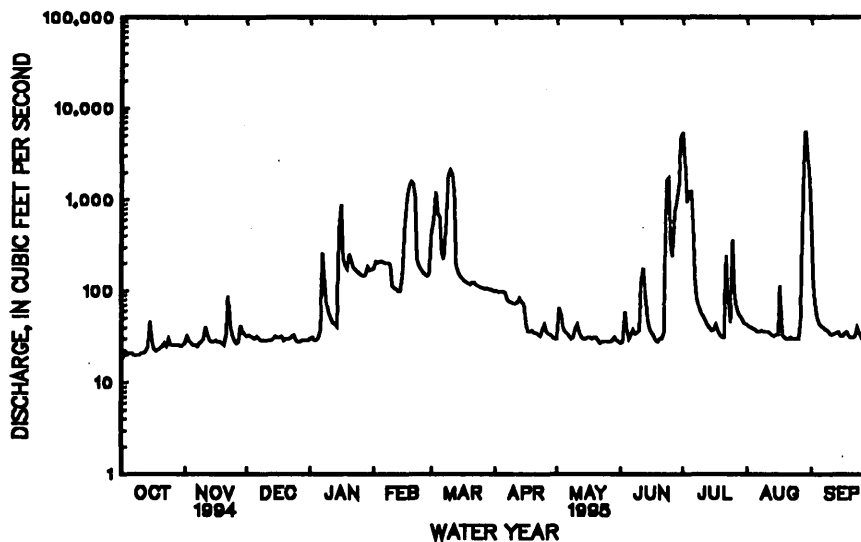
a Also Aug. 30 to Sept. 25, 1932.

b The date published in the 1991-94 reports (Oct. 1, 1929) was in error.

c For water years 1951 to 1964 only.

d Also Sept. 17-19, and Oct. 2, 1994.

f Also Oct. 4, 8, 9, 1994.



## 02079490 JOHN H. KERR RESERVOIR NEAR BOYDTON, VA

LOCATION.--Lat 36°35'56", long 78°18'06", Mecklenburg County, Hydrologic Unit 03010102, at John H. Kerr Dam on Roanoke River, 2.7 mi upstream from Allen Creek, 6.7 mi southeast of Boydton, 18 mi upstream from the Virginia-North Carolina State line, and at mile 178.7.

DRAINAGE AREA.--7,780 mi<sup>2</sup>, approximately.

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

GAGE.--Water-stage recorder. Datum of gage is at sea level.

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, water supply, and recreation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

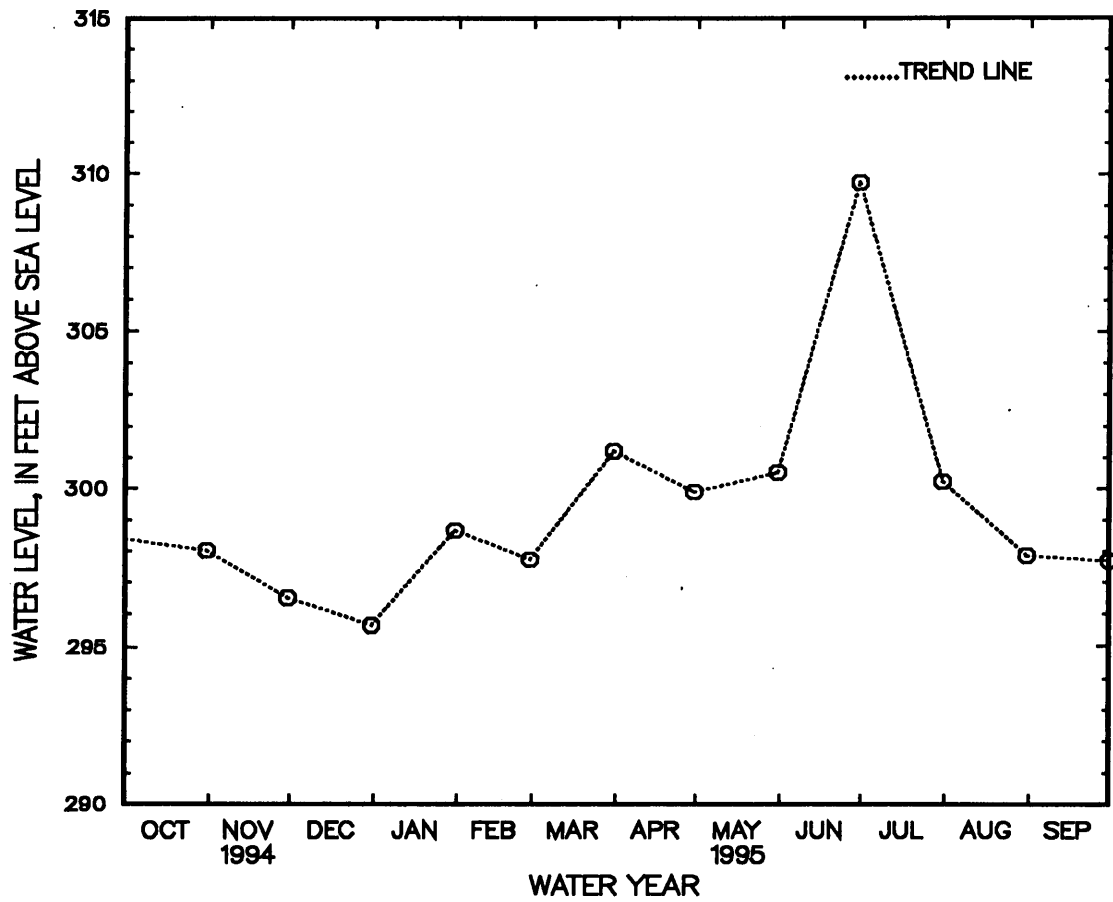
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,736,460 acre-ft, Apr. 29, 1987, elevation, 319.61 ft; minimum (after first filling to rule curve), 724,700 acre-ft, Feb. 3, 1956, elevation, 280.23 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,260,480 acre-ft, July 3, elevation, 313.37 ft; minimum, 1,265,580 acre-ft, Jan. 6, elevation, 295.22 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	298.39	1,410,340	-
Oct. 31.....	298.01	1,392,180	-18,160
Nov. 30.....	296.51	1,322,950	-69,230
Dec. 31.....	295.66	1,284,940	-38,010
CAL YR 1994.....			-2,640
Jan. 31.....	298.66	1,423,250	+138,310
Feb. 28.....	297.73	1,379,120	-44,130
Mar. 31.....	301.20	1,549,420	+170,300
Apr. 30.....	299.90	1,483,690	-65,730
May 31.....	300.52	1,514,860	+31,170
June 30.....	309.73	2,028,310	+513,450
July 31.....	300.23	1,500,220	-528,100
Aug. 31.....	297.86	1,385,180	-115,040
Sept. 30.....	297.69	1,377,250	-7,922
WTR YR 1995.....			-33,090

02079490 JOHN H. KERR RESERVOIR NEAR BOYDTON, VA--Continued



## 02079640 ALLEN CREEK NEAR BOYDTON, VA

LOCATION.--Lat 36°40'46", long 78°19'37", Mecklenburg County, Hydrologic Unit 03010106, on left bank at upstream side of bridge on U.S. Highway 58, 0.8 mi upstream from Coleman Creek, 2.3 mi downstream from Layton Creek, 3.7 mi east of Boydton, and 11.8 mi southwest of South Hill.

DRAINAGE AREA.--53.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 216.50 ft above sea level (levels by Virginia Department of Transportation).

REMARKS.--Records good except those for periods with ice effect, Jan. 6, and Feb. 7-9, and periods of doubtful gage-height record, Jan. 22, 23, and Mar. 13, which are fair. Maximum discharge, 5,620 ft<sup>3</sup>/s, from rating curve extended above 3,100 ft<sup>3</sup>/s. No flow many days in August, September, and October 1968, September and October 1970. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2000	909	11.67	Mar. 9	0330	*1,500	*14.78

Minimum discharge, 0.78 ft<sup>3</sup>/s, Sept. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	2.4	8.4	6.9	45	176	13	8.0	8.7	30	2.4	1.6
2	1.2	2.8	7.9	7.3	32	110	13	56	10	49	2.3	2.6
3	1.1	2.9	7.5	7.0	26	48	12	38	100	21	2.2	2.8
4	1.1	2.2	7.4	6.8	25	38	12	21	30	12	2.0	1.9
5	1.1	2.1	7.5	6.5	27	35	12	17	17	9.1	2.0	1.5
6	1.1	2.1	7.6	e6.3	22	48	11	15	14	8.2	2.0	1.4
7	1.1	2.1	7.3	206	e18	65	12	13	15	97	2.0	1.2
8	1.1	2.1	7.0	51	e10	171	12	12	13	19	1.9	1.2
9	1.1	2.1	6.8	24	e14	718	11	11	24	9.9	1.9	1.2
10	1.0	2.3	6.7	18	16	102	11	16	63	7.4	1.9	1.2
11	1.0	3.0	7.0	14	16	59	10	20	46	6.5	2.2	1.1
12	1.0	3.1	7.0	12	16	44	11	14	71	6.7	2.1	1.1
13	1.0	2.7	6.7	12	14	e35	16	11	239	5.2	1.9	1.0
14	1.3	2.6	6.9	11	14	32	15	11	35	4.6	2.3	.96
15	2.1	2.4	7.2	261	22	29	12	11	21	4.3	2.7	.89
16	2.1	2.3	7.1	168	196	26	11	10	16	4.1	2.1	.90
17	1.7	2.4	7.1	49	245	24	10	9.2	13	19	1.9	1.2
18	1.5	2.8	7.3	33	95	22	10	9.0	11	6.0	1.8	1.4
19	1.4	2.6	7.2	27	64	20	10	8.7	10	4.4	1.6	1.5
20	1.5	2.5	6.9	79	44	19	9.6	8.6	10	3.8	1.5	1.4
21	1.5	36	6.7	53	35	23	8.9	8.4	10	3.6	1.4	1.4
22	1.7	82	6.6	e31	28	26	8.7	8.0	9.6	3.6	1.3	1.4
23	1.7	18	6.9	e26	24	21	8.3	7.7	9.9	3.4	1.3	1.8
24	1.7	10	7.0	23	21	19	16	7.4	27	4.0	1.2	1.7
25	1.7	8.3	6.9	21	19	17	17	7.1	62	3.6	1.2	1.6
26	1.8	7.6	6.7	19	18	16	11	7.0	41	3.4	1.1	1.8
27	1.8	7.6	6.6	18	17	16	9.7	18	20	3.5	1.3	1.9
28	1.8	9.9	6.4	18	19	15	8.8	21	14	3.5	2.1	1.7
29	1.8	11	6.4	26	---	15	8.3	35	286	3.2	2.3	1.6
30	1.9	9.3	6.4	27	---	14	8.0	15	116	2.8	1.8	1.5
31	1.9	---	6.3	56	---	14	---	10	---	2.5	1.6	---
TOTAL	45.0	249.2	217.4	1323.8	1142	2017	338.3	464.1	1362.2	364.3	57.3	44.45
MEAN	1.45	8.31	7.01	42.7	40.8	65.1	11.3	15.0	45.4	11.8	1.85	1.48
MAX	2.1	82	8.4	261	245	718	17	56	286	97	2.7	2.8
MIN	1.0	2.1	6.3	6.3	10	14	8.0	7.0	8.7	2.5	1.1	.89
CFSM	.03	.16	.13	.80	.76	1.22	.21	.28	.85	.22	.03	.03
IN.	.03	.17	.15	.92	.80	1.41	.24	.32	.95	.25	.04	.03

e Estimated.



## 02079640 ALLEN CREEK NEAR BOYDTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	24.9	32.1	42.6	77.6	84.1	99.5	69.8	36.0	26.2	18.3	12.2	15.4
MAX	201	151	107	239	214	289	404	132	125	174	61.9	188
(WY)	1972	1986	1984	1978	1979	1975	1987	1971	1982	1975	1989	1979
MIN	.20	1.61	2.36	7.42	19.4	15.3	10.9	10.3	4.91	1.88	1.16	.022
(WY)	1971	1966	1966	1981	1968	1981	1966	1986	1986	1966	1970	1970

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1962 - 1995	
ANNUAL TOTAL	14115.5		7625.05			
ANNUAL MEAN	38.7		20.9		44.7	
HIGHEST ANNUAL MEAN					80.8	
LOWEST ANNUAL MEAN					15.0	
HIGHEST DAILY MEAN	1600	Mar 2	718	Mar 9	e3700	Apr 25 1987
LOWEST DAILY MEAN	1.0	aOct 10	.89	Sep 15	.00	(b)
ANNUAL SEVEN-DAY MINIMUM	1.0	Oct 7	1.0	cSep 10	.00	(b)
INSTANTANEOUS PEAK FLOW			1500	Mar 9	5620	Oct 23 1971
INSTANTANEOUS PEAK STAGE			14.78	Mar 9	21.80	Oct 23 1971
INSTANTANEOUS LOW FLOW			.78	dSep 15	.00	(b)
ANNUAL RUNOFF (CFSM)	.72		.39		.84	
ANNUAL RUNOFF (INCHES)	9.83		5.31		11.37	
10 PERCENT EXCEEDS	85		42		82	
50 PERCENT EXCEEDS	7.5		8.4		15	
90 PERCENT EXCEEDS	1.7		1.4		2.0	

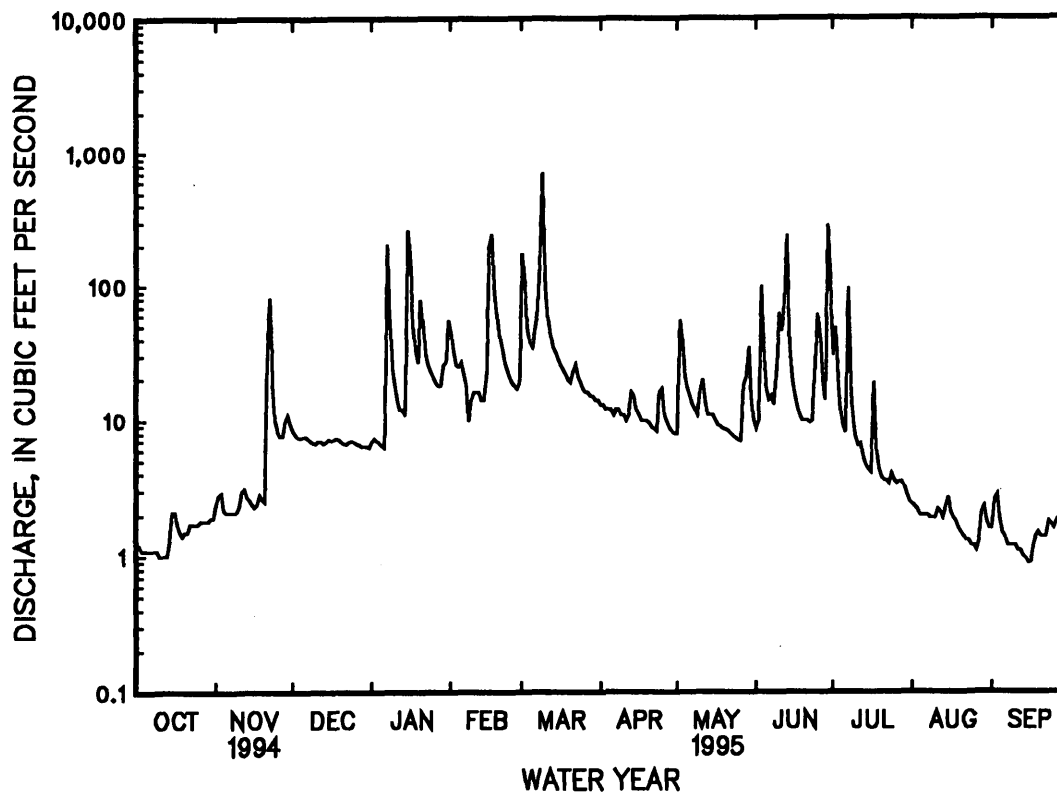
a Also Oct. 11-13, 1994.

b No flow many days in August, September, and October 1968, September and October 1970.

c Also Sept. 11, 1995.

d Also Sept. 16, 1995.

e Estimated.



## KANAWHA RIVER BASIN

## 03161000 SOUTH FORK NEW RIVER NEAR JEFFERSON, NC

LOCATION.--Lat 3623'35", long 8124'26", Ashe County, Hydrologic Unit 05050001, on right bank 600 ft upstream from bridge on State Highways 16 and 88, 0.2 mi downstream of Bear Creek, and 4 mi southeast of Jefferson.

DRAINAGE AREA.--205 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1275: 1925-26(M), 1928-30(M), 1931-32, 1933-35(M), 1941-42(m), 1944(m). WDR NC-81-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,657.04 ft above sea level. 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. U.S. Army Corps of Engineers satellite telemetry at station.

REMARKS.--Records good except those during periods of ice effect, Jan. 5-6, and Feb. 5-14, which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location. Maximum discharge for period of record, from rating curve extended above 14,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum discharge for period of record and current water year, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 15, 1916, reached a stage of 18.0 ft, from floodmarks witnessed by local resident; discharge, 35,200 ft<sup>3</sup>/s.

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

## DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	248	284	311	360	562	613	405	304	316	542	253	286
2	241	288	288	305	553	564	399	543	567	488	242	264
3	247	256	274	269	572	536	391	465	860	432	235	248
4	255	250	360	253	645	525	386	360	553	425	329	231
5	243	243	1400	e241	e615	514	378	340	460	493	322	224
6	233	244	869	e262	e528	526	370	328	572	436	274	220
7	232	237	591	926	e489	513	368	308	731	419	243	221
8	229	230	485	488	e465	1220	362	299	535	365	247	213
9	239	227	423	369	e455	2100	357	293	453	334	258	210
10	267	243	412	334	e446	1010	353	398	393	323	250	210
11	258	267	553	318	e436	825	350	455	403	313	435	316
12	230	253	452	508	e432	731	380	374	510	298	314	288
13	294	230	395	470	e432	670	411	344	531	287	286	245
14	903	226	378	4510	e441	628	368	632	411	280	234	234
15	706	221	369	15400	545	601	344	659	364	273	220	254
16	416	220	353	3190	1070	578	337	484	341	278	212	376
17	339	227	346	1670	1180	549	336	414	410	450	206	948
18	310	227	339	1230	852	529	337	379	360	313	233	503
19	298	224	317	1060	753	512	331	391	346	269	271	353
20	295	212	303	1490	677	499	323	414	561	258	255	304
21	285	302	301	1080	638	566	324	341	512	285	248	281
22	270	375	291	914	608	547	325	320	747	262	271	273
23	331	278	287	822	566	489	328	310	812	247	284	279
24	405	240	279	758	547	472	420	299	648	237	220	283
25	309	229	270	698	521	451	386	288	634	231	208	268
26	305	222	262	669	505	440	340	278	537	318	282	258
27	284	309	257	636	496	441	318	284	534	341	773	249
28	269	529	255	639	608	443	311	361	561	253	837	240
29	261	431	250	654	---	426	301	360	489	258	450	230
30	254	352	246	619	---	418	296	309	503	287	346	223
31	255	---	270	592	---	411	---	277	---	297	301	---
TOTAL	9711	8076	12186	41734	16637	19347	10635	11611	15654	10292	9539	8732
MEAN	313	269	393	1346	594	624	354	375	522	332	308	291
MAX	903	529	1400	15400	1180	2100	420	659	860	542	837	948
MIN	229	212	246	241	432	411	296	277	316	231	206	210
CFSM	1.53	1.31	1.92	6.57	2.90	3.04	1.73	1.83	2.55	1.62	1.50	1.42
IN.	1.76	1.47	2.21	7.57	3.02	3.51	1.93	2.11	2.84	1.87	1.73	1.58

e Estimated.

## 03161000 SOUTH FORK NEW RIVER NEAR JEFFERSON, NC--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	372	408	410	476	521	599	567	465	396	340	364	334
MAX	901	1889	797	1346	973	1316	1350	1052	1036	904	2613	1212
(WY)	1991	1978	1958	1995	1983	1979	1983	1973	1992	1941	1940	1979
MIN	117	124	146	140	197	308	275	220	163	111	93.7	99.5
(WY)	1955	1932	1934	1940	1934	1925	1925	1941	1956	1930	1925	1954

## SUMMARY STATISTICS

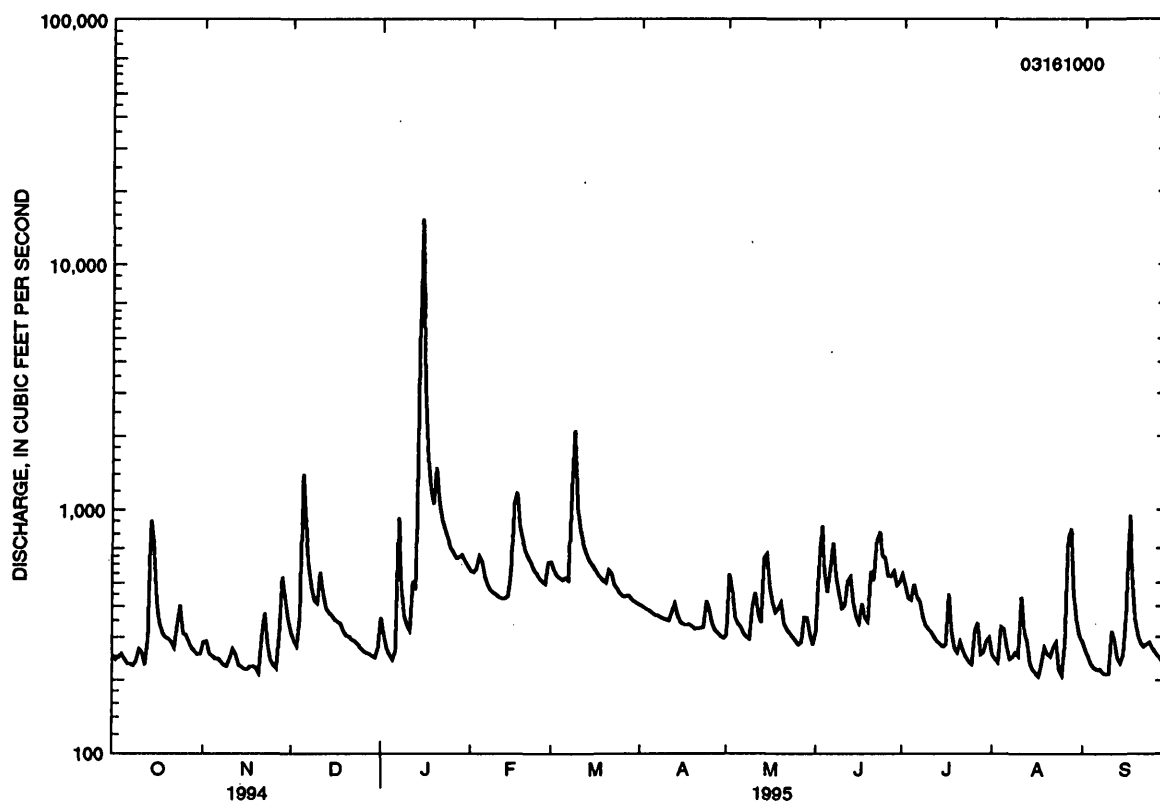
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1925 - 1995

ANNUAL TOTAL	176654		174154									
ANNUAL MEAN	484		477							437		
HIGHEST ANNUAL MEAN										669		1949
LOWEST ANNUAL MEAN										247		1956
HIGHEST DAILY MEAN				10500	Aug 17		15400	Jan 15		27700	Aug 14	1940
LOWEST DAILY MEAN				175	Jan 21		206	Aug 17		65	Sep 9	1925
ANNUAL SEVEN-DAY MINIMUM				194	Jan 19		218	Sep 4		72	Aug 21	1925
INSTANTANEOUS PEAK FLOW							21000	Jan 15		52800*	Aug 14	1940
INSTANTANEOUS PEAK STAGE							13.73	Jan 15		22.50	Aug 14	1940
INSTANTANEOUS LOW FLOW							143*	Jan 5		52*	Dec 24	1943
ANNUAL RUNOFF (CFSM)				2.36			2.33			2.13		
ANNUAL RUNOFF (INCHES)				32.06			31.60			28.98		
10 PERCENT EXCEEDS				707			663			718		
50 PERCENT EXCEEDS				353			344			352		
90 PERCENT EXCEEDS				243			237			175		

\* See REMARKS.



## KANAWHA RIVER BASIN

## 03164000 NEW RIVER NEAR GALAX, VA

LOCATION.--Lat 36°38'50", long 80°58'45", Grayson County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on State Highway 94, 500 ft downstream from Meadow Creek, 1.2 mi southwest of Old Town, 3.1 mi southwest of Galax, and 3.6 mi downstream from Elk Creek.

DRAINAGE AREA.--1,131 mi<sup>2</sup>.

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 sea level.

REMARKS.--Records good except for period with ice effect, Feb. 7-16, which is fair. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. National Weather Service gage-height telemeter at station. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 141,000 ft<sup>3</sup>/s, from rating curve extended above 32,000 ft<sup>3</sup>/s on basis of computation of peak flow over dam at Fries 6 mi downstream and slope-area measurement of peak flow. Minimum discharge, 193 ft<sup>3</sup>/s, Jan. 9, 1956, gage height, 0.52 ft, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 9,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0730	*68,700	*15.23	Mar. 9	0500	12,300	4.74
Feb. 16	1300	19,200	6.25				

Minimum discharge, 614 ft<sup>3</sup>/s, Sept. 5, gage height, 0.90 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	955	1060	1230	1160	2500	2840	1720	1320	1110	2540	938	897
2	940	1140	1140	1180	2410	2650	1690	2240	2130	2960	864	946
3	940	1060	1070	1100	2370	2460	1660	2500	4320	2440	822	838
4	963	997	1070	994	2690	2370	1620	2020	3060	2150	860	747
5	963	966	2580	907	2800	2240	1590	1800	1980	1970	984	698
6	942	940	3530	1060	2300	2240	1570	1730	1770	1900	1010	670
7	922	937	2250	3040	e2000	2230	1540	1630	2340	2360	849	664
8	916	909	1780	2840	e1900	3650	1540	1560	2260	1700	821	654
9	920	890	1540	1820	e1800	10500	1540	1520	1780	1460	821	634
10	1020	906	1480	1550	e1700	6290	1510	2140	1590	1320	839	646
11	1060	969	2090	1470	e1700	4700	1480	3270	1440	1280	889	1080
12	973	977	2140	1590	e1800	3940	1510	2800	2450	1200	1040	1100
13	943	943	1740	1940	e1700	3440	1660	2320	3180	1140	927	906
14	1230	909	1570	8710	e1600	3090	1590	2610	2360	1100	802	816
15	2170	890	1500	57800	e1800	2810	1490	3890	1780	1060	742	807
16	1650	890	1410	25100	e8800	2620	1430	3290	1500	1040	701	952
17	1230	890	1350	9980	7870	2460	1420	2460	1440	1140	681	3350
18	1100	898	1330	6590	5870	2290	1420	2050	1380	1480	655	2650
19	1060	909	1260	5170	4520	2170	1410	1900	1290	1180	844	1530
20	1110	890	1190	6060	3780	2090	1370	2110	1580	992	886	1160
21	1120	970	1150	5490	3310	2430	1390	1770	2050	957	783	1020
22	1060	1260	1130	4580	2950	2600	1380	1550	3010	948	767	978
23	1190	1200	1120	4100	2620	2260	1360	1430	3820	931	759	997
24	1500	1030	1090	3610	2430	2160	1640	1340	3460	886	728	1040
25	1350	951	1050	3160	2230	2020	1800	1240	3720	884	673	1050
26	1180	932	1010	2950	2070	1930	1620	1210	4040	1190	648	1000
27	1170	989	988	2710	1960	1910	1480	1220	3420	933	1040	1010
28	1100	1410	988	2720	2420	1910	1400	1260	2870	1030	2680	975
29	1040	1640	988	3050	---	1850	1350	1460	3060	892	1810	888
30	997	1410	977	2910	---	1790	1320	1310	2870	871	1170	837
31	988	---	983	2710	---	1750	---	1150	---	1010	956	---
TOTAL	34702	30762	44724	178051	81900	89690	45500	60100	73060	42944	28989	31540
MEAN	1119	1025	1443	5744	2925	2893	1517	1939	2435	1385	935	1051
MAX	2170	1640	3530	57800	8800	10500	1800	3890	4320	2960	2680	3350
MIN	916	890	977	907	1600	1750	1320	1150	1110	871	648	634
CFSM	.99	.91	1.28	5.08	2.59	2.56	1.34	1.71	2.15	1.22	.83	.93
IN.	1.14	1.01	1.47	5.86	2.69	2.95	1.50	1.98	2.40	1.41	.95	1.04

e Estimated.

## 03164000 NEW RIVER NEAR GALAX, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1409	1644	1834	2207	2574	2905	2661	2128	1672	1389	1385	1260
MAX	3625	7189	4005	4933	4714	5827	6345	4469	5280	4017	8148	4827
(WY)	1977	1978	1962	1937	1957	1993	1987	1973	1992	1949	1940	1989
MIN	435	504	592	568	630	958	1017	811	614	426	453	381
(WY)	1954	1954	1956	1956	1934	1988	1942	1941	1988	1930	1988	1954

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

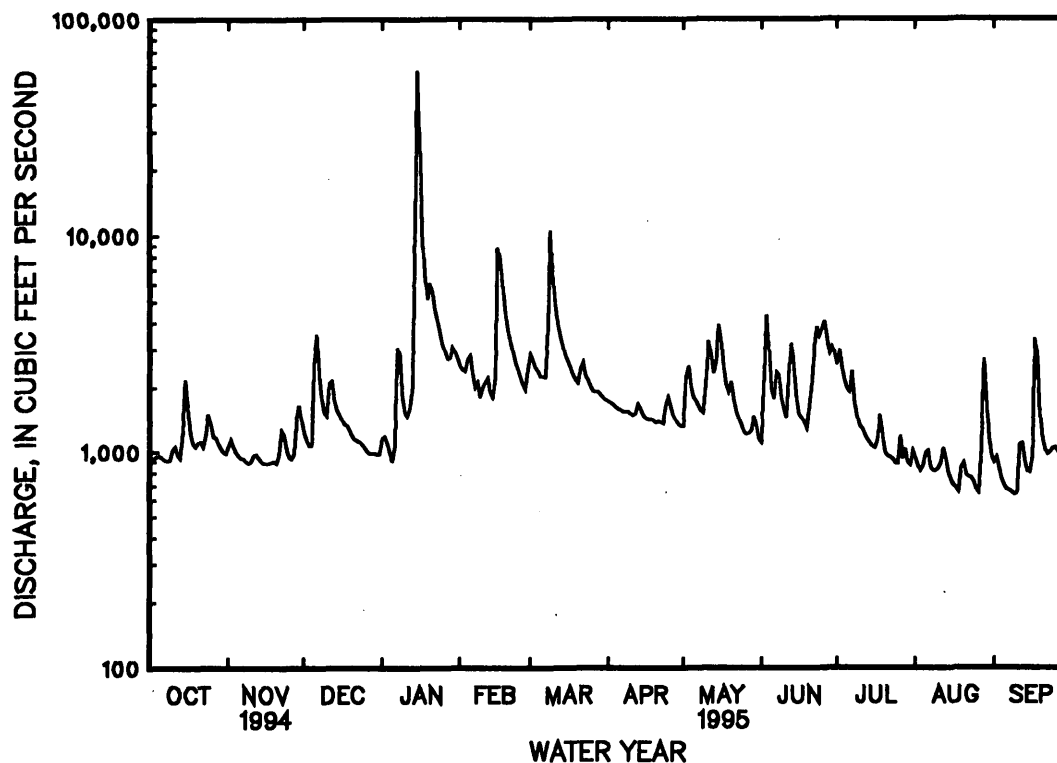
WATER YEARS 1930 - 1995

ANNUAL TOTAL	819107	741962	
ANNUAL MEAN	2244	2033	1917
HIGHEST ANNUAL MEAN			2807
LOWEST ANNUAL MEAN			1034
HIGHEST DAILY MEAN	27600	Aug 17	57800 Jan 15
LOWEST DAILY MEAN	890	aNov 9	634 Sep 9
ANNUAL SEVEN-DAY MINIMUM	897	Nov 14	673 Sep 4
INSTANTANEOUS PEAK FLOW			68700 Jan 15
INSTANTANEOUS PEAK STAGE			15.23 Jan 15
INSTANTANEOUS LOW FLOW			614 Sep 5
ANNUAL RUNOFF (CFSM)	1.98	1.80	1.69
ANNUAL RUNOFF (INCHES)	26.94	24.40	23.02
10 PERCENT EXCEEDS	3770	3120	3430
50 PERCENT EXCEEDS	1640	1430	1450
90 PERCENT EXCEEDS	988	890	668

a Also Nov. 15-17, 20, 1994.

b From floodmark.

c Result of freezeup.



## KANAWHA RIVER BASIN

## 03165000 CHESTNUT CREEK AT GALAX, VA

LOCATION.--Lat 36°38'45", long 80°55'10", Galax City, Hydrologic Unit 05050001, on right bank 200 ft upstream from bridge on State Highway 89 and 1.7 mi downstream from Wards Mill Branch.

DRAINAGE AREA.--39.4 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1944 to current year.

REVISED RECORDS.--WSP 1385: 1953.

GAGE.--Water-stage recorder. Concrete control since Aug. 30, 1979. Datum of gage is 2,344.17 ft above sea level. 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 for period with ice effect, Feb. 6-10, which is poor. Maximum discharge, 6,980 ft<sup>3</sup>/s, from rating curve extended above 2,200 ft<sup>3</sup>/s on basis of two slope-area and one contracted-opening measurements at gage heights 9.5 ft, 14.4 ft, and 17.4 ft, respectively, site and datum then in use. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 14, 1940, reached a stage of 17.4 ft, at site and datum used 1944-53, discharge, 11,000 ft<sup>3</sup>/s, by contracted-opening measurement.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 14	2100	*2,110	*5.87	June 2	1815	861	3.25
Jan. 15	1600	1,630	4.89	Aug. 18	1915	970	3.46
Mar. 8	1645	1,400	4.38				

Minimum discharge, 24 ft<sup>3</sup>/s, Aug. 18, gage height, 1.29 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	53	44	62	73	79	58	48	49	71	33	33
2	38	45	43	49	73	68	57	87	360	63	31	33
3	40	42	41	44	70	66	56	55	158	52	33	29
4	40	41	76	43	92	63	55	51	78	53	43	28
5	38	39	180	50	72	63	54	50	63	49	34	27
6	38	39	80	73	e68	66	54	48	58	46	31	27
7	38	38	64	161	e66	63	54	45	55	51	30	26
8	38	38	56	73	e64	477	54	44	50	42	31	26
9	39	38	52	65	e62	178	53	44	46	40	31	26
10	46	44	68	60	e60	107	52	73	45	40	31	33
11	38	45	89	59	62	92	52	70	49	40	30	40
12	38	40	61	71	60	86	67	52	62	37	29	32
13	41	38	54	63	61	80	66	56	52	36	28	29
14	60	38	55	708	55	76	55	76	45	35	26	27
15	47	37	56	1390	73	72	53	59	42	34	26	27
16	41	37	52	344	158	70	52	50	41	33	25	72
17	39	37	51	160	101	68	51	48	42	60	25	86
18	38	40	50	121	85	66	51	47	44	63	185	43
19	44	39	48	130	77	64	50	48	46	39	80	36
20	48	37	46	286	73	64	49	44	58	35	36	33
21	43	73	45	125	68	79	50	42	52	36	31	32
22	40	55	45	103	62	65	48	41	188	34	36	33
23	87	45	45	94	62	64	52	40	79	33	28	35
24	56	41	43	85	60	63	61	39	69	32	27	33
25	47	41	42	79	57	61	52	38	57	34	27	33
26	50	41	41	77	57	59	49	42	53	42	28	35
27	46	53	41	73	58	60	48	46	51	33	118	33
28	43	59	41	97	99	60	47	49	59	34	66	30
29	41	51	41	90	---	58	46	48	52	35	40	28
30	41	47	40	81	---	58	46	43	97	39	34	28
31	42	---	55	77	---	58	---	39	---	42	32	---
TOTAL	1363	1311	1745	4993	2028	2653	1592	1562	2200	1313	1285	1033
MEAN	44.0	43.7	56.3	161	72.4	85.6	53.1	50.4	73.3	42.4	41.5	34.4
MAX	87	73	180	1390	158	477	67	87	360	71	185	86
MIN	38	37	40	43	55	58	46	38	41	32	25	26
CFSM	1.12	1.11	1.43	4.09	1.84	2.17	1.35	1.28	1.86	1.07	1.05	.87
IN.	1.29	1.24	1.65	4.71	1.91	2.50	1.50	1.47	2.08	1.24	1.21	.98

e Estimated.

## 03165000 CHESTNUT CREEK AT GALAX, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	59.6	63.3	65.6	69.9	81.3	94.6	91.9	76.4	67.8	53.1	49.5	54.4
MAX	197	157	112	161	141	301	233	160	172	150	156	254
(WY)	1948	1980	1958	1995	1960	1993	1983	1973	1992	1989	1949	1989
MIN	19.8	27.3	25.8	23.9	35.9	38.1	37.4	34.2	25.5	20.7	15.6	18.6
(WY)	1964	1982	1964	1956	1989	1988	1989	1956	1988	1986	1981	1954

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1945 - 1995

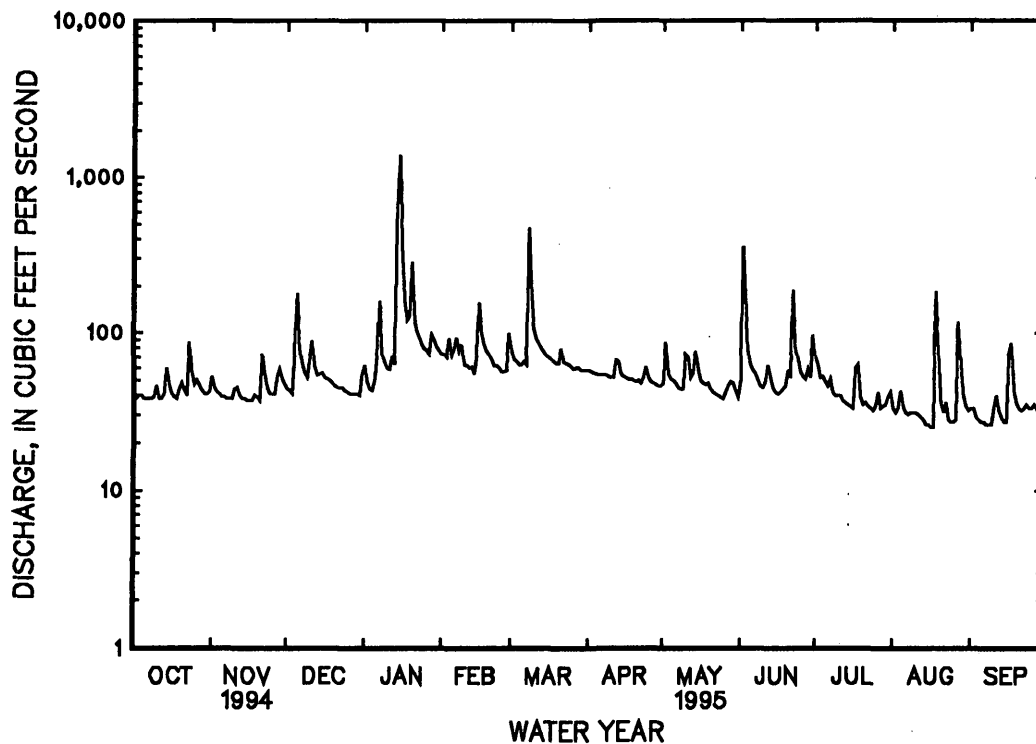
ANNUAL TOTAL	28511	23078	
ANNUAL MEAN	78.1	63.2	68.8
HIGHEST ANNUAL MEAN			107
LOWEST ANNUAL MEAN			37.3
HIGHEST DAILY MEAN	2010	Aug 17	1390 Jan 15
LOWEST DAILY MEAN	24	aJul 10	25 bAug 16
ANNUAL SEVEN-DAY MINIMUM	30	Jun 20	27 Aug 11
INSTANTANEOUS PEAK FLOW			2110 Jan 14
INSTANTANEOUS PEAK STAGE			5.87 Jan 14
INSTANTANEOUS LOW FLOW			24 Aug 18
ANNUAL RUNOFF (CFSM)	1.98	1.60	1.75
ANNUAL RUNOFF (INCHES)	26.92	21.79	23.71
10 PERCENT EXCEEDS	119	80	110
50 PERCENT EXCEEDS	55	49	52
90 PERCENT EXCEEDS	37	33	28

a Also July 11, 1994.

b Also Aug. 17, 1995.

c From floodmark, site and datum then in use.

d Also part or all of each day Aug. 26-30, 1981.



## 03167000 REED CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°56'22", long 80°53'13", Wythe County, Hydrologic Unit 05050001, on left bank 20 ft downstream from bridge on State Highway 619 at Grahams Forge, 2.2 mi downstream from Glade Creek, and at mile 7.3.

DRAINAGE AREA.--247 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1908 to September 1916, January 1927 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1235: 1912-13, 1915-16. WSP 1275: 1911, 1927-28(M), 1930-34(M). WSP 1705: 1913(M), 1916(M), 1957 calendar year runoff. WSP 1725: 1915 calendar year runoff. WDR VA-92-1: 1984-86(P), 1987, 1988-89(P), 1990-91.

GAGE.--Water-stage recorder. Datum of gage is 1,924.65 ft above sea level. 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. 5, 8, Feb 7-9, and Feb. 13, and periods above 2,000 ft<sup>3</sup>/s, Jan 15, 16, which are fair. Occasional diurnal fluctuation at low flow caused by mills upstream from station. Maximum discharge, 17,500 ft<sup>3</sup>/s, from rating curve extended above 7,600 ft<sup>3</sup>/s on basis of velocity-area study and slope-area measurement at gage heights 11.4 ft and 10.01 ft, respectively. Minimum discharge observed, about 5 ft<sup>3</sup>/s, Dec. 22, 1909, gage height, 0.49 ft, present datum, result of freezeup. 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 Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1430	*3,020	*6.28	No other peak equal to or greater than base discharge.			

Minimum daily discharge, 69 ft<sup>3</sup>/s, Sept. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	100	101	92	295	313	197	153	159	207	95	75
2	91	94	97	91	313	314	191	497	281	197	92	77
3	93	91	96	88	359	303	186	551	810	184	89	73
4	94	90	97	86	450	291	178	353	638	171	89	72
5	92	91	112	e70	461	276	172	280	445	165	88	72
6	91	92	217	78	368	280	169	241	345	170	86	70
7	90	92	168	286	e320	279	164	209	296	170	88	70
8	89	89	140	e270	e270	418	162	191	251	149	89	70
9	92	88	125	227	e230	1030	158	180	218	139	90	70
10	92	90	122	188	267	777	155	247	197	134	91	71
11	90	91	164	165	245	687	150	289	198	129	92	71
12	86	91	232	170	230	670	150	262	365	124	89	69
13	89	89	183	181	e190	609	150	235	425	120	83	71
14	98	88	157	312	204	516	145	344	312	117	82	90
15	97	88	142	2420	266	440	139	823	255	114	80	77
16	95	88	130	2000	946	386	137	469	233	146	79	86
17	91	88	126	1180	1510	344	136	336	208	190	75	152
18	89	88	126	756	1010	311	135	275	189	164	85	131
19	92	88	121	537	732	288	134	325	180	131	94	101
20	96	86	115	753	590	270	130	386	197	120	88	92
21	94	93	112	605	506	311	158	297	204	114	84	86
22	93	99	109	468	429	344	156	247	394	110	80	86
23	138	100	106	389	368	323	148	211	775	107	77	90
24	139	92	104	338	331	307	174	191	502	105	75	97
25	118	89	101	296	301	273	199	174	549	104	75	93
26	107	88	99	268	277	256	194	161	419	115	75	94
27	101	97	97	248	263	247	179	161	325	109	90	98
28	96	111	95	265	286	239	166	168	274	118	100	92
29	94	109	93	337	---	225	156	174	246	113	85	88
30	94	105	93	339	---	214	150	173	226	107	79	85
31	95	---	90	314	---	204	---	164	---	100	77	---
TOTAL	3006	2785	3870	13817	12017	11745	4818	8767	10116	4243	2641	2569
MEAN	97.0	92.8	125	446	429	379	161	283	337	137	85.2	85.6
MAX	139	111	232	2420	1510	1030	199	823	810	207	100	152
MIN	86	86	90	70	190	204	130	153	159	100	75	69
CFSM	.39	.38	.51	1.80	1.74	1.53	.65	1.14	1.37	.55	.34	.35
IN.	.45	.42	.58	2.08	1.81	1.77	.73	1.32	1.52	.64	.40	.39

e Estimated.



## 03167000 REED CREEK AT GRAHAMS FORGE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	143	163	244	354	458	512	422	317	211	157	140	117
MAX	626	606	790	911	1411	1406	1374	731	732	867	517	488
(WY)	1938	1930	1973	1936	1957	1955	1987	1958	1992	1916	1916	1989
MIN	45.3	50.7	59.9	61.2	63.5	120	100	91.4	74.6	63.5	60.5	51.4
(WY)	1942	1942	1942	1942	1934	1988	1942	1941	1941	1930	1930	1941

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1909 - 1995	
ANNUAL TOTAL	120487		80394			
ANNUAL MEAN	330		220		269	
HIGHEST ANNUAL MEAN					424	
LOWEST ANNUAL MEAN					118	
HIGHEST DAILY MEAN	2380	Mar 28	2420	Jan 15	10600	Apr 5 1977
LOWEST DAILY MEAN	86	Oct 12	69	Sep 12	22	Jan 30 1934
ANNUAL SEVEN-DAY MINIMUM	88	aNov 14	70	bSep 6	33	Feb 24 1942
INSTANTANEOUS PEAK FLOW			3020	Jan 15	17500	Jul 16 1916
INSTANTANEOUS PEAK STAGE			6.28	Jan 15	c11.40	Jul 16 1916
INSTANTANEOUS LOW FLOW			(d)	(f)	g5.0	Dec 22 1909
ANNUAL RUNOFF (CFSM)	1.34		.89		1.09	
ANNUAL RUNOFF (INCHES)	18.15		12.11		14.80	
10 PERCENT EXCEEDS	780		418		539	
50 PERCENT EXCEEDS	169		150		160	
90 PERCENT EXCEEDS	92		86		74	

a Also Nov. 15, 1994.

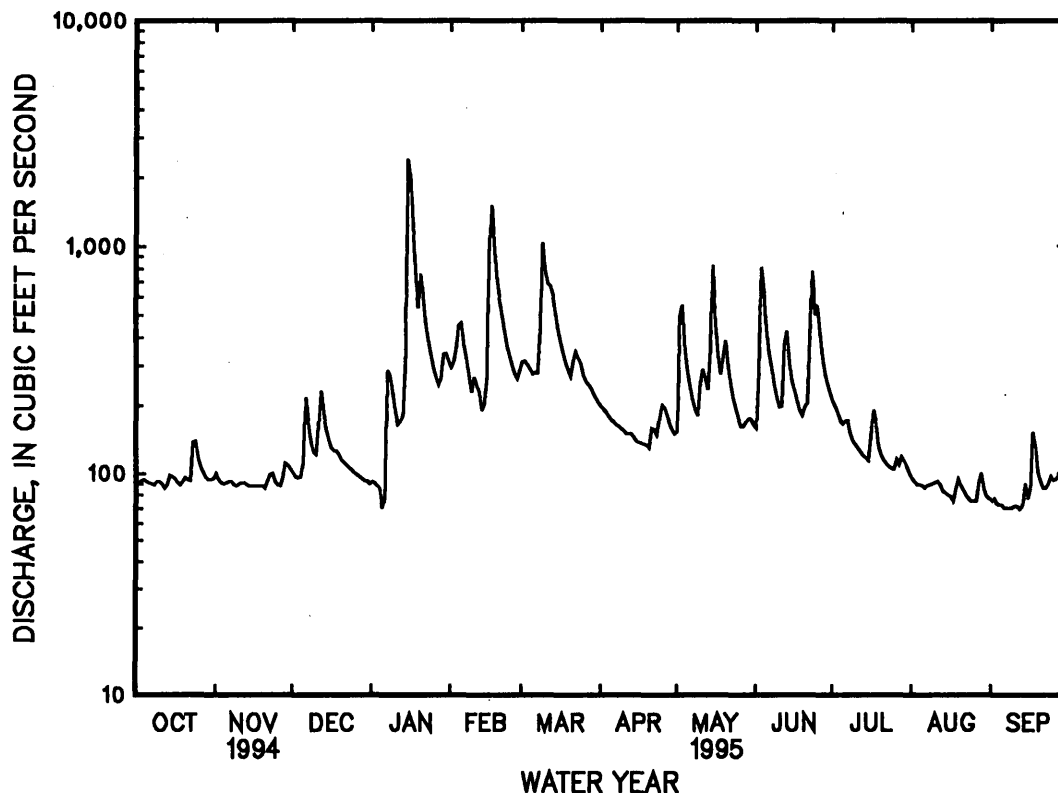
b Also Sept. 7, 1995.

c Present datum, from floodmarks.

d Not determined.

f Probably occurred Sept. 12, 1994.

g Observed, result of freezeup.



## KANAWHA RIVER BASIN

## 03167500 BIG REED ISLAND CREEK NEAR ALLISONIA, VA

LOCATION.--Lat 36°53'20", long 80°43'40", Pulaski County, Hydrologic Unit 05050001, on left bank 700 ft downstream from bridge on State Highway 693, 3.5 mi southeast of Allisonia, 4 mi upstream from Little Reed Island Creek, and at mile 4.5.

DRAINAGE AREA.--278 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1908 to September 1916, April 1939 to September 1995 (discontinued).

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 sea level. Prior to Sept. 30, 1916, nonrecording gage at site 4 mi downstream at different datum.

REMARKS.--Records good except for period with ice effect, FEB. 7-14, which is poor. Maximum discharge, 17,900 ft<sup>3</sup>/s, from rating curve extended above 6,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 12.54 ft. Minimum discharge, 57 ft<sup>3</sup>/s, Jan. 28, 1986, gage height, 1.58 ft, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1000	*6,500	*8.00	No other peak equal to or greater than base discharge.			

Minimum discharge, 126 ft<sup>3</sup>/s, Sept. 9; minimum gage height, 1.93 ft, Aug. 18, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	203	418	240	404	382	659	295	255	249	384	224	153
2	199	416	226	303	403	505	293	531	787	336	218	187
3	201	269	219	254	409	442	288	401	1210	290	199	177
4	207	241	224	230	509	411	284	312	521	296	190	148
5	202	228	529	185	456	400	282	289	366	413	185	140
6	196	225	482	278	319	397	277	273	336	304	181	135
7	196	219	335	1020	e310	388	276	255	347	292	181	132
8	196	210	295	507	e290	788	275	246	297	258	182	129
9	201	207	270	353	e278	1430	271	241	288	239	185	128
10	250	218	273	309	e270	766	266	611	267	234	190	138
11	222	243	585	282	e270	605	264	853	384	249	192	150
12	201	217	408	330	e280	522	280	524	623	219	187	153
13	202	207	323	346	e260	464	472	394	555	213	171	143
14	217	204	306	1010	e240	430	328	498	352	207	160	145
15	245	201	310	5010	422	406	287	467	292	200	153	134
16	215	199	272	1810	1010	387	277	371	270	293	150	146
17	203	199	265	949	952	371	273	330	268	355	146	285
18	198	205	258	715	644	357	271	315	279	311	144	240
19	207	217	244	602	542	346	266	329	263	233	342	177
20	252	199	233	971	491	340	257	323	300	209	230	157
21	226	247	227	714	448	414	258	276	276	205	188	150
22	209	396	225	553	396	376	257	264	369	200	171	152
23	364	257	224	478	385	344	253	256	604	192	160	182
24	400	225	218	426	361	339	317	248	640	193	149	215
25	254	214	212	385	330	318	306	241	574	239	146	194
26	244	211	209	392	321	311	269	234	401	445	143	191
27	274	226	205	372	322	313	255	304	452	262	177	215
28	232	308	205	420	647	313	251	268	351	407	388	170
29	218	309	204	519	---	304	243	291	510	451	221	150
30	213	265	202	415	---	301	241	300	375	275	174	143
31	217	---	212	391	---	297	---	259	---	244	157	---
TOTAL	7064	7400	8640	20933	11947	14044	8432	10759	12806	8648	5884	4959
MEAN	228	247	279	675	427	453	281	347	427	279	190	165
MAX	400	418	585	5010	1010	1430	472	853	1210	451	388	285
MIN	196	199	202	185	240	297	241	234	249	192	143	128
CFSM	.82	.89	1.00	2.43	1.53	1.63	1.01	1.25	1.54	1.00	.68	.59
IN.	.95	.99	1.16	2.80	1.60	1.88	1.13	1.44	1.71	1.16	.79	.66

e Estimated.

## 03167500 BIG REED ISLAND CREEK NEAR ALLISONIA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 1916, 1939 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	306	326	386	423	498	556	546	472	401	331	302	289
MAX	862	699	820	903	849	1061	1218	794	931	970	1234	970
(WY)	1977	1980	1974	1978	1960	1993	1983	1958	1989	1916	1940	1989
MIN	108	147	147	151	242	218	214	198	156	137	111	122
(WY)	1964	1982	1964	1981	1942	1988	1942	1941	1988	1986	1981	1963

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

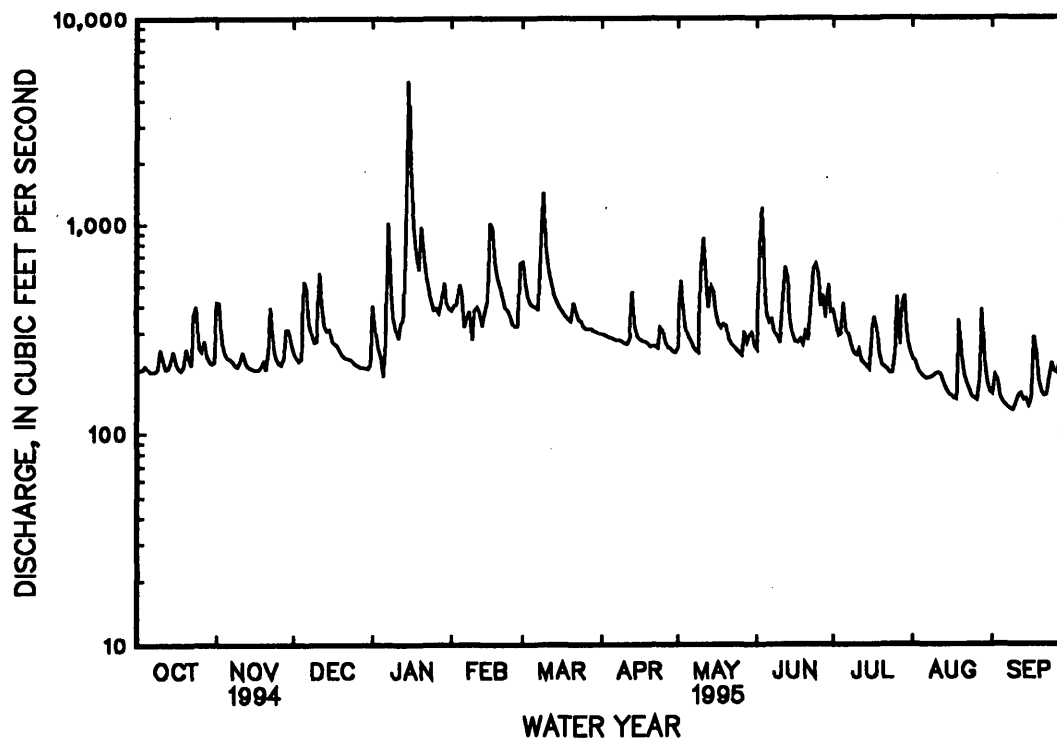
WATER YEARS 1909 - 1916  
1939 - 1995

ANNUAL TOTAL	168816	121516	
ANNUAL MEAN	463	333	403
HIGHEST ANNUAL MEAN			545
LOWEST ANNUAL MEAN			216
HIGHEST DAILY MEAN	5230	Mar 28	5010
LOWEST DAILY MEAN	196	aOct 6	128
ANNUAL SEVEN-DAY MINIMUM	200	Oct 2	136
INSTANTANEOUS PEAK FLOW			6500
INSTANTANEOUS PEAK STAGE			8.00
INSTANTANEOUS LOW FLOW			126
ANNUAL RUNOFF (CFSM)	1.66	1.21	1.45
ANNUAL RUNOFF (INCHES)	22.59	16.26	19.69
10 PERCENT EXCEEDS	759	514	666
50 PERCENT EXCEEDS	357	270	313
90 PERCENT EXCEEDS	210	179	165

a Also Oct. 7-8, 1994.

b Also Jan. 28, 1986.

c Result of freezeup.



## KANAWHA RIVER BASIN

## 03168000 NEW RIVER AT ALLISONIA, VA

LOCATION.--Lat 36°56'15", long 80°44'45", Pulaski County, Hydrologic Unit 05050001, on left bank on State Highway 653, 0.2 mi downstream from Big Reed Island Creek, and 0.5 mi upstream from Allisonia.

DRAINAGE AREA.--2,202 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 783: Drainage area. WSP 823: 1936. WSP 1305: 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,848.36 ft above sea level.

REMARKS.--Records good except for period with ice effect, Feb. 8-13, which is poor. 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. Appalachian Power Company gage-height transmitter at station. Maximum discharge, 185,000 ft<sup>3</sup>/s, from rating curve extended above 52,000 ft<sup>3</sup>/s on basis of flood records for other stations on New River. Minimum gage height, 0.47 ft, Sept. 7, 1930. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 17,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1415	*108,000	*16.56	Mar. 9	1045	18,400	5.70

Minimum discharge, 891 ft<sup>3</sup>/s, Jan. 5, gage height, 1.17 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1470	1720	1890	1910	3760	4460	2730	1880	1870	3930	1500	1290
2	1450	1900	1680	1910	3670	4430	2700	3020	3000	3860	1410	1260
3	1460	1710	1630	1750	3480	4120	2640	4170	7660	3590	1230	1280
4	1490	1550	1550	1620	3810	3960	2550	3310	5550	3140	1280	1130
5	1500	1480	2670	1220	4250	3770	2510	2770	3810	3130	1350	1060
6	1490	1480	4940	1090	3400	3680	2430	2540	3050	2900	1370	987
7	1380	1440	3760	3790	2930	3710	2420	2350	3060	3200	1370	984
8	1420	1390	2810	4820	e2800	4960	2370	2180	3420	2730	1250	944
9	1410	1410	2390	3400	e2670	15700	2340	2070	2830	2280	1210	970
10	1570	1370	2190	2550	e2600	11000	2280	2990	2570	2060	1250	966
11	1620	1510	3140	2240	e2600	7770	2250	5320	2700	2220	1270	1080
12	1530	1540	3430	2300	e2700	6460	2240	4630	3670	1590	1680	1540
13	1540	1460	2830	2720	e2600	5660	2660	3650	4930	1730	1240	1350
14	2200	1400	2500	5220	2690	5010	2480	3900	3930	1660	1250	1230
15	1750	1360	2360	84700	3260	4590	2240	5420	3110	1620	1100	1100
16	2580	1340	2220	47400	6100	4400	2150	5230	2610	1540	1110	1190
17	1850	1340	2080	16700	13700	4300	2100	4070	2370	1850	1010	2880
18	1610	1340	2050	10500	10300	4070	2120	3410	2330	1990	1020	4050
19	1550	1390	1900	7740	7630	3780	2090	3110	2260	2050	1630	2400
20	1690	1340	1830	9060	6380	3510	2010	3290	2320	1570	1440	1690
21	1650	1420	1760	8740	5510	3740	2030	2960	2780	1460	1290	1420
22	1600	1960	1710	6640	4940	4280	2000	2620	3870	1450	1140	1320
23	1820	1830	1680	5550	4380	3860	1950	2330	6530	1400	1130	1400
24	2360	1610	1670	4870	4110	3620	2250	2200	5720	1390	1110	1430
25	2110	1480	1590	4320	3150	3370	2530	2100	6270	1390	1080	1510
26	1870	1380	1580	4020	3480	3160	2400	1950	5720	1790	993	1460
27	1780	1480	1510	3780	3350	3110	2150	2210	5060	1750	1090	1490
28	1650	1830	1450	3690	3880	3100	2040	2060	4310	1570	2730	1410
29	1570	2370	1510	4310	---	3030	1950	2240	4360	1760	2910	1290
30	1520	2180	1480	4200	---	2900	1880	2300	4020	1450	1810	1160
31	1520	---	1480	3840	---	2790	---	1970	---	1390	1370	---
TOTAL	52010	47010	67270	266600	124130	146300	68490	94250	115690	65440	42623	43271
MEAN	1678	1567	2170	8600	4433	4719	2283	3040	3856	2111	1375	1442
MAX	2580	2370	4940	84700	13700	15700	2730	5420	7660	3930	2910	4050
MIN	1380	1340	1450	1090	2600	2790	1880	1880	1870	1390	993	944
CFSM	.76	.71	.99	3.91	2.01	2.14	1.04	1.38	1.75	.96	.62	.66
IN.	.88	.79	1.14	4.50	2.10	2.47	1.16	1.59	1.95	1.11	.72	.73

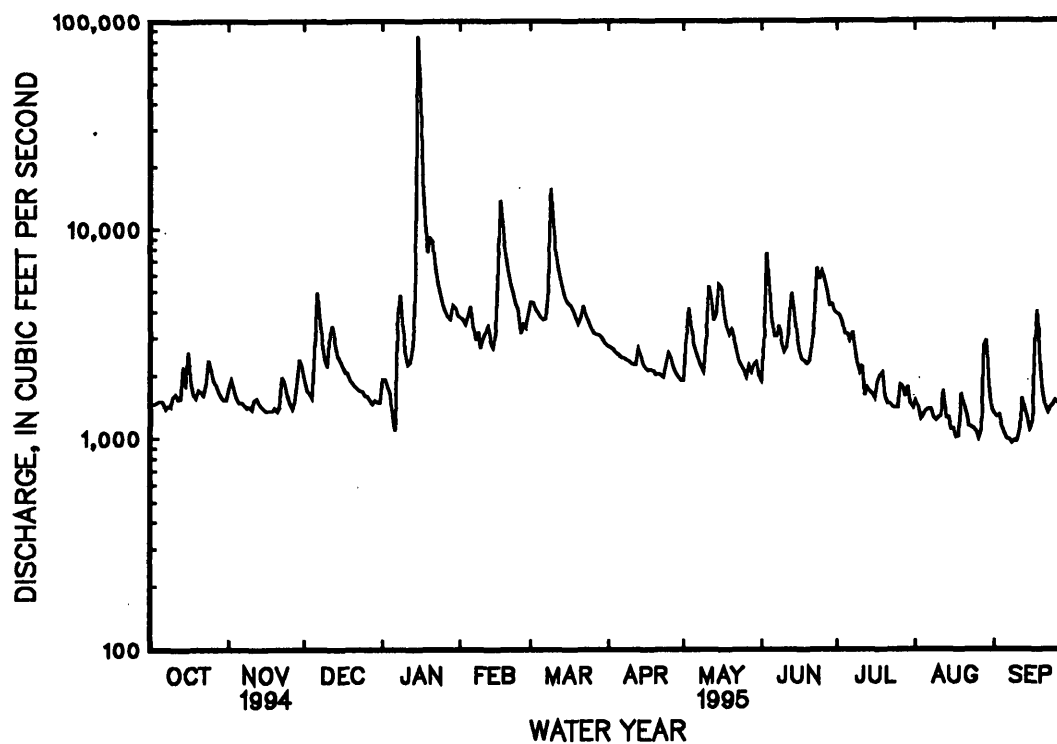
e Estimated.

## 03168000 NEW RIVER AT ALLISONIA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2314	2619	3015	3744	4426	5043	4592	3698	2851	2292	2207	2032
MAX	6561	9597	6125	8600	8069	10870	11880	7736	8552	6230	11570	8448
(WY)	1990	1978	1962	1995	1957	1993	1987	1973	1992	1949	1940	1989
MIN	726	853	1007	1018	1041	1554	1685	1406	1067	744	850	743
(WY)	1931	1932	1966	1956	1934	1988	1942	1941	1988	1930	1988	1930

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1930 - 1995	
ANNUAL TOTAL	1412880		1133084			
ANNUAL MEAN	3871		3104		3229	
HIGHEST ANNUAL MEAN					4761	
LOWEST ANNUAL MEAN					1681	
HIGHEST DAILY MEAN	41400		84700		95000	
LOWEST DAILY MEAN	1290		944		453	
ANNUAL SEVEN-DAY MINIMUM	1360		999		555	
INSTANTANEOUS PEAK FLOW			108000		185000	
INSTANTANEOUS PEAK STAGE			16.56		23.42	
INSTANTANEOUS LOW FLOW			891		412	
ANNUAL RUNOFF (CFSM)	1.76		1.41		1.47	
ANNUAL RUNOFF (INCHES)	23.87		19.14		19.91	
10 PERCENT EXCEEDS	7170		4890		5820	
50 PERCENT EXCEEDS	2590		2210		2420	
90 PERCENT EXCEEDS	1520		1290		1110	



## KANAWHA RIVER BASIN

## 03169000 CLAYTOR RESERVOIR NEAR RADFORD, VA

LOCATION.--Lat 37°04'28", long 80°35'05", Pulaski County, Hydrologic Unit 05050001, at Claytor Dam on New River, 0.5 mi upstream from Little River, and 5.5 mi upstream from Radford.

DRAINAGE AREA.--2,382 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1939 to current year (monthly figures only).

REVISED RECORDS.--WSP 2108: 1961-65 monthend contents and change in contents.

GAGE.--Water-stage recorder. Datum of gage is approximately at sea level (levels by Appalachian Power Company). Prior to Sept. 11, 1943, nonrecording gage at same site and datum.

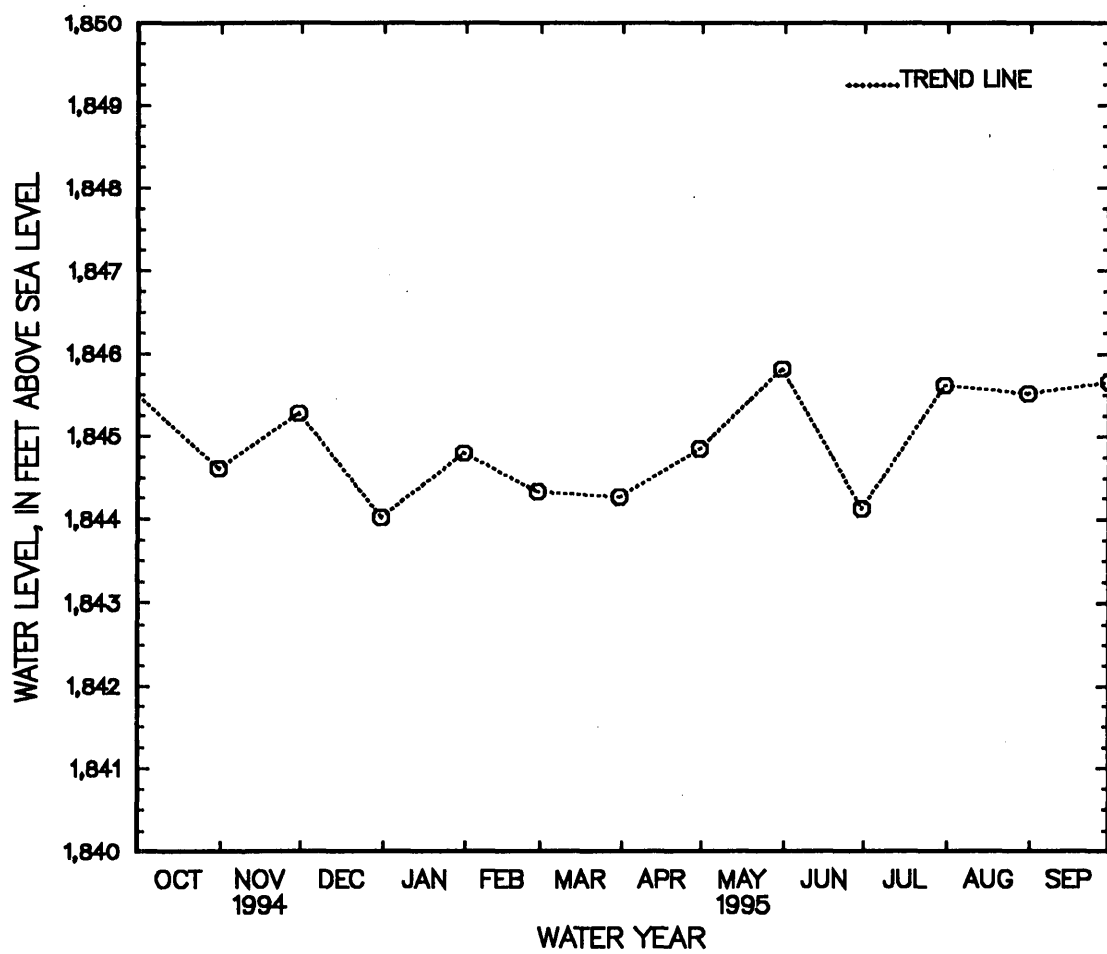
REMARKS.--Reservoir is formed by gravity overflow concrete dam. Spillway with crest at elevation 1,818.5 ft is equipped with 9 lift gates 30 ft high by 50 ft wide. Dam completed and storage began May 22, 1939; water in reservoir reached minimum pool elevation in January 1940. Total level-pool capacity 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 1994 TO SEPTEMBER 1995

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,845.52	223,500	-
Oct. 31.....	1,844.61	219,600	-3,900
Nov. 30.....	1,845.28	222,400	+2,800
Dec. 31.....	1,844.02	217,000	-5,400
CAL YR 1994.....	-	-	-3,900
Jan. 31.....	1,844.80	220,400	+3,400
Feb. 28.....	1,844.33	218,400	-2,000
Mar. 31.....	1,844.27	218,100	-300
Apr. 30.....	1,844.85	220,600	+2,500
May 31.....	1,845.82	224,700	+4,100
June 30.....	1,844.13	217,500	-7,200
July 31.....	1,845.62	223,900	+6,400
Aug. 31.....	1,845.52	223,500	-400
Sept. 30.....	1,845.66	224,100	+600
WTR YR 1995.....	-	-	+600

03169000 CLAYTOR RESERVOIR NEAR RADFORD, VA--Continued



## KANAWHA RIVER BASIN

## 03170000 LITTLE RIVER AT GRAYSONTOWN, VA

LOCATION.--Lat 37°02'15", long 80°33'25", Pulaski County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on State Highway 693 at Snowville, 0.5 mi southeast of Grayson town, 7 mi south of Radford, and at mile 8.6.

DRAINAGE AREA.--300 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Published as "at Grayson town" prior to October 1990.

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 sea level. 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, Feb. 7-14, which is poor. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 22,800 ft<sup>3</sup>/s, from rating curve extended above 16,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 12.76 ft and 13.40 ft. Minimum discharge, 21 ft<sup>3</sup>/s, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1330	*8,190	*7.12	No other peak equal to or greater than base discharge.			

Minimum discharge, 74 ft<sup>3</sup>/s, Jan. 6, gage height, 0.78 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	155	197	189	225	352	508	273	230	218	545	200	149
2	154	336	177	238	385	429	272	442	295	470	192	259
3	153	209	172	190	432	392	269	448	702	385	183	196
4	158	184	175	159	482	378	266	314	402	349	177	144
5	161	174	298	105	447	387	260	288	315	372	171	133
6	154	171	362	120	258	383	253	270	267	333	166	127
7	151	170	248	725	e240	374	255	247	283	369	163	124
8	151	162	216	460	e220	570	253	234	261	327	167	122
9	152	159	197	304	e210	1440	251	230	233	280	178	119
10	171	164	199	258	e200	763	247	530	256	263	182	117
11	175	186	400	237	e210	590	245	658	1160	254	178	118
12	152	177	355	254	e220	507	253	408	907	248	172	125
13	153	162	256	285	e210	450	309	312	733	234	160	122
14	179	160	236	708	e200	416	288	344	463	228	150	122
15	270	157	274	5500	390	391	251	375	356	222	142	117
16	209	156	257	2320	1190	377	243	322	316	217	138	120
17	174	157	238	999	1170	363	243	280	315	440	134	185
18	162	164	232	682	705	348	245	265	311	599	132	238
19	164	177	219	553	571	336	241	300	276	368	167	173
20	183	165	207	812	521	329	233	326	316	262	157	149
21	184	170	196	677	478	360	232	256	329	239	145	140
22	169	304	196	521	415	365	233	235	450	230	137	140
23	188	220	195	451	381	323	227	223	853	217	128	155
24	284	179	189	410	364	318	276	217	754	209	121	179
25	203	168	181	357	340	299	327	215	1180	220	117	195
26	187	167	176	362	326	290	260	211	636	406	117	176
27	211	176	173	337	323	292	239	213	552	328	137	211
28	190	233	171	368	487	293	232	269	468	246	272	187
29	173	246	171	426	---	286	226	297	733	322	227	151
30	169	208	169	368	---	281	221	270	539	253	166	139
31	171	---	169	358	---	276	---	236	---	217	147	---
TOTAL	5510	5658	6893	19769	11727	13114	7623	9465	14879	9652	5023	4632
MEAN	178	189	222	638	419	423	254	305	496	311	162	154
MAX	284	336	400	5500	1190	1440	327	658	1180	599	272	259
MIN	151	156	169	105	258	276	221	211	218	209	117	117
CFSM	.59	.63	.74	2.13	1.40	1.41	.85	1.02	1.65	1.04	.54	.51
IN.	.68	.70	.85	2.45	1.45	1.63	.95	1.17	1.84	1.20	.62	.57

e Estimated.



## 03170000 LITTLE RIVER AT GRAYSONTOWN, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	302	301	336	400	471	546	509	406	332	270	256	252
MAX	1458	916	860	1050	891	1213	1444	810	942	945	1584	988
(WY)	1930	1986	1949	1937	1936	1993	1987	1958	1972	1949	1940	1989
MIN	86.7	107	115	108	113	220	146	168	137	108	88.3	76.9
(WY)	1954	1932	1966	1966	1934	1940	1942	1941	1964	1930	1981	1932

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

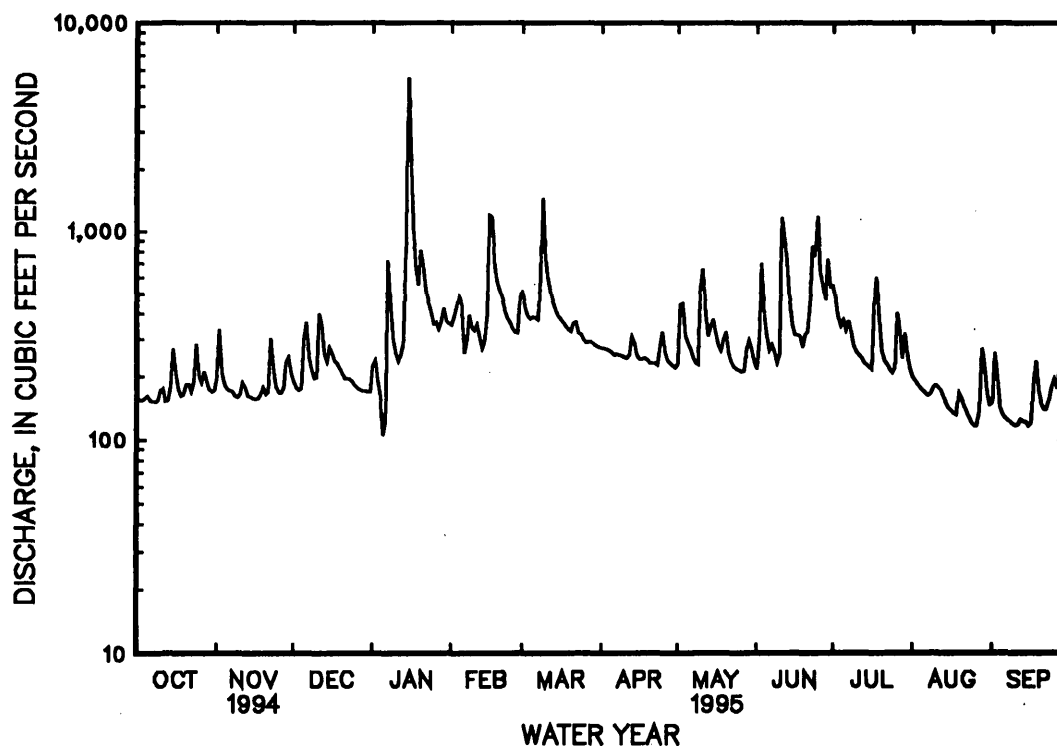
FOR 1995 WATER YEAR

WATER YEARS 1929 - 1995

ANNUAL TOTAL	142574	113945	
ANNUAL MEAN	391	312	364
HIGHEST ANNUAL MEAN			631
LOWEST ANNUAL MEAN			191
HIGHEST DAILY MEAN	3780	Mar 28	5500
LOWEST DAILY MEAN	151	aOct 7	105
ANNUAL SEVEN-DAY MINIMUM	154	Oct 3	120
INSTANTANEOUS PEAK FLOW			8190
INSTANTANEOUS PEAK STAGE			7.12
INSTANTANEOUS LOW FLOW			74
ANNUAL RUNOFF (CFSM)	1.30	1.04	1.21
ANNUAL RUNOFF (INCHES)	17.68	14.13	16.48
10 PERCENT EXCEEDS	729	495	619
50 PERCENT EXCEEDS	262	240	270
90 PERCENT EXCEEDS	169	152	128

a Also Oct. 8, 1994.

b Result of freezeup.



## KANAWHA RIVER BASIN

## 03171000 NEW RIVER AT RADFORD, VA

LOCATION.--Lat 37°08'30", long 80°34'10", Pulaski County, Hydrologic Unit 05050001, on left bank 2,000 ft downstream from bridge on U.S. Highway 11 at Radford, 5 mi downstream from Little River, and 5.5 mi downstream from Claytor Dam.

DRAINAGE AREA.--2,748 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1907 to September 1915, August 1939 to current year. Records for August 1898 to September 1907, published in WSP 27, 36, 48, 65, 83, 98, 128, 169, 205, 243, and 536, are unreliable and should not be used. Gage-height records collected at same site since 1895 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 873: Drainage area. WSP 953: 1940-41. WSP 1305: 1908-12. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,712.16 ft above sea level. 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. National Weather Service gage-height telemeter at station. Maximum discharge, 218,000 ft<sup>3</sup>/s, from rating curve extended above 76,000 ft<sup>3</sup>/s on basis of records for other stations on New River and flow over Claytor Dam, computed by Appalachian Power Company. Minimum gage height, 1.08 ft, Aug. 25, 27, 1944. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 16, 1916, reached a stage of 35.7 ft, discharge, 200,000 ft<sup>3</sup>/s, at site and datum used by Geological Survey 1907-15, from reports of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 108,000 ft<sup>3</sup>/s, Jan. 15, gage height, 24.04 ft; minimum, 590 ft<sup>3</sup>/s, Mar. 19, gage height, 1.68 ft; minimum daily, 998 ft<sup>3</sup>/s, Dec. 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1890	3940	2200	1000	4400	5060	2070	1080	3100	5560	1730	1830
2	1810	5050	1820	1090	6020	5140	1100	3050	4570	2500	1780	1790
3	1750	4520	2470	2350	5000	5060	4140	4920	9510	4970	2480	1790
4	1780	3930	1060	2270	3080	4520	2360	3990	6050	2870	2310	1400
5	1850	1930	4960	2090	2950	2670	2660	3290	6220	4320	1190	1470
6	1820	1900	5820	2020	5300	4690	3460	2870	2140	4360	1560	1220
7	1920	1840	4100	2740	4370	5910	3930	2730	2710	4390	1560	1440
8	1790	1740	3620	5260	3990	8230	1080	2540	3160	4030	1980	1630
9	1780	1850	3610	4430	2410	10400	1200	2470	3430	2630	1670	1300
10	1830	1700	1090	3380	4710	10800	3270	5090	3110	2410	1460	1160
11	1980	1850	2550	2910	1220	8800	3500	5250	5070	2660	1750	1430
12	2130	1900	6000	2800	3160	8040	2680	5720	6700	2420	1980	1600
13	2180	1880	2840	6100	4690	7660	2920	4370	7380	2560	1830	1740
14	2590	1730	4270	7430	3320	6830	1130	4790	4750	2360	2610	1740
15	2180	1710	2470	74000	5250	5620	2060	5580	3420	2280	2790	1590
16	2640	1940	4200	54900	6670	5470	2350	6210	3140	1840	4070	1610
17	2590	1730	1170	19000	12700	5850	2880	4420	2590	2310	1470	3710
18	2110	1610	1120	13200	12100	4320	2320	5010	3150	3510	1130	4790
19	2110	1630	3990	12400	10100	2940	2430	3100	3260	2860	1150	3270
20	2130	1610	2540	12000	7470	3620	2360	2970	3290	2630	1160	2140
21	4070	1090	2680	9280	7750	3130	2340	3120	3430	1960	1150	1790
22	1170	1160	2620	5460	6430	5840	2280	3280	5830	1840	1170	1960
23	1190	1180	2620	6510	6210	6050	2330	2560	9480	1810	1570	1680
24	4960	1100	1020	6400	4400	4570	2460	2750	9050	2070	1360	1990
25	3880	1080	1020	5240	5560	2880	2820	2520	7780	1950	1140	1850
26	2350	1060	1030	4850	1170	2340	2640	1920	5030	2850	1730	2060
27	2260	1070	2570	6260	4380	4380	2390	2980	8050	2920	2230	2100
28	2360	1100	4140	6160	5710	4160	2680	2760	6710	2600	2770	1900
29	1120	1190	3030	1790	---	3480	3970	2190	5220	2380	3030	1690
30	1130	2550	1640	5040	---	2480	2850	2900	6060	2050	2860	1680
31	3810	---	998	4880	---	4190	---	2210	---	1710	1950	---
TOTAL	69160	58570	85268	293240	150520	165130	76660	108640	153390	87610	58620	57350
MEAN	2231	1952	2751	9459	5376	5327	2555	3505	5113	2826	1891	1912
MAX	4960	5050	6000	74000	12700	10800	4140	6210	9510	5560	4070	4790
MIN	1120	1060	998	1000	1170	2340	1080	1080	2140	1710	1130	1160
(†)	-63	+47	-88	+55	-36	-5	+42	+67	-121	+104	-7	+10
MEAN†	2168	1999	2663	9514	5340	5322	2597	3572	4992	2930	1884	1922
CFSM†	.79	.73	.97	3.46	1.94	1.94	.95	1.30	1.82	1.07	.69	.70
IN.†	.91	.81	1.12	3.99	2.02	2.23	1.05	1.50	2.03	1.23	.79	.78

CAL YR 1994 TOTAL 1733178 MEAN 4748 MAX 42200 MIN 998 MEAN† 4743 CFSM† 1.73 IN.† 23.44  
WTR YR 1995 TOTAL 1364158 MEAN 3737 MAX 74000 MIN 998 MEAN† 3738 CFSM† 1.36 IN.† 18.47

† Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; provided by Appalachian Power Company.

‡ Adjusted for change in contents.

## 03171000 NEW RIVER AT RADFORD, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 1915, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2778	2549	4070	5088	5655	6047	5261	4676	3964	2774	2334	2550
MAX	5958	4877	8505	8679	9654	9332	7463	8512	6834	4479	4446	4571
(WY)	1909	1909	1915	1915	1908	1913	1911	1909	1910	1908	1908	1915
MIN	1666	1575	1801	2826	2808	3442	2774	2544	1557	1618	1480	1327
(WY)	1913	1911	1913	1912	1913	1910	1910	1914	1914	1911	1914	1914

## SUMMARY STATISTICS

WATER YEARS 1908 - 1915

ANNUAL MEAN	3971
HIGHEST ANNUAL MEAN	5522
LOWEST ANNUAL MEAN	2913
HIGHEST DAILY MEAN	38400
LOWEST DAILY MEAN	550
ANNUAL SEVEN-DAY MINIMUM	729
INSTANTANEOUS PEAK FLOW	a46200
INSTANTANEOUS PEAK STAGE	a15.0
INSTANTANEOUS LOW FLOW	(c)
ANNUAL RUNOFF (CFSM)	1.45
ANNUAL RUNOFF (INCHES)	19.62
10 PERCENT EXCEEDS	7360
50 PERCENT EXCEEDS	2930
90 PERCENT EXCEEDS	1500

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2706	3051	3650	4307	5334	6075	5562	4482	3577	2798	2688	2501
MAX	7619	10300	7426	9459	10450	13130	14490	8875	9627	7545	14170	9855
(WY)	1990	1978	1962	1995	1957	1993	1987	1973	1992	1949	1940	1989
MIN	1068	1156	1144	1064	2437	2016	2203	1721	1244	1208	1081	1126
(WY)	1989	1940	1940	1940	1941	1988	1942	1941	1941	1988	1956	1968

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

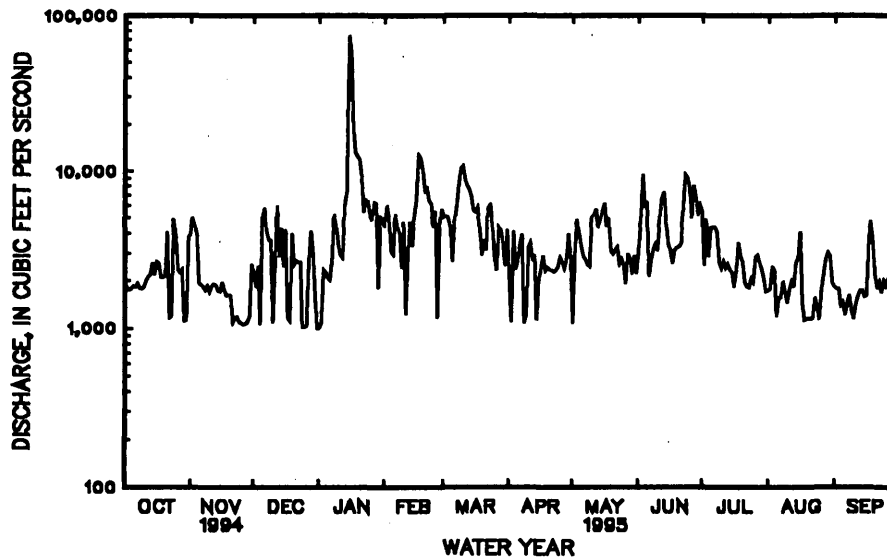
WATER YEARS 1940 - 1995

ANNUAL TOTAL	1733178	1364158	
ANNUAL MEAN	4748	3737	3886
HIGHEST ANNUAL MEAN			5471
LOWEST ANNUAL MEAN			2151
HIGHEST DAILY MEAN	42200	Aug 18	74000
LOWEST DAILY MEAN	998	Dec 31	998
ANNUAL SEVEN-DAY MINIMUM	1110	Nov 21	1110
INSTANTANEOUS PEAK FLOW			108000
INSTANTANEOUS PEAK STAGE			24.04
INSTANTANEOUS LOW FLOW			590
ANNUAL RUNOFF (CFSM)	1.73	1.36	1.41
ANNUAL RUNOFF (INCHES)	23.46	18.47	19.20
10 PERCENT EXCEEDS	9870	6180	7320
50 PERCENT EXCEEDS	3250	2660	2960
90 PERCENT EXCEEDS	1740	1200	1180

a Site and datum then in use.

b Also Mar. 27, 1913.

c Not determined.



## KANAWHA RIVER BASIN

## 03173000 WALKER CREEK AT BANE, VA

LOCATION.--Lat 37°16'05", long 80°42'35", Giles County, Hydrologic Unit 05050002, on left bank at Bane, 0.2 mi downstream from bridge on State Highway 100, 0.2 mi downstream from Sugar Run, and at mile 7.9.

DRAINAGE AREA.--305 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.--WSP 1143: 1939(M), 1940, 1944, 1946. WSP 1305: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,665.92 ft above sea level. Prior to Aug. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect Jan. 4-6, Feb. 8-11, which are poor. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 25,000 ft<sup>3</sup>/s, from rating curve extended above 7,200 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 16.50 ft and 19.28 ft. Minimum discharge, 15 ft<sup>3</sup>/s, Dec. 21, 1958, gage height, 2.42 ft, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1878 reached a stage of about 23.5 ft, discharge, 40,400 ft<sup>3</sup>/s, from rating curve extended as explained above.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	0230	*5,750	*10.41	June 27	2000	4,060	9.17

Minimum observed, 23 ft<sup>3</sup>/s, Jan. 5, gage height, 2.71 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	59	63	61	269	398	185	132	154	350	65	52
2	50	58	59	62	314	396	176	409	907	304	62	48
3	50	58	56	60	519	375	166	693	2460	250	60	49
4	50	57	56	e45	641	347	157	504	1690	213	58	44
5	50	57	69	e25	616	325	149	412	1060	190	56	43
6	51	56	120	e40	447	323	142	364	724	175	55	41
7	50	55	115	253	383	324	139	302	546	164	54	41
8	50	54	93	375	e310	386	135	261	414	157	56	40
9	50	53	81	261	e262	1050	131	232	328	136	57	40
10	50	53	78	204	e240	892	126	260	275	126	58	40
11	49	53	99	168	e210	852	121	300	376	118	59	39
12	50	53	137	159	220	931	120	360	687	111	65	39
13	50	52	128	167	191	893	122	319	1600	104	60	39
14	57	52	112	195	198	774	119	352	832	98	55	41
15	54	51	103	4010	215	649	112	944	553	93	52	46
16	54	51	95	3950	1020	543	108	933	399	91	54	50
17	55	51	93	1430	2030	455	106	651	310	87	50	65
18	54	51	91	850	1410	390	105	491	255	84	47	93
19	54	51	91	617	1030	339	103	477	220	82	51	82
20	55	50	87	1470	835	302	102	493	203	81	68	64
21	55	52	82	1130	718	312	118	399	246	76	59	56
22	55	55	79	757	588	317	135	329	266	76	53	52
23	68	61	77	572	473	296	119	269	657	74	49	52
24	67	62	75	449	406	357	126	227	588	72	47	54
25	79	56	72	362	348	319	154	195	538	72	46	56
26	72	52	70	308	304	287	161	177	728	90	45	57
27	63	55	68	263	276	266	155	182	720	95	47	57
28	58	62	66	254	320	252	147	178	582	84	52	56
29	56	68	64	304	---	232	139	203	510	75	56	56
30	55	70	63	297	---	213	133	183	407	72	53	51
31	56	---	61	280	---	197	---	163	---	72	49	---
TOTAL	1717	1668	2603	19378	14793	13992	4011	11394	19235	3872	1698	1543
MEAN	55.4	55.6	84.0	625	528	451	134	368	641	125	54.8	51.4
MAX	79	70	137	4010	2030	1050	185	944	2460	350	68	93
MIN	49	50	56	25	191	197	102	132	154	72	45	39
CFSM	.18	.18	.28	2.05	1.73	1.48	.44	1.21	2.10	.41	.18	.17
IN.	.21	.20	.32	2.36	1.80	1.71	.49	1.39	2.35	.47	.21	.19

e Estimated.

## 03173000 WALKER CREEK AT BANE, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	131	186	316	437	596	701	551	413	243	144	131	100
MAX	721	737	941	1102	1577	1800	1806	1044	1125	735	759	639
(WY)	1990	1980	1973	1946	1957	1955	1987	1971	1992	1938	1949	1989
MIN	34.7	43.2	44.9	44.8	95.6	108	126	115	60.6	41.6	33.7	35.6
(WY)	1964	1956	1956	1956	1942	1988	1986	1941	1988	1988	1988	1955

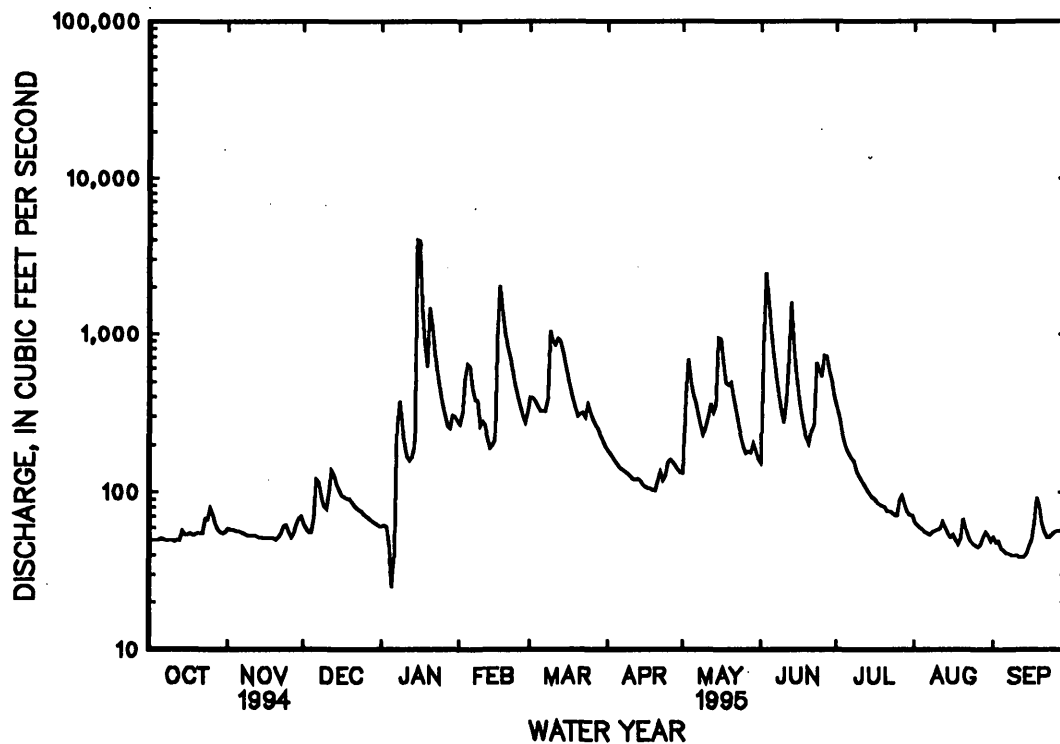
## SUMMARY STATISTICS FOR 1994 CALENDAR YEAR FOR 1995 WATER YEAR WATER YEARS 1938 - 1995

ANNUAL TOTAL	139526	95904	
ANNUAL MEAN	382	263	327
HIGHEST ANNUAL MEAN			553
LOWEST ANNUAL MEAN			135
HIGHEST DAILY MEAN	4560	Mar 28	4010
LOWEST DAILY MEAN	49	Oct 11	25
ANNUAL SEVEN-DAY MINIMUM	50	Oct 7	40
INSTANTANEOUS PEAK FLOW			5750
INSTANTANEOUS PEAK STAGE			10.41
INSTANTANEOUS LOW FLOW			23
ANNUAL RUNOFF (CFSM)	1.25	.86	1.07
ANNUAL RUNOFF (INCHES)	17.02	11.70	14.56
10 PERCENT EXCEEDS	1030	627	735
50 PERCENT EXCEEDS	130	118	162
90 PERCENT EXCEEDS	54	50	49

a Also Sept. 28, 1964.

b Observed.

c Result of freezeup.



## 03175500 WOLF CREEK NEAR NARROWS, VA

LOCATION.--Lat 37°18'20", long 80°51'00", Giles County, Hydrologic Unit 05050002, on right bank at downstream side of bridge on State Highway 724, 2.8 mi southwest of Narrows, and at mile 3.5.

DRAINAGE AREA.--223 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1908 to September 1916, March 1938 to September 1995 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

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 sea level. 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 periods with backwater from temporary dam, Oct. 1 to Jan. 15 and July 20 to Sept. 30, which are fair, and for periods with ice effect Jan. 5-6, Feb. 8, 11, which are poor. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 12,900 ft<sup>3</sup>/s, from rating curve extended above 5,700 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow. Minimum discharge, 8.8 ft<sup>3</sup>/s, result of freezeup. Minimum gage height, 2.19 ft, Dec. 24, 1943. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1130	*9,100	*11.09	Feb. 17	0230	2,530	6.99

Minimum observed, 31 ft<sup>3</sup>/s, Jan. 5, gage height, 2.83 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	70	59	51	301	509	187	108	121	544	47	21
2	30	77	54	53	354	485	175	318	1080	457	43	25
3	30	75	48	50	497	453	164	456	1100	361	40	22
4	31	70	49	42	611	416	153	398	1050	303	38	22
5	31	65	174	e32	580	395	144	374	757	259	38	22
6	31	62	266	e35	483	400	138	354	555	216	43	20
7	31	57	192	427	392	421	133	314	431	203	47	18
8	30	53	153	492	e340	532	127	281	333	180	53	17
9	32	52	126	336	303	844	121	252	278	148	58	19
10	33	51	112	260	266	736	115	238	234	131	63	19
11	34	50	233	208	e230	739	109	262	235	117	74	20
12	34	51	359	203	256	960	109	278	932	105	64	21
13	37	49	267	208	199	985	115	257	936	94	44	25
14	45	45	209	307	212	870	110	468	585	87	32	28
15	53	41	169	6880	352	731	102	1120	431	80	27	31
16	53	38	141	4080	1590	618	99	896	328	76	23	40
17	52	37	131	1480	2180	525	97	637	261	72	23	86
18	48	36	140	881	1370	449	95	491	213	71	26	120
19	48	35	131	652	1020	391	92	531	183	71	30	89
20	52	34	120	889	857	346	93	500	183	66	37	65
21	56	38	107	771	761	366	104	409	193	62	35	53
22	58	50	100	615	624	341	101	337	210	62	25	51
23	72	49	93	511	531	335	95	276	435	61	18	54
24	122	38	89	432	468	336	114	230	376	63	15	69
25	128	35	82	359	410	303	141	190	907	64	14	81
26	100	33	74	320	364	281	128	161	920	63	14	77
27	88	36	70	282	329	267	118	163	670	78	22	83
28	80	60	64	280	391	258	113	167	1170	69	34	73
29	75	86	60	353	---	234	109	170	914	66	32	56
30	71	67	56	335	---	215	107	144	674	61	26	47
31	68	---	53	317	---	198	---	125	---	52	21	---
TOTAL	1684	1540	3981	22141	16271	14939	3608	10905	16695	4342	1106	1374
MEAN	54.3	51.3	128	714	581	482	120	352	556	140	35.7	45.8
MAX	128	86	359	6880	2180	985	187	1120	1170	544	74	120
MIN	30	33	48	32	199	198	92	108	121	52	14	17
CFSM	.24	.23	.58	3.20	2.61	2.16	.54	1.58	2.50	.63	.16	.21
IN.	.28	.26	.66	3.69	2.71	2.49	.60	1.82	2.78	.72	.18	.23

e Estimated.

## 03175500 WOLF CREEK NEAR NARROWS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 1916, 1938 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	111	162	307	441	555	652	489	371	207	137	114	79.5
MAX	621	754	850	1128	1469	1789	1728	1059	748	964	512	576
(WY)	1990	1978	1973	1957	1957	1955	1987	1971	1992	1916	1916	1989
MIN	21.4	28.6	31.1	50.0	122	113	120	99.4	49.3	32.9	26.8	27.4
(WY)	1964	1940	1940	1940	1942	1988	1995	1941	1914	1988	1988	1964

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1908 - 1916 1938 - 1995
ANNUAL TOTAL	123923	98586	
ANNUAL MEAN	340	270	300
HIGHEST ANNUAL MEAN			475
LOWEST ANNUAL MEAN			126
HIGHEST DAILY MEAN	3290	Mar 28	6880
LOWEST DAILY MEAN	30	aSep 14	14
ANNUAL SEVEN-DAY MINIMUM	31	Oct 2	19
INSTANTANEOUS PEAK FLOW			9100
INSTANTANEOUS PEAK STAGE			11.09
INSTANTANEOUS LOW FLOW			d31
ANNUAL RUNOFF (CFSM)	1.52	1.21	1.35
ANNUAL RUNOFF (INCHES)	20.67	16.45	18.27
10 PERCENT EXCEEDS	874	620	687
50 PERCENT EXCEEDS	126	120	154
90 PERCENT EXCEEDS	38	32	39

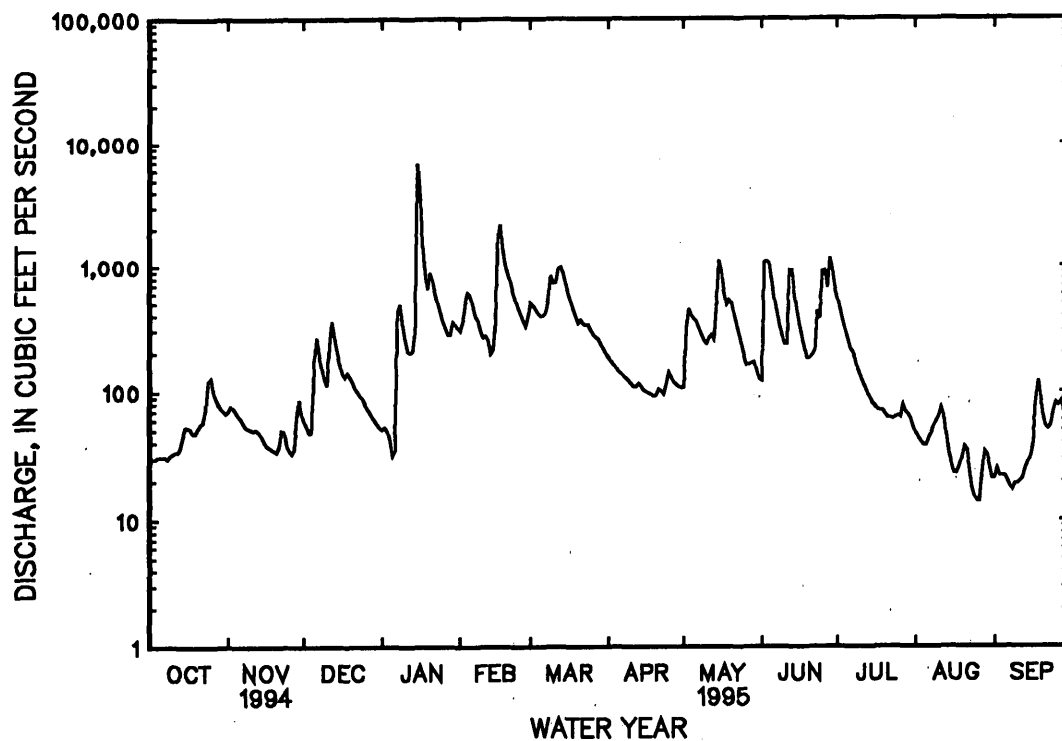
a Also Sept. 15, 16, Oct. 2, 3, 8, 1994.

b Also Aug. 26, 1995.

c From floodmark in well; floodmark on downstream side of bridge was 13.8 ft.

d Observed.

f Result of freezeup.



## KANAWHA RIVER BASIN

## 03176500 NEW RIVER AT GLEN LYN, VA

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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1927 to current year.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1305: 1928(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 1,490.11 ft above sea level. 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. Maximum discharge, 226,000 ft<sup>3</sup>/s, from rating curve extended above 89,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 2.10 ft, Sept. 8, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 125,000 ft<sup>3</sup>/s, Jan. 16, gage height, 19.83 ft; minimum, 690 ft<sup>3</sup>/s, Aug. 27, gage height, 2.42 ft; minimum daily, 808 ft<sup>3</sup>/s, Aug. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	2120	3720	2650	1160	5960	7000	4900	2330	2960	6510	1590	1580		
2	2050	3990	2290	1160	5430	6980	3050	2240	6490	5300	1590	1880		
3	1820	5140	2000	1240	8100	6870	2270	5760	13800	3240	1590	1650		
4	1770	4600	2710	2450	6700	6220	4570	5970	11700	5710	2240	1650		
5	1790	4010	1520	2360	4200	6170	3210	5040	7510	2990	2020	1250		
6	1860	2120	5050	2250	5010	3740	3390	4480	6970	4900	1050	1170		
7	1830	2030	6260	2940	6440	6410	4090	4030	3410	4990	1300	999		
8	1930	2010	4360	5440	5890	10400	4530	3770	4080	4510	1370	1210		
9	1830	1900	3710	5800	4600	12900	1980	3610	3970	3900	1750	1430		
10	1870	2010	3920	5130	4040	14700	2070	4920	3750	2860	1460	1090		
11	1880	1940	1680	3580	5080	12400	3860	5110	5020	2700	1250	876		
12	2040	2140	3470	3530	2130	12000	4250	6870	8040	2770	1580	1070		
13	2170	2230	6030	3380	4400	11200	3280	5870	13600	2400	1750	1380		
14	2300	2230	3240	7810	5110	9940	3510	5480	7760	2500	1480	1580		
15	2600	2080	4480	55800	5030	7790	1870	6960	5340	2330	2150	1530		
16	2260	2110	2830	89400	8620	7500	2840	9310	4180	2290	2330	1420		
17	2660	2350	4370	30700	18300	6970	3060	7240	3790	1810	3280	1660		
18	2520	2140	1600	17800	17500	7000	3460	5710	3240	2470	1150	3690		
19	2210	2000	1440	15500	15900	5140	2990	6640	3440	3360	954	3820		
20	2240	1970	4080	16000	11500	4050	3090	4130	3510	2770	920	2620		
21	2230	1950	2840	15400	10800	4830	3080	4930	3570	2610	850	2090		
22	3940	1420	2890	10000	9670	6430	3070	4000	4280	2090	832	1710		
23	1420	1380	2820	6360	7850	5260	2980	4450	8190	1900	873	1900		
24	1420	1450	2790	8290	7920	6500	3100	3420	9900	1730	1180	1630		
25	4890	1360	1220	7770	6070	5160	3280	3700	9320	2020	1020	1990		
26	3850	1330	1200	6250	6650	4100	3550	3330	6740	2260	808	1850		
27	2400	1280	1190	6210	2600	3570	3180	2840	7500	2720	1440	2100		
28	2260	1240	2700	7370	6630	4890	3140	4050	9860	2790	1760	2000		
29	2380	1240	4170	7350	---	4970	4930	3240	8580	2400	2300	1840		
30	1180	1300	3230	2710	---	4260	4020	2960	7240	2280	2470	1600		
31	1180	---	1810	6680	---	3390	---	3680	---	1900	2460	---		
TOTAL	68900	66670	94550	357820	208130	218740	100600	146070	197740	95010	48797	52265		
MEAN	2223	2222	3050	11540	7433	7056	3353	4712	6591	3065	1574	1742		
MAX	4890	5140	6260	89400	18300	14700	4930	9310	13800	6510	3280	3820		
MIN	1180	1240	1190	1160	2130	3390	1870	2240	2960	1730	808	876		
(†)	-63	+47	-88	+55	-36	-5	+42	+67	-121	+104	-7	+10		
MEAN‡	2160	2269	2962	11600	7397	7051	3395	4779	6470	3169	1567	1752		
CFSM‡	.57	.60	.79	3.08	1.96	1.87	.90	1.27	1.72	.84	.42	.46		
IN.‡	.66	.67	.91	3.55	2.04	2.16	1.01	1.46	1.92	.97	.48	.52		
CAL YR 1994	TOTAL	2261250	MEAN	6195	MAX	50500	MIN	1180	MEAN‡	6190	CFSM‡	1.64	IN.‡	22.31
WTR YR 1995	TOTAL	1655292	MEAN	4535	MAX	89400	MIN	808	MEAN‡	4536	CFSM‡	1.20	IN.‡	16.35

† 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

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1938, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4319	4112	4543	6919	6141	7665	7007	5225	3920	3322	3436	3343
MAX	11250	9016	7798	13770	10980	13050	11390	7093	8351	7956	8211	10840
(WY)	1938	1930	1928	1937	1936	1936	1936	1933	1929	1938	1928	1928
MIN	1094	1249	1685	1795	1494	3307	3899	2491	1908	1206	1330	1145
(WY)	1931	1932	1934	1934	1934	1931	1930	1934	1930	1930	1930	1932

## SUMMARY STATISTICS

## WATER YEARS 1928 - 1938

ANNUAL MEAN	4992
HIGHEST ANNUAL MEAN	6859
LOWEST ANNUAL MEAN	3208
HIGHEST DAILY MEAN	57600
LOWEST DAILY MEAN	820
ANNUAL SEVEN-DAY MINIMUM	914
INSTANTANEOUS PEAK FLOW	99000
INSTANTANEOUS PEAK STAGE	16.75
INSTANTANEOUS LOW FLOW	770
ANNUAL RUNOFF (CFSM)	1.32
ANNUAL RUNOFF (INCHES)	17.99
10 PERCENT EXCEEDS	9340
50 PERCENT EXCEEDS	3800
90 PERCENT EXCEEDS	1520

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3247	3738	4718	5840	7372	8427	7489	5931	4469	3320	3203	2893
MAX	9882	12450	10910	12660	15810	18650	20890	11270	12860	9784	16410	11500
(WY)	1990	1978	1949	1946	1957	1993	1987	1984	1992	1949	1940	1989
MIN	1204	1258	1506	1489	3304	2407	2673	2397	1741	1390	1267	1362
(WY)	1989	1982	1940	1966	1941	1988	1986	1941	1988	1988	1981	1963

## SUMMARY STATISTICS

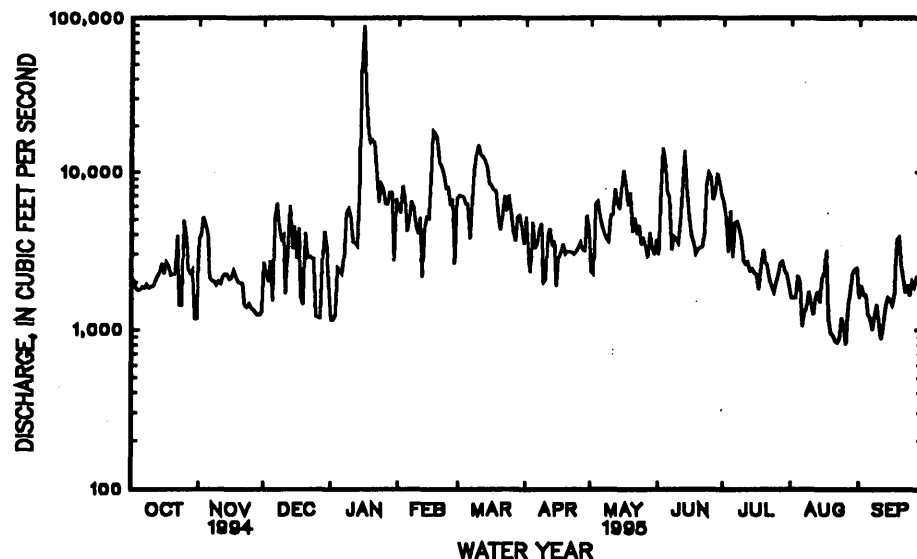
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1939 - 1995

ANNUAL TOTAL	2261250	1655292	
ANNUAL MEAN	6195	4535	5041
HIGHEST ANNUAL MEAN			7424
LOWEST ANNUAL MEAN			2626
HIGHEST DAILY MEAN	50500	Aug 18	89400
LOWEST DAILY MEAN	1180	aOct 30	808
ANNUAL SEVEN-DAY MINIMUM	1310	Nov 24	926
INSTANTANEOUS PEAK FLOW			125000
INSTANTANEOUS PEAK STAGE			19.83
INSTANTANEOUS LOW FLOW			690
ANNUAL RUNOFF (CFSM)	1.64	1.20	1.34
ANNUAL RUNOFF (INCHES)	22.32	16.34	18.17
10 PERCENT EXCEEDS	14100	7830	9650
50 PERCENT EXCEEDS	3940	3230	3700
90 PERCENT EXCEEDS	1920	1400	1560

a Also Oct. 31, 1994.



## KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA--Continued  
(National stream-quality accounting network station)

## 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 September 1988.

WATER TEMPERATURE: October 1964 to September 1988.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
NOV 08...	0945	2150	140	7.7	10.0	12.0	730	0.90	9.8	95
JAN 24...	0900	10600	96	7.9	-5.0	5.0	725	41	11.7	96
MAR 22...	0935	5780	155	7.5	18.0	12.0	713	3.6	10.0	99
MAY 09...	0915	3760	125	8.1	20.5	16.5	724	1.4	9.0	97
AUG 08...	0920	1220	175	6.9	18.0	22.5	726	0.80	6.8	83

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCEI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)
NOV 08...	K6	K10	65	15	6.6	5.1	1.9	64	0	53
JAN 24...	240	150	40	10	3.6	2.9	1.7	30	0	25
MAR 22...	30	K4	66	16	6.2	4.1	1.6	48	0	39
MAY 09...	30	15	57	14	5.4	3.9	1.2	52	0	43
AUG 08...	--	--	71	16	7.5	4.5	1.8	73	0	60

K Results based on colony count outside the acceptance range (non-ideal colony count).

## 03176500 NEW RIVER AT GLEN LYN, VA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)
NOV 08...	14	4.7	<0.10	6.4	96	88	<0.010	--	0.590	0.590
JAN 24...	7.8	3.5	0.10	6.3	113	54	0.020	0.720	0.740	0.740
MAR 22...	10	5.9	<0.10	6.7	84	77	<0.010	--	0.670	0.670
MAY 09...	9.6	4.5	<0.10	5.5	76	72	<0.010	--	0.410	0.410
AUG 08...	15	5.0	<0.10	7.1	100	95	<0.010	--	0.450	0.450

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)
NOV 08...	0.020	<0.20	0.050	0.050	0.030	20	32	<3	32	<4
JAN 24...	0.140	0.40	0.040	0.010	0.020	--	--	--	--	--
MAR 22...	0.020	0.20	0.030	0.030	0.030	50	36	<3	66	<4
MAY 09...	0.020	<0.20	0.020	0.020	0.020	<10	32	<3	20	<4
AUG 08...	0.050	0.20	0.060	0.050	0.040	10	40	<3	18	<4

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 08...	4	10	<1	<1	<1.0	73	<6	1	100
JAN 24...	--	--	--	--	--	--	--	--	--
MAR 22...	5	<10	1	<1	<1.0	62	<6	--	--
MAY 09...	4	<10	<1	<1	<1.0	60	<6	1	100
AUG 08...	5	<10	2	<1	<1.0	81	<6	--	--

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

## KANAWHA RIVER BASIN

## 03177710 BLUESTONE RIVER AT FALLS MILLS, VA

LOCATION.--Lat 37°16'17", long 81°18'18", Tazewell County, Hydrologic Unit 05050002, on right bank at upstream side of bridge on State Highway 717, 0.3 mi upstream from Brush Fork, and 0.4 mi southeast of Falls Mills.

DRAINAGE AREA.--44.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,310.41 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 5-6, Feb. 8-11, which are poor. 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. Maximum discharge, 1,050 ft<sup>3</sup>/s, from rating curve extended above 670 ft<sup>3</sup>/s. Minimum discharge, 1.0 ft<sup>3</sup>/s, Jan. 18, 1981, gage height, 0.92 ft, result of freezeup. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 450 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0615	*1,340	*7.80	June 28	0615	839	5.73
Feb. 16	1115	513	4.19				

Minimum discharge, 6.0 ft<sup>3</sup>/s, Jan. 5, gage height, 1.05 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	26	14	14	76	76	45	26	38	71	16	12
2	14	21	14	17	85	71	43	86	107	62	15	12
3	14	18	13	14	91	74	39	67	111	54	15	11
4	14	17	22	13	194	71	41	58	106	46	15	11
5	14	17	31	e10	152	73	36	80	87	41	15	9.8
6	13	17	20	e11	105	82	34	71	75	37	15	10
7	13	17	19	94	93	83	33	60	66	37	16	9.9
8	12	16	17	46	e78	115	32	50	58	33	21	9.9
9	14	16	16	37	e68	144	32	44	57	31	17	9.7
10	15	19	30	31	e60	140	30	45	47	29	47	9.3
11	14	18	57	28	e52	166	28	57	53	27	27	10
12	13	17	36	31	56	211	37	42	52	26	21	10
13	15	16	30	27	49	206	36	45	53	25	18	9.9
14	20	16	27	193	42	172	33	197	42	24	17	11
15	15	15	24	1230	170	137	30	263	42	23	16	10
16	15	15	22	776	446	112	30	154	58	24	15	22
17	14	15	25	279	292	97	29	107	40	25	14	47
18	14	15	22	176	198	86	29	90	35	24	14	27
19	18	16	21	137	172	77	25	262	33	21	19	18
20	21	14	19	222	162	71	33	143	32	20	15	15
21	17	20	17	155	143	92	31	93	30	19	14	15
22	17	15	19	112	102	75	27	75	56	19	13	22
23	54	14	18	92	86	84	28	64	45	18	12	20
24	29	15	17	80	77	75	37	55	98	19	13	26
25	22	14	17	69	68	70	26	49	86	20	13	20
26	20	13	16	64	64	65	24	44	77	22	12	36
27	18	25	16	59	60	62	23	68	58	22	15	23
28	16	21	15	74	80	59	22	61	371	23	14	18
29	16	16	15	89	---	53	22	50	123	19	13	15
30	16	15	14	83	---	51	22	45	82	17	12	14
31	15	---	14	77	---	48	---	39	---	16	12	---
TOTAL	535	509	657	4340	3321	2998	937	2590	2218	894	511	493.5
MEAN	17.3	17.0	21.2	140	119	96.7	31.2	83.5	73.9	28.8	16.5	16.4
MAX	54	26	57	1230	446	211	45	263	371	71	47	47
MIN	12	13	13	10	42	48	22	26	30	16	12	9.3
(†)	3.51	4.54	3.66	4.54	6.60	5.99	4.01	5.56	5.95	4.48	3.83	3.84

CAL YR 1994 TOTAL 26204.0 MEAN 71.8 MAX 619 MIN 12 (†) 5.74  
WTR YR 1995 TOTAL 20003.5 MEAN 54.8 MAX 1230 MIN 9.3 (†) 4.71

† Discharge from sewage treatment plant, equivalent in cubic feet per second; provided by the Sanitary Board of Bluefield.

e Estimated

## 03177710 BLUESTONE RIVER AT FALLS MILLS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	26.2	29.8	51.7	75.9	108	117	94.9	80.5	56.8	31.4	29.1	26.1
MAX	111	64.4	97.5	145	168	228	310	156	146	70.0	76.0	113
(WY)	1990	1986	1983	1994	1982	1993	1987	1984	1982	1981	1989	1989
MIN	12.5	12.2	12.2	8.64	41.7	21.0	30.5	31.0	13.0	14.2	10.9	13.5
(WY)	1992	1982	1981	1981	1988	1988	1986	1988	1988	1988	1988	1991

## SUMMARY STATISTICS

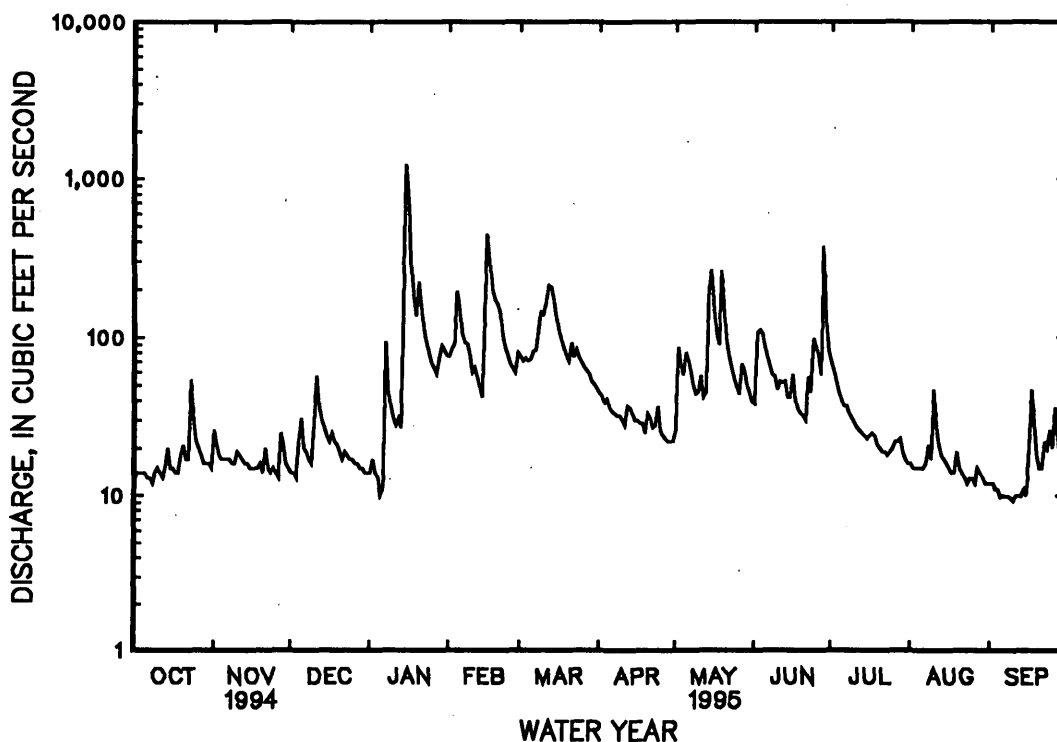
## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1981 - 1995

ANNUAL TOTAL	26204	20003.5	
ANNUAL MEAN	71.8	54.8	60.3
HIGHEST ANNUAL MEAN			79.1
LOWEST ANNUAL MEAN			24.7
HIGHEST DAILY MEAN	619	Feb 12	1230 Jan 15 1995
LOWEST DAILY MEAN	12	Oct 8	9.3 Sep 10 1981
ANNUAL SEVEN-DAY MINIMUM	13	Oct 2	9.8 Sep 5 1981
INSTANTANEOUS PEAK FLOW			1340 Jan 15 1984
INSTANTANEOUS PEAK STAGE			7.80 Jan 15 1984
INSTANTANEOUS LOW FLOW			6.0 Jan 5 1981
ANNUAL RUNOFF (CFSM)	1.62	1.24	1.36
ANNUAL RUNOFF (INCHES)	22.05	16.84	18.53
10 PERCENT EXCEEDS	160	107	133
50 PERCENT EXCEEDS	37	28	36
90 PERCENT EXCEEDS	15	14	13

a Result of freezeup.



## BIG SANDY RIVER BASIN

## 03207800 LEVISA FORK AT BIG ROCK, VA

LOCATION.--Lat 37°21'13", long 82°11'45", Buchanan County, Hydrologic Unit 05070202, on left bank at Big Rock, 2,000 ft downstream from Rocklick Creek, and 2,500 ft downstream from bridge on State Highway 645.

DRAINAGE AREA.--297 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 866.37 ft above sea level.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, Feb. 8-10, and those for periods of doubtful gage-height record, July 6 to Aug. 2 and Sept. 5-15, which are poor. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 56,000 ft<sup>3</sup>/s, from rating curve extended above 7,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 23.0 ft, information from local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 16	0800	4,530	8.34	May 19	0930	*6,370	*9.64
May 14	1800	4,770	8.52				

Minimum discharge, 21 ft<sup>3</sup>/s, Jan. 5-6, gage height, 2.51 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	63	62	59	669	834	280	292	223	588	e80	37
2	63	70	55	61	566	721	266	622	305	568	e82	35
3	60	65	54	55	518	649	245	663	326	320	52	34
4	55	56	62	49	1970	588	232	573	279	229	50	32
5	52	54	102	e38	1430	636	219	637	222	178	49	e28
6	48	54	124	70	917	1010	208	620	198	e150	52	e27
7	46	52	111	1320	690	1000	203	548	183	e130	57	e27
8	45	47	96	790	e500	1130	195	460	167	e120	51	e27
9	47	45	87	475	e410	1280	190	416	158	e110	54	e26
10	50	53	106	339	e380	1120	180	524	159	e100	141	e25
11	44	56	410	278	415	1240	167	815	249	e94	102	e25
12	41	51	371	318	363	1440	178	767	299	e88	76	e25
13	49	47	256	290	309	1320	205	884	252	e84	55	e27
14	62	47	188	328	315	1070	169	3540	180	e80	51	e30
15	55	42	149	1820	1660	837	156	3880	213	e77	47	e34
16	48	43	126	2470	3890	694	153	1900	169	e100	43	43
17	43	43	122	1130	2030	594	152	1160	144	e110	41	188
18	39	42	113	695	1320	519	148	972	131	e120	41	133
19	53	39	100	525	983	466	142	4170	125	e90	175	81
20	98	40	87	819	784	428	209	1940	125	e78	141	58
21	93	46	81	827	710	589	390	1190	157	e71	69	49
22	72	46	76	627	586	549	402	844	151	e68	50	118
23	333	44	75	521	521	548	373	651	221	e74	43	153
24	274	40	75	445	478	490	634	529	185	e90	40	82
25	159	40	72	370	422	430	594	440	410	e130	38	57
26	113	38	69	341	397	398	477	379	222	e120	37	80
27	89	61	63	304	379	379	403	338	164	e90	37	98
28	78	106	60	421	625	360	354	347	136	e78	39	69
29	71	84	59	1280	---	328	309	309	130	e70	35	52
30	68	70	58	1280	---	307	294	272	211	e64	32	44
31	64	---	56	885	---	293	---	235	---	e58	32	---
TOTAL	2478	1584	3525	19230	24237	22247	8127	30917	6094	4327	1892	1744
MEAN	79.9	52.8	114	620	866	718	271	997	203	140	61.0	58.1
MAX	333	106	410	2470	3890	1440	634	4170	410	588	175	188
MIN	39	38	54	38	309	293	142	235	125	58	32	25
CFSM	.27	.18	.38	2.09	2.91	2.42	.91	3.36	.68	.47	.21	.20
IN.	.31	.20	.44	2.41	3.04	2.79	1.02	3.87	.76	.54	.24	.22

e Estimated.

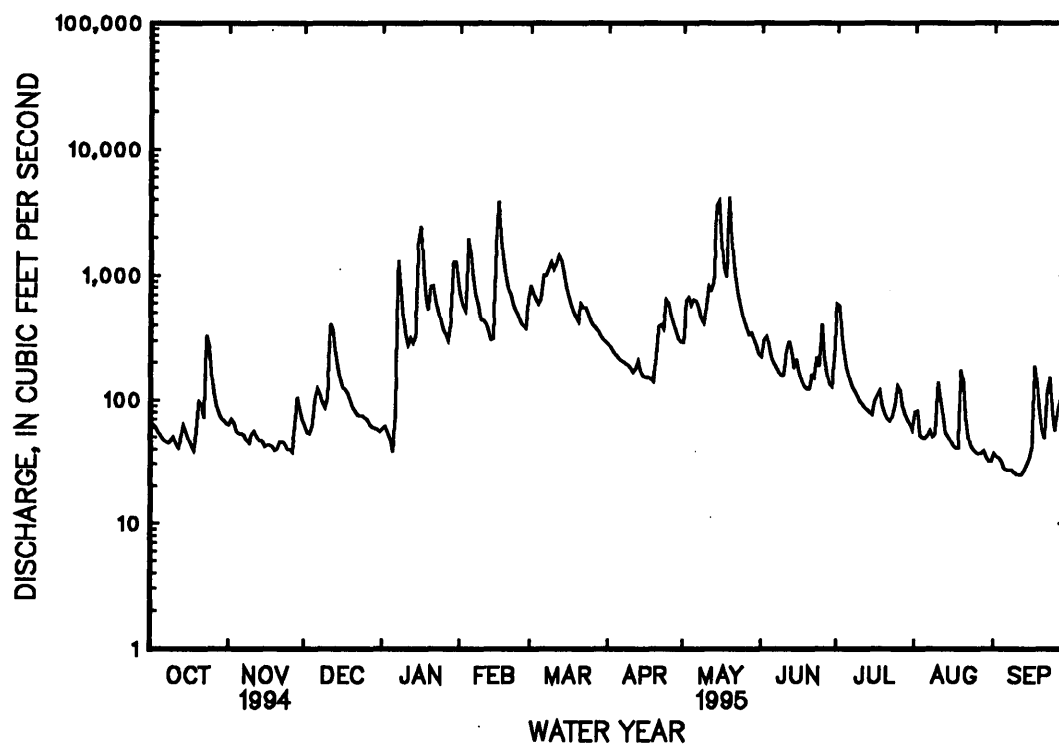
## 03207800 LEVISA FORK AT BIG ROCK, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	133	212	373	569	683	735	697	513	263	145	116	85.4
MAX	692	911	1201	1596	1451	2107	2355	1323	1135	630	325	273
(WY)	1990	1978	1973	1974	1994	1975	1987	1984	1979	1979	1971	1989
MIN	6.85	19.3	76.9	82.7	168	139	154	113	40.2	29.1	33.3	12.6
(WY)	1970	1970	1981	1981	1968	1988	1986	1976	1970	1970	1969	1969

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1968 - 1995	
ANNUAL TOTAL	187347		126402			
ANNUAL MEAN	513		346		376	
HIGHEST ANNUAL MEAN					606	
LOWEST ANNUAL MEAN					121	
HIGHEST DAILY MEAN	8150		aFeb 11		24800	
LOWEST DAILY MEAN	38		Nov 26		5.1	
ANNUAL SEVEN-DAY MINIMUM	42		Nov 20		5.5	
INSTANTANEOUS PEAK FLOW			6370		56000	
INSTANTANEOUS PEAK STAGE			9.64		27.38	
INSTANTANEOUS LOW FLOW			21		5.0	
ANNUAL RUNOFF (CFSM)	1.73		1.17		1.27	
ANNUAL RUNOFF (INCHES)	23.47		15.85		17.19	
10 PERCENT EXCEEDS	1230		830		822	
50 PERCENT EXCEEDS	176		150		178	
90 PERCENT EXCEEDS	53		43		36	

- a Also Mar. 28, 1994.  
b Also Sept. 11, 12, 1995.  
c Also Jan. 6, 1995.  
d Also Oct. 13, 14, 17-20, 1969.



## 03208500 RUSSELL FORK AT HAYSI, VA

LOCATION.--Lat 37°12'25", long 82°17'45", Dickenson County, Hydrologic Unit 05070202, on right bank 180 ft downstream from bridge on State Highway 63, at Haysi, and 700 ft downstream from McClure River.

DRAINAGE AREA.--286 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1003: 1926-43. WSP 1385: 1928(M), 1929, 1933(M), 1935(M), 1937-38(M).

GAGE.--Water-stage recorder. Datum of gage is 1,237.61 ft above sea level. Prior to Dec. 21, 1939, nonrecording gage at highway bridge 180 ft upstream at same datum.

REMARKS.--Records good except those for periods with ice effect, Jan. 5, and Feb. 8-10, which are poor. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 59,000 ft<sup>3</sup>/s, from rating curve extended above 32,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 16	0800	4,830	6.96	May 19	0730	*9,030	*9.57
May 14	1730	5,530	7.43				

Minimum discharge, 11 ft<sup>3</sup>/s, Sept. 5, 7, 11, 13, gage height, 1.88 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	45	63	41	421	1150	206	268	164	356	54	18
2	42	43	55	46	366	766	193	568	289	210	57	17
3	42	41	52	42	351	613	178	569	436	146	39	17
4	39	39	56	40	2460	523	166	490	433	118	30	14
5	37	39	77	e37	1300	573	156	455	328	99	28	12
6	34	39	85	136	738	742	147	385	257	84	27	12
7	34	38	79	1350	541	739	141	333	214	77	30	12
8	33	37	72	594	e380	1580	139	294	183	67	29	12
9	33	36	67	355	e300	1940	134	278	154	61	27	12
10	37	39	78	246	e270	1270	128	456	160	57	38	11
11	36	39	216	194	294	1360	122	638	310	53	39	11
12	34	38	221	243	241	1570	134	638	262	49	39	11
13	37	35	151	231	193	1320	166	600	246	46	30	12
14	45	34	116	259	201	966	132	2900	181	45	26	16
15	42	34	95	2800	2250	729	124	2750	165	42	23	17
16	37	33	82	2600	4230	595	121	1340	132	66	20	18
17	34	34	79	983	2060	501	119	806	115	69	19	41
18	32	34	73	549	1170	432	117	665	103	77	19	41
19	37	37	65	390	803	381	113	5000	96	59	25	26
20	64	38	57	416	629	347	162	1670	119	44	109	17
21	71	45	53	366	560	467	392	887	191	40	43	15
22	59	48	50	310	454	418	472	605	177	39	30	34
23	239	44	50	267	401	417	412	452	194	42	23	89
24	196	38	50	229	365	383	733	360	239	53	19	48
25	110	39	49	176	317	338	657	300	721	96	17	32
26	78	39	46	173	297	311	519	258	302	88	16	47
27	61	70	43	143	279	303	424	356	166	63	16	64
28	52	109	42	200	1010	286	356	286	115	47	16	40
29	49	93	42	521	---	259	300	235	93	39	15	27
30	46	76	40	641	---	240	278	204	199	34	14	21
31	45	---	39	519	---	223	---	176	---	31	14	---
TOTAL	1780	1353	2343	15097	22881	21742	7441	25222	6744	2397	931	764
MEAN	57.4	45.1	75.6	487	817	701	248	814	225	77.3	30.0	25.5
MAX	239	109	221	2800	4230	1940	733	5000	721	356	109	89
MIN	32	33	39	37	193	223	113	176	93	31	14	11
CFSM	.20	.16	.26	1.70	2.86	2.45	.87	2.84	.79	.27	.11	.09
IN.	.23	.18	.30	1.96	2.98	2.83	.97	3.28	.88	.31	.12	.10

e Estimated.



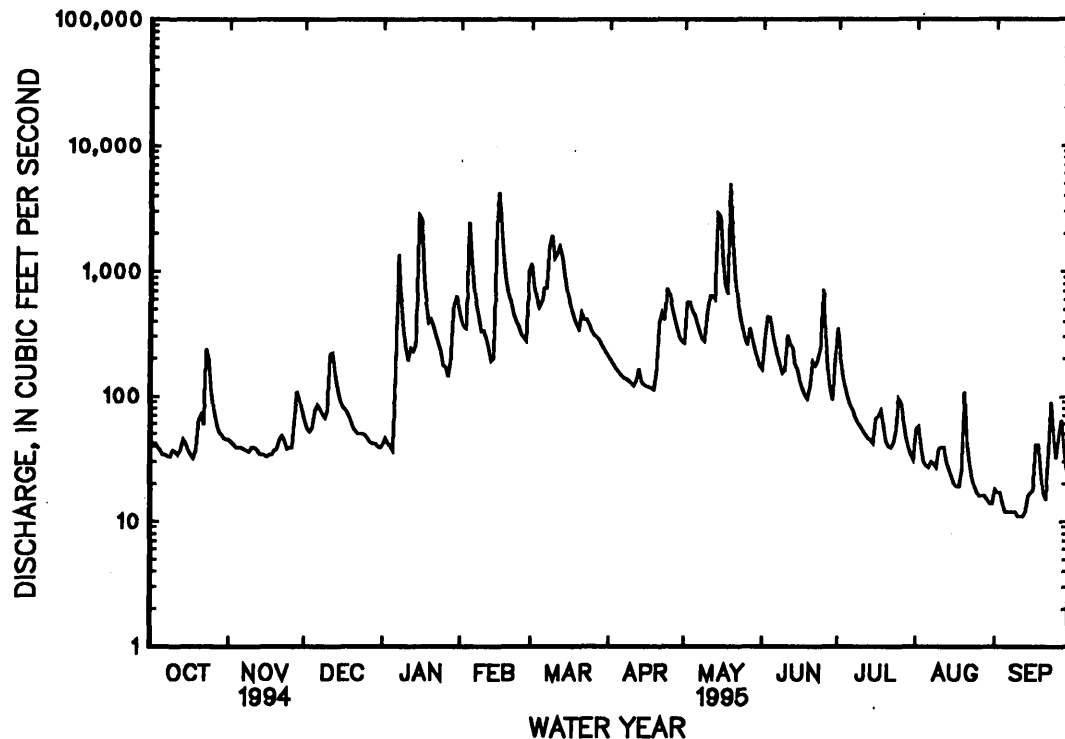
## 03208500 RUSSELL FORK AT HAYSI, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	87.0	164	333	513	649	766	576	415	179	146	120	64.2
MAX	838	961	1326	2083	1797	2331	1994	1429	715	566	561	608
(WY)	1990	1978	1927	1937	1939	1955	1977	1958	1989	1938	1966	1989
MIN	.98	2.46	11.1	19.6	57.7	168	64.0	63.4	21.6	3.03	8.81	2.07
(WY)	1954	1954	1954	1940	1941	1988	1942	1941	1966	1930	1953	1943

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1926 - 1995	
ANNUAL TOTAL	190792		108695			
ANNUAL MEAN	523		298		333	
HIGHEST ANNUAL MEAN					568	1994
LOWEST ANNUAL MEAN					100	1941
HIGHEST DAILY MEAN	13300	Mar 28	5000	May 19	30600	Apr 4 1977
LOWEST DAILY MEAN	32	Oct 18	11	aSep 10	.20	Jun 27 1936
ANNUAL SEVEN-DAY MINIMUM	34	Oct 6	12	Sep 6	.56	Jun 24 1936
INSTANTANEOUS PEAK FLOW			9030	May 19	59000	Apr 4 1977
INSTANTANEOUS PEAK STAGE			9.57	May 19	28.24	Apr 4 1977
INSTANTANEOUS LOW FLOW			11	bSep 5	c.20	dJun 27 1936
ANNUAL RUNOFF (CFSM)	1.83		1.04		1.16	
ANNUAL RUNOFF (INCHES)	24.82		14.14		15.81	
10 PERCENT EXCEEDS	1150		647		731	
50 PERCENT EXCEEDS	125		113		130	
90 PERCENT EXCEEDS	39		27		14	

- a Also Sept. 11, 12, 1995.  
b Also Sept. 7, 11, 13, 1995.  
c Observed.  
d Also June 28, 1936.



## BIG SANDY RIVER BASIN

## 03208680 NORTH FORK OF POUND LAKE AT POUND, VA

LOCATION.--Lat 37°07'27", long 82°37'52", Wise County, Hydrologic Unit 05070202, in control tower of North Fork Pound Dam at Pound, 1,200 ft upstream from Stacy Branch, and 1.2 mi upstream from South Fork Pound River.

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

PERIOD OF RECORD.--July 1966 to current year. Published as "North Fork Pound River Lake" prior to October 1993.

GAGE.--Water-stage recorder. Datum of gage is at sea level (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 precipitation and elevation telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

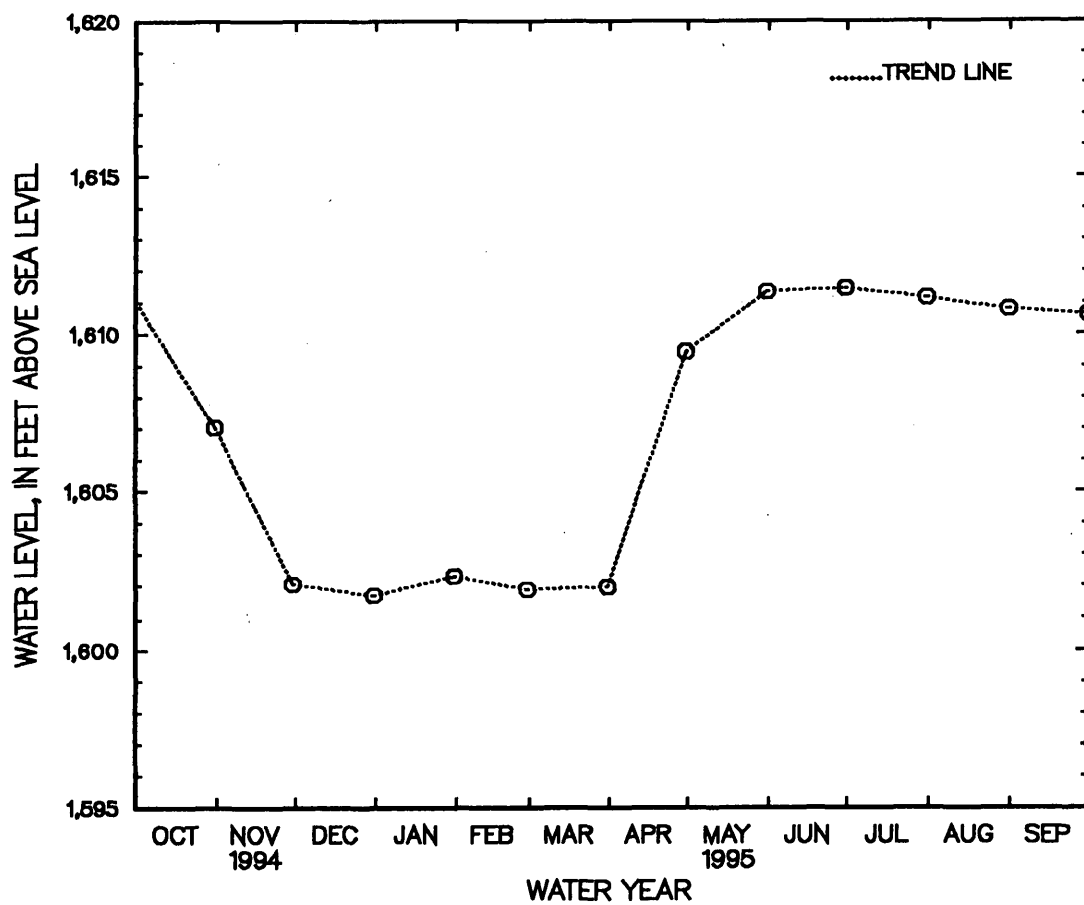
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 6,920 acre-ft, Apr. 8, 1977, elevation, 1,629.41 ft; minimum (after initial filling for regular operation), 1,660 acre-ft, Jan. 23, 1969, elevation, 1,598.62 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,710 acre-ft, May 19, elevation, 1,614.23 ft; minimum, 1,830 acre-ft, Mar. 10, elevation, 1,601.42 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,611.16	3,210	-
Oct. 31.....	1,607.04	2,620	-590
Nov. 30.....	1,602.05	2,010	-610
Dec. 31.....	1,601.69	1,970	-40
CAL YR 1994.....	-	-	-50
Jan. 31.....	1,602.30	2,040	+70
Feb. 28.....	1,601.88	1,990	-50
Mar. 31.....	1,601.96	2,000	+10
Apr. 30.....	1,609.43	2,950	+950
May 31.....	1,611.33	3,240	+290
June 30.....	1,611.43	3,250	+10
July 31.....	1,611.14	3,210	-40
Aug. 31.....	1,610.79	3,150	-60
Sept. 30.....	1,610.63	3,130	-20
WTR YR 1995.....	-	-	-80

03208680 NORTH FORK OF POUND LAKE AT POUND, VA--Continued



## BIG SANDY RIVER BASIN

## 03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA

LOCATION.---Lat 37°07'26", long 82°26'20", Dickenson County, Hydrologic Unit 05070202, on left bank on State Highway 649, 500 ft downstream from Clinchfield Railway bridge, 1,000 ft downstream from Rush Creek, and 2.1 mi southeast of Clintwood.

DRAINAGE AREA.---66.5 mi<sup>2</sup>.

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

REVISED RECORDS.---WDR VA-77-1: 1967(M). WDR VA-92-1: 1991(P).

GAGE.---Water-stage recorder. Datum of gage is 1,440.30 ft above sea level.

REMARKS.---Records good except those for periods with ice effect, Feb. 8-10, 13, which are poor. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 18,000 ft<sup>3</sup>/s, from rating curve extended above 3,100 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 0.91 ft, Sept. 28, 1964. Several measurements of water temperature were made during the year. Water-quality record for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.---Flood of Jan. 29, 1957, reached a stage of about 20.0 ft.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 15	1500	1,040	6.94	May 19	0600	*1,870	*9.36
May 14	1430	1,140	7.22				

Minimum discharge, 5.6 ft<sup>3</sup>/s, Sept. 7, gage height, 1.50 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	13	14	12	88	233	53	55	38	69	66	7.4
2	14	13	12	12	82	160	50	98	54	39	20	9.8
3	14	12	11	11	82	129	47	82	51	30	14	7.4
4	14	12	12	11	385	113	44	73	51	25	11	6.7
5	14	12	21	8.7	206	116	41	70	41	22	11	6.3
6	13	12	19	53	130	120	40	61	38	20	11	6.0
7	13	12	17	288	104	120	39	54	35	19	12	6.3
8	13	11	15	96	e80	411	38	49	32	18	11	6.7
9	13	11	14	58	e64	380	36	49	29	17	12	6.9
10	16	12	14	42	e58	261	35	130	45	16	19	7.0
11	14	13	46	36	62	281	34	144	50	16	19	7.9
12	13	11	33	49	53	314	41	111	52	15	28	7.7
13	15	11	25	42	e50	263	44	102	47	14	15	7.4
14	18	11	21	54	49	202	37	541	37	14	12	11
15	16	11	18	734	579	157	34	405	36	13	10	8.0
16	15	11	17	451	705	129	34	239	29	15	9.2	8.7
17	14	11	18	192	384	110	34	167	26	16	8.7	17
18	14	11	17	118	237	95	34	164	24	14	8.6	12
19	15	11	16	91	169	86	32	990	23	12	8.4	9.0
20	20	10	15	118	134	80	45	336	33	11	11	8.2
21	19	11	14	98	129	142	91	196	92	11	8.7	8.4
22	17	13	14	82	107	116	89	135	41	11	8.0	25
23	36	11	14	69	98	109	75	101	40	16	7.5	24
24	25	10	13	59	89	95	168	81	37	13	7.4	12
25	18	10	13	51	79	84	128	69	31	12	7.1	11
26	15	10	12	47	74	77	97	60	27	16	6.9	20
27	14	15	12	43	69	74	81	56	25	12	6.9	19
28	14	30	12	61	265	68	68	53	22	11	7.0	12
29	14	27	12	103	---	62	58	50	21	9.4	6.7	9.9
30	13	17	12	104	---	58	55	44	40	8.8	6.4	8.9
31	13	---	12	95	---	55	---	40	---	8.5	6.5	---
TOTAL	490	385	515	3288.7	4611	4700	1702	4805	1147	543.7	396.0	317.6
MEAN	15.8	12.8	16.6	106	165	152	56.7	155	38.2	17.5	12.8	10.6
MAX	36	30	46	734	705	411	168	990	92	69	66	25
MIN	13	10	11	8.7	49	55	32	40	21	8.5	6.4	6.0
CFSM	.24	.19	.25	1.60	2.48	2.28	.85	2.33	.57	.26	.19	.16
IN.	.27	.22	.29	1.84	2.58	2.63	.95	2.69	.64	.30	.22	.18

e Estimated.

## 03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA--Continued

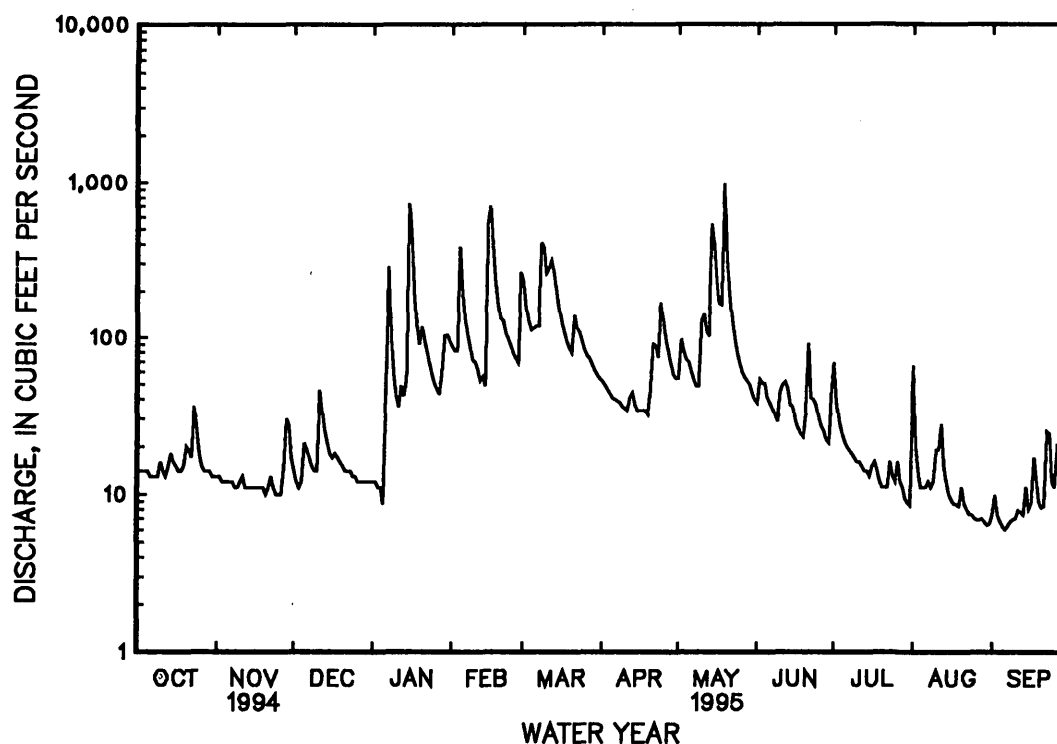
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	31.6	48.2	86.2	118	145	166	135	97.9	51.0	31.9	32.3	24.5
MAX	191	164	228	338	367	434	498	262	236	75.7	142	116
(WY)	1990	1978	1992	1972	1994	1975	1977	1984	1989	1991	1966	1982
MIN	1.67	6.33	4.41	5.98	36.6	37.8	28.1	21.2	7.40	5.50	10.0	3.95
(WY)	1964	1966	1966	1966	1968	1988	1986	1976	1966	1970	1964	1965

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1964 - 1995	
ANNUAL TOTAL	41938		22901.0			
ANNUAL MEAN	115		62.7		80.4	
HIGHEST ANNUAL MEAN					126	
LOWEST ANNUAL MEAN					34.7	
HIGHEST DAILY MEAN	2630		990		8000	
LOWEST DAILY MEAN	10		6.0		.70	
ANNUAL SEVEN-DAY MINIMUM	11		6.6		.93	
INSTANTANEOUS PEAK FLOW			1870		18000	
INSTANTANEOUS PEAK STAGE			9.36		b26.09	
INSTANTANEOUS LOW FLOW			5.6		.48	
ANNUAL RUNOFF (CFSM)	1.73		.94		1.21	
ANNUAL RUNOFF (INCHES)	23.46		12.81		16.42	
10 PERCENT EXCEEDS	254		130		173	
50 PERCENT EXCEEDS	36		25		38	
90 PERCENT EXCEEDS	13		9.3		7.8	

a Also Nov. 24-26, 1994.

b From floodmark.



## 03208990 JOHN W. FLANNAGAN RESERVOIR NEAR HAYSI, VA

LOCATION.--Lat 37°14'00", long 82°20'56", Dickenson County, Hydrologic Unit 05070202, in control tower of John W. Flannagan Dam on Pound River, 1.3 mi upstream from Blacklog Branch, and 3.7 mi northwest of Haysi.

DRAINAGE AREA.--221 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is at sea level (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 precipitation and elevation telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

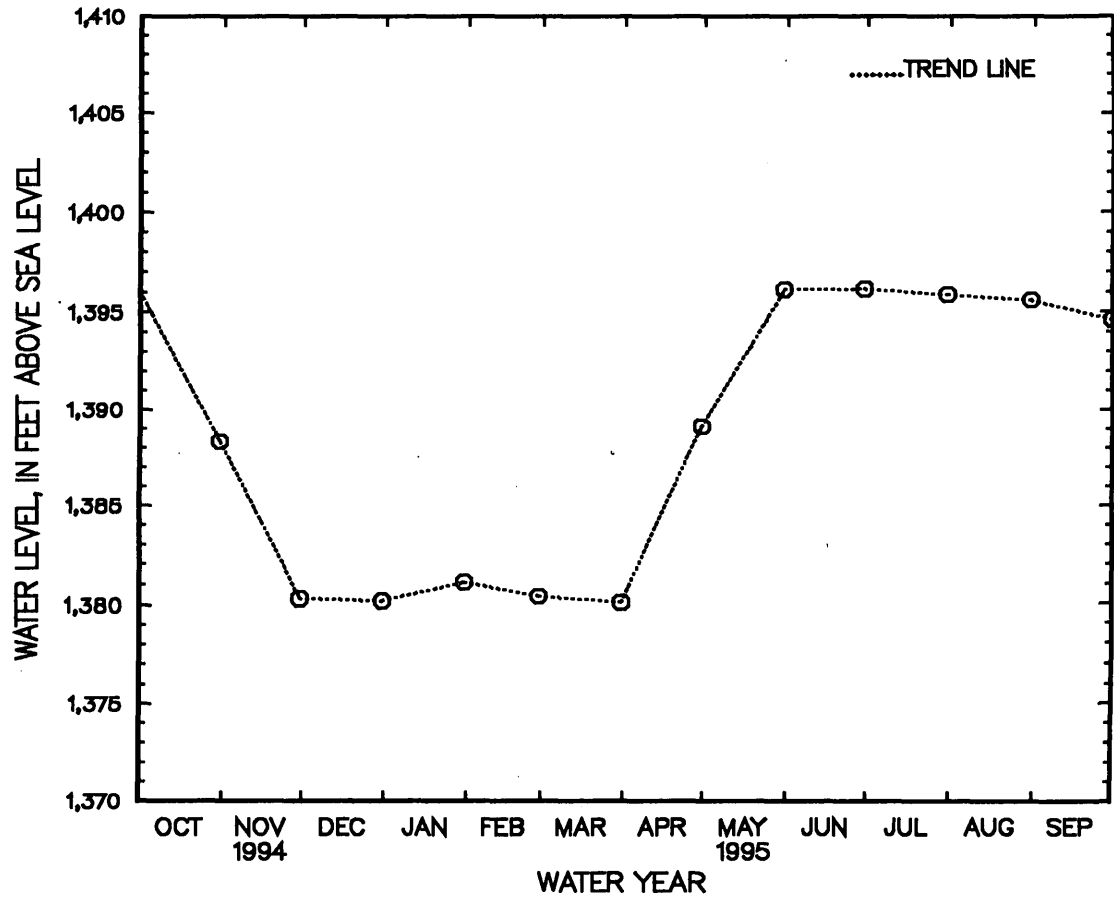
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 116,500 acre-ft, Apr. 7, 1977, elevation, 1,430.80 ft; minimum (after initial filling for regular operation), 11,800 acre-ft, Apr. 1, 1965, elevation, 1,313.42 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 72,000 acre-ft, May 19, elevation, 1,400.17 ft; minimum, 50,100 acre-ft, Mar. 18, elevation, 1,379.49 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400. WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,396.24	67,400	-
Oct. 31.....	1,388.33	58,700	-8,700
Nov. 30.....	1,380.28	50,800	-7,900
Dec. 31.....	1,380.14	50,700	-100
CAL YR 1994.....	-	-	-200
Jan. 31.....	1,381.07	51,600	+900
Feb. 28.....	1,380.36	50,900	-700
Mar. 31.....	1,380.05	50,600	-300
Apr. 30.....	1,389.12	59,600	+9,000
May 31.....	1,396.11	67,200	+7,600
June 30.....	1,396.14	67,200	0
July 31.....	1,395.85	66,900	-300
Aug. 31.....	1,395.59	66,600	-300
Sept. 30.....	1,394.59	65,500	-1,100
WTR YR 1995.....	-	-	-1,900

03208990 JOHN W. FLANNAGAN RESERVOIR NEAR HAYSI, VA--Continued



## BIG SANDY RIVER BASIN

## 03209000 POUND RIVER BELOW FLANNAGAN DAM, NEAR HAYSI, VA

LOCATION.--Lat 37°14'13", long 82°20'36", Dickenson County, Hydrologic Unit 05070202, on right bank 1,100 ft upstream from Blacklog Branch, 1,700 ft downstream from John W. Flannagan Dam, 1.4 mi upstream from mouth, and 3.4 mi northwest of Haysi.

DRAINAGE AREA.--221 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1963, published as Pound River near Haysi.

REVISED RECORDS.--WSP 953: 1940-41. WSP 1003: 1942, 1943(P). WSP 1275: 1927-30, 1931(M), 1932-39.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above sea level (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 of Pound Lake (station 03208680) 33 mi upstream. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, about 30,000 ft<sup>3</sup>/s, from rating curve extended above 1,750 ft<sup>3</sup>/s. Maximum discharge since construction of John W. Flannagan Dam in 1965, 4,540 ft<sup>3</sup>/s. Minimum gage height since construction of John W. Flannagan Dam, 1.42 ft, Feb. 16, 1968. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,980 ft<sup>3</sup>/s, Feb. 16, gage height, 6.82 ft; minimum, 16 ft<sup>3</sup>/s, Aug. 31, gage height, 1.88 ft; minimum daily, 34 ft<sup>3</sup>/s, Jan. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	234	166	71	50	568	780	51	48	163	226	42	52		
2	258	166	67	51	349	510	51	48	174	116	42	46		
3	120	166	73	50	301	432	51	46	189	80	42	46		
4	106	163	74	46	631	433	46	46	190	67	42	46		
5	90	163	74	34	1020	432	43	46	153	68	42	41		
6	90	163	74	51	1030	416	43	47	126	51	42	62		
7	90	163	64	85	809	450	43	48	98	43	41	81		
8	284	163	59	531	561	475	43	48	88	43	40	92		
9	300	163	57	901	271	1670	43	49	73	44	40	97		
10	135	190	58	708	245	1430	43	49	67	44	42	96		
11	174	203	58	363	275	700	44	50	68	42	42	96		
12	192	203	183	309	275	1150	44	50	167	42	42	77		
13	192	203	127	277	173	1450	45	51	215	41	42	45		
14	192	192	74	316	178	981	45	970	147	43	42	45		
15	338	187	74	321	1280	753	45	1890	115	43	42	45		
16	358	187	74	1510	2360	557	45	1140	75	43	42	45		
17	153	183	74	2440	2510	459	45	699	54	46	47	45		
18	111	127	74	1910	1670	293	46	466	56	45	51	45		
19	76	102	74	532	1200	215	46	1110	66	44	51	45		
20	115	104	65	300	834	215	47	2190	83	43	49	45		
21	131	157	56	300	474	508	46	2170	253	42	44	45		
22	249	182	45	300	384	405	46	1080	225	42	43	45		
23	310	175	41	300	354	384	47	282	93	48	43	45		
24	192	171	42	300	295	413	48	166	68	49	43	45		
25	221	134	42	205	241	336	48	131	100	43	43	45		
26	203	70	42	166	241	289	48	131	115	42	43	45		
27	203	70	42	166	257	289	48	137	81	41	43	45		
28	203	368	47	166	588	249	48	161	64	40	43	45		
29	203	420	50	166	---	215	48	161	64	40	43	45		
30	203	181	50	422	---	215	48	161	79	41	43	45		
31	178	---	50	747	---	103	---	161	---	41	47	---		
TOTAL	5904	5285	2055	14023	19374	17207	1384	13832	3509	1683	1343	1642		
MEAN	190	176	66.3	452	692	555	46.1	446	117	54.3	43.3	54.7		
MAX	358	420	183	2440	2510	1670	51	2190	253	226	51	97		
MIN	76	70	41	34	173	103	43	46	54	40	40	41		
(†)	-151	-143	-3	+16	-14	-5	+167	+129	0	-6	-6	-18		
MEAN†	39.5	33.2	63.3	468	678	550	213	575	117	48.3	37.3	36.7		
CFSM†	.18	.15	.29	2.12	3.07	2.49	.96	2.60	.53	.22	.17	.17		
IN.†	.21	.17	.33	2.44	3.20	2.87	1.08	3.00	.59	.25	.19	.19		
CAL YR 1994	TOTAL	157552	MEAN	432	MAX	3850	MIN	41	MEAN†	432	CFSM†	1.95	IN.†	26.52
WTR YR 1995	TOTAL	87241	MEAN	239	MAX	2510	MIN	34	MEAN†	236	CFSM†	1.07	IN.†	14.50

† Change in contents, equivalent in cubic feet per second, in North Fork of Pound Lake and John W. Flannagan Reservoir; provided by U. S. Army Corps of Engineers.

‡ Adjusted for change in contents.



## 03209000 POUND RIVER BELOW FLANNAGAN DAM, NEAR HAYSI, VA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1964, BY WATER YEAR (WY) [UNREGULATED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	48.6	132	272	431	534	640	440	287	126	146	93.5	38.8
MAX	362	678	1064	1242	1118	1968	974	892	392	692	400	211
(WY)	1938	1930	1927	1937	1957	1963	1927	1958	1938	1942	1942	1928
MIN	1.00	2.33	8.34	16.0	35.0	226	57.7	45.1	11.3	3.07	4.22	.51
(WY)	1954	1940	1940	1940	1941	1931	1942	1941	1941	1930	1932	1932

## SUMMARY STATISTICS

## WATER YEARS 1926 - 1964

ANNUAL MEAN	265
HIGHEST ANNUAL MEAN	420
LOWEST ANNUAL MEAN	76.6
HIGHEST DAILY MEAN	16100
LOWEST DAILY MEAN	.10
ANNUAL SEVEN-DAY MINIMUM	.10
INSTANTANEOUS PEAK FLOW	30000
INSTANTANEOUS PEAK STAGE	b16.5
INSTANTANEOUS LOW FLOW	<.10
ANNUAL RUNOFF (CFSM)	1.20
ANNUAL RUNOFF (INCHES)	16.28
10 PERCENT EXCEEDS	630
50 PERCENT EXCEEDS	94
90 PERCENT EXCEEDS	8.0

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1995, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	247	306	345	443	506	522	293	353	177	113	106	99.7
MAX	927	679	1003	1171	1343	1181	1004	1074	756	320	245	405
(WY)	1990	1978	1992	1972	1994	1975	1977	1975	1989	1989	1994	1982
MIN	48.9	24.8	16.1	31.8	92.3	110	46.1	47.4	9.66	5.49	7.13	32.5
(WY)	1989	1966	1966	1966	1992	1988	1995	1982	1966	1965	1965	1967

## SUMMARY STATISTICS

## FOR 1994 CALENDAR YEAR

## FOR 1995 WATER YEAR

## WATER YEARS 1965 - 1995

ANNUAL TOTAL	157552	87241	
ANNUAL MEAN	432	239	
HIGHEST ANNUAL MEAN			292
LOWEST ANNUAL MEAN			481
HIGHEST DAILY MEAN	3850	Feb 15	2510
LOWEST DAILY MEAN	41	Dec 23	34
ANNUAL SEVEN-DAY MINIMUM	43	Dec 22	41
INSTANTANEOUS PEAK FLOW			2980
INSTANTANEOUS PEAK STAGE			6.82
INSTANTANEOUS LOW FLOW			16
ANNUAL RUNOFF (CFSM)	1.95		1.08
ANNUAL RUNOFF (INCHES)	26.52		14.68
10 PERCENT EXCEEDS	1230		542
50 PERCENT EXCEEDS	182		90
90 PERCENT EXCEEDS	52		43

&lt; Less than.

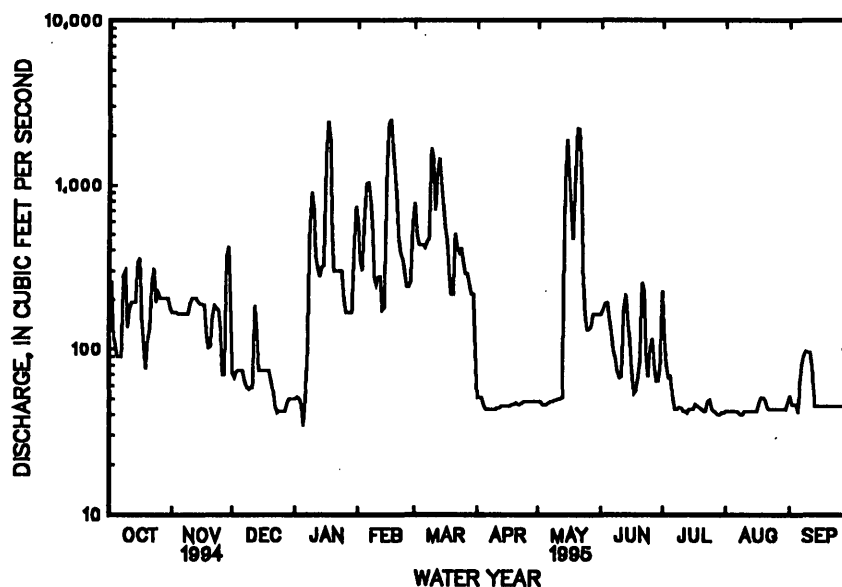
a Also Sept. 10, 12-22, 28-30, 1932.

b From floodmarks, site and datum then in use.

c On several days in September 1932.

d Also June 27-29, 1965.

f Also Aug. 26, 1986.



## BIG SANDY RIVER BASIN

## 03209500 LEVISA FORK AT PIKEVILLE, KY

LOCATION.--Lat 37°27'51", long 82°31'35", Pike County, Hydrologic Unit 05070203, on right bank 20 ft downstream from bridge on State Highway 1426, 0.75 mi downstream from Lanks Branch, 1.0 mi south of Pikeville, 1.5 mi upstream from Harolds Branch, and at mile 90.5.

DRAINAGE AREA.--1,232 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1937 to current year. Gage-height records collected in this vicinity since 1907 are contained in reports of National Weather Service.

REVISED RECORDS.--WRD KY 78-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 631.98 ft above sea level. Prior to Sept. 23, 1944, nonrecording gage at site 2.3 mi downstream at datum 2.65 ft higher. Sept. 23, 1944 to Sept. 30, 1952, water-stage recorder 2.3 mi downstream at datum, 1.65 ft higher. Oct. 1, 1952 to Sept. 30, 1979, at site 2.1 mi downstream at same datum.

REMARKS.--No estimated daily discharge. Records good. Flow regulated since October, 1968 by Fishtrap Lake (station 03207995), since August 1966 by North Fork Pound River Lake (station 03208680) and since March 1965 by John W. Flannagan Lake (station 03208990). Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality data section.

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

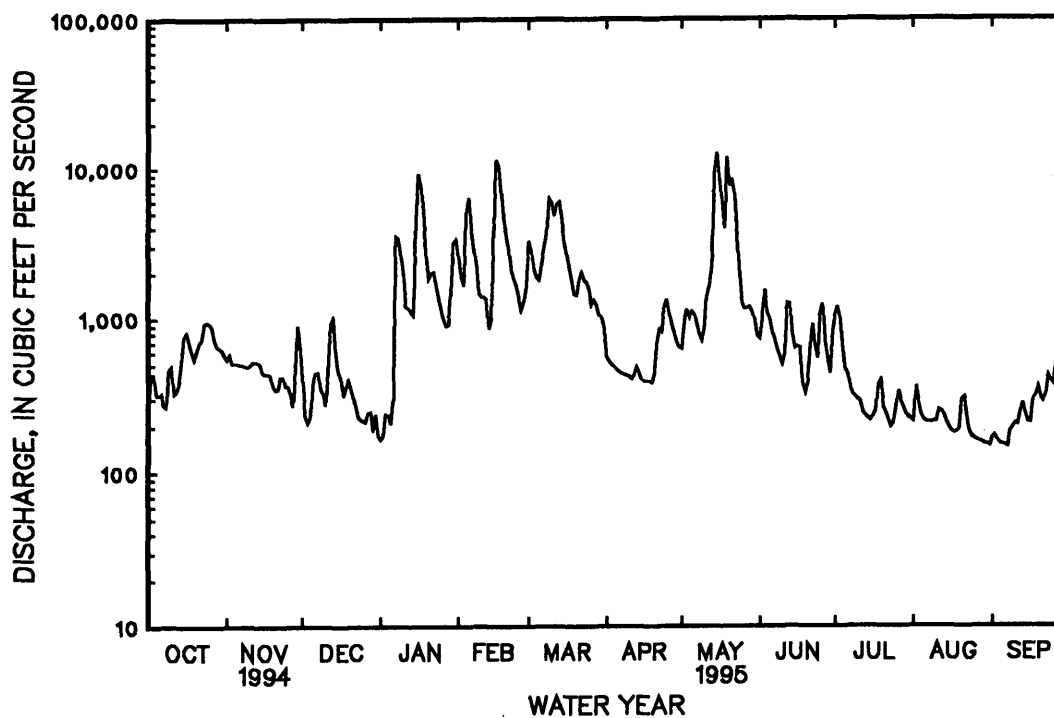
DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	275	545	392	165	2570	3300	564	631	740	1050	214	166
2	434	583	234	174	1890	2810	530	958	1010	1200	360	173
3	434	515	212	241	1670	2120	503	1150	1540	979	282	162
4	322	515	229	236	5060	1890	484	1010	1110	633	236	153
5	319	511	381	209	6360	1800	465	1110	991	466	218	152
6	329	506	444	309	3980	2290	451	1070	810	433	212	150
7	278	504	446	3530	2990	2910	440	909	733	347	212	147
8	270	495	348	3430	2330	3610	434	785	624	316	210	185
9	464	488	326	2640	1480	6270	428	720	565	304	213	195
10	488	496	277	1970	1390	5840	423	882	506	295	213	206
11	329	524	455	1200	1390	4840	404	1440	590	286	252	203
12	342	529	930	1180	1350	5780	426	1680	1260	244	248	243
13	381	525	1000	1120	863	5980	481	2300	1250	231	235	280
14	523	513	611	1060	989	4660	439	9300	780	223	211	239
15	763	445	454	4850	3970	3370	401	12700	635	217	196	211
16	811	439	415	9260	11500	2750	391	8720	652	229	185	210
17	709	440	316	7600	10600	2220	388	6000	640	253	181	300
18	612	431	360	5070	7000	1800	389	3970	374	373	184	315
19	550	369	397	2630	4540	1450	382	11900	328	395	192	355
20	618	346	345	1850	3620	1430	428	7620	384	265	295	303
21	699	349	303	2000	2930	1810	685	8540	633	243	306	288
22	739	417	277	2040	2100	2020	849	6600	913	218	226	327
23	928	419	232	1670	1820	1790	816	3550	663	198	186	421
24	948	367	222	1380	1640	1730	1170	1960	552	208	171	388
25	933	362	218	1200	1370	1550	1330	1280	1070	262	166	371
26	879	323	214	992	1140	1230	1090	1170	1250	336	162	499
27	728	272	245	897	1270	1320	910	1170	697	286	159	580
28	664	443	249	915	1670	1240	794	1200	547	265	157	501
29	648	899	186	1660	---	1060	696	1110	436	239	153	374
30	625	650	241	3210	---	1010	644	973	806	228	153	311
31	579	---	175	3370	---	870	---	768	---	219	149	---
TOTAL	17621	14220	11134	68058	89482	82750	17835	103176	23089	11441	6537	8408
MEAN	568	474	359	2195	3196	2669	594	3328	770	369	211	280
MAX	948	899	1000	9260	11500	6270	1330	12700	1540	1200	360	580
MIN	270	272	175	165	863	870	382	631	328	198	149	147

## 03209500 LEVISA FORK AT PIKEVILLE, KY

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	838	1151	1639	2358	2878	2943	2304	1996	979	562	473	482
MAX	3939	3991	5385	6861	6371	8081	7646	6067	3492	1855	1022	1606
(WY)	1990	1978	1973	1974	1994	1975	1977	1984	1979	1979	1971	1989
MIN	158	353	300	278	814	529	388	349	210	200	203	168
(WY)	1970	1970	1981	1981	1992	1988	1986	1976	1988	1988	1969	1969

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1969 - 1995	
ANNUAL TOTAL	761286		453751		1544	
ANNUAL MEAN	2086		1243		2459	
HIGHEST ANNUAL MEAN					522	
LOWEST ANNUAL MEAN					69300	
HIGHEST DAILY MEAN	21600		12700		Apr 5 1977	
LOWEST DAILY MEAN	175		147		Dec 3 1970	
ANNUAL SEVEN-DAY MINIMUM	218		157		Oct 10 1968	
INSTANTANEOUS PEAK FLOW			14800		May 15 1957	
INSTANTANEOUS PEAK STAGE			26.09		May 15 1957	
INSTANTANEOUS LOW FLOW					52.72	
10 PERCENT EXCEEDS	5830		3080		66	
50 PERCENT EXCEEDS	680		525		760	
90 PERCENT EXCEEDS	283		212		230	



## 03471500 SOUTH FORK HOLSTON RIVER AT RIVERSIDE, NEAR CHILHOWIE, VA

LOCATION.--Lat 36°45'37", long 81°37'53", Smyth County, Hydrologic Unit 06010102, on right bank 400 ft upstream from highway bridge at Riverside, 900 ft upstream from Spring Branch, 3.2 mi downstream from Redstone Branch, 4.0 mi southeast of Chilhowie, and at mile 97.2.

DRAINAGE AREA.--76.1 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1920 to December 1931, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1306. Prior to October 1924, published as "near Chilhowie." June 1907 to December 1909, at site 4.5 mi downstream also published as "near Chilhowie"; records not equivalent.

REVISED RECORDS.--WSP 1033: 1943-44(M). WSP 1306: Drainage area, 1921-31(M).

GAGE.--Water-stage recorder. Datum of gage is 2,106.77 ft above sea level. Nov. 1, 1920, to Nov. 14, 1931, nonrecording gage at site 400 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Prior to August 1951, diurnal fluctuation at low flow caused by mill 500 ft upstream from station. Maximum discharge, 9,600 ft<sup>3</sup>/s, from rating curve extended above 3,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum discharge recorded, 2 ft<sup>3</sup>/s, but may have been less in 1925 and 1926 before installation of water-stage recorder. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0230	*5,820	*8.68	June 24	2130	708	3.99
Feb. 16	2230	887	4.28	June 28	2400	1,360	4.93

Minimum discharge, 27 ft<sup>3</sup>/s, Sept. 9, 13, 14-16, gage height, 1.29 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	33	34	33	119	115	88	60	71	236	41	31
2	34	33	33	34	115	118	84	93	75	254	40	31
3	34	33	33	33	114	120	80	103	96	195	39	30
4	34	32	33	33	203	115	78	97	93	156	40	29
5	34	32	48	33	212	111	75	93	83	133	40	29
6	33	33	60	48	161	109	72	85	80	116	39	28
7	33	32	55	125	141	105	70	79	82	105	41	28
8	32	31	50	114	129	232	67	74	73	96	40	28
9	32	31	47	97	113	416	66	72	67	88	40	28
10	34	34	48	82	110	291	64	91	63	82	40	28
11	33	34	62	72	106	253	62	155	63	76	40	28
12	32	32	64	78	98	291	61	151	104	71	38	28
13	33	32	63	77	89	296	60	133	107	67	37	28
14	35	31	59	1030	89	260	59	295	93	63	36	27
15	35	31	54	3780	105	216	58	444	83	61	35	27
16	34	31	51	1470	543	175	56	266	75	60	34	35
17	33	30	49	569	753	152	55	180	69	70	33	55
18	32	30	47	324	455	138	55	142	64	67	33	40
19	34	30	45	224	310	127	53	262	62	58	38	34
20	36	30	43	261	233	119	53	266	73	54	34	32
21	37	32	41	221	193	164	54	185	63	53	33	31
22	35	35	41	174	156	163	52	144	84	51	35	34
23	47	32	39	150	139	154	53	122	113	51	33	37
24	44	31	38	134	128	139	70	108	201	50	32	35
25	38	31	38	120	118	125	70	97	409	51	31	33
26	37	31	37	112	111	116	67	89	299	49	31	37
27	36	33	36	105	106	111	64	86	182	47	36	41
28	35	36	35	109	113	106	62	83	179	45	39	35
29	34	36	35	129	---	100	60	78	558	44	34	32
30	34	35	34	133	---	95	59	86	315	42	32	31
31	33	---	33	127	---	92	---	73	---	42	31	---
TOTAL	1081	967	1385	10031	5262	5124	1927	4292	3979	2633	1125	970
MEAN	34.9	32.2	44.7	324	188	165	64.2	138	133	84.9	36.3	32.3
MAX	47	36	64	3780	753	416	88	444	558	254	41	55
MIN	32	30	33	33	89	92	52	60	62	42	31	27
CFSM	.46	.42	.59	4.25	2.47	2.17	.84	1.82	1.74	1.12	.48	.42
IN.	.53	.47	.68	4.90	2.57	2.50	.94	2.10	1.95	1.29	.55	.47

03471500 SOUTH FORK HOLSTON RIVER AT RIVERSIDE, NEAR CHILHOWIE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 1932, 1942 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	50.6	69.8	111	152	203	210	171	137	89.5	59.3	55.7	45.7
MAX	162	409	272	350	508	512	570	278	322	172	168	254
(WY)	1990	1978	1973	1957	1957	1955	1987	1945	1923	1989	1958	1989
MIN	19.9	19.9	25.8	28.8	57.2	51.3	52.6	49.1	31.1	22.5	17.5	20.6
(WY)	1954	1954	1956	1956	1931	1988	1986	1926	1988	1988	1988	1988

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1921 - 1932  
1942 - 1995

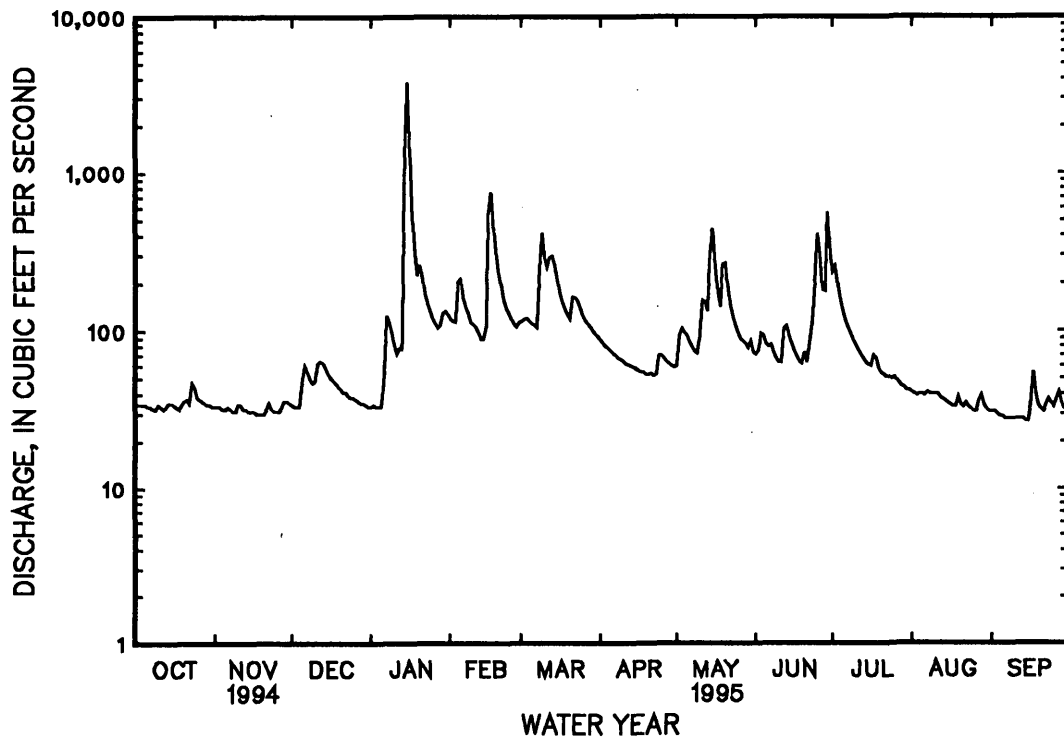
ANNUAL TOTAL	53254	38776	
ANNUAL MEAN	146	106	112
HIGHEST ANNUAL MEAN			162
LOWEST ANNUAL MEAN			53.8
HIGHEST DAILY MEAN	2080	Feb 11	3780 Jan 15
LOWEST DAILY MEAN	30	aNov 17	27 bSep 14
ANNUAL SEVEN-DAY MINIMUM	30	Nov 14	28 Sep 9
INSTANTANEOUS PEAK FLOW			5820 Jan 15
INSTANTANEOUS PEAK STAGE			8.68 Jan 15
INSTANTANEOUS LOW FLOW			27 cSep 9
ANNUAL RUNOFF (CFSM)	1.92	1.39	1.47
ANNUAL RUNOFF (INCHES)	26.03	18.95	19.99
10 PERCENT EXCEEDS	276	194	227
50 PERCENT EXCEEDS	84	60	71
90 PERCENT EXCEEDS	33	32	27

a Also Nov. 18-20, 1994.

b Also Sept. 15, 1995.

c Also Sept. 13-16, 1995.

d Also Oct. 15, 1943, Aug. 9, 11, 1944, and Oct. 19, 1945.



## TENNESSEE RIVER BASIN

## 03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA

LOCATION.--Lat 36°39'06", long 81°50'39", Washington County, Hydrologic Unit 06010102, on right bank 500 ft upstream from bridge on U.S. Highway 58, 0.7 mi downstream from Laurel Creek, 3.2 mi northwest of Damascus, 4.9 mi upstream from Middle Fork, and at mile 77.2.

DRAINAGE AREA.--301 mi<sup>2</sup>.

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 sea level.

REMARKS.--Records good except for period with ice effect, Jan. 6, which is fair. Prior to 1980, some diurnal fluctuation at low flow caused by powerplant upstream from station. Tennessee Valley Authority satellite gage-height telemeter at station. Maximum discharge, 22,000 ft<sup>3</sup>/s, from rating curve extended above 10,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 2.07 ft, Aug. 19, 1988. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0530	*10,800	*12.63	Feb. 16	2030	4,570	8.15

Minimum discharge, 74 ft<sup>3</sup>/s, Sept. 8-9, 10, 11-14, gage height, 2.12 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	128	161	135	607	688	344	249	273	1300	124	89
2	114	133	152	142	561	692	329	490	369	1640	118	97
3	117	124	148	131	575	662	313	488	577	1010	114	88
4	118	121	149	129	1540	609	304	449	438	725	120	84
5	115	120	219	100	1320	559	291	440	357	558	114	81
6	112	125	277	e130	910	553	280	398	329	453	112	79
7	110	128	261	466	714	528	273	363	327	406	128	76
8	110	118	240	389	615	1310	266	338	288	349	122	74
9	111	116	218	342	495	2080	257	317	304	315	120	74
10	119	135	217	302	473	1430	248	636	260	289	120	75
11	115	147	408	275	448	1220	237	1240	259	270	131	74
12	110	128	383	325	396	1340	234	1020	1010	247	112	74
13	112	124	343	308	338	1330	239	775	1190	230	104	74
14	126	121	293	2820	342	1150	228	1550	745	216	101	78
15	131	119	255	8690	574	953	219	2150	532	209	97	76
16	118	116	231	4480	3390	801	217	1260	425	205	94	111
17	113	117	221	2160	3500	687	214	884	359	212	91	285
18	111	115	210	1270	2070	600	213	678	320	258	90	168
19	120	114	196	918	1380	535	206	1210	299	198	95	117
20	147	112	182	980	1060	493	200	1160	332	177	139	101
21	151	123	174	815	907	890	211	846	286	170	99	94
22	132	143	168	690	735	817	203	651	352	165	95	123
23	290	122	165	592	642	745	206	527	412	160	90	198
24	225	115	161	517	582	637	349	448	368	170	87	143
25	168	114	157	444	517	548	339	389	670	172	85	121
26	155	114	150	416	479	493	301	350	757	167	84	151
27	147	145	145	377	450	467	280	366	640	147	105	178
28	137	194	141	461	579	439	265	383	500	142	127	126
29	132	192	139	749	---	402	251	327	1640	140	102	108
30	127	174	136	810	---	377	244	307	1110	131	93	98
31	126	---	133	708	---	357	---	281	---	131	89	---
TOTAL	4133	3897	6433	31071	26199	24392	7761	20970	15728	10962	3302	3315
MEAN	133	130	208	1002	936	787	259	676	524	354	107	110
MAX	290	194	408	8690	3500	2080	349	2150	1640	1640	139	285
MIN	110	112	133	100	338	357	200	249	259	131	84	74
CFSM	.44	.43	.69	3.33	3.11	2.61	.86	2.25	1.74	1.17	.35	.37
IN.	.51	.48	.80	3.84	3.24	3.01	.96	2.59	1.94	1.35	.41	.41

e Estimated.

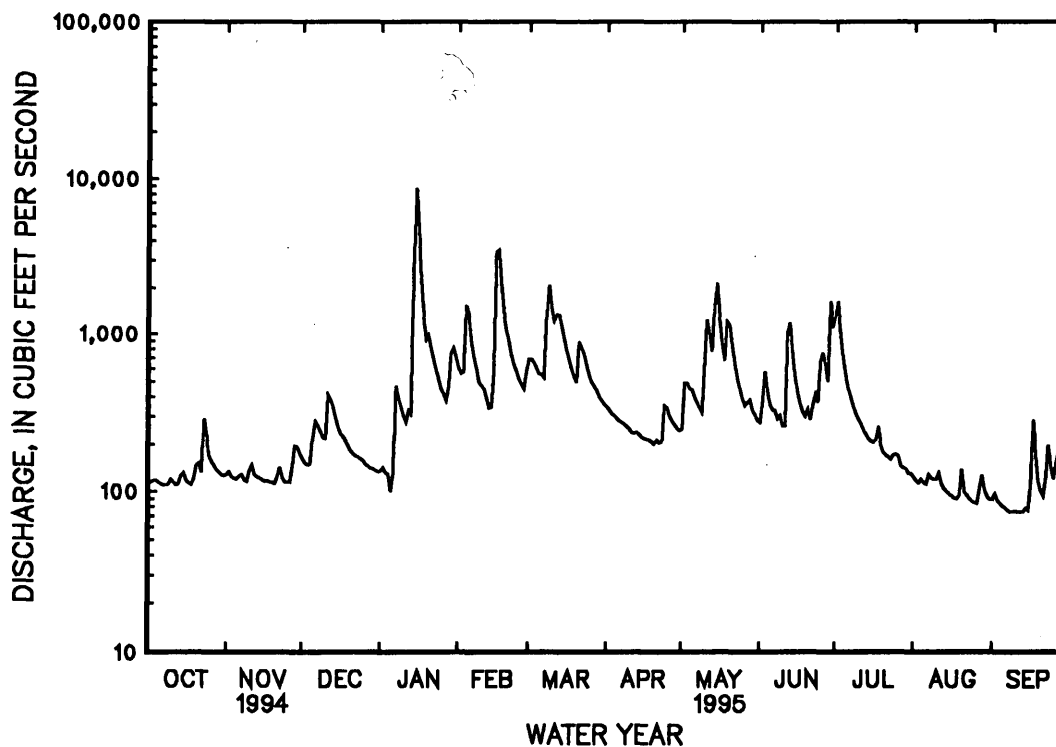
## 03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	219	286	487	661	846	888	720	562	357	286	255	181
MAX	938	1258	1203	1490	2022	2075	1995	1162	792	1079	1193	790
(WY)	1978	1978	1973	1957	1957	1955	1987	1984	1992	1938	1940	1989
MIN	76.5	85.3	93.6	101	200	228	224	155	129	100	89.6	79.0
(WY)	1953	1940	1940	1940	1941	1988	1942	1941	1988	1988	1988	1954

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1932 - 1995	
ANNUAL TOTAL	215878		158163			
ANNUAL MEAN	591		433		478	
HIGHEST ANNUAL MEAN					712	
LOWEST ANNUAL MEAN					245	
HIGHEST DAILY MEAN	10400	Feb 11	8690	Jan 15	12800	Apr 5 1977
LOWEST DAILY MEAN	110	aOct 7	74	bSep 8	40	Dec 27 1983
ANNUAL SEVEN-DAY MINIMUM	112	Oct 6	74	Sep 7	63	Sep 13 1954
INSTANTANEOUS PEAK FLOW			10800	Jan 15	22000	Apr 5 1977
INSTANTANEOUS PEAK STAGE			12.63	Jan 15	17.11	Apr 5 1977
INSTANTANEOUS LOW FLOW			74	cSep 8	30	dOct 14 1941
ANNUAL RUNOFF (CFSM)	1.96		1.44		1.59	
ANNUAL RUNOFF (INCHES)	26.68		19.55		21.57	
10 PERCENT EXCEEDS	1140		913		990	
50 PERCENT EXCEEDS	326		247		304	
90 PERCENT EXCEEDS	124		107		111	

a Also Oct. 8, 12, 1994.  
b Also Sept. 9, 11-13, 1995.  
c Also Sept. 9-14, 1995.  
d Also Dec. 24, 1943.



## TENNESSEE RIVER BASIN

## 03475000 MIDDLE FORK HOLSTON RIVER NEAR MEADOWVIEW, VA

LOCATION.--Lat 36°42'47", long 81°49'08", Washington County, Hydrologic Unit 06010102, on left bank 48 ft downstream from bridge on State Highway 803, 0.9 mi upstream from Cedar Creek, 4.1 mi southeast of Meadowview, and at mile 13.2.

DRAINAGE AREA.--211 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1931 to September 1953, May 1976 to current year. Monthly discharge only for October 1931, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1276: 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,820.22 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Prior to 1954, flow regulated by powerplant 0.9 mi upstream from station. Maximum discharge, 12,500 ft<sup>3</sup>/s, from rating curve extended above 12,000 ft<sup>3</sup>/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of 11.8 ft, from floodmark, discharge, 10,000 ft<sup>3</sup>/s, and flood of Dec. 10, 1972, reached a stage of 11.0 ft, from floodmark, discharge, 8,540 ft<sup>3</sup>/s, from information by Tennessee Valley Authority. Flood of Mar. 30, 1975, reached a stage of 10.37 ft, discharge, 7,410 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1030	*4,320	*8.20	Feb. 16	2000	2,170	5.87

Minimum discharge, 51 ft<sup>3</sup>/s, Jan. 5, gage height, 1.92 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	68	72	78	277	369	198	125	144	209	76	61
2	66	68	67	77	272	334	190	378	217	304	72	61
3	67	66	65	75	291	316	181	394	260	235	69	58
4	67	65	69	74	699	314	175	266	234	190	78	55
5	66	64	89	67	667	307	169	225	194	162	76	55
6	64	66	122	80	457	317	163	204	171	142	74	54
7	63	69	111	195	359	308	160	177	161	131	73	56
8	62	64	98	181	319	524	155	162	147	121	78	55
9	66	64	87	138	264	1030	151	153	134	113	76	56
10	67	69	88	119	245	770	146	204	126	107	77	60
11	66	76	186	109	232	754	142	223	123	101	87	59
12	62	69	207	135	218	893	139	215	205	96	77	58
13	65	67	154	150	194	783	142	204	290	92	70	60
14	71	64	127	359	185	635	137	631	209	88	67	62
15	70	62	111	3320	308	517	132	1140	174	95	64	59
16	66	61	98	2560	1470	436	130	587	170	134	61	80
17	64	61	94	921	1740	376	129	380	154	133	60	197
18	64	60	91	543	956	334	127	289	137	144	59	122
19	68	60	85	396	665	304	124	546	128	119	66	78
20	78	59	80	418	528	281	121	658	136	103	92	66
21	74	65	98	387	459	418	130	398	135	96	66	63
22	70	79	113	324	383	417	125	292	198	92	63	70
23	115	70	111	282	331	375	124	235	309	89	60	93
24	118	63	110	252	301	342	161	205	205	89	58	81
25	88	62	108	222	273	302	156	182	187	89	57	78
26	79	60	105	209	254	274	143	166	173	83	57	82
27	75	71	103	193	240	259	133	160	157	86	63	89
28	71	87	100	215	285	245	129	176	198	87	71	72
29	69	87	100	429	---	227	124	159	302	95	64	62
30	68	79	97	388	---	215	120	181	238	83	60	59
31	68	---	85	326	---	205	---	150	---	85	58	---
TOTAL	2223	2025	3231	13222	12872	13181	4356	9465	5616	3793	2129	2161
MEAN	71.7	67.5	104	427	460	425	145	305	187	122	68.7	72.0
MAX	118	87	207	3320	1740	1030	198	1140	309	304	92	197
MIN	62	59	65	67	185	205	120	125	123	83	57	54
CFSM	.34	.32	.49	2.02	2.18	2.02	.69	1.45	.89	.58	.33	.34
IN.	.39	.36	.57	2.33	2.27	2.32	.77	1.67	.99	.67	.38	.38



## 03475000 MIDDLE FORK HOLSTON RIVER NEAR MEADOWVIEW, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1953, 1976 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	116	133	212	343	456	455	353	294	188	145	147	98.8
MAX	479	739	526	692	1050	899	1158	677	485	420	649	357
(WY)	1977	1978	1943	1937	1994	1993	1987	1990	1981	1938	1940	1989
MIN	45.3	44.3	49.9	52.6	64.0	114	98.3	74.2	61.5	55.5	50.5	50.0
(WY)	1934	1942	1940	1940	1934	1988	1942	1941	1988	1988	1988	1952

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

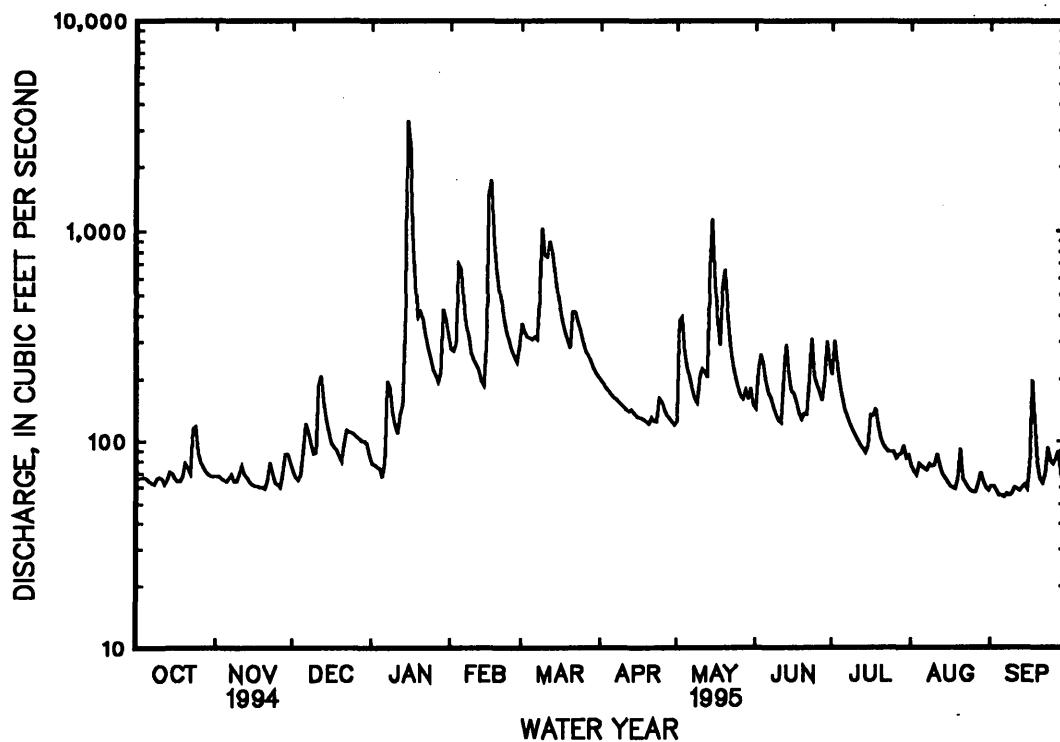
FOR 1995 WATER YEAR

WATER YEARS 1932 - 1953  
1976 - 1995

ANNUAL TOTAL	115255	74274	
ANNUAL MEAN	316	203	245
HIGHEST ANNUAL MEAN			356
LOWEST ANNUAL MEAN			105
HIGHEST DAILY MEAN	5170	Feb 11	3320 Jan 15
LOWEST DAILY MEAN	59	Nov 20	54 Sep 6
ANNUAL SEVEN-DAY MINIMUM	61	Nov 14	56 Sep 3
INSTANTANEOUS PEAK FLOW			4320 Jan 15
INSTANTANEOUS PEAK STAGE			8.20 Jan 15
INSTANTANEOUS LOW FLOW			51 Jan 5
ANNUAL RUNOFF (CFSM)	1.50	.96	1.16
ANNUAL RUNOFF (INCHES)	20.32	13.09	15.77
10 PERCENT EXCEEDS	645	385	494
50 PERCENT EXCEEDS	145	124	145
90 PERCENT EXCEEDS	67	63	62

a Flow was regulated by powerplant.

b Also Dec. 4, 1936, Jan. 21, 22, Feb. 1, 1940, Jan. 8, 1942, and Oct. 15, 16, 31, 1943.



## TENNESSEE RIVER BASIN

## 03478400 BEAVER CREEK AT BRISTOL, VA

LOCATION.--Lat 36°37'54", long 82°08'02", Bristol City, Hydrologic Unit 06010102, on right bank 50 ft upstream from bridge on State Highway 1405, 75 ft downstream from Goose Creek, 0.9 mi downstream from Clear Creek, 3.7 mi northeast of Bristol, VA post office, and at mile 20.6.

DRAINAGE AREA.--27.7 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1957 to current year. Published as "near Bristol" prior to October 1974.

GAGE.--Water-stage recorder. Datum of gage is 1,780.98 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. 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. Maximum discharge, 1,600 ft<sup>3</sup>/s, from rating curve extended above 390 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1936 reached a stage of about 12 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 115 ft<sup>3</sup>/s, June 26, gage height, 3.97 ft; minimum, 9.7 ft<sup>3</sup>/s, Sept. 8, 9, 10, 11, 12-13, 14, 15, gage height, 2.63 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	14	13	12	27	38	28	24	29	22	13	12
2	14	13	13	12	27	36	27	35	44	21	12	11
3	15	12	13	11	29	38	26	24	30	19	12	11
4	14	12	16	11	53	38	26	21	25	19	12	10
5	14	12	22	11	40	38	25	21	24	19	12	10
6	13	13	19	20	36	40	25	20	23	18	12	10
7	13	12	17	30	33	39	25	19	22	18	12	10
8	13	12	16	19	30	76	24	18	22	17	12	10
9	14	12	15	17	28	71	24	20	21	16	12	10
10	14	14	17	15	27	64	23	26	20	18	21	10
11	13	12	30	16	27	60	23	20	20	21	16	10
12	18	12	21	19	25	55	23	19	28	17	13	10
13	12	11	19	17	24	52	22	27	22	16	13	10
14	13	12	18	30	23	48	22	53	20	16	12	10
15	13	12	17	69	51	46	21	38	20	15	12	10
16	13	12	16	60	92	44	21	31	20	15	12	14
17	13	12	16	43	76	42	21	28	19	15	12	20
18	13	12	16	35	61	41	21	26	19	15	12	13
19	15	12	14	32	53	38	20	57	19	14	14	11
20	15	11	13	33	48	38	20	38	20	14	14	11
21	14	13	13	28	46	51	21	33	19	14	12	11
22	14	11	13	26	44	40	19	30	23	13	12	17
23	30	11	12	25	41	38	21	28	28	14	11	14
24	18	11	13	23	41	36	26	27	26	14	11	13
25	15	11	12	22	37	34	21	25	21	13	11	12
26	15	11	12	21	35	33	19	24	24	13	11	17
27	14	17	12	21	36	33	19	24	25	13	12	13
28	13	19	12	29	42	32	18	23	20	12	11	12
29	13	15	12	31	---	30	18	23	20	12	11	11
30	13	13	11	30	---	29	18	22	23	12	11	11
31	13	---	12	28	---	28	---	22	---	15	11	---
TOTAL	448	376	475	796	1132	1326	667	846	696	490	384	354
MEAN	14.5	12.5	15.3	25.7	40.4	42.8	22.2	27.3	23.2	15.8	12.4	11.8
MAX	30	19	30	69	92	76	28	57	44	22	21	20
MIN	12	11	11	11	23	28	18	18	19	12	11	10
CFSM	.52	.45	.55	.93	1.46	1.54	.80	.99	.84	.57	.45	.43
IN.	.60	.50	.64	1.07	1.52	1.78	.90	1.14	.93	.66	.52	.48

## 03478400 BEAVER CREEK AT BRISTOL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	18.7	19.9	32.1	41.8	54.6	59.2	51.6	40.6	32.0	24.8	21.0	18.0
MAX	76.1	58.0	128	141	131	130	111	129	73.1	53.4	64.5	48.9
(WY)	1973	1978	1973	1974	1994	1963	1977	1958	1972	1972	1982	1982
MIN	8.08	10.3	9.13	8.92	19.5	19.7	19.3	17.7	13.0	10.2	9.96	9.23
(WY)	1970	1970	1966	1966	1981	1988	1985	1985	1988	1988	1988	1969

## SUMMARY STATISTICS

FOR 1994 CALENDAR YEAR

FOR 1995 WATER YEAR

WATER YEARS 1958 - 1995

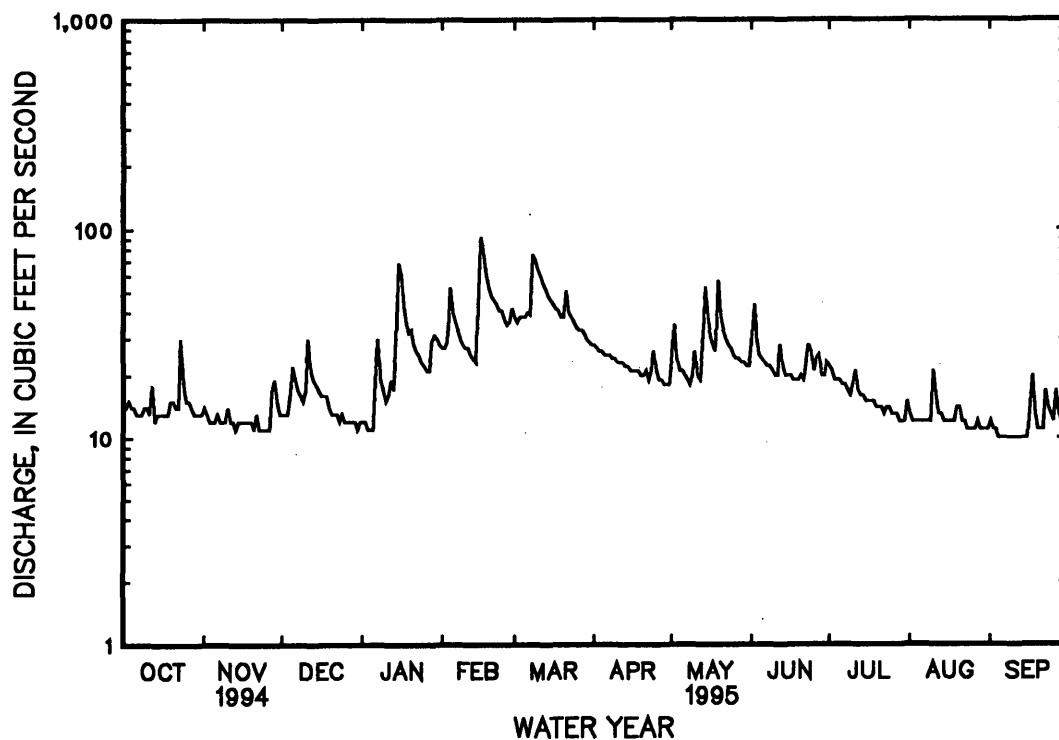
ANNUAL TOTAL	16880	7990	
ANNUAL MEAN	46.2	21.9	34.4
HIGHEST ANNUAL MEAN			62.8
LOWEST ANNUAL MEAN			16.2
HIGHEST DAILY MEAN	534	Feb 11	92
LOWEST DAILY MEAN	11	aNov 13	10
ANNUAL SEVEN-DAY MINIMUM	11	Nov 20	10
INSTANTANEOUS PEAK FLOW			115
INSTANTANEOUS PEAK STAGE			3.97
INSTANTANEOUS LOW FLOW			9.7
ANNUAL RUNOFF (CFSM)	1.67		.79
ANNUAL RUNOFF (INCHES)	22.67		10.73
10 PERCENT EXCEEDS	92		38
50 PERCENT EXCEEDS	27		19
90 PERCENT EXCEEDS	13		11

a Also Nov. 20, 22-26, and Dec. 30, 1994.

b Also Sept. 5-15, 1995.

c Also Sept. 29 and Oct. 5, 15, 18, 19, 23, 24, 1969.

d Also Sept. 9-15, 1995.



## 03488000 NORTH FORK HOLSTON RIVER NEAR SALTVILLE, VA

LOCATION.--Lat 36°53'48", long 81°44'47", Smyth County, Hydrologic Unit 06010101, on right bank 0.5 mi upstream from Cedar Branch bridge, 1.5 mi northeast of Saltville, 7.8 mi downstream from Laurel Creek, and at mile 85.0.

DRAINAGE AREA.--222 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1907 to December 1908 (published as "at Saltville"), October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1113: 1944-47. WSP 1306: 1907(M), 1921-22(M), 1924-30(M), 1932-34(M), drainage area at site used 1907-8. WSP 1726: 1947, monthly and yearly runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,703.53 ft above sea level. 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 those for periods with ice effect, Jan. 5, 6, and Feb. 7-10, which are fair. National Weather Service gage-height telemeter at station. Maximum discharge, 16,500 ft<sup>3</sup>/s, from rating curve extended above 13,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum discharge, 1.0 ft<sup>3</sup>/s, Oct. 15, 16, 1947, gage height, 0.13 ft, flow retarded by mine cave-in. 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 Department of Environmental Quality - Water Division.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	0900	*8,330	*9.47	Feb. 16	1530	3,080	5.45

Minimum discharge, 26 ft<sup>3</sup>/s, Sept. 8, gage height, 0.42 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	47	69	70	366	465	174	101	135	303	49	34
2	35	47	62	70	342	429	164	372	596	396	45	32
3	36	49	58	68	367	395	155	442	672	299	42	32
4	36	46	60	e54	790	367	149	327	524	227	44	31
5	35	43	97	e66	745	375	142	276	414	183	42	30
6	35	41	193	129	525	399	136	238	316	153	42	29
7	34	39	175	420	e393	413	132	201	255	149	47	28
8	34	39	148	408	e346	655	128	178	206	143	50	28
9	34	38	125	291	e272	1040	123	162	174	117	48	28
10	36	39	119	228	e269	826	118	175	155	105	50	28
11	37	40	339	193	244	814	114	184	143	96	51	28
12	35	41	378	229	219	992	111	188	383	88	48	28
13	36	39	267	246	176	958	115	182	876	80	45	28
14	39	37	205	621	184	786	110	559	489	75	41	28
15	40	36	168	6060	479	615	103	1210	351	69	39	32
16	41	35	143	3770	2490	488	100	733	298	68	36	46
17	42	33	137	1330	2260	397	99	481	237	69	34	120
18	39	33	133	779	1240	334	98	352	190	83	33	125
19	41	32	124	549	863	293	96	544	163	71	54	78
20	45	32	114	574	683	264	93	515	168	63	42	58
21	47	39	107	529	589	398	95	383	149	59	36	47
22	52	43	102	429	460	419	96	299	179	56	35	49
23	84	44	99	361	377	387	95	240	214	55	33	58
24	168	42	96	314	333	343	120	202	189	58	31	64
25	103	37	91	264	294	293	126	176	200	63	31	63
26	73	36	86	242	265	260	110	157	190	66	31	61
27	61	43	81	217	246	244	102	148	184	71	32	63
28	53	60	77	254	346	231	99	173	218	68	36	60
29	48	76	74	612	---	210	96	159	434	59	36	52
30	45	78	72	555	---	193	95	149	317	61	35	45
31	44	---	70	445	---	183	---	132	---	62	33	---
TOTAL	1524	1284	4069	20377	16163	14466	3494	9638	9019	3515	1251	1433
MEAN	49.2	42.8	131	657	577	467	116	311	301	113	40.4	47.8
MAX	168	78	378	6060	2490	1040	174	1210	876	396	54	125
MIN	34	32	58	54	176	183	93	101	135	55	31	28
CFSM	.22	.19	.59	2.96	2.60	2.10	.52	1.40	1.35	.51	.18	.22
IN.	.26	.22	.68	3.41	2.71	2.42	.59	1.62	1.51	.59	.21	.24

e Estimated.

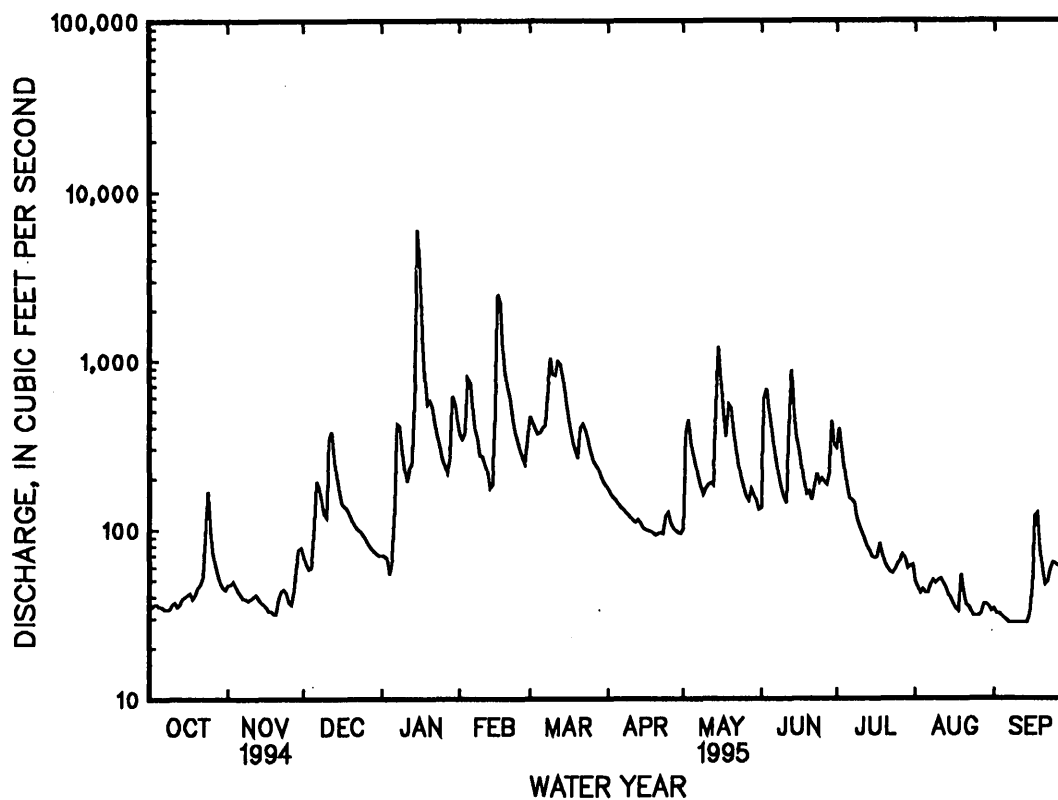
## 03488000 NORTH FORK HOLSTON RIVER NEAR SALTVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 1909, 1921 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	117	168	330	467	573	604	447	369	224	126	117	88.2
MAX	916	1077	1178	1317	1500	1735	1311	858	837	353	584	474
(WY)	1977	1978	1927	1957	1957	1955	1987	1990	1923	1938	1940	1989
MIN	24.9	27.5	32.4	49.9	98.0	121	116	80.4	46.3	33.6	25.2	25.8
(WY)	1954	1940	1940	1966	1934	1988	1995	1941	1930	1988	1988	1930

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1907 - 1909 1921 - 1995	
ANNUAL TOTAL	129789		86233		300	
ANNUAL MEAN	356		236		457	
HIGHEST ANNUAL MEAN					1973	
LOWEST ANNUAL MEAN					1988	
HIGHEST DAILY MEAN	6420	Mar 28	6060	Jan 15	10900	Apr 5 1977
LOWEST DAILY MEAN	32	aNov 19	28	bSep 7	2.0	Oct 15 1947
ANNUAL SEVEN-DAY MINIMUM	34	Nov 14	28	cSep 7	21	Sep 8 1952
INSTANTANEOUS PEAK FLOW			8330	Jan 15	16500	Jan 29 1957
INSTANTANEOUS PEAK STAGE			9.47	Jan 15	13.57	Nov 6 1977
INSTANTANEOUS LOW FLOW			26	Sep 8	d1.0	fOct 15 1947
ANNUAL RUNOFF (CFSM)	1.60		1.06		1.35	
ANNUAL RUNOFF (INCHES)	21.75		14.45		18.35	
10 PERCENT EXCEEDS	806		499		642	
50 PERCENT EXCEEDS	116		117		155	
90 PERCENT EXCEEDS	40		35		39	

- a Also Nov. 20, 1994.  
b Also Sept. 8-14, 1995.  
c Also Sept. 8, 1995.  
d Flow retarded by mine cave-in.  
f Also Oct. 16, 1947.



## TENNESSEE RIVER BASIN

## 03524000 CLINCH RIVER AT CLEVELAND, VA

LOCATION.--Lat 36°56'41", long 82°09'18", Russell County, Hydrologic Unit 06010205, on right bank 500 ft upstream from highway bridge at Cleveland, 0.5 mi downstream from Muddy Hollow, 2.3 mi downstream from Weaver Creek, 4.4 mi downstream from Thompson Creek, and at mile 271.6.

DRAINAGE AREA.--528 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1921-23(M), 1926(M), 1929-31(M). WSP 1706: 1927(M).

GAGE.--Water-stage recorder. Datum of gage is 1,500.24 ft above sea level. Prior to Nov. 1, 1931, nonrecording gage on highway bridge 500 ft downstream at datum 1.0 ft lower.

REMARKS.--No estimated daily discharges. Records good. National Weather Service gage-height telemeter at station. Tennessee Valley Authority gage-height Automatic Data Acquisition System at station, called at 6-hour intervals by computer at Knoxville, Tennessee. Maximum discharge, 34,500 ft<sup>3</sup>/s, from rating curve extended above 26,000 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 24.40 ft. Minimum gage height, 0.96 ft, Feb. 10, 1934. Several measurements of water temperature made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	0100	*9,240	*12.97	Feb. 16	2015	6,140	9.93

Minimum discharge, 60 ft<sup>3</sup>/s, Sept. 9, 10, 11-12, 13-14, gage height, 1.20 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	132	168	117	1200	1490	464	281	362	425	122	72
2	108	135	151	118	1010	1270	443	829	588	719	110	72
3	107	140	139	116	925	1090	418	972	1530	603	102	71
4	106	141	138	113	2150	1020	391	732	1740	455	100	68
5	102	128	157	95	2270	1200	368	629	1460	363	96	65
6	90	124	199	123	1610	1390	349	590	1020	307	95	64
7	93	118	232	1090	1220	1460	336	525	785	295	97	62
8	97	113	215	1170	1030	1710	320	473	634	311	105	62
9	99	110	194	697	797	2330	307	433	535	277	106	61
10	100	122	188	515	733	2060	293	471	466	235	113	61
11	100	127	414	415	671	2090	275	567	464	219	119	61
12	98	129	627	403	606	2580	280	670	521	200	127	60
13	100	124	482	408	526	2600	316	597	680	184	121	60
14	105	118	369	746	485	2280	293	2070	574	171	104	61
15	105	114	301	6570	1190	1840	264	3720	486	160	97	72
16	106	110	255	8210	5120	1490	249	2220	442	169	89	80
17	104	109	231	3800	4690	1220	240	1450	371	164	83	103
18	102	106	218	1960	2720	1010	241	1050	328	202	82	162
19	109	105	205	1380	1900	856	230	1630	296	171	89	172
20	123	103	191	1880	1510	759	236	1840	297	156	215	128
21	141	110	174	1820	1310	1110	309	1170	328	139	134	110
22	140	135	166	1360	1100	1100	332	855	303	130	103	109
23	270	130	160	1070	905	938	299	672	414	130	89	141
24	456	120	155	891	798	851	364	563	518	135	82	157
25	327	114	148	736	712	736	425	489	572	136	78	160
26	222	109	142	655	649	659	396	431	612	169	75	160
27	178	128	136	587	606	619	345	406	467	229	74	202
28	155	185	130	663	983	594	312	548	381	178	75	177
29	142	197	124	1720	---	550	285	588	326	163	75	143
30	133	190	122	1840	---	514	268	486	365	135	74	118
31	128	---	120	1510	---	488	---	420	---	122	72	---
TOTAL	4358	3826	6651	42778	39426	39904	9648	28377	17865	7452	3103	3094
MEAN	141	128	215	1380	1408	1287	322	915	595	240	100	103
MAX	456	197	627	8210	5120	2600	464	3720	1740	719	215	202
MIN	90	103	120	95	485	488	230	281	296	122	72	60
CFSM	.27	.24	.41	2.61	2.67	2.44	.61	1.73	1.13	.46	.19	.20
IN.	.31	.27	.47	3.01	2.78	2.81	.68	2.00	1.26	.53	.22	.22

## 03524000 CLINCH RIVER AT CLEVELAND, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 1995, BY WATER YEAR (WY)

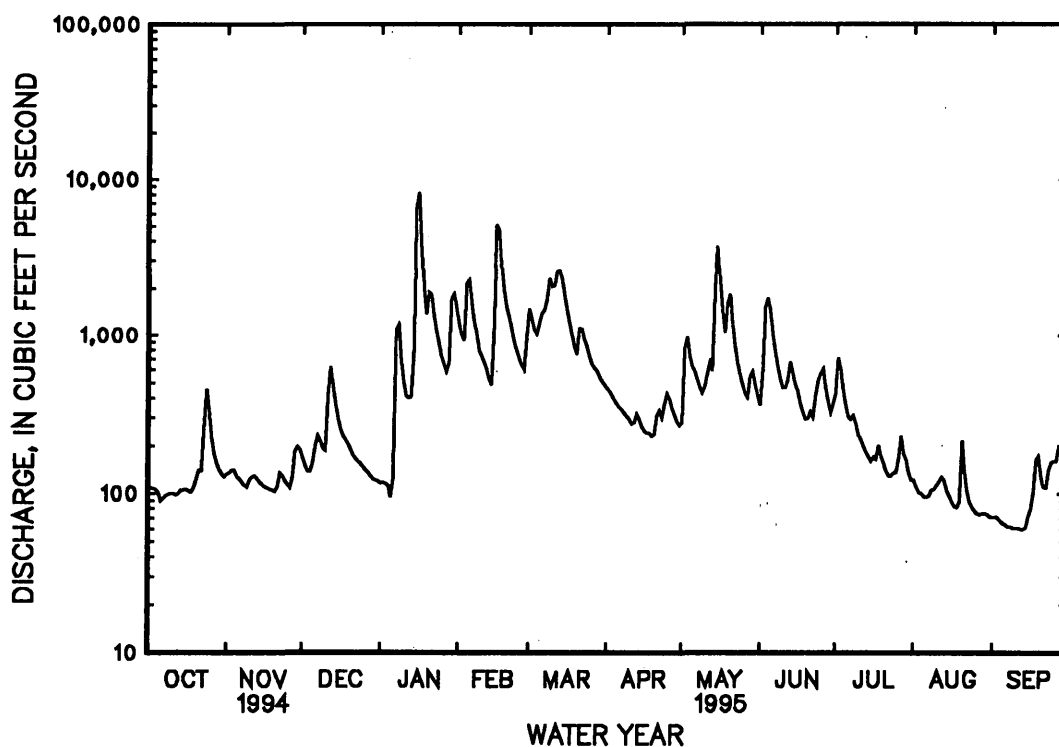
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	265	395	776	1131	1370	1424	1009	793	480	329	315	212
MAX	1389	2011	3043	2817	3360	4572	3414	2254	2016	972	1640	1003
(WY)	1977	1978	1927	1937	1957	1955	1987	1958	1923	1938	1940	1989
MIN	53.8	64.0	80.7	92.1	206	309	228	195	79.7	78.2	63.2	55.3
(WY)	1931	1940	1940	1940	1941	1988	1942	1941	1930	1930	1988	1930

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1921 - 1995	
ANNUAL TOTAL	293769		206482			
ANNUAL MEAN	805		566		705	
HIGHEST ANNUAL MEAN					1076	
LOWEST ANNUAL MEAN					287	
HIGHEST DAILY MEAN	13200	Feb 11	8210	Jan 16	27800	Apr 5 1977
LOWEST DAILY MEAN	90	Oct 6	60	aSep 12	37	bSep 13 1964
ANNUAL SEVEN-DAY MINIMUM	97	Oct 6	61	Sep 8	40	Sep 13 1964
INSTANTANEOUS PEAK FLOW			9240	Jan 16	34500	Apr 5 1977
INSTANTANEOUS PEAK STAGE			12.97	Jan 16	26.40	Apr 5 1977
INSTANTANEOUS LOW FLOW			60	cSep 9	35	Sep 28 1964
ANNUAL RUNOFF (CFSM)	1.52		1.07		1.34	
ANNUAL RUNOFF (INCHES)	20.70		14.55		18.13	
10 PERCENT EXCEEDS	1870		1450		1560	
50 PERCENT EXCEEDS	287		277		373	
90 PERCENT EXCEEDS	118		97		98	

a Also Sept. 13, 1995.

b Also Sept. 28, 1964.

c Also Sept. 10, 11-12, 13-14, 1995.



## 03528000 CLINCH RIVER ABOVE TAZEWEILL, TN

LOCATION.--Lat 36°25'30", long 83°23'54", Claiborne County, Hydrologic Unit 06010205, on right bank 0.4 mi upstream from Grissom Island, 4.6 mi downstream from Big War Creek, 10 mi east of Tazewell, and at mile 159.8.

DRAINAGE AREA.--1,474 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1918 to current year. Published as "near Lone Mountain" October 1918 to September 1927; as "near Tazewell" August 1927 to December 1936; and as "above Tazewell" July 1935 to current year. Prior to April 1919, monthly discharge only, published in WSP 1306. Gage-height record "near Tazewell" January 1937 to July 1941.

REVISED RECORDS.--WSP 803: Drainage area at site "near Tazewell". WSP 1306: Drainage area at site "near Lone Mountain". WSP 1336: 1928.

GAGE.--Data Collection Platform, Datum of gage is 1,060.7 ft above sea level. April 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.--No estimated daily discharges. Records good.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1862 reached a stage of about 24 ft, present site and datum, from information by local resident; discharge, about 66,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 14,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 16	1830	*22,000	*12.51	May 29	1500	14,700	9.80
Feb. 17	1000	16,800	10.61				

Minimum discharge, 145 ft<sup>3</sup>/s, Sept. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	313	306	790	410	3730	5300	1320	1070	1080	879	310	180
2	296	300	619	402	3130	4800	1250	2210	1440	921	338	175
3	280	290	527	401	2770	3700	1190	3510	3180	932	423	174
4	272	285	480	387	4160	3170	1120	3130	4690	1160	349	168
5	264	289	486	365	6810	2940	1060	2470	3530	992	276	172
6	255	290	557	379	5770	3530	1010	2050	2890	802	253	169
7	251	298	643	1890	4100	4270	967	1770	2240	681	243	165
8	243	289	646	4220	3190	6970	922	1540	1780	592	256	160
9	245	276	631	3470	2590	12400	887	1380	1490	552	290	155
10	251	275	656	2350	2130	9080	860	2370	1260	536	269	159
11	246	271	2210	1770	1970	6710	824	2530	1100	534	268	159
12	247	271	2700	2040	1800	6040	805	2700	1030	483	375	157
13	257	271	1990	2230	1580	6180	835	3060	1150	452	383	150
14	276	273	1570	2030	1390	5790	868	10100	1250	424	312	148
15	285	271	1210	7330	2970	4980	838	14200	1210	399	286	146
16	281	271	986	20800	10100	4100	779	10800	1020	375	261	151
17	272	263	854	18300	16200	3400	747	6160	896	381	230	166
18	264	255	766	9090	12100	2860	736	4140	815	454	211	197
19	269	248	695	4780	7020	2460	710	3310	735	411	218	236
20	300	244	636	3750	4920	2180	696	4350	707	409	231	237
21	311	237	589	3880	3910	3070	770	4360	705	392	207	267
22	306	240	583	3870	3360	4370	1030	3070	907	351	278	311
23	322	246	612	3060	2880	3690	1280	2380	880	331	375	308
24	456	246	581	2500	2500	3020	1760	1930	810	321	290	319
25	640	258	553	2120	2210	2560	2270	1620	863	317	234	344
26	711	269	528	1820	1980	2210	2040	1410	936	313	211	363
27	610	362	498	1610	1820	1990	1690	1360	975	301	197	363
28	474	863	473	1550	2080	1870	1440	1640	944	314	190	371
29	397	1240	454	2160	---	1700	1250	1320	793	358	181	374
30	349	1070	436	3830	---	1550	1140	1350	745	399	181	363
31	325	---	422	4370	---	1420	---	1240	---	341	178	---
TOTAL	10268	10567	25381	117164	119170	128310	33094	104530	42051	16107	8304	6807
MEAN	331	352	819	3779	4256	4139	1103	3372	1402	520	268	227
MAX	711	1240	2700	20800	16200	12400	2270	14200	4690	1160	423	374
MIN	243	237	422	365	1390	1420	696	1070	705	301	178	146
CFSM	.22	.24	.56	2.56	2.89	2.81	.75	2.29	.95	.35	.18	.15
IN.	.26	.27	.64	2.96	3.01	3.24	.84	2.64	1.06	.41	.21	.17



## 03528000 CLINCH RIVER ABOVE TAZEWEEL, TN--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	670	1107	2360	3455	4168	4282	3056	2283	1278	964	858	540
MAX	2871	4794	9107	9500	9426	11950	8860	6382	3865	3251	4411	2939
(WY)	1990	1978	1927	1937	1957	1963	1977	1929	1989	1938	1942	1989
MIN	145	159	217	285	571	990	711	547	301	239	169	136
(WY)	1964	1940	1940	1940	1941	1988	1986	1941	1988	1988	1925	1955

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1919 - 1995	
ANNUAL TOTAL	984395		621753			
ANNUAL MEAN	2697		1703		2076	
HIGHEST ANNUAL MEAN					3269	
LOWEST ANNUAL MEAN					850	
HIGHEST DAILY MEAN	40800		Feb 12		83300	
LOWEST DAILY MEAN	237		Nov 21		108	
ANNUAL SEVEN-DAY MINIMUM	245		Nov 18		116	
INSTANTANEOUS PEAK FLOW			22000		98100	
INSTANTANEOUS PEAK STAGE			12.51		a29.32	
INSTANTANEOUS LOW FLOW			145		108	
ANNUAL RUNOFF (CFSM)	1.83		1.16		1.41	
ANNUAL RUNOFF (INCHES)	24.84		15.69		19.13	
10 PERCENT EXCEEDS	6000		4100		4660	
50 PERCENT EXCEEDS	914		779		1110	
90 PERCENT EXCEEDS	287		244		270	

a From floodmarks.

## 03530500 NORTH FORK POWELL RIVER AT PENNINGTON GAP, VA

LOCATION.--Lat 36°46'26", long 83°01'59", Lee County, Hydrologic Unit 06010206, near right bank on downstream side of abandoned highway bridge, 75 ft east of U.S. Highway 421, 1,000 ft upstream from bridge on State Highway 621, 0.8 mi north of Pennington Gap, 1.3 mi downstream from Straight Creek, and at mile 4.7.

DRAINAGE AREA.--71.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1944 to September 1951, October 1951 to September 1977 (annual maximum only), October 1978 to September 1981, October 1981 to September 1993 (annual maximum only), October 1993 to September 1995 (discontinued).

REVISED RECORDS.--WSP 1436: 1945-48, 1949(M), 1950, 1951(M).

GAGE.--Water-stage recorder. Datum of gage is 1,363.02 ft above sea level. Prior to Dec. 7, 1949, staff gage, Dec. 7, 1949, to Sept. 30, 1951, wire-weight gage, Oct. 1, 1951, to Sept. 30, 1977, and Oct. 1, 1981, to Sept. 30, 1993, crest-stage gage, at same site and datum.

REMARKS.--Records good except for period with ice effect, Jan. 3-5, and periods of doubtful gage-height record, Oct. 1-5, Feb. 2, 3, Apr. 3-5, 16-20, June 5-28, and July 7 to Sept. 16, which are poor. Prior to October 1951, diurnal fluctuation at low flow caused by powerplant 2.1 mi above station. Maximum discharge, 17,000 ft<sup>3</sup>/s, Apr. 5, 1977, gage height, 16.14 ft, from rating curve extended above 710 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 8.70 ft, 9.45 ft, 12.1 ft, and 16.14 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 7	0100	1,050	3.93	Mar. 8	1545	1,350	4.50
Jan. 15	2330	2,310	5.96	May 11	0500	1,270	4.34
Feb. 16	0430	1,870	5.35	May 14	1300	*2,800	*6.62
Feb. 28	1100	1,220	4.25	May 19	0615	1,710	5.11

Minimum daily discharge, 2.1 ft<sup>3</sup>/s, Sept. 8-10.

## PROVISIONAL DATA

## SUBJECT TO REVISION

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e11	15	48	28	e160	575	65	100	46	20	e8.0	e3.4
2	e9.8	15	38	28	e142	311	60	325	87	20	e13	e3.2
3	e9.6	14	32	e21	138	222	e54	222	70	16	e8.6	e3.1
4	e9.4	13	35	e15	448	184	e48	164	48	16	e7.0	e2.5
5	e9.2	13	58	e10	342	166	e46	145	e42	16	e6.4	e2.3
6	9.1	13	62	172	217	347	44	115	e39	15	e7.0	e2.3
7	9.1	13	57	788	163	555	43	95	e36	e13	e9.0	e2.2
8	8.9	13	50	337	133	948	41	82	e33	e11	e12	e2.1
9	10	13	44	194	107	806	40	133	e31	e12	e7.6	e2.1
10	13	14	110	140	100	476	39	618	e30	e10	e8.0	e2.1
11	11	15	300	125	91	401	39	980	e32	e9.0	e15	e2.2
12	9.5	14	157	335	76	360	53	461	e45	e8.6	e10	e2.2
13	12	13	103	303	69	293	53	537	e35	e8.2	e7.0	e2.3
14	14	13	78	324	65	227	42	1840	e30	e8.0	e5.2	e2.5
15	13	13	65	1990	955	184	39	919	e28	e7.8	e4.5	e2.7
16	11	12	56	1440	1510	153	e37	417	e25	e8.0	e4.0	e3.4
17	9.6	12	62	581	827	126	e36	240	e23	e10	e4.0	21
18	8.8	12	60	310	475	107	e35	179	e21	e11	e4.5	15
19	16	12	54	211	299	95	e34	1290	e20	e9.0	e14	8.8
20	22	12	49	210	218	92	e40	583	e20	e8.0	e10	6.8
21	17	13	46	169	190	485	139	304	e23	e6.8	e8.0	7.4
22	15	14	46	139	154	308	133	194	e43	e6.4	e6.4	14
23	33	13	46	116	132	217	119	144	e35	e6.8	e5.2	19
24	31	12	43	100	116	169	437	109	e37	e7.8	e3.8	14
25	23	12	40	83	102	136	249	89	e30	e8.0	e3.2	11
26	19	12	35	79	94	115	164	77	e25	e11	e3.1	14
27	17	45	34	71	93	106	125	68	e21	e9.0	e3.0	16
28	15	366	32	109	887	99	101	63	e19	e8.0	e3.0	12
29	15	127	31	195	---	84	84	60	17	e7.0	e2.8	9.1
30	15	67	31	227	---	75	79	52	16	e6.2	e2.7	7.4
31	14	---	29	200	---	69	---	47	---	e5.8	e2.7	---
TOTAL	440.0	945	1931	9050	8303	8491	2518	10652	1007	319.4	208.7	216.1
MEAN	14.2	31.5	62.3	292	297	274	83.9	344	33.6	10.3	6.73	7.20
MAX	33	366	300	1990	1510	948	437	1840	87	20	15	21
MIN	8.8	12	29	10	65	69	34	47	16	5.8	2.7	2.1
CFSM	.20	.44	.87	4.09	4.15	3.84	1.18	4.81	.47	.14	.09	.10
IN.	.23	.49	1.01	4.72	4.33	4.42	1.31	5.55	.52	.17	.11	.11

e Estimated.

## 03530500 NORTH FORK POWELL RIVER AT PENNINGTON GAP, VA --Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1951, 1979 - 1981, 1994 - 1995, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	15.8	69.5	158	322	328	257	179	143	76.4	49.3	38.7	14.9
MAX	45.9	177	322	610	740	506	355	344	160	215	150	27.8
(WY)	1950	1980	1950	1950	1994	1994	1994	1995	1945	1949	1947	1981
MIN	2.65	14.4	15.8	11.4	76.5	117	74.5	34.7	9.65	9.18	1.94	6.51
(WY)	1949	1981	1981	1981	1947	1981	1950	1948	1948	1946	1951	1946

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR	FOR 1995 WATER YEAR	WATER YEARS 1945 - 1951 1979 - 1981 1994 - 1995
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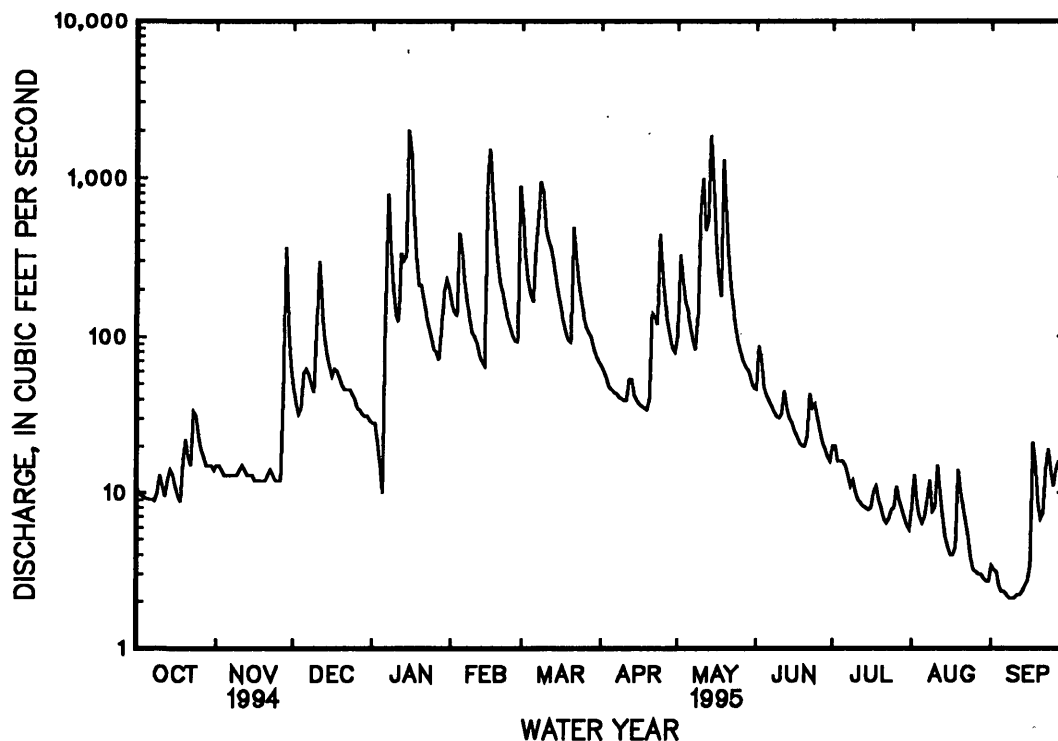
ANNUAL TOTAL	71172.0	44081.2	
ANNUAL MEAN	195	121	134
HIGHEST ANNUAL MEAN			222
LOWEST ANNUAL MEAN			65.5
HIGHEST DAILY MEAN	4450	Feb 11	6360
LOWEST DAILY MEAN	8.8	Oct 18	.00
ANNUAL SEVEN-DAY MINIMUM	9.3	Oct 2	.69
INSTANTANEOUS PEAK FLOW			2800
INSTANTANEOUS PEAK STAGE			6.62
INSTANTANEOUS LOW FLOW			d2.6
ANNUAL RUNOFF (CFSM)	2.73		1.69
ANNUAL RUNOFF (INCHES)	37.08		22.97
10 PERCENT EXCEEDS	440		310
50 PERCENT EXCEEDS	57		35
90 PERCENT EXCEEDS	13		6.8

a Also Sept. 9, 10, 1995.

b Also Sept. 5, 1951.

c Higher maximum occurred during period of non-continuous record; 17,000 ft<sup>3</sup>/s, Apr. 5, 1977, gage height, 16.14 ft, from rating curve extended above 710 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 8.70 ft, 9.45 ft, 12.1 ft, and 16.14 ft.

d Observed.



## TENNESSEE RIVER BASIN

## 03531500 POWELL RIVER NEAR JONESVILLE, VA

LOCATION.--Lat 36°39'43", long 83°05'42", Lee County, Hydrologic Unit 06010206, on right bank 175 ft downstream from highway bridge, 2 mi southeast of Jonesville, 10 mi upstream from Wallen Creek, and at mile 143.1.

DRAINAGE AREA.--319 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1033: 1932-44. WSP 1436: 1946(M), 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 1,259.08 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. National Weather Service gage-height telemeter at station. Tennessee Valley Authority gage-height Automatic Data Acquisition System at station, called at 6-hour intervals by computer at Knoxville, Tennessee. Maximum discharge, 57,000 ft<sup>3</sup>/s, from rating curve extended above 20,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 0.68 ft, Oct. 18, 1961, result of storage behind temporary dam. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1900	8,360	15.24	May 14	2315	*8,900	*16.02
Feb. 16	1315	6,040	11.77				

Minimum discharge, 40 ft<sup>3</sup>/s, Sept. 8-10, gage height, 1.13 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	73	207	114	711	2180	333	359	273	194	68	44
2	78	72	158	114	633	1390	314	891	337	160	193	45
3	77	72	133	109	583	1010	294	860	395	131	117	45
4	78	69	125	103	1640	849	274	675	291	119	79	46
5	76	67	159	93	1690	750	260	584	253	118	69	43
6	73	68	217	135	1100	998	244	527	227	108	76	42
7	75	70	192	2380	808	1630	234	442	216	97	93	42
8	75	71	172	1560	682	2820	225	391	200	94	112	41
9	77	67	155	862	513	3390	214	360	185	89	96	40
10	85	68	173	612	519	2150	206	1340	185	85	81	41
11	91	69	891	490	466	1870	194	2440	171	84	110	42
12	82	71	652	825	414	1770	197	1760	202	81	110	42
13	80	68	455	868	348	1630	274	1380	256	78	84	42
14	89	64	346	759	334	1350	222	6380	222	75	71	43
15	99	63	281	6090	2200	1080	196	5190	170	73	64	43
16	93	63	234	6610	5250	872	187	2410	157	73	59	46
17	82	62	221	2810	3520	732	183	1640	142	71	57	73
18	77	60	224	1670	2160	632	186	1240	131	98	56	96
19	81	59	200	1110	1520	558	180	3240	124	105	58	74
20	106	59	180	1250	1130	509	173	2510	127	77	71	58
21	117	58	167	1040	954	1330	333	1570	211	69	85	54
22	107	62	164	818	798	1220	521	1070	231	66	70	65
23	134	64	171	680	675	938	428	811	404	66	59	96
24	211	63	161	585	609	766	965	660	330	76	54	114
25	140	59	153	496	539	627	980	554	227	80	51	78
26	104	59	142	449	493	546	711	484	175	74	49	68
27	89	76	134	404	459	506	560	446	153	99	48	77
28	82	566	127	429	1840	482	468	400	140	75	48	89
29	77	621	123	748	---	422	395	376	127	72	47	67
30	75	310	119	860	---	383	358	336	128	70	46	57
31	73	---	115	826	---	352	---	299	---	62	45	---
TOTAL	2863	3273	6951	35899	32588	35742	10309	41625	6390	2819	2326	1753
MEAN	92.4	109	224	1158	1164	1153	344	1343	213	90.9	75.0	58.4
MAX	211	621	891	6610	5250	3390	980	6380	404	194	193	114
MIN	73	58	115	93	334	352	173	299	124	62	45	40
CFGM	.29	.34	.70	3.63	3.65	3.61	1.08	4.21	.67	.29	.24	.18
IN.	.33	.38	.81	4.19	3.80	4.17	1.20	4.85	.75	.33	.27	.20

## 03531500 POWELL RIVER NEAR JONESVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1995, BY WATER YEAR (WY)

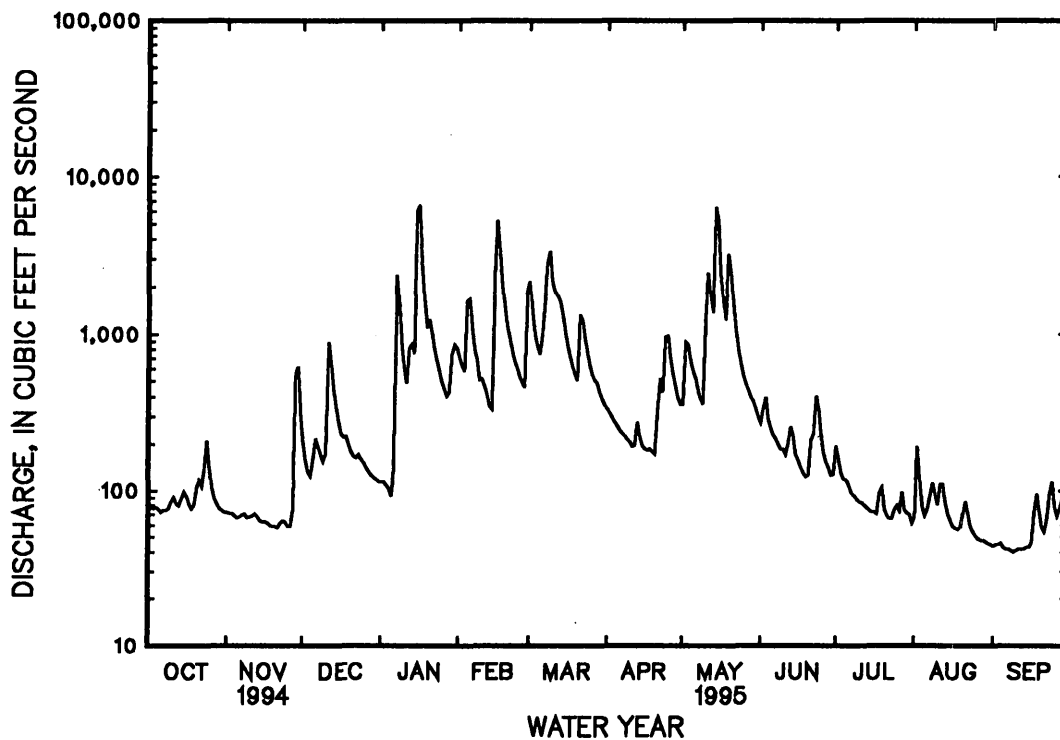
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	155	312	662	939	1087	1136	804	562	309	236	198	118
MAX	1086	1405	2026	2765	2666	3423	2542	1436	1601	825	1187	603
(WY)	1978	1974	1973	1937	1994	1963	1977	1984	1989	1941	1942	1982
MIN	22.9	29.7	46.5	57.8	123	281	169	108	46.7	47.7	49.0	24.5
(WY)	1955	1954	1966	1940	1941	1988	1986	1941	1936	1944	1953	1955

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1932 - 1995	
ANNUAL TOTAL	289470		182538			
ANNUAL MEAN	793		500		541	
HIGHEST ANNUAL MEAN					943	
LOWEST ANNUAL MEAN					218	
HIGHEST DAILY MEAN	13800	Mar 28	6610	Jan 16	35000	Apr 5 1977
LOWEST DAILY MEAN	58	Nov 21	40	Sep 9	18	Oct 3 1933
ANNUAL SEVEN-DAY MINIMUM	60	Nov 16	41	Sep 6	18	Sep 11 1954
INSTANTANEOUS PEAK FLOW			8900	May 14	57000	Apr 5 1977
INSTANTANEOUS PEAK STAGE			16.02	May 14	a44.32	Apr 5 1977
INSTANTANEOUS LOW FLOW			40	bSep 8	17	cSep 19 1954
ANNUAL RUNOFF (CFSM)	2.49		1.57		1.70	
ANNUAL RUNOFF (INCHES)	33.76		21.29		23.03	
10 PERCENT EXCEEDS	1790		1280		1220	
50 PERCENT EXCEEDS	288		173		252	
90 PERCENT EXCEEDS	77		59		54	

a From floodmark.

b Also Sept. 9, 10, 1995.

c Also Sept. 20, 1954, and as a result of storage behind temporary dam Oct. 18, 1961.



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 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 that 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.

Maximum discharge at crest-stage partial-record stations during water year 1995

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
POTOMAC RIVER BASIN								
Buffalo Branch tributary near Christian, Va. (01622400)	Lat 38°11'55", long 79°13'10", Augusta County, Hydrologic Unit 02070005, on left up- stream 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 sea level. Drainage area is 0.49 mi <sup>2</sup> .	1967-95	1-16-95	3.71	55	11- 4-85	6.96	211
Chub Run near Stanley, Va. (01629945)	Lat 38°34'31", long 78°27'32", Page County, Hydrologic Unit 02070005, 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 sea level. Drainage area is 3.16 mi <sup>2</sup> .	1959-69a, 1970-95	1-15-95	2.89	267	11- 4-85	9.66	(*)
Crooked Run near Mt. Jackson, Va. (01632970)	Lat 38°45'44", long 78°41'06", Shenandoah County, Hydrologic Unit 02070006, on right up- stream wingwall of culvert on State Highway 263, 0.4 mi up- stream from mouth, and 2.3 mi west of Mt. Jackson. Datum of gage is 962.84 ft above sea level. Drainage area is 6.49 mi <sup>2</sup> .	1972-95	6-27-95	3.73	382	8- 7-78	8.90	2,600
Pughs Run near Woodstock, Va. (01633650)	Lat 38°55'48", long 78°32'43", Shenandoah County, Hydrologic Unit 02070006, on left up- stream 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 sea level. Drainage area is 3.66 mi <sup>2</sup> .	1971-95	1-15-95	4.42	85	6-22-72	9.30	543

\* Discharge not determined

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum		Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
POTOMAC RIVER BASIN--Continued								
Snakeden Branch at Reston, Va. (01645784)	Lat 38°55'48", long 77°20'43", Fairfax County, Hydrologic Unit 02070008, on right bank at upstream side of culvert on Soapstone Drive, 1.1 mi upstream from Lake Elsa Dam, and in Reston. Datum of gage is 320.15 ft above sea level. Drainage area is 0.79 mi <sup>2</sup> .	1972-78†, 1985-95c	6-26-95	3.99	359	6-21-72	b6.4	760
Fourmile Run at Alexandria, Va. (01652500)	Lat 38°50'35", long 77°05'09", Arlington County, Hydrologic Unit 02070010, on left up- stream 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 sea level. Drainage area is 13.8 mi <sup>2</sup> .	1947, 1952-69†d, 1970-73d, 1974-75†, 1976-77, 1979-82†, 1983-95	3-8-95	7.28	1610	7-22-69	d11.60	14,600
Cedar Run near Warrenton, Va. (01655500)	Lat 38°44'25", long 77°47'16", Fauquier County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on State Highway 672, 1.9 mi north of Warrenton, and 14.5 mi upstream from Licking Run. Datum of gage is 419.40 ft above sea level. Drainage area is 12.3 mi <sup>2</sup> .	1951-86†, 1987-95	1-15-95	4.95	258	6-21-72	12.87	7,840
Broad Run near Warrenton, Va. (01656200)	Lat 38°48'25", long 77°48'47", Fauquier County, Hydrologic Unit 02070010, on left down- stream wingwall of culvert on U.S. Highway 17, 7 mi north of Warrenton, and 8.6 mi upstream from Mill Run. Elevation of gage is 610 ft above sea level, from topo- graphic map. Drainage area is 2.94 mi <sup>2</sup> .	1950-78, 1983-95	6-27-95	e3.78	(*)	6-21-72	7.86	276
Middle Fork Chopawamsic Creek near Garrisonville, Va. (01659500)	Lat 38°33'26", long 77°25'32", Stafford County, Hydrologic Unit 02070011, on left bank 300 ft upstream from bridge on Marine Road 1, 0.4 mi up- stream from confluence with North Branch Chopawamsic Creek, and 5.6 mi north of Garrisonville. Datum of gage is 192.48 ft above sea level. Drainage area is 4.51 mi <sup>2</sup> .	1951-57†, 1990-95	3-8-95	f7.13	(*)	8-13-55	5.80	340

\* Discharge not determined.

† Operated as a continuous-record gaging station.

b From high-water marks.

c Operated as a stage-only station.

d At different site and datum 6.02 feet lower.

e Affected by backwater from beaver dam.

f Affected by debris jam at upstream end of culvert.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
GREAT WICOMICO RIVER BASIN								
Great Wicomico River near Horse Head, Va. (01661600)	Lat 37°53'15", long 76°27'00", Northumberland County, Hydrologic Unit 02080102, 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. Drainage area is 6.98 mi <sup>2</sup> .	1969-95	7-22-95	4.92	684	6- 3-79	8.88	1,950
Bush Mill Stream near Heathsville, Va. (01661800)	Lat 37° 52'36", long 76° 29'42", Northumberland County, Hydrologic Unit 02080102, on right bank 12 ft upstream from bridge on State High- way 601, 2.2 mi northwest of Howland, and 3.0 mi southwest of Heathsville. Datum of gage is 22.22 ft above sea level. Drainage area is 6.82 mi <sup>2</sup> .	1964-69†, 1970-86†, 1987-95	6-26-95	5.34	106	7-30-79	8.52	714
RAPPAHANNOCK RIVER BASIN								
Carter Run near Marshall, Va. (01661900)	Lat 38°47'57", long 77°52'09", Fauquier County, Hydrologic Unit 02080103, 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 up- stream from mouth. Datum of gage is 388.39 ft above sea level. Drainage area is 19.5 mi <sup>2</sup> .	1977-82†, 1983-95	6-26-95	7.77	2,400	10- 9-76	10.40	7,100
Rappahannock River near Warrenton, Va. (01662000)	Lat 38°41'05", long 77°54'15", Fauquier County, Hydrologic Unit 02080103, on left bank 50 ft downstream from west- bound 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 sea level. Drainage area is 195 mi <sup>2</sup> .	1943-86†, 1987-95	6-27-95	16.96	7,560	10-15-42	23.50	32,000
Pony Mountain Branch near Culpeper, Va. (01665050)	Lat 38°27'04", long 77°57'24", Culpeper County, Hydrologic Unit 02080103, at culvert on State Highway 3, 0.3 mi upstream from mouth, and 2.7 mi southeast of Culpeper. Elevation of gage is 335 ft above sea level, from topo- graphic map. Drainage area is 0.30 mi <sup>2</sup> .	1958-69a, 1970-95	1-16-95	1.49	46	8-16-70	4.02	196

† Operated as a continuous-record gaging station.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.



## Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)

## RAPPAHANNOCK RIVER BASIN--Continued

Mountain Run near Burr Hill, Va. (01667870)	Lat 38°21'13", long 77°53'38", Orange County, Hydrologic Unit 02080103, at center on downstream side of bridge on State Highway 611, 2.4 mi west of Burr Hill, and 4.4 mi upstream from mouth. Elevation of gage is 620 ft above sea level, from topo- graphic map. Drainage area is 28.8 mi <sup>2</sup> .	1990-91†, 1992-95	6-27-95	14.41	9,500	6-27-95	14.41	9,500
Farmers Hall Creek near Champlain, Va. (01668300)	Lat 38°00'05", long 76°58'40", Essex County, Hydrologic Unit 02080104, on left up- stream 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 sea level. Drainage area is 2.18 mi <sup>2</sup> .	1966-95	6-26-95	7.24	177	8-20-69	19.2	510
Hoskins Creek near Tappa- hannock, Va. (01668800)	Lat 37°55'38", long 76°57'16", Essex County, Hydrologic Unit 02080104, at bridge on State Highway 717, 0.4 mi upstream from Criddlin Swamp, and 5.0 mi west of Tappahannock. Datum of gage is 36.28 ft above sea level. Drainage area is 15.5 mi <sup>2</sup> .	1965-69†, 1971-86†, 1987-94	3- 3-94	5.40	340	8-20-69	10.23	1,380

## PIANKATANK RIVER BASIN

My Ladys Swamp near Saluda, Va. (01669800)	Lat 37°34'34", long 76°31'30", Middlesex County, Hydrologic Unit 02080102, 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 sea level. Drainage area is 4.81 mi <sup>2</sup> .	1970-95	3- 8-95	6.42	298	1- 2-85	8.38	592
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## YORK RIVER BASIN

Pamunkey Creek at Lahore, Va. (01670180)	Lat 36°11'53", long 77°58'09", Orange County, Hydrologic Unit 02080106, on right bank on upstream side of bridge on State Highway 669, 0.45 mi south of Lahore, and 3.8 mi upstream from Lake Anna. Elevation of gage is 200 ft above sea level, from topographic map. Drainage area is 40.5 mi <sup>2</sup> .	1989-91†, 1992-95	6-27-95	b17.20	6,900	6-27-95	17.20	6,900
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† Operated as a continuous-record gaging station.

b From high-water marks.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
YORK RIVER BASIN--Continued								
Contrary Creek near Mineral, Va. (01670300)	Lat 38°03'53", long 77°52'45", Louisa County, Hydrologic Unit 02080106, on left bank 200 ft downstream from bridge on U.S. Highway 522, 4.0 mi northeast of Mineral. Elevation of gage is 275 ft above sea level, from topo- graphic map. Drainage area is 5.53 mi <sup>2</sup> .	1976-86†, 1987-95	3-9-95	2.73	400	11-28-93	6.94	7,050
Fosters Creek near Ferncliff, Va. (01671615)	Lat 37°57'35", long 78°11'20", Louisa County, Hydrologic Unit 02080106, at culvert on U.S. Highway 250, 1.9 mi southeast of Zion Cross- roads, 4.6 mi northwest of Ferncliff, and 5.0 mi up- stream from mouth. Datum of gage is 424.22 ft above sea level. Drainage area is 0.61 mi <sup>2</sup> .	1960-69a, 1970-95	6-27-95	7.92	405	8-20-69 7- 4-91	10.55 10.60	1,000 1,020
Waldrop Creek near Louisa, Va. (01671650)	Lat 38°00'08", long 78°04'22", Louisa County, Hydrologic Unit 02080106 on left up- stream 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 sea level. Drainage area is 2.85 mi <sup>2</sup> .	1969-95	3-9-95	5.99	259	8-20-69	21.00	2,500
Harris Creek near Trevilians, Va. (01671750)	Lat 38°01'02", long 78°03'06", Louisa County, Hydrologic Unit 02080106, on right up- stream wingwall of culvert on State Highway 632, 2.7 mi southeast of Trevilians, and 6 mi upstream from mouth. Drainage area is 3.31 mi <sup>2</sup> .	1969-95	6-27-95	5.96	544	8-20-69	16.70	3,300
Reedy Creek near Dawn, Va. (01674200)	Lat 37°52'55", long 77°21'35", Caroline County Hydrologic Unit 02080105, at bridge on U.S. Highway 301, 3.3 mi north of Dawn, and 11 mi south of Bowling Green. Drainage area is 16.8 mi <sup>2</sup> .	1951-69, 1972-95	7-28-95	4.02	126	8-20-69	7.28	2,500
Aylett Creek at Aylett, Va. (01674700)	Lat 37°47'05", long 77°06'23", King William County, Hydro- logic Unit 02080105, on right upstream wingwall of culvert on U.S. Highway 360 at Aylett, 2.8 mi upstream from mouth. Datum of gage is 26.72 ft above sea level. Drainage area is 6.17 mi <sup>2</sup> .	1969-95	6-26-95	3.49	(*)	9-26-75	4.91	720

\* Discharge not determined.

† Operated as a continuous-record gaging station.

a Record provided by U.S. Department of Agriculture, Soil Conservation Service.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
JAMES RIVER BASIN								
Jackson River at Falling Spring, Va. (02012500)	Lat 37°52'36", long 79°58'39", Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft upstream from Smith Bridge, 0.8 mi south of Falling Spring, and 5.5 mi north of Covington. Datum of gage is 1,333.49 ft above sea level. Drainage area is 411 mi <sup>2</sup> .	1925-84†, 1987-95	6-24-95	7.75	2,940	3-17-36 h1913	14.74 20	24,700 j50,000
Sweet Springs Creek tributary at Sweet Chaly- beate, Va. (02012950)	Lat 37°39'25", long 80°14'10", Alleghany County, Hydrologic Unit 02080201, on left bank at 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 sea level. Drainage area is 0.66 mi <sup>2</sup> .	1966-75, 1978-95	1-28-95	3.96	28.3	7- 5-74	10.5	375
Craig Creek at New Castle, Va. (02017300)	Lat 37°30'06", long 80°06'18", Craig County, Hydrologic Unit 02080201, on left bank on upstream end of old bridge pier, 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 sea level. Drainage area is 112 mi <sup>2</sup> .	1967-95	1-15-95	13.77	8,660	11- 4-85	19.55	24,400
Craig Creek tributary near New Castle, Va. (02017700)	Lat 37°33'21", long 79°59'52", Craig County, Hydrologic Unit 02080201, on right up- stream wingwall of culvert on State Highway 606, 0.4 mi upstream from mouth, and 7.1 mi northeast of New Castle. Drainage area is 2.05 mi <sup>2</sup> .	1968-95	1-15-95	9.98	577	11- 4-85	13.45	1,100

† Operated as a continuous-record gaging station.

h Maximum known historical peak outside period of record.

j Approximate.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
JAMES RIVER BASIN --Continued								
North Fork near Fincastle, Va. (02018800)	Lat 37°32'07", long 79°56'03", Botetourt County, Hydrologic Unit 02080201, on left up- stream 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 sea level. Drainage area is 4.17 mi <sup>2</sup> .	1968-94	8-17-94	5.01	342	4-16-87	10.76	3,870
			1968	<3.25	m<56			
			10-19-68	5.15	m374			
			12-31-69	4.45	m214			
			2-13-71	5.15	m374			
			6-21-72	7.00	m990			
			5-28-73	8.10	m1,570			
			5-12-74	4.85	m301			
			3-19-75	5.57	m479			
			5-29-76	4.35	m196			
			3-13-77	6.10	m639			
			1-25-78	6.25	m691			
			9-21-79	9.88	m2,960			
			4-14-80	9.25	m2,400			
			5-28-81	6.44	m760			
			2-3-82	4.20	m171			
			3-18-83	7.17	m1,070			
			5-6-84	5.55	m474			
Renick Run near Buchanan, Va. (02020100)	Lat 37°35'27", long 79°38'04", Botetourt County, Hydrologic Unit 02080201, on left up- stream wingwall of culvert on Frontage Road F054 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 sea level. Drainage area is 2.06 mi <sup>2</sup> .	1967-95	6-23-95	4.36	257	8-20-69	9.90	1,210
Cedar Grove Branch near Rockbridge Baths, Va. (02021700)	Lat 37°53'00", long 79°23'10", Rockbridge County, Hydrologic Unit 02080202, 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 sea level. Drainage area is 12.3 mi <sup>2</sup> .	1967-95	6-23-95	29.1	*	8-20-69	31.2	7,300
South River near Steeles Tavern, Va. (02023300)	Lat 37°55'50", long 79°09'55", Augusta County, Hydrologic Unit 02080202, at bridge on State Highway 608, 2.5 mi northeast of Vesuvius, 3 mi east of Steeles Tavern, and 5 mi south of Greenville. Elevation of gage is 1,600 ft above sea level, from topo- graphic map. Drainage area is 15.7 mi <sup>2</sup> .	1951-95	-	<2.04	<135	8-20-69	8.70	4,700
James River at Bedford Dam near Major, Va. (02024750)	Lat 37°34'40", long 79°22'36", Amherst County, Hydrologic Unit 02080203, on left bank 10 ft upstream from head- gates on headrace to city of Bedford hydroelectric plant, 1.2 mi north of Major, and 1.4 mi upstream from Blue Ridge Parkway. Drainage area is 3,070 mi <sup>2</sup> .	1988-95†	6-28-95	12.75	92,800	4-22-92	13.91	99,600

† Operated as a continuous-record gaging station.

&lt; Less than.

m Revised.

\* Discharge not determined

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum		Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
JAMES RIVER--Continued								
Buffalo River tributary near Amherst, Va. (02027700)	Lat 37°33'45", long 78°57'35", Amherst County, Hydrologic Unit 02080203, 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 sea level. Drainage area is 0.46 mi <sup>2</sup> .	1966-95	6-22-95	3.13	24	6-21-72	7.18	187
Stockton Creek near Afton, Va. (02030800)	Lat 38°01'48", long 78°48'30", Albemarle County, Hydrologic Unit 02080204, on left up- stream 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 sea level. Drainage area is 2.80 mi <sup>2</sup> .	1967-95	6-27-95	5.44	159	6-21-72 11-23-92	9.68 19.73	678 425
Doyles River near White Hall, Va. (02032200)	Lat 38°12'10", long 78°40'17", Albemarle County, Hydrologic Unit 02080204, on right down- stream 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 sea level. Drainage area is 6.70 mi <sup>2</sup> .	1967-95	6-27-95	12.04	954	9-22-79	13.73	2,560
Muddy Run near Stanardsville, Va. (02032300)	Lat 38°14'05", long 78°37'02", Albemarle County, Hydrologic Unit 02080204, 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 sea level. Drainage area is 3.36 mi <sup>2</sup> .	1967-95	1-15-95	6.89	(*)	5-13-73 8-28-79	8.33 8.33	(*) (*)
Haneytown Creek near Stanards- ville, Va (02032540)	Lat 38°16'48", long 78°30'50", Greene County, Hydrologic Unit 02080204, on left down- stream 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 sea level. Drainage area is 4.45 mi <sup>2</sup> .	1967-95	1-15-95	12.91	615	3-19-75	13.85	1,220
Lynch River at Nortonville, Va. (02032550)	Lat 38°14'12", long 78°32'34", Albemarle County, Hydrologic Unit 02080204, on right down- stream abutment of bridge on State Highway 810, 4 mi up- stream from mouth, and 7 mi southwest of Stanardsville. Datum of gage is 591.70 ft above sea level. Drainage area is 13.6 mi <sup>2</sup> .	1967-95	1-15-95	14.67	(*)	6-21-72	16.50	(**)

\* Discharge not determined.

\*\*Discharge not determined. Discharge of 18,000 ft<sup>3</sup>/s published in the 1991 report was undefined.

f Affected by debris jam at upstream end of culvert.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued								
North Fork Rivanna River near Proffit, Va. (02032680)	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 con- fluence with South Fork Rivanna River. Datum of gage is 323.43 ft above sea level. Drainage area is 176 mi <sup>2</sup> .	1970-92†, 1993-95	1-15-95	13.60	4940	6-21-72	b30.40	31,800
Schenks Branch at Charlottesville, Va (02032700)	Lat 38°02'32", long 78°28'30", Charlottesville City, Hydro- logic Unit 02080204, on right downstream retaining wall of small road culvert, 25 ft upstream from U.S. Highway 250 bypass culvert, 200 ft southeast of inter- section of U.S. Highway 250 bypass and McIntire Road, and 1.2 mi upstream from mouth. Datum of gage is 371.63 ft above sea level. Drainage area is 1.34 mi <sup>2</sup> .	1950-95	9-17-95	6.21	472	9-8-87	b12.54	1,670
Moore's Creek near Char- lottesville Va. (02033300)	Lat 38°00'25", long 78°34'25", Albemarle County, Hydrologic unit 02080204, on right down- stream 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 Char- lottesville. Datum of gage is 505.40 ft above sea level. Drainage area is 3.52 mi <sup>2</sup> .	1967-95	6-23-95	14.18	122	6- 2-79	18.74	(*)
Willis River at Lakeside Village, Va. (02034500)	Lat 37°40'00", long 78°10'00", Cumberland County, Hydrologic Unit 02080205, on left bank 15 ft upstream from bridge on State Highway 690, 0.4 mi east of Lakeside Village, 6.9 mi upstream from mouth, and 7.7 mi downstream from Reynolds Creek. Datum of gage is 178.98 ft above sea level. Drainage area is 262 mi <sup>2</sup> .	1927-86†, 1987-94	3-29-94	19.19	6,260	6-22-72	29.80	24,000
Holiday Creek near Toga, Va. (02038840)	Lat 37°25'58", long 78°41'12", Buckingham County Hydrol- ogic Unit 02080207, on left bank 40 ft downstream from State Forest Road 2307 (old Richmond Road), 1.8 mi up- stream from confluence of North Holiday Creek, and 5.2 mi south-southwest of Toga. Datum of gage is 614.40 ft above sea level. Drainage area is 1.68 mi <sup>2</sup> .	1971-95	1-15-95	2.48	149	6-21-72	6.72	2,820

\* Discharge not determined.

† Operated as a continuous-record gaging station.

b From high-water marks.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued								
North Holiday Creek near Toga, Va. (02038845)	Lat 37°26'09", long 78°40'04", Buckingham County, Hydro- logic Unit 02080207, on left bank 18 ft upstream from State Forest Road 2307 (old Richmond Road), 1.0 mi up- stream from confluence of Holiday Creek, and 4.5 mi south-southwest of Toga. Datum of gage is 588.84 ft above sea level. Drainage area is 1.31 mi <sup>2</sup> .	1971-95	1-15-95	3.41	82	6-21-72	6.79	1,570
Flat Creek near Amelia, Va. (02040500)	Lat 37°23'27", long 78°03'45", Amelia County, Hydrologic Unit 02080207, at bridge on State Highway 681, 0.5 mi downstream from Horsepen Creek and 6.0 mi northwest of Amelia. Elevation of gage is 240 ft above sea level, from topographic map. Drainage area is 73.0 mi <sup>2</sup> .	1947, 1954-70, 1972-95	3-8-95	6.72	756	4-16-87	12.38	5,260
Bailey Branch tributary at Spring Grove, Va. (02042250)	Lat 37°10'29", long 76°59'13", Surry County, Hydrologic Unit 02080206, on right up- stream wingwall of culvert on State Highway 10, 1.0 mi northwest of Spring Grove. Datum of gage is 61.39 ft above sea level. Drainage area is 0.71 mi <sup>2</sup> .	1967-95	3-8-95	2.75	20	7-14-75	6.52	282
Horsepen Branch at Richmond, Va. (02042300)	Lat 37°35'45", long 77°30'40", Henrico County, Hydrologic Unit 02080206, on left down- stream retaining wall at culverts on U.S. Highway 250 (Broad Street), at Richmond and 0.9 mi upstream from mouth. Drainage area is 1.27 mi <sup>2</sup> .	1965-95	11-21-94	3.71	700	8-18-85	7.50	2,730
Jordans Branch at Richmond, Va. (02042400)	Lat 37°35'10", long 77°29'55", Henrico County, Hydrologic Unit 02080206, on left down- stream wall of bridge on U.S. Highway 250 (Broad Street), at Richmond, and 2.0 mi up- stream from mouth. Drainage area is 2.53 mi <sup>2</sup> .	1965-95	11-21-94	8.61	683	9-30-79 6-22-91	12.60 13.10	2,460 2,760
West Branch Long Hill Swamp near Lightfoot, Va. (02042780)	Lat 37°18'50", long 77°46'01", James City County, Hydrologic Unit 02080206, on left up- stream wingwall of culvert on State Highway 612, 2.2 mi upstream from mouth, and 2.0 mi south of Lightfoot. Drainage area is 2.47 mi <sup>2</sup> .	1970-76, 1978-95	3-8-95	3.61	89	9- 1-75	5.20	320

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum		Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
CHOWAN RIVER BASIN								
Nottoway River near Burkeville, Va. (02044000)	Lat 37°04'40", long 78°11'52", Lunenburg County, Hydrologic Unit 03010201, on right bank at downstream side of bridge on State Highway 723, 4.0 mi upstream from Modest Creek 5.6 mi north of Victoria and 7.5 mi south of Burkeville. Datum of gage is 354.58 ft above sea level. Drainage area is 38.7 mi <sup>2</sup> .	1947-86†, 1987-95	11-21-94	10.41	762	10-23-71	22.33	13,400
Falls Creek tributary near Victoria, Va. (02044200)	Lat 37°02'04", long 78°10'26", Lunenburg County, Hydrologic Unit 03010201, at upstream end of culvert on State High- way 49, 3.6 mi northeast of Victoria. Datum of gage is 409.21 ft above sea level. Drainage area is 0.34 mi <sup>2</sup> .	1962-95	11-21-94	4.37	71	6-21-72	9.15	343
Blackwater River tributary near Holland, Va. (02050050)	Lat 36°38'44", long 76°51'29", Suffolk City, Hydrologic Unit 03010202, on left up- stream wingwall of culvert on State Highway 272, 3.0 mi upstream from mouth, and 4.9 mi southwest of Holland. Datum of gage is 29.25 ft above sea level. Drainage area is 2.76 mi <sup>2</sup> .	1967-95	2-16-95	3.80	52	8- 3-73	7.65	408
Great Creek near Cochran, Va. (02051600)	Lat 36°48'46", long 77°55'19", Brunswick County, Hydrologic Unit 03010204, on left up- stream side of bridge on State highway 763, 1.4 mi southwest of Cochran, and 9.5 mi upstream from Roses Creek. Datum of gage is 215.72 ft above sea level. Drainage area is 30.7 mi <sup>2</sup> .	1958-86†, 1987-95	7-11-95	5.93	263	10- 6-72	16.65	7,100

## ROANOKE RIVER BASIN

Powder Mill Creek at Rocky Mount, Va. (02057700)	Lat 37°00'26", long 79°52'25", Franklin County, Hydrologic Unit 03010101, on right upstream wingwall of western- most culvert in the interchange between U.S. Highway 220 bypass and State Highway 40 and 122 at Rocky Mount, 3.5 mi upstream from mouth. Elevation of gage is 1,075 ft above sea level from topographic map. Drainage area is 0.64 mi <sup>2</sup> .	1967-95	9-2-95	16.02	232	5- 5-89	16.78	305
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† Operated as a continuous-record gaging station.



Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum		Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
ROANOKE RIVER BASIN--Continued								
Snake Creek near Brookneal, Va. (02065100)	Lat 37°00'42", long 78°57'52", Halifax County, Hydrologic Unit 03010102, on left up- stream wingwall of culvert on U.S. Highway 501, 0.5 mi upstream from mouth, and 2.1 mi south of Brookneal. Elevation of gage is 418 ft above sea level, from topo- graphic map. Drainage area is 1.68 mi <sup>2</sup> .	1967-95	3-9-95	3.95	97	9- 8-87	15.9	1,500
Right Hand Fork near Appomattox, Va. (02065300)	Lat 37°16'12", long 78°49'14", Appomattox County, Hydro- logic Unit 03010102, 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. Eleva- tion of gage is 580 ft above sea level, from topographic map. Drainage area is 2.08 mi <sup>2</sup> .	1967-95	6-23-95	5.39	137	8- 8-87	16.8	962
Powells Creek near Turbeville, Va. (02075350)	Lat 36°34'50", long 79°11'20", Halifax County, Hydrologic Unit 03010104, at culvert on U.S. Highway 58, 0.8 mi up- stream from mouth, 1.1 mi east of Halifax-Pittsylvania County line, and 8.8 mi southwest of Turbeville. Datum of gage is 386.76 ft above sea level. Drainage area is 0.28 mi <sup>2</sup> .	1958-69a, 1970-95	6-28-95	6.22	137	7-11-65	7.86	384
Dan River at South Boston, Va. (02076000)	Lat 36°41'37", long 78°54'09", South Boston City, Hydro- logic Unit 03010104, on left bank 100 ft upstream from Norfolk and Western Railroad bridge at South Boston. Datum of gage is 299.23 ft above sea level. Drainage area is 2,730 mi <sup>2</sup> .	1900-07†, 1923-52†, 1953-62c, 1980-94c	3-30-94	28.26	(*)	8-16-40	31.8	81,000
Bearskin Creek near Chatham, Va. (02076200)	Lat 36°50'30", long 79°29'05", Pittsylvania County, Hydro- logic Unit 03010105, on left upstream wingwall of culvert on State Highway 57, 4.5 mi west of Chatham, and 6 mi upstream from mouth. Eleva- tion of gage is 630 ft above sea level, from topographic map. Drainage area is 4.06 mi <sup>2</sup> .	1967-95	6-29-95	19.90	2850	6-29-95	19.90	2850

\* Discharge not determined.

† Operated as a continuous-record gaging station.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

c Operated as a stage-only station

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)

## ROANOKE RIVER BASIN--Continued

Blacks Creek near Mt. Airy, Va. (02076700)	Lat 36°56'40", long 79°09'56", Pittsylvania County, Hydro- logic Unit 03010105, on left upstream wingwall of culvert on State Highway 40, 1.5 mi east of Mt. Airy, and 3.5 mi upstream from mouth. Eleva- tion of gage is 420 ft above sea level, from topographic map. Drainage area is 3.44 mi <sup>2</sup> .	1966-95	6-23-95	10.82	1050	9- 8-87	b19.5	2,200
Roanoke River at Buggs Island, Va. (02079500)	Lat 36°36'06", long 78°17'56", Mecklenburg County, Hydro- logic Unit 03010106, on left bank 1,200 ft downstream from John H. Kerr dam, 5.3 mi upstream from bridge on U.S. Highway 1, and 6.7 mi southeast of Boydton. Datum of gage is 196.72 ft above sea level. Drainage area is 7,789 mi <sup>2</sup> .	1947-62†, 11-10-93 1963-94		p10.57	(*)	12- 7-48	a14.97	76,000

## KANAWHA RIVER BASIN

Cripple Creek at Cedar Springs, Va. (03165700)	Lat 36°49'31", long 81°16'45", Wythe County, Hydrologic Unit 05050001, on right down- stream wingwall of bridge on State Highway 749, 0.6 mi southeast of Cedar Springs, and 1.5 mi upstream from Gray Branch. Elevation of gage is 2,455 ft above sea level, from topographic map. Drainage area is 11.3 mi <sup>2</sup> .	1967-95	1-15-95	15.44	671	11- 6-77	20.37	1,860
Glade Creek at Graham Forge, Va. (03166800)	Lat 36°55'51", long 80°54'02", Wythe County, Hydrologic Unit 05050001, on right down- stream wingwall of culvert on State Highway 629, 1.0 mi southwest of Graham Forge, and at mile 0.4. Elevation of gage is 1,972 ft above sea level, from topographic map. Drainage area is 7.15 mi <sup>2</sup> .	1976-93†, 1995	6-2-95	3.76	282	9-16-89	6.75	3,210
Mira Fork tributary near Dugspur, Va. (03167300)	Lat 36°50'16", long 80°35'47", Carroll County, Hydrologic Unit 05050001, on left up- stream 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 sea level. Drainage area is 0.62 mi <sup>2</sup> .	1967-95	-	<2.78	<39.4	4-21-92	7.20	257

\* Discharge not determined.

† Operated as a continuous-record gaging station

&lt; Less than.

a Records provided by U.S. Department of Agriculture, Soil Conservation Services.

b From high-water marks.

p Could have been slightly higher (10.59 ft) during period of no gage-height record, 10-1-93 to 10-28-93.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)

## KANAWHA RIVER BASIN--Continued

Beaverdam Creek at Hillsville, Va. (03167700)	Lat 36°46'05", long 80°43'33", Carroll County, Hydrologic Unit 05050001, 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 sea level. Drainage area is 4.75 mi <sup>2</sup> . Prior to 1971, peaks reported for site 0.4 mi upstream at datum 12.93 ft higher (drainage area, 4.13 mi <sup>2</sup> ).	1962-94	8-17-94	5.50	470	10-19-68	r8.69	(*)
						1- 1-90	s8.50	(*)
						4-21-92	7.63	876
Thorne Springs Branch near Dublin, Va. (03168750)	Lat 37°05'30", long 80°44'34", Pulaski County, Hydrologic Unit 05050001, at pond dam just upstream from U.S. Highway 11, 3.3 mi southwest of Dublin, and 4.3 mi up- stream from mouth. Elevation of gage is 1,975 ft above sea level, from topographic map. Drainage area is 4.77 mi <sup>2</sup> .	1957-69a, 1970-95	7-7-95	7.41	3760	5-28-73	8.01	2,200

## BIG SANDY RIVER BASIN

Levisa Fork near Grundy, Va. (03207500)	Lat 37°17'52", long 82°07'34", Buchanan County, Hydrologic Unit 05070202, on right bank 200 ft upstream from Six and Twentymile Creek, 2.4 mi northwest of Grundy. Datum of gage is 984.47 ft above sea level. Drainage area is 235 mi <sup>2</sup> , includes that of Six and Twentymile Creek. Prior to Oct. 1, 1971, at various locations and datums.	1942-74†, 1986-87†, 1988-95	5-19-96	11.14	5,630	4- 4-77	t28.87	52,000
Russell Fork at Council, Va. (03208040)	Lat 37°04'41", long 82°03'56", Buchanan County, Hydrologic Unit 05070202, 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. Elevation of gage is 1,680 ft above sea level, from topographic map. Drainage area is 10.2 mi <sup>2</sup> .	1981-83‡, 1984-95	5-19-95	2.82	275	5- 7-84	5.98	m1,090
			9-14-82	2.60	m234			
			12-16-82	1.99	m135			
			5- 7-84	5.98	m1,090			
			2-18-85	3.18	m346			
			4-18-87	3.87	m500			
			4- 8-88	2.93	m296			
			5- 5-89	4.37	m625			
			5- 5-90	4.36	m622			
			3-23-91	3.54	m424			
			12- 2-91	3.34	m380			
			3- 4-93	3.41	m395			

\* Discharge not determined.

‡ Operated as a continuous-record gaging station.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

m Revised.

r At site upstream.

s Affected by backwater from ice.

t At present site and datum.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
BIG SANDY RIVER BASIN--Continued								
Russell Fork near Birchleaf, Va. (03208100)	Lat 37°09'50", long 82°15'20", Dickenson County, Hydrologic Unit 05070202, 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. Elevation of gage is 1,280 ft above sea level, from topo- graphic map. Drainage area is 87.4 mi <sup>2</sup> .	1981-83†, 1984-95	5-19-95	9.11	3,700	5- 7-84	21.30	22,600
North Fork Pound River at Pound, Va. (03208700)	Lat 37°07'32", long 82°37'36", Wise County, Hydrologic Unit 05070202, on right bank at Pound, 700 ft downstream from Stacy Branch, and 1,600 ft downstream from North Fork Pound River dam. Datum of gage is 1,500.00 ft above sea level. Drainage area is 18.5 mi <sup>2</sup> . Prior to Oct. 1, 1965, at datum 44.88 ft higher.	1963-87†, 1988-95	1-16-95	51.54	349	3-12-63	61.58	4,480
Pound River above Indian Creek, at Pound, Va. (03208800)	Lat 37°07'26", long 82°36'29", Wise County, Hydrologic Unit 05070202, on left bank at Pound, 1,600 ft down- stream 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 sea level. Drainage area is 36.7 mi <sup>2</sup> .	1966-78†, 1979-95	5-19-95	11.44	1,520	5-18-75	19.44	3,460
Pound River below Bold Camp Creek at Pound, Va. (03208850)	Lat 37°07'19", long 82°35'55", Wise County, Hydrologic Unit 05070202, 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 sea level. Drainage area is 61.2 mi <sup>2</sup> .	1966-78†, 1979-95	5-19-95	14.77	2,170	5-18-75	25.64	6,290
Pound River near Georges Fork, Va. (03208900)	Lat 37°09'51", long 82°31'30", Dickenson County, Hydro- logic Unit 05070202, on right bank 50 ft upstream from bridge on State High- way 624, 150 ft upstream from Camp Creek, and 2.6 mi northwest of Georges Fork. Datum of gage is 1,470.39 ft above sea level. Drainage area is 82.5 mi <sup>2</sup> .	1964-82†, 1983-95	5-19-95	7.74	2,080	5-18-75	14.91	10,900

† Operated as a continuous-record gaging station.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)

## BIG SANDY RIVER BASIN--Continued

Russell Fork at Bartlick, Va. (03209200)	Lat 37°14'45", long 82°19'25", Dickenson County, Hydrologic Unit 05070202, on left bank at Bartlick just upstream from bridge on State High- way 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 sea level. Drainage area is 526 mi <sup>2</sup> .	1963-82†, 1983-95	5-19-95	13.78	6,850	4- 4-77	27.55	50,000
Knox Creek at Kelsa, Va. (03213590)	Lat 37°27'02", long 82°03'34", Buchanan County, Hydrologic Unit 05070201, on downstream end of right 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. Elevation of gage is 945 ft above sea level, from topographic map. Drainage area is 84.3 mi <sup>2</sup> .	1980-81†, 1982-95	5-19-95	10.86	4,910	5- 7-84	20.2	13,000

## TENNESSEE RIVER BASIN

South Fork Holston River at Teas, Va. (03471200)	Lat 36°46'22", long 81°27'08", Smyth County, Hydrologic Unit 06010102, 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 sea level. Drainage area is 31.1 mi <sup>2</sup> .	1967-95	1-15-95	15.07	3570	2-11-94	17.61	7,660
Beaverdam Creek at Damascus, Va. (03472500)	Lat 36°37'40", long 81°47'28", Washington County, Hydrologic Unit 06010102, at Damascus, on right bank 350 ft west of State Highway 716, in old plant area of Mobay Chemical Corporation, and 0.6 mi up- stream from mouth. Datum of gage is 1,946.66 ft above sea level. Drainage area is 56.0 mi <sup>2</sup> .	1948-59†, 1960-95	1-15-95	4.67	2,200	10- 2-77	8.45	6,000
Middle Fork Holston River at Groseclose, Va. (03473500)	Lat 36°53'19", long 81°20'51", Smyth County, Hydrologic Unit 06010102, on left bank 10 ft downstream from cul- verts on State Highway 679 at Groseclose, 0.2 mi up- stream from Rocky Spring Branch, 10 mi northeast of Marion, and at mile 54.7. Datum of gage is 2,442.86 ft above sea level. Drainage area is 7.39 mi <sup>2</sup> .	1948-57†, 1958-87, 1988-89†, 1990-95	1-15-95	4.66	273	7- 6-53	7.42	813

† Operated as a continuous-record gaging station.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
TENNESSEE RIVER BASIN--Continued								
Middle Fork Holston River at Seven Mile Ford, Va. (03474000)	Lat 36°48'26", long 81°37'20", Smyth County, Hydrologic Unit 06010102, 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 at mile 32.1. Datum of gage is 1,960.00 ft above sea level. Drainage area is 132 mi <sup>2</sup> .	1942-81†, 1982-87†v, 1988-89†, 1990-95†v,	1-15-95	4.88	4,470	1-29-57 11- 6-77	10.75 10.33	u7,680 14,500
Hutton Creek near Chilhowie, Va. (03474700)	Lat 36°47'00", long 81°44'05", Washington County, Hydro- logic Unit 06010102, on left downstream wingwall of bridge on U.S. Highway 11, 3.3 mi southwest of Chil- howie, and 1.4 mi upstream from mouth. Drainage area is 8.32 mi <sup>2</sup> .	1967-95	-	<10.48	<185	6-23-79	13.92	1,740
Hall Creek near Glade Spring, Va. (03474800)	Lat 36°45'47", long 81°48'15", Washington County, Hydro- logic Unit 06010102, 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. Drainage area is 7.90 mi <sup>2</sup> .	1967-95	6-26-95	267	614	9-22-89	11.51	1,310
Cedar Creek near Meadowview, Va. (03475600)	Lat 36° 44'50", long 81°51'20", Washington County, Hydro- logic Unit 06010102, on left downstream wingwall of cul- vert 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 sea level. Drainage area is 3.38 mi <sup>2</sup> .	1967-95	8-10-95	5.95	33	7-10-71	7.54	92
Spring Creek near Abingdon, Va. (03475700)	Lat 36°40'43", long 82°02'29", Washington County, Hydrologic Unit 06010102, on right up- stream and left downstream wingwall of culvert on U.S. Highway 11, 1.5 mi upstream from Sinking Creek, and 3.8 southwest of Abingdon. Datum of gage is 1,977.54 ft above sea level. Drainage area is 2.99 mi <sup>2</sup> .	1967-95	6-26-95 6- 4-83 5- 7-84 7-28-85 11-30-85 4-23-87 4-24-88 9-22-89 1- 1-90 5-28-91 9- 4-92 3-23-93	3.73 4.15 4.27 3.07 3.68 4.15 4.41 4.65 3.84 4.78 4.75 4.35	37 m76 m91 m10 m34 m76 m111 m148 m46 m169 m164 m102	9-30-72	6.05	402
Lick Creek near Chatham Hill, Va. (03487800)	Lat 36°57'44", long 81°28'21", Smyth County, Hydrologic Unit 06010101, 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 sea level. Drainage area is 25.5 mi <sup>2</sup> .	1966-68†, 1969-95	1-15-95	6.69	1820	11- 7-77	8.09	2,660

&lt; Less than

† Operated as a continuous-record gaging station.

m Revised.

u Prior to channelization work associated with construction of Interstate Highway 81.

v Records provided by Tennessee Valley Authority.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
TENNESSEE RIVER BASIN--Continued								
Brumley Creek at Brumley Gap, Va. (03488450)	Lat 36°47'30", long 82°01'10", Washington County, Hydro- logic Unit 06010101, on left downstream wingwall of bridge of 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 sea level. Drainage area is 21.1 mi <sup>2</sup> .	1979-81†, 1982-95	1-15-95	3.86	353	5- 7-84	6.60	1,500
Cove Creek near Shelleys, Va. (03489800)	Lat 36°39'13", long 82°21'16", Scott County, Hydrologic Unit 06010101, on right down- stream wingwall of bridge on U.S. Highway 58 and 421, 1.5 mi northwest of Shelleys, and at mile 3.3. Datum of gage is 1,381.53 ft above sea level. Drainage area is 17.3 mi <sup>2</sup> .	1951-95	1-15-95	4.21	3.58	3-12-63	8.40	2,500
Big Moccasin Creek at Collinwood, near Hanson- ville, Va. (03489870)	Lat 36°44'16", long 82°19'25", Russell County, Hydrologic Unit 06010101, at Collinwood, on left downstream wingwall of bridge on State Highway 612, 50 ft downstream from Meade Branch, and at mile 36.5. Datum of gage is 1,796.34 ft above sea level. Drainage area is 41.9 mi <sup>2</sup> .	1967-68†, 1969-95	1-15-95 7-30-66 3- 7-67 12-22-67 2- 2-69 4-28-70 5- 7-71 6-21-72 12-10-72 12-26-73	3.46 4.57 4.59 4.24 3.47 5.95 5.77 4.47 5.84 5.35	975 m1,760 m1,770 m1,520 m982 m2,860 m2,720 m1,680 m2,770 m2,380	3-30-75	6.85	3,660
North Fork Holston River near Gate City, Va. (03490000)	Lat 36°36'31", long 82°34'05", Scott County, Hydrologic Unit 06010101, on left bank 75 ft upstream from bridge on U.S. Highway 23, 1.6 mi downstream from Big Mountain Creek, 2.1 mi southeast of Gate City, and at mile 8.8. Datum of gage is 1,197.56 ft above sea level. Drainage area is 672 mi <sup>2</sup> .	1932-81†, 1982-95v	1-16-95	11.26	14,900	4- 5-77 h1862 v22.5 v54,000	19.79	41,000
Clinch River at Richlands, Va. (03521500)	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. Datum of gage is 1,924.08 ft above sea level. Drainage area is 137 mi <sup>2</sup> .	1946-89†, 1990-95	1-16-95	9.88	3580	6-22-01	v21.3	v11,500

† Operated as a continuous-record gaging station.

h Maximum known historical peak outside period of record.

m Revised.

v Records provided by Tennessee Valley Authority.

Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
TENNESSEE RIVER BASIN--Continued								
Guest River at Coeburn, Va. (03524500)	Lat 36°55'45", long 82°27'23", Wise County, Hydrologic Unit 06010205, on right bank 30 ft downstream from bridge on State Highway 72, 1.0 mi southwest of Coeburn, 1.4 mi upstream from Jaybird Branch, 1.8 mi downstream from Pine Camp Creek, and at mile 6.3. Datum of gage is 1,935.80 ft above sea level. Drainage area is 87.3 mi <sup>2</sup> .	1950-59†, 1960-78, 1979-81†, 1982-95	5-14-95	8.30	2,120	4-5-77	20.95	18,000
			2- 1-85	6.65	m1,370			
			2-18-86	7.61	m1,780			
			1-19-87	7.16	m1,570			
			2- 4-88	6.70	m1,390			
			5- 6-89	9.71	m2,960			
			2-10-90	8.93	m2,460			
			3-30-91	8.46	m2,210			
			12- 2-91	9.55	m2,850			
			3-23-93	8.42	m2,190			
Stony Creek at Ka, Va. (03524900)	Lat 36°48'57", long 82°37'02", Scott County, Hydrologic Unit 06010205, at Ka, on left bank 300 ft upstream from bridge on State High- way 619, 600 ft downstream from Straight Fork, and 4.2 mi upstream from mouth. Elevation of gage is 1,510 ft above sea level, from topo- graphic map. Drainage area is 30.9 mi <sup>2</sup> .	1981†, 1982-95	5-14-95	5.71	2,570	5- 7-84	7.31	8,010
Copper Creek near Gate City, Va. (03526000)	Lat 36°40'26", long 82°33'57", Scott County, Hydrologic Unit 06010205, on right bank on upstream and of old bridge pier, 50 ft upstream from bridge on State Highway 619, 0.2 mi upstream from Plank Camp Creek, 1.1 mi down- stream from Obeyes Creeks, and 2.6 mi northeast of Gate City. Datum of gage is 1,301.95 ft above sea level. Drainage area is 106 mi <sup>2</sup> .	1948-72†, 1973-95	1-16-95	7.35	1310	4- 5-77	13.57	7,660
Clinch River at Speers Ferry, Va. (03527000)	Lat 36°38'55", long 82°45'02", Scott County, Hydrologic Unit 06010205, on right bank 200 ft downstream from bridge on U.S. Highway 58, 0.5 mi downstream from Copper Creek, 0.8 mi north- west of Speer Ferry, 1.8 mi south of Clinchport, and at mile 211.0. Datum of gage is 1,196.52 ft above sea level. Drainage area is 1,126 mi <sup>2</sup> .	1931-76†, 1977-78, 1979-81†, 1982-95	1-16-95	17.13	16,900	4- 5-77	36.69	89,000

† Operated as a continuous gaging station.  
m Revised.



Maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 1995 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)

## FOOTNOTES FOR CREST-STAGE PARTIAL-RECORD STATIONS: 1995 water year

\* Discharge not determined.

\*\*Discharge not determined. Discharge of 18,000 ft<sup>3</sup>/s published in the 1991 report was undefined.

‡ Operated as a continuous-record gaging station.

&lt; Less than.

&gt; Greater than.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

b From high-water marks.

c Operated as stage-only station.

d At different site and datum 6.02 feet lower.

e Affected by backwater from beaver dam.

f Affected by debris jam at upstream end of culvert.

g From profile extended from high-water marks recovered prior to establishment of gage, flow over road, and bridge.

h Maximum known historical peak outside period of record.

j Approximate.

k Partial year 10-1-93 to 7-18-94 but probably peak for year based on comparison with other nearby gages.

m Revised.

n Affected by backwater from ice: water overtopped upstream gage; discharge determined from rating for downstream gage.

p May have been slightly higher (10.59 ft ) during period of no gage-height record, 10-1-93 to 10-28-93.

q At different datum.

r At site upstream.

s Affected by backwater from ice.

t At present site and datum.

u Prior to channelization work associated with construction of Interstate Highway 81.

v Records provided by Tennessee Valley Authority.

## 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 Department of Environmental Quality - Water Division are noted by an "[a]".

Discharge measurements made at special study and miscellaneous sites during water year 1995						
Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
YORK RIVER BASIN						
01670145 Unnamed tributary [a]	Unnamed tributary	Lat 38°02'00", long 78°00'09", Louisa County, 25 ft upstream from Louisa County sewage treatment plant, 0.5 mi north of Louisa.	-	1991-94	10-20-94	.220
01670300 Contrary Creek [c]	North Anna River	Lat 38°03'53", long 77°52'45", Louisa County, at bridge on U.S. Highway 522, 1.2 mi upstream from Lake Anna, 4.0 mi northeast of Mineral, and 5.1 mi upstream from former mouth.	5.53	1976-87†, 1989-94	10-20-94	2.32
01670320 Freshwater Creek [a]	Contrary Creek	Lat 38°00'33", long 77°53'56", Louisa County, 20 ft upstream from Mineral sewage treatment plant, 600 ft upstream from culvert on State Highway 618, and 0.5 mi east of Mineral.	-	1991-94	10-20-94	.181
01671200 South Anna River [a]	Pamunkey River	Lat 38°07'25", long 78°12'20", Louisa County, at bridge 0.2 mi west of Gordonsville sewage treatment plant, 1.5 mi southwest of Gordonsville.	5.00	1981, 1991-94	10-20-94	1.02
01671925 Northeast Creek [a]	South Anna River	Lat 37°58'39", long 77°56'22", Louisa County, at Louisa WTP discharge, 300 ft downstream from culvert on U.S. Highway 33, and 2.5 mi south of Mineral.	10.07	1993-94	10-20-94	2.91
01673610 Unnamed tributary [a]	Clopton Swamp	Lat 37°33'05", long 77°06'22", New Kent County, at Kenwood Farms sewage treatment plant discharge, 0.6 mi upstream from mouth, and 1.6 mi northeast of Quinton.	0.22	1994	8-14-95 9-12-95	.035 .001
01674160 Polecat Creek [a]	Mattaponi River	Lat 37°58'09", long 77°32'20", Caroline County, 150 ft downstream from culvert on State Highway 601, 0.7 mi northeast of Cedar Fork, and 2.1 mi west of Golansville.	1.15	1994	10-14-94 12- 1-94 1-10-95 1-25-95 2-17-95 3- 9-95 3-28-95 4-25-95 5- 3-95 6-12-95 7-12-95 8-17-95 8-28-95 9-11-95	.057 .316 .507 .722 2.10 12.0 .496 1.74 2.48 .090 .248 .004 .002 >.001

† Operated as a continuous-record gaging station.

a Provided by the Virginia Department of Environmental Quality - Water Division.

c Provided by both the U.S. Geological Survey and the Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 1995--Continued

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
YORK RIVER BASIN--Continued						
01674171 Unnamed tribu- tary [a]	Polecat Creek	Lat 37°57'56", long 77°29'17", Caroline County, 200 ft upstream from mouth, 1.2 mi south of Golansville, and 2.4 mi north of Carmel Church.	3.94	1994	10-14-94 12- 1-94 1-10-95 1-25-95 2-17-95 3-28-95 4-25-95 5- 3-95 6-12-95 7-12-95 8-17-95 8-28-95 9-11-95	.423 1.30 2.13 2.84 4.46 1.54 3.06 5.03 .672 .199 .004 0 .212
01674172 Polecat Creek [a]	Mattaponi River	Lat 37°58'13", long 77°29'13", Caroline County, 150 ft upstream from bridge on State Highway 652, 0.5 mi upstream from Stevens Mill Run, and 1.1 mi southeast of Golansville.	10.8	1994	10-14-94 12-01-94 1-10-95 1-25-95 2-17-95 3- 9-95 3-28-95 4-25-95 5- 3-95 5-19-95 6-12-95 7-12-95 8-17-95 8-28-95 8-29-95 9-11-95	.632 3.49 5.28 7.58 12.8 72.0 5.24 12.7 17.6 5.54 1.56 2.56 0.022 0.00 0.00 0.348
01674174 Stevens Mill Run [a]	Polecat Creek	Lat 37°59'20", long 77°29'08", Caroline County, 100 ft downstream from bridge on State Highway 601, 0.6 mi north of Golansville, 0.8 mi downstream from Lake Caroline, and 1.6 mi upstream from mouth.	9.50	1994	12- 1-94 1-10-95 1-25-95 2-17-95 3- 9-95 3-28-95 4-25-95 5- 3-95 6-12-95 7-12-95 8-17-95 8-28-95 9-11-95	.817 8.32 10.0 1.50 159 3.58 10.9 17.6 2.07 5.13 .618 .372 .471
01674180 Polecat Creek [a]	Mattaponi River	Lat 37°57'20", long 77°22'08", Caroline County, 200 ft upstream from bridge on State Highway 601, 0.25 mi southeast of Penola, and 2.2 mi upstream from mouth.	48.3	1994	10-14-94 12- 1-94 1-10-95 1-25-95 2-17-95 3- 9-95 3-28-95 4-25-95 5- 3-95 5-19-95 6-12-95 7-17-95 8-30-95	8.56 26.2 43.2 44.7 34.5 188 20.4 66.5 110 27.7 10.8 5.65 0.131
JAMES RIVER BASIN						
02012500 Jackson River	James River	Lat 37°52'36", long 79°58'39", Alleghany County, at Smith Bridge, 0.8 mi south of Falling Spring, and 1.6 mi downstream from Falling Spring Creek.	411	1925-94	10- 5-94 4- 5-95	197 217

a Provided by the Virginia Department of Environmental Quality - Water Division.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 1995--Continued

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
JAMES RIVER BASIN--Continued						
Dunlap Creek [a]	James River	Lat 37°47'44", long 79°59'51", Alleghany County, on U.S. Highway 60, 900 ft upstream from mouth, and at Covington.	-	1990	10- 5-93	17.7
Jackson River [a]	James River	Lat 37°45'55", long 79°59'35", Covington City, 100 ft down- stream from Harmon Run, at Covington.	-	-	10- 5-93	242
Potts Creek [a]	Jackson River	Lat 37°45'06", long 79°59'50", Covington City, 75 ft down- stream from bridge on State Highway 18, 700 ft upstream from mouth, and at Covington.	-	1990	10- 5-93	22.9
02015600 Cowpasture River	James River	Lat 38°19'30", long 79°26'14", Highland County, on left down- stream wingwall of bridge on U.S. Highway 250, 1.2 mi west of Head Waters, and 3 mi upstream from Shaw Fork.	11.3	-	6-29-95	65.6
Jackson River [a]	James River	Lat 37°45'24", long 79°59'14", Covington City, at bridge on State Highway 18, at Idlewilde.	-	-	10- 5-93	266
02020100 Renick Run	James River	Lat 37°35'27", long 79°38'04", Botetourt County, at culvert on Frontage Road of Interstate Highway 81, 4.8 miles north- east of Buchanan.	2.06	1969-71	6-23-95 6-23-95	48.3 52.6
James River	Chesapeake Bay	Lat 37°33'10", long 79°22'03", Amherst-Bedford County line, at bridge on Blue Ridge Parkway, 1.5 mi north of Big Island.	-	1990-94	6- 2-95 8- 2-95	1,640 1,400
0202500 Pedlar River	James River	Lat 37°32'35", long 79°15'10", Amherst County, at bridge on State Highway 635, 1.2 mi south of Pedlar Mills, and 3.7 mi upstream from mouth.	91.0	1942-56†, 1963, 1978, 1981-84 1990	8- 2-95	73.0
ROANOKE RIVER BASIN						
02071510 Smith River	Dan River	Lat 36°45'48", long 80°16'22", Patrick County, at State Highway 615, 0.9 mi upstream from Jacks Creek, and 1.7 mi south of Woolwine.	-	1994	10-17-94 11-14-94 12-14-94 3-29-95 5-23-95 6-20-95 7-18-95 8-15-95	13.2 11.6 33.7 21.1 17.6 13.4 14.3 7.71

a Provided by the Virginia Department of Environmental Quality - Water Division.  
† Operated as a continuous-record gaging station.

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
ROANOKE RIVER BASIN--Continued						
02073600 Smith River	Dan River	Lat 36°36'07", long 79°46'38", Henry County, at bridge on State Highway 636, 1.6 mi downstream from Leatherwood Creek, and 1.7 mi southwest of Irisburg.	-	1994	10-18-94	482
					11-15-94	136
					12-15-94	780
					3-30-95	144
					5-24-95	163
					6-21-95	177
					7-19-95	200
8-14-95	172					
02075045 Dan River	Roanoke River	Lat 36°33'45", long 79°22'12", Pittsylvania County, at foot- bridge at Danville sewage treatment plant, 0.1 mi down- stream from Pumpkin Creek, and 0.6 mi southeast of Danville.	-	1994	11- 9-94	996
					3-21-95	1,930
					6-29-95	39,100
					7-11-95	1,570
					9- 7-95	896
BIG SANDY RIVER BASIN						
03208700 North Fork Pound River	Pound River	Lat 37°07'32", long 82°37'36", Wise County, 700 ft down- stream from Stacy Branch, 1,600 ft downstream from North Fork Pound River dam, and at Pound.	18.5	1963-94	10- 4-94	10.3
					1- 4-95	1.68
03208800 Pound River	Russell Fork	Lat 37°07'26", long 82°36'29", Wise County, 1,600 ft down- stream from confluence of North and South Forks, 0.5 mi upstream from U.S. Highway 23, 0.7 mi upstream from Indian Creek, and at Pound.	36.7	1966-81, 1984-94	10- 4-94	15.5
					1- 4-95	6.64
03208900 Pound River	Russell Fork	Lat 37°09'51", long 82°31'30", Dickenson County, 50 ft up- stream from State Highway 624, 150 ft upstream from Camp Creek, and 2.6 mi northwest of Georges Fork.	82.5	1964-94	10- 4-94	34.2
					1- 4-95	15.5
03209200 Russell Fork	Levisa Fork	Lat 37°14'45", long 82°19'25", Dickenson County, at bridge on State Highway 611, 0.2 mi downstream from Pound River, and at Bartlick.	526	1963-94	11-15-94	229
					5-16-95	2,740
TENNESSEE RIVER BASIN						
03521500 Clinch River	Tennessee River	Lat 37°05'10", long 81°46'52", Tazewell County, 1.0 mi south- east of Richlands, 1.7 mi downstream from Indian Creek.	137	1945-94	11-14-94 10- 4-95	30.3 12.2

# ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

Samples are collected at partial-record, special study, and miscellaneous sites to give better areal coverage. The results of these samples are given herein.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)
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## JAMES RIVER BASIN

01657865 NEABSCO CR TRIB AB PR WM DR AT DALE CITY, VA (LAT 38 39 13N LONG 077 17 48W)

APR 1995												
25...	1045	171	6.2	17.0	15.0	760	10.0	--	26	6.3	2.4	19
30...	1130	140	6.9	13.0	13.0	753	8.9	--	23	6.5	1.6	13
MAY												
14...	1245	128	6.8	14.5	15.0	755	9.2	--	11	3.1	0.91	18
18...	1400	145	6.5	--	--	--	--	--	31	8.8	2.3	13
18...	1415	127	6.5	--	--	--	--	--	28	8.1	2.0	9.9
18...	1420	118	6.7	--	--	--	--	--	26	7.3	1.9	9.2
18...	1435	51	6.7	--	--	--	--	--	8	2.4	0.58	3.7
18...	1450	87	6.7	--	--	--	--	--	12	3.4	0.94	9.6
AUG												
03...	1010	168	6.7	27.0	24.0	767	7.4	11	42	11	3.5	14
22...	1130	--	--	--	--	--	--	--	--	--	--	--
23...	1130	157	6.8	--	23.0	--	--	--	--	--	--	--

01657870 NEABSCO CREEK TRIB TRIB1 AT DALE CITY, VA (LAT 38 39 07N LONG 077 17 48W)

APR 1995												
25...	1200	278	6.6	16.0	16.5	760	8.6	--	95	31	4.3	11
30...	1230	180	6.7	12.0	13.0	753	10.8	--	54	18	2.1	7.3
MAY												
14...	1340	--	--	--	--	--	--	--	--	--	--	--
14...	1400	170	6.6	14.5	15.0	755	9.2	--	50	17	1.9	8.8
18...	1330	274	6.6	--	--	--	--	--	91	30	3.8	14
18...	1415	91	6.9	--	--	--	--	--	19	6.5	0.69	6.9
18...	1420	70	7.2	--	--	--	--	--	17	5.9	0.46	3.8
18...	1421	44	7.0	--	--	--	--	--	10	3.4	0.31	2.6
18...	1425	--	--	--	--	--	--	--	--	--	--	--
18...	1427	39	6.7	--	--	--	--	--	8	2.5	0.32	2.0
18...	1500	75	6.6	--	--	--	--	--	19	6.4	0.78	3.3
AUG												
03...	1200	250	6.7	29.0	26.0	768	8.5	<10	93	30	4.3	9.8
23...	1105	249	6.5	32.0	22.0	--	--	--	--	--	--	--

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

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)
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JAMES RIVER BASIN--Continued

01657875 NEABSCO CREEK TRIB TRIB2 AT DALE CITY, VA (LAT 38 39 13N LONG 077 17 41W)

APR 1995												
25...	1000	108	6.1	13.0	11.0	760	10.4	--	18	4.1	1.9	10
30...	1045	89	6.6	12.0	12.0	753	8.9	--	18	4.0	2.0	6.2
MAY												
14...	1145	118	6.6	14.0	15.0	755	8.6	--	13	3.3	1.2	16
18...	1400	115	6.8	--	--	--	--	--	19	4.5	2.0	12
18...	1415	110	6.5	--	--	--	--	--	18	4.2	1.8	11
18...	1418	--	--	--	--	--	--	--	--	--	--	--
18...	1455	110	6.9	--	--	--	--	--	14	3.4	1.4	11
18...	1518	106	6.8	--	--	--	--	--	11	2.8	0.99	15
AUG												
03...	0945	83	6.5	26.0	24.0	767	7.9	<10	19	4.3	2.0	5.5
23...	1120	82	6.8	26.5	21.0	--	--	--	--	--	--	--

01657882 NEABSCO CR TRIB BL PR WM PKY AT DALE CITY, VA (LAT 38 39 04N LONG 077 17 37W)

APR 1995												
06...	1000	311	6.9	14.0	9.5	755	11.9	--	37	11	2.2	40
MAY												
17...	1315	168	6.9	23.0	19.5	751	7.8	--	30	9.1	1.8	18
JUL												
07...	1130	88	7.2	--	--	--	--	--	21	6.2	1.3	6.6
20...	1000	117	7.1	27.0	23.0	764	6.4	--	29	8.8	1.8	8.3
AUG												
07...	1238	107	7.0	--	24.5	--	--	--	26	7.8	1.6	6.7
10...	1430	135	7.0	32.0	23.5	762	5.5	29	33	10	1.9	8.6
23...	1040	225	6.6	30.5	21.0	--	--	--	--	--	--	--

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

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
------	--	--	--	---	--	---	--	--	--	---	--	--

JAMES RIVER BASIN--Continued

01657865 NEABSCO CR TRIB AB PR WM DR AT DALE CITY, VA (LAT 38 39 13N LONG 077 17 48W)

APR 1995												
25...	2.5	4.9	31	<0.10	7.8	93	83	<0.010	--	0.410	0.410	<0.015
30...	3.0	11	18	<0.10	4.3	94	71	0.050	0.810	0.860	0.860	0.800
MAY												
14...	1.8	2.4	24	<0.10	3.5	72	63	0.010	0.390	0.400	0.400	0.120
18...	3.3	12	17	<0.10	6.4	88	79	0.030	0.790	0.820	0.820	0.120
18...	3.0	12	14	<0.10	5.3	68	68	0.040	0.690	0.730	0.730	0.200
18...	2.9	11	13	<0.10	4.9	70	63	0.040	0.610	0.650	0.650	0.200
18...	1.7	4.8	4.5	<0.10	1.8	30	25	0.020	0.380	0.400	0.400	0.320
18...	1.8	6.2	11	<0.10	3.2	50	44	0.020	0.310	0.330	0.330	0.200
AUG												
03...	2.0	3.6	23	--	--	94	--	--	--	0.360	0.360	0.020
22...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--

01657870 NEABSCO CREEK TRIB TRIB1 AT DALE CITY, VA (LAT 38 39 07N LONG 077 17 48W)

APR 1995												
25...	4.6	9.5	18	0.10	13	161	138	0.030	0.160	0.190	0.190	0.290
30...	4.8	11	12	<0.10	6.5	120	93	0.060	0.750	0.810	0.810	0.630
MAY												
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	5.0	9.8	14	<0.10	6.9	102	93	0.050	0.630	0.680	0.680	0.470
18...	6.2	12	21	<0.10	12	162	152	0.070	0.340	0.410	0.410	0.300
18...	2.9	7.8	7.8	<0.10	2.3	62	50	0.050	0.510	0.560	0.560	0.920
18...	2.6	6.5	3.6	<0.10	1.7	48	38	0.040	0.450	0.490	0.490	0.760
18...	1.9	4.4	2.4	<0.10	1.2	30	25	0.030	0.330	0.360	0.360	0.590
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	1.8	3.9	2.8	<0.10	2.0	30	21	0.020	0.280	0.300	0.300	0.470
18...	2.7	6.9	5.4	<0.10	3.5	54	38	0.030	0.530	0.560	0.560	0.540
AUG												
03...	5.8	7.7	18	--	--	143	--	--	--	0.160	0.160	0.200
23...	--	--	--	--	--	--	--	--	--	--	--	--

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



ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

541

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
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JAMES RIVER BASIN--Continued

01657875

NEABSCO CREEK TRIB TRIB2 AT DALE CITY, VA (LAT 38 39 13N LONG 077 17 41W)

APR 1995												
25...	2.0	4.7	22	<0.10	8.4	68	59	<0.010	--	0.230	0.230	0.020
30...	2.4	3.7	16	<0.10	8.8	70	50	0.010	0.470	0.480	0.480	0.130
MAY												
14...	2.5	1.5	22	<0.10	4.2	82	59	0.010	0.170	0.180	0.180	0.070
18...	2.0	3.6	22	<0.10	8.0	70	62	<0.010	--	0.250	0.250	0.030
18...	2.1	3.6	20	<0.10	7.4	66	58	0.010	0.270	0.280	0.280	0.070
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	2.2	3.9	18	<0.10	5.5	70	52	0.010	0.250	0.260	0.260	0.100
18...	2.2	4.2	19	<0.10	4.6	94	57	0.020	0.210	0.230	0.230	0.080
AUG												
03...	1.9	1.1	17	--	--	60	--	--	--	0.360	0.360	0.030
23...	--	--	--	--	--	--	--	--	--	--	--	--

01657882

NEABSCO CR TRIB BL PR WM PKY AT DALE CITY, VA (LAT 38 39 04N LONG 077 17 37W)

APR 1995												
06...	3.4	7.4	67	0.10	4.0	160	149	0.010	0.140	0.150	0.150	0.020
MAY												
17...	2.9	5.8	27	<0.10	4.6	94	83	0.030	0.430	0.460	0.460	0.300
JUL												
07...	2.4	4.9	11	<0.10	2.4	48	46	<0.010	--	0.180	0.180	0.050
20...	2.6	4.6	13	<0.10	2.8	76	62	0.010	0.200	0.210	0.210	0.360
AUG												
07...	2.3	3.8	11	<0.10	3.0	68	55	<0.010	--	0.160	0.160	0.330
10...	2.5	3.2	13	--	--	81	--	--	--	0.150	0.150	1.10
23...	--	--	--	--	--	--	--	--	--	--	--	--

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

# ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01030)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)
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## JAMES RIVER BASIN--Continued

01657865 NEABSCO CR TRIB AB PR WM DR AT DALE CITY, VA (LAT 38 39 13N LONG 077 17 48W)

APR 1995												
25...	<0.20	<0.20	<0.010	<0.010	<0.010	--	--	--	--	--	--	--
30...	2.0	1.4	0.520	0.020	<0.010	--	--	--	--	--	--	--
MAY												
14...	0.70	0.40	0.150	0.010	<0.010	--	--	--	--	--	--	--
18...	0.80	0.50	0.130	<0.010	0.010	--	--	--	--	--	--	--
18...	1.4	0.60	0.250	0.010	<0.010	--	--	--	--	--	--	--
18...	3.4	0.60	0.920	0.020	0.010	--	--	--	--	--	--	--
18...	2.0	0.60	0.680	<0.010	<0.010	--	--	--	--	--	--	--
18...	0.80	0.40	0.180	<0.010	<0.010	--	--	--	--	--	--	--
AUG												
03...	<0.20	--	<0.010	--	--	--	<10	--	<1.0	<5	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	150	<10	<1	3.0	<5	<1.0	<1

01657870 NEABSCO CREEK TRIB TRIB1 AT DALE CITY, VA (LAT 38 39 07N LONG 077 17 48W)

APR 1995												
25...	0.60	0.50	0.020	<0.010	<0.010	--	--	--	--	--	--	--
30...	1.5	1.4	0.060	0.050	0.050	--	--	--	--	--	--	--
MAY												
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	1.0	1.0	0.130	0.030	0.020	--	--	--	--	--	--	--
18...	0.50	0.60	<0.010	<0.010	<0.010	--	--	--	--	--	--	--
18...	1.5	1.3	0.100	0.020	0.020	--	--	--	--	--	--	--
18...	1.3	1.1	0.070	0.040	0.040	--	--	--	--	--	--	--
18...	0.80	0.90	0.020	0.030	0.030	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	0.70	0.80	0.080	0.030	0.030	--	--	--	--	--	--	--
18...	1.2	1.0	0.190	0.020	0.030	--	--	--	--	--	--	--
AUG												
03...	0.30	--	<0.010	--	--	--	<10	--	3.0	<5	--	--
23...	--	--	--	--	--	<10	<10	<1	1.0	<5	<1.0	<1

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

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

543

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)
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JAMES RIVER BASIN--Continued

01657875 NEABSCO CREEK TRIB TRIB2 AT DALE CITY, VA (LAT 38 39 13N LONG 077 17 41W)

APR 1995												
25...	0.30	<0.20	0.030	<0.010	<0.010	--	--	--	--	--	--	--
30...	0.40	0.30	<0.010	<0.010	<0.010	--	--	--	--	--	--	--
MAY												
14...	1.0	0.60	0.130	0.030	0.020	--	--	--	--	--	--	--
18...	<0.20	0.20	<0.010	0.010	<0.010	--	--	--	--	--	--	--
18...	0.30	0.30	0.030	<0.010	<0.010	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	2.1	0.50	0.470	0.010	<0.010	--	--	--	--	--	--	--
18...	1.3	0.60	0.180	0.020	0.020	--	--	--	--	--	--	--
AUG												
03...	<0.20	--	<0.010	--	--	--	<10	--	<1.0	<5	--	--
23...	--	--	--	--	--	40	10	<1	4.0	<5	<1.0	<1

01657882 NEABSCO CR TRIB BL PR WM PKY AT DALE CITY, VA (LAT 38 39 04N LONG 077 17 37W)

APR 1995												
06...	0.30	<0.20	<0.010	<0.010	<0.010	--	--	--	--	--	--	--
MAY												
17...	0.80	0.70	0.030	0.020	<0.010	--	--	--	--	--	--	--
JUL												
07...	0.60	0.30	0.070	0.030	<0.010	--	--	--	--	--	--	--
20...	0.80	0.60	0.050	<0.010	<0.010	--	--	--	--	--	--	--
AUG												
07...	0.90	0.80	<0.010	<0.010	<0.010	--	--	--	--	--	--	--
10...	1.7	--	0.030	--	--	--	<10	--	<1.0	<5	--	--
23...	--	--	--	--	--	60	20	<1	<1.0	<5	<1.0	<1

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

# ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
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## JAMES RIVER BASIN--Continued

01657865 NEABSCO CR TRIB AB PR WM DR AT DALE CITY, VA (LAT 38 39 13N LONG 077 17 48W)

APR 1995												
25...	--	--	120	--	--	46	--	--	--	--	--	8
30...	--	--	180	--	--	100	--	--	--	--	--	859
MAY												
14...	--	--	130	--	--	70	--	--	--	--	--	280
*18...	--	--	180	--	--	130	--	--	--	--	--	* 747
*18...	--	--	260	--	--	110	--	--	--	--	--	--
*18...	--	--	280	--	--	79	--	--	--	--	--	--
*18...	--	--	96	--	--	36	--	--	--	--	--	--
*18...	--	--	220	--	--	52	--	--	--	--	--	--
AUG												
03...	<10	--	110	--	<1	470	<10	--	--	<3	2.4	9
22...	--	--	--	--	--	--	--	--	--	--	--	6
23...	<10	1200	220	<1	<1	--	<10	<1	<10	<3	--	--

01657870 NEABSCO CREEK TRIB TRIB1 AT DALE CITY, VA (LAT 38 39 07N LONG 077 17 48W)

APR 1995												
25...	--	--	3300	--	--	780	--	--	--	--	--	9
30...	--	--	1800	--	--	320	--	--	--	--	--	11
MAY												
14...	--	--	--	--	--	--	--	--	--	--	--	78
14...	--	--	1400	--	--	250	--	--	--	--	--	--
*18...	--	--	2900	--	--	630	--	--	--	--	--	* 568
*18...	--	--	250	--	--	76	--	--	--	--	--	--
*18...	--	--	150	--	--	24	--	--	--	--	--	--
*18...	--	--	120	--	--	21	--	--	--	--	--	--
*18...	--	--	--	--	--	--	--	--	--	--	--	--
*18...	--	--	280	--	--	20	--	--	--	--	--	--
*18...	--	--	380	--	--	59	--	--	--	--	--	--
AUG												
03...	<10	--	220	--	<1	680	<10	--	--	9	2.7	4
23...	<10	1700	340	<1	<1	--	<10	3	<10	<3	--	2

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

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

545

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
------	---	--	---	--	---	---	---	--	--	---	--	--

JAMES RIVER BASIN--Continued

01657875 NEABSCO CREEK TRIB TRIB2 AT DALE CITY, VA (LAT 38 39 13N LONG 077 17 41W)

APR 1995												
25...	--	--	270	--	--	26	--	--	--	--	--	4
30...	--	--	220	--	--	45	--	--	--	--	--	38
MAY												
14...	--	--	470	--	--	56	--	--	--	--	--	48
*18...	--	--	420	--	--	37	--	--	--	--	--	* 260
*18...	--	--	430	--	--	39	--	--	--	--	--	--
*18...	--	--	--	--	--	--	--	--	--	--	--	--
*18...	--	--	590	--	--	49	--	--	--	--	--	--
*18...	--	--	630	--	--	51	--	--	--	--	--	--
AUG												
03...	<10	--	110	--	<1	50	<10	--	--	<3	2.6	3
23...	<10	320	160	<1	<1	--	<10	<1	<10	<3	--	3

01657882 NEABSCO CR TRIB BL PR WM PKY AT DALE CITY, VA (LAT 38 39 04N LONG 077 17 37W)

APR 1995												
06...	--	--	310	--	--	68	--	--	--	--	--	13
MAY												
17...	--	--	1000	--	--	210	--	--	--	--	--	--
JUL												
07...	--	--	330	--	--	47	--	--	--	--	--	34
20...	--	--	710	--	--	71	--	--	--	--	--	7
AUG												
07...	--	--	1000	--	--	220	--	--	--	--	--	--
10...	<10	--	1200	--	<1	560	<10	--	--	7	10	--
23...	<10	3100	2000	<1	<1	--	<10	2	10	6	--	12

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

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
------	------	--	--	---	---	---	---	---	--	--	---

POTOMAC RIVER BASIN--Continued

01660360		CANNON CREEK NR COUNTYLINE NR SOMERVILLE, VA (LAT 38 32 18N LONG 077 32 57W)									
AUG 1995	01...	1400	68	6.9	23.5	--	--	--	--	--	--
01660365		CANNON CREEK NR R6 POND NR SOMERVILLE, VA (LAT 38 30 58N LONG 077 31 32W)									
AUG 1995	01...	0900	55	6.9	24.0	23.0	--	6.0	--	--	--
01660370		CANNON CREEK TRIB NR GARRISONVILLE ESTATES, VA (LAT 38 30 52N LONG 077 30 27W)									
JUL 1995	31...	1300	54	6.9	23.0	25.0	--	6.8	--	--	--
01660375		CANNON CR BL RT 644 NR GARRISONVILLE ESTATES, VA (LAT 38 30 45N LONG 077 30 13W)									
JUL 1995	31...	0800	53	6.9	24.0	24.0	--	5.3	--	--	--
01660385		AQUA CR AT RT 643 NR GARRISONVILLE ESTATES, VA (LAT 38 28 56N LONG 077 28 45W)									
OCT 1994	19...	1200	85	6.9	20.0	11.0	760	9.0	82	<0.010	--
NOV	15...	0945	81	6.6	16.0	8.5	752	10.0	86	<0.010	--
DEC	29...	1145	99	6.9	8.0	3.5	765	12.6	94	0.010	0.080
AUG 1995	02...	0800	86	7.1	24.0	23.0	--	6.1	--	--	--
01660400		AQUA CREEK NEAR GARRISONVILLE, VA (LAT 38 29 25N LONG 077 26 02W)									
AUG 1995	02...	1500	140	7.3	24.5	24.0	--	6.7	--	--	--

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

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM BOT MAT <63U WS FIELD (34790)	BARIUM BOT MAT <63U WS FIELD (34805)	BERYL- LIUM BOT MAT <63U WS FIELD (34810)	BISMUTH BOT MAT <180UWS FIELD (34816)
POTOMAC RIVER BASIN--Continued											
01660360 CANNON CREEK NR COUNTYLINE NR SOMERVILLE, VA (LAT 38 32 18N LONG 077 32 57W)											
AUG 1995 01...	--	--	--	--	--	--	--	7.4	460	2	<10
01660365 CANNON CREEK NR R6 POND NR SOMERVILLE, VA (LAT 38 30 58N LONG 077 31 32W)											
AUG 1995 01...	--	--	--	--	--	--	--	7.8	610	2	<10
01660370 CANNON CREEK TRIB NR GARRISONVILLE ESTATES, VA (LAT 38 30 52N LONG 077 30 27W)											
JUL 1995 31...	--	--	--	--	--	--	--	8.1	840	2	<10
01660375 CANNON CR BL RT 644 NR GARRISONVILLE ESTATES, VA (LAT 38 30 45N LONG 077 30 13W)											
JUL 1995 31...	--	--	--	--	--	--	--	8.7	750	2	<10
01660385 AQUIA CR AT RT 643 NR GARRISONVILLE ESTATES,VA (LAT 38 28 56N LONG 077 28 45W)											
OCT 1994 19...	<0.050	<0.015	<0.20	<0.20	<0.010	0.020	<0.010	--	--	--	--
NOV 15...	<0.050	<0.015	<0.20	<0.20	0.020	<0.010	<0.010	--	--	--	--
DEC 29...	0.090	<0.015	<0.20	<0.20	0.010	0.010	<0.010	--	--	--	--
AUG 1995 02...	--	--	--	--	--	--	--	8.1	580	2	<10
01660400 AQUIA CREEK NEAR GARRISONVILLE, VA (LAT 38 29 25N LONG 077 26 02W)											
AUG 1995 02...	--	--	--	--	--	--	--	9.5	390	2	<10

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CALCIUM BOT MAT <63U WS FIELD PERCENT (34830)	CERIUM BOT MAT <63U WS FIELD (UG/G) (34835)	CHRO- MIUM BOT MAT <63U WS FIELD (UG/G) (34840)	COBALT BOT MAT <63U WS FIELD (UG/G) (34845)	COPPER BOT MAT <63U WS FIELD (UG/G) (34850)	EURO- PIUM BOT MAT <63U WS FIELD (UG/G) (34855)	GALLIUM BOT MAT <63U WS FIELD (UG/G) (34860)	GOLD BOT MAT <63U WS FIELD (UG/G) (34870)	HOLMIUM BOT MAT <63U WS FIELD (UG/G) (34875)	IRON BOT MAT <63U WS FIELD PERCENT (34880)	LANTHA- NUM BOT MAT <63U WS FIELD (UG/G) (34885)
POTOMAC RIVER BASIN--Continued											
01660360 CANNON CREEK NR COUNTYLINE NR SOMERVILLE, VA (LAT 38 32 18N LONG 077 32 57W)											
AUG 1995											
01...	0.21	90	39	13	30	<2	16	<8	<4	3.2	41
01660365 CANNON CREEK NR R6 POND NR SOMERVILLE, VA (LAT 38 30 58N LONG 077 31 32W)											
AUG 1995											
01...	0.23	130	69	33	31	<2	19	<8	<4	7.6	56
01660370 CANNON CREEK TRIB NR GARRISONVILLE ESTATES, VA (LAT 38 30 52N LONG 077 30 27W)											
JUL 1995											
31...	0.14	140	64	42	24	<2	19	<8	<4	6.3	71
01660375 CANNON CR BL RT 644 NR GARRISONVILLE ESTATES, VA (LAT 38 30 45N LONG 077 30 13W)											
JUL 1995											
31...	0.18	160	69	27	30	2	22	<8	<4	5.5	79
01660385 AQUIA CR AT RT 643 NR GARRISONVILLE ESTATES, VA (LAT 38 28 56N LONG 077 28 45W)											
OCT 1994											
19...	--	--	--	--	--	--	--	--	--	--	--
NOV											
15...	--	--	--	--	--	--	--	--	--	--	--
DEC											
29...	--	--	--	--	--	--	--	--	--	--	--
AUG 1995											
02...	0.80	130	91	28	34	<2	19	<8	<4	5.2	64
01660400 AQUIA CREEK NEAR GARRISONVILLE, VA (LAT 38 29 25N LONG 077 26 02W)											
AUG 1995											
02...	1.2	76	140	27	46	<2	20	<8	<4	6.3	38

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



ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

	LEAD	LITHIUM	MAGNE-	MANGA-	MOLYB-	NEODYM-			PHOS-	POTAS-
	BOT MAT	BOT MAT	SIUM	NESE	DENUM	IUM	NICKEL	NIOBIUM	PHORUS	SIUM
	<63U WS	<63U WS	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT
			<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS
DATE	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
	(UG/G)	(UG/G)	PERCENT	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	PERCENT	PERCENT
	(34890)	(34895)	(34900)	(34905)	(34915)	(34920)	(34925)	(34930)	(34935)	(34940)

POTOMAC RIVER BASIN--Continued

01660360	CANNON CREEK NR COUNTYLINE NR SOMERVILLE, VA (LAT 38 32 18N LONG 077 32 57W)									
AUG 1995										
01...	86	20	0.30	540	<2	31	14	12	0.05	1.4
01660365	CANNON CREEK NR R6 POND NR SOMERVILLE, VA (LAT 38 30 58N LONG 077 31 32W)									
AUG 1995										
01...	29	30	0.35	2800	<2	47	28	13	0.07	1.7
01660370	CANNON CREEK TRIB NR GARRISONVILLE ESTATES, VA (LAT 38 30 52N LONG 077 30 27W)									
JUL 1995										
31...	20	40	0.40	8200	<2	58	30	16	0.07	2.3
01660375	CANNON CR BL RT 644 NR GARRISONVILLE ESTATES, VA (LAT 38 30 45N LONG 077 30 13W)									
JUL 1995										
31...	26	40	0.43	2300	<2	67	32	19	0.07	2.2
01660385	AQUIA CR AT RT 643 NR GARRISONVILLE ESTATES, VA (LAT 38 28 56N LONG 077 28 45W)									
OCT 1994										
19...	--	--	--	--	--	--	--	--	--	--
NOV										
15...	--	--	--	--	--	--	--	--	--	--
DEC										
29...	--	--	--	--	--	--	--	--	--	--
AUG 1995										
02...	22	30	0.65	2400	<2	55	33	16	0.06	1.7
01660400	AQUIA CREEK NEAR GARRISONVILLE, VA (LAT 38 29 25N LONG 077 26 02W)									
AUG 1995										
02...	13	20	1.1	2000	<2	35	43	11	0.05	1.0

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SCAN- DIUM BOT MAT <63U WS FIELD (UG/G) (34945)	SODIUM BOT MAT <63U WS FIELD PERCENT (34960)	STRON- TIUM BOT MAT <63U WS FIELD (UG/G) (34965)	TANTA- LUM BOT MAT <63U WS FIELD (UG/G) (34975)	TIN BOT MAT <63U WS FIELD (UG/G) (34985)	VANA- DIUM BOT MAT <63U WS FIELD (UG/G) (35005)	YTTRIUM BOT MAT <63U WS FIELD (UG/G) (35010)	YTTER- BIUM BOT MAT <63U WS FIELD (UG/G) (35015)	ZINC BOT MAT <63U WS FIELD (UG/G) (35020)	TITA- NIUM, S ED, BMW S, <63UD RY WGT REC P ERCENT (49274)
------	---	---	--	---	---	---	---	--	--	---

POTOMAC RIVER BASIN--Continued

01660360	CANNON CREEK NR COUNTYLINE NR SOMERVILLE, VA (LAT 38 32 18N LONG 077 32 57W)									
AUG 1995 01...	16	0.32	47	<40	<10	85	19	2	74	0.420
01660365	CANNON CREEK NR R6 POND NR SOMERVILLE, VA (LAT 38 30 58N LONG 077 31 32W)									
AUG 1995 01...	16	0.26	49	<40	<10	100	31	3	83	0.600
01660370	CANNON CREEK TRIB NR GARRISONVILLE ESTATES, VA (LAT 38 30 52N LONG 077 30 27W)									
JUL 1995 31...	15	0.24	57	<40	<10	90	38	3	81	0.670
01660375	CANNON CR BL RT 644 NR GARRISONVILLE ESTATES, VA (LAT 38 30 45N LONG 077 30 13W)									
JUL 1995 31...	16	0.28	56	<40	<10	97	43	4	90	0.760
01660385	AQUIA CR AT RT 643 NR GARRISONVILLE ESTATES, VA (LAT 38 28 56N LONG 077 28 45W)									
OCT 1994 19...	--	--	--	--	--	--	--	--	--	--
NOV 15...	--	--	--	--	--	--	--	--	--	--
DEC 29...	--	--	--	--	--	--	--	--	--	--
AUG 1995 02...	21	0.36	67	<40	<10	130	38	3	94	0.660
01660400	AQUIA CREEK NEAR GARRISONVILLE, VA (LAT 38 29 25N LONG 077 26 02W)									
AUG 1995 02...	29	0.57	73	<40	<10	170	32	3	110	0.550

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
JAMES RIVER BASIN									
02042260	CHICKAHOMINY RIVER AT RT 624 NEAR FARRINGTON, VA (LAT 37 41 43N LONG 077 35 34W)								
AUG 1995 21...	0900	0.0	154	6.7	25.0	22.0	758	2.0	23
02042284	STONY RUN AT RT 656 NEAR GREENWOOD, VA (LAT 37 41 05N LONG 077 26 58W)								
AUG 1995 21...	1015	0.10	193	7.0	25.0	23.0	758	8.4	98
02042287	CHICKAHOMINY RIVER NEAR ATLEE, VA (LAT 37 38 30N LONG 077 25 19W)								
AUG 1995 23...	1815	0.50	281	7.1	27.0	26.5	761	3.2	40
02042426	UPHAM BROOK NEAR RICHMOND, VA (LAT 37 36 47N LONG 077 25 28W)								
AUG 1995 23...	1730	1.2	192	6.8	27.0	26.5	763	4.4	55
02042429	HORSE SWAMP AT RICHMOND, VA (LAT 37 35 55N LONG 077 25 36W)								
AUG 1995 21...	1245	0.07	229	7.5	28.0	23.0	758	9.6	112
02042432	BEAVERDAM CREEK TRIB AT MECHANICSVILLE, VA (LAT 37 35 48N LONG 077 21 35W)								
AUG 1995 21...	1515	0.02	146	6.7	24.5	20.0	758	8.1	90
02042433	BEAVERDAM CREEK AT RT 156 AT MECHANICSVILLE, VA (LAT 37 35 45N LONG 077 21 32W)								
AUG 1995 21...	1415	2.4	104	6.8	29.5	24.0	758	5.7	68
02042437	POWHITE CREEK NEAR SPRING MEADOWS, VA (LAT 37 35 12N LONG 077 18 08W)								
AUG 1995 22...	0830	0.80	59	6.9	22.5	25.5	762	5.5	67
02042438	BOATSWAIN CREEK NEAR HIGHLAND SPRINGS, VA (LAT 37 30 33N LONG 077 18 18W)								
AUG 1995 22...	0915	0.01	61	6.8	23.5	21.5	762	7.1	80

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT FET MG/L AS CACO3 (00418)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
JAMES RIVER BASIN--Continued									
02042260	CHICKAHOMINY RIVER AT RT 624 NEAR FARRINGTON, VA (LAT 37 41 43N LONG 077 35 34W)								
AUG 1995 21...	42	12	2.9	11	5.0	48	5.7	11	0.20
02042284	STONY RUN AT RT 656 NEAR GREENWOOD, VA (LAT 37 41 05N LONG 077 26 58W)								
AUG 1995 21...	50	14	3.7	15	3.4	45	3.4	25	0.10
02042287	CHICKAHOMINY RIVER NEAR ATLEE, VA (LAT 37 38 30N LONG 077 25 19W)								
AUG 1995 23...	46	13	3.2	35	8.3	86	4.1	29	0.20
02042426	UPHAM BROOK NEAR RICHMOND, VA (LAT 37 36 47N LONG 077 25 28W)								
AUG 1995 23...	41	12	2.6	17	3.6	35	9.6	25	0.20
02042429	HORSE SWAMP AT RICHMOND, VA (LAT 37 35 55N LONG 077 25 36W)								
AUG 1995 21...	64	19	4.0	14	4.6	36	22	27	0.30
02042432	BEAVERDAM CREEK TRIB AT MECHANICSVILLE, VA (LAT 37 35 48N LONG 077 21 35W)								
AUG 1995 21...	27	1.7	5.6	12	3.6	5.7	1.0	18	<0.10
02042433	BEAVERDAM CREEK AT RT 156 AT MECHANICSVILLE, VA (LAT 37 35 45N LONG 077 21 32W)								
AUG 1995 21...	20	3.3	2.8	9.9	2.1	19	1.9	14	<0.10
02042437	POWHITE CREEK NEAR SPRING MEADOWS, VA (LAT 37 35 12N LONG 077 18 08W)								
AUG 1995 22...	13	1.9	2.1	5.1	1.3	15	0.50	6.9	<0.10
02042438	BOATSWAIN CREEK NEAR HIGHLAND SPRINGS, VA (LAT 37 30 33N LONG 077 18 18W)								
AUG 1995 22...	12	1.7	1.9	5.4	1.8	11	0.80	9.1	<0.10

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	H-2 / H-1 STABLE ISOTOPE RATIO PER MIL (82082)	O-18 / O-16 STABLE ISOTOPE RATIO PER MIL (82085)
JAMES RIVER BASIN--Continued								
02042260	CHICKAHOMINY RIVER AT RT 624 NEAR FARRINGTON, VA (LAT 37 41 43N LONG 077 35 34W)							
AUG 1995 21...	<0.010	16	126	95	1900	490	-24.4	-4.06
02042284	STONY RUN AT RT 656 NEAR GREENWOOD, VA (LAT 37 41 05N LONG 077 26 58W)							
AUG 1995 21...	<0.010	10	124	104	1600	260	-25.5	-4.20
02042287	CHICKAHOMINY RIVER NEAR ATLEE, VA (LAT 37 38 30N LONG 077 25 19W)							
AUG 1995 23...	<0.010	11	172	157	1300	2300	-17.4	-2.46
02042426	UPHAM BROOK NEAR RICHMOND, VA (LAT 37 36 47N LONG 077 25 28W)							
AUG 1995 23...	<0.010	7.5	118	100	130	170	-23.2	-3.80
02042429	HORSE SWAMP AT RICHMOND, VA (LAT 37 35 55N LONG 077 25 36W)							
AUG 1995 21...	0.030	9.7	138	122	550	31	-32.1	-5.29
02042432	BEAVERDAM CREEK TRIB AT MECHANICSVILLE, VA (LAT 37 35 48N LONG 077 21 35W)							
AUG 1995 21...	0.020	8.4	102	54	37	12	-36.5	-6.24
02042433	BEAVERDAM CREEK AT RT 156 AT MECHANICSVILLE, VA (LAT 37 35 45N LONG 077 21 32W)							
AUG 1995 21...	0.020	7.2	64	54	1000	110	-32.9	-5.54
02042437	POWHITE CREEK NEAR SPRING MEADOWS, VA (LAT 37 35 12N LONG 077 18 08W)							
AUG 1995 22...	<0.010	4.6	42	34	930	37	-32.4	-5.06
02042438	BOATSWAIN CREEK NEAR HIGHLAND SPRINGS, VA (LAT 37 30 33N LONG 077 18 18W)							
AUG 1995 22...	0.020	3.2	52	32	1800	64	-14.6	-1.58

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED CENT SATUR- ATION) (00301)
JAMES RIVER BASIN--Continued									
02042439 CHICKAHOMINY RIVER TRIB NO 1 NR RICHMOND, VA (LAT 37 32 47N LONG 077 17 42W)									
AUG 1995 21...	1645	0.55	71	7.3	28.5	21.0	758	7.5	85
020424410 CHICKAHOMINY RIVER TRIB NO 8 NR SEVEN PINES, VA (LAT 37 33 07N LONG 077 14 34W)									
AUG 1995 23...	0845	0.14	43	6.8	19.5	21.0	765	7.1	80
02042442 HIGGINS SWAMP NEAR WHITE OAK SWAMP, VA (LAT 37 39 24N LONG 077 11 55W)									
AUG 1995 23...	1015	0.22	104	7.0	22.0	25.0	765	5.2	63
02042445 CHICKAHOMINY RIV AT RT 60 NR WHITE OAK SWAMP, VA (LAT 37 30 53N LONG 077 12 19W)									
AUG 1995 22...	1300	0.21	134	7.0	32.0	25.5	762	5.6	68
02042447 CHICKAHOMINY RIV TRIB 7 TRB NR WHITE OAK SWP, VA (LAT 37 30 14N LONG 077 12 36W)									
AUG 1995 22...	1500	0.14	33	6.5	24.0	22.0	761	7.5	86
02042448 WHITE OAK SWAMP AT SEVEN PINES, VA (LAT 37 30 33N LONG 077 18 18W)									
AUG 1995 22...	1100	0.15	224	7.3	25.0	21.5	762	7.0	79
02042454 CANAL SWAMP AT ELKO, VA (LAT 37 28 25N LONG 077 13 15W)									
AUG 1995 22...	1600	0.13	34	6.0	26.0	24.5	761	5.1	61
02042455 WHITE OAK SWAMP AT RT 156 AT ELKO, VA (LAT 37 28 05N LONG 077 12 32W)									
APR 1995 20...	0830	3.4	73	6.8	20.0	17.5	760	6.3	66
JUN 13...	0830	5.3	69	6.7	19.0	19.5	756	6.2	68
AUG 22...	0900	1.1	57	6.5	27.0	24.5	761	4.2	50

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT FET FIELD MG/L AS CACO3 (00418)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
JAMES RIVER BASIN--Continued									
02042439	CHICKAHOMINY RIVER TRIB NO 1 NR RICHMOND, VA (LAT 37 32 47N LONG 077 17 42W)								
AUG 1995 21...	6	1.1	0.68	11	1.5	14	1.1	11	<0.10
020424410	CHICKAHOMINY RIVER TRIB NO 8 NR SEVEN PINES, VA (LAT 37 33 07N LONG 077 14 34W)								
AUG 1995 23...	11	1.3	1.9	3.1	1.1	12	0.30	5.2	<0.10
02042442	HIGGINS SWAMP NEAR WHITE OAK SWAMP, VA (LAT 37 39 24N LONG 077 11 55W)								
AUG 1995 23...	41	14	1.4	3.2	1.4	42	0.60	5.1	<0.10
02042445	CHICKAHOMINY RIV AT RT 60 NR WHITE OAK SWAMP, VA (LAT 37 30 53N LONG 077 12 19W)								
AUG 1995 22...	31	8.2	2.6	12	2.5	32	4.9	15	<0.10
02042447	CHICKAHOMINY RIV TRIB 7 TRB NR WHITE OAK SWP, VA (LAT 37 30 14N LONG 077 12 36W)								
AUG 1995 22...	6	1.4	0.58	3.0	1.1	4.5	0.60	5.2	<0.10
02042448	WHITE OAK SWAMP AT SEVEN PINES, VA (LAT 37 30 33N LONG 077 18 18W)								
AUG 1995 22...	78	28	1.9	11	5.0	87	6.6	9.5	0.20
02042454	CANAL SWAMP AT ELKO, VA (LAT 37 28 25N LONG 077 13 15W)								
AUG 1995 22...	7	1.8	0.55	2.6	1.5	6.1	0.80	4.4	<0.10
02042455	WHITE OAK SWAMP AT RT 156 AT ELKO, VA (LAT 37 28 05N LONG 077 12 32W)								
APR 1995 20...	17	5.5	0.80	6.1	1.2	16	1.4	9.9	<0.10
JUN 13...	20	6.6	0.84	4.9	0.60	14	1.4	6.7	<0.10
AUG 22...	15	4.8	0.77	4.6	0.30	15	2.2	6.7	<0.10

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

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	BROMIDE DIS- SOLVED (MG/L AS BR (71870)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	H-2 / H-1 STABLE ISOTOPE RATIO PER MIL (82082)	O-18 / O-16 STABLE ISOTOPE RATIO PER MIL (82085)
JAMES RIVER BASIN--Continued								
02042439	CHICKAHOMINY RIVER TRIB NO 1 NR RICHMOND, VA (LAT 37 32 47N LONG 077 17 42W)							
AUG 1995 21...	0.020	11	50	46	290	2	-35.8	-6.21
020424410	CHICKAHOMINY RIVER TRIB NO 8 NR SEVEN PINES, VA (LAT 37 33 07N LONG 077 14 34W)							
AUG 1995 23...	<0.010	4.5	36	25	630	23	-33.2	-5.57
02042442	HIGGINS SWAMP NEAR WHITE OAK SWAMP, VA (LAT 37 39 24N LONG 077 11 55W)							
AUG 1995 23...	0.080	12	84	66	3400	250	-27.1	-4.29
02042445	CHICKAHOMINY RIV AT RT 60 NR WHITE OAK SWAMP, VA (LAT 37 30 53N LONG 077 12 19W)							
AUG 1995 22...	<0.010	14	98	80	1200	730	-21.5	-3.08
02042447	CHICKAHOMINY RIV TRIB 7 TRB NR WHITE OAK SWP, VA (LAT 37 30 14N LONG 077 12 36W)							
AUG 1995 22...	<0.010	9.0	32	24	340	4	-36.5	-6.40
02042448	WHITE OAK SWAMP AT SEVEN PINES, VA (LAT 37 30 33N LONG 077 18 18W)							
AUG 1995 22...	0.050	18	134	135	35	24	-33.8	-5.84
02042454	CANAL SWAMP AT ELKO, VA (LAT 37 28 25N LONG 077 13 15W)							
AUG 1995 22...	0.010	7.2	46	25	1800	36	-28.7	-4.84
02042455	WHITE OAK SWAMP AT RT 156 AT ELKO, VA (LAT 37 28 05N LONG 077 12 32W)							
APR 1995 20...	0.040	2.9	62	39	1800	43	--	--
JUN 13...	<0.010	5.9	52	39	1100	42	--	--
AUG 22...	<0.010	5.4	42	37	360	51	-24.8	-3.90

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
JAMES RIVER BASIN--Continued									
02042460 CRUMP CREEK NEAR ROXBURY, VA (LAT 37 29 26N LONG 077 09 05W)									
AUG 1995 22...	1730	0.02	175	7.4	27.0	24.0	761	5.1	61
02042470 CHICKAHOMINY RIVER AT RT 609 AT ROXBURY, VA (LAT 37 28 11N LONG 077 08 17W)									
AUG 1995 23...	1430	0.0	122	6.8	33.5	29.0	763	4.1	53
02042475 CHICKAHOMINY RIV TRIB 6 AT RT 615 NR ROXBURY, VA (LAT 37 28 50N LONG 077 06 37W)									
AUG 1995 23...	1400	0.02	102	7.3	24.5	22.0	764	5.0	57
02042477 BRADLEY RUN NEAR ROXBURY, VA (LAT 37 26 07N LONG 077 06 45W)									
AUG 1995 23...	1600	0.02	140	7.2	23.5	23.0	736	6.4	77
02042478 SCHIMINOE CREEK TRIB NEAR PROVIDENCE FORGE, VA (LAT 37 27 27N LONG 077 05 33W)									
APR 1995 20...	1130	0.45	90	7.0	24.0	17.5	760	6.8	71
JUN 13...	1000	0.62	68	6.8	19.5	17.5	755	8.2	87
02042726 DIASCUND CREEK AT RT 628 NEAR NEW KENT, VA (LAT 37 28 52N LONG 076 58 21W)									
APR 1995 20...	1330	1.9	85	6.8	24.0	22.0	760	5.0	57
JUN 13...	1215	10	80	6.5	19.0	20.5	755	4.0	45
AUG 22...	1100	2.7	116	6.9	28.5	24.0	761	4.0	48

# ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT DIS TOT FET FIELD MG/L AS CACO3 (00418)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
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## JAMES RIVER BASIN--Continued

02042460 CRUMP CREEK NEAR ROXBURY, VA (LAT 37 29 26N LONG 077 09 05W)

AUG 1995 22...	73	27	1.4	5.6	0.10	71	0.80	8.6	<0.10
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02042470 CHICKAHOMINY RIVER AT RT 609 AT ROXBURY, VA (LAT 37 28 11N LONG 077 08 17W)

AUG 1995 23...	31	9.3	2.0	9.1	2.1	24	11	11	<0.10
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02042475 CHICKAHOMINY RIV TRIB 6 AT RT 615 NR ROXBURY, VA (LAT 37 28 50N LONG 077 06 37W)

AUG 1995 23...	40	15	0.59	3.8	0.40	40	0.80	5.7	<0.10
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02042477 BRADLEY RUN NEAR ROXBURY, VA (LAT 37 26 07N LONG 077 06 45W)

AUG 1995 23...	54	19	1.5	4.5	1.5	40	5.4	12	<0.10
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02042478 SCHIMINOE CREEK TRIB NEAR PROVIDENCE FORGE, VA (LAT 37 27 27N LONG 077 05 33W)

APR 1995 20...	29	10	0.93	3.0	1.1	22	4.0	6.0	<0.10
JUN 13...	39	14	1.0	2.6	1.5	28	1.9	4.8	<0.10

02042726 DIASCUND CREEK AT RT 628 NEAR NEW KENT, VA (LAT 37 28 52N LONG 076 58 21W)

APR 1995 20...	33	12	0.76	3.0	1.0	34	0.70	4.6	<0.10
JUN 13...	31	11	0.78	2.7	1.0	24	0.90	4.0	<0.10
AUG 22...	44	16	1.1	4.2	1.5	39	0.10	6.6	<0.10

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

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WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	H-2 / H-1 STABLE ISOTOPE RATIO PER MIL (82082)	O-18 / O-16 STABLE ISOTOPE RATIO PER MIL (82085)
JAMES RIVER BASIN--Continued								
02042460 CRUMP CREEK NEAR ROXBURY, VA (LAT 37 29 26N LONG 077 09 05W)								
AUG 1995 22...	<0.010	9.3	118	97	930	220	-21.3	-3.19
02042470 CHICKAHOMINY RIVER AT RT 609 AT ROXBURY, VA (LAT 37 28 11N LONG 077 08 17W)								
AUG 1995 23...	<0.010	11	90	72	520	580	-18.1	-3.17
02042475 CHICKAHOMINY RIV TRIB 6 AT RT 615 NR ROXBURY, VA (LAT 37 28 50N LONG 077 06 37W)								
AUG 1995 23...	0.010	8.0	64	60	120	10	-38.2	-6.43
02042477 BRADLEY RUN NEAR ROXBURY, VA (LAT 37 26 07N LONG 077 06 45W)								
AUG 1995 23...	0.040	5.1	96	76	1600	58	-23.2	-3.38
02042478 SCHIMINOE CREEK TRIB NEAR PROVIDENCE FORGE, VA (LAT 37 27 27N LONG 077 05 33W)								
APR 1995 20...	<0.010	7.2	66	48	1600	56	--	--
JUN 13...	0.070	7.1	98	54	990	79	--	--
02042726 DIASCUND CREEK AT RT 628 NEAR NEW KENT, VA (LAT 37 28 52N LONG 076 58 21W)								
APR 1995 20...	0.020	2.4	60	36	2200	140	--	--
JUN 13...	<0.010	5.4	58	47	2600	360	--	--
AUG 22...	0.080	5.4	74	65	2900	270	-18.5	-1.62

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

# ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, diverse, and geographically distributed part of the Nation's ground- and surface-water resources, and to identify, describe, and explain the major natural and human factors that affect these observed conditions and trends.

Assessment activities have begun in more than one-third of the study units and ultimately will be conducted in 60 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide a basis for decision making on the use of water resources within the study units and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

## WATER QUALITY DATA (NATIONAL WATER-QUALITY ASSESSMENT PROGRAM), AUGUST 1995

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TEMPER- ATURE AIR (DEG C) (00020)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	
POTOMAC RIVER BASIN												
01605220 W STRAIT C NR MONTEREY, VA (LAT 38 26 32N LONG 079 32 20W)												
AUG 1995 09...	1055	1028	8002	3.4	199	7.9	17.5	20.0	696	8.3	95	86
01620500 NORTH R NR STOKESVILLE, VA (LAT 38 20 09N LONG 079 14 22W)												
AUG 1995 09...	1715	1028	8002	7.8	29	6.7	18.5	19.5	709	8.1	93	11
01620995 BLACK RN AT RAWLEY SPRINGS, VA (LAT 38 30 30N LONG 079 03 31W)												
AUG 1995 10...	0730	1028	8002	15	19	6.1	16.5	20.0	719	8.8	96	6
01631700 SHOEMAKER R NR FULKS RUN, VA (LAT 38 38 25N LONG 078 53 38W)												
AUG 1995 10...	1045	1028	8002	34	88	6.9	20.5	24.0	725	8.3	97	33
01634100 PADDY RN NR LEBANON CHURCH, VA (LAT 39 02 55N LONG 078 29 40W)												
AUG 1995 09...	1330	1028	8002	3.4	44	7.3	18.5	22.0	732	8.2	91	17

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

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WATER QUALITY DATA (NATIONAL WATER-QUALITY ASSESSMENT PROGRAM), AUGUST 1995

DATE	HARD- NESS NONCARB DISSOLV FLD. AS (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L) AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L) AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L) AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L) AS K) (00935)	ALKA- LINITY WAT DIS TOT IT MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT MG/L AS HCO3 (00453)	SULFATE DIS- SOLVED (MG/L) AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L) AS F) (00950)	SILICA, DIS- SOLVED (MG/L) AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
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POTOMAC RIVER BASIN--Continued

	01605220	W STRAIT C NR MONTEREY, VA (LAT 38 26 32N LONG 079 32 20W)										
AUG 1995 09...	8	30	2.8	4.2	1.1	79	96	4.6	7.6	<0.10	3.7	114
	01620500	NORTH R NR STOKESVILLE, VA (LAT 38 20 09N LONG 079 14 22W)										
AUG 1995 09...	1	2.4	1.2	0.80	0.90	10	12	4.0	0.60	<0.10	5.5	18
	01620995	BLACK RN AT RAWLEY SPRINGS, VA (LAT 38 30 30N LONG 079 03 31W)										
AUG 1995 10...	4	1.0	0.8	0.60	0.90	2	2	4.9	0.80	<0.10	5.7	15
	01631700	SHOEMAKER R NR FULKS RUN, VA (LAT 38 38 25N LONG 078 53 38W)										
AUG 1995 10...	9	8.6	2.7	2.3	2.3	24	29	9.0	2.3	<0.10	6.6	56
	01634100	PADDY RN NR LEBANON CHURCH, VA (LAT 39 02 55N LONG 078 29 40W)										
AUG 1995 09...	3	3.7	1.9	1.8	0.80	14	17	4.6	1.4	<0.10	9.6	34

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

WATER QUALITY DATA (NATIONAL WATER-QUALITY ASSESSMENT PROGRAM), AUGUST 1995

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
POTOMAC RIVER BASIN--Continued											
	01605220	W STRAIT C NR MONTEREY, VA (LAT 38 26 32N LONG 079 32 20W)									
AUG 1995 09...	103	0.16	1.03	0.430	<0.010	0.430	0.430	<0.015	<0.20	<0.20	0.010
	01620500	NORTH R NR STOKESVILLE, VA (LAT 38 20 09N LONG 079 14 22W)									
AUG 1995 09...	22	0.02	0.38	0.090	<0.010	0.090	0.090	<0.015	<0.20	<0.20	<0.010
	01620995	BLACK RN AT RAWLEY SPRINGS, VA (LAT 38 30 30N LONG 079 03 31W)									
AUG 1995 10...	16	0.02	0.60	0.170	<0.010	0.170	0.170	<0.015	<0.20	<0.20	<0.010
	01631700	SHOEMAKER R NR FULKS RUN, VA (LAT 38 38 25N LONG 078 53 38W)									
AUG 1995 10...	54	0.08	5.07	1.40	<0.010	1.40	1.40	<0.015	<0.20	<0.20	<0.010
	01634100	PADDY RN NR LEBANON CHURCH, VA (LAT 39 02 55N LONG 078 29 40W)									
AUG 1995 09...	33	0.05	0.31	0.060	<0.010	0.060	0.060	<0.015	<0.20	<0.20	<0.010

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

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WATER QUALITY DATA (NATIONAL WATER-QUALITY ASSESSMENT PROGRAM), AUGUST 1995

DATE	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHOSOLVED (MG/L AS P) (00671)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDEDED TOTAL (MG/L AS C) (00689)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)
POTOMAC RIVER BASIN--Continued											
	01605220 W STRAIT C NR MONTEREY, VA (LAT 38 26 32N LONG 079 32 20W)										
AUG 1995 09...	<0.010	<0.010	89	6	1.6	0.20	<0.004	<0.002	<0.007	<0.002	<0.003
	01620500 NORTH R NR STOKESVILLE, VA (LAT 38 20 09N LONG 079 14 22W)										
AUG 1995 09...	<0.010	<0.010	11	2	0.50	0.20	<0.004	<0.002	<0.007	<0.002	<0.003
	01620995 BLACK RN AT RAWLEY SPRINGS, VA (LAT 38 30 30N LONG 079 03 31W)										
AUG 1995 10...	<0.010	<0.010	9	4	0.80	0.10	<0.004	<0.002	<0.007	<0.002	<0.003
	01631700 SHOEMAKER R NR FULKS RUN, VA (LAT 38 38 25N LONG 078 53 38W)										
AUG 1995 10...	<0.010	<0.010	25	2	1.8	0.10	<0.004	<0.002	<0.007	<0.002	<0.003
	01634100 PADDY RN NR LEBANON CHURCH, VA (LAT 39 02 55N LONG 078 29 40W)										
AUG 1995 09...	<0.010	<0.010	82	6	1.7	0.20	<0.004	<0.002	<0.007	<0.002	<0.003

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

WATER QUALITY DATA (NATIONAL WATER-QUALITY ASSESSMENT PROGRAM), AUGUST 1995

DATE	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BEN- FLUR- ALIN WAT FLD GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)
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POTOMAC RIVER BASIN--Continued

01605220      W STRAIT C NR MONTEREY, VA (LAT 38 26 32N LONG 079 32 20W)											
AUG 1995	<0.002	<0.002	<0.002	E0.004	<0.002	<0.002	<0.003	<0.003	<0.004	<0.004	<0.002
09...											
01620500      NORTH R NR STOKESVILLE, VA (LAT 38 20 09N LONG 079 14 22W)											
AUG 1995	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.003	<0.003	<0.004	<0.004	<0.002
09...											
01620995      BLACK RN AT RAWLEY SPRINGS, VA (LAT 38 30 30N LONG 079 03 31W)											
AUG 1995	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.003	<0.003	<0.004	<0.004	<0.002
10...											
01631700      SHOEMAKER R NR FULKS RUN, VA (LAT 38 38 25N LONG 078 53 38W)											
AUG 1995	<0.002	<0.002	<0.002	0.006	<0.002	<0.002	<0.003	<0.003	<0.004	<0.004	<0.002
10...											
01634100      PADDY RN NR LEBANON CHURCH, VA (LAT 39 02 55N LONG 078 29 40W)											
AUG 1995	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.003	<0.003	<0.004	<0.004	<0.002
09...											

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



ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

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WATER QUALITY DATA (NATIONAL WATER-QUALITY ASSESSMENT PROGRAM), AUGUST 1995

DATE	P, P' DDE DISSOLV (UG/L) (34653)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)
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POTOMAC RIVER BASIN--Continued

		01605220 W STRAIT C NR MONTEREY, VA (LAT 38 26 32N LONG 079 32 20W)										
AUG 1995	09...	<0.006	<0.002	<0.002	<0.001	<0.017	<0.002	<0.003	<0.003	<0.004	<0.002	<0.005
		01620500 NORTH R NR STOKESVILLE, VA (LAT 38 20 09N LONG 079 14 22W)										
AUG 1995	09...	<0.006	<0.002	<0.002	<0.001	<0.017	<0.002	<0.003	<0.003	<0.004	<0.002	<0.005
		01620995 BLACK RN AT RAWLEY SPRINGS, VA (LAT 38 30 30N LONG 079 03 31W)										
AUG 1995	10...	<0.006	<0.002	<0.002	<0.001	<0.017	<0.002	<0.003	<0.003	<0.004	<0.002	<0.005
		01631700 SHOEMAKER R NR FULKS RUN, VA (LAT 38 38 25N LONG 078 53 38W)										
AUG 1995	10...	<0.006	E0.004	<0.002	<0.001	<0.017	<0.002	<0.003	<0.003	<0.004	<0.002	<0.005
		01634100 PADDY RN NR LEBANON CHURCH, VA (LAT 39 02 55N LONG 078 29 40W)										
AUG 1995	09...	<0.006	<0.002	<0.002	<0.001	<0.017	<0.002	<0.003	<0.003	<0.004	<0.002	<0.005

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ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

WATER QUALITY DATA (NATIONAL WATER-QUALITY ASSESSMENT PROGRAM), AUGUST 1995

DATE	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PRO- METON, WATER, DISS, REC (UG/L) (04037)
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POTOMAC RIVER BASIN--Continued

01605220      W STRAIT C NR MONTEREY, VA (LAT 38 26 32N LONG 079 32 20W)											
AUG 1995	<0.001	<0.006	<0.002	<0.004	<0.004	<0.003	<0.004	<0.004	<0.004	<0.005	<0.018
09...											
01620500      NORTH R NR STOKESVILLE, VA (LAT 38 20 09N LONG 079 14 22W)											
AUG 1995	<0.001	<0.006	<0.002	<0.004	<0.004	<0.003	<0.004	<0.004	<0.004	<0.005	<0.018
09...											
01620995      BLACK RN AT RAWLEY SPRINGS, VA (LAT 38 30 30N LONG 079 03 31W)											
AUG 1995	<0.001	<0.006	<0.002	<0.004	<0.004	<0.003	<0.004	<0.004	<0.004	<0.005	<0.018
10...											
01631700      SHOEMAKER R NR FULKS RUN, VA (LAT 38 38 25N LONG 078 53 38W)											
AUG 1995	<0.001	<0.006	<0.002	<0.004	<0.004	<0.003	<0.004	<0.004	<0.004	<0.005	<0.018
10...											
01634100      PADDY RN NR LEBANON CHURCH, VA (LAT 39 02 55N LONG 078 29 40W)											
AUG 1995	<0.001	<0.006	<0.002	<0.004	<0.004	<0.003	<0.004	<0.004	<0.004	<0.005	<0.018
09...											

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

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,  
AND MISCELLANEOUS SITES

567

WATER QUALITY DATA (NATIONAL WATER-QUALITY ASSESSMENT PROGRAM), AUGUST 1995

DATE	PRON-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROP-CHLOR, WATER, FLTRD DISS, REC (UG/L) (04024)	PRO-PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PRO-PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	SI-MAZINE, WATER, FLTRD DISS, REC (UG/L) (04035)	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER-BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO-BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL-LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	SEDI-MENT, DIS-CHARGE, SUS-SUS- PENDEDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-SUS- PENDEDED (T/DAY) (80155)
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POTOMAC RIVER BASIN--Continued

01605220 W STRAIT C NR MONTEREY, VA (LAT 38 26 32N LONG 079 32 20W)												
AUG 1995	09...	<0.003	<0.007	<0.013	<0.004	E0.003	<0.010	<0.013	<0.002	<0.001	5	0.05
01620500 NORTH R NR STOKESVILLE, VA (LAT 38 20 09N LONG 079 14 22W)												
AUG 1995	09...	<0.003	<0.007	<0.013	<0.004	<0.005	<0.010	<0.013	<0.002	<0.001	4	0.08
01620995 BLACK RN AT RAWLEY SPRINGS, VA (LAT 38 30 30N LONG 079 03 31W)												
AUG 1995	10...	<0.003	<0.007	<0.013	<0.004	<0.005	<0.010	<0.013	<0.002	<0.001	1	0.04
01631700 SHOEMAKER R NR FULKS RUN, VA (LAT 38 38 25N LONG 078 53 38W)												
AUG 1995	10...	<0.003	<0.007	<0.013	<0.004	E0.003	<0.010	<0.013	<0.002	<0.001	1	0.09
01634100 PADDY RN NR LEBANON CHURCH, VA (LAT 39 02 55N LONG 078 29 40W)												
AUG 1995	09...	<0.003	<0.007	<0.013	<0.004	<0.005	<0.010	<0.013	<0.002	<0.001	4	0.04

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

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